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The Symbiotic Relationship Between GenAI and Low-Code

A Whitepaper

Low-code platforms have recently captured the imagination of IT leaders, accelerating the speed to market for IT solutions. Analysts expect low-code development will account for more than 65% of application software development in the coming years.

However, new technologies like Generative AI that can produce various types of content, including software code, have gained huge market interest. Will Generative AI disrupt the low-code market and eventually replace them?

Introduction

Generative Artificial Intelligence (GenAI) is an artificial intelligence technology that can create new content, such as text, audio, images, and software code, mimicking human creativity.

Open AI launched ChatGPT in 2023, which unleashed a race for AI among big tech companies, including Google, Amazon, and Microsoft, and unleashed a new wave of innovation and experimentation across enterprises and start-up organizations. GenAI has had a profound impact on code generation.

As we head into 2024, hundreds of organizations are creating AI assistants for code generation and tools for driving productivity. Amazon's CodeWhisperer and Microsoft's GitHub Copilot are popular code-generation assistant tools that help developers accelerate development.

The low-code market, with leading providers like Mendix, OutSystems, and Power Platform, has evolved on the promise of rapid application development. Low-code platform providers have quickly jumped on the GenAI bandwagon and started including GenAI capabilities in their platforms. Below is a quick snapshot of GenAI capabilities in the leading low-code platforms.

Platform	Embedded AI Capability
Mendix	• Mendix AI Assistance (MAIA) assists developers and provides development and best practices guidance. • Build smarter applications using built-in connectors to AWS and OpenAI services. • Mendix ML kit helps integration with common ML models
OutSystems	• AI agent builder helps to build GenAI agents into the apps, which humanizes digital interactions. • Built-in connectors to AWS and OpenAI services help build smarter applications. • The AI capabilities help accelerate SDLC at every stage of application development.
Appian	• Help build interfaces and process models faster through AI-driven interactions. • Query data fabric using natural language to get concise results for complex questions. • Appian AI copilot leverages GenAI to help developers and users accomplish tasks faster.

Although these low-code tools now come with embedded Generative AI capabilities, here are some important things to keep in mind:

Understand AI Limitations:

Generative AI is capable of automating and speeding up the development process but is by no means a great alternative for human judgment. It will flounder at edge cases or any such complex tasks that are context-specific and be ready to intervene in such cases so you can ensure quality and accuracy.

Ensure Data Privacy and Security:

A low-code platform with AI learns and functions based on massive data sets. Check where your data is hosted and processed to avoid violating privacy rules (for example, GDPR and HIPAA). Use complex security measures to safeguard confidential data.

Maintain Code Quality:

AI-generated code can speed up development, but it may not always follow best practices or be optimized for performance. Review AI-generated code to ensure it meets your organization's standards, is maintainable, and is free of potential vulnerabilities.

Be Aware of Ethical Considerations:

AI sometimes introduces bias on generated solutions inadvertently, and sometimes results may be unfair or unethical. Be aware of the type of biases the AI might have introduced into its outputs and check if they are congruent with the values and ethics held by your company.

Monitor Governance and Compliance:

For AI-based system development, the governance issues in these systems revolve around data handling and compliance as well as AI accountability. This requires a governance framework and policies to ensure that these developments are met with industry standards, and internal standards.

But beyond all this another pressing concern is whether GenAI-driven code generation will eventually render low-code tools obsolete.

Indium is a pioneer in **Application Engineering and Low-Code.** We have extensive experience implementing solutions using low-code platforms like Mendix, OutSystems, Appian, and Power Platform and building custom web and mobile applications using a high-code development approach. For reasons outlined below, we believe that GenAI technology will provide a fillip to low-code adoption but will not replace the low-code ecosystem.

Why Low-code platforms are here to stay?

Following are some of the key reasons why we think low-code platforms are here to stay and thrive with GenAI technology

GenAI will dramatically increase low-code adoption

GenAI toolset in low-code platforms will further boost productivity and dramatically increase speed to market. This will further accelerate the need for enterprises to adopt low-code systems.

The opportunity to create applications using natural language will

dramatically increase low-code adoption and boost aspects like citizen development, which have struggled with the existing feature set of low-code platforms.

The value proposition of low-code tools transcends code generation

Low-code platforms like Mendix, OutSystems, and Power Platform offer significant benefits beyond automatic code generation. These platforms expedite cloud adoption, simplify development with visual interfaces, ensure a stable and secure environment, enable rapid deployment, and shift pricing models from capital expenditures to operational expenditures and usage-based pricing, thereby increasing efficiency and reducing upfront costs for enterprises.

Streamlined visual development vs. High-code complexity

Low-code tools have pioneered the visual development approach of creating applications where the application logic is manifested in flow charts and process flows. This is easier to maintain and manage than the high code generated by GenAI code assistants. Ease of software maintenance will further drive low-code adoption by enterprises

Code assistants that are natural language-driven could find it hard to adapt

to complex application scenarios. This is an area where low-code platforms have proven strengths, as many complex use cases already exist in low-code platforms built using the visual development approach.

Application generation vs. Code generation

Low-code platforms have evolved to follow the concept of faster application generation. Emphasis is placed on translating business process artifacts into smart applications and completely abstracting the code generation aspects from developers.

GenAI code generators have evolved based on generating code for application scenarios. This code still needs to be assembled to create an application and requires additional developer effort.

AI governance and AI democratization

The usage of low-code platforms like Mendix, Power Platform, Appian, and OutSystems could help enterprises securely adopt AI and reduce the risks of having to manage the governance of AI. Also, modern-day low-code platforms are making it easy to develop AI-enhanced business applications by providing toolkits for democratizing AI adoption. AI-enhanced application development using low-code helps organizations build complex use cases using low-code platforms integrating with Generative AI components from providers like AWS and OpenAI.

Conclusion

In the short to medium term, low-code platforms will accelerate their adoption by enterprises due to their significantly improved speed to market and ease of use. This, in turn, will drive the adoption of generative AI within organizations as low-code platforms democratize access to these powerful tools.

GenAI's long-term impact on the software development industry, including low-code, will be transformative. The extent of change that GenAI will bring to the low-code landscape will depend on the technology's evolution, considering the concerns around security, safety, and confidentiality.

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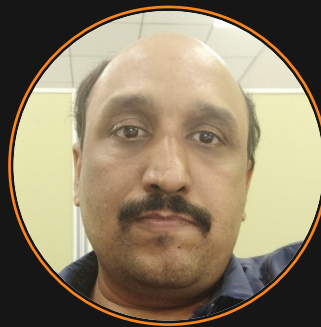
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About Indium

Indium is an AI-driven digital engineering company that helps enterprises build, scale, and innovate with cutting-edge technology. We specialize in custom solutions, ensuring every engagement is tailored to business needs with a relentless customer-first approach. Our expertise spans Generative AI, Product Engineering, Intelligent Automation, Data & AI, Quality Engineering, and Gaming, delivering high-impact solutions that drive real business impact.

With 5,000+ associates globally, we partner with Fortune 500, Global 2000, and leading technology firms across Financial Services, Healthcare, Manufacturing, Retail, and Technology—driving impact in North America, India, the UK, Singapore, Australia, and Japan to keep businesses ahead in an AI-first world.

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