

Low-code development platforms empower IT teams to create and update digital solutions more rapidly, which leads to faster time to market, increased customer satisfaction, and augmented capabilities to pivot business operations in a rapidly changing business landscape.

The Contribution of Low-Code Platforms to Contemporary Digitization Initiatives

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Questions posed by: Zoho

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Q. What are examples of pressing problems IT teams face when building business applications? How can low-code development platforms help address these problems?

A. A big challenge faced by IT teams is that the demands of the business for digital solutions are greater than the ability of enterprise IT to supply them. In a similar vein, organizations expect developers to ship code faster without compromising quality and security. This imperative to produce digital solutions rapidly means that IT teams confront the challenge of producing digital solutions despite the developer shortage that is characteristic of the labor environment in which organizations operate. IDC estimates that the worldwide full-time developer shortage is 1.8 million in 2022 and will increase to 4.0 million in 2025, which means that the full-time developer population operates at 90% capacity in 2022 and 85% in 2025 (see *Quantifying the Worldwide Shortage of Full-Time Developers*, IDC #US48223621, September 2021).

Low-code platforms help organizations address these challenges by providing developers with visually guided development tools and preassembled code components to define and build digital solutions. As a result, developers can rapidly prototype digital solutions and receive feedback from business stakeholders. All this means that low-code development platforms empower IT teams to create and update digital solutions more rapidly than their command-line coding counterparts. This increase in developer velocity leads to faster time to market, increased customer satisfaction, and augmented capabilities to pivot business operations in response to a rapidly changing business landscape.

Another benefit of the use of low-code platforms is their ability to democratize the development experience such that professional resources with little to no advanced coding ability can build and modify digital solutions. The democratization of the development experience enabled by low-code development platforms empowers expert-level IT professionals to delegate development to highly analytical business professionals that can create the business logic and architecture of a digital solution.

Q. Given the wide range of tools for contemporary development, organizations typically leverage a multivendor ecosystem to build apps. What are the challenges of this approach, and how can organizations address these challenges?

A. One of the challenges of the contemporary development experience is the heterogeneity of developer tools and languages and frameworks. Developers and organizations have the option to select and aggregate developer tools from an expansive ecosystem of integrated development environments and code editors as well as tools that specialize in application builds, testing, CI/CD, and the implementation of security. IDC survey data reveals that 67–82% of developers feel they have significant or complete autonomy regarding the selection of languages, frameworks, deployment infrastructures, and cloud platforms (source: IDC's *PaaSView and the Developer 2021*).

While the freedom to select best-of-breed developer tools empowers developers to use technologies that they find useful, the hybridity and fragmentation that is characteristic of the resulting development stack has the potential to cause problems for developers and the development process. In a hybrid development stack, individual development components run the risk of not being optimized or interoperable with each other, leading to performance degradation issues as well as other challenges associated with compatibility-related problems.

Challenges specific to hybrid development stacks can be minimized by choosing tools and components that are sanctioned and battle-tested to work together by one vendor or developer community and ecosystem. Another option is to leverage a unified development stack from a single vendor. Organizations would do well to weigh the advantages and disadvantages of assembling a best-of-breed amalgamation of discrete tools as opposed to selecting a unified development stack that has been created and tested by one or two vendors. While there are many benefits associated with choosing a specific tool for a development-related job, these benefits need to be examined in the context of the challenges they introduce to the development stack at large.

Q. How can IT teams use low-code platforms to accelerate the growth of their business by means of digital solutions?

A. Organizations can use low-code platforms to accelerate the growth of their business by implementing and customizing low-code enterprise applications for use cases such as customer relationship management (CRM), enterprise resource planning (ERP), and information technology service management (ITSM). One of the advantages of using low-code solutions for enterprise applications is the ability to rapidly customize the solution for specialized use cases and scenarios by means of the platform's visually guided development interface. In addition, the lack of a need to perform extensive custom coding and scripting to use these applications means that organizations benefit from the ability to identify, train, and upskill professional resources to manage these applications that do not have extensive experience with coding.

Moreover, organizations can use low-code development platforms to digitize the long tail of digital solutions that typically escape the attention of enterprise IT. The long tail of digital solutions refers to solutions that augment the ability of leaders of lines of business and business units to make strategic and operational decisions that help them more

effectively run their teams and businesses. Examples of such solutions include dashboards, process-driven applications, predictive analytics, and automation tooling.

The ability of low-code development platforms to augment and extend digitization helps organizations grow their business by rendering employees more productive, and operational processes more efficient. Increased productivity means that employees can work on higher-value tasks, thereby leading to increased job satisfaction and lower employee turnover. Meanwhile, enhanced automation in operational processes reduces handoffs between discrete steps in an operational process in ways that streamline and accelerate the completion of operations-driven tasks and goals.

Q. How can IT teams implement organizationwide citizen development programs? What are the critical features to be prioritized while evaluating low-code platforms for such programs?

A. IT teams can implement organizationwide citizen development programs by designating one or more individuals as low-code champions within the organization. Such individuals would be tasked with the responsibility of educating the organization about low-code development. Low-code champions need to have the technical skill to demonstrate the capabilities of low-code development platforms across a wide range of use cases. In addition, they need to be able to elicit and document the potential uses of low-code development tools from leaders in the organization. Low-code champions serve as critical resources that employees within the organization can consult as the organization begins and deepens its low-code journey.

Another modality by which organizations can encourage low-code development involves creating a low-code center of excellence (COE) that defines best practices for low-code development. The low-code COE should take responsibility for elaborating which use cases are most aptly suited to low-code development by providing employees with heuristic guidance about how to decide whether to leverage a low-code platform or otherwise use command-line coding tools.

In addition, the low-code COE should create a communication infrastructure that empowers professional developers and LOB low-code developers to collaborate on development-related projects. As such, this infrastructure provides professional developers with the opportunity to advise LOB developers and, conversely, LOB developers to demonstrate their fluency with low-code development. Bidirectional collaboration between professional and LOB developers has the ancillary benefit of informing IT of the ability of LOB developers to contribute to digitization initiatives throughout the organization.

Q. How does AI/ML functionality that is embedded in low-code platforms improve low-code development?

A. A notable attribute of low-code developer tools is that it is becoming increasingly ubiquitous in AI/ML tooling as one of the dominant modalities by which developers create, modify, and manage AI/ML algorithms. This means that low-code developer tooling delivers the developer experience by which developers build AI/ML algorithms and their associated applications. The availability of low-code tooling to build AI/ML solutions abstracts away the complexities of machine

learning libraries such as TensorFlow and Scikit, thereby enabling developers to focus on the business logic of their application without diving deeply into the intricacies of creating machine learning applications from scratch.

Meanwhile, the streamlined availability of AI/ML capabilities via low-code developer tooling has the potential to amplify the capabilities of low code by integrating AI/ML into visually guided development. For example, low-code-based process flows that are integrated with machine learning functionality empower developers to identify patterns in operational processes in fields such as manufacturing, supply chain, logistics, and business operations. This ability to discern patterns empowers developers to iteratively optimize processes by understanding how minute variations in the execution of a process variously impact its efficacy.

For example, low-code-based machine learning analytics can identify how some routes taken by the assemblage of robots in a warehouse may lead to increased operational efficiency. This integration of machine learning and low code augments the capabilities of low-code development by means of its enhanced analytical efficacy. Similarly, low-code based machine learning–driven dashboards improve low-code developer tools by bringing predictive analytics to visually guided developer tools.

About the Analyst



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Dr. Arnal Dayaratna is Research Vice President, Software Development at IDC. Arnal focuses on software developer demographics, trends in programming languages and other application development tools, and the intersection of these development environments and the many emerging technologies that are enabling and driving digital transformation. Arnal's research examines how the changing nature of software development relates to broader trends in the technology landscape.

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