GENAI INSIGHTS FROM THE 2024 BMC MAINFRAME SURVEY

This year marks my tenth year at BMC, and for almost all of that time, I have been associated with conducting the BMC Mainframe Survey. In the analysis phase we have just completed, one thing from the survey results stood out this year ahead of all others. Throughout the data, we observed a new priority and focus on the use or potential use of artificial intelligence (AI) to manage mainframe complexity and the knowledge gap created by the changing mainframe workforce. Leveraging AI, including machine learning (ML) and generative AI (GenAI), has become crucial for enhancing operational efficiency and meeting modern IT demands. This blog post explores the role of AI in mainframe transformation based on insights from BMC's 2024 Mainframe Survey, highlights key trends and challenges in this evolving landscape, and provides strategic recommendations for how organizations can effectively leverage AI in their mainframe environments.

Understanding AI: ML versus GenAI

AI encompasses a range of technologies that enable machines to mimic human intelligence, including problem-solving and decision-making. Within this broad field, AI/ML involves the use of algorithms to analyze data, learn from it, and make predictions. GenAI, a subset of AI, goes a step further by creating new content or solutions based on learned patterns. Each of these technologies offers unique capabilities and applications in mainframe environments:

- **ML:** Advanced data analysis and anomaly detection enable proactive issue identification and resolution, ensuring smoother system performance.

- **GenAI:** By automating code generation and addressing complex problems, GenAI drives innovation and transformation in mainframe operations.

Survey insights on AIOps

Results of the 2024 BMC Mainframe Survey show that AIOps, the application of AI to IT operations, has seen a significant rise in prioritization among mainframe organizations, increasing from 34 percent in 2023 to 45 percent in 2024. Notably, AIOps, which ranked ninth in mainframe priorities in 2023, has moved into the top three in this year's survey, indicating a strategic shift towards AI-driven operations. Extra-large shops (greater than 50K MIPS), with a higher AIOps prioritization of 54 percent, demonstrate the critical role of advanced AI technologies in large-scale environments. GenAI, in particular, is highlighted as the most important capability, with 45 percent of organizations emphasizing its significance.

Leveraging GenAI and ML to address AIOps complexity

Despite its benefits, AIOps for the mainframe is particularly complex due to the intricate and highly integrated nature of mainframe systems, which have been developed and expanded over decades. These systems often run a vast array of critical applications, each with unique dependencies and configurations, creating a challenging environment for traditional IT operations.

The survey reveals that 31 percent of mainframe organizations that have implemented AIOps perceive complexity as a major issue, up from 24 percent in 2023. This growing concern underscores the need for effective solutions to manage and mitigate these challenges. The impact of AIOps complexity on mainframe operations requires strategic approaches, such as leveraging GenAI and ML technologies to streamline and optimize processes. Sixty percent of extra-large mainframe organizations that are prioritizing AIOps are looking to solve this AIOps complexity issue using GenAI solutions, while 57 percent are using ML-based automation.

GenAI adoption in mainframe organizations

The mainframe survey shows that 76 percent of organizations are using GenAI, reflecting its widespread acceptance and implementation. In terms of mainframe adoption, 86 percent of respondents who are increasing their mainframe investment are using GenAI. These organizations are significantly more likely to use the technology than those who have a flat or decreasing investment in their mainframe systems, and 82 percent have a GenAI policy in place.

Benefits observed by organizations using GenAI include significant improvements in efficiency and operational performance, with 40 percent reporting notable advancements. Of organizations prioritizing AIOps, 45 percent say that GenAI is the most important capability to help them achieve their objectives. The high adoption rate of GenAI and recognition of its benefits underscore the technology's potential to transform mainframe operations and drive innovation.

Current GenAI use cases in mainframe transformation

Based upon the survey results, respondents report that GenAI shows great promise in various ways to enhance mainframe operations:

- **Automation:** Thirty-seven percent of organizations want to use GenAI to eliminate repetitive

tasks, improving efficiency and freeing up resources for strategic activities.
- **Identifying issues and risks:** Thirty-six percent of organizations seek to analyze code and configuration files to identify problems and vulnerabilities, enhancing security.
- **Gaining insights:** Thirty-four percent of organizations want to augment existing expertise with critical business insights, supporting decision-making processes.
- **Training:** Thirty-three percent of organizations plan to use GenAI for onboarding and training new personnel, effectively bridging the knowledge gap.

These use cases demonstrate the versatility and impact of GenAI in driving mainframe transformation.

Recommendations: Future opportunities for AI in mainframe transformation

The future of AI in mainframe transformation looks promising, with emerging trends indicating the continued evolution of AI technologies. With nearly half of organizations seeing GenAI as the most important capability to help them achieve their objectives, you should focus on getting AI right with use cases that benefit your business. These advancements offer new opportunities for enhanced automation, predictive analytics, and real-time problem-solving capabilities. To capitalize on these opportunities, organizations can invest in:

- **Strategic planning:** Develop a strategic roadmap with policies for integrating AI into mainframe operations, aligning with business objectives.
- **Education:** Equip employees with the knowledge and skills needed to leverage AI technologies effectively.
- **Infrastructure upgrades:** Ensure that the necessary infrastructure is in place to support AI implementations.

Conclusion: Strategic recommendations for AI in mainframe transformation

AI presents many opportunities for transforming mainframe environments, particularly in application development and operations. Based on the insights from the BMC Mainframe Survey, here are some strategic recommendations:

- For application development:
    - Use AI to assist in routine coding tasks and enhance code maintenance.
    - Detect code anomalies early, reducing the likelihood of errors.
    - Leverage code explanation for better understanding of unfamiliar code and applications.
- For operations:
    - Use ML for advanced data analysis and anomaly detection, enabling proactive issue detection.
    - Implement AI rules to perform problem diagnosis and identification.
    - Apply GenAI to automate problem resolution and optimize system performance, enhancing overall operational efficiency.

By embracing these AI technologies, organizations can drive innovation, improve efficiency, and maintain a competitive edge in the rapidly evolving IT landscape. The strategic adoption of AI will be

pivotal in realizing the full potential of mainframe transformation.

For more insight into the trends affecting the mainframe, visit the 2024 BMC Mainframe Survey page.