

Rethinking Citizen Developers

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Coming from a background in conducting original ethnographic research, Mary-Kate brings a humanities lens to the technology she writes about. She's passionate about using her background in primary and secondary research to bring innovative solutions to clients in both the digital experience and automation spaces. Outside of work, Mary-Kate enjoys both traveling and hiking.

Submitted by [Mary-Kate Sloper](#) on 8, Dec 2022

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Citizen development is taking off. But it's not an easy button. To maximize the value of your citizen development initiative, read our guide on the top benefits and considerations.

Business leaders have been chasing the citizen development bandwagon with increasing urgency amid the recent hype. Industry analysts have positioned citizen developers—and their many benefits—as a solution to the ongoing developer shortage.

The [Project Management Institute](#) claims, “Citizen development is one of the most exciting and current business movements.” Kissflow [states](#) that “60% of all apps are now built outside the IT department,” and Gartner® [predicts](#), “By 2023, the number of active citizen developers at large enterprises will at least be four times the number of professional developers.”

Rather than viewing citizen developers as a panacea for the talent shortage, technology and business leaders should develop a more strategic approach that takes into account the strengths and weaknesses of a citizen development program.

Benefits of Citizen Development

Citizen developers work as non-IT employees in other lines of business (LOB) and have little to no training in writing code. Instead, they integrate their expertise from their own departments with their proficiency in low-code or no-code tools to create solutions such as business applications and automated workflows.

The Benefits of Implementing Citizen Developers

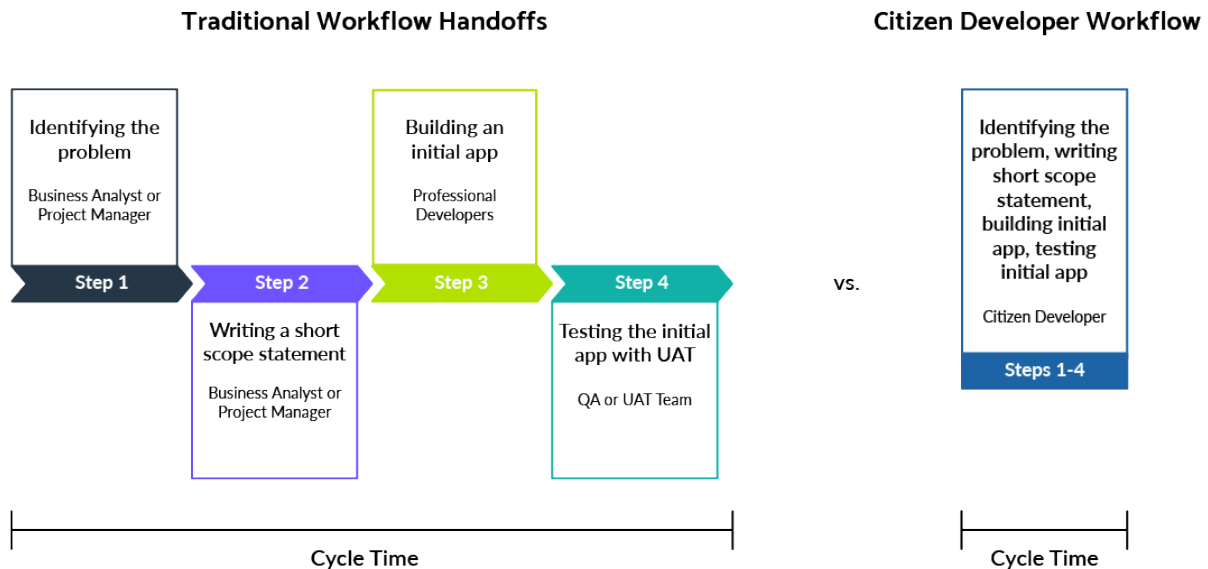


Source: Stratascale 2022

1. Reduces time to app deployment

A traditional workflow for developing an application typically involves a series of handoffs. Citizen developers, however, can perform the following steps themselves:

1. Identifying the problem.
2. Writing a short scope statement.
3. Building an initial app.
4. Testing the initial app with user acceptance testing (UAT).



Source: Stratascale 2022

Citizen developers' ability to complete steps 1-4 in app deployment themselves significantly reduces the time that it takes between each handoff—every handoff increases the cycle time, meaning each feedback loop takes longer. A longer cycle time not only reduces efficiency but also increases risk. More resources are spent before the feedback can show whether the work put into each step is actually effective, and with each handoff comes the risk of miscommunication or misunderstanding.

Removing the need for handoffs decreases the cycle time by an order of magnitude. In a traditional workflow, proceeding through steps 1-4 can easily take 2-4 weeks, even for an agile organization. However, a citizen developer can do steps 1-4 (going from a business problem to testing an initial app they've created) in 1-2 days. In theory, a citizen developer could do 5-10 cycles in the same time it would take to do one cycle traditionally. This reduction in cycle time dramatically reduces risk and increases throughput.

2. Reduces the IT bottleneck

Central IT departments are often described as a bottleneck, and citizen developers are one way to ameliorate this. Citizen developers increase efficiencies by taking some of their business unit's workload off IT's plate.

A task that might otherwise sit at the bottom of IT's long backlog can be handled internally by proficient citizen developers. LOBs become empowered to manage their *own* backlog and portfolio as well as supply their own resources. In turn, this improves efficiency by reducing the administrative overhead typically required for the centralized portfolio management function.

3. Capitalizes on business knowledge

Citizen developers bring a wealth of knowledge about the unique needs of their LOB and their users. In fact, it makes a lot of sense that the same people with an intimate understanding of the business and its challenges are the ones who build the tool that solves a particular business problem or fulfills a business function.

Along this line, because citizen developers are part of and remain close to the business, they are the first to know when an aspect of their business changes, necessitating an update to the tool's requirements. In the traditional model, the LOB would have to communicate this need to the product owner of the app team. The change would then get added to the backlog and launched into a sprint. Citizen developers, however, can simply take matters into their own hands and update the tool as a change arises.

4. Cultivates diverse ideas

Citizen developers bring diverse ideas and solutions to the applications they create because their educational and professional backgrounds fall outside of the traditional software developer curriculum.

In addition, women, racial minorities, and individuals in the LGBTQ+ community are vastly underrepresented in professional software development. [VentureBeat](#) says citizen development creates "a real opportunity to establish a workforce in tech that will be as diverse as the populations it serves." While citizen development does not address the root cause of this underrepresentation (which starts at the educational

level), it does allow for more diversity in developers.

In an age where nearly all companies strive for digital transformation, citizen developers can drive innovation and bring a competitive advantage by developing unique applications that resonate with the diverse needs of both employees and clients.

5. Reduces turnover

Employee turnover can be one of the commonly overlooked expenses businesses face. According to [Gallup](#): “A trillion dollars. That’s what U.S. businesses are losing every year due to voluntary turnover.” They continue, “The cost of replacing an individual employee can range from one-half to two times the employee’s annual salary—and that’s a conservative estimate.”

Providing educational opportunities for employees is one of the best ways to attract and retain talent. When organizations invest in employees learning a new skill, they convey that they value that employee enough to invest in their future with their company.

6. Creates POCs

Citizen developer-generated apps can serve as proof of concepts (POCs) by demonstrating an app’s business value before allocating professional development resources.

Chris Hudson, Stratascale’s Lead Technical Advisor—Digital Experience, explains that “when a citizen developer who’s been writing this stuff is inundated with requests to make it better and add new fields, that’s a good indicator that maybe it needs to move over to full-blown dev work.”

More POCs make for a better portfolio, because organizations will have a larger pool of POCs to choose from and invest in. This means it’s far more likely organizations will be able to pick the “home run” opportunities.

Key Considerations for Citizen Development

The benefits give some merit to the recent hype around citizen development. But leaders will want to take the following six points into account to gain the most value

from their citizen development programs.

Key Considerations for Citizen Development



Source: Stratascale 2022

1. Non-functional requirements

Without proper data governance, security and authentication, and enterprise architecture, citizen developers sacrifice the quality of their applications and create vulnerabilities for their organizations.

1a. Data governance

Whether professional or citizen, developers have a duty to responsibly manage the data they're using, storing, and creating.

Stratascale's Director of Technology Development Marc Cantelmo explains, "When we write code, we write with governance at the coder level, but we also have organizational and company governance that we have to address. Are we looking at data that we should be looking at? You could have an enormous amount of liability. All it takes is for you to take that information and dump it into a file that accidentally got mailed to the wrong place."

Citizen developers must not only be mindful of and adhere to policies and procedures within their own organization. They also face external regulations such as state and federal data privacy laws.

1b. Security and authentication

Security should always be a key part of any development endeavor. Since citizen developers are the technical owners of their applications, they need to define the privileges for the application itself as well as administer the human user accounts along with the account roles and their associated privileges.

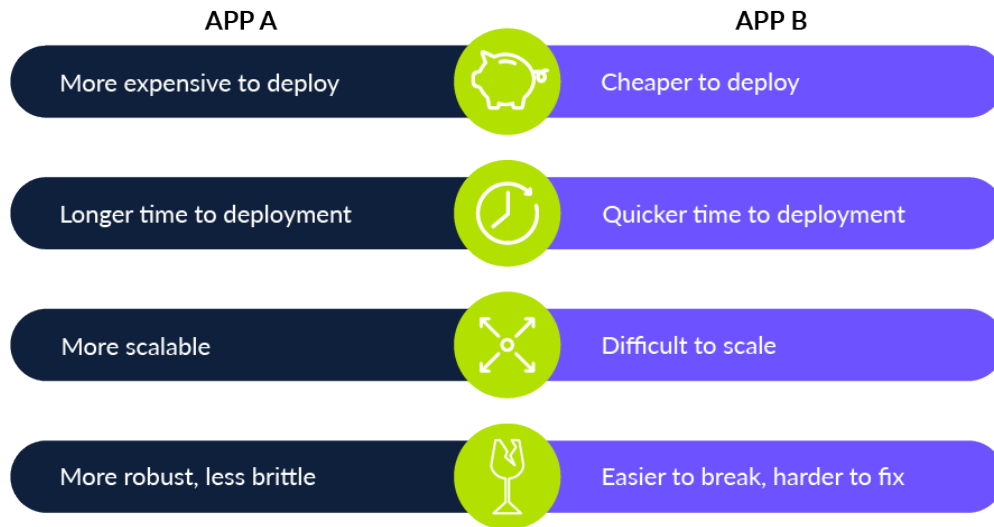
Citizen developers should use identity and access management best practices such as least privilege access and may require training and assistance to do so properly.

1c. Enterprise architecture (EA)

Enterprise architecture aligns and organizes IT infrastructure with the business' goals and can proactively plan for the future evolution of the app.

The value of enterprise architecture might not be apparent at first, but consider the comparison of app A (with EA baked in) versus app B (without EA). On day one of the app launch, the two are seemingly identical. However, app A has had EA baked in since the beginning; therefore, app A is more expensive and takes longer to deploy, while app B is cheaper and quicker to deploy. But down the road, app A is more maintainable, scalable, and robust, and less brittle than app B. If the application runs for an extended lifespan, the long-term benefits of enterprise architecture will outweigh the higher up-front investment.

The Value of Enterprise Architecture



EA is somewhat at odds with citizen development—while citizen development focuses on throughput and speedy app deployment, EA focuses on calculated planning, which sacrifices speed for higher quality. Organizations should create guidelines to determine when enterprise architects should be involved in citizen developer-created apps, to ensure apps with the highest business value can survive long-term.

Citizen developers, even without EA's involvement, should still be thinking like an enterprise architect and strive for the ease of:

- Making changes to the app in the future.
- Integrating the app bidirectionally.
- Monitoring.
- Troubleshooting.

Organizations should strike a balance between citizen development and enterprise architecture, because one size won't fit all. Regardless, citizen developers can still employ EA principles to develop higher quality applications that are both maintainable and scalable.

2. Building quality apps isn't easy (even with low-code/no-code tools)

Despite the use of tools that require little to no code writing, citizen developers should be mindful of the difficulties they may still face while developing applications.

Marc Cantelmo says, "First and foremost, you have to have a certain expertise level, no matter what anyone tells you. This idea that you're going to be able to just drag and drop is an oversimplification—your code may or may not work, but these tools, including RPA, can be incredibly brittle."

Organizations need to provide training and support for their citizen developers to be successful. Partnering professional developers with citizen developers is one way to provide support and drive collaboration.

3. Not everyone is a developer

Organizations shouldn't force a citizen development mandate on employees who have no interest in it. Instead, they should focus on identifying those employees who have both potential and interest—that way they can get the right people working as citizen developers.

"Everyone is valuable. Don't try to make everyone a developer," Cantelmo continues. "A winning team is when you take some people that will have that innate ability. Others will not, but they'll have a different set of innate abilities, and when you bring the team together, you have the best talent in the best spots to solve the problem."

Organizations should build out their citizen development program to identify those power users or individuals with the right skillset, then offer them the ability to move to a new job description where a portion of their time will be allocated toward their development pursuits.

4. Key person risk

Organizations should carefully consider key person risk, and how to take preventative action against the following scenario.

A citizen developer builds a key app for their LOB, but they decide to leave the company. Who will step in to own and support the app? What happens if no one else understands how it's built or what it does? What if the citizen developer didn't document anything? This can be a nightmare for organizations, because they now have an indispensable app that they can't do anything with.

Central IT faces the challenge of key person risk as well, but an app team usually consists of more than one person who has knowledge of the app.

Organizations should have a standard process to identify the citizen developer-created apps by level of criticality and cross-train backup people so they're better able to adapt if a key person leaves.

5. Documentation is vital

Another way to reduce key person risk is documentation. However, documentation is important for many other reasons. Documentation creates a repository of knowledge that can guide citizen developers to see what did and did not work in the past.

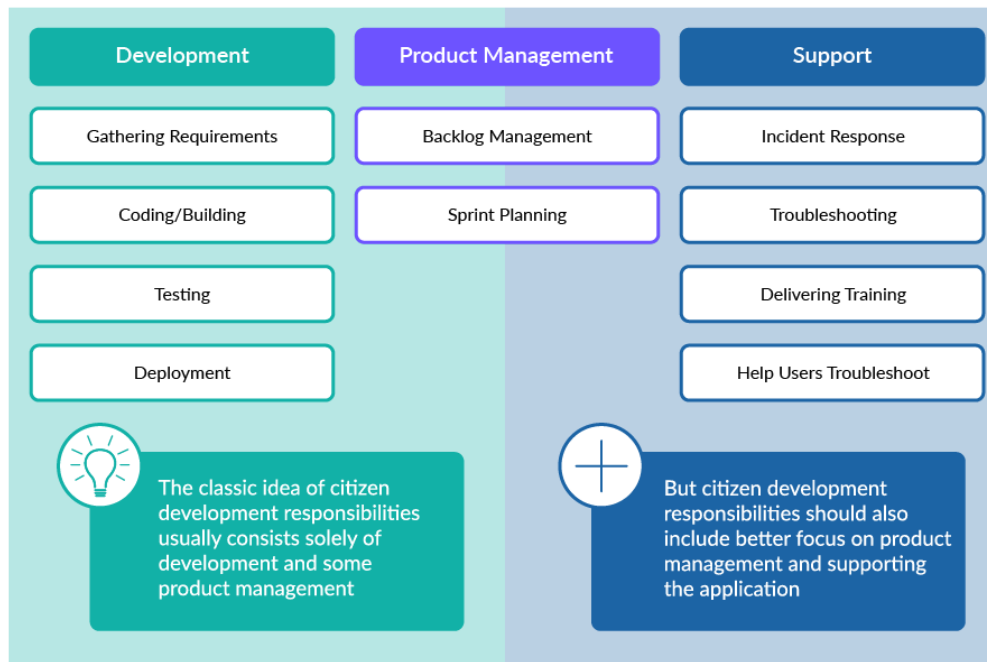
Citizen developers can also use documentation to problem-solve by mapping exactly where something went wrong along their process.

Documentation is not easy—in fact, teams of professional developers with resources dedicated solely to documentation still struggle with it. But organizations planning to implement citizen development must also foster a culture of producing and sharing documentation.

6. Product management and support

Many people tend to think only of the “development” component of citizen development, but the product management and support components are equally as important to get the most business value out of each app.

Creating and Supporting an Application



6a. Product management

Organizations should keep track of all the apps their citizen developers build and release. The level of detail required may vary depending on the company, but they should aspire for a single source of truth that lists, at a bare minimum, every app's:

- Name and a unique ID.
- Business owner.
- Technical owner.
- Status: activity (the functional space it's in), and environment (dev, test, or production).

6b. Support

Even if citizen developers successfully deploy an application or automated workflow, those applications must be *supported* and enabled to keep running. Supporting the apps includes incident management, problem management, and troubleshooting.

If the application were to break, the citizen developers might not have the ability or experience to troubleshoot. Incident response could be unloaded on central IT,

who'd be asked to support an app they didn't have any hand in creating. Organizations must decide whether the LOB or central IT will support the app in production.

7. Incentives must be governed

Not everyone wants to code. An organization might save money by not having to hire a professional developer, but what's the incentive for someone in another LOB to want to code?

If organizations want to incentivize their employees to build better apps in addition to their day job, they should enable those employees to develop their skills. This means measuring and rewarding their performance as well as removing barriers.

Takeaways

"All companies are becoming technical companies, whether they want to or not," Hudson continues. "So with that, you need to focus those [professional developer] resources on the most critical parts. If the app is department-level only, there's very low risk in that. Take that workload off of your development staff that are focused on your core products."

With the right planning and oversight, citizen developers can attain professional fulfillment and lighten the load on IT.

To speak more about strategically planning your citizen development program, [reach out](#) to Stratascale's experts.