Betty Blocks

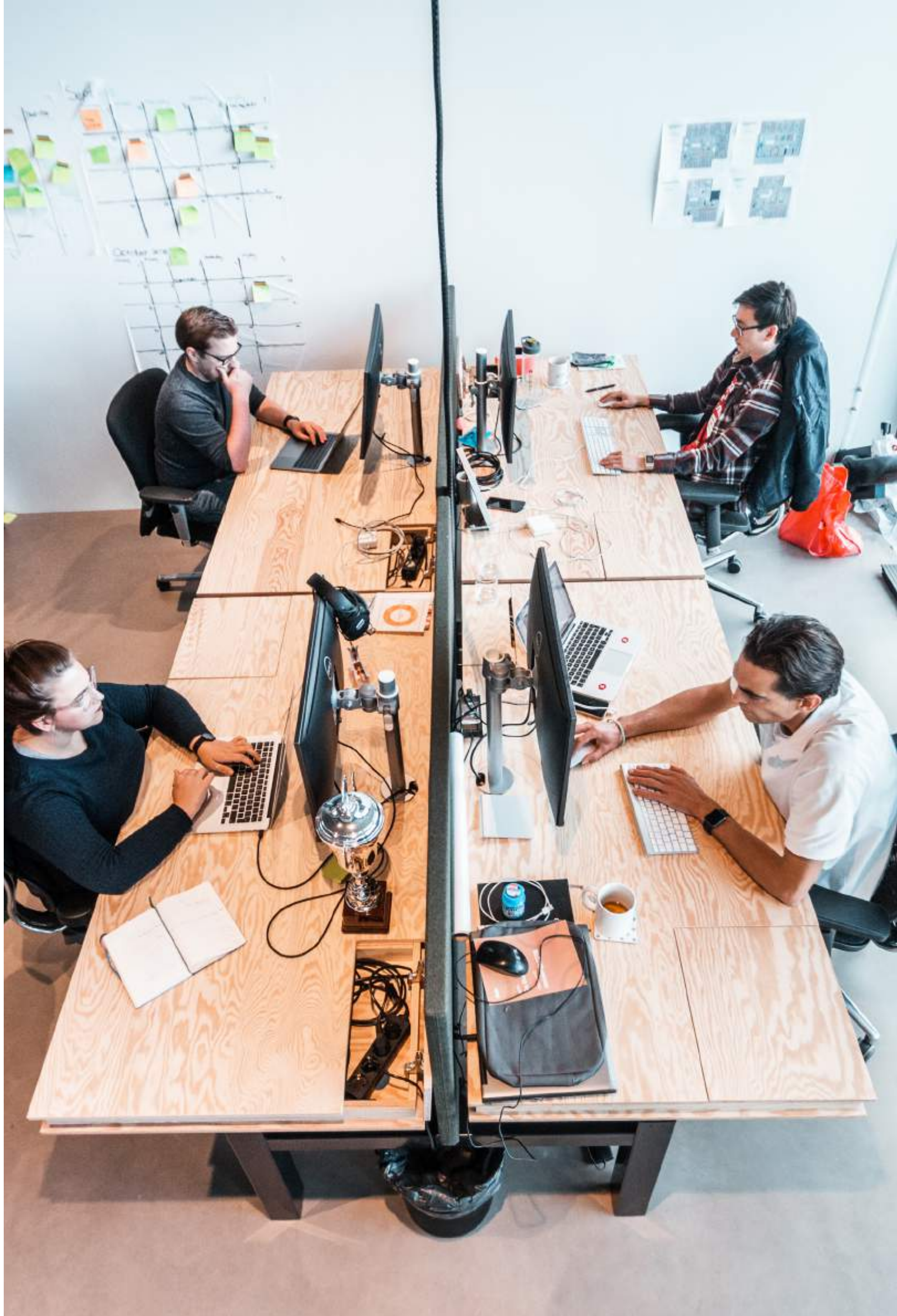
Getting Started with Citizen Development:

A Guide for IT Departments

Why you need this

As an IT pro, you want to support the business as best you can. Innovation? Sounds great, but when the reality is Shadow IT and rogue solutions running throughout your organization, you've got some questions. How can you manage your IT assets but still support innovation? How do you manage Citizen Developers and give the business the tools they need to be successful?

This whitepaper is a guide for IT departments to use so that they can structure and implement Citizen Development effectively. Complete with organizational diagrams and explanation of developer roles, you'll get the insights you need to get started with Citizen Development in your organization.



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A brief history of no-code platforms in IT

If you've been paying attention, you know that rapid application development tools like low- and no-code platforms are becoming increasingly popular in organizations. They're valuable tools because of how quickly they allow developers to build and deploy applications in an era of rapid digital transformation, and where time is money.

In addition to dramatically speeding the development process, the technical capabilities of RAD tools are of great interest to IT departments. Many platforms have built-in security features to facilitate testing and quality control. They allow developers to maximally reuse code for a more efficient way of working, support Agile workflows, and integrate with external web services.

Now that the platforms are becoming more widespread, the increased speed of development is becoming more of a given. That means that IT departments are becoming more sophisticated in what they want to achieve. They can now focus on product innovation, growth, and improving the customer experience rather than keeping the lights on and wading through long backlogs.

Enabling the business to be more self-sufficient is also emerging as a key driver behind no-code adoption. No-code platforms appeal to Citizen Developers – business users who contribute to application delivery – because of their ease of use and the fact that users can develop applications without prior programming knowledge. That means the business can be less dependent on IT for things like departmental or workflow applications.

And the technology is advancing to a point where Citizen Developers are more empowered than ever. Platforms are becoming more sophisticated in their capabilities, but the cloud was perhaps the biggest game changer that freed Citizen Developers from the constraints of technology. With the cloud, anyone can go to a cloud service provider, load up the latest enterprise machine learning platforms and start developing systems. Whereas Citizen Development used to be constrained by desktop tools like Excel or Visual Basic, there are now limitless possibilities – and affordable enterprise solutions for Citizen Development.

But this of course raises fears of Shadow IT. By opening the door for more of the business to contribute to application development, there is risk of the IT department not being involved. That leads to lack of quality control and questionable security.

Most IT managers we talk to want to help the business, but they need to be able to control risks and manage the whole process from the cockpit. That's why working with a low- or no-code platform is so important. A sanctioned platform is what turns Shadow IT into Citizen Development, because core IT can better support the business by monitoring all activity in a centralized environment that they can control. Better yet, if your IT department is already using one to speed up delivery, you likely already have some governance in place.

But the success of any digital tool requires more than the tool itself. When implementing Citizen Development with a no-code platform into more of the organization outside of the IT department, there are a lot of cultural obstacles to navigate. So how can you help make a Citizen Developer successful? How can you support their success with a no-code platform?

In this guide, we'll address what you need to know as an IT department interested in implementing Citizen Development.

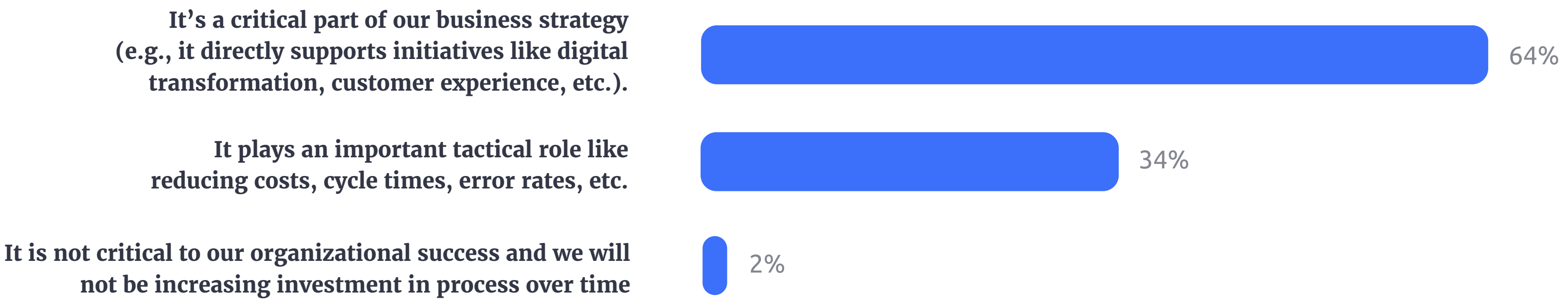
What kinds of applications are being built by Citizen Developers?

So what are common use cases for Citizen Developers working under the guidance of IT? Unsurprisingly, Citizen Developers are most useful for projects with direct business results, either in terms of innovations or tools that directly impact their daily processes. Process automation is one such area, with a number of tools on the market now geared towards putting these solutions in the hands of Citizen Developers.

According to Forrester research, 64% of business and technology leaders surveyed report that process improvement plays a critical part in business strategy, supporting digital transformation and the customer experience (Refocus Process Automation to Rescue Your Digital Transformation, Rob Koplowitz, John R. Rymer, Christopher Mines, Ted Schadler, Allison Vizgaitis, Andrew Reese, Forrester research, July 10th 2018). 34% say that it plays an important tactical role in reducing costs, cycle times, and error rates.

Why is this of interest to Citizen Developers? Because they – the business people who live these manual, disconnected processes every day – are the ones who are best equipped to champion the cause for solutions. And they're often ready and willing to assist because they see the need in their day-to-day work. But they need support from core IT to make those solutions a technical reality.

"Please describe the role of process improvement in your organization"



Base: 354 business and technology leaders
Source: Forrester's Q1 2018 Digital Process Automation Survey

Developer roles and responsibilities

Citizen Development requires coverage on strategic, tactical, and operational levels in order to be a success. It probably doesn't come as a surprise that you need several roles to manage all processes involved (in addition to Citizen Developers themselves), so we'll outline those here.

Strategic

Citizen Development requires a force at the top to drive the initiative. A Citizen Development Champion should be a single executive who owns the overall strategy and has the power to influence or direct Core IT. The Citizen Development Champion is someone like a CIO or CEO who can unite stakeholders from the business with those from the IT department.

Tactical

While a no-code platform significantly lowers the barrier to entry for application development, at the end of the day it's technical work. You need some tactical experts in the lead for coaching and collaboration.

Professional developers who are already in a core IT team will need to get familiar with Citizen Developer tools to gain a high level understanding of how they can integrate with the rest of the organization's IT systems. Through this oversight they can also monitor and maintain all applications that Citizen Developers build to have full control, also with regards to deployment and releases.

No-code masters provide the technical expertise for the platforms that Citizen Developers work with. They may or may not be professional programmers, but they have a high level of expertise when it comes to developing with low- or no-code platforms. They can navigate the platforms and take over for Citizen Developers when they reach the limits of their knowledge (for example API integrations or other more technical feats), and help Citizen Developers optimize their platform skills.

Citizen Development mentors, while not strictly essential, are handy to have to make sure the process goes smoothly. Similar to a scrum master, a Citizen Development mentor focuses on the processes and operations of working with Citizen Developers and how to make collaboration between all players run like clockwork.

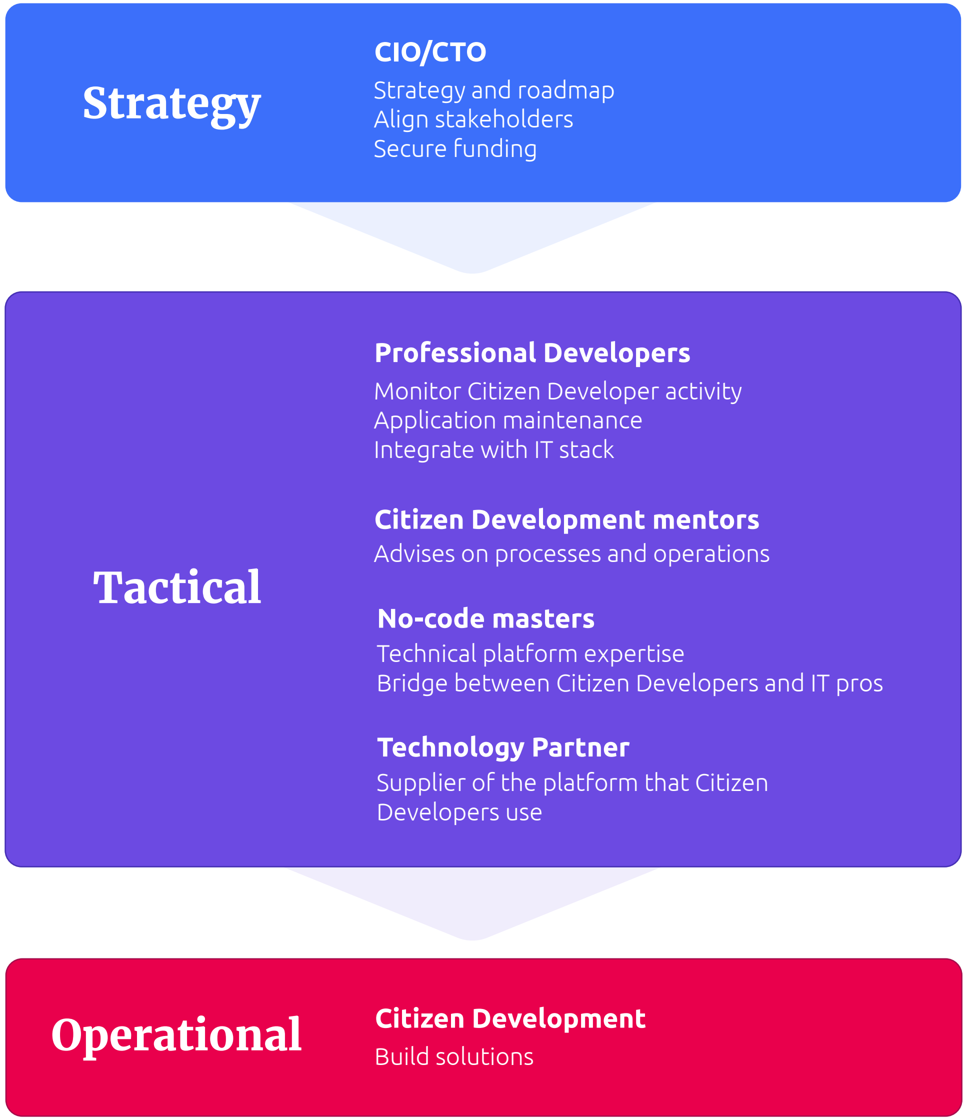
A technology partner is instrumental to success. They are a vendor like Betty Blocks or implementation partner who either supplies the platform that your Citizen Developers use, or directly assist in building applications. When choosing a technology partner, it’s important to ask: what kind of code do they write to support Citizen Developers? What standards do they follow? Will they still be around in 10 years? Who else is using the platform? What are the costs? What additional services can they offer?

The right technology partner can even offer help and support with creating a Citizen Development initiative in your organization!

Operational

And finally, it’s the Citizen Developers working together with the no-code masters to build applications. How this looks in practice will vary depending on your organization and how your IT department is set up (for example, centralized vs. de-centralized), and there are several ways to manage the roles and responsibilities depending on the types of developers you have.

It's worth keeping in mind that software delivery is, realistically, phase 1 of a software solution. Over the coming months or years of adoption, the team's responsibilities will shift to maintenance, updates, and implementing new functionality.



Strategy

CIO/CTO
Strategy and roadmap
Align stakeholders
Secure funding

Tactical

Professional Developers
Monitor Citizen Developer activity
Application maintenance
Integrate with IT stack

Citizen Development mentors
Advises on processes and operations

No-code masters
Technical platform expertise
Bridge between Citizen Developers and IT pros

Technology Partner
Supplier of the platform that Citizen Developers use

Operational

Citizen Development
Build solutions

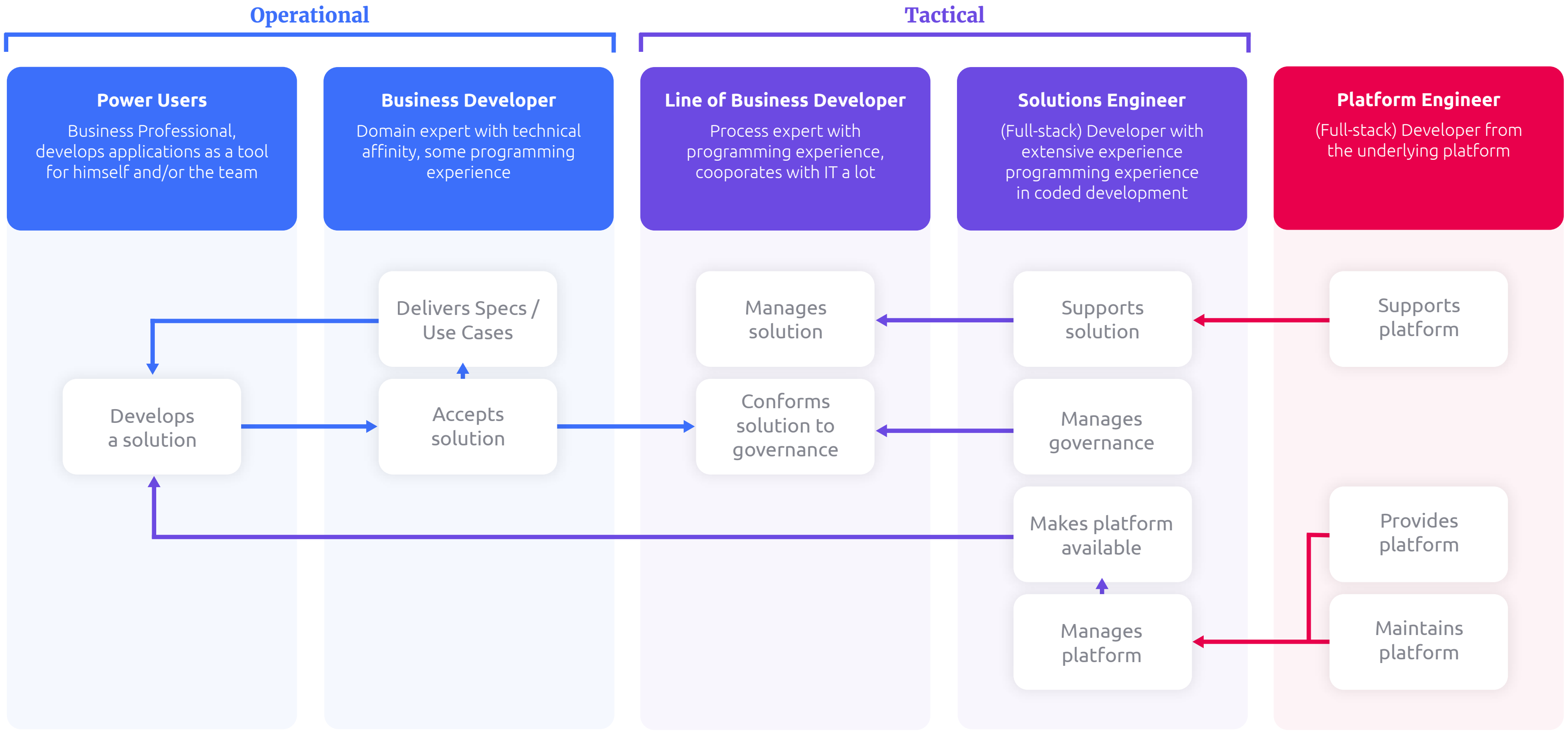
Here's one example from a Betty Blocks client showing how they structure responsibilities with a variety of developers. This shows that really, there are a number of ways to structure your set up and you can adapt it to what works for you.

As you can see, it's not so much about having designated personnel called "no-code masters" and Citizen Developers. The most important thing is to clearly define the scope of each role across a variety of developer types and capabilities.

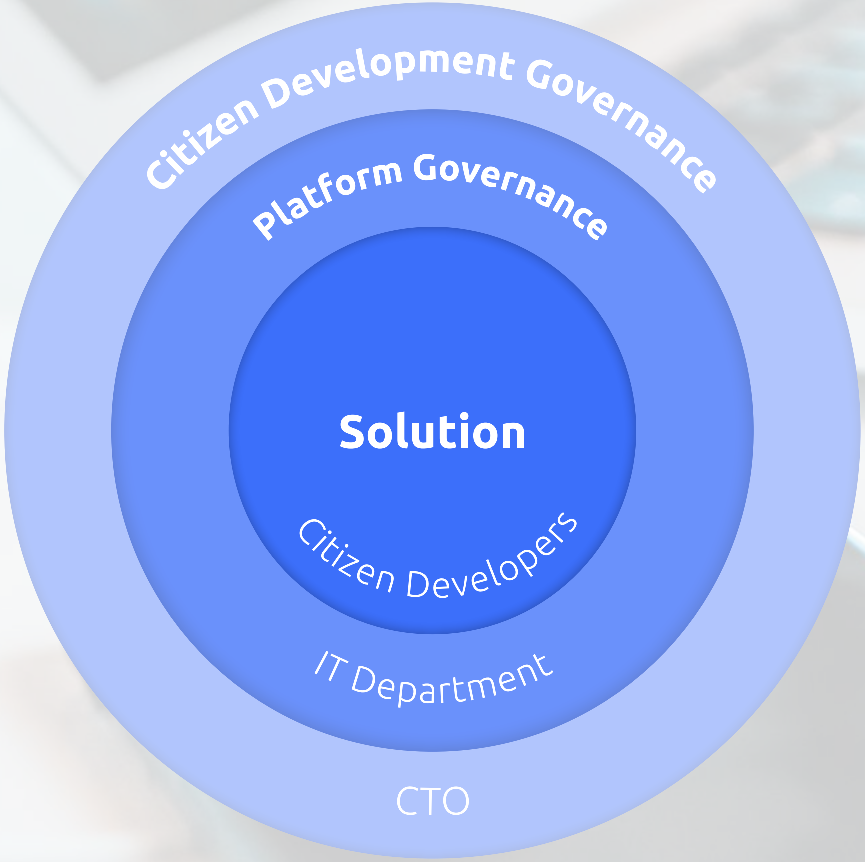
How to work together

For the best chance of success, Citizen Development should integrate with the current way of working of your organization or IT department. Kanban in particular offers an Agile process with ways to control and manage output with a more flexible approach to time management.

The key is to sort work into a backlog and set WIP (work in progress) limits.


Operational
Tactical
Power Users
Business Professional, develops applications as a tool for himself and/or the team
Business Developer
Domain expert with technical affinity, some programming experience
Line of Business Developer
Process expert with programming experience, cooporates with IT a lot
Solutions Engineer
(Full-stack) Developer with extensive experience programming experience in coded development
Platform Engineer
(Full-stack) Developer from the underlying platform
Delivers Specs / Use Cases
Develops a solution
Accepts solution
Manages solution
Conforms solution to governance
Supports solution
Manages governance
Makes platform available
Manages platform
Supports platform
Provides platform
Maintains platform

Fundamental no-code developer roles and governance structure infographic - Sylvester Bos, CTO Robidus



Governance

Organizational structure

When we talk about a platform being sanctioned by IT, we mean that the IT department sets rules and limits within which the business can operate. Within those boundaries, the business can innovate freely.

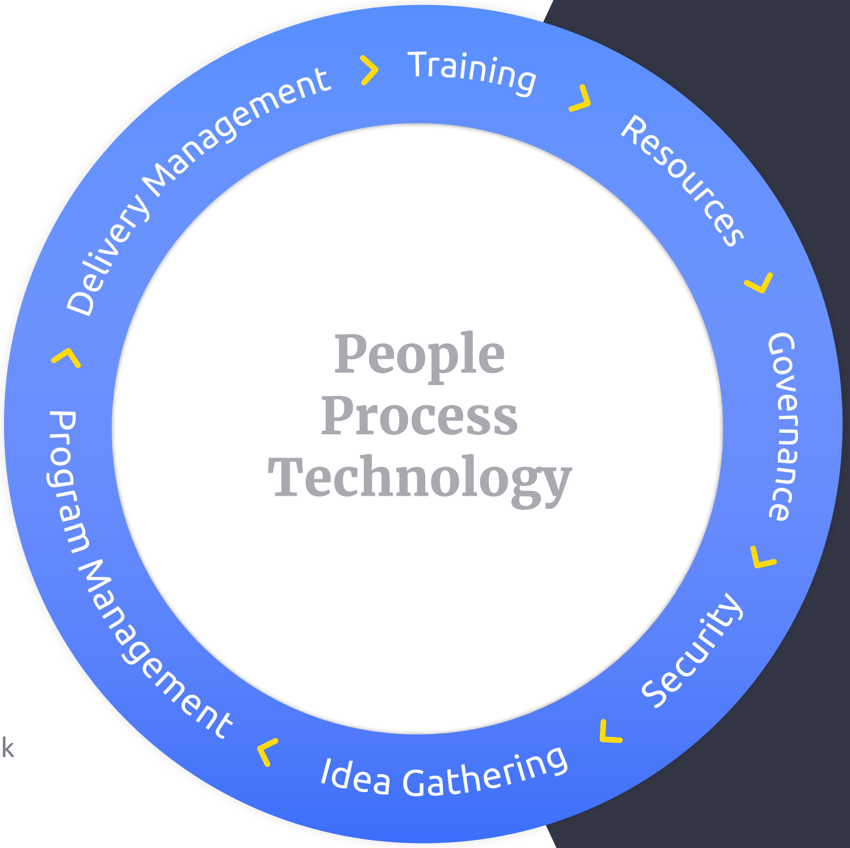
That means that you should have a plan and a strategy for how you will structure the governance of the platform, your Citizen Developers, and the business requirements for the applications they are building. It's helpful to think of these as nested areas where one executive owns the complete strategy, and the bounds of ownership for the tactical and operational teams are also clearly defined.

The tactical team would own the platform for example and manage roles, permissions, and authorizations on the platform level. This gives the business and operational teams "controlled" freedom to manage business requirements and execution of the solution itself, through role-based security. By managing which applications and data Citizen Developers have access to, you ensure adherence to privacy and security requirements, especially in highly regulated industries like finance or government.

Center of Excellence

One way that many choose to implement Citizen Development is within a Center of Excellence. A Center of Excellence is a unit centered around a single new technology, tasked with understanding best practices and delivering value for that technology's use within an organization.

A Center of Excellence allows for a very centralized introduction of a new technology, which is beneficial for several reasons. First, it serves as a single point of contact through which all involved parties (in this case, Citizen Developers) throughout the company can come to for support. It also allows more controlled oversight of Citizen Development activity throughout the organization. This creates a two-way highway of communication for the Center of Excellence to disperse Citizen Development resources and best practices to other departments, as well as collect feedback and monitor progress.



Citizen Development Center of Excellence

Setting up a Center of Excellence is a topic for another whitepaper in and of itself, but suffice it to say that it is a viable option for Citizen Development implementation with many benefits, as it integrates people, process, and technology.

Training and services

Today's no-code platforms are getting easier to use for Citizen Developers while also becoming more technologically advanced. But that isn't to say that they don't come with a significant learning curve that needs to be managed with careful onboarding. Alongside a variety of training opportunities, IT departments must manage access to data and services in order to make sure that Citizen Developers have the full tools and resources they need.

Training

Training for IT professionals

It's important not to forget that the IT professionals in your organization will also need training on the platform. They need to know the ins and outs of what's under the hood to understand how they can leverage its power and how it will integrate with the rest of the organization's IT landscape.

Through getting acquainted with the platform on a deep level, your IT pros and no-code developers will learn more about which roles and authorizations they want to delegate to Citizen Developers and which they want to limit access to. This training should provide an opportunity for the IT department to discuss how governance and data access will work and lay out a plan.

Training for Citizen Developers

Training for Citizen Developers will look a bit different in that it will require some additional interdisciplinary components to prepare them to work

alongside IT. We advise a two-pronged approach with a roadmap for continued training opportunities after initial onboarding.

Process

Before you even begin teaching Citizen Developers their way around a no-code platform, there are some Programming 101 basics that will make the process pay off in the long run. The purpose of tools like Betty Blocks is to provide a bridge between the business and IT so that they can work together. But in addition to a common tool, they also need to develop a common language.

You need to teach business people to think like programmers – not in the sense of learning how to write code of course, but in terms of process and concepting especially. For Citizen Developers to really contribute to IT in a meaningful way, they need to learn to work in ways unique to IT that maybe they haven't encountered before. They probably have no idea how to build user stories or navigate an Agile backlog, so these are the basics that you can cover.

Prototyping and design thinking especially can be taken for granted by IT as skills they don't need to teach the business, because they're not necessarily technical in nature. But they may be completely new ways of thinking for Citizen Developers. According to McKinsey & Company teaching teams to be cross-functional and product-focused with a design thinking approach boosts overall performance and fosters innovation (More than a Feeling: Ten Design Practices to Deliver Business Value). That's because these approaches may be totally foreign to certain disciplines, and introducing them serves as a new way of thinking to achieve more. This is especially the case with Citizen Development, in that business developers will need to adopt a whole new way of thinking to deliver software solutions. You will need to support them in learning skills like design thinking or prototyping along that path.

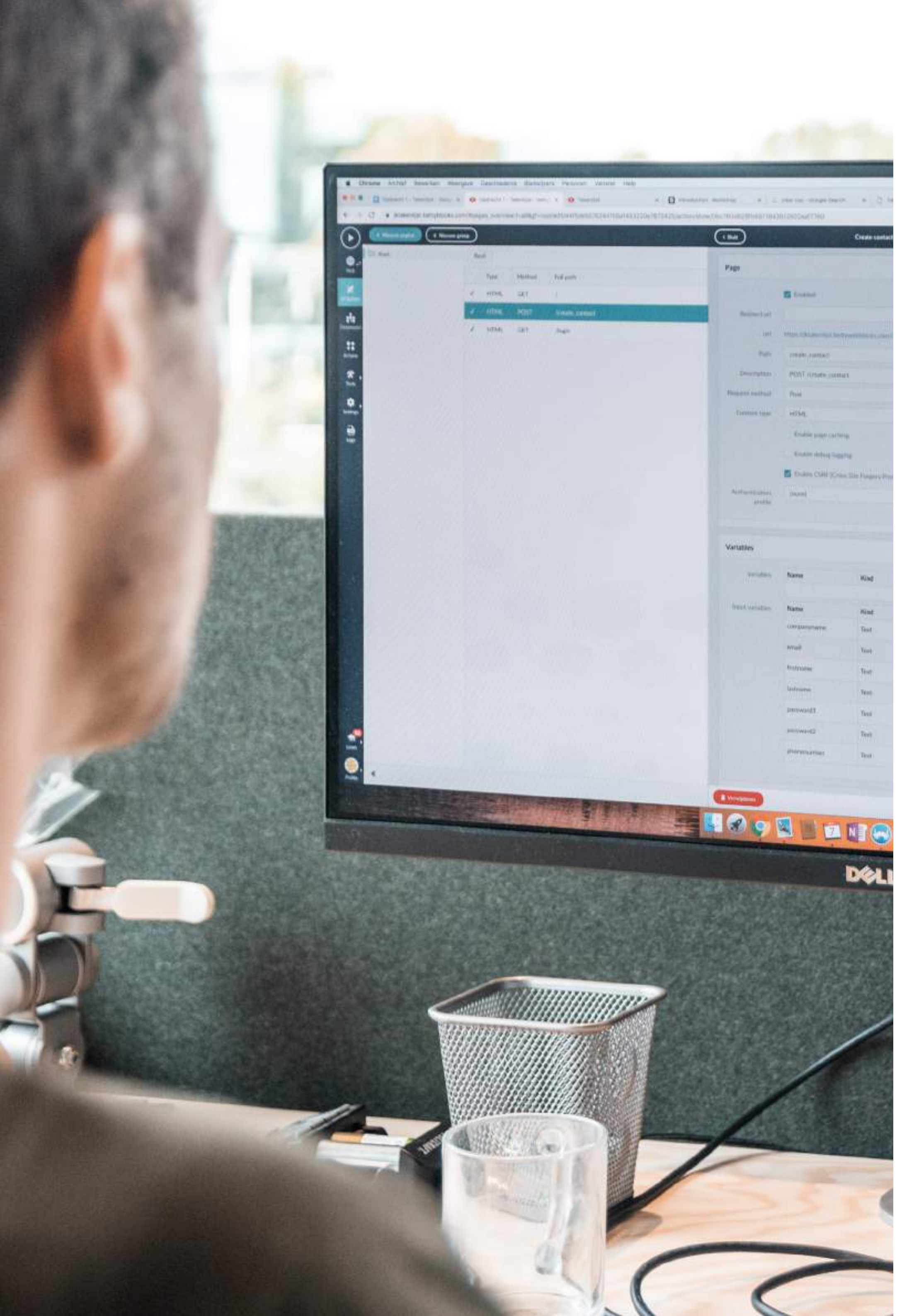
And although Citizen Developers won't be writing code, they will be working with tools that are technical. Even visual modelling-based tools are meant to emulate the process of developing with code, and the onboarding process will go faster if Citizen Developers have a basic understanding of modelling or how programming logic works structurally. For example, they need to have a basic understanding of how entity relationship or class diagrams work and how data comes together – all the way to requirements and user need statements so that they understand the scope of the applications they build.

Platform

Once Citizen Developers have some basic knowledge as to the processes and ways of thinking that IT uses, they can get their hands dirty with a platform. Having had the background introduction to topics like how data comes together or how to even conceptualize application development, the technical aspects of building applications with no-code will be much less foreign.

Continuous learning

Citizen Developers will also need some form of continuous training after the initial round of platform onboarding. They need to be provided opportunities for growth and to learn new skills that will allow them to contribute applications of increasingly greater value to the organization. Some of this training will be formal workshops or certification paths, but hackathons and community events to promote skills sharing are also key.



Support and resources

There's a lot that core IT can provide for Citizen Developers in terms of support and resources. From serving in a mentorship capacity to show Citizen Developers the ropes to providing some key services to facilitate their work, here's what IT needs to think about.

Data

In order for an enterprise-grade application to be successful, your Citizen Developers will need access to core information sources. Without real-world, workable data software is left with very little room to grow. Incorporating vital APIs, databases, and gateways opens the door for increasingly powerful business solutions.

Tools

It's necessary to standardize the tools that Citizen Developers and the IT department are using. This is key for two main reasons. First, in their capacity as mentors or trainers, the IT department can support Citizen Developers better if they are all using the same tools. And second, when a Citizen Developer-made application gets transferred over to core IT because it needs maintenance or goes into mass production, the process will go much quicker when everyone was already on the same page to begin with.

In addition to a no-code platform, Citizen Developers will need other tools in order to become truly useful. One of the key differentiators between shadow IT and Citizen Development is that Citizen Developers should have access to the same tools that IT uses: source control, code scanners, case tools, project management tools, test automation, or any other tools that allow them to more easily collaborate with the IT department.

As a secondary benefit you will gain the economy of a centralized way of purchasing these tools in terms of enterprise licenses.

Reusable services

The focus for Citizen Developers is to add in the business-specific functionality to the applications they build. This means that they should not be distracted by more technical aspects that a professional developer could far more easily take care of, but which are beyond what a Citizen Developer is probably capable of.

Core IT should therefore provide Citizen Developers with a number of microservices to facilitate their work. There are hundreds of services or data libraries that will be reused in multiple applications: Things like worldwide address lookups, elastic search, corporate graphics libraries, corporate identity and access management services, and so on.

Providing these and other microapplications as services for Citizen Developers ensures access to the same data and consistency throughout applications. Not to mention, there is an added benefit of major time and effort saved by being able to reuse these components across applications.

Security

It's no surprise that one of the biggest objections IT departments raise when it comes to Citizen Development is security concerns. Many organizations try to control risk by banning access to data, but that doesn't serve the IT department or Citizen Developers. You don't need to ban access, just take extra care to provide secure systems for personal data (and this is done for you when working with a secure no-code platform).

A centralized platform embedded within a corporate infrastructure allows core IT to track data catalogues and personal data. This way, you know exactly where all the data is and who has access to it. In addition you should teach Citizen Developers how to do GDPR assessments so that they know their responsibilities in terms of holding data, encryption, and so on. If not included in the no-code platform they work with, you should educate your Citizen Developers on things like content security policies (CSPs), virus and content scanners, web application firewalls, intrusion detection systems, transport layer security (TLS), and multi-factor authentication, or any other security considerations that the rest of your IT department work with on a daily basis.

The bottom line is this: Extend whatever information security management systems your organization uses to manage IT platforms to Citizen Development. Citizen Development should be considered as a part of corporate ISMS for accountability, and is the most effective way to ensure that all Citizen Development activity is safe and secure (and not to mention, could help you avoid large ICO fines down the line). Whatever compliance and accreditation standards you employ – Cyber Essential, IASME, ISO27001, GDPR, DPA, NIST CyberSecurity Framework – can certainly extend to cover Citizen Development activity.

Conclusion

Moving Forward

To send you on your way, let's wrap up with a set of best practices to guide you forward when implementing Citizen Development. Start with a centralized model with the ultimate goal of decentralization. One of the key long-term outcomes of implementing Citizen Development is that you will eventually be able to outsource a lot of business needs for application solutions to the business themselves. The way to accomplish this is to kick it off with a single group or isolated department, in close collaboration with IT professionals already understand all the software and tech needs of the organization. Use this context to teach Citizen Developers how to approach IT projects and develop securely and deliver quality with a no-code platform. Consider leveraging a Center of Excellence model to get started as part of a long-term strategy to disperse Citizen Development throughout the whole organization.

Have clear, formal policies and processes in place but be flexible. According to one Forrester research report, insufficient governance jeopardizes coherence and security – but excessive governance impedes any agility advantage of SaaS applications (Five Essential Components of Great SaaS Governance to Balance Agility and Risk, George Lawrie, Liz Herbert, Allen Bonde, Luis Deya, Andrew Reese, Forrester research, January 24 2019). Make sure your policies are visible and well-communicated, but leave room for adjustments.

Involve the business in every part of the application life cycle. According to the same Forrester report, business users must accept responsibility for the full application life cycle. That means taking ownership over configuration and administration and more. This ensures that Citizen Developers have oversight over business agility, greater solution adoption, and improved end-user satisfaction (Five Essential Components of Great SaaS Governance to Balance Agility and Risk, George Lawrie, Liz Herbert, Allen Bonde, Luis Deya, Andrew Reese, Forrester research, January 24 2019).

It helps as well to approach Citizen Developers with a mindset that you also have to teach business people how to set up and execute IT projects, not only navigate the technical aspects of building applications.

Generate and demonstrate value fast. Focus on communicating and demonstrating the value of the no-code platform and Citizen Development both for Citizen Developers and outward throughout organization. Find an executive sponsor who can champion the initiative on the highest level with stakeholders, and encourage transparency so that the rest of the organization can see the process and the benefits. Set objectives and identify KPIs before you start so that you have clear set goals to work towards, and share them.

There is no one-size-fits-all model for implementing Citizen Development in an organization or IT department. The key to success is adapting the process and organization of your Citizen Developers to your existing IT department processes and organization.

Having a clear vision and roadmap as to how each of these processes fit together, who is responsible, and what the scope of each is the key to success, and will ensure that you have a better oversight on how governance will be managed. And that means having the greatest chance of success.

About Betty Blocks

As the world's leading no-code platform, Betty Blocks empowers both enterprises and Citizen Developers to build complex applications efficiently and effectively without writing a single line of code. With its focus on people, Betty Blocks empowers organizations to work towards the right solution and enable the workforce to take control of their innovations. Cloud-based Betty Blocks is available worldwide. The company has offices in the Netherlands, Belgium, Germany, US, Mexico, UK, Japan, and South Africa.

Visit us at www.bettyblocks.com and follow us on Twitter and LinkedIn.

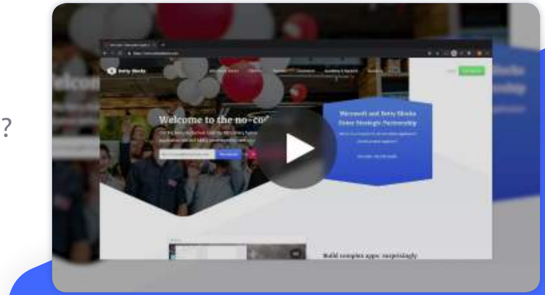
Greetings from the team!

Angela Tramontelli

Content Manager at Betty Blocks

By now you know why no-code is the way to go

Want to find out more about the Betty Blocks no-code platform and how it suits your business case? Discover our feature videos and platform demo right here.



Request a demo