



Enhancing student admissions management efficiency through digital transformation: A case study using a no-code development platform

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ABSTRACT

This study examined the impact of no-code platform on the efficiency of complex processes, specifically in the context of the university admission process. Using AppSheet as a case study, the study collected data for two years prior to the adoption of the platform and for one year following its adoption. The results showed a significant reduction in terms of submission time, processing time, and human/facility resources required to manage the admission process after the adoption of AppSheet. The reduction in the number of personnel required to manage the admission process, as well as the reduction in processing time, highlights the potential for no-code platforms to improve organizational efficiency and reduce costs. However, the study has several limitations, including a relatively short data collection period and a limited range of metrics used to evaluate the impact of AppSheet on the admission process. Additional investigation is required to fully evaluate the effectiveness of no-code platforms in managing complex processes and to determine the potential ethical or legal issues associated with their use. Overall, the results of the study suggest that no-code platforms have the potential to significantly improve the efficiency of complex processes and improve overall organizational performance.

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INTRODUCTION

In the ever-changing landscape of higher education, universities are constantly looking for novel approaches to streamline and improve their administrative procedures (Lima et al., 2023; Parycek et al., 2023). The admissions process, which functions as the gateway for prospective students to begin their educational journey, is a crucial aspect. This process has traditionally involved documentation, manual data entry, and lengthy turnaround times (Almohtaseb et al., 2021). However, the emergence of digital transformation offers a chance to revolutionize university admissions by providing greater efficiency, cost savings, and enhanced candidate experiences (Okunlaya et al., 2022; Parycek et al., 2023; Vinh et al., 2023).

The traditional approach to university admissions has long been characterized by a labor-intensive and paper-based system (Robu et al., 2018). Prospective students were required to submit physical application forms, which were manually processed, leading to delays, errors, and inefficiencies. As such, admissions personnel faced challenges in managing the influx of applications, verifying information, and communicating with candidates throughout the process (Redding, 2013). These issues not only hindered the candidate experience but also imposed considerable administrative burdens on university staff.

Recognizing the need for transformative change (Vinh et al., 2024), universities have explored various efforts to modernize the admissions process (Klein, 2014). Online application portals and database systems were introduced to streamline certain aspects, but they often required extensive coding knowledge, making them inaccessible to non-technical personnel. Additionally, these solutions often lacked the flexibility and customization required to meet the unique needs of each university. Despite existing efforts to improve the admissions process (Peralta-Abarca et al., 2023; Shamsuzzaman et al., 2023), challenges remained. Administrative staff still faced difficulties in managing a growing number of applications efficiently, and the system was not adaptive to changing requirements or easily scalable. Moreover, the costs associated with maintaining and upgrading traditional systems posed financial constraints for universities.

In response to these challenges, our university adopted AppSheet as a transformative solution for admissions. AppSheet is a no-code platform (see Fig. 1) that allows users to create custom mobile and web applications with ease, without the need for extensive coding knowledge (Sitaviana & Indrahti, 2022). The platform offers a range of features and tools to help users design, build, and deploy applications. One of the main features of AppSheet is its drag-and-drop interface, which enables users to easily add and arrange different components of their application, such as buttons, forms, and tables. Additionally, AppSheet provides a range of pre-built templates and integrations with various data sources, allowing users to quickly create applications that are tailored to their needs.



Fig. 1 AppSheet: A No-code platform for custom mobile and web application development

Another key feature of AppSheet is its expression builder, which allows users to add custom logic to their applications. This feature is particularly useful for users who require more advanced functionality in their applications, as it enables them to create complex formulas and rules without the need for coding. AppSheet also offers a preview function, which allows users to test their applications in real-time before deployment. This feature is particularly valuable, as it enables users to identify and fix any issues or bugs in their applications before they are released. One of the main advantages of AppSheet is its ease of use. The platform is designed to be accessible to users with little to no coding experience, making it an ideal tool for non-technical users who require custom applications for their businesses or organizations. Additionally, AppSheet's ability to integrate with various data sources means that users can create applications that are tailored to their specific needs, without having to compromise on functionality or usability. AppSheet has been utilized in a number of studies (Habibah & Sumarno, 2022; Sitaviana & Indrahti, 2022; Vicerra et al., 2022).

OBJECTIVES OF THE STUDY

Leveraging the platform's no-code development capabilities, we developed a tailored system that enabled prospective students to apply for admission seamlessly. By providing an intuitive and user-friendly interface, AppSheet empowered non-technical personnel to create and manage the admissions system effectively. Through this case study, we aim to highlight the transformative potential of AppSheet in resolving the challenges faced by universities in their admissions processes. By presenting real-world results and experiences, we contribute to the broader understanding of how no-code development platforms can drive digital transformation in the higher education sector, ultimately benefiting both institutions and prospective students.

MATERIALS AND METHODS

To assess the impact of AppSheet on university admission management, we carried out an empirical examination of the Thai Nguyen University of Information and Communication Technology. The university has recently adopted AppSheet for managing its admission process. The study was conducted over a period of three years, from July 2020 to July 2022.

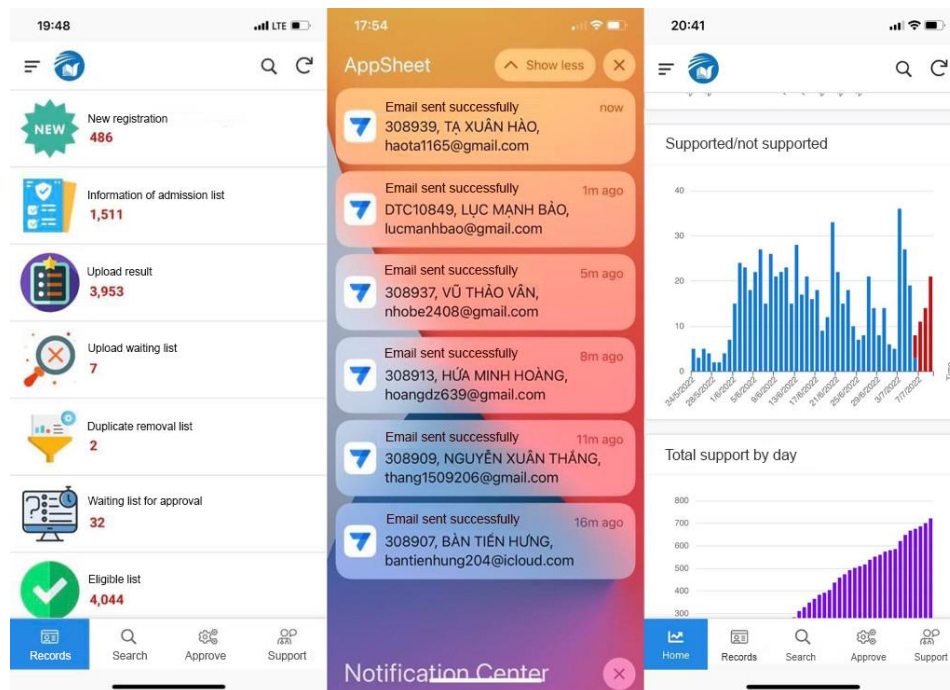


Fig. 2 A sample of interfaces implemented in AppSheet

We collected both quantitative and qualitative data to evaluate the impact of AppSheet on the university's admission process. The quantitative data included submission time (in minute) for prospective students, processing time (in minute) for staff, and the human resources (number of tables, staff and volunteers) required to manage the admission process. We collected this data for the two years prior to the adoption of AppSheet and for one year following the adoption of the platform. We used descriptive analysis to evaluate the impact of AppSheet on these metrics. To collect qualitative data, we conducted open interviews with staff and administrators involved in the admission process. We selected a purposive sample of staff and administrators based on their roles and responsibilities in the admission process. The interviews were conducted in-person and over video conferencing platforms, depending on the availability of the participants.

The interview inquiries focused on the respondents' experience with AppSheet, including their satisfaction with the platform, its ease of use, and the impact it had on their work. We also asked participants about any challenges or limitations they experienced with the platform, as well as any suggestions they had for improving the platform. To ensure the validity and reliability of our data, we used several strategies. We conducted a pilot study to test our interview guides and refine our data collection procedures.

RESULTS AND DISCUSSION

Admission Submission Time

The processing time for admission applications includes the time taken by students to prepare and submit their application documents, as well as the time taken by the admission officers to verify and authenticate these documents during the admission process. Fig. 3 highlights the comparison of admission submission time before (2020, 2021) and after adopting AppSheet (2022).

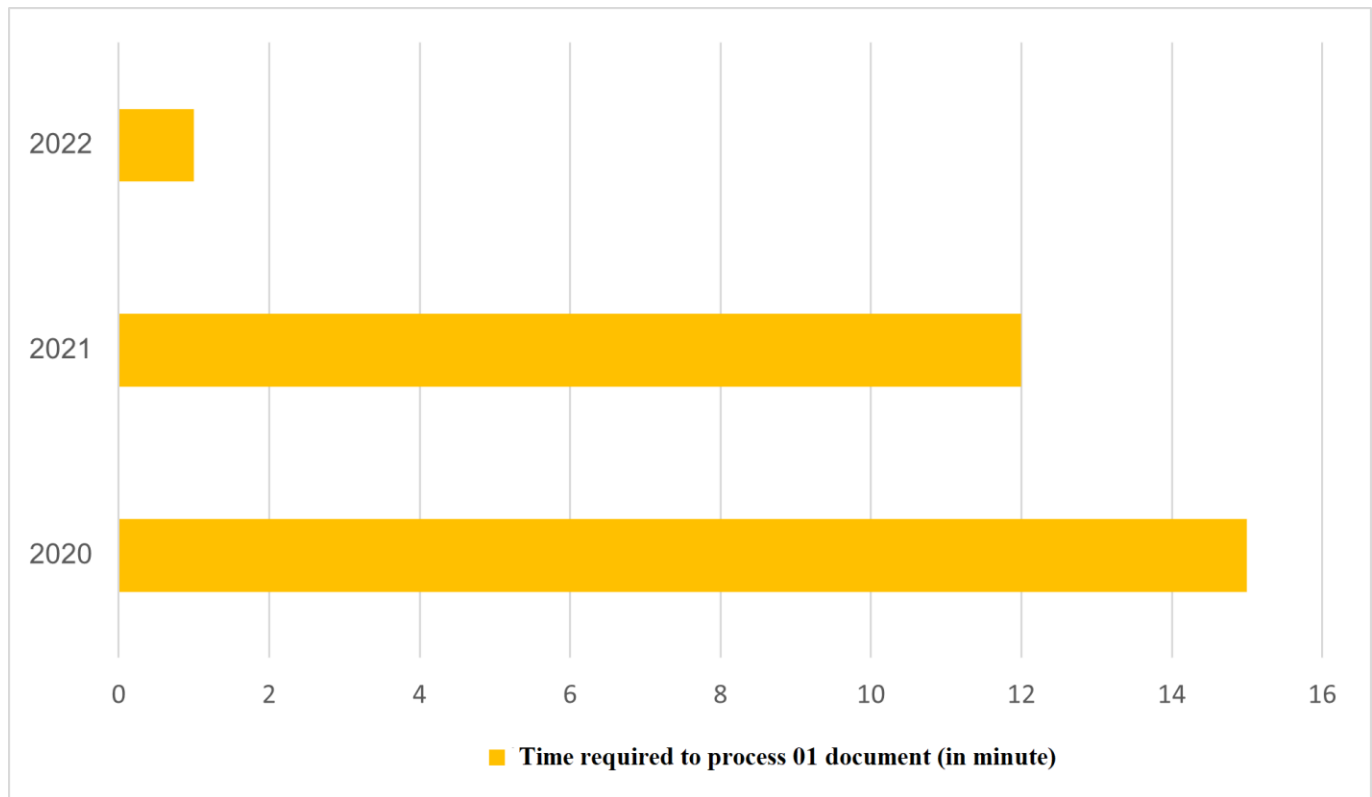


Fig. 3 Comparison of admission submission time (before 2020, 2021) and after adopting AppSheet (2022)

In 2021, certain types of admission documents were eliminated to expedite the admission process, yet the processing time remained lengthy due to the prolonged verification process by the admission officers. However, in 2022, the processing time was significantly reduced as applicants were required to submit their application documents online prior to their arrival for admission. Consequently, this step was streamlined, resulting in a reduction in processing time.

Admission Processing Time

Based on the data collected, the results indicate a significant improvement in the admission process after adopting AppSheet (see

Fig. 4). Prior to the adoption of AppSheet, in 2020, it took approximately 60 minutes to process one application. This processing time was reduced to approximately 45 minutes in 2021, which represents a 25% reduction in the processing time compared to the previous year.

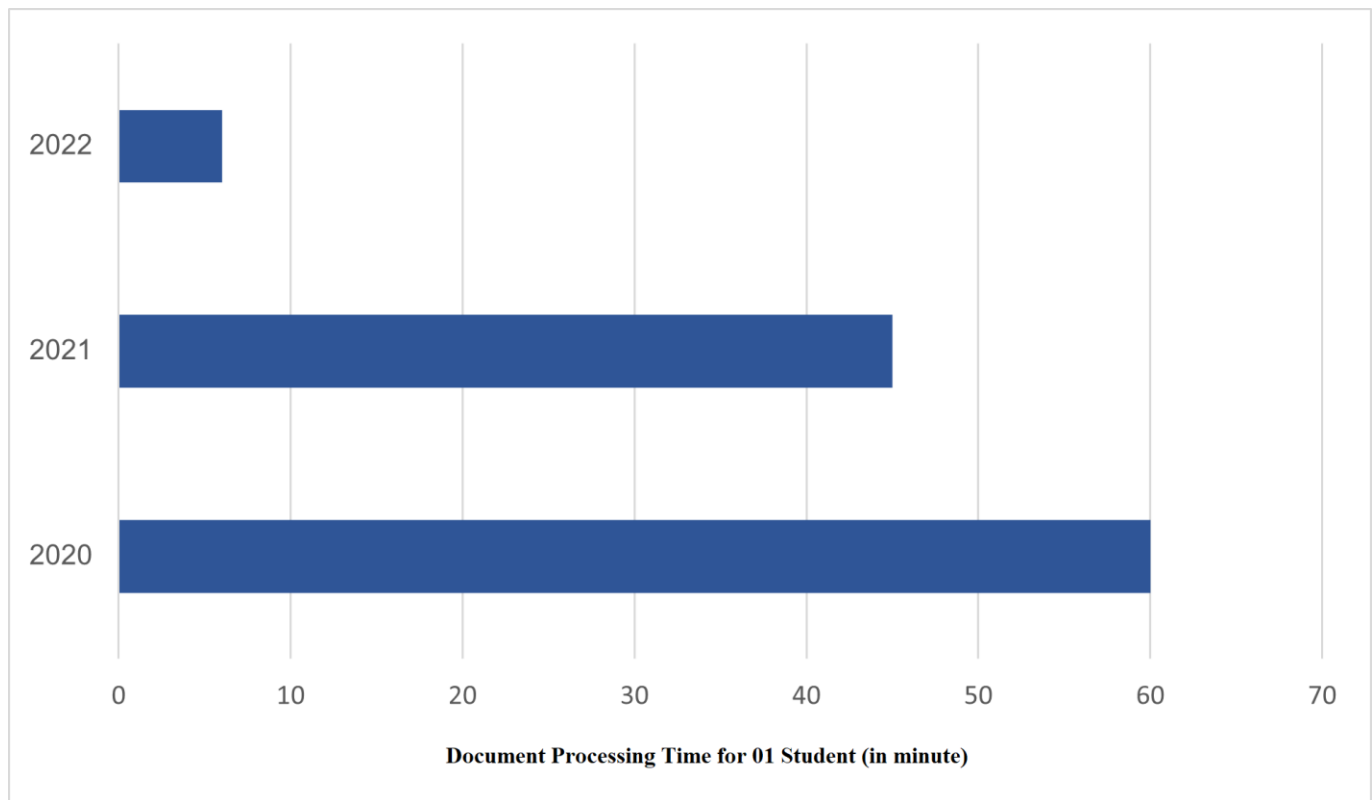


Fig. 4 Reduction in time taken with AppSheet adoption for Admission Process Management

However, the most significant improvement was seen after the adoption of AppSheet, where the processing time was reduced to just 5 minutes in 2022. This represents a dramatic reduction of approximately 89% in processing time compared to the previous year. The adoption of AppSheet has thus resulted in a significant improvement in the efficiency of the admission process.

The reduction in processing time can be attributed to the features of AppSheet, such as its ability to automate repetitive tasks, streamline workflows, and integrate with other systems. With the use of AppSheet, staff members are able to process applications more quickly and efficiently, resulting in a significant reduction in the time required to process a single application.

Facility and Human Resources

Based on the data collected, the results indicate a significant reduction in the human resources required to manage the admission process after the adoption of AppSheet. Prior to using AppSheet, the university required approximately 10 tables to welcome students, 50 personnel in charge of processing documents, and 150 volunteers to support the admission process in 2020.

In 2021, after adopting AppSheet, the number of tables required to welcome students was reduced to approximately 6, representing a reduction of approximately 40% compared to the previous year. The number of personnel in charge of processing documents was also reduced to approximately 41, representing a reduction of approximately 18% compared to the previous year. Additionally, the number of volunteers required to support the admission process was reduced to approximately 105, representing a reduction of approximately 30% compared to the previous year.

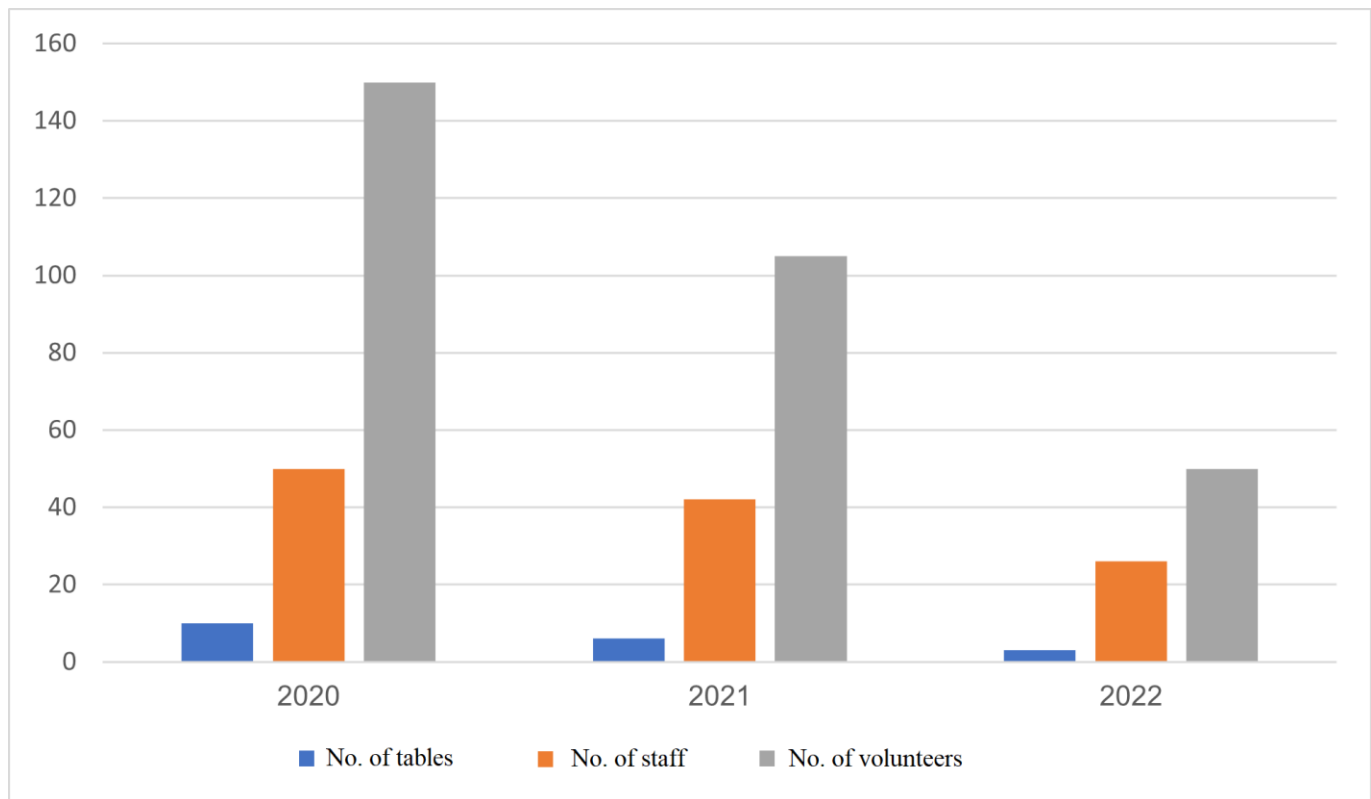


Fig. 5 Reduction in facility and human resources with AppSheet adoption for Admission Process Management

The adoption of AppSheet had an even more significant impact on the human resources required to manage the admission process in 2022. After using AppSheet, the university required only approximately two tables to welcome students, representing a reduction of approximately 80% compared to the previous year. The number of personnel in charge of processing documents was also reduced to approximately 25, representing a reduction of approximately 39% compared to the previous year. Additionally, the number of volunteers required to support the admission process was reduced to approximately 45, representing a reduction of approximately 57% compared to the previous year.

In terms of submission time, processing time, and human/facility resources, the results of the study provide valuable insight into the impact of AppSheet on university admission management. The reduction in submission time,

processing time, and human/facility resources required to manage the admissions process indicates that AppSheet has the potential to simplify complex processes and increase organizational efficiency. However, there are a number of limitations and potential concerns that must be taken into account when interpreting these results.

First, our study only collected data for two years prior to the adoption of AppSheet and one year after the platform was implemented. Further research is necessary to collect longer-term data to thoroughly evaluate the impact of AppSheet on the admissions process and unveil any trends/patterns that may emerge over time and identify any potential issues or disadvantages associated with its use. Second, the evaluation of AppSheet's impact on the admissions process employed a limited number of metrics. While the reduction in submission time, processing time, and human/facility resources required to manage the admissions process is significant, other factors such as cost-effectiveness, user satisfaction, and overall organizational performance may also be significant when evaluating the effectiveness of no-code platforms such as AppSheet. In addition, the study did not investigate any potential ethical or legal concerns related to the use of no-code platforms in the admissions process. For instance, when using these platforms to administer sensitive information such as student applications, there may be concerns regarding data privacy, security, and bias. Thus, additional studies will be needed to overcome this current investigation.

Despite these limitations, the study results provide valuable insights into the potential advantages of no-code platforms such as AppSheet for administering complex processes such as university admissions. The reduction in submission time, processing time, and human/facility resources needed to manage the admissions process suggests that AppSheet has the potential to increase organizational efficiency and reduce expenses. To thoroughly evaluate the impact of AppSheet on the admissions process and to address any potential issues or disadvantages associated with its use, additional research is required.

CONCLUSION AND RECOMMENDATION

In conclusion, the adoption of no-code platforms like AppSheet has the potential to significantly improve the efficiency of complex processes such as the university admission process. Our study has demonstrated that the use of AppSheet has resulted in a significant reduction in submission time, processing time, and human/facility resources required to manage the admission process. The results of our study suggest that the use of no-code platforms can streamline workflows, automate repetitive tasks, and improve organizational efficiency. The significant reduction in the number of personnel required to manage the admission process, as well as the reduction in processing time, highlights the potential for no-code platforms to improve organizational performance and reduce costs. However, it is important to note that the study has several limitations, including a relatively short data collection period and a limited range of metrics used to evaluate the impact of AppSheet on the admission process. Further research is needed to fully evaluate the effectiveness of AppSheet in managing the university admission process and to determine the potential ethical or legal issues associated with the use of no-code platforms in this context.

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