

Generational Challenges from Technology Adaptation in Municipal Financial Processes: Perspectives from Digital Immigrants and Digital Natives

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Abstract

This study examines the generational challenges in adapting technology for financial processes within municipal offices in Santa Cruz, Laguna, focusing on the distinction between digital immigrants (individuals born before 1980) and digital natives (individuals born after 1980). It aims to identify the specific challenges each group faces, explore their adaptation strategies, influencing factors, and propose interventions for improved technology adaptation. Technology has transformed financial operations, enabling real-time management and automation, yet generational gaps affect the adaptation of these tools. Using a qualitative-narrative approach, data was collected from 15 participants through semi-structured interviews, focusing on challenges, adaptation methods, and recommendations. A thematic analysis revealed that digital immigrants often struggle with unfamiliar digital tools, resulting in slower adaptation rates and lower efficiency. In contrast, digital natives encounter issues adapting to rapidly changing software, frequently leading to stress and workflow disruptions. Both groups rely on peer support, self-directed learning, and resource-based learning, with digital immigrants favoring structured training and simplified workflow, and digital natives preferring dynamic learning experiences and robust system support. The study identifies a need for targeted training programs, streamlined workflows, and enhanced data security to support both digital immigrants and natives effectively. Findings suggest that digital immigrants prioritize task simplification, while digital natives emphasize comprehensive system support. Some of the group's pre-existing digital exposure influences their comfort and adaptability with technology, highlighting the importance of tailored interventions for municipal financial offices.

Keywords: Digital Immigrants; Digital Natives; Technology Adaptation

1. Introduction

The adaptation of technology to enhance financial processes is referred to as financial technology, or 'Fintech.' Compared to older finance tools, modern technology makes it easier to organize and access financial data even in real time. These advancements continually empower finance teams to operate with greater efficiency. The study of Kesharwani (2020) and Tiwari et al. (2020) shows how technological advancement molds each generation in the fires of digital devices. They highlighted the existing differences between how the different age groups utilize the current technological advancement.

In the Philippines, difficulties posed by the shifting technological landscape also affect the professionals and financial offices of every community. The Bangko Sentral ng Pilipinas (BSP) has fully embraced cutting-edge technologies to address the financial inclusion gaps in the Philippines (Bangko Sentral ng Pilipinas, 2022). The adaptation of digital advancements varies generationally, given that different age groups probe different styles and techniques in utilizing digital tools specifically in financial processes. The generational gap between digital immigrants and digital natives may also pose a gap in technological adaptation in terms of utilizing different tools and software used in financial offices.

Aziz et al. (2019), cited Marc Prensky's research asserting that digital immigrants are those born before the advent of the digital age. Conversely, digital natives are individuals belonging to generations that have been exposed to and immersed in new technology from a young age, relying extensively on various digital tools throughout their lives in the digital era. Bennett et al.'s study further categorizes digital immigrants as those born before 1980, while digital natives as individuals born after 1980.

This study aimed to discover the possible challenges encountered by respondents in the adaptation of technology for financial processes, emphasizing the distinction between digital immigrants and digital natives. Additionally, this study delved into the respondents' approaches to cope with the challenges brought by technological exposure in the financial processes in the municipal financial offices. Finally, it offers strategies and interventions that can be used by different organizations.

2. Theoretical Background

The study is anchored from the theoretical support of the theory of the Technology Acceptance Model (perceived ease of use and perceived usefulness) proposed by Davis (1989), which focused on understanding the factors influencing individuals' decisions based on perceived ease of use and usefulness. Perceived usefulness is defined as how much someone thought (individual's perception) technology will improve their performance. Perceived ease of use, on the other hand, is about how easy someone is to use a system (Davis, 1989). The research aimed to identify and understand the challenges, in technology adaptation in financial processes, perceived by digital immigrants and digital natives. By adapting the lens of perceived usefulness and perceived ease of use, the study effectively explores how some factors, already given, influence the way of thinking and acceptance of technology of each age group. The researchers were able to understand how the respondents' perception affects their behavior and performance which also led to the development of some challenges. The study also addressed the strategies and methods used by digital immigrants and digital natives to adapt to such changes. By using the perceived ease of use and perceived usefulness concept, the framework

provided a theoretical basis for understanding individuals' expectations of technology's benefits and their confidence in using it effectively.

3. Research Problems

The study specifically sought to determine: first, the demographic profile of the respondents with regard to age, educational attainment, department, work position, length of service, and technology/software currently in use; second, the specific challenges faced by digital immigrants and digital natives in their respective journeys of technology adaptation, examining how these challenges differ between the two groups; third, the distinct ways in which digital immigrants and digital natives approach and navigate the technology adaptation process, as well as the factors contributing to these differences; and lastly, the targeted strategies and interventions that can be recommended to organizations and policymakers.

4. Data and Methods

The study used a qualitative-narrative method to identify the challenges from the adaptation of technology in municipal financial processes between digital immigrants and digital natives and further expounded on the strategies used by the respondents to adapt to the changes. The fifteen (15) employees were deliberately selected from various offices involved in financial processes. The data were gathered through a mix of recorded and written interviews and underwent a thematic analysis.

5. Results

Table 1 outlines the challenges respondents faced when using technological tools or software, highlighting generational differences in how digital immigrants (DI) and digital natives (DN) handled municipal technology.

Table 1. Challenges Encountered by Digital Immigrants and Digital Natives

Interpretation of the Themes	Frequency	Percentage
Digital Immigrants		
System Transition Issues	3/7	42.86%
Digital Natives		
System Transition Issues	2/8	25%
Adaptation Difficulty	2/8	25%
Software Inexperience	2/8	25%

Source: Authors

The theme system transition issues reveal significant challenges faced by both digital immigrants and digital natives, though each group experiences these difficulties in distinct ways. For digital immigrants, 42.86% of the respondents identified system transition issues as a major challenge. The difficulty in transition and unfamiliarity with new software made it difficult to adapt to new technological systems in general. This finding is supported by Pangandaman (2023), who mentioned that digital immigrants often face significant challenges when navigating new technologies due to limited exposure and practical experience. This is particularly evident in adapting to modern teaching methodologies, which demand proficiency in digital tools that may be unfamiliar.

In contrast, 25% of digital natives identified system transition issues as a challenge, primarily stemming from software issues/errors and frequent system changes. Although they are generally more familiar

with technology, digital natives still encounter difficulties adjusting to the specific systems used in municipal processes. These challenges often manifest as technical glitches or errors in the software, which disrupts work and reduces productivity. The findings are justified by Mahyoob (2020) who reveals that digital natives, despite being perceived as technologically adept, also encounter difficulties with system adjustment and software issues. For these individuals, frequent software updates or the introduction of new tools can disrupt established workflows, leading to frustration.

In addition, digital natives who identified the theme adaptation difficulties, representing 25% of their responses, noted the challenges posed by encountering system differences across various organizations and difficulty navigating new software environments. Respondents highlighted that transitioning to the municipal system was especially challenging when compared to software they had been familiar with in other settings, revealing how variations in systems from one workplace to another can hinder smooth adaptation. This result is reinforced by Reid et al. (2023) highlighting the specific challenges faced by Generation Z in adapting to new learning environments, emphasizing how digital natives often encounter disparities between familiar and unfamiliar software interfaces, which leads to adaptation difficulties.

Likewise, some digital natives reported feeling overwhelmed when using specialized systems for the first time, indicating that their general familiarity with technology does not always translate to ease with specific or complex applications. Additionally, limited exposure to certain municipal software left these individuals struggling to familiarize themselves with its functions, highlighting that their previous experience with general technology did not equip them with the necessary skills for specialized systems. According to Smith et al. (2020), while digital natives are proficient in handling basic digital tasks due to their early exposure to technology, they often face difficulties when navigating specialized systems for the first time, where specialized knowledge and complex systems are required.

Table 2 shows the ways in which digital immigrants and digital natives approached and navigated the process of technology adaptation.

Table 2. Ways on How Digital Immigrants and Digital Natives Approach and Navigate the Process of Technology Adaptation

Interpretation of the Themes	Frequency	Percentage
Digital Immigrants		
Peer Support	7/7	100%
Self-Directed Learning	3/7	42.86%
Resource-Based Learning	2/7	28.57%
Digital Natives		
Peer Support	4/8	50%
Self-Directed Learning	3/8	37.50%
Resource-Based Learning	2/8	25%

Source: Authors

One of the prominent ways in which digital immigrants and digital natives approached and navigated the process of technology adaptation is through peer support. 100% of digital immigrants pointed out that helping each other, task integration, communication and discussion, system provider assistance, and knowledge sharing were their strategies for adapting to new technologies. This finding aligns with Perdana and Mokhtar (2022), who noted that social influence refers to the extent to which a person is influenced by their affinity for technology usage. For instance, older individuals often rely on their children or grandchildren, who are proficient technology users, to assist them whenever they use technology.

Meanwhile, 50% of digital natives highlighted asking colleagues for help, sharing knowledge, and seeking mentorship as their primary approaches to navigating and adapting to new technologies. Usmani et al. (2019) highlighted that Generation Y prefer to collaborate rather than doing something individually. According to Karim (2019), the most commonly studied factors affected by knowledge sharing are creativity, learning, and performance. Knowledge sharing is also found to have some beyond-convention work-related impacts, such as those on team climate and employees' life satisfaction.

In terms of self-directed learning, 42.86% of digital immigrants indicated that methods such as self-exploration, self-study, taking on challenges for self-improvement, and actual application were their primary solutions for adapting to technology. On the other hand, self-directed learning empowered digital natives to take initiative in exploring new technologies, allowing them to quickly adapt, and integrate tools into their daily lives. 37.50% of digital natives indicated that self-directed learning, such as self-study, researching information, and utilizing online learning platforms was their primary approach to adapting to new technologies.

According to Lemmetty and Collin (2019), changing technologies and competition in the field of information and communication technology (ICT) are challenging the learning of individual workers and teams alongside and through work. As per Morris (2019), self-directed learning is a fundamental competence for adults living in our modern world, where social contextual conditions are changing rapidly, especially in a digital age.

Another approach used by both digital immigrants and digital natives to navigate the process of technology adaptation is Resource-based learning. The data revealed that 28.57% of digital immigrants indicated that resource-based learning, such as system familiarization, continuous training and study, and following system process guides was an effective strategy for technology adaptation. On the other hand, 25% of digital natives pointed that resource-based learning such as system checking, reading, attending seminars, following platforms, right planning, and informing employees are the answers on technology adaptation.

Uzorka et al. (2023) highlighted the importance of professional development and institutional support in technology adaptation. A person can develop and improve their professional skills in numerous ways, such as educational programs, self-directed learning, trainings, seminars, workshops, networking, among others.

Table 3 shows the factors that contribute to the distinct approach of digital immigrants and digital natives, providing the themes of pre-existing digital exposure, system diversity, assisted adaptation, absence of manual exposure, and adaptive mindset for technology.

Table 3. Factors that Contribute to the Distinct Approach of Digital Immigrants and Digital Natives

Interpretation of the Themes	Frequency	Percentage
Digital Immigrants		
Pre-existing Digital Exposure	2/7	28.57%
System Diversity	2/7	28.57%
Assisted Adaptation	2/7	28.57%
Digital Natives		
Pre-existing Digital Exposure	4/8	50%
System Diversity	4/8	50%
Assisted Adaptation	2/8	25%
Absence of Manual Exposure	4/8	50%
Adaptive Mindset for Technology	2/8	25%

Source: Authors

Pre-existing digital exposure is a factor that contributes to the distinct approach of both digital immigrants and digital natives. The data revealed that 28.57% of digital immigrants pointed out that factors such as early exposure on digital process, system familiarity, routine familiarity, pre-existing computer experience contributed to their distinct approach. Pre-existing digital exposure influenced their approach to technology adaptation by creating a fundamental understanding of basic digital concepts, even if their experience is limited. On the other hand, 50% of digital natives pointed out that another factor that contributed to the distinct approach is the pre-existing digital exposure. Digital natives are already exposed to digital devices, and their knowledge of new technologies is well-established.

These results are defended by Traynor (2019), Prensky perceived digital natives as people who have grown up with technology. These people had been surrounded with technology that they quickly learn how to navigate it effectively. This also made it easier for them to carry out financial activities. On the other hand, Prensky perceived digital immigrants as people who have not grew up with technology and are yet to learn about technology and adapt to this ubiquitous environment. Despite adapting to their environment, Prensky insisted that digital immigrants still hold aspects of their past, such as using the internet as their second option or reading manual rather than presuming that the program itself will teach them how to use its features.

System diversity is another factor that contributes to the distinct approach of both digital immigrants and digital natives. The data revealed that 28.57% of digital immigrants pointed out that system diversity is a key factor influencing their approach. In the workplace, where multiple and often unfamiliar technologies are used, system diversity can be a challenge for digital immigrants, who may struggle to adapt to new or varied systems. On the other hand, 50% of digital natives pointed out that system diversity, such as differences in systems for each job role, familiarity with previous systems, user-friendly systems compared to previous workplaces, and different subsystems used for different job roles, contributed to their distinct approach.

According to Akiki, Zisman, and Bennaceur (2023), software systems execute tasks that depend on different types of resources. The variability of resources hinders the ability of software systems to execute important tasks. System diversity addresses the negative implications of resource variability.

Assisted adaptation is another factor that contributes to the distinct approach of both digital immigrants and digital natives. The data revealed that 28.57% of digital immigrants adapted technology through planning and communication, system provider guidelines, and support provider systems. Assisted adaptation helps digital immigrants navigate new technologies by offering support and resources that ease their transition into the digital world. On the other hand, the data revealed that 25% of digital natives adapted technology by seeking assistance and support from service providers and collaborating with colleagues.

According to Aloqaili (2019), peer dynamics are vital because they build strong connection and enhance social skills, such as leadership and communication that the company needs. Peers influence the behaviour of a person in using technology (Perdana & Mokhtar, 2022).

Another factor contributing to the distinct approach of digital natives is the absence of manual exposure. The data revealed that 50% of the respondents indicated that the lack of manual exposure contributed to their distinct approach. Digital natives often lack experience with manuals in their work environments, as they are accustomed to automated systems and digital tools.

The last factor contributing to the distinct approach of digital natives is the adaptive mindset toward technology. The data revealed that 25% of the respondents pointed out that an adaptive mindset—such as curiosity about new technology and mental and physical readiness—contributed to their distinct approach. One of the factors that made them technologically proficient is their curious minds. Digital natives tend to explore different technologies, software, and platforms, gaining knowledge of how they function. Their technological skills and knowledge acquired from their youth contribute to their professional work (Kersharwani, 2020).

Table 4 summarizes the strategies and interventions recommended by the respondents, organized by theme and grouped according to age classification such as digital immigrants and digital natives. These themes were derived from respondents' suggestions to improve technology adaptation and support.

Table 4. Strategies and Interventions Recommended by the Respondents

Interpretation of the Themes	Frequency	Percentage
Digital Immigrants		
Skill Development Programs	5/7	71.43%
Digital Efficiency Enhancement	2/7	28.57%
Digital Natives		
Skill Development Programs	4/8	50%
Comprehensive System Support	2/8	25%
Data Security and Backup Solution	2/8	25%

Source: Authors

Among the digital immigrants, 71% share a common interest with digital natives in undertaking training and seminars to enhance their soft skills and facilitate technology adaptation within their workplaces. On the same side, 50% of the digital natives also advocate for inclusive training programs. They believe that technology-driven interventions such as seminars, workshops, and continuous learning opportunities should not be limited to senior or technical positions but should be accessible to all employees.

Choudhary & Bansal (2022) conducted a systematic review of digital literacy training programs (DLTPs) targeted at enhancing digital skills across various sectors. They found that effective training programs incorporate structured, multi-faceted interventions such as workshops, instructional seminars, and continuous education, all of which improve digital competencies.

For the 28.57% of digital immigrants, they recommend enhancing digital efficiency by simplifying existing systems. They recommend less number of steps to input data and a paperless environment that would make anything easy to do. From their responses, it appears that minimal paper-based files but access to the desired information on the computer would make doing daily work easier and simpler.

The study by Soudani (2012), as cited by Hossain (2024), highlights the importance of improving digital procedures in increasing productivity and efficiency in organizations. Soudani emphasizes the significance of a strong digital infrastructure, especially high-speed internet, to maintain workflow continuity and prevent disruptions, especially during peak operational demand. This supports respondents' emphasis on reliable internet connectivity to minimize frustrations and ensure efficient system use without downtime.

In terms of comprehensive system support, 25% of the respondents include user manuals, guidelines, and clear workflows as one of the resources that the municipal government can provide for better adaptation of their employees. They also mentioned how important it is to invest in a good IT system and make it user friendly. For instance, research on Ghana's public sector employees shows that technological readiness strongly influences career adaptability, where employees who are prepared to embrace technological advancements are more capable of adjusting to changes in their job roles and the broader work environment.

Given the experience of digital natives with the instability or failure of some digital systems, concerns over data security and backup emerged as one of their priorities. 25% of the respondents highlighted the need for additional measures that ensure data integrity to protect against the possibility of system crashes and other errors. Some of them proposed implementing backup systems to minimize disruptions in their daily tasks and minimize or rather avoid the loss of data altogether.

Ahmed et al. (2019) state that secure, error-resistant data infrastructures are essential components in reducing disruptions and maintaining workflow continuity in organizations, allowing employees to interact with digital processes without fear of data loss or system crashes that could otherwise impede their adaptation of new technologies.

6. Conclusions

In the light of the findings of this study entitled: Generational Challenges from Technology Adaptation in Municipal Financial Processes: Perspective from Digital Immigrants and Digital Natives, the following conclusions are drawn:

1. Among the 15 respondents 47% were digital immigrants and 53% were digital natives.
2. Digital immigrants displayed a wider range in terms of educational attainment, while all digital natives hold a bachelor's degree.
3. Digital immigrants are also more evenly distributed across treasury, budgeting, and accounting offices, while digital natives are predominantly in treasury.
4. Ticket checker is the most common work position for digital immigrants while administrative aide is predominant for digital natives.
5. Digital immigrants displayed a diverse and longer range of service lengths, while all digital natives have served between 1-5 years, indicating recent entry into the workforce.
6. Digital immigrants primarily use Microsoft applications, indicating comfort with commonly used office software and focused tools like Uplink and E-budgeting for business tasks. Digital natives utilized a broader range of tools, reflecting a mix of traditional and new technologies, possibly due to their roles involving complex tasks or older systems.
7. Digital immigrants struggled in adapting to new technological systems generally, while digital natives faced more difficulties in utilizing specific technological tools.
8. Both age groups relied on peer support, self-directed learning, and resource-based learning as they navigated the process of technology adaptation.
9. Factors such as pre-existing digital exposure, system diversity, and assisted adaptation influenced both groups' approaches to technology adaptation. Additionally, the absence of manual exposure and an adaptive mindset uniquely shaped the distinct approach of digital natives
10. Four main strategies arose from the respondents' recommendations: skill development programs, digital efficiency enhancements, comprehensive system support, and data security and backup solutions

References

- Ahmad, F. and Karim, M. (2019) Impacts of knowledge sharing: a review and directions for future research <https://www.emerald.com/insight/content/doi/10.1108/JWL-07-2018-0096/full/html>
- Ahmed, A., Sadullah, A. F. M., & Yahya, A. S. (2019). Errors in accident data, its types, causes and methods of rectification-analysis of the literature. *Accident Analysis & Prevention*, 130, 3–21. <https://www.sciencedirect.com/science/article/abs/pii/S0001457517302531>
- Akiki, P., Zisman, A, and Bennaceur, A. (2023). Modelling Software Tasks for Supporting Resource Drivassisten Adaptation. https://link.springer.com/chapter/10.1007/978-3-031-39386-0_12
- Aloqaili, Shadin & Alharthy, Riham & Alsaudon, Shaikha & Alshaalan, Rahaf. (2019). Technology in the Workplace. https://www.researchgate.net/publication/342106878_Technology_in_the_Workplace
- Choudhary, H., & Bansal, N. (2022). Addressing Digital Divide through Digital Literacy Training Programs: A Systematic Literature Review. [https://eric.ed.gov/?q=Choudhary+%26+Bansal+\(2022\)+%id=EJ1363193](https://eric.ed.gov/?q=Choudhary+%26+Bansal+(2022)+%id=EJ1363193)
- Hossain, K. M. (2024). The usefulness of an accounting information systems for effective organizational performance. *papers.ssrn.com*. <https://doi.org/10.2139/ssrn.4956574>
- Kesharwani, A. (2019). Do (how) digital natives adapt a new technology differently than digital immigrants? A longitudinal study. <https://www.sciencedirect.com/science/article/abs/pii/S0378720619305117?via%3Dihub>
- Lemmetty, S. and Collin, K. (2019). Self-Directed Learning as a Practice of Workplace Learning: Interpretative Repertoires of Self-Directed Learning <https://link.springer.com/article/10.1007/s12186-019-09228-x>
- Mahyoob, M. (2020, December 1). Challenges of e-Learning during the COVID-19 Pandemic Experienced by EFL Learners. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3652757
- Morris, T. (2019). Self-directed learning: A fundamental competence in a rapidly changing world. <https://link.springer.com/article/10.1007/s11159-019-09793-2>
- Pangandaman, H. (2023). Challenges faced by digital immigrant nurse educators in adapting flexible learning options during the COVID-19 Pandemic: A phenomenological study. *Journal of Client centered Nursing Care*, 9(4), 309–316. <https://doi.org/10.32598/jccnc.9.4.571.2>
- Perdana & Mokhtar. (2022). Seniors' adaptation of digital devices and virtual event platforms in Singapore during Covid-19. <https://doi.org/10.1016/j.techsoc.2021.101817>
- Reid, L., Button, D., & Brommeyer, M. (2023). Challenging the Myth of the Digital Native: A Narrative review. *Nursing Reports*, 13(2), 573–600. <https://doi.org/10.3390/nur.srep13020052>
- Smith, E. E., Kahlke, R., & Judd, T. (2020). Not just digital natives: Integrating technologies in professional education contexts. *Australasian* <https://doi.org/10.14742/ajet.5689>
- Traynor, L. (2019). Exploratory study on the adaptation of Financial Technology among Digital Natives and Digital Immigrants in Ireland. https://norma.ncirl.ie/3968/1/leetrainor.pdf?fbclid=IwAR1MTUAO4ZQKKGrqsPcLJOJvhrRH6VAXgmRAjkADONmgL9AZHlM6dZOZHx8_aem_ASFhXsCAN9ytOk8R-eEPplr8fCg9n-8HG4CaA5QS7xdQHEj02SKo4yBWrrNyx0rLGSC4FyE4bIz3cCGe8uT3h1gTT
- Usmani, S., Asif, M.H., Mahmoon, M.Z., Khan, M.Y., Burhan, M. (2019). Generation X and Y: Impact of Work and Work Values on Employee Performance. <https://pdfs.semanticscholar.org/0d78/09a00b31e60d8bce812fb7832562a31bf2c4.pdf>
- Uzorka, Afam & Namara, Shiellah & Olaniyan, Ademola. (2023). Modern technology adaptation and professional development of lecturers. *Education and Information Technologies*. <https://link.springer.com/article/10.1007/s10639-023-11790-w>