

ENHANCING PUBLIC WELLBEING THROUGH AUTOGATE AT SOEKARNO-HATTA INTERNATIONAL AIRPORTS

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ABSTRACT

The rapid advancement of information technology (IT), marked by innovations such as artificial intelligence (AI) is reshaping various sectors and challenging traditional frameworks, particularly towards automation. This transformation is particularly evident in public policy, as governments strive to enhance efficiency and citizen satisfaction. The adoption of information and communication technology, such as Autogate systems, emerges as a crucial strategy. In the context of immigration services, Autogate facilitates expedited immigration clearance procedures through biometric technology, enhancing security and efficiency. However, the implementation of such technologies raises concerns about public wellbeing. This research aims to assess the use and impact of Autogate technology on public wellbeing, focusing on its implementation at Soekarno-Hatta Airport. The research methodology employed in this study involves two key approaches, interviews and observational studies. Findings reveal significant improvements in passenger experience and immigration efficiency, highlighting the potential of Autogate to enhance border management and public wellbeing. This research contributes to understanding the implications of technological advancements in immigration management and informs policymakers and stakeholders about the opportunities and challenges associated with Autogate implementation and public well being.

Keywords : Autogate; Immigration; Public Wellbeing

INTRODUCTION

Information technology (IT) is presently entering a period of extraordinary change, various changes marked by innovative breakthroughs such as artificial intelligence (AI), blockchain, and quantum computing (Mosteanu & Faccia, 2021). The advancement of technology has become an integral part of our daily lives, significantly influencing various aspects such as education, business, entertainment, and transportation (Chege et al., 2020). These disruptive forces are not only transforming traditional industries but also reshaping the very essence of public policy engagements with technology (Wang et al., 2021).

The development of information and communication technology has become a primary key in improving the efficiency of task execution across various sectors, including Immigration institutions (Mukhsin, 2020). Public policy isn't just a collection of rules, it's a dynamic force, actively tackling problems and ensuring the government serves its citizens. It's a roadmap, guiding actions toward solutions for critical issues, whether it is healthcare access, economic growth, or environmental protection. Effective policymaking isn't just about identifying problems but also about mitigating the gap between them and providing concrete solutions. At the heart of it all lies a core purpose, to ensure the government actively serves and supports the well-being of its citizens.

The paradigm shift towards a service-oriented bureaucracy concept is a revolutionary step in modern governance (Monteiro & Adler, 2022). With a focus on the needs and interests of the public, a service-oriented bureaucracy prioritizes efficiency, transparency, and responsiveness in public service delivery (Dahlström & Lapuente, 2022). In this context, the government acts as a facilitator enabling easy and equitable access to basic services such as education, healthcare, and infrastructure. This transformation not only changes the way we perceive government but also creates a solid foundation for inclusive social and economic progress, enhancing public wellbeing for all citizens. (Barr, 2020). The current condition of public wellbeing and mental health is of the utmost importance on a global scale, drawing widespread attention from various sectors (Søvold et al., 2021). There is an urgent need for comprehensive strategies and resources to address

the multifaceted challenges faced by individuals and communities. Efforts to improve public wellbeing and mental health must be prioritized and coordinated across diverse stakeholders to effectively tackle this complex issue, including immigration. Performing immigration functions, especially within border control, holds immense significance due to its critical role in ensuring national security and regulating the flow of people across borders. The effective execution of immigration procedures is essential for safeguarding a country's sovereignty and upholding its immigration laws. Enhancing efficiency and transparency in border control operations is vital for managing migration effectively and maintaining public trust in the immigration system. Autogate systems serve as a concrete manifestation of public policy aimed at delivering streamlined and proficient services. They exemplify the government's commitment to enhancing operational efficiency and customer satisfaction within various service sectors. Autogate is an automatic access system that is beneficial in various applications (Yaacob et al., 2021). In the context of immigration services, Autogate serves as an automatic access system that helps expedite the immigration inspection and clearance process. This system utilizes biometric technology to identify users and grant access to authorized areas. Autogate in the context of immigration services employs various biometric technologies such as fingerprint scanning, facial recognition, and iris scanning. After the user is identified and matched with the database, the automatic door will open, allowing the user to enter the authorized area (Paryanto et al., 2023). In modern airports today, the use of Autogate technology has become an integral part of services aimed at enhancing public welfare (Miskolczi et al., 2021). Autogate facilitates passengers to pass through the immigration process more quickly and efficiently. By automating biometric recognition such as fingerprint scanning, facial recognition, and iris scanning, Autogate not only enhances the passenger experience, and works effectively and efficiently, but also strengthens security at the airport (Kim et al., 2020). Therefore, the implementation of Autogate in airport services not only provides convenience but also contributes to the overall improvement of public well-being (Aymerich-Franch & Ferrer, 2022; Goel et al., 2021). Advancements in technology, followed by the explosive growth of social media, are often directed toward solving tasks and organizational functions without sufficient consideration for public wellbeing (Kross et al., 2021). It is troubling that public policy solutions continue to prioritize physical security and comfort at the expense of mental health considerations (Puras, 2022). Addressing this imbalance requires a shift towards policies that prioritize mental well-being alongside physical safety and comfort (Remskar et al., 2022). Despite being a substantial issue, the present state of global mental health remains largely unaddressed and insufficiently supported (Chu et al., 2021). Performing immigration functions, especially within border control, is of critical importance, yet it frequently neglects the comfort of passengers. Balancing security measures with passenger comfort is essential to ensure a positive and efficient travel experience (Qiu et al., 2020). Autogate has emerged as a potential solution to enhance public well-being in handling various tasks in the field of immigration (Nazareno & Schiff, 2021).

Previous Research

Several studies have explored the utilization of Autogate systems in various contexts globally. While numerous studies have addressed immigration inspection automation from 2020 to 2023, this research focuses on presenting previous relevant studies to demonstrate the state of the art of research in this field. Despite the limited discussion on immigration inspection automation, this research employs similar concepts found in previous studies to contribute to the existing body of knowledge. In a study by (Yaacob et al., 2021), the focus was on the use of Autogate in a campus security system, specifically employing license plate recognition technology. Similarly, (Sutabri et al., 2020) designed an Autogate Pass Dashboard Application using Android-based responsive web design technology, aimed at enhancing vehicle entry and exit systems. (Shindya, 2021) investigated the influence of the Autogate system application, loading and unloading performance, and stacking field on the effectiveness of cargo delivery at the Tanjung Emas Semarang Container Terminal, emphasizing its impact on improving efficiency in vehicle entry and exit systems. Additionally, (Edema, 2019) conducted an analysis of public wellbeing with a focus on public transportation infrastructure in Lagos, Nigeria, highlighting the

potential benefits of sustainable improvements in enhancing community well-being and environmental sustainability. Lastly, (Abdel-Gayed et al., 2023) examined travelers' subjective well-being concerning environmental practices in airport design, exploring the role of eco-design, brand engagement, and brand experience in influencing public wellbeing. These studies collectively shed light on the diverse applications and impacts of Autogate systems and their contributions to public wellbeing in different settings.

This research aims to explore the usage of auto gates, their benefits, problems, and their relationship in enhancing public well-being

RESEARCH METHOD

This qualitative study employed a case study research design guided by overarching research questions. The research process entails several stages. Firstly, data collection begins with interviews conducted with key stakeholders such as airport authorities, immigration officers, and technology experts. These interviews yield qualitative insights into the implementation and impact of Autogate systems. Additionally, observational studies are carried out at the airport to gather data on passenger experiences, system efficiency, and potential impacts on well-being. This firsthand observation supplements the interview findings, providing valuable information.

Following data collection, qualitative analysis is performed on interview transcripts and observational data to identify themes, challenges, and opportunities related to Autogate systems and public well-being. Comparative analysis is also conducted to compare data from different airports, assessing the impact of Autogate systems on public well-being and immigration efficiency.

Lastly, the data is integrated and interpreted. Conclusions are drawn regarding the effectiveness of Autogate systems in enhancing public well-being, improving immigration processes, and addressing passenger needs. Furthermore, implications for policy, practice, and future research are identified based on the data analysis and interpretation. The chosen case focuses on the utilization of Autogate technology to enhance public well-being. Primary data were collected through interviews with the Head of Soekarno-Hatta's Special Immigration Office in March 2024. The interviews aim to provide insights into their experiences with Autogate technology, perspectives, and impact on public well-being.

RESULT AND DISCUSSION

Public Wellbeing

Public wellbeing is a multidimensional concept referring to the good condition of individuals and collectives in various aspects of life. This concept encompasses various factors such as physical and mental health, education, economics, security, and the environment.

(Diener, 2009) proposed a new framework that integrates public Wellbeing determinants, which elucidates how stress influences social cognition functions and posits that well-being comprises seven fundamental abilities honed through ongoing interactions between individuals and society. Another theory is The PERMA theory of well-being by (Seligman, 2018), which emphasizes positive emotion, engagement, relationships, meaning, and accomplishment as key components, is discussed. By advocating for an enhanced understanding of public well-being that considers social determinants and the contingent nature of well-being, this theory underscores the potential for informing policy decisions to promote societal well-being effectively. While The PERMA theory which emphasizes the significance of the PERMA Positive Emotion, Engagement, Relationships, Meaning, and Accomplishment model as essential components of well-being, differs from subjective well-being (SWB) (Sarkar & Singh, 2020). It underscores the importance of incorporating these elements into interventions aimed at enhancing overall well-being. Furthermore, the theory calls for further research to evaluate theories of well-being elements, highlighting the need for a deeper understanding of how these components contribute to well-being.

Furthermore, Public well-being is a concept that encompasses the holistic health, prosperity, and welfare of society (Londono-Escudero, 2023). This concept has evolved from the

concepts of social welfare and economic well-being, which primarily focus on economic and social aspects. Public wellbeing considers environmental, health, security, educational, and social welfare aspects in achieving broader well-being (Enssle & Kabisch, 2020).

The concept of public wellbeing also encompasses aspects of community participation, access to healthcare and education services, as well as social justice (Smith et al., 2019). This theory emphasizes the importance of addressing the needs of society comprehensively, not only in terms of economics but also in terms of health, environment, and social well-being. Thus, public wellbeing becomes a crucial foundation in designing public policies aimed at enhancing the overall quality of life in the community (Sha et al., 2019).

Various theories underlie the concept of public wellbeing (Diener, 2009) including Maslow's Theory of Human Needs, proposed in 1954, which suggests that fulfilling basic human needs such as physiological needs, safety, love and belongingness, esteem, and self-actualization is crucial for achieving wellbeing (Kaufman, 2023). The Theory of Happiness focuses on factors contributing to individual and collective happiness, including positive social relationships, meaning in life, and optimism. Sen's Capability Theory, developed by (Sen, 1993) and discussed by (Baujard & Gilardone, 2017), emphasizes the importance of individuals' capabilities in acting and achieving their goals to attain wellbeing. These theories provide valuable insights into the multidimensional nature of public wellbeing and the factors influencing it.

Dimensions and Indicators of Public Wellbeing

The use of indicators of public wellbeing has become a primary focus in various research and development policies. These indicators assist governments and relevant institutions in monitoring the progress of community welfare, identifying issues that need to be addressed, and evaluating the impact of implemented policies. With comprehensive indicators in place, efforts to improve public wellbeing are expected to be more measurable and sustainable.

Indicators of public wellbeing serve as tools for objectively measuring community welfare (Sharpe, 1999). Some commonly used indicators include health indicators, such as disease-related mortality, young mortality, and mental health. Additionally, prosperity indicators such as GNI (Gross National Income), GDP (Gross Domestic Product) per capita, and relative poverty are also utilized. Social welfare indicators, such as basic social welfare, relative social welfare, and overall social welfare, as well as environmental indicators, such as air, water, and soil quality, and ecosystem balance, are also crucial aspects of measuring public wellbeing (Diener, 2009).

Public wellbeing encompasses several main dimensions, each crucial for assessing the overall welfare of a population (Voukelatou et al., 2021). These dimensions include physical wellbeing, which involves aspects such as physical health, access to healthcare, and proper nutrition. Mental wellbeing is another dimension, comprising mental health, happiness, and life satisfaction. Economic wellbeing, covering income, employment, and living standards, is also vital in gauging public welfare. Social wellbeing, involving social relationships, support networks, and safety, is another significant dimension. Finally, environmental wellbeing considers factors like environmental quality, access to nature, and sustainability.

Various indicators are utilized to measure public wellbeing, offering insights into the overall welfare of a population. Objective indicators directly measure life conditions, including income levels, education attainment, and health status. In contrast, subjective indicators gauge how individuals perceive their wellbeing, encompassing happiness levels, life satisfaction, and feelings of safety.

Numerous factors influence public wellbeing, spanning individual, social, economic, political, and environmental realms. Individual factors such as physical and mental health, education, income, and social relationships play crucial roles in shaping overall welfare. Social factors, including poverty levels, inequality, and discrimination, also significantly impact public wellbeing. Economic factors such as economic growth rates, stability, and access to employment opportunities further influence the welfare of a population. Additionally, political stability, democracy, and effective governance contribute to public wellbeing. Environmental factors like

environmental quality, access to nature, and responses to climate change are also essential considerations in assessing overall welfare.

Implementation of autogate

Autogate is an automatic access system that can be utilized in various applications, including immigration services (Yaacob et al., 2021). In the context of immigration services, Autogate is an automated access system used to expedite the immigration inspection process. This system employs biometric technology to identify users and grant access to authorized areas (Khan & Efthymiou, 2021). Autogate in the context of immigration services utilizes biometric technology for user identification. Biometric technologies employed include fingerprint scanning, facial recognition, and iris scanning. Once users are identified, the automatic doors will open, allowing entry into authorized areas (Kloppenburg & van der Ploeg, 2020).

The implementation of autogate technology at Terminal 3 of Soekarno-Hatta International Airport signifies a significant stride by the Directorate General of Immigration of Indonesia to enhance immigration processes. Following the activation of 10 new autogate units at Terminal 2 on January 26, 2023, and the subsequent reactivation of autogate facilities at Terminal 3, the country's immigration infrastructure has been bolstered with cutting-edge technology. This initiative aims to streamline passenger travel experiences while fortifying border security measures (Dirjen Imigrasi Aktifkan Kembali Autogate Di Terminal 2 Bandara Soekarno-Hatta, n.d.).

Equipped with advanced biometric scanners and facial recognition systems, the newly installed autogate units at Terminal 2 enable passengers to efficiently undergo immigration checks without manual intervention. This user-friendly system accommodates travelers with both electronic and non-electronic passports, emphasizing convenience and accessibility. By reducing processing times and minimizing queues, autogate technology enhances the overall efficiency of immigration procedures, while also promoting public health and safety through its contactless operation, particularly crucial amidst the ongoing COVID-19 pandemic.

In addition to autogate facilities, the Directorate General of Immigration has inaugurated a dedicated Unit for Passport Acceleration (UP3) at Terminal 3. This unit caters to the increasing demand for expedited passport services, offering a convenient and efficient solution for passengers requiring urgent passport issuance. Together, these advancements signify the Directorate General's commitment to modernizing immigration services and providing travelers with seamless and expedited travel experiences.

Benefits of Autogate

In the context of immigration services, Autogate offers several key benefits (Sarkar & Singh, 2020; Sutabri et al., 2020). Firstly, it accelerates the immigration inspection process by enabling users to swiftly and efficiently enter authorized areas, thus reducing waiting times and streamlining procedures. Secondly, Autogate enhances security measures by utilizing biometric technology to accurately identify users, thereby preventing unauthorized access and ensuring the safety of the immigration process. Lastly, Autogate improves overall efficiency by facilitating quick and seamless entry into authorized areas, contributing to the overall efficiency of immigration services. Autogate in the context of immigration services is highly beneficial for expediting the immigration inspection process, enhancing security, and improving efficiency. With Autogate, users can enter authorized areas quickly and efficiently while maintaining security and convenience.

Autogate and Public Wellbeing

Interviews with immigration officials provided valuable insights into the impact of autogates on airport immigration processes and public wellbeing, highlighting various important key aspects.

Efficiency

In efficiency aspect interviewee stated "Passengers feel happy with the presence of autogates because the immigration check process is much faster and more effective, saving time."

Convenience

In Convenience aspect interviewee stated "With the autogate innovation, passengers feel more comfortable because they don't waste more time on immigration checks. Additionally, autogate assistants are available to help confused passengers."

Security

In Security aspect interviewee stated "The advanced technology of these machines makes passengers feel more secure about the confidentiality of their personal data because the data is directly recorded and sent to the central server."

Preference

In preference aspect interviewee stated: "Passengers prefer these machines because they minimize interaction with immigration officers. Sometimes, passengers feel anxious or lack confidence during interviews with officers, so autogates provide a solution for some passengers."

Perception

In perception aspect interviewee stated "This is clearly appreciated by passengers because the check only takes 15-20 seconds. Autogates offer a deeper innovation in immigration checks. Additionally, to address some negative criticisms about immigration checks, autogates provide a solution and middle ground for existing problems."

Confidence

In confidence aspect interviewee stated "With the short and easy process, along with autogate assistants stationed at various machines, passengers have no reason not to be confident using autogates."

Assistance

In assistance aspect interviewee stated "We provide usage tutorials through digital banners placed at several points before passengers reach the autogates. Instructions are clearly displayed upon entering the autogate, including where to stand, scan passports, remove passports, and take photos. Additionally, immigration officers also assist passengers who have difficulty using the autogates."

Future

In future aspect interviewee stated "Providing these machines in the future will significantly help and simplify immigration checks. However, if these machines cause slightly longer queues due to passenger enthusiasm, I believe it's reasonable because most passengers will choose the faster option. Essentially, these machines are an alternative solution to address the long queues passengers have complained about."

Travel Experience

In travel experience aspect interviewee stated "In line with technological advancements and service demands, autogates have provided a positive impression on passenger journeys because passengers are also enthusiastic about technological advancements that can simplify their travels. However, some passengers still prefer the manual counter to get a stamp on their passport as a souvenir of their international travel."

Challenges and Opportunities

In Challenges and Opportunities aspect interviewee stated The main challenge is that immigration checks rely entirely on the system. Therefore, a reliable backup system is crucial in case of malfunctions. The primary opportunity is faster immigration clearance for passengers familiar with technology. However, it can be slow for those unfamiliar, highlighting the continued need for immigration officers

CONCLUSION

The integration of Autogate systems in immigration procedures has a profound impact on passenger experience, aligning with public wellbeing theory. Immigration officers consistently observe increased passenger satisfaction due to reduced queue times and seamless processing enabled by Autogate technology. Passengers themselves express happiness and relief, appreciating the expedited immigration procedures facilitated by Autogate. Moreover, passengers feel a sense of enhanced comfort during their immigration journey with Autogate systems, contributing to overall satisfaction. Despite initial concerns about data security, immigration officers assure passengers of Autogate's robust security measures, leading to a clear preference for Autogate over traditional checks.

The user-friendly design of Autogate instills confidence in passengers to navigate independently, while accessibility measures ensure inclusive implementation. Looking ahead, Autogate is expected to maintain passenger preference due to its familiarity and efficiency in reducing stress and anxiety associated with immigration. Addressing data privacy concerns and improving accessibility are essential for optimizing Autogate's potential. Continued development of user interfaces and multilingual support will further enhance passenger confidence and facilitate seamless adoption. This research underscores Autogate's potential to improve passenger experience and immigration process efficiency, emphasizing the need for further investigation into its long-term impact and incorporation of passenger perspectives for a comprehensive understanding.

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