

This Technology Spotlight examines the business value of low-code development platforms and how they can empower non-technical developers in an enterprise's digital transformation acceleration.

Low-code Platforms—The Essence of Digital Enterprises

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Agile software development is table stakes, post-pandemic

Without a doubt, digital agility is the need of the hour. The pandemic has highlighted the critical need for digital agility—the quicker an organization is able to adapt, the sooner it can accelerate. IDC's vision of the Future Enterprise is an organization that underpins business processes with technology. It is fueled by innovation, is platform-enabled and ecosystem-centric, which centers around new capabilities, new infrastructure and new digital ecosystems.

Organizations today operate in a highly intensified period of digital transformation. They are under immense pressure to deliver engaging employee and customer experiences, and optimize operations. Low-code platforms help drive an organization's vision of creating a simplified, contemporary and agile architecture that meets the dynamic need of changing ideas into enterprise-grade applications quickly.

IDC expects that enterprises will increasingly require the capability of creating software faster, which will significantly drive the adoption of low-code platforms in the years ahead. Low-code development platforms allow for faster application building and implementation, thus enabling business end-users to create applications in a highly secured architecture. This will improve the overall digital acumen of organizations, which will benefit them in the long run.

This IDC Technology Spotlight takes a closer look at the need to embrace a digital way of thinking, while gauging enterprises' skill gaps and the role of low-code platforms in the changing digital environment. It will also highlight how business users play a pivotal role in automation initiatives, with low-code platforms being the key enabler driving this shift.

Transitioning from 'going digital' to 'being digital'

The year 2020 presented unprecedented times of uncertainty due to the global health crisis and the upending of traditional business practices. The crisis has fueled growth in digital technology pivots and digital transformation (DX) as the global economy has had to adapt to new ways of working.

Organizations—many of which have had their digital priorities reframed due to the pandemic—are trying hard to accelerate their digitization efforts by rapidly introducing new approaches to improve their businesses operations in the new operating environment. These initiatives range from accelerating automation investments to reducing employee dependency on physical workplaces while implementing work flexibility programs.

Accelerated DX initiatives will drive significant investments in technology, from hardware and services to applications. DX in its true essence is not about new tools and technologies but rather about embracing 'digital' as a way of life. According to IDC's Worldwide Black Book (August 2020), direct DX investments across Asia/Pacific (AP) are expected to reach US\$1.2 trillion from 2020 to 2023. Also, DX ICT spending will grow at a 17.4% compound annual growth rate

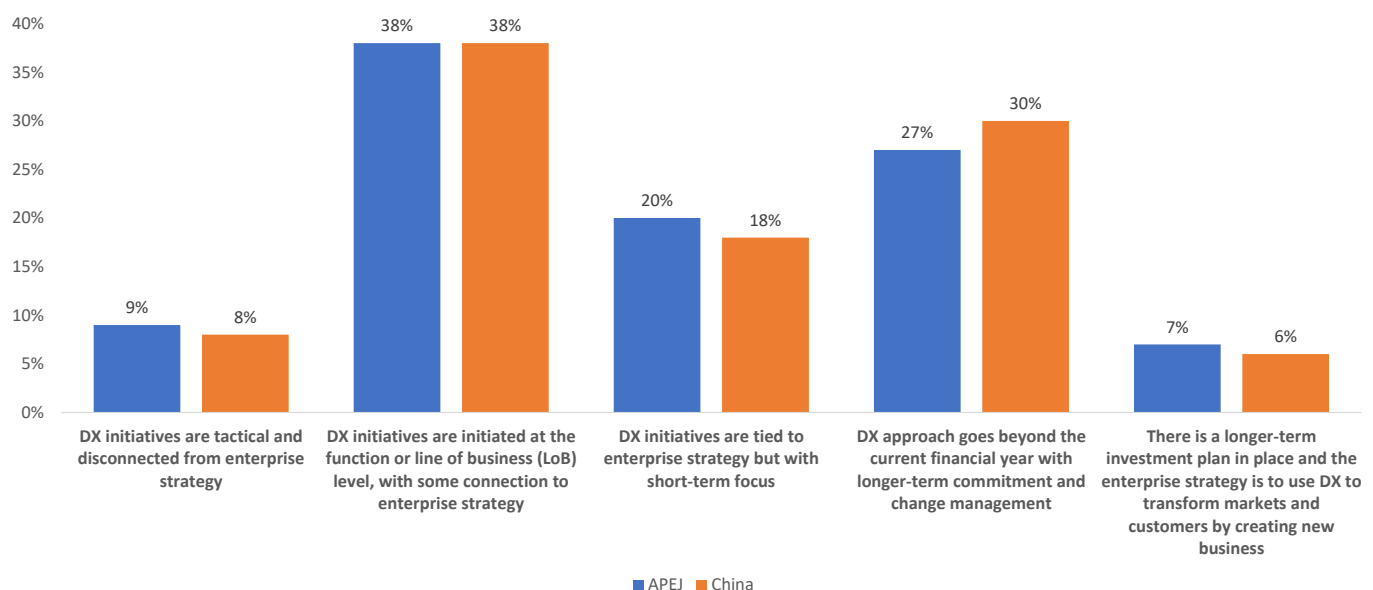
through 2024, becoming 70% of all ICT investments in 2024. These investments will further drive digitally enabled products, services and experiences across all industries.

IDC's research shows that companies that have successfully transformed into digital enterprises realize twice the revenue and operating profits compared with those that have yet to transform. These transformation leaders also outperform competitors that are behind them in the transformation curve. Organizations evolving into a digital enterprise must develop new capabilities to deliver value. Most organizations in AP, however, are still in the lower levels of digital maturity as their DX strategy is stuck in low gear.

According to IDC's Future Enterprise Resiliency and Spending Survey (Wave 5, May 2021) (refer to Figure 1), around 66% of Asia/Pacific excluding Japan (APEJ) organizations have yet to develop plans to operationalize their enterprise digital strategies or, these strategies, if they have been initiated, are often siloed at functional levels and tend to be tactical/short-term focused. Additionally, only 27% have an existing DX plan beyond the current financial year, with only 7% of them having a longer-term DX investment plan in place to transform markets and customers by creating new business. Chinese organizations display similar traits as their AP counterparts with regards to DX—around 36% of organizations in China said that their DX approach goes beyond the current financial year as they have made longer-term commitments and have implemented change management initiatives (refer to Figure 1).

FIGURE 1: *Digital transformation journey assessment of APEJ organizations*

Q In the wake of developments during the COVID-19 pandemic, how would you assess where your organization is with respect to its digital transformation compared to your peers?



Source: IDC Future Enterprise Resiliency and Spending Survey - Wave 5, May 2021, APEJ N = 317

Reassessing skills for the digital age

Today's highly dynamic business environment warrants increased organizational DX efforts to remain competitive and thrive; this requires an upgrade of software competencies. There is an increasing need to create better software faster. According to IDC, by 2025, 75% of G2000 companies will be high performance, large-scale producers of

software-powered innovation¹. However, for software innovation to work, outdated software and operational models need to be eliminated. Old software has been failing to keep pace with the new business requirements that demand more agile, flexible, scalable and manageable platforms. The inability of legacy software to address current requirements also intensifies pressure on developers to develop applications fast, and then use and change/dispose of them fast. The growth of software development skills has not kept up with this new focus on software, and the pressure on developers to be more productive and agile has intensified. A Future of Work Survey conducted by IDC in 2020 highlighted that over 50% of organizations in China have yet to implement "skilling and training programs" to bring their employees up-to-date with the new digital requirements.

IDC predicts that by 2023 the financial impact of the IT skills gap will grow to US\$340 billion in APEJ from US\$135 billion in 2019, due to the delayed release of products and services, missed revenue or increased cost². The focus on platforms that can help developers to work faster and in an agile manner is giving rise to significant interest in low-code platforms. As low-code solutions eliminate or significantly minimize the amount of traditional coding needed to develop applications, they can address the digital skills gap by enabling business users or citizen developers to participate in application development. Hence, applications get to market faster, thereby delivering higher value experiences and quicker responses to dynamic market demands.

The missing link in the 'being digital' environment

One of the biggest challenges facing organizations today is deciding when and where to deploy their applications while balancing cost, compliance, agility, flexibility and simplicity. Solutions that offer shortest turnaround times are imperative to overcoming this challenge. The demand for agile applications has become business critical, given the rampant pace at which technology continues to grow, driving the need for automation at scale. Amid growing time and cost pressures, organizations are increasingly developing their own applications now instead of depending on third-party vendors. Automation, however, is not new. What is new is the need to employ automation at scale; this is where low-code platforms shine.

IDC predicts that through 2023, 40% of enterprises' hybrid workforce and business automation efforts will have been delayed or would have failed outright because of underinvestment in building IT, security and DevOps teams with the right tool/skills³. The business case for low code has never been more pressing with organizations accelerating their automation approach.

Major aspects of an effective low-code platform include:

- » **Visualized development tools.** Building applications using visual models is not only time-saving but it also presents information and insights that are easy to understand, even for business users without technical skills.
- » **Drag-and-drop interfaces.** This feature enables an easy development process.
- » **Reusability.** Preconfigured modules in the platform offer common core functions that can be reused to develop other solutions.
- » **Scalability.** Low-code systems should be easy to scale, allowing organizations to build new applications as demand grows.

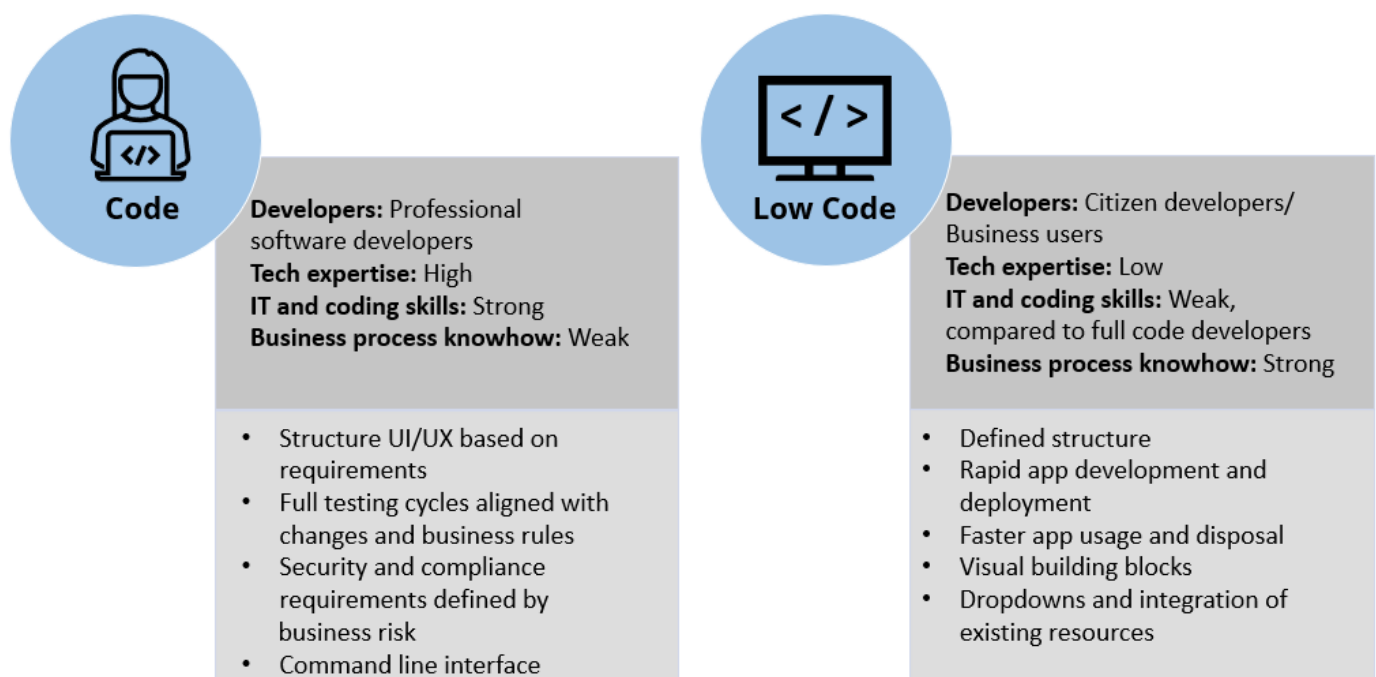
Low-code empowers non-technical developers

Over the years, organizations' app development investments, which often cost a significant amount of money to implement and customize, have become redundant or are failing to serve current business requirements. Low-code

platforms address these challenges by enabling business users or citizen developers to design, deploy and change application functionality without technical/coding experience or IT engineering skills. Low-code development environments for business users promise to drive down the cost of creating, adapting and managing a broader range of applications.

Expediting digital innovation and bringing more IT agility and automation empowerment to the business user is more critical than ever. The simple and convenient building-block and visualized approach of low-code development platforms empowers business users and citizen developers to self-serve and deliver solutions faster. Low-code development can enable clear and defined application changes to be made quickly. The application's value delivery is almost immediate since the business team builds applications based on its needs and requirements in comparatively little time.

FIGURE 2: *Approaches to application development—low-code versus full code*



Source: IDC, 2021

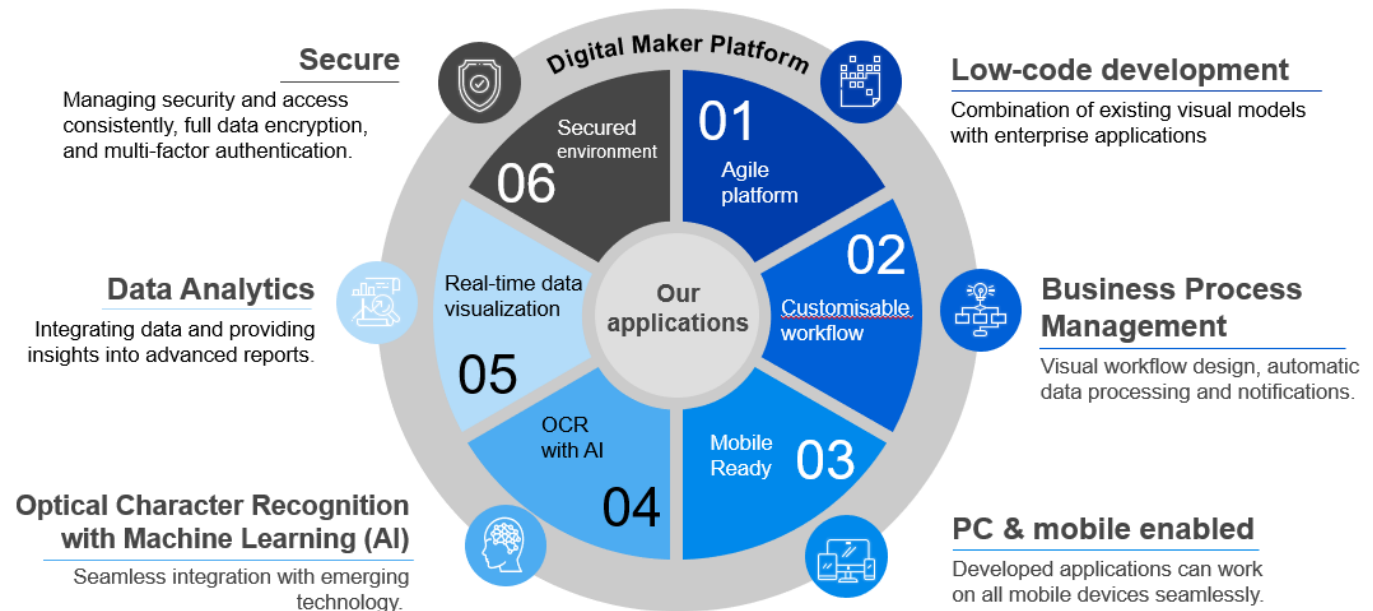
Considering PwC's Digital Maker low-code platform

One fundamental capability of a low-code platform is faster application enablement which can put software development and innovation in the hands of business users so that they can visually develop enterprise-grade applications with their developer teams quickly and easily to create real business value.

PwC Digital Maker is an all-in-one low-code digital platform that addresses this opportunity. According to PwC, Digital Maker, which was initially built to address digital requirements internally, has over the years evolved into a platform that solves business-oriented problems through a user-friendly UX/UI. With its 'legacy application migration module,' Digital Maker can easily help modernize applications, enabling organizations to decommission legacy applications and also efficiently resolve issues originating from traditional application creation approaches, which mostly creates applications that operate in silos resulting in overheads between different systems. PwC China proved, through its

own internal application development process, that Digital Maker could facilitate software deployment—up to 10x faster than traditional software development approaches—to automate complicated business processes.

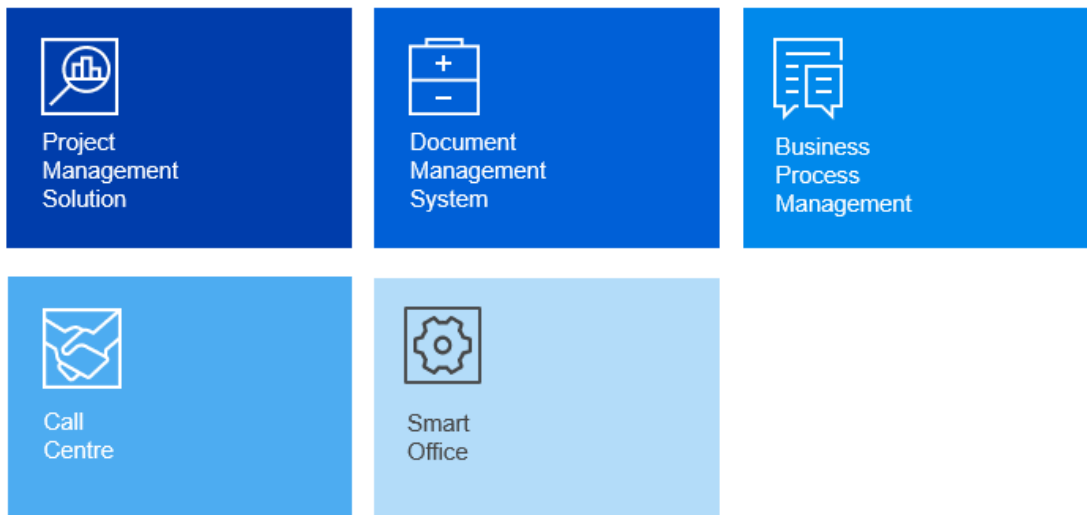
FIGURE 3: *Snapshot of how Digital Maker helps accelerate IT projects*



Source: PwC

The Digital Maker platform provides existing visual models and pre-configured forms and templates that enable organizations to build a working application. We have featured several use case scenarios below that can be developed, implemented, operated and managed using the platform (see Figure 4).

Figure 4: *Digital Maker use cases*



Source: PwC

Document Management System (DMS): With DMS, organizations can centralize and manage all documents digitally in an encrypted and secure way. It allows digital documents to be easily organized, retrieved, indexed and archived, helping the quick location of information, efficient audit trails, and lifecycle value management for all document types, with easy disposal guidelines. The system helps in streamlining workflow, enhancing collaboration between team members and improving workforce efficiency.

Business Process Management (BPM): A business process platform that could be used by the IT and business operation department to manage approval-related businesses, including financial system authorization approval, device asset management, and other business approvals for service catalogues. It also connects and coordinates processes to avoid process islands. With an end-to-end process system, the business improves efficiency, cost and quality of the entire business process, and meets customer needs in the fierce market competition environment.

Smart Office Solution: An all-in-one workspace transformation solution that modernizes and automates workspaces, optimizes office layouts and maximizes resource utilization. The solution leverages artificial intelligence (AI), Internet of Things, and data analytics to transform any office into a flexible and efficient space. Its key features include resource optimization, which includes features such as smart meeting room bookings and hot-desking, and the management of office access through facial recognition. The solution also offers built-in capabilities to track and monitor workplace analytics and creates insightful reports, aiding office administrators in the management of overheads. In doing so, the application increases business value by reducing office rent, office management fees and, possibly, renovation costs.

Project Management Solution: A collaborative platform that allows hybrid teams to share and track project status with embedded automation and workflow management. The team leader can use a real-time dashboard to oversee and manage resources as well as review the project status. It also provides a talent management module to plan and assign appropriately skilled people for new business priorities. Peer-evaluation after each project also gives all-rounded talent management functionality.

Call Centre Solution: A cloud-based service that integrates the ticket allocation and CRM systems. It can also create a comprehensive data dashboard for business intelligence. The application offers a comprehensive call center digital platform that is easy to maintain and customize, and which provides troubleshooting.

Among the benefits of the Digital Maker platform are:

- » **Fast development cycles.** Empowers non-technical developers to build applications and deal with significant changes and challenges at a faster pace, thereby improving business efficiency.
- » **High utility, across diverse business functions and verticals.** Delivers enterprise-grade business applications across much of an organization and many industries.
- » **Multi-language support.** Supports multiple languages, especially Asian languages. The platform accommodates program flows based on local languages, meeting the need for localized development.
- » **End-to-End Security.** The platform manages security and consistent access to data with complete data encryption, multifactor authentication and comprehensive access control.
- » **PC- and mobile-enabled.** The platform provides anytime, anywhere access, as the resulting applications work on diverse device types (both PC and mobile), thus bridging the gap between different systems and simplifying workflow processes.

- » **Real-time visualization.** Real-time business data that can be presented in a visual workflow and dashboard design. Automatic data processing and notifications enable greater productivity.

Challenges

Low-code platforms—while offering a strong value proposition to organizations by enabling them to transform and operationalize their application environment—do come with certain trade-offs. Some of the challenges facing low-code platforms include:

- » **Integration with legacy systems:** Legacy applications can severely drain IT efficiency. While low-code platforms can support application modernization, integrating new low-code applications with legacy applications is a daunting task. Many low-code tools and applications fail to integrate with outdated systems, leaving organizations stuck in their process automation/workflow process optimization efforts. Also, the model developed for business process workflows may only be effective for certain types of applications, creating platform range problems.
- » **Choosing the right use case for ROI:** Low-code platforms have their limits and are not the perfect fit for every application need as they work best primarily where use cases are simple and predefined, aligning with the configured template/visualized building block. However, the general applicability of low-code platforms fails to deliver complex application requirements for specific business needs.
- » **Developers' reluctance to replace their choice of tech:** IT developers are reluctant to run critical business services on low-code platforms, which they do not have enough control of, thereby limiting the enterprise's choice of technology to build and run critical applications.

Conclusion

With the rising interest in application development across all types of businesses, IDC expects more enterprises to embrace low-code applications and empower their citizen developers to increase business agility, solve workflow problems and drive innovation.

In IDC's opinion, PwC's Digital Maker is an agile and intelligent low-code platform, making it a compelling infrastructure offering. It helps organizations modernize existing legacy applications while integrating them with new applications. Overall, it meets the business requirements of agility, simplicity and flexibility while offering localization needs and scale without compromising on security. If PwC's Digital Maker can help address the potential challenges highlighted previously, IDC believes the platform will be well-positioned to address any organization's low-code application needs. This will help businesses efficiently move away from application silos that lead to unnecessary overheads across different systems and enable the non-technical workforce to accelerate service delivery and create significant business value propositions.

Sources:

1. IDC Perspective - The Future of Digital Innovation: Every Enterprise Must Become a High-Performance Software Producer
2. IDC FutureScape: Worldwide 2021 Predictions – Asia/Pacific (Excluding Japan) Implications
3. IDC FutureScape Worldwide Services 2020 Predictions – APEJ Implications

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MESSAGE FROM THE SPONSOR**PwC's Low-code Platform, Digital Maker**

PwC is the first professional services firm to create an enterprise-grade low-code development platform, Digital Maker. PwC has foreseen the massive potential of low-code as a solution to accelerate digital innovation and future of business language. PwC's Digital Maker empowers companies to improve development agility, business adaptability, and encourage citizen-led innovations.

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