HFS

GenAI is building inroads to create better and faster software

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Our recent roundtable on the impact of GenAI on software engineering, which Cybage sponsored, explored how GenAI can elevate software development and what organizations need to consider before commencing their GenAI journey. Organizations are excited to cash in on the productivity benefits that GenAI offers to software development teams, but this undertaking involves far more than productivity benefits.

GenAI is a disruptive force for change in the enterprise

The adoption of GenAI presents companies with multiple use cases for accelerating enterprise innovation around how workers and teams can augment their skills and resources using machine-based tools. The immediate areas in which we have seen Gen AI being applied include customer service, knowledge management, data analysis, and software development, to name a few. Yet, early adopters of AI solutions have discovered business teams and software development teams must come together and go beyond gathering requirements and managing systems and processes to improve only the productivity metrics of humans augmented by AI.

> "Businesses need to identify gaps that tie back to GenAI strengths. UI and automation testing can use GenAI because GenAI is good at interpreting front ends, especially as models are becoming more multi-modal, and, of course, other parts of the SDLC, both in terms of code generation and DevOps requirements gathering."
>
> — Aneesh Nathani,
> head of GenAI solutions, Cybage

This realization triggers dramatic changes, particularly in one area —software development —which has always been based on a cyclical progression of discover, build, test, assure, deploy, support, and repeat. Infusing AI into software development will accelerate this cycle and, in some cases, merge functions to improve how we code and deliver code. This software development lifecycle (SDLC) change will impact the skills developers need, require workflow changes, and change the software engineering culture. HFS predicts Gen AI tools will [shatter barriers between business and IT teams](shatter%20barriers%20between%20business%20and%20IT%20teams).

The roundtable identified several key topics that are top of mind with leaders in application development and management
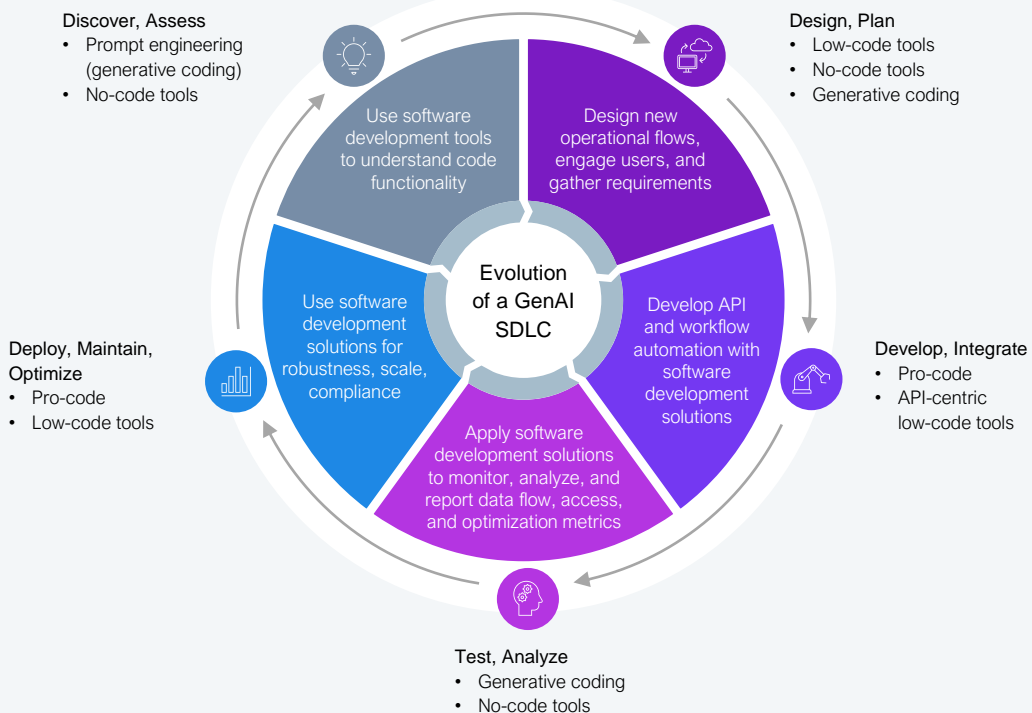
With the evolution of GenAI in the SDLC (see Exhibit 1), enterprises are seeking partners who can help both business and technology teams evolve to be more agile and improve how software delivers business outcomes.

The evolution of GenAI in the SDLC will promote innovation by automating repetitive tasks, enabling developers to be more creative, reducing software development and deployment costs, and speeding up time to market by fast-tracking the overall SDLC.

To make the most of this opportunity, software developers and related teams must address challenges in addition to people and systems. Businesses need to work with their partners to:

- Access their current tech stack for seamless integrations and build strong technical know-how that enables interactions with existing/legacy systems.

- Develop a change management strategy to overcome people's concerns and manage the transition to effectively incorporating GenAI. This includes implementing training programs to bridge any skills gaps that may exist.

- Move the starting point of the development process to the business problem and then augment data to demonstrate value and build ROI to meet business expectations.

Exhibit 1: Evolution of SDLC with GenAI and low-code and no-code tools

Discover, Assess
- Prompt engineering (generative coding)
- No-code tools

Design, Plan
- Low-code tools
- No-code tools
- Generative coding

Deploy, Maintain, Optimize
- Pro-code
- Low-code tools

Develop, Integrate
- Pro-code
- API-centric low-code tools

Test, Analyze
- Generative coding
- No-code tools

Circle diagram segments:
- Use software development tools to understand code functionality
- Design new operational flows, engage users, and gather requirements
- Develop API and workflow automation with software development solutions
- Apply software development solutions to monitor, analyze, and report data flow, access, and optimization metrics
- Use software development solutions for robustness, scale, compliance

Center: Evolution of a GenAI SDLC

Source: HFS Research, 2024

- Businesses must implement strict ethical guidelines and comply with data protection requirements and the evolving legal framework.

- Enterprises will need to consider cost-optimization strategies, such as managed services. To reduce costs, introduce GenAI step-by-step and begin projects with clearly defined outcomes.

- Implement training that focuses on the conceptual foundations of the teams that are vital for maintaining a codebase full of GenAI code suggestions.

Our enterprise participants voiced similar opinions about ensuring GenAI projects have a quantified outcome and a governance framework for data and technology that hides complexity while ensuring security, building talent, detailing the problem-before-technology approach, and more.

> "There are implications in terms of the policies that must be defined in terms of the guardrails for an organization to protect against risks. Businesses must have a clear leadership in terms of where they want to take the road map of edge and AI. This assessment must be thorough."
>
> — Gopikrishnan Konnanath, President, Cybage

As GenAI tools enhance software development, the CIO must expand their knowledge of the business

Implementing GenAI tools into the SDLC also changes the role of CIOs, who will move from managing systems, processes, and IT operations. CIOs must be able to determine how they can enable GenAI for business leaders and ensure they address security challenges and accelerate transformation. This will widen the involvement of the CIO in generating revenue for the business.

> "The CIO has gone from just managing systems and process and operational things to now actually being able to use GenAI to do things that a typical CRO used to do. So, generating revenue, marketing, there's all kinds of things that for a company to be successful needs a CIO's involvement."
>
> — Greg Butterfield, managing partner, Sage Creek

The Bottom Line: GenAI will improve the speed at which software is created by bringing business and IT teams together, but these fast-paced changes also will impact people, processes, and technology.

There is no doubt that GenAI is transforming the SDLC approach, and businesses will need to manage risks involving all affected teams and processes. They must engage with their IT teams and partners to ideate, define value, and build roadmaps to maximize ROI.

> "If organizations think more and more about creating a fairer world internally within the company, at the society level, then success automatically follows. And I think that's the best contribution GenAI implementation in tomorrow's world can make a difference."
>
> — Arun Nathani, MD and CEO, Cybage

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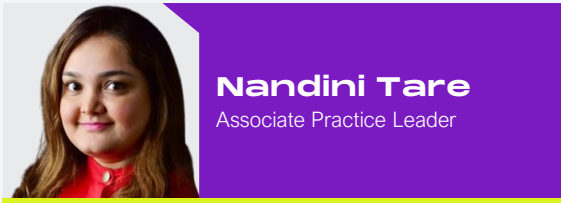
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Nandini is our Associate Practice Lead, driving our research around sustainability, engineering services, and Industry 4.0 in the manufacturing sector.

She has more than 15 years of experience in research and consulting with a focus on automotive, industrial manufacturing, and technology sectors. She has authored and co-authored multiple thought leaderships, managed consulting deliverables, and market research studies on key topics across industries.

Joel is the executive research leader for HFS's technology, media, and telecommunications research at HFS. He is also is the lead subject matter expert for IT services around application modernization solutions.

Joel brings nearly three (gulp!) decades of experience as an analyst, consultant, software product manager, and marketing professional. He is driven by a curious mind that has followed, analyzed, consulted, and implemented solutions from data networking to large ERP projects.

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