VIEW POINT

THE FUTURE OF APPLICATION MAINTENANCE IN THE INSURANCE INDUSTRY

A Point of View

GLOBAL ECONOMIC RISKS NAVIGATOR

Abstract

The future of application maintenance in the insurance industry is on the cusp of significant change driven by rapid technological advances, evolving customer demands, and a shifting risk landscape. In the case of the insurance industry, companies face multiple challenges in the form of legacy technologies, enterprise silos, and systems open to security vulnerabilities.

This paper discusses the trends in application maintenance and the impact of these trends on the existing IT systems of insurance firms. In addition, the paper provides guidelines to help insurers prepare themselves for the future by leveraging the latest technological developments.

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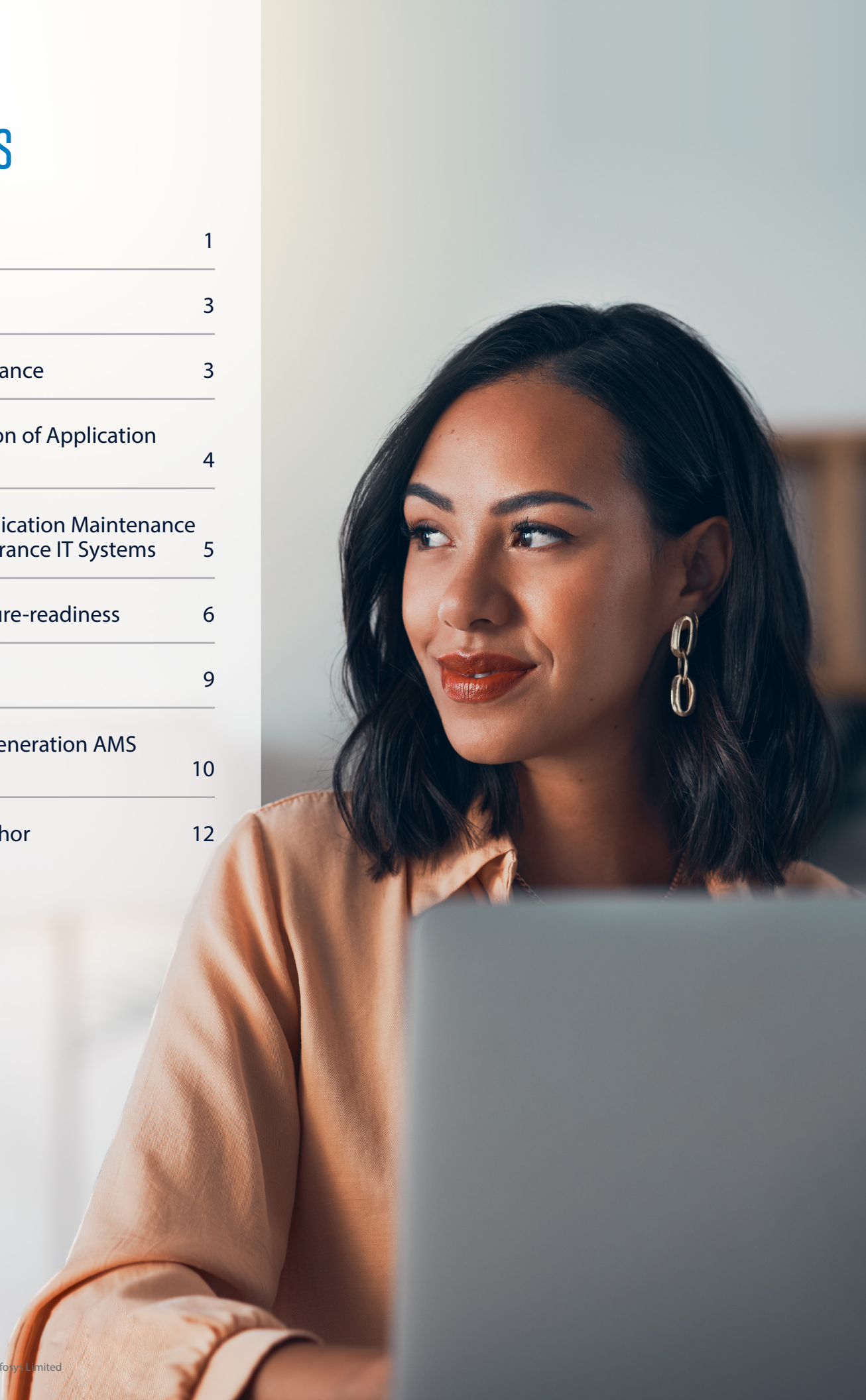


INTRODUCTION

Across industries, the shift from legacy technologies to modern solutions is a business imperative. Insurers are not immune to changes in the technology and business landscape.

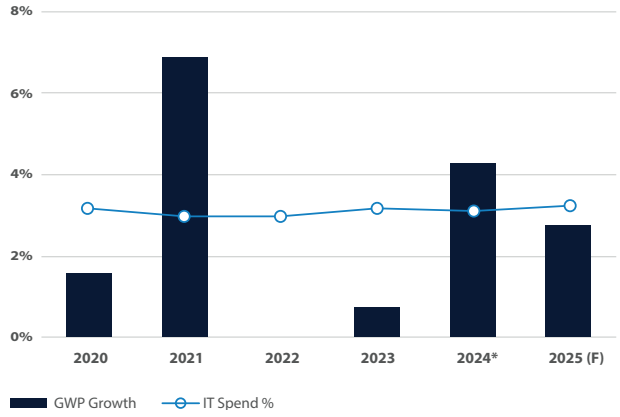
The insurance industry is poised to leverage advancements in artificial intelligence (AI) and machine learning (ML) to streamline application management and foster resilience and sustainable growth by focusing on outcome-centric business models.

Trends in Insurance

Graphs 1 through 4 provide insights into the IT landscape of insurance companies over the last few years. 65% of insurers want to see improved operating margins as a direct result of their IT spending in 2024. The IT spend on run/maintenance services increased in 2023 and continues to be higher compared to the expenditure on BAU and discretionary change. While digital natives use modern technology solutions, many mid-sized and large insurers are still running legacy applications. From a DevOps maturity perspective, such mid-sized and large insurers are between 2 and 3 on a scale of 5 with 5 being the highest maturity level.

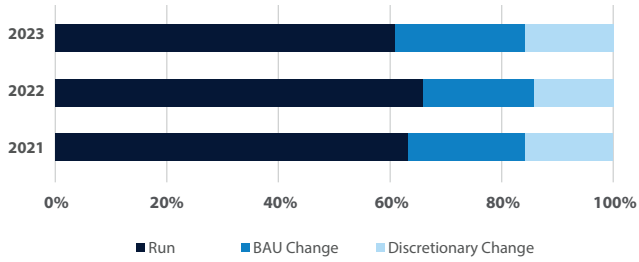
These trends indicate that large and mid-sized insurance companies have some catching up to do in order to capitalize on modern-day technology evolution. 87% of insurers plan to increase their expenditure on automation in the next 2 years.

GROWTH IN WRITTEN PREMIUM



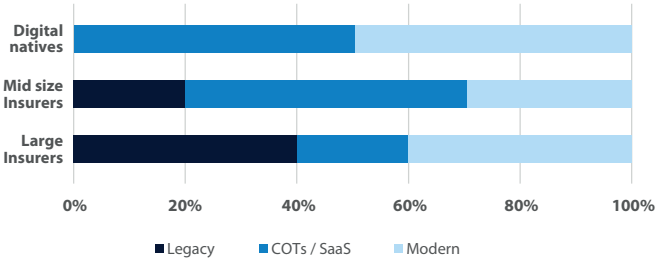
Graph 1 | Insurance revenue YoY growth versus IT spend

AVERAGE IT SPEND BY RUN, BAU CHANGE AND DISCRETIONARY CHANGE



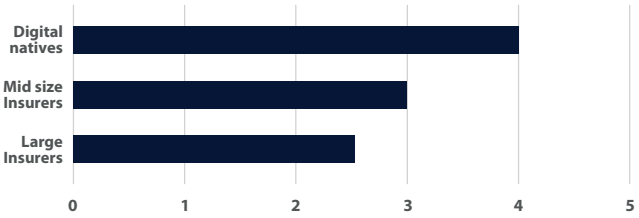
Graph 2 | Average IT spend by Run, BAU change, and discretionary change

TECHNOLOGY MIX



Graph 3 | Technology mix among digital native, large, and mid-sized insurers

DEVOPS MATURITY



Graph 4 | DevOps maturity among digital native, large, and mid-sized insurers

65%
of insurers want "Improve Operating Margins" as an outcome of technology investments in 2024

87%
of insurers plan to increase automation spending over the next 2 years

KEY INSIGHTS

With slow growth and modest profitability, insurers have had to watch their expenses closely. The focus is on cost savings through automation and productivity improvement.

Usage of commercial off-the-shelf (COTS) and software-as-a-service (SaaS) products is on the rise in the core systems for personal lines.

Large insurers continue to face challenges with legacy technologies and technical debt with aging and complex monolithic systems of records with security vulnerabilities.

Adoption of modern maintenance frameworks such as site reliability engineering (SRE), DevSecOps, and AIOps is still in the early stages when compared to e-commerce and high-tech industries.

Among insurers, the operating models for application maintenance range from siloed AMS teams aligned to business domains to fully integrated product-centric DevOps teams aligned to business Value streams.

Most large insurers have outsourced their application maintenance portfolios to a wide set of service providers, each operating in their own way, leading to a fragmented service experience for end users.

FUTURE EVOLUTION OF APPLICATION MAINTENANCE

Based on current trends in technology and the evolving landscape of software development, here is how application maintenance practices will shift and evolve over the next 10 to 20 years.

1 PREDICTIVE AND AUTOMATED MAINTENANCE

Agentic AI and AIOps will be used to continuously monitor critical and core applications to detect anomalies from logs metrics and other sources, predict potential issues, and recommend resolutions or automatically implement preventative measures, thereby minimizing downtime and resource requirements.

Machine learning algorithms will analyze historical data and usage patterns to optimize application performance and automatically fix minor bugs. Applications will be built with greater 'self-healing' capabilities, incorporating fault tolerance modules and automated rollback mechanisms to recover quickly from failures. The need for human intervention will progressively reduce.

2 DEMOCRATIZATION OF DEVELOPMENT AND MAINTENANCE

Citizen developer tools and low-code/no-code platforms will empower non-technical business users to make minor modifications and adjustments to applications, reducing reliance on dedicated maintenance teams. Collaborative platforms and version control systems will provide a seamless workflow for distributed teams to contribute to maintenance tasks, leveraging global talent pools.

3 INCREASED CLOUD RELIANCE AND SUBSCRIPTION-BASED MODELS

Software as a service (SaaS) and platform as a service (PaaS) offerings will become more prevalent, shifting responsibility for maintenance and updates to SaaS/PaaS providers. Subscription-based models with automatic updates and ongoing maintenance will become the norm, reducing the need for in-house maintenance teams.

4 FOCUS ON BUSINESS VALUE AND AGILITY

Maintenance tasks will be assessed and prioritized based on their impact on business value and user experience, rather than purely technical considerations. Site reliability engineering (SRE), agile methodologies, and continuous delivery practices will become mainstream. Consequently, processes and enablers for rapid adaptation to changing market demands and user needs will become business imperatives. Personalized and business context aware support with intelligent chatbots and virtual assistants powered by Generative AI will augment and replace human based support.

5 CONVERGENCE OF MAINTENANCE AND DEVELOPMENT

The continued evolution of AI and ML will blur the lines between development and maintenance across applications and infrastructure, with AI playing a more prominent role in both.

6 SECURITY AND PRIVACY

Advances in security and data privacy technologies will be crucial for maintaining trust and confidence in self-healing and autonomous systems.

7 ETHICAL CONSIDERATIONS

The ethical implications of AI-powered maintenance will need careful consideration to ensure that algorithms/models are unbiased and transparent. Overall, the future of application maintenance is likely to be characterized by increased automation, AI-driven intelligence, self-healing capabilities, fault-tolerant systems, and a shift towards cloud-based solutions and subscription models. Future maintenance engineers and teams will focus on higher-level tasks such as strategic planning, process control, problem solving, managing exceptions, intergroup coordination, and oversight.

IMPACT OF APPLICATION MAINTENANCE TRENDS ON INSURANCE IT SYSTEMS

Future trends in the application maintenance space will impact insurers across personal, commercial, and specialty business lines. Table 1 lists specific trends and their impact on IT systems and application maintenance for each insurance line.

Segment	Technology Trends	Implications for IT Systems	Implication for Application Maintenance
Personal Lines Auto, homeowners, renters, life, group life	Automation – underwriting, claims Data insights Personalization-driven customer experience Self-service	Omnichannel digital experiences Modern, resilient policy administration systems Robust data lake ecosystems Personalization engines Robust master data management (MDM) systems Automation to enable straight-through processing (STP)	Full-stack observability: **High** Self-heal automation: **High** AIOps: **High** DevSecOps pipelines: **High** IaC automation: **High** SRE: **Medium** SaaS | PaaS: **High** KM: **Medium**
Commercial Lines Commercial property, commercial auto, legal/financial obligations, business interruption	Advanced analytics Risk modeling Risk prevention Ecosystem integration Collaboration Configuration/customization Fraud detection Claims automation Digital self-service Blockchain	Robust data lake ecosystem Predictive analytics Complex risk modeling systems with extensive sensor data API integration layers Rules externalization Improved collaboration systems Intuitive and personalized digital portals	Full-stack observability: **High** Self-heal automation: **High** AIOps: **High** DevSecOps pipeline: **High** IaC automation: **High** SRE: **High** SaaS | PaaS: **Medium** KM: **High**
Specialty Lines Marine, aviation, cyber, and professional liability	Advanced analytics Risk modeling Telematics, IOT sensor integration Ecosystem integration Collaboration Dynamic pricing Tailored coverages Blockchain	Robust data lake ecosystem Data-driven insights IOT and sensor data integration Robust pricing systems Collaboration systems Rules externalization API integration layers	Full-stack observability: **High** Self-heal automation: **High** AIOps: **High** DevSecOps pipeline: **High** IaC automation: **High** SRE: **High** SaaS | PaaS: **Low** KM: **High**

Table 1 | Impact of Insurance technology trends on application management

ACHIEVING FUTURE READINESS

To bridge the gap between the current state and the future, insurers will need to strategize, invest, and navigate in specific ways in the short to medium term. The journey involves a series of coordinated steps across a set of related tracks as shown in Figure 1.

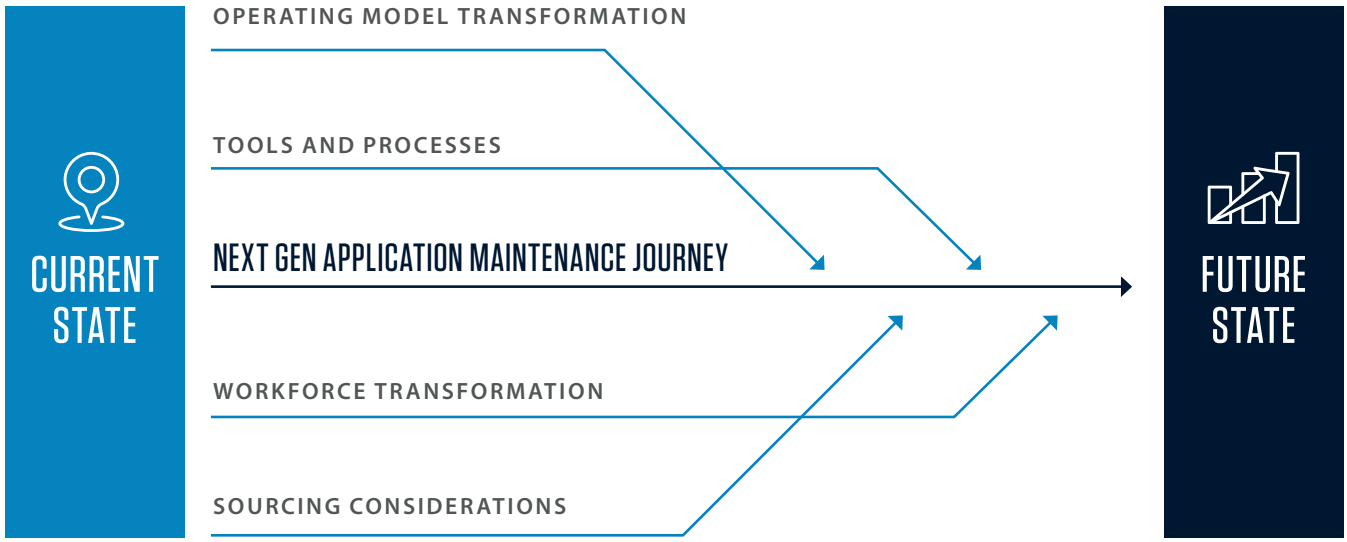
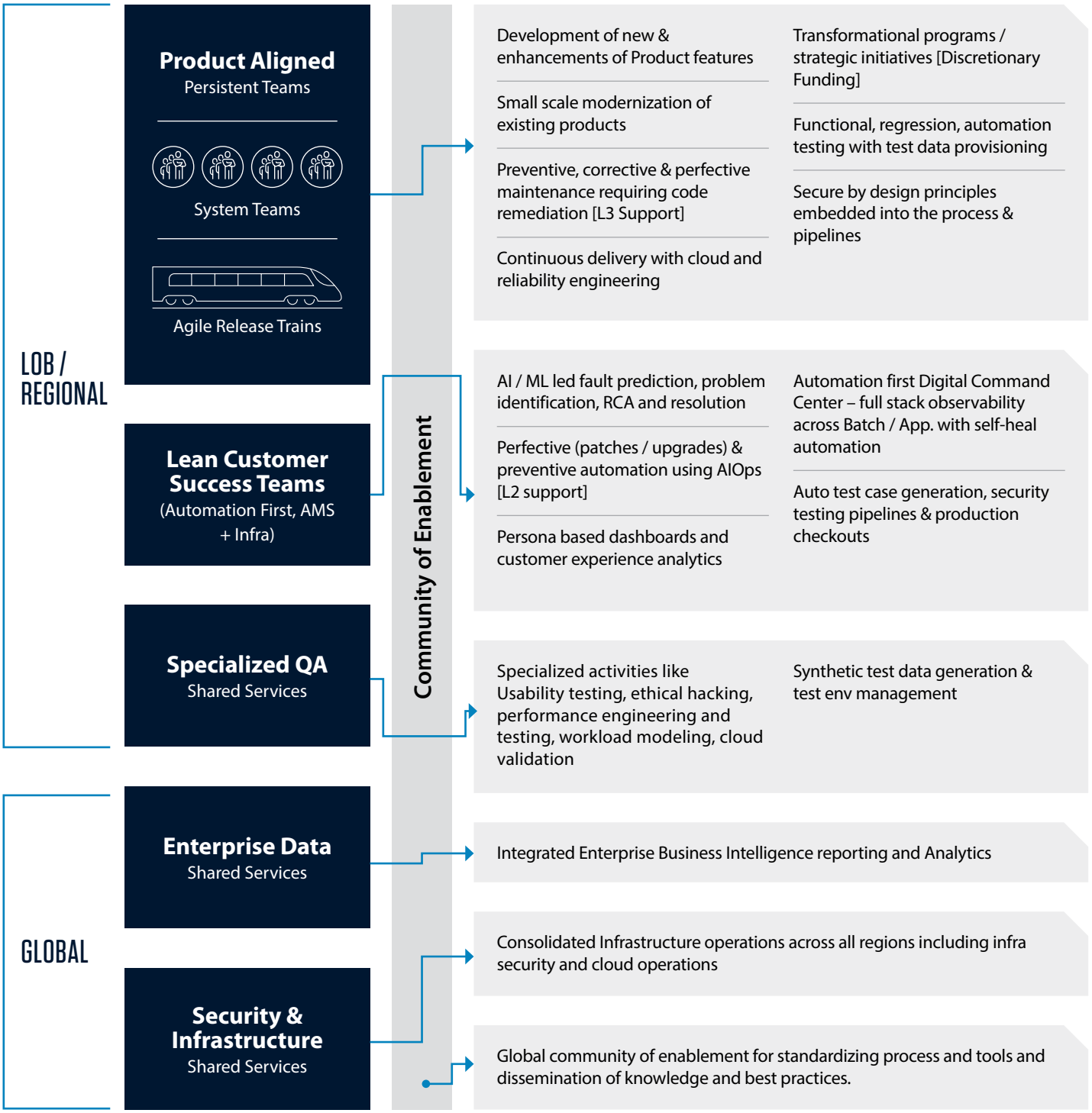


Figure 1 | Steps to move from the current to the future state in application management

OPERATING MODEL TRANSFORMATION

Changing the operating model involves transitioning from siloed application-centric maintenance and development teams to nimble cross-functional product teams (DevSecOps and product-centric teams).

This will help foster collaboration and shared ownership in building functional and technical features. Set up a lean business-centric customer success team based on automation-first principles to monitor applications and Infrastructure and apply needed interventions through proactive and preventive methods.



TOOLS AND PROCESSES

While preparing for the future, insurers need to adopt AIOps and advancements in Agentic AI technology to increase operational efficiency. A holistic strategy to adopt AIOps involves the following steps.

Define clear goals for AIOps such as improved efficiency, faster incident resolution, increased uptime, false-positive alert filtration, and root cause identification.

Assess data readiness through data monitoring, logs, application data, and infrastructure metrics.

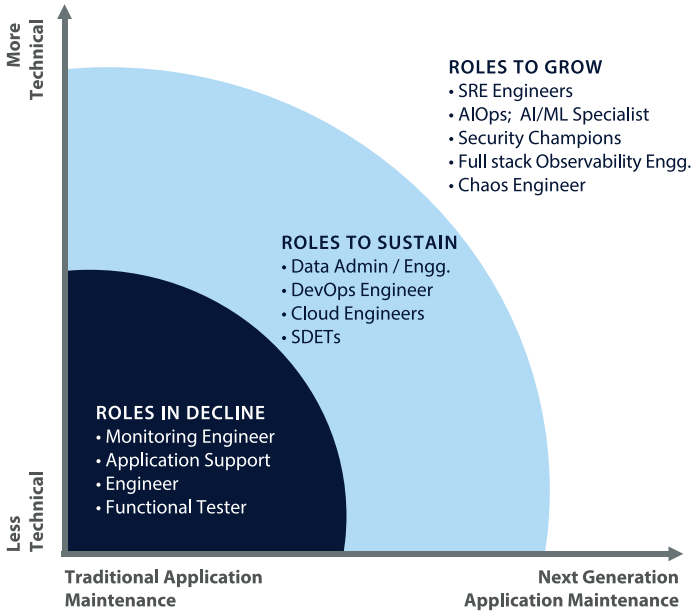
Select the right tools for monitoring, observability, dashboarding, alerting, automation, configuration management, chaos engineering, data acquisition and pipelining, AI/ML engines, autonomous decision making, complex task orchestration, collaboration, and communication. Ensure synergy with the enterprise technology stack while keeping track of budgetary requirements.

Set up foundational blocks, pilot programs, and an adoption playbook for a large-scale expansion.

Focus on continuous improvement to adapt and evolve the strategy as your enterprise starts to learn and grow.

WORKFORCE TRANSFORMATION

The skills and specialization needed for future application maintenance roles will be significantly different from the skills found in traditional application maintenance and production support teams. In the future, the focus will be on full-stack capability, deeper specialization, and the ability to use AI, tools and dashboards for proactive problem-solving and reacting quickly to incidents and problems.



CRITICAL SKILLS FOR THE FUTURE

Full-stack DevSecOps engineers with AI/ML skills to blend traditional software engineering expertise including containerized and serverless patterns with core ML concepts such as supervised and unsupervised learning, model training, and evaluation

Site reliability engineers (SREs) to focus on the reliability, scalability, and performance of applications by leveraging automation and data-driven insights. SREs will monitor system health, identify and proactively resolve potential issues, and continuously optimize system performance

Data engineers with a strong understanding of data pipelines, data quality, and data analysis for ingesting, preparing, and feeding the right information to AI models

Automation specialists with expertise in scripting languages, along with proficiency in infrastructure-as-code (IaC) to enable efficient automation of tasks and workflows

Security champions with deep knowledge of threat modeling and incident response procedures. With a clear understanding of compliance regulations and data privacy concerns, security champions will ensure secure coding practices, automate vulnerability management, and bring expertise in securing infrastructure and applications in the cloud

These core specializations must be coupled with thorough knowledge of the insurance domain along with traditional soft skills such as problem-solving, communication, teamwork, and continuous learning.

Merely assembling a set of specialists is not sufficient. To make future growth sustainable, enterprises must foster a culture of continuous learning and upskilling, ensuring the team stays abreast of emerging technologies and best practices.

SOURCING CONSIDERATIONS

Insurers will need to adopt a hybrid model that involves internal expertise and leverages external partners for specific domains or specialized skills.

STRATEGY

PLATFORMS

CoEs

COMMERCIAL MODELS

The right sourcing partners should have:

Experience guiding customers through this strategic change journey with rich consulting frameworks for discovery, strategy development, and change management

Investments in integrated AI-first platforms that provide consumption-ready tooling and can accelerate the customer's journey towards the future state

Centers of excellence that cater to the diverse specialized talent needs demanded by the next-generation application maintenance model

An array of flexible commercial models ranging from staff supplementation to outcome-based models

CONCLUSION

Automation technologies have advanced considerably with the emergence of AI, Agentic AI and cognitive solutions. Insurance application portfolios are becoming more complicated due to increased ecosystem collaboration and integration with non-traditional data sources.

Enterprise applications are hosted across a mix of hybrid cloud, SaaS, and on-premises models leading to increased landscape complexity. Collaboration between infrastructure, application maintenance, and application development teams is essential for seamless delivery. New-age consumers of the applications want improved service experience in addition to greater transparency and speed of service.

Given the muted growth and cost pressures in the insurance industry, insurers need to plan their strategy around specific areas to stay ahead of the curve. These areas include value centric operating models, integrated tooling and processes, AI-first and AI augmented workforce, consolidated vendor landscapes and pivot to outcome-centric commercial models.

Collaborating with the right sourcing partner will help insurance companies expand their expertise, toolsets, breadth and depth of experience, to accelerate toward their future state. This will provide insurers with a first-mover advantage to stay competitive in the rapidly advancing technology-driven market.

INFOSYS NEXT-GENERATION AMS OFFERINGS

Infosys topaz

Established in 1981, Infosys is a global leader in next-generation digital services and consulting with over 324,000 employees worldwide, revenues of US $19.11 billion, and a market capitalization of US $69 billion.

Infosys Topaz is an AI-first set of services, solutions, and platforms that leverages generative AI technologies. It helps amplify the potential of humans, enterprises, and communities to tap into the next generation of opportunities to create value from unprecedented innovations, connected ecosystems, and pervasive efficiencies.

1 Infosys AMS maturity assessment model

Maturity assessment across the 4 broad parameters:

- Operating model
- Service automatiom
- Resilience
- Business alignment

2 Infosys Application Management Platform

- Pre-built integrators with ITSM/APM
- Business command centers
- AIOps to Sense, Analyze, Act and Report
- Bot factory for deterministic, cognitive automation and Self heal
- Business Command Center & Failure Dashboards

3 AI First Application Management

- Conversational Gen AI bots
- Root cause analyzers
- Gen AI KM
- Operations co-pilots

4 Infosys Site Reliability Engineering Platform

- Integrated platform enabling DevSecOps & SRE tools
- SLO/SLI configuration and management
- Deskilling though script-less configurations

Key Benefits

- Increased Savings
- Increased Resilience
- Increased Service Experience
- Increased Predictability
- Reduced Transition Risks

About the Authors

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Amit Agarwal is a Delivery Director with the Infosys Insurance practice and manages Insurance delivery for a portfolio of Europe and APAC customers. Amit heads the Application Management Cohort within the Insurance delivery unit and has deep expertise in service transformation.

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