



DEMOCRATIZING INNOVATION

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DEMOCRATIZING INNOVATION: LOW-CODE/NO-CODE PLATFORMS & THE CITIZEN DEVELOPER

Financial institutions are opting to use Low-Code/No-Code tools and platforms to develop business applications and capabilities and to facilitate a ‘Citizen Developer’ model that puts innovation in the hands of the business.



By 2024, Low-Code application development will be responsible for more than 65% of application development activity for organizations.¹



– Gartner

Software that writes software via drag-and-drop visual and pre-built functional blocks, a Low-Code/No-Code development platform allows business applications to be developed without writing a single line of code or the requirement for programming experience. As a result, non-tech employees can directly address significant process pain points within their organization.

The Low-Code/No-Code approach is particularly useful for developing applications or workflows that address an immediate business need without requiring any IT support. Low-Code/No-Code also has benefits for experienced developers, allowing them to design applications quickly with minimal coding without being hindered by repetitive coding or duplicative work. Developer time is largely spent on architecture development and the brunt of the work is left to the platform.

But it is the potential benefits of Low-Code/No-Code for non-developers that are perhaps more revolutionary, and open the way for Citizen Developers. Citizen Developer is a model that seeks to address pressing concerns for banks and other

financial institutions: the transition from legacy technology, the automation of unwieldy manual processes; and the focus on talent acquisition and retention.

The Citizen Developer is a business user with little coding experience but possessing baseline technical skills and a desire for change. They leverage No-Code technology in combination with their business process understanding to build solutions within functional areas. The Citizen Developer model establishes the governance to enable citizen development, including delivery methodology, policies and procedures, control framework, training and a community for change.

Citizen Developer presents an opportunity for financial institutions looking to rapidly identify and execute opportunities for change, scaling at pace and removing the dependency on technology, while also inspiring new ways of working to drive innovation and amplify talent. It offers a route to respond more swiftly to business and/or regulatory needs, and to address the problems arising from a surfeit of repetitive manual work within their business processes, which too often leads to errors.

1. "Magic Quadrant for Enterprise Low-Code Application Platforms", August 2019.

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CITIZEN DEVELOPER PRESENTS AN OPPORTUNITY TO RAPIDLY IDENTIFY AND EXECUTE OPPORTUNITIES FOR CHANGE

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For IT teams, it also addresses an ongoing skills shortage, given current challenges around hiring engineering talent, and the increasing complexity of requirements and a seemingly endless product backlog.

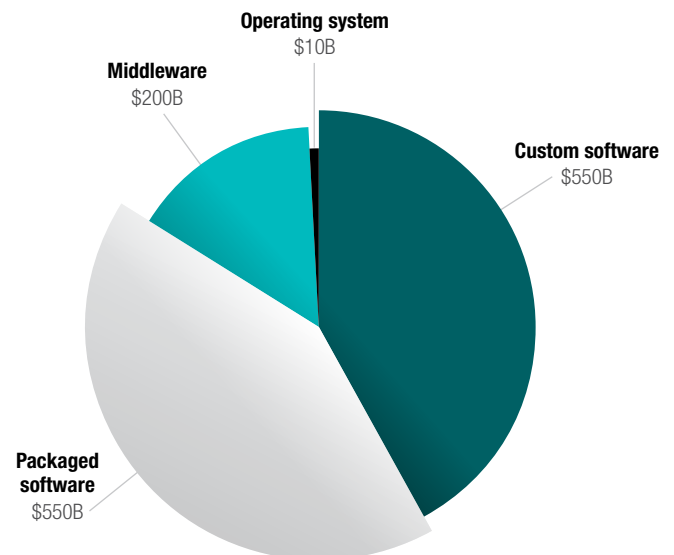
LOW-CODE/NO-CODE: THE NEW STANDARD

Financial services firms are struggling to keep pace with fintechs who have raised operational standards through digitized and streamlined processes. At the same time, fintechs are speeding time to market, empowering innovation, offering liberation from legacy technology, and transforming customer journeys – and the trajectory of this revolution has only been accelerated by the COVID pandemic.

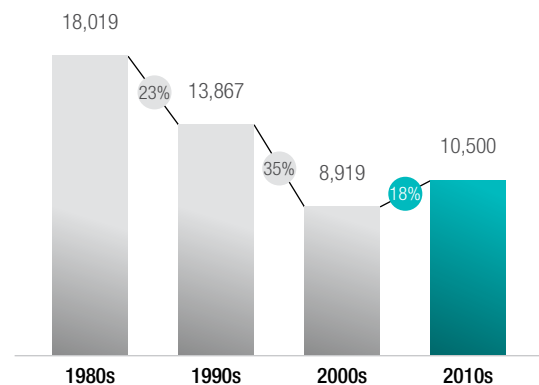
For their part, enterprises are spending over US\$500 billion on building their own software (see Diagram 1).

DIAGRAM 1

GLOBAL SOFTWARE SPENDING BY SEGMENT (2020, \$Bn)



HOURS REQUIRED FOR 'TYPICAL' ENTERPRISE APPLICATION



However, current tools are not able to keep pace with new application demands and are repeatedly butting up against challenges that in some cases have persisted for decades. As a result, engineers use disparate tools to develop applications for new development, conversions and enhancements that result in long build times.

In addition, manual processes, complex integrations, lack of reusability across projects, skills shortages and complex regulations collectively conspire to impede change, generate high costs in terms of legacy technology and over-large IT teams, and make it challenging to deliver on requirements. The root cause of these challenges is the complexity associated with using any form of code. Code is fragile. It is difficult. It requires maintenance. And, last but not least, code is subjective.

Enter Low-Code/No-Code platforms. Low-Code/No-Code is shaping the new standard for enterprise programming, increasing organizations' time-to-value in a meaningful way. The key benefits are as follows:

- **Unified** - Everything needed on a single platform: front-end, workflow, analytics, integration, legacy transformations, management and maintenance.
- **Visual** - Wholly drag-and-drop interface for even the most complex operations; spreadsheet-like calculations, visual data transformation; no code (almost) anywhere on the platform.
- **Enterprise Grade** - Single-tenant, cloud agnostic architecture; security, roles and permissions that meet enterprise standards; Soc 2 Type II, Privacy Shield compliant.
- **Faster** - Improve time-to-value by accelerating development time from 6-18 months to 8-12 weeks.
- **Accessible** - Democratize development from engineers-only to also analysts and IT generalists; easing the hiring of developers.
- **Cheaper** - Decommission complex legacy infrastructure and replace with a unified platform.

Low-Code/No-Code both offer an efficient, scalable, easy-to-use drag-and-drop visual deployment, increasing productivity and efficiency, allowing more builds at scale, reducing costs, providing a secure environment and allowing for swift mobile app deployment.



LOW-CODE/NO-CODE IS SHAPING THE NEW STANDARD FOR ENTERPRISE PROGRAMMING



Low-Code/No-Code platforms allow firms to quickly replace user-controlled applications such as end-user computing (EUC) systems, in which non-programmers can access, create, or customize business applications. EUCs aim to integrate end users into the computing environment. They allow users to directly manage, control, and manipulate data; offer flexibility by allowing businesses and users to deploy solutions in a rapidly shifting industry; and give employees access to a centralized network of applications in a distributed world.

Replacing EUCs cannot happen overnight, because EUC tools and models are pervasive in every sector of financial markets. Firms must be strategic about which EUC solutions, or which market sectors, they need to 'clean up' first. This will inevitably be a painstaking process, but the Low-Code/No-Code approach ensures rapid progress so firms can quickly see the results of their hard work in removing risky and inefficient EUC from their technology landscapes.

As an alternative or adjunct to EUCs, Low-Code/No-Code platforms offer three primary benefits: security from a data control and/or governance point of view; EUCs can be owned

and maintained by Citizen Developers instead of using IT's resources; and they present opportunities for the manual re-engineering of processes.

"In order to solve for their problems, firms currently have options such as robotic process automation (RPA), cloud native development platform Encore and Microsoft Power Apps," says **Leonard Langsdorf**, Chief Technology Officer, Digital Innovation Labs at Capco. "But these are just enablers. The tool itself doesn't matter – what matters is that it is Low-Code/No-Code. This enables you, as a business, to solve the type of problems that your technology function is too busy to focus on.

"In broad terms, within financial services 60 percent of developers are working on BAU at any one time, while another 10 percent are working on critical tasks such as regulatory work. That's 70 percent of your overall technology capacity effectively working just to keep the lights on. That leaves the remaining 30 percent to manage all the firm's challenges, and the question then is where to focus."

Some of that will be Operations related, but there will also be a need to focus on revenue generating opportunities, Len continues. "The current option is for you to explain the problem at hand and the technology function will then scope and set out the proposed solution, transpose it into an agile format and only then be in a position to engage with addressing that problem. Alternatively, you – as an employee – can solve your problem yourself as a modern Citizen Developer. We will train you and if you want to build something, we will provide you with the right tool. The technology function still serves as a central hub with Citizen Developers as the spokes, which avoids the creation of a shadow IT organization."



Leonard Langsdorf

Chief Technology Officer, Digital Innovation Labs at Capco



Girish Utagi has deployed Low-Code/No-Code solutions to address efficiency and risk challenges at a range of large global institutions. In his experience, for employees that have a rudimentary understanding of technology, such tools offer both ease of use and swifter implementation.

“PLUCKING THE LOW-HANGING FRUIT”

“The time it takes for a particular business use case to be solved is significantly reduced, and allows you to present something back to the business – whether in terms of the feature or functionality – that can be built very quickly for them to use,” says Girish Utagi, Managing Principal, Global Delivery at Capco. “From initial concept through to the production stage can then be done in a matter of weeks, or for simpler tasks even within a few days.”

A real-world use case was the urgent need among US banks in the early days of the COVID pandemic for solutions to manage the introduction of US Small Business Administration Paycheck Protection Program loans. “Banks needed to immediately build a solution to allow them to reach out to customers who had taken up the loans. Where it would have taken weeks to implement that solution via the traditional route, by using Low-Code/No-Code tools we put together a solution in three to four days,” Girish adds.

“Another example: if you have large amounts of data, and there is a likelihood that data is going to change, then these tools can be applied to create business rules to clean the data and to configure new rules very easily. That delivers significant efficiencies when dealing with high volumes of data which is susceptible to manual errors.”

Girish acknowledges that such tools are best suited for processes that incorporate a very clearly defined set of target states through which the user can progress quite simply. “You need to be realistic about the scope – once the user starts coming up with fresh and perhaps more complex requirements, or wants to integrate a lot of additional functionality, then that sort of enrichment will typically be better served by a more bespoke build,” he notes.

“That said, the value is certainly there when it comes to simpler, repeated processes – these ‘boring’ tasks can be very easily automated using these tools. So if a company is embarking on a journey to bring in that sort of automation, then this is a must-use tool for delivering those efficiencies and for plucking the low-hanging fruit.”

A MODERN CITIZEN DEVELOPER

Citizen Developer facilitates the democratization of development, unburdening technology resources and advancing line staff while enabling individual business areas to prioritize projects. It allows for a quick response to business needs, reduced time to production, an expansion of digital transformation and improved cost control. From the individual employee's perspective, it empowers them to develop within guardrails and become agents for change.

"In one sense we have always had quasi-Citizen Developers, it is just that in the past their tools were VBA (Visual Basic Application) macros and Excel sheets, perhaps a Microsoft Access database," Len Langsdorf says. "Indeed, they are responsible for creating today's EUCs. Those solutions would be run off their desktop or perhaps via a server somewhere in the office running an Access database. That paradigm needs to change. So to eliminate that model, we'll give individuals some training around the software development lifecycle so they understand the correct process and the correct way to implement it to solve their business problem. It is about putting in place a Center of Excellence that ensures employees are trained."

How then to set up a Citizen Developer model? As noted, a centralized Center of Excellence (CoE), underpinned by key principles for development, is critical to launching a successful model (see Diagram 2).

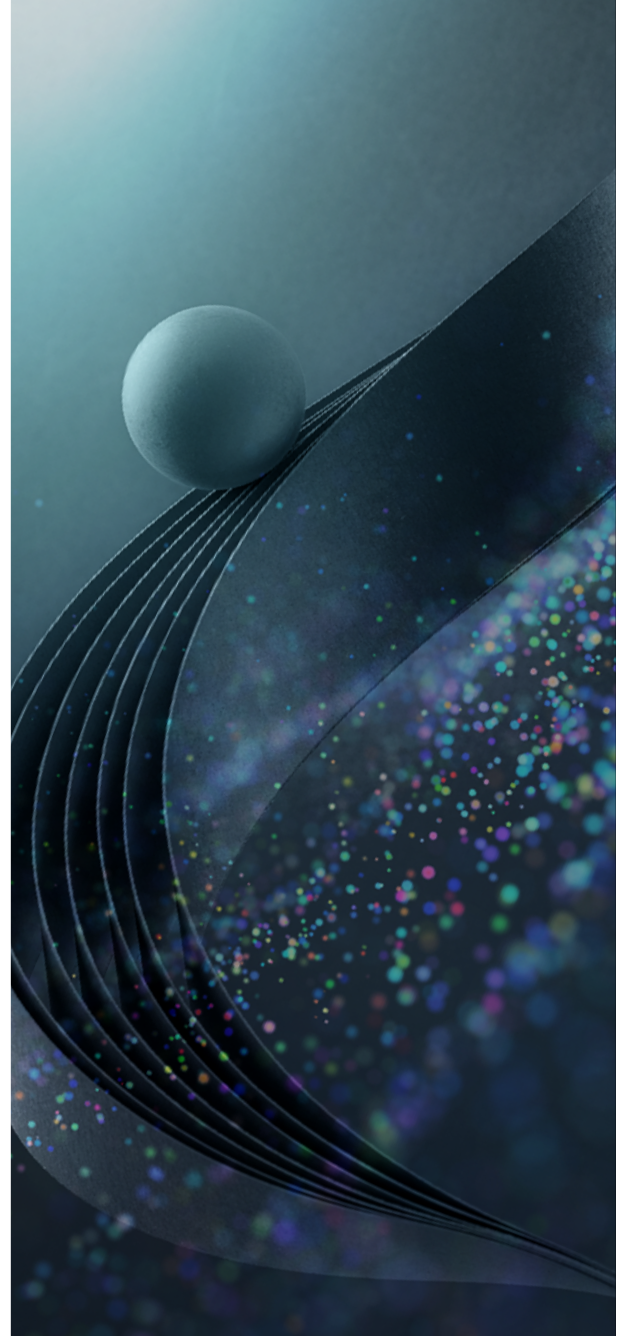
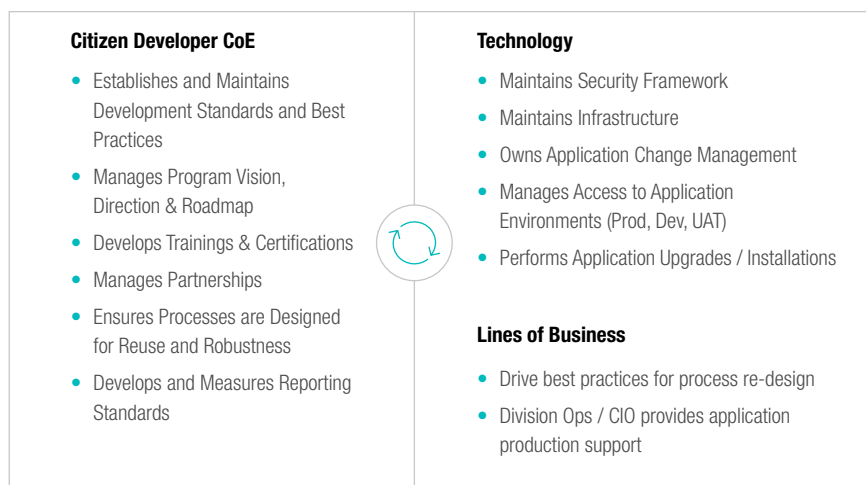


DIAGRAM 2

ESTABLISHING A STRATEGIC OPERATING MODEL



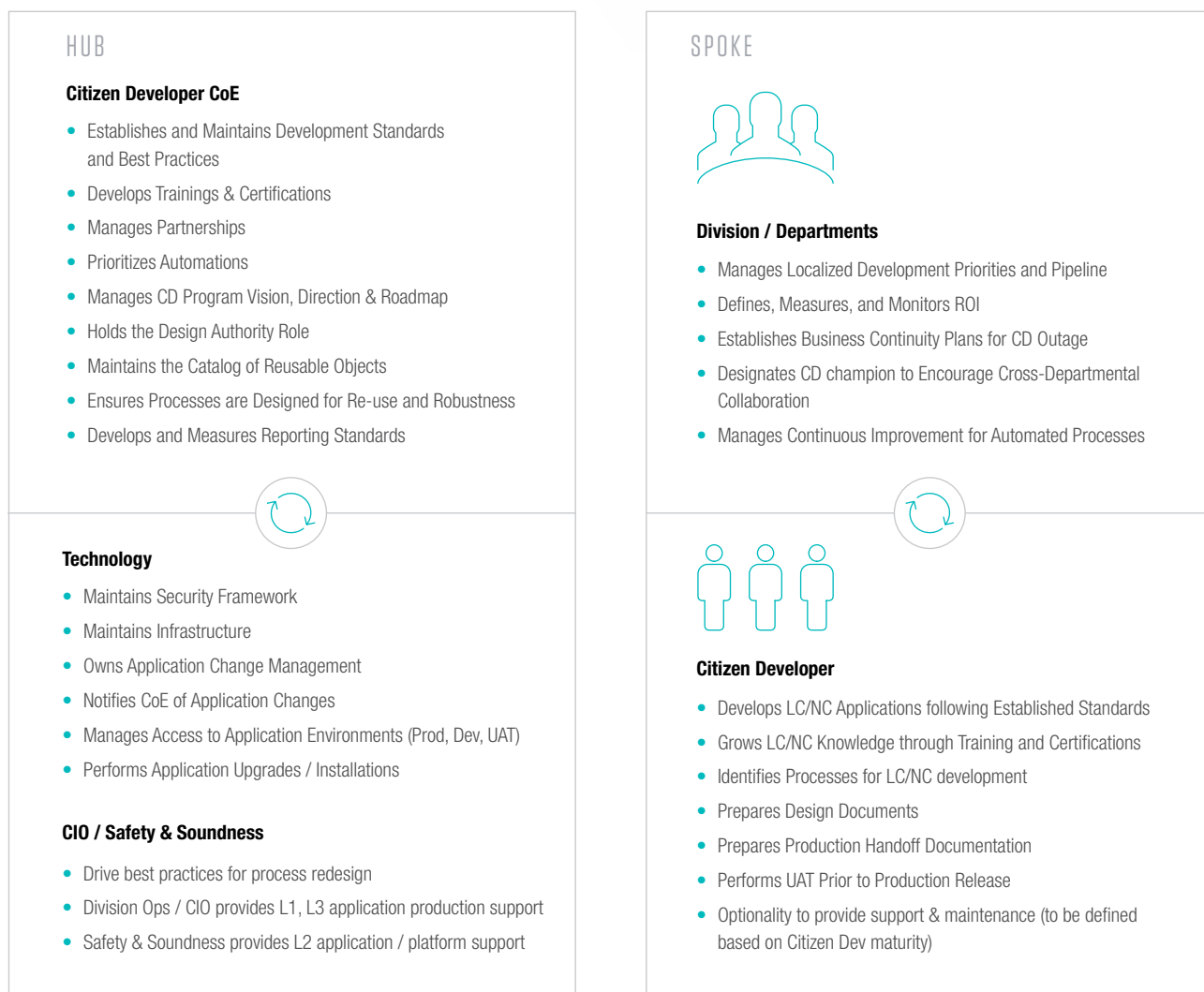
PRINCIPLES



When defining functions within the high-level Citizen Developer operating model (see Diagrams 2 & 3), five foundational key principles should be in place:

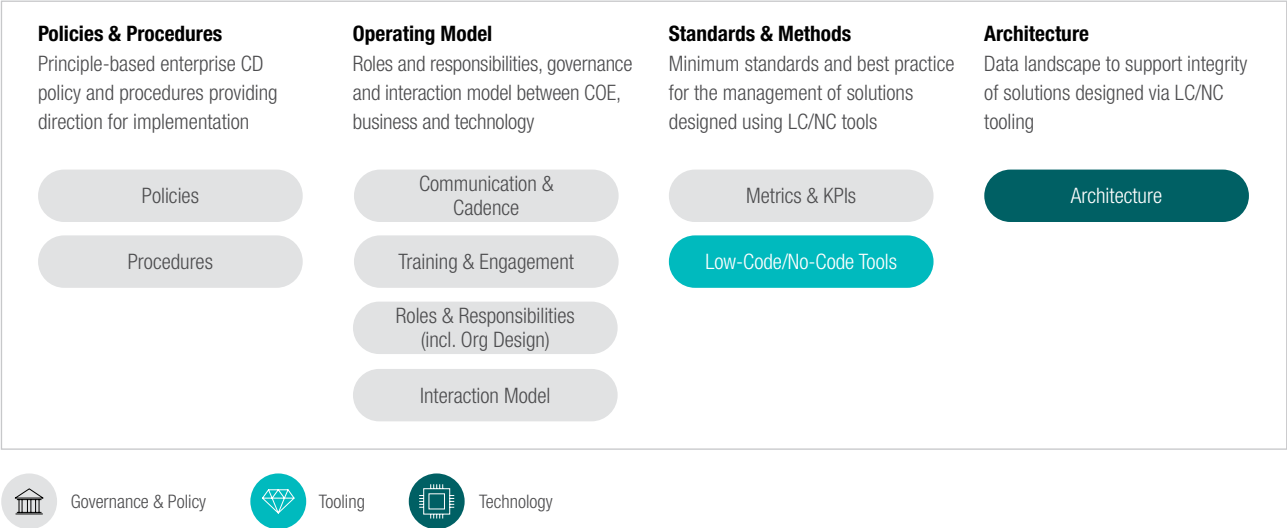
- Citizen Developers require standard training and certifications.
- Citizen Developers need to follow SDLC / Agile methodology.
- Whenever possible, code that has already been deployed should be identified and used.
- Every new build should take support models into consideration from the outset.
- A user community should be established to enable reuse of automation components.

DIAGRAM 3 - CITIZEN DEVELOPER HUB & SPOKE MODEL



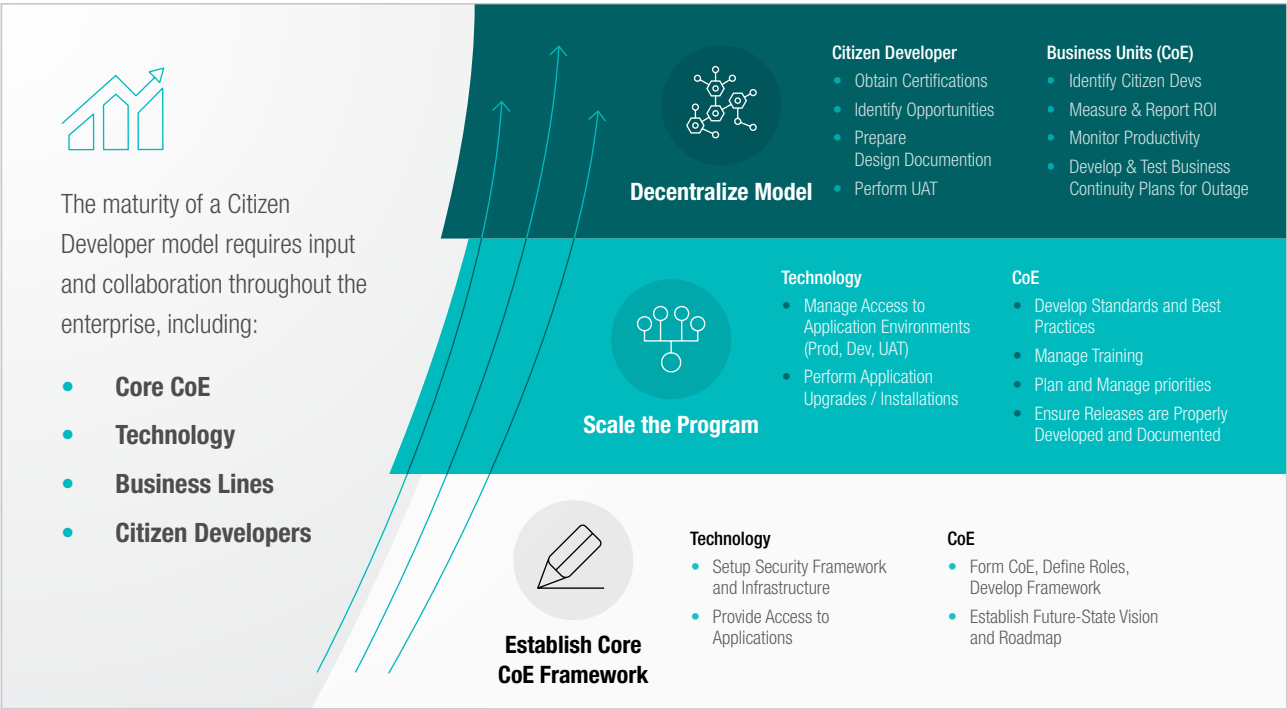
The Citizen Developer Governance Framework (see Diagram 4) is comprised of capabilities that define policies, procedures, operating model, minimum standards, and tooling components to govern and effectively control the development of workflows across the enterprise.

DIAGRAM 4 - CITIZEN DEVELOPER GOVERNANCE FRAMEWORK



Once the Center of Excellence is in place, the program can be scaled to a more federated model. The maturity of a Citizen Developer model requires input and collaboration throughout the enterprise, including core CoE, Technology, Business Lines and the Citizen Developers themselves (see Diagram 5).

DIAGRAM 5 - SCALING THE CITIZEN DEVELOPER MODEL



A NEW PARADIGM FOR OPERATIONAL TRANSFORMATION AND DEVELOPING TALENT

As Len Langsdorf notes, the Citizen Developer model will be most beneficial when implemented at scale, as smaller firms will typically not face the same challenges around talent or workloads as their larger counterparts. “That said, we are working with smaller firms who have implemented Citizen Developer programs,” he adds. “It may only be impacting 10 people, but while the efficiency savings are more modest, they view it as a roadmap for the future development of their employees.

“This model offers an attractive new career path for non-tech employees: they can become Citizen Developers. They have a new way to progress in the organization, one that is recognized and valued. So it offers an upside both in terms of attracting and retaining talent. Meanwhile, a firm’s technology



Julia Shreeve
Executive Director & Citizen Developer Lead at Capco

professionals are part of the Center of Excellence, so firms retain the expert oversight and security they offer. There is also a talent shortage when it comes to professional developers, and that constrained supply is also driving up the cost of hiring those developers. The Citizen Developer model addresses that as well.”

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THE CITIZEN DEVELOPER MODEL WILL BE MOST BENEFICIAL WHEN IMPLEMENTED AT SCALE

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Having established and overseen the expansion of Citizen Developer initiatives at a number of large Tier 1 institutions, **Julia Shreeve**, Executive Director and Citizen Developer Lead at Capco, has seen at first hand the benefits of the model for both employees and businesses. As she notes, Citizen Developer is an opportunity for employees to take ownership of tasks and processes, which is a key shift when firms consider how best to approach transformations and digitalization in a more agile fashion.

“Citizen Developer is very much about harnessing the power of those who know the processes best, who understand the nuances and the edge cases, and equipping them with the skills to self-automate and self-design their own solutions,” Julia says. “It facilitates a move away from having a business analyst writing the right functional specs and handing those over to IT before getting them signed off by the formal business owner. It gives employees who are in operational, functional roles and are doing repeatable processes an added dimension to their roles, in terms of their ability to upskill in tooling or a specific capability and so add another string or strings to their bow. It’s a big differentiator in showing they possess additional capabilities and offers a more nuanced career path and an opportunity to enhance their personal brand.

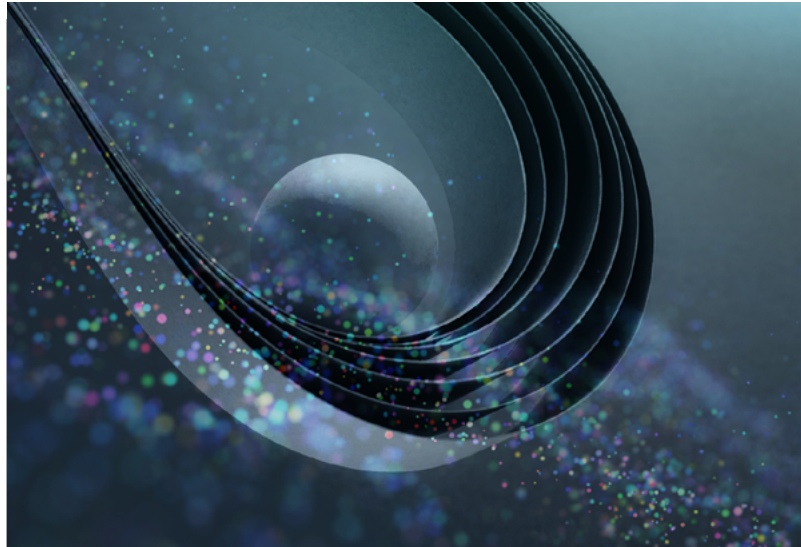
“So it is not only attractive to an organization from a cost perspective – especially when you are very carefully managing spend when it comes to transformation and change-the-bank costs – but also in terms of motivating individuals. Ultimately, this is about finding ways to make things better: to improve your own workflow so you are freed up to undertake more value-add activities, to get rid of those processes that are manual or repetitive and which aren’t delivering value. By doing that you will be empowered to deliver more for your organization.”

Certainly, the model looks to tap the latent skills of a wave of employees now coming into organizations who are increasingly tech savvy, whether in terms of having taken basic coding classes at school or having back pocket skills in programming languages such as Python. However, as Julia emphasizes, while Citizen Developer presents an opportunity for employees to apply that type of knowledge to their current role, “you don’t need to be data minded or have a background in coding per se – while we have drawn up guidance regarding the attributes, skills or interest areas an individual will ideally demonstrate, it’s as much about being inquisitive and having the mindset to really want to dig into things”.

The key to a successful Citizen Developer program, and scaling that program successfully, lies in putting a comprehensive and well-managed structure in place to support fledgling Citizen Developers. “It has to be about more than just a simple certification or accreditation, though those do exist out there,” Julia says. “Those are just the tip of the iceberg – what is also required is everything that then goes around that basic training on specific tools or ways of working.



ESTABLISHING A COMPREHENSIVE, WELL-MANAGED STRUCTURE TO SUPPORT FLEDGLING CITIZEN DEVELOPERS IS KEY



“How do employees apply that certification in the environment or context in which they find themselves, for instance? That will depend on what tools are available, the procedures and policies they have to adhere to. How do they know how to qualify a good process? The key is to ensure the upfront investment is in place so you can provide the holistic support that will allow Citizen Developer’s to effectively apply their skills within the environment in which they are operating. So, we will have someone on hand to QA their work, and they won’t be allowed to release anything to production unless it is signed off by expert colleagues who are more experienced in that specific tooling.”

Julia stresses that, for those employees with “passion, commitment and a genuine interest”, there should be nothing intimidating about the Citizen Developer model. “It is about building up knowledge over time – no one is put into a boot camp type environment,” she says. “The whole point is for this upskilling to take place alongside your day-to-day role: it is an iterative approach where you are continuously learning.”

It is also about being a part of a wider community of Citizen Developers, she adds: “There is a big focus on sharing core ideas, which use cases or tooling worked, which ones qualified out because the business case did not stack up, and what lessons can be learned. This also allows for an overview to be built up regarding which processes need to be automated and where use cases have been successfully implemented elsewhere.”



Since early 2021, **Swati Asthana** has been focused on training and mentoring more than 30 Citizen Developers as part of a program of wider digital transformation work across a range of Capco clients, with a view to helping those organizations to simplify and automate their process, to understand their processes more clearly, and to work more efficiently.

“AN INNOVATION AND PRODUCTIVITY CATALYST”

“We are developing processes that are agnostic of operational functions, looking into future digital solutions and identifying opportunities for creative working,” says Swati Asthana, Consultant at Capco. “Within that, Citizen Developer is an innovation and productivity catalyst – increasing capacity and addressing the developer shortage while reducing costs.”

Swati breaks the onboarding process for Citizen Developers into two stages. The first involves presenting the employees with a demo of the relevant tools and guidance around tool navigation. The next is to jump into those employees’ processes. “Citizen Developer allows them to build their own workflows using Low-Code/No-Code and digital transformation tools such as Alteryx, Tableau and Microsoft’s Power BI,” she says.

“It is a quick and effective solution to help expand and advance a firm’s digital transformation effort. Instead of employees going online to educate themselves on different courses, we are giving people a way to build their capabilities and upskill themselves in the tool of their choice – and to do that in parallel with their day-to-day work.” It is important that Citizen Developers have dedicated time to work on dev and automation projects, Swati adds, and that their work is progressed week on week with the necessary support and guidance along the way.

Swati notes that data must be a key consideration for firms if a Citizen Developer initiative is to deliver optimal results. “There needs to be an understanding of the high and low streams of data they are managing, as those can give rise to a lot of challenges,” she says. “Even when a manual process has been automated, unless the underlying data process are addressed or a proper data architecture is established, you will still struggle.

“So we place a big focus on data – our Citizen Developers have access to tools which address data quality issues and the data standardized so there are no issues in the main data hub or repository. Many firms still source their data from third-parties because they lack such a repository or hub, but ultimately building your own data capabilities will be more effective in terms of helping the organization grow.

There also needs to be a clear governance framework to guide Citizen Developers through the development process, Swati adds: “It is crucial to ensure there is equilibrium between business requirements and Low Code

solution delivery, and leveraging strong mentoring and governance methodology, such as quick guide for tools, technical standards, programming styles, and ‘productionization’ steps.”

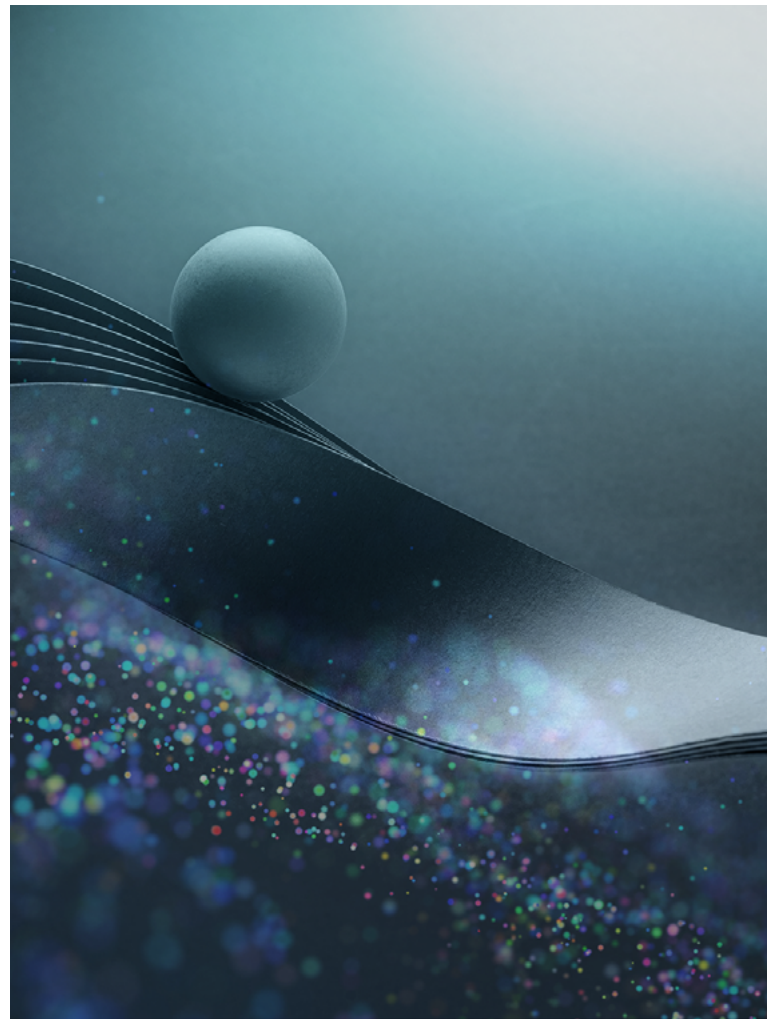
Given the increasing demand for digital transformation, Swati is confident that low-code tools and platforms are set to grow more powerful and become more accessible in the future: “With the help of Citizen Developer programs, organizations are now positioning themselves in the market with teams that are constituted and sized in a very strategic fashion, which in turn will create efficient workflows and collaborative team dynamics – a win-win for employees and their company.”

THE OPERATIONS OF THE FUTURE – AND BEYOND

Citizen Developer also ties into the idea of the Operations of the future, where the technology function becomes an auditor rather than a delivery channel. “This is increasingly going to be a computationally heavy business in the future, but within that humans will be the auditors – after all, we don’t want Skynet,” says Len Langsdorf. “They will ensure the automated decisions are the right decisions, and if someone decides that it needs to be altered, they have the authority to alter it.”

With Excel and Power Apps, Microsoft has sold the idea of the toolset as the solution, he continues: “We need to turn that around: rather, it is the idea that matters more than the tools that you’re using, because today there are so many tools out there. Citizen Developer is about the idea, about the people, about changing your organization’s culture and by extension also triggering wider cultural change.

“Citizen Developer means it is no longer the case that I cannot solve my own problem. It empowers my organization to solve its own problems, and that has been achieved in a way that is not going to generate additional risk or create additional issues for your business.”



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YOU'RE CHANGING THE MENTALITY TO THAT OF A TECH ORGANIZATION

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Citizen Developer is central to an organization's bigger transformation journey. “If you create an organization whose employees are, in essence, working to fix all their own problems and automate their solutions themselves, you're changing the mentality to that of a tech organization,” Len says. “That is good, because a lot of Operations groups are starting to roll up under the technology function, and that means a focus on more automation, more efficiency in the business.”

Anne-Marie Rowland, Partner at Capco and executive sponsor of Optimize, a new Capco initiative focused on accelerating end-to-end transformation within organizations, has no doubts that the speed of change and innovation across Operations will continue to gather pace over the next five years, and employers accordingly need to prepare their teams and provide them with the skills of the future now.

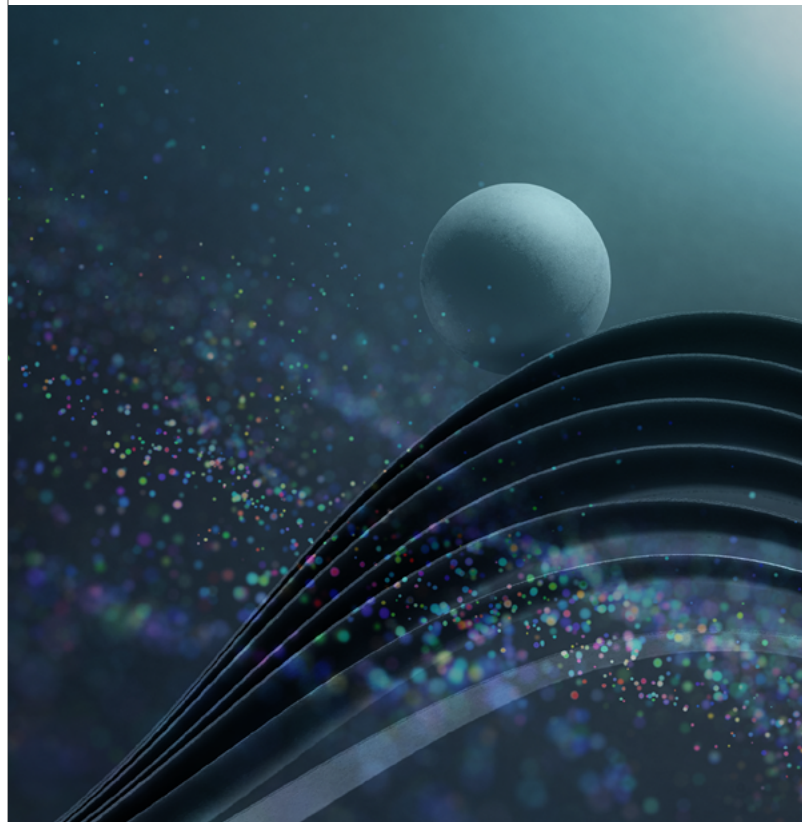
“Those organizations that incorporate the Citizen Developer agenda within their teams will not only speed their innovation and growth agenda across Operations, but will also enable a direct increase in their levels of people engagement. At the same time, Low-Code/No-Code will empower the workforce to develop through increased capacity and productivity,” Annie says.

“Moreover, while Citizen Developer is becoming a key feature of the Operations workforce, the model is applicable across any transformation, change or run role within financial services. This evolution in the workforce, this ability to democratize innovation and make a real difference at an individual level, is unquestionably a model to build on.”



Anne-Marie Rowland

Partner at Capco and executive sponsor of Optimize



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ABOUT CAPCO

Capco, a Wipro company, is a global technology and management consultancy specializing in driving digital transformation in the financial services industry. With a growing client portfolio comprising of over 100 global organizations, Capco operates at the intersection of business and technology by combining innovative thinking with unrivalled industry knowledge to deliver end-to-end data-driven solutions and fast-track digital initiatives for banking and payments, capital markets, wealth and asset management, insurance, and the energy sector. Capco's cutting-edge ingenuity is brought to life through its Innovation Labs and award-winning Be Yourself At Work culture and diverse talent.

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