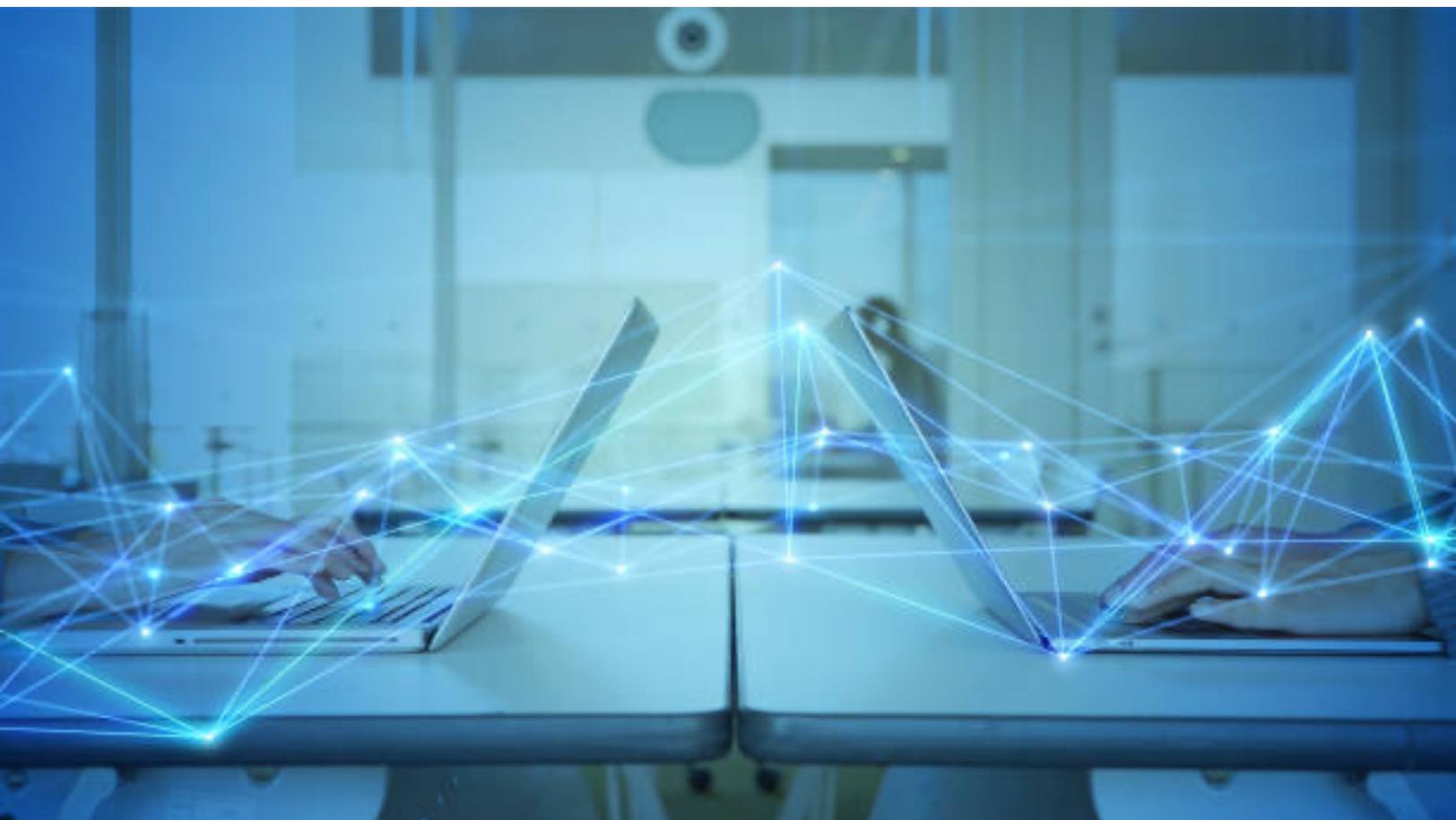


LEARNING FROM THE LOW-CODE PLAYBOOK

Low-code development is proliferating worldwide – but a rift has opened between the early adopters benefitting from the technology and those still considering it, according to a new survey.



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EXECUTIVE SUMMARY

The use of low-code platforms is near a tipping point, with nearly half of enterprises worldwide having deployed it in some fashion.

- Four in 10 large companies have ongoing process automation initiatives aimed at improved workflows, greater innovation and lower costs – issues that virtually all low-code projects are designed to address.
- Low-code adopters say they can develop applications over 2.5 times faster than using standard IT development processes, demonstrating how the technology boosts both IT staffs working alone and those working in tandem with business groups.
- 80% of those who have adopted low-code platforms say they excel at meeting customer needs, although skeptics remain unconvinced and employee resistance to change is a stumbling block.
- “Citizen developers” are being encouraged by IT at over half of large companies, allowing the business side to use low-code platforms to take responsibility for developing innovative and business-critical applications that transform processes.
- In 58% of cases, IT provides guidance on tools and platforms for citizen developers to use. The best success happens when IT lays down guardrails and works with business collaboratively for joint development.

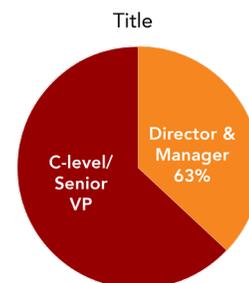
METHODOLOGY

To understand the impact of low-code development on enterprises worldwide, Radar Research Reports conducted a global survey of business and IT executives.

Sponsored by ServiceNow, the 16-question online and phone survey was distributed via email invitation in early 2021 to companies with a minimum of 5,000 employees; 300 responses were received. In addition, we interviewed market researchers and academics to provide context and examples of the trends identified in the survey.

The objectives of the survey were to understand:

- How widespread the use of low-code development has become in large organizations.
- What do IT and business executives believe to be the biggest benefits and greatest drawbacks to the use of these platforms?
- What best practices are being followed by those reporting the most success from low-code development?
- What concerns and beliefs are holding back adoption by skeptics – and what could change their minds?



Survey respondents were equally divided geographically among North America, Europe and Asia. Director and manager-level executives made up 63% of the respondents, with senior VPs and C-level executives comprising another 37%. The mean number of employees was 16,291. A wide range of industries were represented, including computing and communications, financial services, retail trade, manufacturing, utilities, and distribution and chemicals. (See the Methodology charts at right for additional demographic information.)

Radar Research Reports and Beacon Technology Partners LLC provided support in the development of the survey questionnaire, in addition to the qualitative interviews, writing, editing and production of this report. Radar Research Reports and the author of this report, Joe Mullich, are grateful to everyone who provided their time and insights for this project.

INTRODUCTION

Low-code platforms have reached a tipping point, with more than half of large enterprises worldwide adopting this technology, according to a recent survey of 300 executives at large companies from North America, Europe and Asia.

A low-code platform enables users, even those with limited programming skills, to create software with a graphical user interface and drag-and-drop configurations in place of traditional complex hand-coding techniques. This easier and more visual method of application development is becoming a key part of a company’s digital agenda for transformation and innovation.

The idea is clearly catching on. Organizations that have adopted low-code platforms are significantly more likely to give themselves a high rating in anticipating and meeting customer needs, delivering apps on time and on-budget, and accelerating the development of mission-critical projects (see Figures 1 and 2).

FIGURE 1

Low-Code Adopters Lead in Meeting Customer Needs

How do you rate your organization’s performance in each of these areas?

Organization Performance/“Leaders” Summary

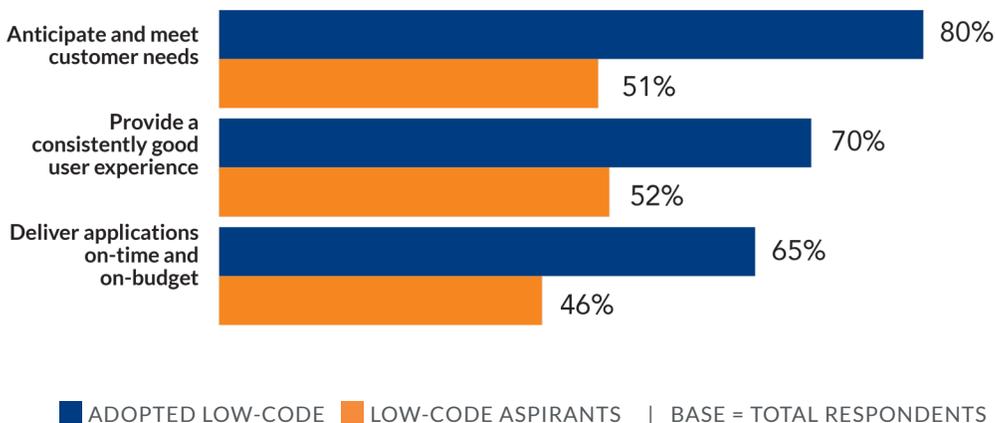
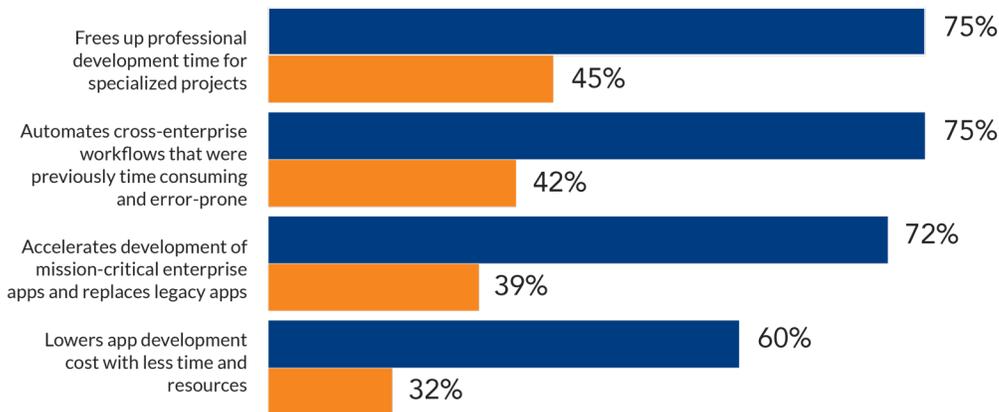


FIGURE 2

What Do Low-Code Adopters Value Most?

How valuable are each of the following benefits that are frequently attributed to low-code platforms?

Value of Low-Code Platforms/“Extremely Important” Summary



■ ADOPTED LOW-CODE ■ LOW-CODE ASPIRANTS | BASE = TOTAL RESPONDENTS

Despite the growing enthusiasm, the survey revealed a developing chasm between the early adopters of this powerful technology (“adopters”) and those who are still considering it (“aspirants”). The adopters report they are significantly speeding development, boosting the customer experience and spreading the technology across their organizations. In contrast, the aspirants still need to be convinced that they will reap the same benefits.

The divergent viewpoints suggest companies that have not yet implemented low-code vastly underestimate its potential. As a result, they risk losing market share to competitors that are pressing ahead with the technology quickly.

“Executives who have invested in traditional application development tend to be skeptical of low-code, because they are afraid that it will make their previous investments look bad,” explains Jason Bloomberg, head of Intellyx, an analyst and advisory firm focused on enterprise IT. “But you cannot risk making a decision based on those factors rather than on the best interests of the company. If you are not using low-code, your projects will take longer and be of lower quality.”

This paper explores the barriers to adoption that have kept enterprises intrigued by low-code platforms from enjoying the technology payoff. We will delineate the pathway that early adopters have carved out to successfully implement the technology, a.k.a. the “Low-Code Playbook,” and examine how companies can select the ideal low-code platform to gain the benefits of speed, scale and a better user experience.

IMPACTING THE BUSINESS CORE – AND FAST

Although the business need for low-code platforms has been apparent for a while, the pandemic period clearly demonstrated the universal need to respond to change quickly – a need that will not diminish going forward. Low-code platforms allow companies to build rich applications quickly, without the overhead of complexity. Leveraging a low-code platform, a hospital built a COVID-19 symptom check chatbot that serves 1,000 patients a day in just six hours. The chatbot went from idea to production in a mere four days. A large U.S. insurer developed an app to match COVID-19 surge projects with skills in just three days, from initial call to production.

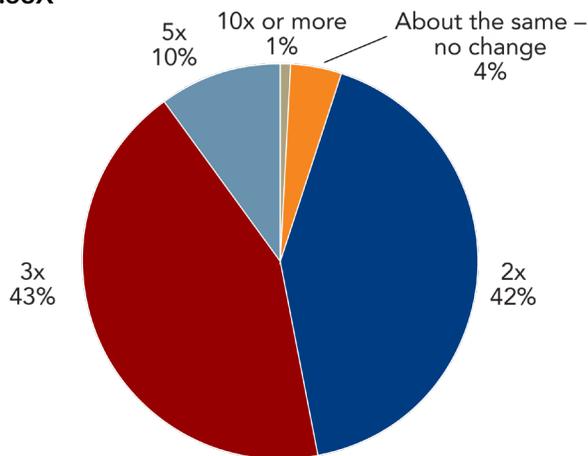
Not all low-code projects proceed this quickly. More complex applications involving multiple integrations with legacy systems or requiring specialized coding skills for certain sections can take longer. Still, thanks to low-code tools and sharing development among IT and business staff, low-code adopters say they can develop applications over 2.5 times as fast as using IT development staff alone, according to the survey (see Figure 3).

FIGURE 3

Low-Code Cuts Development Time by More Than Half

How much faster is your organization able to develop low-code apps vs. using IT development staff alone?

Average Time Savings = 2.63X



BASE = TOTAL RESPONDENTS

“A low-code platform is not taking away the core of what the software can deliver,” says Koushik Sen, a professor of computer science at the University of California, Berkeley. “It’s simply changing the race, so you start at the 50-yard line for a 100-yard dash. The finish line is the same, you just get a head start.” He says one way to envision the low-code experience for a simple, straightforward app is to imagine “you just say things and the computer does it for you – an Amazon Alexa for programming.”

Process automation is a critical use case in helping organizations reach the highest goals. Some 82% of companies focused on automation initiatives believe low-code accelerates innovation and increases agility in their organization. About 72% of low-code adopters say the technology accelerates development of mission-critical enterprise apps and replaces legacy apps.

A few examples of the many ways companies have put low-code platforms to use include:

- A retailer using low-code to build an app that enables store employees to record store audits and provide a central repository for observations related to anti-money laundering, consumer protection, health and safety, and product safety.
- An enterprise developing a “Voice of the Employee” app to streamline employee feedback regarding pay, work schedules, management and other areas.
- A research hospital implementing a digital signature workflow solution for contracts and procurement, so the organization could keep functioning when employees began working from home.

The technology significantly impacts IT department operations as well. “As with any automation, these platforms help employees reduce monotony, [and] improve productivity and consistency,” explains Amy J. Ko, professor at The Information School at the University of Washington in Seattle. Survey results seem to back her assessment: 75% of low-code adopters say the platforms free up professional developers’ time for specialized projects.

82% of companies believe low-code accelerates innovation and increases agility.

The survey found companies that have not adopted low-code do not know what they are missing. For example, only 45% of the aspirants anticipate it will free up their developers — nearly half of the actual success rate reported by respondents.

Professor Sen says the main issue for this attitude is an ironic one: Low-code does its job so well that sometimes managers and IT professionals are suspicious of it. “Anytime we see less effort put into something, we assume the output is low quality,” he says. “The perception is if it can be done quickly, it is not the best thing.”

Mina Pêcheux, an engineer in applied mathematics and computer science who has written extensively about low-code platforms, echoes this sentiment. “You get to the same result whether or not you use low-code — you just get to those results a lot quicker with low-code,” she says. “Because the low-code solution doesn’t make a difference in the final product, a lot of people have trouble imagining the benefits they’ll get from the technology. We as human beings are simply bad at planning, and we are especially bad at planning how to do something better and quicker.”

MORE SATISFIED CUSTOMERS AND EMPLOYEES

Low-code platforms can bring results that impress customers and employees.

Some 80% of adopters say they can anticipate and meet both employee and customer needs. In addition, 79% of adopters say the technology drives new experiences and value on any channel. Moreover, some 60% of low-code adopters say the technology ensures consistent user interface standards across the enterprise (see Figures 4 and 5).

FIGURE 4

Ramping Up to Meet Customer Needs

Please rate the extent to which your company's application development efforts meet or fail to meet your organization's needs in each of the areas below.

"Most of the Time"/"Frequently" Summary



■ ADOPTED LOW-CODE ■ LOW-CODE ASPIRANTS | BASE = TOTAL RESPONDENTS

In a digital-first world, that double payoff is essential. People are accustomed to technology being easy to use when they bank or consume entertainment at home, and they expect their business systems to provide the same consumer-grade experience. Business leaders can tap into low-code platforms to provide a good user experience as part of their overall modernization efforts.

As boundaries of all sorts blur, the demarcation between the customer experience and the employee experience is dissolving as well. Instead, the mantra of the “total experience,” or TX, is evolving. IT and business units must eliminate silos, and connect systems across the entire journey, to support both customers and employees.

Low-code platforms can deliver a total experience using the latest innovations while slashing development time, costs and the need for scarce technical expertise. As Bloomberg puts it, “Low code supports the customer experience, the employee experience, any user experience really.” Once again, it is critical to choose the right low-code platform. Only platforms architected in a certain way — with a shared data model and optimized for all user experiences — can confidently deliver a total experience.

79% of adopters say *the technology drives new experiences and value on any channel.*

By 2024, Gartner estimates companies that provide a superior TX will outperform their competitors in key satisfaction metrics for both employees and customers.¹ “Finding people who speak both the language of business and the language of technology is very hard,” Professor Sen says. “Low-code is the intersection of the two.”

¹<https://www.gartner.com/en/newsroom/press-releases/2020-10-19-gartner-identifies-the-top-strategic-technology-trends-for-2021>

SCALING UP – AND UP AND UP

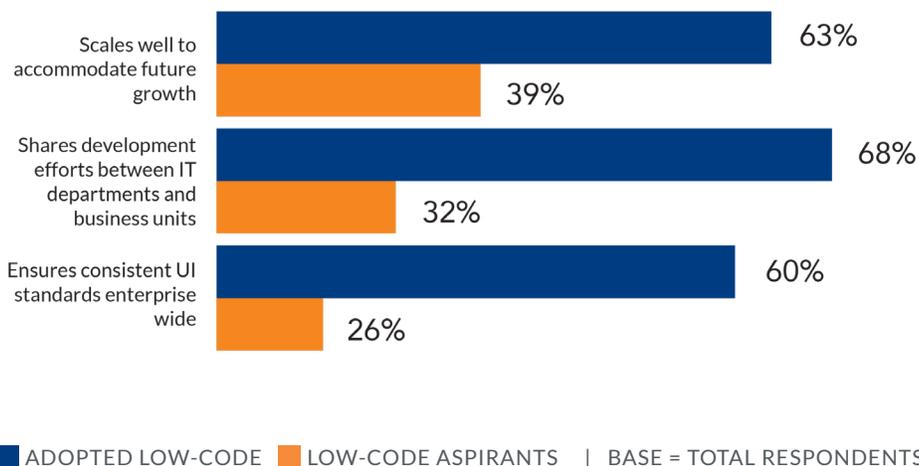
To take low-code to the next level, it is critical to use a platform that allows the technology to scale across the organization. Some 63% of adopters say an important benefit is having low-code platforms scale well to accommodate future growth (see Figure 5). In addition, 76% of low-code adopters cite the importance of applications developed with the technology being able to scale well across the organization as the number of users grows.

FIGURE 5

A Valued Way to Scale

How valuable are each of the following benefits that are frequently attributed to low-code platforms?

“Extremely Important” Summary



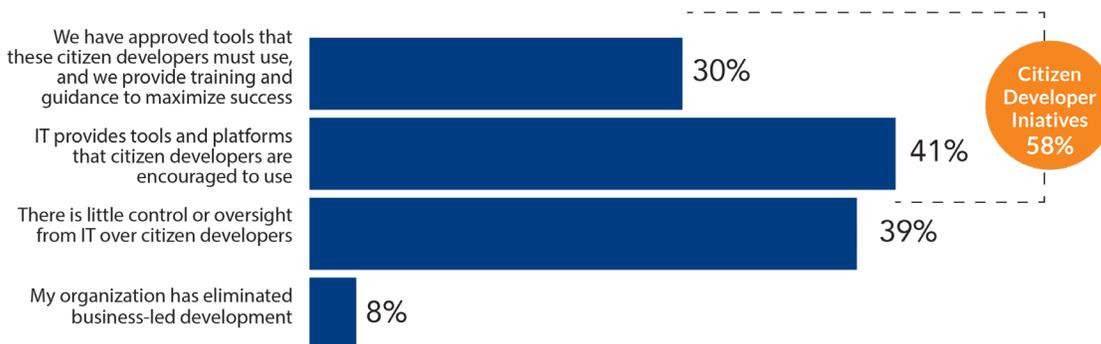
The benefits of having the right low-code platform become increasingly apparent as applications scale with growth, teams share development efforts and users more quickly adapt to consistent user interfaces. For example, adopters on the most capable low-code platforms can assign larger projects requiring a mix of skills to both business and IT teams, then leverage this as a strategic on-ramp to citizen development opportunities.

Some 58% of enterprises support citizen developers (business users with a penchant for new technology) with tools and platforms to help them develop apps with IT (see Figure 6).

FIGURE 6

The Rise of Citizen Developers

What is the level of governance for your organization's citizen developers?



MULTIPLE RESPONSES ALLOWED | BASE = TOTAL RESPONDENTS

Although citizen developer initiatives are still in their infancy, many find they hasten digital transformation. Among low-code adopters, 79% say the approach successfully shares the application development workload between IT and business teams.

Professor Sen says low-code platforms plug the IT supply-demand gap, where the need for new digital equipment and software is far greater than the number of qualified programmers. But with low-code in use, “we are enabling more and more people with the confidence to create applications in a very short time,” he says.

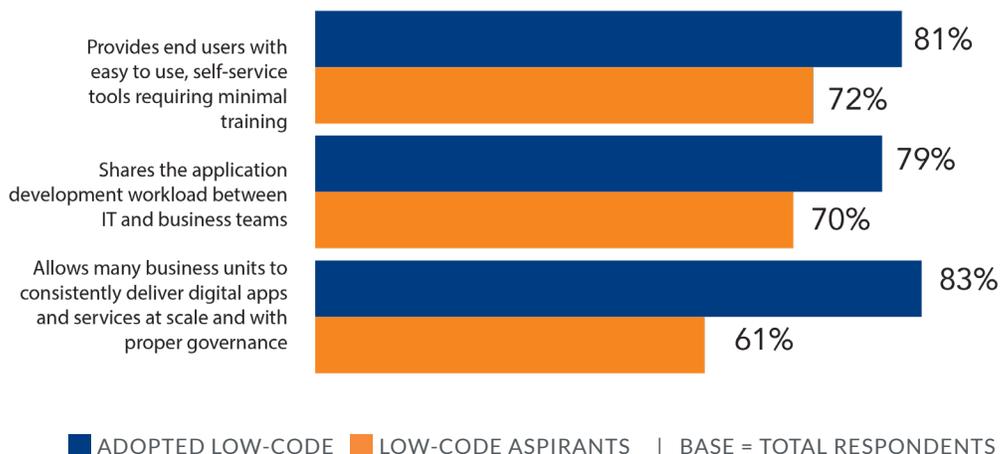
Low-code also fosters collaboration between IT and other departments. While low-code provides an important mechanism for IT to service its apps, just as importantly the technology also allows the business side to play a more integral role in the development of apps. The business side often has difficulty articulating their requirements for applications; low-code enables them to make a rough sketch without any significant programming knowledge (see Figure 7).

FIGURE 7

How Low-Code Champions Citizen Developers

Please rate the extent to which your company’s application development efforts meet or fail to meet your organization’s needs in each of the areas below.

Most of the Time”/“Frequently” Summary



“Managers, product owners, and people who are not expert developers can use low-code to communicate with the DevOps team,” Pêcheux says. “Prototyping is hard for IT to do, and low-code enables the business side to easily prototype on their own, and then work with IT to get the exact attributes they want.”

“Citizen developers are crucial in the society of software. We should all be citizen developers. We as a developer community should include people and listen to them,” she continues. “Low-code gives business users enough knowledge so the discussions start becoming interesting for senior developers.”

Indeed, Bloomberg believes citizen development will evolve more toward the business side of the enterprise. “Low-code platforms were originally aimed at developers to help them streamline their work,” he says. “We will begin seeing professional citizen developers where business analysts use low-code platforms to build applications as a core part of their job.”

LESSONS FROM THE LOW-CODE PLAYBOOK

A clear strategy forged by leaders is developing for how to use low-code — and to benefit from best practices, which aspirants need to follow if they do not want to be left behind. The survey identified a pattern showing that low-code automation efforts are spreading across organizations undergoing digital transformation. In most cases the journey moves in stages, from easier projects to those that are harder to automate.

Roughly 26% of companies are on the initial foray of their process automation journey. These businesses already have some degree of custom automation in logistics/supply chain, manufacturing, R&D/engineering, service, recruitment management/talent and facilities workplace.

“Low-code enables the business side to easily prototype on their own, and then work with IT to get the exact attributes they want.”

Organizations in the second stage of process automation, which comprise 38% of those surveyed, have implemented custom process automation in these areas as well. In addition, they have expanded their process automation initiatives to finance, human resources, marketing, order management and time attendance.

Those furthest along this path, who are fine-tuning their process automation initiatives — a group that makes up 36% percent of those surveyed — have already implemented the technology in the same areas as those on their initial foray and in the “moving forward” group. The top group is extending process automation to points of sale, sales, procurement/purchase, legal and asset management. “Companies start with the processes that are easier to automate, and once they get that expertise, they ramp up to the harder things,” Bloomberg explains.

The keys to success for a large enterprise include:

- Selecting a low-code platform with features that support both citizen and professional developers at scale.
- Aiming the first workflow app at solving a particular problem for a line of business.
- Creating a small center of excellence to build core competencies.
- Empowering citizen developers to create speed and agility at scale.

“Organizational change isn’t about particular technologies; it’s about building confidence in and capacity for change in organizations,” Professor Ko says. “That’s a matter of culture, leadership and process.”

Part of that leadership is understanding that low-code is not a uniform approach, but a variety of tools that approach problems in different ways. “Some low-code platforms are workflow-oriented, where you build an app by drawing a flow chart,” Bloomberg says. “Others are more spreadsheet-centric and about data manipulation. Ultimately, it’s about having the right tool for the job, and understanding what you want to accomplish from a business context.”

OVERCOMING RESISTANCE TO CHANGE

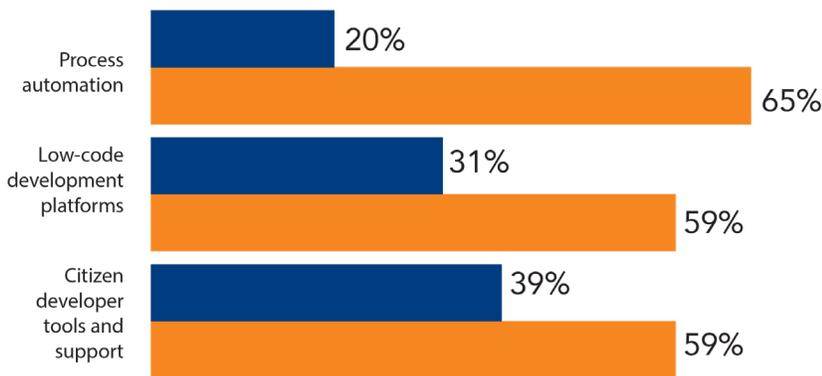
The largest obstacle to implementing low-code platforms is employee resistance to change. Some 59% of aspirants view this as a big or moderate hindrance. The same sentiment was expressed by 59% of those considering citizen development tools and support and 65% of those considering process automation (see Figure 8).

FIGURE 8

Employee Resistance Can Be Met and Mastered

As you consider process automation for your organization, which of the following are among your biggest hindrances?

% Rating Employee Resistance as Big/Moderate Hindrance



■ ADOPTED LOW-CODE ■ LOW-CODE ASPIRANTS | BASE = TOTAL RESPONDENTS

In contrast, only 31% of adopters consider employee resistance to change to be a big or moderate obstacle — roughly half of the aspirants. Among adopters, employee resistance is only an issue for 20% and citizen developer tools and support for 39%.

“If you already have a dev team and switched to low-code, people might resist and be afraid they are going to lose their jobs,” Pêcheux says. “That isn’t true, but you must reassure them and explain the benefits of low-code, even to programmers. As a developer, you have a knee-jerk reaction that code is my thing, and you don’t want anyone to take it away from you. However, if you stop for a moment and think about it, you realize that you don’t code everything and you don’t even like to code to everything.”

In fact, she says, low-code platforms can address some of the “scope creep” that occurs in IT departments. A developer who was hired for expertise in one area — say, back-end development — might be saddled with tasks they aren’t particularly good at, like creating dashboards. “Low-code tools can be a way of rewriting history and taking away the jobs you don’t want to do.”

“Low-code is a great empowerment tool.”

Jason Bloomberg,
president, Intellyx

Professor Sen suggests having hackathons, where employees are given a real or imaginary business problem to work on. “Have the vendor come in and show your IT department how these things can work,” he says. “Homo sapiens are more resistant to change than any other species on this planet.”

As Bloomberg sees it, people are resistant to change that comes from outside their sphere of influence. “Companies need to position low-code as a way of empowering people,” he says. That way, “they are the ones who have a hand in the change. Low-code is a great empowerment tool.”

CONCLUSION AND SUMMARY

Companies need to understand their competitors are already benefiting from low-code platforms. They need to accelerate their use of the technology to adapt with agility to changing markets and remain competitive in an increasingly digital future.

Professor Sen compares the evolution of low-code platforms to common productivity tools like Microsoft Excel and PowerPoint. When these tools first emerged, companies employed experts who used them. “Over time, something that had been a specialized tool became a default member of the standard technology portfolio that every employee was expected to know how to use,” he says. “The same thing will happen with low-code. You will be required to know it.” The comparison is apt, given that a spreadsheet is analogous to a low-code platform because it enables users to analyze and manipulate data without writing hardly any computer code.

Companies that have not yet adopted the technology and low-code approach underestimate the benefits that others are getting from it. They also overestimate how much employee resistance they will encounter.

Sen says organizations stuck in this position should consider the dramatic and rapid work transitions that took place after the pandemic began. They demonstrate that while initial change can be difficult, the outcomes can be favorable as people learn to adjust. Before COVID-19, for example, working from home was not seen as a fruitful way of delivering value. Today, that attitude has changed. Despite the work disruptions experienced by all, many employers experienced productivity gains as workers adopted new digital tools, left commuting behind and learned to better manage their time.

“Now it seems like we’ve been doing it for years,” Sen says. “That will be the case with low-code platforms as well. It serves such an important and critical business need that companies and their workers will embrace it as inevitable.” And the companies that embrace low-code sooner rather than later will be way ahead in the new digital era. 🌈

Low-code “serves such an important and critical business need that companies and their workers will embrace it as inevitable.”

Koushik Sen, professor of computer science, University of California, Berkeley

Joe Mullich has written about IT, business and productivity topics for *The Wall Street Journal*, *The Harvard Business Review*, *Forbes*, *Entrepreneur*, *Money* and many other leading publications and companies. He has received more than three-dozen writing awards.

This research was funded by a grant from ServiceNow.

SPONSOR'S STATEMENT

The Low-Code Gateway to Digital Transformation Success

Digital transformation continues to be more relevant than ever. The recent pandemic has proven how difficult it can be to quickly adapt to changing opportunities. Organizations need to pivot faster than ever with new processes and new business models to not only compete, but to survive. Success requires faster, more agile execution with more automation delivered through software applications. Low code is the gateway to that success.

Fast and scalable application delivery is crucial for organizations to innovate quickly and frequently. And to better engage employees and customers in a post-COVID age, organizations must meet the higher expectation for experiences that are consumer-easy and end-to-end. Apps are the automation engines that drive digital transformation. And the speed of app delivery dictates how fast an organization can respond to new opportunities to drive growth. But speed is only the start. These apps must create an inspirational experience regardless of whether they are employee or customer facing.

The reality is that every employee is also a customer whose expectations are driven by a common consumer experience. For example, any experience that required human touch (hotel check-in, package delivery, office security, and badging) now needs to be re-designed for reduction of contact. Users now expect the same digital experience both at and outside of work. Aligning around these common expectations means modern apps must break down traditional experience silos. Low code technologies must quickly enable such new ways of working for organizations to remain relevant and ultimately thrive.

MORE RESOURCES, NO ADDED COST

Unfortunately, traditional approaches to software and service delivery increasingly cannot meet basic requirements for speed and quality at scale. Most organizations don't have enough resources to build the apps they need. And long backlogs of high-value applications represent lost opportunities for the business to expand and grow. As this research points out, organizations that are embracing low code are successfully expanding their resources to accelerate application development, increase workflow automation and reduce time-to-deployment – all without added cost.

Powered by App Engine and IntegrationHub on the Now Platform®, ServiceNow Creator Workflows empower enterprise-class low code app delivery with intuitive and intelligent experiences, at speed and scale. With Creator workflows, businesses can go from an abstract idea to an implemented app in about a day. Now it's easier for anyone to quickly and safely build compelling app experiences that scale from a single department to the entire enterprise.

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