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## Deviation from Traditional Application Development to No-Code Application Development Aiding Students and SMEs

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**ABSTRACT**: Unlike traditional application development, No-Code Development focuses on zero queuing and rapid application development. Both techniques for making an application product show significant differences. Also referred to as a visual programming interface, drag and drop allows anyone to gain an advantage in creating the digital product they intend to make. In this paper, we are looking at the no-code application development approach in comparison to traditional application development in terms of the application lifecycle and how it will aid students in technical backgrounds and SMEs(Small or Medium based enterprises).

KEYWORDS: No-Code, Traditional Application Development, students, citizen developers, SME

#### I. INTRODUCTION

Using a Platform-as-a-Service (PaaS) in the cloud, No-Code Creation Platforms (NCDPs) aid in the development and deployment of entire software applications with rich graphical user interfaces and visual abstractions with minimum or no procedural code.

It uses pre-built modules and a user-friendly theme that generally incorporates drag-and-drop abilities to generate the app process and architecture, making it quicker, faster, and flexible. It also decreases the time and effort necessary to understand various programming languages and system technologies, allowing people with little or no technical knowledge to design and manufacture applications/products for their enterprises. They are not meant to be a replacement for standard development practices or methodologies; rather, they are intended to be a supplement for specific use cases and business objectives.

The Zapier Data Report documented the increase in no-code from 2020 to 2022 in US enterprises, from non-technical users to professional developers, with an increase of more than 50% in no-code users during this period. [6]

In this paper, we are looking at the no-code application development approach in comparison to the traditional application development in terms of the application lifecycle and how it will aid students in technical backgrounds and SMEs(Small or Medium based enterprises).

This paper is structured as follows: Section II visualizes the overall application development lifecycle process in traditional and no-code development methodology. A few no-code platforms study is described in Section III. Section IV unfolds how these platforms can encourage citizen developers and SMEs to use these tools to build their envisioned products. Section V concludes how we can look at no-code development as an add-on to a developer's skill set and not a replacement in their skills



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II. TRADITIONAL VS NO-CODE APPLICATION DEVELOPMENT PROCESS

#### 2.1 Traditional Application Development

Traditional application development is prepared in a client-server context, and we use a Software Development Lifecycle (SDLC) to create app products based on business needs, which begins like this:

- 1. Get the requirements, understand the workflow and add functionality to the application. Create a development team to determine the technical requirements
- 2. Evaluation of programming tools and technologies that will help in the development of complicated business logic and functions
- 3. The team begins by programming and creating module-to-module components of the product, resolving usage issues and defects using technologies explored in the previous step.
- 4. Modules are built and tested against user and business test cases to determine the effectiveness and performance of the application.
- 5. Once all the tests have been passed and the functionality has been confirmed to work as expected, the next step is refinement, e.g. B. Adding new features, security, maintenance, etc.

Although the development of traditional applications can take months to years, depending on the company, and the extent of the program, it generally takes place when the application is created from bottom to top.

#### 2.2 No-code Application Development

- 1. No-code application development is a rapid application development cycle that uses pre-built functions available on a no-code PaaS (Platform as a Service).
- 2. To understand the scope, requirements are collected and business processes are assessed.
- 3. Available no-code platforms are explored here to support rapid module prototyping and service registration.
- 4. After exploring the platform, the development team and the client can start building the product and better understand the scope. This step allows the client to also evolve and build exactly what he imagined.
- 5. Modules are then tested in real-time, allowing changes to be made without the inconvenience of bugs and code difficulties.
- 6. The app is now ready to deploy and users can start using it once the feature is complete.



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Figure 1. Traditional Application Development Timeline



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Figure 2. No-Code Application Development Timeline

#### 2.3 Developer Perspective

Now that we've seen how the development process works, we've looked at how it appears from the developer's perspective.

In the traditional approach, teams are formed based on the database implementation, business logic, and the application view. Each team investigates and builds the component before discussing and integrating it. Developers run into software problems and defects, which can be a pain to fix and add time to the implementation.

When using the no-code approach, developers must first learn how the platform works before attempting to build modules while interacting with the client for comments, suggestions, and more.



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Rapid application development employing no-code platforms leads to a rapid development process. Prebuilt modules reduce the time required to accomplish application functionality, permitting developers can focus on tasks that require more customization or are more commercially important.

#### III. A GENERAL OUTLOOK ON NO-CODE DEVELOPMENT PLATFORMS

This section provides a brief description of seven no-code development platforms that appear to be promising for beginner developers., i.e., citizen developers(business users with little to no coding experience) and small and medium-sized enterprises (SMEs).

**Webflow** is a SaaS platform that provides website building and hosting services. It has an easy-to-use drag-and-drop website component based on HTML, CSS, and Javascript. Responsiveness, custom design, the definition and reuse of CSS components for custom element styling, and collaboration help novices and developers learn and build apps under time pressure.

**WordPress** was a blogging tool upgraded to a web app builder tool and supports all platforms with PHP and MySQL. It is free open-source software, which means that you can modify the software for free, allowing you to develop new plugins and themes that can be used for various business purposes. As it is used all over the world, there is a huge global community that always helps with resources and guidance

**Microsoft's PowerApps** is designed for business purposes, that is, for internal business use. Provides process automation for non-technical people. Again, has a drag and drop component functionality and has easy integration of external data sources from Microsoft systems like Excel, Azure Database provides fast content management and data analysis for beginners limited to portable devices

**Zoho Creator** is one of the leading business management software that comes with built-in tools to customize workflows and integrate with Zoho apps or third-party apps like Google Apps, Salesforce, Zapier, etc. It keeps logs of changes made to the application. With its enhanced security features; you can allow specific networks, allowed sites, etc.

**GlideApps** was developed to convert Google, and Excel spreadsheets into a small efficient web or mobile application. It essentially provides the prototypes of applications based on minimal data sources. Using built-in templates and basic building components, you can ensure your idea is clear.

**Draftbit** is a React-Native-based platform that generates code that developers can use to add customizations to applications. It offers a low learning curve for programming beginners with a large community to guide you. Deploying and viewing the application across multiple platforms is simple by using the QR code generated after prototype creation

#### IV. USING NO-CODE PLATFORMS TO AID STUDENTS AND SMES

We have seen traditional and no-code app development approaches and discovered some no-code development platforms. We have to speculate how they can help students with a technical background and SMBs learn more about the applications, architecture, processes, and building prototypes and products they have imagined.

A breakdown of code-free development versus traditional development methodology[1] shows how they have their advantages and disadvantages in terms of ease of development, cost, maintenance, agility, customer experience, and flexibility, and depending on business requirements we will be able to assess which methodology fits best and code-free platforms do not intend to put an end to traditional development methodology.

Other than that, there is an emphasis on using no-code platforms as it enlightens us on cloud-based infrastructure; as applications deployed can be scaled on cloud-level architecture.[7]



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With minimal to zero setups of no-code tools, the gap decrease between non-technical/citizen developer and their ability to convert business ideas into viable applications offering accelerated solutions to people and SMEs altogether.[7]

A study of practitioner's perspectives from online communities[8] shows the demand for developing mobile applications is highest using no-code tools because mobile apps have a quick turnaround time and may be deployed quickly with no-code tools which further shows us how beneficial no-code platforms became during COVID-19 pandemic when Vensy Krishna, a lawyer developed Hydcovidresources.com to provide all covid-19 related resources in Hyderabad after the virus hit home and the need for resources was dire and alarming.[5]

When it comes to SMEs, we can talk about how they can set up their business applications using no-code platforms like Zoho Creator, and Google Analytics though it gets more interesting ahead when it comes to finances.

Business banking, expense management, and payment services are some of the services that arise for SMEs' needs. Neobanking(a digital bank) software like RazorPay, and Open provides these services as integration to your existing application. Moreover, Open has launched Zwitch as a no-code platform for fintech services[9]

This gives an insight into how citizen developers and SMEs with little to no knowledge about programming can go ahead and make use of the no-code platforms available to suit their needs with time to market.

#### V. CONCLUSION

The no-code development has been on the rise for some time, but it has exploded since the pandemic, as we can see from Hydcovidresources.com [5] The deviation from traditional to no-code development does not mean the absence of learning how to code but gives depth and understanding of how no-code can be an alternative and not a replacement to traditional application development.

Of course, there would be instances where time constraints would say no-code preferable to any other methodology. But one would need coding to build no-code tools which would simplify the business needs of citizen developers and SMEs

Meanwhile, a developer can always learn and built apps using no-code tools as an add-on to their skillset of building products through coding as the product build, scope and functionality will be influenced by the customer, user, and business scope.

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