# ISG | HCLTech

# Supercharging Resiliency in Next-Gen Application Support and Maintenance

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## About ISG Research™

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call **+1.203.454.3900**, or visit **research.isg-one.com**

# Evolution of ASM

Application Support and Maintenance (ASM) is a discipline within IT systems management that provides support for continuous challenges organizations face following the development and launch of an application.

The ASM landscape is rapidly evolving, driven by technological advancements, changing user expectations and the increasing complexity of applications. In this paper, we will explore the recent ASM trends that are reshaping the way organizations ensure the stability and effectiveness of their applications.

Application development (AD) and application support and maintenance (ASM) are interconnected throughout the application life cycle. Development focuses on creating new or enhancing existing applications based on business needs. Within ASM, maintenance updates the software to the latest version and patches, while support delivers solutions and services to address user questions, provides SLAs on bug reports and develops fixes for issues. ASM covers planned downtimes, unplanned outages, emergency publishing requests, denial of service attacks and significant or minor improvements.

ISG sees a need for change in how organizations should approach ASM. The industry is witnessing a shift from fix-first to avoid-first. More organizations are leveraging insights-driven analytics and moving toward a predict-first approach to ASM. With the rise of AI and ML, analytics and automation, overall application operations are becoming lean and more intelligent.

DevSecOps and Agile methodologies have led to closer integration between development and support teams, fostering collaboration, making IT support organizations agile and faster and allowing them to be more business centric. DevSecOps in the current era partners strongly with AI to use techniques like anomaly detection to identify security threats and automate security policy enforcement, chaos engineering to check the system's ability to survive against unstable and unexpected conditions. Generative AI has opened up opportunities for AI-assisted code generation/conversion resulting in faster defect fixes thereby much-reduced time for problem resolution, directly impacting the cost of operations. These business-aligned operations with a customer-centric focus ensure that support activities are directly working toward the organization's strategic objectives, leading to an enhanced and improved customer experience.

Cloud computing, automation and advanced tooling have been driving significant transformation and increased resilience in ASM. This shift in focus – from issue resolution to improving engineering maturity – is facilitated by the availability of cloud-based infrastructure and services. Organizations leverage automation tools to proactively monitor, detect and resolve issues, reducing manual effort and response times. Today, Cloud computing extensively uses the power of AI to implement continuous monitoring of performance and health, event correlation, automated deployment and patching, remote management of cloud-hosted apps, and self-healing capabilities.

Advanced tooling enables the implementation of resilient design patterns and practices, such as automated failover and scaling, enhancing application availability and performance. This transformation of ASM creates efficiency benefits that measurably improve customer experience and business outcomes. Automation and AI have emerged as two pivotal pillars to drive transformation. Automation tools can monitor applications in real time, detect issues, apply patches, and perform routine tasks with little to no human intervention. AI technologies like machine learning and neural networks can analyze application behavior, spot anomalies, and predict potential issues. Automation and AI have been directly impacting efficiency, reduction of costs, and a complete proactive support operating model.

# Over the Years, Software Development has Focused on Velocity

In recent years, software development practices have increasingly emphasized velocity and speed, driven by the need to deliver new features and updates to meet market demands rapidly.

Enterprises continue to switch to shorter development cycles that help them remain innovative and in sync with evolving market trends. Containerized, re-usable micro applications developed within short development cycles and by various internal and external entities have become as significant for business development as large legacy applications that run core business processes.

Software containerization, while providing benefits such as portability and scalability, can lead to fragmented and complex software environments. Multiple containers with different configurations and dependencies can make maintenance challenging, requiring careful orchestration and monitoring to ensure compatibility, stability and security.

Effective application portfolio management is vital for an enterprise to achieve business success. However, it is still often associated with high costs, manual processes, human errors and inefficient resource allocation.

Focus on speed often results in limited attention to the software's resilience aspects. Resilience refers to the ability of software to recover quickly from failures, adapt to changing conditions and maintain consistent performance.

In enterprises, the engineering maturity level is relatively low, indicating a lack of robust processes and practices in software development and maintenance. This low maturity becomes a concern when organizations operate in high-velocity environments, where the pressure to deliver quickly can introduce higher risks and technical debt. As enterprises strive for engineering maturity, managing and reducing technical debt becomes crucial.

In this context, HCLTech's concept of **technical debt** refers to the accumulated consequences of suboptimal or hasty design and development decisions that compromise the long-term quality and maintainability of software. It is often the result of short-term expedient solutions that sacrifice long-term resilience and scalability.

Technical debt in software development accumulates when organizations prioritize development time over software quality to achieve a head start in the market. Technical debt creates lasting issues for ASM, increasing the number of errors within the software landscape and the complexity of problems, thus making enterprises allocate significant resources to repair the debt without any hope of reimbursement. This brings in the need to address technical debt problems and improve application's resiliency.

While ISG agrees that high velocity is an important factor in application development, it is as important in application maintenance and operations so that the organization can achieve its business agility. This is possible only if AD and ASM streams operate at the same velocity. Hence, there is a need to transform ASM operations from traditional to modern ways of working by bringing velocity and agility to operations.

# A Modern Approach to ASM

When planning an ASM environment, enterprises increasingly distinguish between applications that consummate essential corporate functions with stability and reliability and applications that enable the use of modern technologies, allowing a culture of continuous improvement and frequent changes.

Organizations continue to have extensive requirements for digital transformation and cloudification. To support these, the traditional ASM approach must overcome its limitations, namely the segregated portfolio approach and its often siloed working methods. Traditional ASM systems face challenges in the context of changing requirements, continuous improvement and integration of modern applications and legacy systems. These inter-dependencies, amplified by hybrid and multi-cloud environments, make the management and support of application systems increasingly complex. As the boundaries between application development, management and support are shrinking, traditional ways of organizing ASM teams around functional or technology-oriented structures are no longer sufficient to meet an organization's demands.

A contemporary approach to ASM necessitates enhancing agility and fostering seamless teamwork between Application Development and Maintenance (ADM) and ASM teams. Key components of this approach involve integrated operating models and intelligent automation, coupled with a Site Reliability Engineering (SRE) mindset. Operations need to align with business objectives, achieved through the assimilation of deep domain knowledge and a targeted emphasis on specific business goals, to ensure resilient operations driven by user experience. Organizations can ensure efficient support and maintenance across a product's life cycle in a changing business environment by adopting a operating model that involves business and IT teams collaborating to achieve organizational goals.

The cross-integration or consumption-driven approach of choreographed systems would require higher end-to-end monitoring. This complexity further highlights the need for end-to-end monitoring, observability and management across the application landscape. Observability becomes crucial to gaining insights into the interactions and dependencies between applications, allowing proactive identification of issues and ensuring smooth operation in a continuously evolving environment.

# Observability, Automation and Self-healing Mechanisms

Complex IT systems have become the backbone of businesses and organizations across various industries. These systems often comprise interconnected applications, services and infrastructure, making them highly intricate and challenging to manage effectively. In such environments, observability, automation and self-healing mechanisms emerge as pivotal concepts that offer deep insights and enhance the ability to understand, diagnose, support and optimize complex IT systems.

In ASM, observability is the crucial mechanism for obtaining accurate signals on the performance of application platforms. This entails capturing and analyzing data from various sources, including logs, metrics and traces, to understand the performance of applications and their underlying infrastructure. Observability allows the identification of dependencies and interactions, enabling effective monitoring, troubleshooting and optimization of operational efficiency within application support and maintenance. ASM teams gain insights into the behavior and health of applications, facilitating proactive monitoring, issue identification and performance optimization.

As the complexity of systems and applications increases, manual activities and human interventions become equally complex and error-prone. Automation plays a vital role in streamlining processes, reducing manual effort and enabling organizations to respond quickly. With the rise of AI and ML, automation and analytics technologies have become more ubiquitous in organizations. Automation empowers IT teams to focus on strategic initiatives, innovation and higher-value activities, ultimately driving efficiency and agility in a dynamic business and technology environment.

Amid system failures and disruptions, predictions and self-healing mechanisms emerge as critical components of a resilient IT ecosystem. These mechanisms enable systems to detect anomalies, identify potential issues, and take corrective actions without human intervention. By leveraging AI and ML and predictive analytics, self-healing mechanisms can analyze real-time data, detect patterns and predict potential failures. This proactive issue resolution minimizes downtime, improves system reliability, enhances user experience and reduces the workload of IT teams.

The combination and integration of observability, automation and self-healing mechanisms create a powerful toolset that drives organizations toward highly resilient and efficient IT operations.

# HCLTech and Its ASM 2.0 Offering

ISG finds that HCLTech brings in-depth industry knowledge and expertise across a broad spectrum of industries. The company has decades of experience in ASM, managing more than 100,000 applications at a given day, serving more than 450 customers across 34 countries.

HCLTech Fenix is seamlessly woven into the HCLTech ASM 2.0. Acting as a digital execution framework, Fenix assists firms in adapting their core processes to accomplish digital goals on a larger scale. It champions an iterative culture of innovation and top-tier performance, incorporating a contemporary engineering strategy. Furthermore, HCLTech Fenix guides businesses in restructuring their architectural approach. This process is underpinned by a flexible, user-friendly technological architecture that paves the way for enhanced business agility.

With ASM 2.0, HCLTech provides an excellent modern application support and maintenance proposition. Based on its intelligent operations platform HCLTech iONA, ASM 2.0 combines AI-powered intelligent automation, generative AI, context-aware business operations, platform operations based on site reliability engineering (SRE) principles and flexible operating models to support business alignment, application management and transformation.

HCLTech's ASM Center of Excellence (CoE) recognized the power of cognitive computing and AI in the field of Application Services Maintenance and therefore made the HCLTech iONA as one of the primary enablers to implement the business transformations with HCLTech ASM 2.0. iONA is built as a platform leveraging best-in-class open-source technologies across Business Processes, Infrastructure, Applications, and DevSecOps. This enables Application Services and Maintenance to rely on modern Artificial Intelligence to execute IT operations using Observability, Intelligent Automation, Intelligent Knowledge Management, Smart Ticket Triaging, and Operational Excellence.

The Observability component of iONA monitors the entire IT Landscape. It leverages the power of AI to identify patterns, detect anomalies, contextualize operational data, and form various intuitive dashboards and alerting mechanisms.

iONA brings to the table an Intelligent Automation Engine with reusable use cases that can be readily deployed and equipped with AI, ML, and NLP capabilities to simplify and automate IT operations to perform self-healing.

In Addition to Observability and Automation, AI is extensively used in the iONA platform for curation of knowledge across enterprise knowledge platforms and technology assets. To improve IT operations, AI relies on intelligent ticket triaging and comprehensive insight generation, recommendations to drive operational efficiencies. Large failure scenarios are simulated as a part of chaos engineering leveraging the power of AI-enabled recommendations and suggestions for building resilient and reliable environments to maintain customer trust and improved incident responses.

HCLTech provides an integrated ASM solution customized to the maturity level of an enterprise across various sectors, such as people, processes, technology, applications and data. This solution is built on key pillars, including a right-fit operating model, intelligent automation, and business context relevance. The operating model is digitally transformative, unifying application management services, application development, and data/cloud modernization. The incorporation of SRE practices enables faster, cloud-native development, while predictive AIOps are used to anticipate performance issues. AI-powered analytics enhance operational decision-making, and the observability approach ensures faster root-cause identification for resilience and improved user experience.

HCLTech's operating model focuses on delivering value through a product-aligned approach influenced by the HCLTech Fenix strategic framework. It emphasizes product portfolio management for efficiency and a close working relationship between business and IT teams. iONA, HCLTech's digital ops platform, combines AI and automation for optimized ASM processes, including self-healing capabilities and predictive analytics. This leads to improved application performance, reduced downtime, and a better customer experience. HCLTech ASM 2.0 solution offers comprehensive application coverage, proactive monitoring, and predictive analytics. Its intelligent automation and self-healing capabilities further increase system reliability and efficiency.

**Figure 1: HCLTech Fenix – Digital Transformation Strategic Framework**
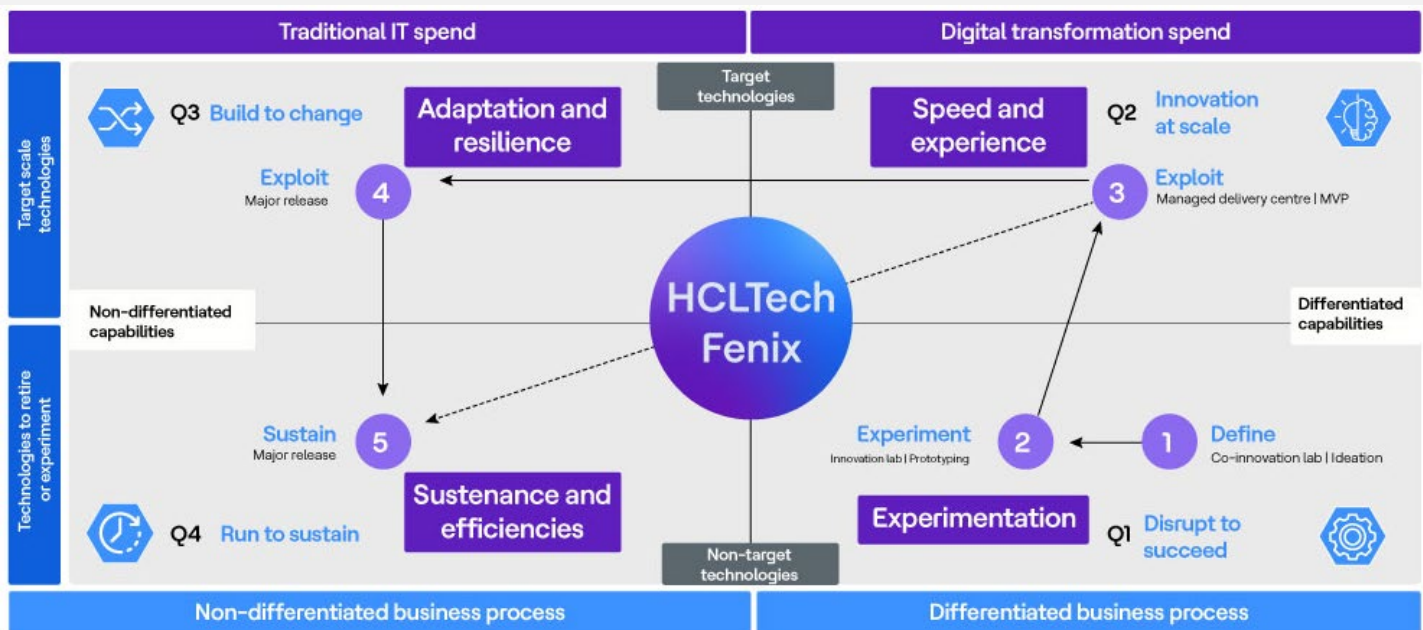


Source: HCLTech

# ISG Research's Position on HCLTech ASM Solutions

ISG research finds that HCLTech provides an evolving digital business services catalog for digital acceleration and transformation, growing rapidly with a wide service range and partnership network. HCLTech provides a strong proprietary 360-degree tools landscape. Application development and management services and solutions account for a large share of its revenue.

## HCLTech's key strengths in ASM

- **Consolidated offering:** HCLTech has consolidated most of its application services business, including consulting, development, managed services and quality assurance, under its digital business services. Its end-to-end digital application services capabilities range from design thinking to DevSecOps-based execution. HCLTech Digital Business helps enterprises adopt continuous improvement operating models. The portfolio includes digital consulting, digital applications and platforms, data and analytics.

- **Comprehensive ASM framework:** HCLTech Fenix is a large-scale, digital transformation strategic framework encapsulating the company's integrated digital service offerings. It is augmented by HCLTech's Digital 360 suite of solutions and tools. Fenix focuses on business process agility with modern digital architectures and a data-first approach. It features industry-specific contextual solutions to enable a domain-specific approach.

- **Aligning with evolving demand**: Responding to changing client views of ASM, HCLTech is focusing on integrated application development, support, management and quality engineering. This portfolio is built on the foundation of APIs, DevSecOps and microservices. A cloud-native, scaled, Agile-first approach leverages the company's historical strengths in Agile development.

- **Industry benchmarks:** More than 17 industry-specific archetypes are scientifically crafted guidelines derived from the analysis of existing AMS engagements data, collected over time and tailored specifically to maximize AMS success. HCLTech's comprehensive and data-driven approach enables the company to identify key areas for productivity improvement, process and customer experience optimization and automation.

- **Growing talent pool:** To expand, HCLTech focuses on acquiring talent based on competency rather than experience, replacing individual recruiting interviews with hackathons to assess teams' skills and behavior. HCLTech is also working with several U.S. colleges and universities, including the University of California at Berkeley and Stanford University.

- **Large network of partners:** HCLTech has an extensive partner network in the application development space. It has strong global partnerships with major universities and startups. These alliances and academia tie-ups give HCLTech an edge in taking new technologies to customers and building innovative solutions around them.

ISG finds HCLTech a key player in the ADM market, providing robust services and solutions that account for a large share of its revenue. Under its Digital Business Services portfolio, HCLTech's consolidated offerings include consulting, development and managed services. Its Fenix framework encapsulates integrated digital services, focusing on business process agility and industry-specific solutions. The company is also responsive to changing ASM demands, emphasizing integrated development, support and quality engineering. Moreover, HCLTech's talent pool is expanding through innovative recruitment strategies and partnerships with major universities.

# Summary

In an increasingly complex ADM landscape, IT systems require dynamic support and maintenance. Recent shifts are driving an evolution from a fix-first to an avoid-first approach, emphasizing the importance of business-aligned operations, robust observability, automation and self-healing mechanisms.

HCLTech's offerings efficiently meet these changing needs. With decades of experience in ASM, the company has developed an approach that enhances agility and fosters seamless collaboration between application development and maintenance teams. Its ASM 2.0 solution, powered by its intelligent operations platform iONA, combines AI-empowered intelligent automation and generative AI, enabling more efficient and error-free operations.

HCLTech Fenix, woven into the HCLTech ASM 2.0, assists organizations in achieving their digital transformation goals, promoting a culture of continuous improvement.

With AI and Automation at core for ASM, HCLTech emphasizes predictive AIOps and a comprehensive observability approach, anticipates support issues and ensures swift problem identification for resilience and superior user experience.

In essence, HCLTech's offering aligns with the modern ADM and ASM market shifts, delivering an efficient, comprehensive and agile solution that effectively manages the increasing complexity and demands of today's IT systems and application landscapes.

# About the Author

## Oliver Nickels

Principal Consultant

**Oliver.Nickels@isg-one.com**

Oliver Nickels has in-depth technical and business know-how and more than 20 years of experience as marketing manager, management consultant and start-up entrepreneur to contribute to ISG customer projects. His focus is on marketing optimization, digital marketing and the digital customer journey.

Oliver works as free-lance consultant to help ISG customers with all issues related to the digital customer journey and digital marketing. Before, Oliver worked many years in various national and international marketing roles for a leading global IT company, in his last position as digital marketing manager with responsibility for the digital customer communications of a business unit and as advisor for the management board.

Oliver holds a degree in computer sciences of the University of Bremen and is a certified marketing assistant. He has also undergone a business model development training. Oliver has received various marketing rewards, including the gold CLIO, the gold Best of B2B and the gold and bronze German Dialog Marketing Award.

# HCLTech
## Supercharging Progress™

### Headquarters
Noida, India

### Revenue
$12.8B (Consolidated revenues as of 12 months ending June 2023 totaled)

### Total Employees
The company reports having more than 223,400+ employees

### Service Portfolio
Digital, engineering, cloud and AI, powered by a broad portfolio of technology services and products

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