ISSN 2348-1196 (print)
International Journal of Computer Science and Information Technology Research ISSN 2348-120X (online)
Vol. 10, Issue 2, pp: (55-58), Month: April - June 2022, Available at: www.researchpublish.com

Citizen Development

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DOI: https://doi.org/10.5281/zenodo.6538521

Published Date: 11-May-2022

Abstract: **Citizen development is a process in business where software development, through the use of low-code/no-code (LCNC) platforms, is encouraged for employees without IT enterprise training. As a result, business users are facilitated with the necessary technology and IT support for the creation of basic productivity software. This paper expounds on citizen development by analyzing its history, benefits, promotion, framework, maturity assessment, governance, popular platforms, KPIs, and challenges, as well as its RACI. As a result, the IT department and its collaboration with citizen developers is essential toward the success of the citizen development process. Also, citizen development relieves the pressure felt by IT experts, thus improving creativity and enhancing technological skills in the process. A company that is able to build its own applications increases job efficiency, reduces IT backlog, and reduces operation costs.**

Keywords: **Citizen, development, IT, KPIs, RACI, experts, developers.**

1. INTRODUCTION

Recently, digital transformation has been essential for business leaders. The effects of the pandemic increased the need for digital transformation, revealing the huge worldwide shortage of skilled developers. As a result, citizen development has emerged as a contemporary method of encouraging employees without enterprise IT skills to become software developers, thus delivering low-code development for digital transformation's acceleration and expansion. Using low-code/no-code (LC/NC) platforms, this program promotes employees' creation of business applications despite their lack of formal coding education. No-code technology has enabled the creation of applications without the need for code. No-code platforms have been witnessed since the emergence of computers, where their creation was aimed at assisting engineers and IT experts. Its use was aimed at those already informed on software development due to the high costs of generating software from scratch (Stoelwinder, 2019). Recently, however, the utilization of no-code has been embraced, thus facilitating a competitive edge for businesses trying to stay relevant. Therefore, this paper expounds on citizen development by analyzing its history, benefits, promotion, framework, maturity assessment, governance, popular platforms, KPIs, and challenges, as well as its RACI.

Benefits of Citizen Development enterprise.

Developers employ No-code development at different experience levels to create mobile and web applications. Drag and drop features and other capabilities are used to improve the efficiency of the developer team. As a result, citizen development realizes convincing benefits for the organization, such as facilitating efficiency and innovation (Carroll et al., 2021). Contemporary knowledge of numerous business units and awareness of potential improvements are facilitated by citizen development. Therefore, citizen development promotes creativity and motivates innovation.

The wait time for launching new applications is also reduced by using no-code development. Citizen development further facilitates improvements where feedback is received directly from colleagues and their applications. As a result, adjustments are made independently upon realizing an improvement or fixing. Furthermore, no-code technology improves the organization's intellectual property (Carroll et al., 2021). Citizen developers utilize numerous resources to develop applications that are copyrighted to the organization. Therefore, it is vital to impose citizen development to reduce wait time and facilitate independent adjustment.

Reduction in the risk of shadow IT, which occurs when employees stray from the IT sanctioned apps for personal work, also makes using no-code development advantageous to the enterprise or organization. Employees are encouraged to generate viable solutions with the approved space when organizations provide them with the means of developing their own solutions. A cost-effective alternative to outsourcing is similarly enabled when non-IT employees are facilitated with support, training, and resources to create applications (Carroll et al., 2021). Furthermore, scale is driven by citizen development as employees do the work already existent in the enterprise. Therefore, an advantage is gained by organizations that maintain the use of verified apps and facilitate support and training for citizen developers.

Citizen Development Framework

The structure of the citizen development framework is firstly dependent on some of the skills possessed by the business uses. For starters, the citizen developer must be well informed on the various business processes and operations, bottlenecks, and inefficiencies to provide efficient business apps. Aside from the necessary skill necessary for a citizen developer, a citizen development framework further entails the selection of the best no-code platform. Here, the business picks the best possible tool depending on use, functionality, and the adoption rate of the tool. Collaborating with the service vendor is another part of the citizen development framework. This ensures that the citizen developers are trained on the platform's functionality on a continuous or a one-off basis. The framework also entails the exploration of hyper agility where fast and accurate business practice evolution is sustained by combining effective business practice with intelligent automation. The no-code developers also need empowerment through mentorship and support from IT (Mathiarasan, 2022). Empowerment is also portrayed by monitoring the app development process by the IT team. Additionally, the citizen development framework involves the maintenance of proper shadow IT governance to discourage the use of disapproved apps, systems, and services. As a result, citizen development significantly improves productivity, app development speed, and automation of organization processes.

Citizen Development Maturity Assessment

Maturity assessment involves measuring the current level of maturity for a certain organizational aspect meaningfully. As a result, the measurement identifies strengths and areas of improvement and prioritizes what should be done for the highest level of maturity. This occurrence helps to generate a baseline for planning improvements. Furthermore, a citizen development maturity assessment necessitates a clear purpose to facilitate the highest maturity level. It is, therefore, the firm's responsibility to analyze the business goals for weaknesses and errors to facilitate improvement in the firm or product maturity.

Citizen Development Governance

Governing citizen development is vital due to the benefits it generates for enterprises. The powerful shadow IT upsides are removed by governance, which is also responsible for eliminating the shadow IT burden. Reliable governance is facilitated with a centralized hub to ensure collaboration between citizen developers and IT, thus promoting success through guidance and resource allocation (White, 2021). At this stage, it is often the IT leader’s responsibility to be in control through open framework analysis and installation. As a result, a central hub and vision are essential for transparency, uniformity, and accountability.

Training and mobilizing are other ways of facilitating governance for citizen development. Each developer should be capable of holding their own and effectively taking charge of their roles. Training on ideas, systems, expectations, and tools can be facilitated by IT, thus benefiting both IT and non-IT developers (Governing Citizen Development: A Strategy Guide for CIOs and IT Departments, n.d.). The role of the citizen developer in training can be limited with certification and policies, thus increasing the barriers to entry and reducing the support for app quality. Therefore, it is safe to start with a single department before employing the rest.

Citizen Development Popular Platforms

Various tools and platforms are in existence, but not all are reliable. These platforms assist in the improvement of business processes and customer and company interactions. Also known as point and click platforms due to their ease of use, citizen development platforms comprise Mendix, Microsoft PowerApps, No code Essentials, Zudy, Salesforce Lightning Platform, and many more (Liptak & Horwitz, 2021). These platforms offer a low-code platform that helps speed up the delivery and changes of an application in an enterprise without having a professional IT developer. These platforms also offer interaction with data and metadata and promote the creation of custom connectors. Some of these platforms, like Zudi’s Viny, offer a way of creating apps without code while integrating them with current systems. It is thus up to the organization and citizen developers to choose the best platform connected to the enterprise's goals.

Citizen Development KPIs

Due performance indicators are a measurable measure of performance within a specific period for a specific goal. They facilitate teams with targets, milestones for process gauging, and insights that improve decision-making. The initial planning phase necessitates KPI's definition for measuring the program's success. An example of a citizen development's KPI is app usage and users that marks an application's use frequency and the number of users. Apps deployed to production are yet another KPI that marks the number of citizen developers deployed successfully by the app. another KPI that marks the number of versions unleashed across existing apps is app progression. The time spent developing an app from initial concept to app deployment (5 Clear-Cut Metrics to Measure the ROI OF low-code, n.d.), the citizen developer feedback around training, IT collaboration, growth, and the process is other key indicators of performance that ensure targeting, milestones, and insights that improve the enterprise' decision making process. Therefore, speed arises as the main KPI and is ranked at the top of what is expected by industry leaders.

Promoting Citizen Development

Citizen development is an effective means of creating applications without having the coding knowledge taught in higher institutions. Ensuring citizen development is embraced by various individuals and groups is essential in maintaining its relevance. The first step toward promoting citizen development is creating the right culture (How to Empower Your Citizen Developer, 2021). This is followed by motivating the citizen development team to share their ideas and set achievable expectations, choosing areas that need improvement and the best no-code platform, providing enough time for employees to train, facilitating management and guidance, and revealing the myths and success of citizen development are some of the ways to promote citizen development. Therefore, citizen development's relevance is promoted by ensuring the citizen developers have a favorable environment and support for smooth app registration.

Citizen Development RACI

RACI is used to map every milestone, task, or decision in completing a project. It is used to assign the responsible roles, accountable personnel, those to be consulted, and those to be informed. Therefore, the four roles played by stakeholders in any project are reflected by the acronym RACI. The RACI model provides structure and clarity, thus describing the stakeholders' role in a project. The model also clarifies who is responsible for what, and no task is left unassigned. Responsible is one of the roles that stakeholders might play in a project and includes individuals who perform the work. The accountable are those who own the work, thus necessitating their approval after completing the task. The consulted are the active participants who give input before work, while the informed are those who need to be updated on the progress or choices (Suhanda & Pratami, 2021). Therefore, having each role and responsibility assigned to the right enterprise member and department ensures that goal attainment runs smoothly even without monitoring each action.

Citizen Development Challenges

One of the other main concerns for citizen development is the issue of data security. Sensitive data like credit card and social security numbers may be copied from secure data center zones and passed to less-secure environments. As a result, such data becoming available to unverified applications raises data security concerns even further. Another concern for citizen development is the ability of the non-developers to effectively create strong apps that might disrupt the system of the enterprise. This is mostly promoted by the lack of knowledge in the field. The type of insight that these apps may generate is yet another citizen development concern (Carroll et al., 2021). Therefore, even though citizen development is essential in the currently digitally advanced society, failing to curb these challenges may eliminate the need for no-code platforms as the risks would greatly outweigh the benefits.

2. CONCLUSION

Overall, this paper succeeds in illustrating the compounds of citizen development by analyzing citizen development's history, benefits, promotion, framework, maturity assessment, governance, popular platforms, KPIs, challenges, and its RACI. Citizen development emerges as a significant means of generating applications without the need for code. As a result, time, resources, and finance are saved as app creation is easier. Numerous means of facilitating citizen development also reveal the IT department as central to citizen development success. Therefore, citizen development succeeds in revealing the pressure felt by IT experts, thus improving creativity and enhancing technological skills in the process.

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