



Business Uncoded: An Introduction to No-Code App Development

A primer on the groundbreaking approach to software development that's changing the way businesses engage with their workers, systems, and processes.

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Executive Summary

For nearly two decades, companies have been decreasing their dependence on third-party software vendors. The total share of firm spending on pre-packaged vendor software has steadily declined since 1998, and today over 70 percent of IT software budgets are set aside for creating software in-house or contracting third-party development agencies. In fact, businesses still spend more than \$250 billion annually on proprietary software.

With so much investment thrown into proprietary software today, the process should be highly optimized and cost-effective. Yet software creation remains resource-intensive, convoluted, and inefficient. This is due to the fact that companies are continuing to rely on traditional development models that require coding, lengthy review processes, and access to expert developers.

For most companies today, the app development process goes like this:

- An employee or department requests an app to solve a business challenge related to communication, collaboration, project management, data collection, or a number of other uses.
- The project receives leadership approval and budgetary funds.
- Designer and developers build the application.
- After months or years of waiting, a first iteration is released — beginning an indefinite cycle of reviews, updates, and new versions.

This process often proves unsustainable. In our digital-first world, companies require immediate access to cost-effective, customizable apps. Throwing vast amounts of resources into custom software production doesn't always yield positive results. A recent study found that 14 percent of IT projects failed while 49 percent experienced “scope creep,” or

uncontrolled changes to the project's scope. Thirty-two percent lost their project budgets upon failure.

As an alternative option, many companies are embracing no-code development, a methodology that enables software creation that does not require coding. The technology increases the agility of the iteration and modification of an application. No-code development fuels lean projects with faster times to market, improved productivity, and tremendous cost savings.

In this white paper, we'll explore:

- The fundamental concepts of no-code development;
- The benefits of using no-code platforms;
- What kinds of organizations are using no-code platforms; and
- What you can build with a no-code platform

Your journey to no-code app development starts now. **Let's begin.**

What is No-Code Development?

No-code development is a unique approach to software development that enables digital transformation in organizations of all sizes. In layman's terms, no-code development is the process of developing apps without writing any code.

SaaS-based no-code platforms empower businesses to create software exponentially faster and with less money than a traditional, code-based approach. No-code development projects reach completion upwards of ten times quicker than traditional coding projects.

No-code development should not be confused with low-code development, which requires some amount of coding. Traditional developers use low-code platforms to simplify and expedite coding, while non-technical professionals use no-code platforms to build applications without writing any code.

Imagine a spectrum, where on one side you have traditional software development — highly procedural and code-driven — and on the other side you have no-code, which is declarative in nature, or capable of achieving an outcome without listing commands or steps. As you move further along the spectrum, from procedural

to declarative, the need to understand underlying code becomes less and less important. In a true no-code platform, a business user does not need to know how to code in order to create a piece of software. The platform handles the technical heavy-lifting, allowing the app creator to focus on the creation of effective apps which align with their organization's needs.

Traditional software development

- Professional coding required.
- Software and apps are created with specific purposes in mind.
- Very few people have the skills to create apps using traditional methods.

Low code development

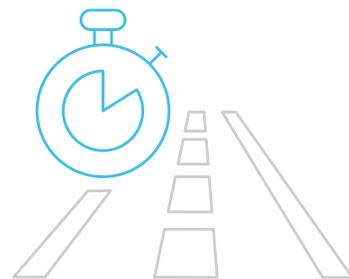
- These environments expediate coding done by professional coders.
- Low-code products are flexible to an extent, but are still limited by the availability and skill of developers on hand.

No-code development

- No code platforms do not require professional developer resources to create apps.
- Non-technical business users can create apps specific to their work.
- This increases access to unique workplace applications.

As you become more comfortable using a no-code platform, and eventually master it, the solutions you create will grow and evolve. Soon, you'll have a suite of agile apps to iterate on and perfect.

Now that you have a fundamental understanding of no-code development and a clearer sense of its purpose, let's explore some of the benefits of using a no-code platform.



The Benefits of No-Code Platforms

In order to appreciate all the benefits that no-code platforms have to offer, let's look closer at the technology's place within the larger scope of digital transformation.

Digital transformation — or the process of implementing new technologies to solve everyday business challenges — is now fundamental for business survival.

Examples of digital transformation include moving from paper-based to digital processes, migrating to the cloud, embracing artificial intelligence and machine learning, and making data more actionable and accessible. Digital transformation has huge potential which can be applied to all areas of an enterprise.

Agility is a core tenet of digital transformation. No-code development streamlines software development by decoupling IT from the process and putting it into the hands of “citizen developers,” or non-technical workers.

Let's explore 10 benefits of no-code platforms:

1. Faster time to deployment

Apps built through traditional software development can take months or even years to launch. In today's fast-paced business environment, it's not uncommon for workers to request apps to help solve problems only to leave or transfer roles before the software is completed.

Using a no-code platform, however, can change this dynamic. No-code development makes it possible to build and deploy a business management app (for a task like inventory management) in far less time — meaning employees can easily implement the apps they need to do their jobs.

2. Enhanced productivity

Leading businesses across all vertical markets are continuously looking to improve productivity. In fact, 60 percent or less of [work time is actually spent productively](#), a recent report by Atlassian found.

A no-code app platform can boost productivity by putting easy-to-use apps in the hands of workers who are overseeing complex tasks. An app can simplify data entry, task management, and project management, enabling greater output with improved visibility across teams.

3. Empowered workers

Each year, millions of talented workers leave their jobs because they feel unmotivated, unproductive, or unhappy. Boredom, or a lack of purpose, is one of the greatest challenges facing the global workforce today.

A no-code platform can do more than just boost productivity. It can make workers feel empowered by giving them the ability to digitize routine work. Using a no-code platform, workers can identify manual tasks that can be automated, create an app, and move on to do more interesting and fulfilling tasks.

If there's one field in particular that could use more empowerment right now, it's IT. One study found that 65 percent of [IT workers are considering quitting](#) due to burnout. IT workers are chronically overworked and overburdened having to manage too many projects. No-code development can help here, too.

4. Less IT backlog

It's not that IT workers are lazy or unwilling to work hard. Quite the opposite. The problem is more about what they're working on. Most software developers don't spend years going to school to create low-level productivity apps. They want to create software that solves more pressing challenges.

By using a no-code platform, you can take business management apps off of your developers' plates. This creates less of a backlog for IT and allows their skills to be put to better use.

That's not the only benefit for IT. There's also a cybersecurity play here, too.

5. Improved security

Creating apps with custom code can lead to a variety of security issues. Apps are notoriously difficult to secure, with 86 percent of tested apps containing one or more [session management vulnerabilities](#) and 59 percent having one or more input validation errors.

When leveraging a no-code platform, you can rest assured that all of your apps will have strong [foundational security elements in place](#) — like industry-standard security protocols, practices to ensure your data is secure, and built-in mechanisms to prevent unauthorized users from seeing sensitive data. No-code apps also contain guardrails set by administrators or IT departments so that users don't break compliance guidelines.

6. Cleaner data

A data input error can be a nightmare for a project manager. These errors slow down data entry and delay a project. It's not always easy, however, for field workers in industries such as construction, utilities, and warehouse operations to enter data into spreadsheets or paper forms. Workers often have to work quickly in areas with limited lighting or adverse weather conditions.

7. Less paper

Paper-based management systems are expensive to administer. They are also notoriously insecure and inaccurate because paper can get lost or stolen and must be meticulously filed and tracked.

Using no-code platforms, even organizations in highly regulated industries like [healthcare](#) can move on from paper-based processes. Replace tired methods with smartphones and tablets to provide easier data entry, more storage, immediate access to records, and other benefits.

8. Greater mobility

In most companies, bring your own device (BYOD) is now a basic demand for workers who want centralized access to tasks and data over a single device. In fact, according to [Microsoft](#), 67 percent of employees now use personal devices at work. And 87 percent of businesses are [dependent](#) on their employees' ability to access mobile business apps from their smartphones.

BYOD isn't just useful for email. The practice also enables advanced tasks such as barcode scanning, image and document sharing, collaboration, real-time communication, and natural language processing.

No-code platforms help IT to mobilize and leverage BYOD in secure and easy to manage ways. Since a no-code platform is cloud-based, apps are built from a central location and easily deployed to team members over the internet.

9. Improved communication

Mobile apps like WhatsApp, Slack, and Trello are great for keeping teams in the loop throughout the day. However, while they're good for messaging and file-sharing, they're less effective for moving projects along to completion.

With a no-code platform, it's possible to build a communications element directly into your apps. For example, you can create certain forms that automatically send out emails or SMS notifications when they are completed. This is especially useful in an environment like aerospace engineering where [non-conformance reports](#) have to be checked off and closed before projects can be completed.

10. Reduced OPEX

As we mentioned, apps are expensive. They can cost hundreds of thousands of dollars and they require

the expertise of developers who command top salaries. The [average U.S. software developer salary](#) is now \$106,710, according to U.S. News.

By developing your own apps, you will spend a [fraction](#) of the budget you'd have to set aside to develop apps the traditional way.

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Who Uses No-Code Platforms?

Since the early days of software in the 1960s and '70s, there has been a clear distinction between software developers and everyone else. This system was created out of necessity, as software development used to be incredibly difficult and time-consuming to learn and master.

With the onset of no-code, software development is now transitioning to the general workforce, meaning everyone from custodial teams to C-level executives can create and customize apps that make their jobs more efficient and impactful.

There's a small percentage of highly skilled master coders. Yet, there are billions of process owners and other non-technical employees who are capable of making apps using no-code platforms.

Three types of workers are typically involved in no-code development:

Process owners: Non-technical or technical employees such as project managers who are in a position to spearhead app development.

Decision makers: Executives who have the vision and power to greenlight no-code app development.

End users: Employees who will benefit from using apps on a daily basis.



Examples of workers who benefit from no-code app platforms:

Line operators: Manufacturing technicians who oversee complex systems and machines.

Sales and marketing managers: Employees who manage multiple, concurrent projects and team members.

Field managers: Utility and construction managers with distributed teams, tight deadlines, and complex inventories.

Executives: C-level executives who manage busy travel schedules, daily communications, multiple projects, and more.

Entrepreneurs: Small- to medium-sized business owners who oversee their own operations, replicate and scale business processes between sites, track progress, and manage customer expectations.

As you can see, many types of professionals, in numerous settings use no-code platforms — a concept that makes some people uneasy. Business administrators often want to know why they should trust non-technical employees to create software. Let's explore.

No-code platforms like AppSheet contain built-in safeguards for app creation. These platforms are simple and declarative in nature so that anyone who knows how to operate software can build apps. Also, app creation varies in level of complexity. Some training may be needed for advanced projects, however, no-code platforms do not require much time or expertise to get started. As much as 80 percent of business productivity apps can be created using no-code platforms. A relatively small number of apps — like highly advanced medical or scientific software systems — require expert coders.

What Can You Build With No-Code Platforms?

Unlike industry- specific plug-and-play management programs which confine you to certain parameters, no-code platforms are completely open-ended and let you design feature-rich apps from existing data sources. In other words, no-code platforms grant great versatility to app creators and users.

Here are some of the ways that you can use no-code platforms to increase your organization's effectiveness:

Industry	Service	App Examples
Inventory	Managing inventory manually with paper and spreadsheet systems leads to errors, confusion, delayed timelines, and unhappy customers. Many companies now build dedicated inventory apps to track their assets throughout the day.	<i>Warehouse management, tool and equipment tracking, vendor management, delivery coordination, inventory management</i>
Operations	Medical facilities, factories, construction sites, and many other workplaces must be masterfully orchestrated. Use no-code platforms to design digital solutions that enable rapid communication, information sharing, and personnel management, resulting in complete synchronization across an entire facility.	<i>Patient scheduling and triage, transportation coordination, shift change notes, patient and customer management, enterprise asset management, incident reporting, safety tracking</i>
Customer Service	Organizations go to great lengths to ensure a smooth customer experience (CX). No-code platforms can empower a business to manage all aspects related to CX.	<i>Hotel room inspection and turnover, backend crowd control, parking, weather notification, safety alerts, emergency response, chatbots</i>
Process Control	Manufacturing facilities have many moving parts that require tracking and monitoring to ensure quality control.	<i>Safety inspections, quality inspections, inventory, work orders, components</i>

Continued

Industry	Service	App Examples
HR Management	HR managers keeps track of an enormous amount of documents, coordinates events, manages new hires, and so much more. While off-the-shelf HR programs can help, the software often lacks the customization needed to manage a company's unique culture and requirements.	<i>Resume filer, benefits tracker, discipline, travel arrangements, event planning, birthday and holiday notification, interview and candidate tracker</i>
Organization	Organization is critical for non-profit and public sector entities, where finances and processes must be carefully tracked and shared with directors, employees, board members, and officials.	<i>Donor management, field operations, marketing coordination, finance management, grant application tracking</i>
Property Management	Operating a building can be difficult without the right resources. Repairs, documents, tenants, and other important details need to be carefully monitored.	<i>Rent collection and notification, repair tickets, vendor management, regulatory compliance, emergency notification, utility control, communications, staffing</i>
Retail and ecommerce	Retail and ecommerce managers must balance store operations, customer service, inventory management, sales, and more. Instead of doing these tasks by hand, citizen developers can build no-code apps to make their jobs more efficient.	<i>Store maintenance, staffing, training, customer notification, data management, promotion management, vendor coordination</i>

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Top Industries Using No-Code Technology

While no-code platforms are widely used across all verticals, there are specific industries especially suited for the technology.

Here are four industries experiencing upticks in no-code adoption:

Construction: Large general contractors and small subcontractors are now using no-code platforms to build apps that capture real-time field data, manage punch lists, run custom reports, track safety inspections and projects, and enable rapid hiring and outsourcing.

Oil and gas: Suppliers, partners, manufacturers, and transportation companies must work together and communicate. The oil and gas industry is slowly migrating away from paper management systems, as companies are modernizing through digital transformation. Apps now play a major role in making the transformation happen.

Utilities: Apps are now being used to reduce truck rollouts, coordinate field workers, maintain uptime, streamline installation and repairs, and increase productivity. Energy projects like solar, wind, and water require advanced equipment tracking and real-time performance monitoring.

Manufacturing: Manufacturing environments can be loud and busy, making it difficult to communicate with team members, record data, and conduct equipment inspections. Instead, many manufacturing facilities use apps to improve operations. Some are also installing [Raspberry Pi devices](#) in kiosks, which act as low maintenance computers and work in conjunction with apps.

Is No-Code Right for Your Business?

By now, you are probably wondering how no-code can help your company streamline its operations. As you begin the decision-making process, your business will ultimately fall into one of the following categories:

1. Digital transformation has already started

Your company may already have a digital transformation plan in place. If so, you can use a no-code platform as a “digital lighthouse,” or a highly measurable project that can serve as a model for scaling digital transformation across the enterprise. In other words, you can use it as an experiment to observe how various departments respond to apps, helping you deploy them safely and responsibly.

If your business has a digital transformation process in place, it's advisable to consult with project managers to form a plan for rolling out apps in a way that aligns with the organization's larger objectives.

2. Digital transformation hasn't started or is in its infancy

It's likely that your company has embarked on some form of digital transformation. After all, digital transformation can be as simple as using a smartphone to solve a business challenge. Regardless, some businesses are more hesitant to modernize.

A no-code platform can help your business begin its digital transformation journey. After all, you don't have to have a formal digital transformation plan to deploy apps. App creation and usage is not very expensive. No-code development doesn't take much to get started, and it can be scaled as projects and companies expand.

Any business, regardless of size or budgetary restriction, can benefit from no-code development. Global, multisite enterprises and small, family-run businesses alike benefit from this groundbreaking, democratic technology.

Ready to start with no-code development? AppSheet can help.

Now that you've read all about the basics of no-code development, you might be thinking up all the applications that you can create to improve your work. AppSheet, the industry-leader in no-code development platforms, is at your service.

If you're ready to get started, you can start with your own data to [create a new app](#), copy and customize [one of our sample apps](#), or [speak with an AppSheet representative](#).

We can't wait to see what you'll build.

