HELPING BUSINESSES DEVELOP AUTOMATION SOLUTIONS

The Citizen Developer Movement

eggplant
Test Automation Software

KEYSIGHT
TECHNOLOGIES

Overview

The citizen developer movement is helping businesses develop automation solutions faster so they can power productivity and drive efficiency.

But while no-code low-code platforms provide the tools to create the apps, how are businesses managing the quality and maintenance requirements of the solutions they develop? This playbook explores the rise of the citizen developer movement and looks at how to embrace the opportunities without compromising on quality.

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Introduction

It was Gartner that first coined the term citizen developer and its definition deftly sums up the movement and its growth:

"A citizen developer is a user who creates new business applications for consumption by others using development and runtime environments sanctioned by corporate IT. In the past, end-user application development has typically been limited to single-user or workgroup solutions built with tools like Microsoft Excel and Access. However, today, end users can build departmental, enterprise and even public applications using shared services, fourth-generation language (4GL)-style development platforms and cloud computing services." [1]

There is no question of the value of citizen developers – but like any growing movement, difficulties are emerging as it matures. Chief amongst these is how to maintain citizen developed apps and drive quality. Because while there is a robust QA culture – and the tools to match – in the world of traditionally developed apps, the same cannot be said of citizen developed apps.

This playbook explores the rise of the citizen developer movement, the value it brings and the problems it presents. It then suggests a solution that allows organizations to benefit from the best of both worlds.

The rise in citizen developers

The citizen developer movement is one of the biggest stories in digital transformation.

A Gartner survey on citizen development found that 41% of respondents have active citizen development initiatives and 20% of those that don't are either evaluating or plan to start citizen development initiatives [2].

The movement is being powered by no-code and low-code application platforms, which make it easy for domain experts and non-developers to develop automated solutions to complex or time-consuming workflows because they do not need an understanding of complex programming languages or protocols.

There has been a huge rise in their use in recent years and it's a trend that's forecast to continue. We'll explore why in the following section.

By 2024

75% of large enterprises will be using at least four low-code development tools for both IT application development and citizen development initiatives.

65% of application development activity will be through low-code application platforms [3].

The value in citizen developers

It's easy to see why citizen development is proving so popular.

Before the rise of no-code and low-code platforms, businesses wanting to improve workflows and drive efficiency had several options, none of which were perfect.

The first was to do nothing.

The second was to invest in off-the-shelf software that provided something close to a solution and then configure it to meet their needs as closely as possible.

The third was to task development teams with creating a solution. This might take a long time to move into production due to a lack of resources. It was also likely to be a painful and protracted experience with two sides becoming increasingly frustrated – it's easy to ignore domain expertise in the early phases of development and it's easy for it to get lost in translation at any stage.

No-code and low-code platforms give power to domain experts so they can develop their own solutions. Rather than having to brief dev teams and hope their requirements are understood, they can simply create the app themselves.

It's been a transformative shift

Businesses don't need to employ so many developers with the knowledge and expertise of building enterprise programs. At the same time, by harnessing what non-developers have to offer they are significantly boosting the number of people that can power digital transformation. Above all, it allows businesses to develop solutions that exactly meet their needs with no compromise required – quickly.

The difference citizen development makes is stark. Forrester says that low code development platforms have the potential to make software development as much as 10 times faster than traditional methods. [4] In a world where time and resources are always tight, this is a statistic it is hard to ignore.

But despite the clear advantages, there are problems in the citizen developer movement, especially as it matures and more and more businesses use citizen-developed solutions. We'll explore these in the next section.

Maximizing digital transformation ROI

We operate in a digital world in which the quality of the customer experience will only grow more closely linked with revenue. In addition, disruptive technologies like 5G, IoT and machine learning will bring new opportunities for digital investments — and greater customer expectations for performance and reliability.

Companies that invest in a modern, usercentric approach to testing now are best positioned for success as these technologies mature. Eggplant is the ideal partner to help organizations navigate the testing complexities inherent in digital transformation initiatives, and lay the foundation for ongoing innovation.

The problems in building on citizen development

Despite the undoubted advantages, there are also undoubted concerns around citizen development.

There are two particularly pressing ones, both around quality. The first is in testing an app during its development to ensure it is delivering what is required and working consistently and as expected.

There is also the maintenance of any citizen-developed app throughout its lifespan to consider. And as every dev team knows, developing a new app is easy compared to maintaining it.

In both situations, there are basic practical considerations – what happens when the app is used in a different browser or on a different device, when security protocols change or a critical file changes location?

Then there's the question of what happens when the workflow that the app was developed to handle evolves. How are the testing requirements being tracked so the updated app can be tested robustly?

Manual testing is one solution, but because it is so resource-heavy, it only takes you so far. This is especially the case in an environment where more and more apps are being developed – the testing requirements become simply too big to handle.

In the traditional development environment there is a wealth of automated testing tools. But many of them require an understanding of programming languages, so they are the sole domain of the dev team.

This creates a problem. Domain experts are equipped to create productivity apps far more quickly than dev teams and there are solutions in use across the business. But the testing and maintenance requirements fall solely on the dev team. It means bandwidth pressures on the dev team have simply been moved further down the line, from development to testing.

Happily, in the same way that no-code low-code platforms for development evolved, so have no-code low-code platforms for automated testing. One of these is Eggplant.

The solution is intelligently testing the full customer experience.

The no-code low-code testing platform that drives quality in citizen development

For the problems of testing and maintaining citizen developed apps, Eggplant is the answer. We support both low-code and no-code environments with our pioneering, graphical model based approach.

Our no-code model based approach

Eggplant uses no-code testing, AI, and analytics to expand automation beyond test execution across the full testing process.

Eggplant's Digital Automation Intelligence (DAI) product removes the need for traditional siloed systems, testing the full digital experience against business outcomes, enabling you to optimize resources, release faster, and deliver higher quality software and applications.

Our low code approach uses "SenseTalk", an English-like language that lets users create software objects that organize the information they want to work with in understandable ways, and write automation snippets that describe how they want each object to behave.

SenseTalk is very responsive, providing immediate feedback as users learn the language and try out new commands. Users can type commands or partial scripts and have the computer carry out instructions at once.

And SenseTalk's modular, extensible architecture allows users to add new commands and functions to extend the range of what SenseTalk can do. The language is not cast in stone, but can grow and evolve according to users' needs.

> Eggplant is easy for beginners to learn, easy for experienced users to remember, and easy for everyone to read and understand.

Key benefits of DAI

1. Obtain actionable intelligence to optimize the digital experience you deliver

- Obtain actionable intelligence to optimize the digital experience you deliver. Test real user journeys by continuously tracking actual user movements through your website or application

- Apply additional intelligence to your most important journeys and automatically create a model of the application

2. Access enterprise scale testing capabilities via a single user interface

- Author, schedule, execute and analyze test results via a single modern, intuitive UI

- Easily scale execution, set limits for time and coverage levels and provide actionable insight that moves beyond static pass/fail notices to identify root causes of failures

3. Test any technology at every layer in any way

- Eggplant's platform-agnostic approach can test any device, OS or technology at any layer

- Model based approach allows you to intelligently understand and control the user interface as a human would

4. Empower domain experts to become automation engineers

- Support digital transformation initiatives via a low-code/no-code platform that can be utilized by domain experts, building analysts and full stack developers

- Modernize your testing approach without adding additional budget or resources

Case study:
Dressed for digital success

[5] Studio Retail Limited is one of the UK's fastest growing digital retailers, with over 1.8 million customers and 6 million orders annually through its two digital properties, studio.co.uk and ace.co.uk.

The performance and reliability of Studio's websites and mobile applications are a key component of its digital-first strategy and, as such, testing and monitoring are essential for the company to deliver on its mission.

Since 2005, Studio has partnered with Eggplant to avail of the latter's intelligent, AI-driven test automation, and the relationship has expanded significantly with evolving digital retail needs and emerging technological innovations.

Studio's goal is to be the most loved digital value retailer in the UK. Chris Platt at Studio elaborates, "It's critical that we showcase our products in a way that keeps our customers happy and engaged and makes them want to come back and shop with us again."

The look, feel, performance and accessibility of Studio's digital properties play a pivotal role in achieving this goal. As such, delivering a consistent high-quality experience at every interaction and on every operating system, device and platform is of paramount importance.

Eggplant provides Studio with a next-generation testing platform that enables the company to do this effectively. Using scriptless models, AI and analytics, Eggplant automates the entire testing process from test-case generation to test optimization to results analytics. Rather than focusing on the code and compliance, Eggplant takes a user-centric approach that tests every permutation of the user journey. As a result, Studio has greater insight into how its customers are interacting with its digital problems as well as actionable intelligence on areas that are causing issues.

Rob Lorton, Front End Web Development Manager at Studio, says,

"Eggplant allows a good diagnostic deep dive for problems, enables us to compare before and after, and check different page components — including those of our eCommerce partners and other third parties. By doing this with our customers always at the forefront, we can ensure that our technology is delivering a consistent experience that delights our customers and makes them want to shop with us again."

With Eggplant, Studio can draw on real user data to augment and guide its testing strategies and make continuous improvements to drive better business outcomes. For example, Eggplant's RCI and MI product enabled Studio's web team to spot a performance issue stemming from a third party's A/B test and take steps to prevent it from recurring. Lorton elaborates,

"We paused the test and watched the page load time in RCI — they improved immediately as the vendor's caches cleared. The updated A/B test code was redeployed later that month and we quickly saw the same degradation in RCI, so we were able to stop it again quickly."

While it's important to diagnose performance issues, in the highly competitive digital retail sector companies also need to understand how technology improvements can positively affect key KPIs.

With Eggplant's AI-driven testing, Studio can predict the quantified customer impact of new product versions prior to release and make any necessary changes to optimize performance.

Eggplant's Monitoring Insights for eCommerce offering takes real customer data and builds a model of the relationship between performance and visitor behavior. Entering an improved load time allows Studio to see a prediction of changes in conversions, bounce rate, revenue and other KPIs and also drill into this data by various customer segments. As a result of these capabilities, Studio reduced page load times on both desktop and iOS mobile devices by 15% during a recent code release.

Another key benefit of Studio's Eggplant implementation is that the company can release at DevOps speed without compromising quality. Eggplant's intelligent test automation has dramatically increased the speed of Studio's development sprints and enabled the company to release faster, with a goal of moving first to a weekly and, ultimately, a daily release schedule.

Justine Sharp, IT Test Manager at Studio, says,

"We can now deliver the project successfully from a cost and time perspective—it's been brilliant. We got test creation down from 10 days to 4 hours, and automation has allowed our people to focus on other areas of testing and development."

Since its inception in the 1950's, Studio has strived to put its customers at the heart of everything the company does. While the nature of its business has evolved significantly in the ensuing decades, this customer-first mentality has never been more critical than in the digital retail age. Through its partnership with Eggplant, Studio is delivering on its brand promise and ensuring that its digital properties deliver the consistent, high-quality customer experience upon which

Studio reduced page load times on both desktop and iOS mobile devices by 15% during a recent code release.

Conclusion

Citizen development is an exciting movement in the digital transformation agenda that offers powerful opportunities to drive innovation and improve productivity.

But if its advantages are to be fully realized, the lifespans of citizen developed apps have to be maximized. The way to do that is to bring automated testing tools into the citizen development environment. Eggplant provides a no-code low-code testing platform that takes citizen development to the next level.

Bringing automated testing tools into the citizen development environment.

Learn more at: www.keysight.com/find/eggplant

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