Bachelor Thesis

Delusion or Imaginaries: Exploring Indonesian citizens perceptions of UAV technology in Indonesia's future smart capital city, IKN and its implications for governmental trust

Feodora Vrea Lashanda

s2719118

Management, Society & Technology

University of Twente, Enschede

Ethical Approval Number: 240562

Word count: 11096

First Supervisor: Dr. Veronica Junjan

Second Supervisor: Dr. I. Tempels Moreno Pessoa

Abstract

This research explores the perceptions of Indonesian citizens regarding the implementation of Unmanned Aerial Vehicle (UAV) technology in the development of Ibu Kota Nusantara (IKN), Indonesia's smart capital city. Implementing UAVs successfully requires an understanding of public acceptability and trust towards governmental authorities. The aim of this research are to identify the factors influencing the acceptance of UAV technology, the effect of governmental trust on technology implementation and the relationship between governmental trust and technology acceptance. This research makes use of two theoretical frameworks: Mayer, Davis and Schoorman's Theory of Trust and Technology Acceptance Model (TAM). These two theories helped the researcher to evaluate the effects of Behavioral Interntion, Perceived Ease of Use, and Perceived Usefulness on technological acceptance of use. The concepts from the Trust theory portrayed how public trust and adoption of technology are affected by the Competence, Integrity and Benevolence of the government. Semi structured interviews and secondary data were used in a qualitative manner. Findings revealed that UAV technology is seen as beneficial for public safety and urban management although concerns about privacy, security and government transparency influenced the acceptance. Trust in the government significantly affects the willingness to adopt new technologies. This research highlights the need to address public concerns and enhance government trust to support UAV technology in IKN. It also offers ideas for policymakers and urban planners on how to successfully integrate technologies.

Keywords: UAV technology, Ibu Kota Nusantara, Technology Acceptance Model, Public trust, Government Transparency, Urban Planning, Technology adoption

Chapter 1 Introduction

In this first chapter lays the detailed background that contextualizes the research within a broader academic landscape. It then defines the specific problem that the research addresses. The research questions are also being identified and explained followed by the research's purpose.

1. 1 Background

The new Capital City of Indonesia, Nusantara (Ibu Kota Nusantara - IKN) is located in East Kalimantan, Indonesia and is scheduled to officially open in August 2024 along with the celebration of the Indonesian national day (Susantono & Nusantara Capital Authority, 2024). It is anticipated that the capital city will be a smart, sustainable and resilient city. Nusantara IKN has a comprehensive vision that includes the ideas of the forest city, sponge city and smart city (Susantono & Nusantara Capital Authority, 2024). It establishes the challenging development objectives that are supported by the eight key performance indicators which are urban harmony, accessibility, circularity, resilience, safety, affordability, technology integration, and economic inclusion are only a few of the aspects of urban life that are represented by these metrics (Susantono & Nusantara Capital Authority, 2024). Additionally, under the initiative of 100 Smart Cities in Indonesia, the Ministry of Communication and Informatics has simultaneously released guidelines for creating a masterplan for the new future smart capital city of IKN. Smart governance, smart society, smart economy, smart branding, smart living and smart environmental considerations are some of the aspects that are outlined in the guideline (Kominfo, n.d.). In parallel to Giffinger, smart living, smart environment, smart mobility, smart governance, smart people and smart economy are the six main aspects that are included in the concept of Smart city dimension (Giffinger & Gudrun, 2010).

Technologies will be used as a tool to address urban issues since they facilitate the development of smart cities. In order to make the new capital city more contemporary and sustainable, technological innovation is required to play a role in the development of a new innovative framework for social, economic and environmental growth. Technology As stated in the master plan through the 1 MPP (1 Map - 1 Plan - 1 Policy) approach, the new capital city embraces the most recent developments in the latest technology, placing an important priority on innovation and the development of an ecosystem aimed at improving the quality of life for its residents. ([Surat Edaran] One Map, One Planning, One Policy (1 MPP), 2021). Green technology, renewable energy infrastructure, sustainable urban water systems, the use of AI, Unmanned Aerial Vehicles, and IoT are just a few examples of the investments IKN has made to demonstrate its dedication to build a resilient and green environment ([Surat Edaran] One Map, One Planning, One Policy (1 MPP), 2021).

As IKN embarks on its journey towards becoming a leading global smart city, utilizing the potential of emerging technologies is imperative to address the diverse needs of its citizens, businesses, companies and government authorities. Based on the research of Rotolo, Hicks and Martin (2015), emerging technologies are defined as a technological advancement that signify forward thinking advancements in an area for a competitive advantage. These include technological innovations such as blockchain, artificial intelligence, the Internet of Things (IoT), and Unmanned Aerial Vehicles (UAVs) which are especially pertinent to contemporary urban development because of their revolutionary potential to improve security, efficiency and general urban management (Rotolo et al., 2015). Unmanned Aerial Vehicles (UAVs), also referred to as drones, are distinguished from conventional forms of transportation by their energy-saving features, flexibility, low operating costs, and sustainability (Li, Liu, & Jiang, 2022). Unmanned Aerial Vehicles (UAV) are a developing technology that can completely transform public service delivery and will contribute to the vision of IKN. This technology has attracted a lot of interest due to its adaptability, Efficiency, and suitability for a wide range of urban situations. Often referred to as drones, UAV possesses a multitude of functions such as aerial surveillance, data collection, transportation and infrastructure inspection which makes this technology a valuable tool for enhancing public service delivery in smart cities such as IKN (Wang et al., 2022). Based on the Indonesian smart city blueprint of IKN, the utilization of UAV technology offers many benefits in several aspects such as traffic control, emergency response, environmental monitoring, innovative transportation services, and infrastructure maintenance (Gunawan & Mahendra, n.d.). Therefore, this shows that the use of UAV is not limited to one field, but rather may be applied in a wide range of settings and domains which can optimize its operational effectiveness establish a more habitable and robust urban environment for IKN.

1. 2 Problem Defintiion

As UAV technology has recently developed, the public's acceptability of this new technology is critical to the future of unmanned aerial vehicles (UAVs). The public's perception and concerns may be influenced by a lack of understanding about unmanned aerial vehicles (UAVs) and their possible operations, which can lead to complexity in communities that have not yet fully realized the potential of the technology (Smith et al., 2022). Many cities have the objective of deploying autonomous vehicles, and UAV technology is currently undergoing global trials (Riggs et al., 2018). According to several research, people may feel uneasy and increased anxiety when UAVs fly over their neighborhoods due to privacy concerns (Vattapparamban et al., 2016; Khan et al., 2017). UAVs can make people more self aware which gives them the impression that their privacy is being violated. Moreover, according to Clothier et al. (2015), discomfort can trigger aggressive reactions, such as attacking the drone. Thus, many societal issues and challenges are

raised in the implementation of UAVs. It is shown that it is a crucial aspect of understanding the citizen's perception of UAV, as it will impact the acceptance and implementation of UAV in the development of IKN in the future.

Moreover, citizens and the government are the essential actors and are inseparable in the political and public administration aspects. Traditionally, governments were known to manage bureaucracy and offer public services, however, as people are more exposed to innovations and development it changes the way they view their government and how the government views its citizens (Inglehart & Welzel, 2005; Osborne, 2010). The Government's actions have the potential to shape public perceptions of the government. Naturally, the public's perception or views varies based on how it perceives and absorbs governments actions and policies that are being implemented and then reacts to it in the form of attitudes and behaviors given by the public towards the government, whether accepting or rejecting government policies. Inevitably, the government will never be able to satisfy the public's perception is due to the complexity of the country's real-life situation and every individual has their own perceptions that cannot be standardized by the government (Chaerunisa, 2022; Widhy and Basri 2021). Nowadays, citizens are the intended audience of the government in shaping and developing policies and services, which highlights the interdependence between the government and the people (Putnam, 1993; Inglehart & Welzel, 2005). This demonstrates how the people and the government are related to one another and how crucial they are.

Since trust is the idea that is now well developed in the context of good governance, trust plays a crucial role in the development of a reciprocal relationship in the development of UAV technology in the new smart capital city of IKN. By enhancing the citizens to acknowledge the power of the government facilitates political responsibility, which is an essential aspect of creating a more flexible government (Fukuyama, 1995). Therefore, it can be argued that trust is the foundation upon which all human and institutional interactions are built (Misztal, 1996).

In the context of Indonesian citizens, the current level of public trust in the Indonesian government differs in different aspects. According to a research, Indonesian citizens mainly in Jakarta, the previous capital of Indonesia have a medium to a high degree of trust in e-government services with an average factor score of 7.5 out of 10 (Fauzie et al., 2023). Although there are certain outliers such as reduced trust in political institutions for instance elections or the parliament, trust in the institutions, including the government and public service is generally strong among Indonesian citizens (Hill, 2022). However, during the COVID-19 pandemic in 2020, there was a perceived lack of transparency in government information distribution, leading to low trust in official COVID-19 data (Pramiyanti et al., 2020). Moreover, according to Transparency International Corruption Perception Index, a global indicator of public sector corruption,

Indonesia has a score of 34 out of 100 and Indonesia is ranked on 115 out of 180 countries (Transparency International, 2019). Which indicates that there is a high level of perceived corruption among the public sectors. These findings demonstrate the nuanced character of public trust in the Indonesian government, which is shaped by communication, transparency as well as events such as the pandemic and vaccination programs.

Additionally, public trust has also been impacted by the recent political situation in Indonesia. In the presidential election that was held on February 14, 2024, former general and Minister of Defense, Prabowo Subianto won the election and gained 58% of voters (Kurlantzick, 2024). Prabowo Subianto has s anticipated to take office as President and Vice President, together with his running mate, Indonesia's current President Jokowi's eldest son, Gibran Rakabuming Raka. The public's trust in the Constitutional Court and electoral procedures has decreased because of this election, which has been condemned for encouraging political dynasties and influencing voters (Fernandes, 2023). This results in an accusation of unethical practices during the election period which have impacted the perception of the democratic integrity in Indonesia. Moreover, Prabowo's record as a general during the autocratic Suharto era is concerning. Reputable accusations encompass the abduction, maltreatment, and potential vanishing of political dissidents are the crimes for which he was dismissed from the military after his conviction (Kurlantzick, 2024).

Therefore, these factors may contribute to the challenges in implementing UAV technology in the new capital city IKN, as public trust is a critical component of successful technology integration. In order to create a conducive environment for technological innovation in IKN, politicians, policymakers and urban planners need to address the information on UAVs as well as the complex nature of trust, especially considering the recent political changes.

1.3 Research Question

This research then takes the direction to explore the Indonesian citizen's perceptions, attitude and expectations in regard to the role of UAV technology in shaping the future of service delivery in IKN. Which then the formulated research question will be:

RQ 1: *What are the main concerns expressed by Indonesian citizen about the use of UAV Technology in IKN (Ibu Kota Nusantara) as a future smart capital city?*

This research will be based on an interpretative research methodology which intends to explore Indonesian citizen's perceptions on the possible effects of UAV technology identifying the implications and deeper

significance associated with its integration in the context of technology and governmental trust in IKN's smart city development. To address these complexities and contribute to the successful implementation of UAV technology in IKN, the research followed by using an interpretive sub-questions of:

RQ 2: *What factors influence the acceptance of new technology among citizens?*

RQ 3: *What factors impact trust in the government regarding the implementation of new technology?*

1.4 Purpose of the Research

This research aims to explore the viewpoint of Indonesian citizens, exposing their goals, concerns and motives regarding the acceptance and implementation of UAV technology. This thesis also aims to uncover the challenges in the Indonesian views and their implications for the efficient use of UAV technology or the governmental trust in IKN through an in-depth exploration and analysis. In the long term, the goal of this thesis is to provide policy makers, urban planners and other stakeholders who are involved in guiding IKN towards its vision of being technologically advanced, inclusive, sustainable smart city with insightful advice.

Chapter 2 Theory

The second chapter presents the state of literature and the theoretical frameworks. Where concepts regarding the research question will be explained in detail followed by a conceptual framework that clearly explained the relationship of the theories by evaluating existing literature. This chapter explores the concepts which are derived from the Technological Acceptance Model by Fred Davis and Trust theory by scholars such as Mayer, Davis, and Schoorman (1995). By examining these frameworks, the chapter will analyze the factors that led the influence of the acceptance of UAV technology and the foundational trust between Indonesian citizen and governmental actions.

2.1 Technology Acceptance Model

The Technology Acceptance Model (TAM) is a basic conceptual framework that is widely used in research on the adoption of new technologies (Marangunić, & Granić, 2019). Using the TAM model, it allows to evaluates a person's general desire to utilize a particular technology, which is essential to understand if they will acturally use it or not. According to the concept of "use" refers to the actual and direct application of

the technology. According to the model, it suggests that perceived usefulness and perceived ease of use are the primary drivers of an individual to utilize a technology (Wang et al., 2023).

Perceived usefulness as described by Davis (1985) is the conviction that utilizing technology will then enhance people's job performance. On the other hands,perceived ease of use refers to the conviction that utilizing the technology won't reauire a lot of physical or mental effort. Furthermore, according to Marangunic and Granic (2014), TAM model identifies behavioral intention as a crucial factor impacting the use of technology. An individual's intention to undertake a technology related behavior influences the chances that they would engage in that certain behavior, whether it is positive or negative (Davis, 1989). As a result, an individual's decision to utilize a technology is based on their prior perceptions on its usefulness and ease of use.

Compared to other alternative models such as the Unified Theory of Acceptance and Use of technology (UTAUT), TAM model is still the most widely used framework in the technology acceptance research (Kelly et al., 2023). On the other hand, TAM is being constantly improved and broadened by researchers to include studies or research on the acceptance of emerging technologies such as UAV technology (Kelly et al., 2023). In the current development phase of UAV technologies, where individuals, organizations, and government are starting to adopt and integrate these technologies into their initiatives and development, TAM can be a beneficial tool for purpose of this research (Wang et al., 2023).

2.1.1 Actual Use

The term "Actual Use' describes the person's direct usage of technology in their environment and daily activities (Davis,1985). This entails the user's actual interaction with the technology. According to Davis (1985), a user's motivation and acceptance to use a technology is largely influenced by how they perceive its features. According to the TAM model, a person's behavioral intention of use are infuenced by three main elements which are perceived usefulness, behavioral intention to use and perceived ease of use which all together combined to support the technology's practical use.

2.1.2 Perceived Ease of Use

Perceived ease of use refers to the perception of one's belief that using a technology will be free from any way of physical or mental effort (Davis, 1985). Individuals are more likely to adopt a technology when they believe it is simple to use and easy to learn this tendency occurs since individuals are often more inclined to interact with technology that doesnt require any lots of work to grasp, this decreases the potential challenges or barriers in adopting the technology for their daily lives.

Davis (1985) further highlights how individuals' behavioral intention to use a technology is positively influenced by perceived ease of use, which reduces the cognitive load involved in using it. Individuals are more likely to incorporate technology into their daily lives due to its simplicity. In a similar research, it highlights the behavioral intention was significantly influenced by perceived ease of use (Wang et al., 2023). The research observed that individuals prefer solutions that make their life easier by nature and having the tendency to avoid complicated things until there are no easier alternatives or options left (Wang et al., 2023).

In this research's context, the perceived ease of use of UAV technology could greatly impact understanding the integration of UAV technology into urban management process. UAV technology is more likely to be accepted and widely used if IKN stakeholders such as governments, IKN authority, analyst and many more ensures that this technology will be not only bring efficiency to the citizen's lives but also to maintain a simple and easy to use technology for the Indonesian citizen. This is especially important during the early stages of adoption, where user-friendliness should be a major priority which will then encourage new individuals to start and utilizing the technology by decreasing the entry barrier or acceptance of the technology. This is especially relevant for IKN where the effective integration of UAV technology necessitates that its target people, which are the Indonesian citizens find it to be both practical and simple to use and understand.

2.1.3 Perceived Usefulness

Perceived usefulness refers to the idea that using a certain technology can improve one's productivity and effectiveness at work (Davis, 1985). According to research by Wang et al (2023), people are more likely to employ technology in their behavior when they believe it would help them in their daily activities. Based on the idea that people are compelled to use things they value, the idea about a technology's usefulness will not only increase its worth to the user but also enhance or solidifies their intention to interact and utilize the technology into their daily lives (Wang et al., 2023).

Furthermore, Davis (1985) mentioned that individual's intention to use a technology is greatly influenced by how useful it is for their professional needs and obligations. Individuals are likely to establish a strong intention and interest to utilize a technology, if they believe it can improve their performances at work. Davis (1985) also highlights that individual's actual usage of a technology is strongly influenced by it perceived usefulness.

Building on this idea, research suggested that by increasing individual's satisfaction, perceived usefulness will then affect the actual use of the technology (Venkatesh & Davis, 2000). When a technology helps

individual to perform better at their job or daily life task, it produces the sense of a good feeling and contentment which will then increase the willingness to use the technology in the future.

This factor is crucial to comprehend as it serves to be a tool to understand the critical factor of how UAV Indonesian citizen's perception of perceived usefulness may affect their acceptance and utilization in the context of IKN's smart capital city. The behavioral intention to use UAV technology may be strongly influenced by the technology's perceived usefulness to improve urban management and environment. In which could result in its widespread adoption.

2.1.4 Behavioral Intention to Use

TAM defines behavioral intention to use as the certainty a person will perform a certain behavior (Davis, 1985). More specifically, the behavior to use a particular technology. Previous studies confirmed that behavioral intention to use determines an individual's acceptance of technology (Wang et al., 2023). The inner force of a person's behavioral intention to use a technology drives them to behave accordingly and eventually utilizing the technology. Accordingly, when an individual has an intention to use a technology, they will behave in a way that will direct them to actual use of the technology.

Likewise, according to Na et al. (2022), the intention to use is a subjective decision for an individual regarding the utilization of a technology. The individual actual use of a technology depends on their attitude, which could be positive or negative. In the case of a positive behavior and intention towards using a technology, it will lead a person to adopt the technology for their work (Na et al., 2022).

Generally, most studies found that behavioral intention to use is a strong predictor in actual technology use. Based on Kelly et al. (2023), existing literature assumed that across cultures, industries and sectors, user's behavioral intention to use a technology drives them to actual usage of the technology. Henceforth, it is plausible to expect that for various technologies, when a person has the intention to use, they will interact and accept the technology for their work. In addition, Kelly et al. (2023) found that across numerous technology acceptance studies, behavioral intention to use is the most prominent measure of technology usage.

By examining these three factors which are perceived usefulness, perceived ease of use, and behavioral intention to use, TAM provides a clear and structured way to understand the acceptance of new technology among citizens. This model highlights that for successful adoption, UAV technology must not only be perceived as beneficial but also as easy to use. Enhancing these perceptions can significantly improve citizens' acceptance and support for the integration of UAV technology in IKN.

2.2 What is Trust?

"Willingness to take risks may be one of the few characteristics common to all trust situation ", quoted by Johnson-George and Swap (1982). However, according to Kee and Knox (1970) they argued that there is a need for significant incentives at stake and the trustor must be aware of the risk to study trust appropriately.

In the context of this research purposes, transparent communication regarding the purpose and justification for UAV presence may also increase the possibility of trust to the governmental authorities. Which may eventually lead to a more positive perspective view and desire towards the implementation of UAV technology among IKN citizens. Research by Gefen, Karahanna, and Straub (2003), demonstrated that building trust is essential in creating acceptance of new technology. Specifically, the qualities of competence, integrity and goodwill are used to conceptualize trust towards government entities which can be refers as the factors that lead to a Trust theory by Mayer, Davis and Schoorman (Mayer, Davis, & Schoorman, 1995).

Competence or ability encompasses the skills and capabilities within the organization which are included in the qualities of competence. Integrity is the organization's commitment to uphold and establish standards to have a solid foundation in the organization. Lastly, goodwill refers to or in other words can be described as benevolence (Mayer, Davis, & Schoorman, 1995). When considering these three qualities of trust together, the information on the existence of UAVs should be transparently provided and convey the government as well as the IKN authorities' expertise as they should be able address the competence, integrity and benevolence into the public. This could therefore lead to a increase in public trust in. The government and the implementation of UAV technology.

2.2.1 Ability (Competence)

When analyzing the government's competence in implementing UAV technology, the concept of "ability" to Indonesia's new capital city, IKN. "Ability" refers as a group of skills, competencies and characteristics that allows an individual to exert influence in a certain field (Zaand, 1972). An example, a government may be highly competence in UAV operations, which fosters trust in tasks involving this technology. However, this does not always mean that one is competent enough in another domain or field or areas in the city. Such as interpersonal communications with stakeholders which might be critical to the success of implementing UAV technology in IKN. Further identified by Mayer, Davis, & Schoorman, (1995), who identifies multiple bases of trust including interpersonal and functional competence, business sense, and judgement, emphasizing the idea that trust is a domain specific.

In terms of government's initiatives in shaping IKN smart city, the government should be able to demonstrate operational effectiveness, technical ability in operating UAV systems as well as the ability to use UAVs to effectively address concerns related to urban management, public safety and the environment to fully support the development of IKN. Public trust depends on a clear demonstration of the government's diverse competence in technology management and its incorporation into a more comprehensive urban planning and management plans. In order to ensure that technical improvements are align with the citizen's needs and expectations, it is important to deploy UAVs in a way that respects the local context and is consistent with IKN's future development goals.

2.2.2 Benevolence

In the context of trust in government's technological implementation in Indonesia's new smart capital city IKN, benevolence is defined as a perception of government officials and policy makers purposes to put the public welfare ahead of their own interest or their legal requirements. This enlarged definition takes into account the local goals and concerns about emerging technologies, such as UAV technology. Transparency in governmental motivation is essential for this, as evidenced by Hovland et al.'s (1953) researched that the tendency for deception is inversely correlated with benevolence. It will be critical. to make sure that UAV deployments are focused on improving living conditions and environmental sustainability rather than being used for spying and other unethical actions. Furthermore, as recomended by Larzelere & Huston (1980), including community engagement in the UAV deployment process will promote a sense of mutual objectives and advantages which enhance trust.

Aligning UAV technologoy policy with the cultural, social, and economic needs of IKN is another way to further reinforce benovolence. According to Butler and Cantrell (1984) and Jones et al. (1975), this allignment should show the local population that the government is devoted to the citizen. Furthermore as discssed by Butler and Cantrell (1984) exhibiting altruism through sustained dedication to UAV related job creation and education can greatly enhance trust. Last but not the least, a study striking a balance betweeen organizational objectives, individual and community needs the guarantee that developments in technology do not overshadow local problems or issues, but rather incorporate them into a larger strategic framework, which is essential for fostering a strong trust between the government and Indonesian citizen.

2.2.3 Integrity

Trust is also based on integrity, especially when it comes to technology and governance situations of the implementation of UAV technology in IKN. Integrity implies that the government upholds moral standards and values that are consistent with society's norms and legal requirements. According to McFall (1987),

integrity is the cornerstone of Institutional and individual trustworthiness since it entails both the acceptance and commitment to these values.

The integrity of government actions utilizing UAV technology in the context of IKN must be in line with ethical governance.

Integrity is a cornerstone of trust, particularly in contexts involving technology and governance, such as the deployment of UAV technology in Indonesia's new capital, IKN. Integrity implies that the government adheres to a set of ethical standards and principles that are not only legally sound but also align with societal values and norms. McFall (1987) emphasized that integrity involves both adherence to and acceptability of these principles, defining it as the backbone of personal and institutional trustworthiness. This entails developing explicit, transparent guidelines for the deployment and use of UAVs, ensuring that these guidelines are regularly adhered to and being upfront on the potential drawbacks of this technology. An example, the government ought to pledge to implement UAVs in ways that to improve public safety and services without violating citizen's privacy. This is a concern consistent with the ethical frameworks proposed by researchers such as Meiklejohn (1980), who contends that transparency and honesty are critical to maintaining public trust.

Furthermore, for the implementation of UAV technology in IKN to be conducted with integrity, government activities must be consistent with the stated objectives and goals adhering to both the national and international practices. This is not just making declarations but also following through on these commitments in a verifiable manner. For example, in order to uphold the principles of data integrity and security as outline by Lessig (1999), who addresses the significance of transparency in the digital age, the government must ensure that any data that are collected by UAVs is used exclusively for the purposes that have been publicly declares. Such as environmental monitoring, traffic management, surveillance and logistics system which as stated in the One map, One Planning, One Policy that has been published in the IKN website ([Surat Edaran] One Map, One Planning, One Policy (1 MPP), 2021).

The government must then set up accountability systems in order to fortify trust though integrity. Establishing oversight committees or community advisory groups that can keep track of UAV operations and serves as a conduit for citizen government feedback is way to accomplish it. One researcher highlights the importance of responsibility in establishing and maintaining public trust (O'Neill, 2002). The Indonesian government or IKN authorities should ensure that the use of UAV technology is seen as a commitment to moral leadership and community involvement. In addition to being a technological advancement city, the urge to follow these guidelines is an essential and critical aspect.

Therefore, by successfully integrating and preserve public trust in its technological initiatives by combining the three elements of benevolence, integrity and competence will then guarantee that the new technologies such as UAVs are seen as a efficient addition to urban life in IKN rather than seen as a thread to the citizen. The public's acceptance and support of the successful integration of new technologies will depends on all of this approach.

2.3 Conceptual Framework

Given the crucial role of public trust in the government's management of technology, this researchintegrates the Technology Acceptance Model (TAM) with foundational concepts from Trust Theory. With its integrity, competence, and benevolence, this integration creates a solid framework that offers insights into how government initiatives and actions can impact the perceived ease of use and usefulness of new technologies shaping public's acceptance and attitude towards it. The conceptual framework will be discussed and explained in detail in this section with an emphasis on how each component helps to build trust and facilitate the successful integration of UAV technology in IKN development landscape.

Figure 1

Proposed Conceptual Framework
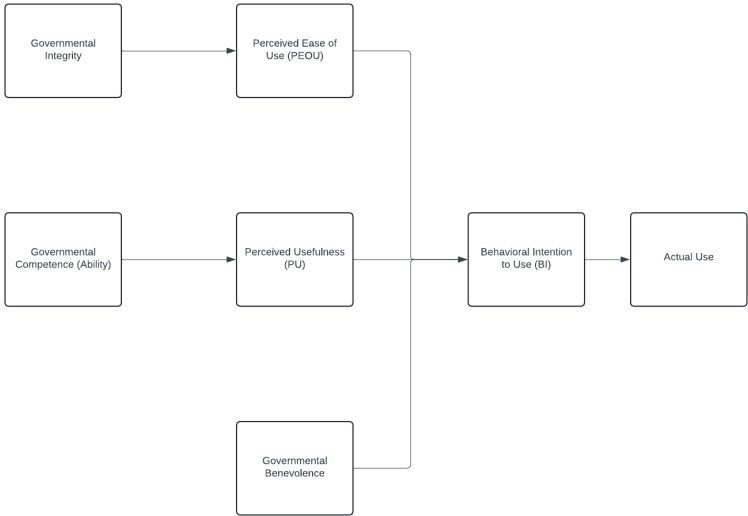
The proposed framework indicates the two three primary dimensions of trust which are integrity, competence and benevolence fundamentally influence the TAM model's core constructs of Perceived easue of Use and Perceived Usefulness. These dimensions of trust are taken from the Trust theory model developed by Mayer, Davis and Schoorman (1995). This conceptual framework highlights the importance of competence, integrity and benevolence in developing trust across entities (Mayer et al., 1995). According to Mayer et al. (1987), Competence is the government's ability to effectively implement and manage technologies in an efficient manner: Integrity refers to the belief that the government upholds a set of moral standards and principle (McFall, 1987) ; while benevolence refers to the idea that the government genuinely cares about the welfare of its citizens above and beyond their own interests (McKnight and Chervany, 2001).

The TAM model integrates these trust related dimensions, implying that individuals' behavioral intentions towards technology adoption which ultimately lead to actual usage or adoption of the technology. Which are strongly influenced by. Their perceptions of the technology's usefulness and ease of use (Davis, 1989). According to this concept in figure 1, Governmental Competence, Benevolence and Integrity will be expected to influence Perceived Ease of Use and Perceived Usefulness. For instance, governmental competence not only increases Perceived Ease of Use by demonstrating the government's ability to deploy and maintain the technology effectively, but it also enhances Perceived Usefulness by verifying the benefits of the technology in improving service delivery or addressing specific urban challenges. Governmental integrity on the other hand, ensures that the technology is perceived as reliable and secure, which expected to enhance the Perceived Ease of Use.

It incorporates these dimensions of trust into the TAM, which suggests that users' perceptions of ease of use and usefulness significantly influence their behavioral intentions towards technology adoption, leading to actual usage (Davis, 1989). In this model, governmental integrity, competence, and benevolence each enhance both PEOU and PU. For example, governmental integrity ensures that the technology is perceived as reliable and secure, enhancing PEOU, while competence not only increases PEOU by demonstrating the government's capability to deploy and maintain the technology effectively but also enhances PU by affirming the benefits of the technology in improving service delivery or addressing specific urban challenges.

In the context of IKN, where new technological implementations and advancement such as UAVs are essential for urban development and management, the model becomes particularly relevant. The public's trust in the government 's ability to manage UAV technology is crucial to the technology's effective adoption in this case. According to the proposed conceptual framework, increasing government competence,

integrity and benevolence can have a major positive impact on the public's acceptance and use of UAVs by raising their perceived usefulness and ease of use. Therefore, their behavioral intention to use the technology will be positive. Therefore, to be able to explore and understand the relationship between trust in government and acceptance of new technology, a formulated interpretative question will be:

RQ4: "How does the level of trust in government affect the acceptance of new technology among Indonesian citizens in the context of IKN?"

Chapter 3 Research Method

3.1 Research design

The research on the perceptions of Indonesian citizens regarding the potential use of UAV technology in IKN employs a qualitative research design. This method is well-suited for exploring the complexities of social phenomena and gaining an in-depth understanding of the subjective experiences and perspectives of Indonesian citizens. The goal of using the qualitative research design is to develop theories based on the answer from the interviews. In this context, the research explores Indonesian experts' perceptions of UAV technology, focusing on their concerns about the technology and governmental aspects. The aim is to develop theories or conclusions based on their responses. Merriam et., al (2009) suggests that researchers interested in understanding how individuals interpret their experiences and attribute meanings to their interactions should utilize qualitative research, which is conceptually rooted in constructionism, phenomenology, and symbolic interaction (Merriam & Tisdell, 2015).

3.2. Demographics and Background

This research involved five participants, each with significant extensive experience with technologies and expertise in relevant to the IKN project development and. Their varied roles across academia, government, and industry ensures a wide range of perspectives on the integration of emerging technologies in urban development. To maintain confidentiality, each participants will be referred to by their roles:

Table 1.

Participant background

Participant	Expertise

Participant A	A academic Chemical Engineering Professor and have involved in the IKN project research
Participant B	A government official with extensive experience in urban planning and development, particularly in digital ecosystems and smart city initiatives.
Participant C	A academic Chemical Engineering Professor with experienced scholarly activities related to urban development and have done extensive research in IKN.
Participant D	A planning analyst of the involved in the strategic development of IKN, specializing in digital transformation and ecosystem development.
Particapant E	A professional engaged in implementation related technology integration.

3.3 Sampling Method

Participants were chosen through purposive sampling to include a broad range of expertise directly related to the development of IKN and the deployment of UAV technology. This approach was made to ensure that each participant could offer unique, informed insights based on their professional perspective

experiences. Selection criteria were based on their involvement in the IKN project, expertise in relevant domains such as urban planning, technology integration, and government policy, and their potential to contribute to understanding the societal and technical implications of UAV technology within the area of the new capital city.

3.4 Data Collection Method

The data collection for this qualitative research research on the perceptions of Indonesian citizens regarding the use of Unmanned Aerial Vehicle (UAV) technology in Indonesia's future smart capital city, IKN, involves conducting semi-structured interviews and secondary data. Semi-structured interviews are chosen since it is appropriate within this research design as it enables the researcher to conduct an in-depth exploration of the participants' perspectives, insights and experiences. This type of interviews a in line with the qualitative approach as it seeks to comprehend how participants understand UAV technology and governmental trust in the context of IKN by interpreting their experiences. Moreover, to enrich the validity of the data, secondary resources are also present in this research. Jorunals, articles, news and scientific literatures are used in this research.

3.4.1 Interview Guide

The data collection involved semi-structured interviews conducted using Microsoft Teams, accommodating the geographical spread and availability of the participants. The duration of the interview session was between 20 to 45 minutes, providing sufficient time to explore the topics while respecting the participants' time constraints. All interviews were conducted using Bahasa Indonesia or Indonesian language to ensure comfort and fluency in the communication, which facilitated a more natural discussion and allowed participants to express their thoughts effectively. Interview questions focused on the themes based on the theoretical frameworks discussed in the previous chapter.

Each interview session was manually transcribed to capture the detailed nuances of the discussions. Subsequently, the transcripts were translated into English by the researcher to make the data accessible for analysis and to ensure that the nuances and meanings were preserved as accurately as possible.

3.4.2 Data Collection Tools

For the qualitative research, several tools and applications were carefully selected in order to facilitate the efficiency of data collection and analysis of data. All interviews with the participants were conducted using Microsoft Teams, which offers a secure and accessible platform for recording high-quality audio and video,

which is essential for capturing specific verbal and non-verbal clues. Digital recordings of the interviews was done with each participant's consent. Following the interviews, the digital recordings were manually transcribed by the researcher guaranteeing a precise and easily accessible transcript of the entire conversation. The transcripts were then translated from Indonesian to English by the researcher, maintaining the integrity and essence of participants' expressions for broader comprehension and analysis.

3.4.3 Ethical Considerations

All interviews were recorded with the consent of the participants, before conducting the interview, consent form was sent to each participant which includes the aim of the research, procedures of the methodology and followed up with their signature (Appendix A). This way it ensures that the data could be reviewed for accuracy in transcription and translation. This also allowed for a more detailed analysis during the coding process. Each participant was interviewed once to gather their insights, ensuring each perspective was captured comprehensively within the research' scope. Moreover, ethical considerations for this data collection method have been approved by University of Twente's BMS Ethical Committee/ Domain Humanities & Social Sciences with the number of 240562.

3.5 Data Analysis Method

Following the digital recordings, the transcript of the interview were then translated from Bahasa Indonesia to English by the researcher. Furthermore, the data analysis will involve a thematic analysis, a widely used qualitative method for identifying, analyzing, and reporting patterns within qualitative data (King, 2004). A software called Atlas.ti was used in coding and analyzing the transcribed texts of the interview. In using thematic analysis, researchers should be able to create a template of codes to represent themes that they have identified in the texts (King,2004). Preliminary themes were produced according to the established themes in a text or study, based on the theory and interview guide (King, 2004). In this research, the researcher identified several important key themes in alignment with the research's theoretical framework which are **Governmental Integrity** addressing concerns of transparency and ethical governance; **Governmental Competence** which focuses on strategic planning and regulatory frameworks; **Perceived Usefulness** analyzes the efficiency gains and enhanced capabilities from UAV technology; **Perceived Ease of Use** which analyzes the usability and cultural fit; **Government Benevolence** highlight the public welfare initiatives and support measures; **Behavioral Intention to Use** analyzes the factors influencing UAV adoption and **Actual Use** which describes the particular evaluations of UAV technology. This structured thematic approach helps the researcher to facilitate the identification and coding of relevant text during the analsysis phase.

3.6 Limits of the Proposed Design and Method

There are several limits to the proposed semi structured interview approach and the selected qualitative research design. Despite the fact that both design and method offers a profound insight into the attitudes and perceptions of stakeholders. Due to the subjective nature of qualitative analysis, bias may be a concern and be introduced since the researcher's opinions and biases may affect how the data in interpreted. Furthermore, since the opinions presented might not reflect all possible stakeholders within IKN, the findings generalizability may be limited by the use of a purposive sampling of participants. While allowing for a depth, the semi-structured interviews may also result in a variability in the data collected which could impact the comparability and consistency of responses from many interviews. Indonesian cultural and socioeconomic aspects might have an impact on participant's openness and the depth of their conversations, which could have an impact on the richness of the data collected. Therefore, to enhance validity, secondary data will correlate with the interviews' result findings.

Chapter 4: Results and Findings

4.1 Introduction

This chapter details the findings from qualitative interviews conducted with stakeholders involved in the IKN project. Focusing on the integration and acceptance of UAV technology in urban development, this analysis draws on diverse perspectives to explore the intricacies of technological implementation within the complex socio-political landscape of Indonesia's new capital. Analysis of the interviews with the participants was done using thematic analysis approach which is described in detail in the previous chapter. The results of the analysis are presented here in this chapter. This chapter presents the findings of this research based on the questions which has been stated in this research paper (Appendix B). The results of the anlaysis is structured around the main themes that were identified during the thematic analysis. Those main themes are:

4.2 Governmental Competence

Governmental competence is a crucial aspect of analyzing citizen's trust in the government. As it focuses on the idea that the government has the abilities and understanding the full knowledge in carrying out its responsibilities ((Zand, 1972). The answers from the different perspectives of participants are being analyzed as strategic planning and regulatory framework are the most crucial factors that are highlighted

by the participants, they believe that these factors led to the perception of trust in terms of governmental competence.

4.2.1 Strategic Planning

Effective strategic planning is crucial for the successful development of IKN into a smart city and integrating UAV technology into IKN. An interview with government official from the authority of IKN discussed the comprehensive legislative framework that underpins IKN's development, stating

"IKN will later be built into a world class city for all and become a pilot of Indonesia which is net zero emission, with advanced technology and a smart city"

Moreover, the government official adds that

"There are stages every 5 years and until 2024, the initial stage to build the foundation and organize development in the following stages"

These statements highlight the strategic intention for government officials to establish IKN as a model for sustainable urban development in the future. A planning analyst involved in the development of Nusantara Capital Authority, adds that the operational steps being taken now, in the first stage is to focus on the relocation and basic utilities.

"the focus at this time is on basic utilities... and ensuring that all government equipment has been moved to IKN effectively".

This response from participant also reflects the operational effectiveness in executing the city's strategic plans in the current time. Regarding the implementation of UAV technology, a participant highlights that it is still uncertain in the first early stage,

"But I think at this early stage, it is still very uncertain".

Discussing the collaborative efforts to test and implement UAV technology, a participant from the background of planning analyst in IKN mentioned that the Indonesian government are currently working with a Korean company whether it is appropriate for the Indonesian citizen as to increase a strategic planning in addressing the potential implementation of UAV technology in IKN.

"We are working with various stakeholders, including corporate entities and governmental bodies, to ensure that our UAV operations align with current regulations and safety standards"

These responds highlight the emphasis on regulatory compliance in the deployments of this new technology. To add up onto governmental competence, a participant from the government official of IKN authority mentioned that UAV technology has been successfully implemented in Indonesia, focusing on the agriculture sector.

"Many are already in use, we apply the technology for agriculture, to my knowledge, I have seen in Lampung, for sugarcane farming, we usually use UAV technology then for agriculture in rice fields for spraying sugarcane."

Based on this participant answer, through the effective use of UAV technology in agriculture, the government shows that the government are capable in incorporating new advanced technologies into operations. This demonstrates that an effective management of new technologies which strengthen the perception of governmental competence. Furthermore, the successful implementation of UAV technology in the area of Agriculture in Indonesia has the potential to influence and enhance the public confidence. Citizens witnessing such developments can increase trust in the government's ability to manage and utilize technology in other areas of the governance.

4.2.2 Regulatory Framework

The regulatory framework guiding the development of IKN reflects a systematic approach to policy implementation and compliance. The government official further clarifies the policy landscape, mentioning

"The IKN project is accordance with Law 3 of 2021-2022, then later updated Law 21 of 2023 that the derivattive of the Law is a Perpres, Perpres 63 of 2022 concerning the master planning in IKN".

This detailed description of legislative actions showcases the government's proactive policy making efforts which will be a base for supporting the development of the future smart city, IKN. This regulatory framework is essential for guiding all development activities and ensuring that the integration of new technologies such as UAVs aligns with the broader urban planning goals in developing IKN.

These results from the interview show that the government executes its strategies carefully supported by a strong regulatory framework. This regulatory approach will not only facilitate the technological integration within IKN but also supports the development of IKN environment that is both innovative and conducive to the citizen and residents of IKN.

4.3 Perceived Usefulness of UAV technology

Participants interviewed in this research show a strong belief in the potential use of UAVs for the future development of IKN. As UAVs in IKN will be mainly used for surveillance and logistics which has been discussed in the previous chapter, participants in the interviews believe that UAVs can be a potential tool to enhance efficiency and capabilities in IKN.

4.3.1 Efficiency Gains

UAV technology is highly valued for its potential to enhance efficiency, particularly in logistics and surveillance. It reveals that the participants perceive a positive potential for UAV technology to enhance cost and time efficiency within the operational of the logistics department. One of the participants specifically mentioned that

"If the technology can really be implemented and also maybe not only efficient about time but also about costs, we will definitely save quite a lot in terms of delivery".

Moreover, this technology would also be a helpful tool as it can also deliver small goods or packages, particularly in addressing the challenges posed by Kalimantan's vast geographic area and replacing the couriers. As stated by the planning analyst participant

"It reduces the need to send manpower to remote regions".

4.3.2 Enhanced Security

Security is a primary concern for the new capital city, and UAV technology is seen as a crucial component of the security infrastructure and environment of IKN residents. UAVs. As the participants views that Indonesia still lacks technology in the aspect of security compared to other countries, the potential use of UAV technology will improve and act as a strategic advantage to enhance the security measurement in not only the capital city, but Indonesia as a whole, mentioned by a participant

"So far we don't have a very sophisticated tool, if compared to other countries".

Participants from interviews also view UAV technology as a complementary for authorities which then helps to view real-life actions through the camera. However, one participant who is involved in the

technological advancement addressed that UAV should not be used as the main surveillance function but as a complementary for authorities, mentioning

"...make sure we have other surveillance modes, not just relying on drones alone".

4.4 Governmental Integrity

Governmental Integrity is a crucial aspect of analyzing the citizen's trustworthiness in the government. The perceptions of governmental integrity varied widely among the participants. Participants interviewed in this research, seems to have a negative idea and can be considered as sceptic since the government still lack its transparency, and ethical practices on the development of IKN to the public, especially to residents around IKN.

4.4.1 Transparency

An interview with the governmental official shows that Indonesian government are involving various stakeholders in the development of IKN. Which includes the collaboration between governmental bodies, researchers, technology developers, scientists, and students where they can participate in the ideation and application of new technologies in IKN. Moreover, government officials of IKN also promote its events, showcasing new technologies and market mockups through their official website, social media and collaborate with news media as medium of socialization and communication to the public which can be found in this participant answer

"IKN acts as a Living Lab, where every technology developer, scientist, and students, can participate in the application of new technology at IKN".

Another participant also mentioned regarding their mode of communication to the public which states

"In terms of socialization, we do have promotional videos."

However, most participants, mainly lecturers, are still not satisfied with the government's current initiatives on enhancing transparency in IKN. The interviews reveal a significant emphasis on the need for open governance to enhance transparency and communication to be able to enhance public trust. Public trust appears to be closely tied to the visible outcomes of governmental projects and their alignment with public expectations and needs. Most participants address the lack of transparency during the development process of IKN. Although government officials offer promotions through IKN's official social media accounts,

official websites and through media news, participants think that it is still insufficient. As the public needs to be well informed and needs to understand the dynamic nature of this technology. Which can be found in this participant answer

"There haven't been many findings shared with the public, but moving forward, the government should ensure the public is well informed."

4.4.2 Ethical Governance

Ethical governance is also being highlighted by the participants in the interview. As they believe that it is a crucial aspect of governmental integrity in developing and implementing new technologies in IKN. Moreover, the government needs to focus on the ethical implementation and regulation of UAV technology. Especially UAV technology is intended for surveillance systems, participants in the interview mentioned how crucial it is for government to give consent. UAVs can easily capture pictures and real-life video without citizen's awareness. Therefore, ethical considerations such as consent are highlighted by most participants.

"Consent too, yes......They are concerned, that's probably the first, so it needs to be considered and also needs to be conveyed."

Which means that before implementing this technology to the residents of IKN, a consent form is ethically necessary for the government to be able to enhance its transparency and integrity. This will then influence the public's trust and acceptance of the government's ideas and initiatives in the long term.

4.5 Perceived Ease of Use

Perceiving the Ease of Use to which Indonesian citizens believe that this technology will be implemented as a free of effort. This means that it doesn't require so much learning effort for using the technology. When there is little effort, it decreases the barrier for accepting the usage of the technology (Davis,1985) Perceive ease of use will play a crucial role in determining the acceptance of UAV technology. As the perceived ease of use ensures that the UAV technology's benefits are accessible and straightforward to the users, as in this case are the Indonesian citizen. By understanding this ease of use, from different perspectives of the participants will then further explain citizen's willingness to accept or reject technology advancements which will then affect IKN's ability to successfully evolve into a smart city. Most participants have the same answer that Indonesian citizen still struggling to understand the potential risks and benefits that UAV

technology can bring to the society. Especially they highlight that the biggest challenges are usability, knowledge gap and cultural fit.

4.5.1 Usability and knowledge gap

The significance of perceived ease of use is being highlighted mainly by all participants as they all agree that Indonesian citizen still lack the knowledge on the usability of the UAV technology and knowledge gap were found. Participants of the interview show that the local residents around IKN may view UAV technology as a complicated technology and is irrelevant to their everyday needs. There is still an absence of appropriate educational initiatives, open demonstrations and focused communication events from the government. The usability of the technology can be introduced to the local residents and larger IKN communities by providing a simple, user-friendly interfaces and a structured instructions which will then reduce the cognitive burden and increase the possibility that it will be implemented into the daily needs of the citizen.

> *"I think the biggest challenge is the knowledge gap... especially maybe on the island of Kalimantan, maybe there is a still a gap like that compared to people on the island of Java."*

Thus, this gap indicates that without proper education within the local residents in Kalimantan, they may find UAV technology too complex and will then influence the acceptance of UAV technology in IKN.

4.5.2 Cultural Fit

Another factor that hinders the perceive ease of use by the Indonesian citizen are socio-cultural adaptation. As IKN is located in Kalimantan, it still has a strong community culture. Especially the existence of the Dayak tribes around the area of IKN. As they can be considered as an indigenous people, it will also be a challenge for the government to introduce this technology.

> *"Another one is related to the culture and social of the indigenous people. For example, there are still many Dayak tribes in Kalimantan who even still live in the depths of the forest. That may be a challenge in itself. And the application of high technology in IKN"*

There is a difference in the socio-cultural dynamics between the urban and rural population demographics. Citizens living in urban areas might have a positive view and are receptive to new technologies, as they are exposed to various innovations and often have a higher degree of literacy which can adapt easily with the new technologies. In contrast, the citizen living in the rural and indigenous area might struggle to adopt

new technologies, since they don't have any access to the world and lack of the understanding to their daily lives.

4.6 Governmental Benevolence

In the context of the trust theory, highlights the need of government to consider citizens needs and welfare as a priority. In the context of IKN, this perception will be significant when introducing a new technology, such as IKN which can have a direct impact on its citizens' life and societal norms. This also shapes the citizen's trust and belief that the government are capable of operating the technology. With different perspectives on the interview, it will then show the Indonesian government's initiative and approach to implement UAV technology in IKN as also it efforts to enhance benevolence through supportive actions and community engagements.

4.6.1 Supportive actions from the government

Supportive actions from the government demonstrates governmental benevolence as these actions may directly influence the citizen's perceptions of the government and its commitment to enhance public welfare and to convince citizens to accept the implementation of new technologies. In addition to introducing new technologies such as UAV technology, the government ensures that the integration of this technology is safe, beneficial and efficient for the citizen. This approach, which aims to defend the public interests while furthering the national development, shows a responsible role as government authorities.

"If a UAV carrying a small package is intercepted, we won't receive our intended package, and the logistics service provider could lose the drone. Therefore, comprehensive testing and regulatory measures are essential for security and logistics."

"Showing its prototype to the public is likely to increase public confidence in IKN"

As understood from the answers, most participants from the interview addresses the urgent need for government to showcase and test the prototype or technology to the public. As. Four out of five participants explained that the need for this testing of the technology would highly be crucial for the acceptance of this technology among citizen, because citizens especially the local residents don't have any idea of the potential risks and benefits of UAV technology. However, one respondent from the planning analyst in IKN counter this answer, as the government is now implementing research and testing before launching the desired technology in IKN.

"This test flight, I think, is not a rush but more of an initial test. We are not targeting operationalization immediately. The goal is for it to function properly, be safely operated, and appear safe based on qualitative assessments."

Therefore, based on the answer from a planning analyst of IKN, IKN are in the stage of researching and testing where safety, efficiency and benefits are being assessed by the authorities of UAV technology and the government ensuring that the public is also aware of this technology. After this testing, government officials also will re assess the technology and analyze the public's perceptions. If the perceptions of the public are negative towards this technology, there might be a chance for government to disregard the implementation of this technology.

4.6.2 Public Inclusion

By involving the public in the process of the development of UAV technology will be a direct indicator of governmental benevolence. Five out of five participants addressed the need for government to include more citizen engagement as they think since this is a new and advanced technology, there is an urgent need for government to address and demonstrate the benefits of UAV technology.

"The government must also know how to communicate and socialize these advancement effectively. This should not just seem like a promotion"

The active engagement such as educational campaigns, workshops and engaging local community leaders, will then help to align public's understanding with the government's initiatives in implementing this technology. As to to be able to communicate effectively to the public, it reassures the citizens that their feedbacks and perspectives are valued and will then increase public trust in the government.

4.7 Behavioral intention to use UAV technology

Understanding the behavioral intention to use of UAV technology among the Indonesian citizen is crucial for the overall success and implementation of this technology. Behavioral intention to use UAV technology are largely shaped by the factors of the TAM model which are perceived of ease of use and perceived usefulness as well as rust in government's ability, competence and benevolence to implement technology. Therefore, analysis draws from various interviews are being assessed to identify the factors and their general attitude towards UAV technology.

4.7.1 General attitude

Interviews from the participants seem to have a positive view towards the introduction of UAV technology. It indicates that they are willing to adapt and support this new advancement in IKN.

" It doesn't seem to be a problem for the acceptance of new things from the government... I don't think it will be a problem and it can be accepted very openly in IKN"

The acceptance of the government's initiative in implementing UAV technology appears to be high, indicating a general openness to UAV technology in IKN. This indicates that the community will likely accept UAVs which then improves the changes of government's effective integration and implementation. Another participant from the planning analyst, also emphasizes social acceptance, noting that UAV technologies do not intrusively have impact on public life and posing significant high risks which then will increase the general attitude in accepting this technology among the citizens.

"Will be more accepted by society, because it doesn't significantly impact or pose a risk to humans."

4.7.2 Government's role

Based on the answers from the participants, the public's behavioral intention to use UAV technology is greatly influenced by their level of trust in the government's ability to effectively manage the technology. Participants from the interview mainly have a positive acceptance of the technology, but also still address the importance of government's commitment in fostering a safe, beneficial and effective environment for the citizen. Ensuring long-term use is also mentioned by one of the participants.

"Indonesian people will feel proud and continue to increase their trust in the government as long as the probability of it being implemented is indeed high"

"I think it will take a long time and certainly requires commitment, not only from the government but also from the community"

As understood from the answers of the participants, the public acceptance and desire to use this new technology are anticipated to increase in the long term as long as Indonesian government and IKN authorities continues to promote their initiatives such as UAV technology through a transparent and demonstrates the potential benefits and drawbacks of the UAV technology among the citizens. Therefore, citizens can easily understand the government initiatives in developing IKN. Therefore, a positive

perceptions of UAV technology followed by trust in the government authorities in implementation capabilities and the non-intrusive nature of UAV technology will then shape the behavioral intention to accept and use UAV technology among Indonesian citizens.

Chapter 5: Conclusion

Unmanned Aerial Vehicle or commonly known as UAV technology is a major technological leap in the urban management and will soon be introduced in Indonesia's new smart capital city, IKN. However, addressing Indonesian citizens perception and concern are essential to its effective integration in the long term. The issues and concerns which have been rooted in Indonesia's sociopolitical environment reflects a broader issues that are related to the themes of governmental integrity and competence as well as the operational effectiveness and implications of UAV technology. The theoretical framework guiding this research highlights the aspects of trust theory which highlights the importance of ability, integrity and benevolence in building public trust (Mayer, Davis, & Schoorman, 1995).

The public's desire for reassurance that the government can successfully handle complex technologies in an urban setting is reflected in the concerns over governmental ability (competence), which are expressed the need in strategic planning and regulatory frameworks. According to Zand (1972), confidence in the government's competence to utilize and full fill their duties is a crucial prerequisite for trust. To reduce these worries, the government's staged development plans for IKN residents and areas with supervision and collaboration among other stakeholders as an example of an effective strategic planning. Moreover, building trust in the government actions requires the implementation of a well defined and feasible policies that are in line with the long term goals related to urban development (Bryson, 2018).

The success of UAV technology case in Indonesia are demonstrated by its implementation in the agriculture areas in Lampung. Where UAVs or drones are being utilized to enhance the productivity level of workersi n the agricultural sector (Indonesia & Indonesia, 2021). However, citizens remained concerned about its use in more general urban management situations, such as surveillance systems. This concern is related to Davis's technology Acceptance Model, where it shows that the acceptance of the technology is highly influenced by the perceived of usefulness. Concerns regarding the usefulness and applicability of UAVs in urban areas must be clearly allayed by providing a clear explanation of their benefits (Venkatesh & Davis, 2000). By engaging citizen engagement such as workshops, open discussion and webinars are more likely to expand and disseminate information about UAV technologies in Indonesia.

Based on the result of and findings, integrity issues and concerns are mostly related to the ethical governance and the transparent use of UAV technology, particularly in the field of surveillance. Fears among the public about the potential intrusions of privacy and excess in monitoring their daily activities and property highlight the necessity for a strong ethical and regulatory framework from the government that protects individual rights (Regan, 1995). In order to preserve public's trust and guarantee that the technology that is being implemented is operated as effectively and ethically as possible, transparency in governmental operations and effective decision-making process is essential (Bannister & Connolly, 2014).

Another major concern on the use of UAV technology particularly among Kalimantan's indigenous and rural areas are there are a significant relationship of cultural fit and the perceived ease of use of the UAV technology. The successful adoption and acceptance of the technologies in the rural communities will take extra intentional measures to close the knowledge gaps and adjustments to local cultural contexts, to foster a efficient integration and implementation of UAV technology. To make build a relevant and accessible technology to all social sectors, education and community engagement are the essential aspects as it will reduce the resistance increases the acceptance of UAV technology among the Indonesian citizen (Rogers, 2003).

Moreover, the extent to which the government effectively handles the previously mentioned issues will ultimately determine the overall behavioral intention to use of UAV technology in IKN. Citizens' views and perspective regarding new technologies based on the results of the interview, show that it is highly influenced by their level of trust in the ability (competence), integrity and benevolence of their government (Mayer et al., 1995). The government's ability to successfully integrate UAV technology in IKN will depend on its ability to showcase the potential benefits of the technology as well as its efforts to invlve the community and maintain ethical standards.

Therefore, concerns about governmental competence, perceived usefulness of the technology, integrity, and transparency of operations, cultural fit, and ease of use are expressed by Indonesian citizens. In the long term, the government must manage the intricate concerns and fears to create an environment conducive to the successful adoption and use of UAV technology in IKN. In addition to implementing technology, addressing these issues calls for a multifaceted approach that involves not just the technical deployment but also includes creating a strong policy, citizen engagement, and strict ethical guidelines. To achieve a successful integration of UAV technology in IKN will depend significantly on how these mentioned concerns are being addressed by the government. Which then determine the level of public acceptance and enhance trust in government led initiatives in this project in the future.

References

An Integrative model of Organizational Trust on JSTOR. (n.d.). *www.jstor.org*. https://www.jstor.org/stable/258792?seq=8

Bannister, F., & Connolly, R. (2014). ICT, public values and transformative government: A framework and programme for research. *Government Information Quarterly*, *31*(1), 119–128. https://doi.org/10.1016/j.giq.2013.06.002

Butler, J. K., & Cantrell, R. S. (1984). A Behavioral decision theory approach to modeling dyadic trust in superiors and subordinates. *Psychological Reports*, *55*(1), 19–28. https://doi.org/10.2466/pr0.1984.55.1.19

Bryson, J. M. (2018). Strategic planning for public and nonprofit organizations : A guide to strengthening and sustaining organizational achievement. John Wiley & Sons

Caplan, R. D., & Jones, K. W. (1975). Effects of work load, role ambiguity, and Type A personality on anxiety, depression, and heart rate. *Journal of Applied Psychology*, *60*(6), 713–719. https://doi.org/10.1037/0021-9010.60.6.713

Chaerunisa. (2022). *KEPERCAYAAN PUBLIK TERHADAP PEMERINTAH: (STUDI TENTANG PERSEPSI DAN KEPATUHAN MASYARAKAT TERHADAP PEMERINTAH DALAM PENANGANAN COVID-19 DI DESA WARU, KECAMATAN PARUNG, BOGOR, JAWA BARAT)* [Thesis, UNIVERSITAS ISLAM NEGERI SYARIF HIDAYATULLAH JAKARTA]. https://repository.uinjkt.ac.id/dspace/bitstream/123456789/67814/1/CHAERUNISA.FISIP.pdf

Clothier, R. A., Greer, D. A., Greer, D. G., & Mehta, A. M. (2015). Risk perception and the public acceptance of drones. *Risk Analysis*, *35*(6), 1167–1183. https://doi.org/10.1111/risa.12330

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *Management Information Systems Quarterly*, *13*(3), 319. https://doi.org/10.2307/249008

Fauzie, A., Prasojo, E., & Jannah, L. M. (2023). Do the people of Jakarta trust Jakarta Kini super application? *Administraţie Şi Management Public*, *40*, 78–94. https://doi.org/10.24818/amp/2023.40-05

Fernandes, A. (2023, October 26). Evolution of political dynasties and the 2024 election. *kompas.id*. https://www.kompas.id/baca/english/2023/10/26/en-evolusi-dinasti-politik-dan-pemilu-2024

Fukuyama, F. (1995). *Trust : the social virtues and the creation of prosperity*. The Free Press.

Gefen, N., Karahanna, N., & Straub, N. (2003). Trust and TAM in online shopping: an integrated model. *Management Information Systems Quarterly*, *27*(1), 51. https://doi.org/10.2307/30036519

Granić, A., & Marangunić, N. (2019). Technology acceptance model in educational context: A systematic literature review. *British Journal of Educational Technology*, *50*(5), 2572–2593. https://doi.org/10.1111/bjet.12864

Giffinger, R., & Gudrun, H. (2010). Smart cities ranking: an effective instrument for the positioning of the cities? *ACE: Architecture, City and Environment*, *4*(12), 7–26. https://doi.org/10.5821/ace.v4i12.2483

Gunawan, Dr. G., & Mahendra, Dr. A. (n.d.). *Cetak biru Kota Cerdas Nusantara* (Prof. (H. C.) Ir. B. Susantono, Prof. M. A. Berawi, & T. A. Setiono, Eds.). https://www.ikn.go.id/storage/thd/blueprint/cetak_biru_kota_cerdas_nusantara.pdf

Hill, H. (2022). Comment on "How Inequality Affects Trust in Institutions: Evidence from Indonesia." *Asian Economic Policy Review*, *18*(1), 92–94. https://doi.org/10.1111/aepr.12405

Indonesia, F., & Indonesia, F. (2021, October 26). Pengenalan dan Pelatihan pengaplikasian Sekar Agri Drone Sprayer - Frogs Indonesia. *Frogs Indonesia - Frogs Indonesia*. https://frogs.id/2021/10/27/pengenalan-dan-pelatihan-pengaplikasian-sekar-agri-drone-sprayer

Johnson-George, C., & Swap, W. C. (1982). Measurement of specific interpersonal trust: Construction and validation of a scale to assess trust in a specific other. *Journal of Personality and Social Psychology*, *43*(6), 1306–1317. https://doi.org/10.1037/0022-3514.43.6.1306

Kee, H. W., & Knox, R. E. (1970). Conceptual and methodological considerations in the study of trust and suspicion. *Journal of Conflict Resolution/the Journal of Conflict Resolution*, *14*(3), 357–366. https://doi.org/10.1177/002200277001400307

Kelly, S., Kaye, S., & Oviedo-Trespalacios, O. (2023). What factors contribute to the acceptance of artificial intelligence? A systematic review. *Telematics and Informatics*, *77*, 101925. https://doi.org/10.1016/j.tele.2022.101925

Khan, M. A., Ectors, W., Bellemans, T., Janssens, D., & Wets, G. (2017). Unmanned Aerial Vehicle–Based Traffic Analysis: Methodological Framework for Automated multivehicle trajectory extraction. *Transportation Research Record*, *2626*(1), 25–33. https://doi.org/10.3141/2626-04

King, N. (2004). Using templates in the thematic analysis of text. In *SAGE Publications Ltd eBooks* (pp. 256–270). https://doi.org/10.4135/9781446280119.n21

Kurlantzick, J. (2024, February 14). Prabowo wins. Does Indonesian democracy lose? *Council on Foreign Relations*. https://www.cfr.org/blog/prabowo-wins-does-indonesian-democracy-lose

Kominfo, P. (n.d.). *Langkah menuju "100 Smart City."* Website Resmi Kementerian Komunikasi Dan Informatika RI. https://www.kominfo.go.id/content/detail/11656/langkah-menuju-100-smart-city/0/sorotan_media

Larzelere, R. E., & Huston, T. L. (1980). The Dyadic Trust Scale: toward understanding interpersonal trust in close relationships. *Journal of Marriage and the Family/Journal of Marriage and Family*, *42*(3), 595. https://doi.org/10.2307/351903

Lessig, L. (1999). *C o D e* (By Basic Books, Perseus Books Group, & Library of Congress). Basic Books. https://lessig.org/images/resources/1999-Code.pdf

Li, Y., Liu, M., & Jiang, D. (2022). Application of Unmanned Aerial Vehicles in Logistics: A literature review. *Sustainability*, *14*(21), 14473. https://doi.org/10.3390/su142114473

Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An integrative model of organizational trust. *the Academy of Management Review*, *20*(3), 709. https://doi.org/10.2307/258792

McFall, L. (1987). Integrity. *Ethics*, *98*(1), 5–20. https://doi.org/10.1086/292912

McKnight, D. H., & Chervany, N. L. (2001). Trust and distrust definitions: one bite at a time. In *Lecture notes in computer science* (pp. 27–54). https://doi.org/10.1007/3-540-45547-7_3

Meiklejohn, D. (1980). Lying: Moral choice in public and private life. Sissela Bok. *Ethics*, *90*(2), 296–300. https://doi.org/10.1086/292156

Merriam, S. B., & Tisdell, E. J. (2015). *Qualitative Research: a guide to design and implementation*. Jossey-Bass. https://download.e-bookshelf.de/download/0003/7195/84/L-G-0003719584-0007575839.pdf

Misztal, B. A. (1996). *Trust in modern societies : the search for the bases of social order*. Polity Press.

Na, S., Heo, S., Han, S., Shin, Y., & Roh, Y. (2022). Acceptance Model of Artificial Intelligence (AI)-Based Technologies in Construction Firms: Applying the Technology Acceptance Model (TAM) in Combination with the Technology–Organisation–Environment (TOE) Framework. *Buildings*, *12*(2), 90. https://doi.org/10.3390/buildings12020090

O'Neill, O. (2001). *Reith Lectures 2002: A Question of Trust*. https://downloads.bbc.co.uk/rmhttp/radio4/transcripts/20020427_reith.pdf

Osborne, S. P. (2010). Delivering Public Services: Time for a new theory? *Public Management Review*, *12*(1), 1–10. https://doi.org/10.1080/14719030903495232

Pramiyanti, A., Mayangsari, I. D., Nuraeni, R., & Firdaus, Y. D. (2020). Public perception on transparency and trust in government information released during the COVID-19 pandemic. *Asian Journal for Public Opinion Research*, *8*(3), 351–376. https://doi.org/10.15206/ajpor.2020.8.3.351

Putnam, R. D. (1993). What makes democracy work? *National Civic Review*, *82*(2), 101–107. https://doi.org/10.1002/ncr.4100820204

Regan, P. M. (1995). *Legislating Privacy: Technology, Social Values, and Public Policy*. University of North Carolina Press. http://www.jstor.org/stable/10.5149/9780807864050_regan

Riggs, W., Larco, N., Tierney, G., Ruhl, M., Karlin-Resnick, J., & Rodier, C. (2018). Autonomous Vehicles and the built Environment: Exploring the impacts on different urban contexts. In *Lecture notes in mobility (Print)* (pp. 221–232). https://doi.org/10.1007/978-3-319-94896-6_19

Rogers, E.M. (2003) Diffusion of Innovations. Free Press, New York.

Ronald, I., & Welzel, C. (2005). Modernization, Cultural Change, and Democracy: The Human Development Sequence. *ResearchGate*. https://www.researchgate.net/publication/230557603_Modernization_Cultural_Change_and_Democracy_The_Human_Development_Sequence

Rotolo, D., Hicks, D., & Martin, B. R. (2015). What is an emerging technology? *Research Policy*, *44*(10), 1827–1843. https://doi.org/10.1016/j.respol.2015.06.006

Smith, A., Dickinson, J., Marsden, G., Cherrett, T., Oakey, A., & Grote, M. (2022). Public acceptance of the use of drones for logistics: The state of play and moving towards more informed debate. *Technology in Society*, *68*, 101883. https://doi.org/10.1016/j.techsoc.2022.101883

[Surat Edaran] One map, one planning, one Policy (1 MPP). (2021, December 13). IKN. https://www.ikn.go.id/en/one-map-one-planning-one-policy-1-mpp

Susantono, B. & Nusantara Capital Authority. (2024). Nusantara Development on target, total investment reaches IDR 47.5 trillion. In *Nusantara Capital Authority* [Press-release]. https://ikn.go.id/storage/press-release/2024/en/20240130.press-release-nusantara-development-on-target,-total-investment-reaches-idr-47.5-trillion.pdf

Transparency International. (2019, November 25). *Indonesia*. Transparency.org. https://www.transparency.org/en/countries/indonesia

Vattapparamban, E., Guvenc, I., Yurekli, A. I., Akkaya, K., & Uluagac, S. (2016). Drones for smart cities: Issues in cybersecurity, privacy, and public safety. *2016 International Wireless Communications and Mobile Computing Conference (IWCMC)*. https://doi.org/10.1109/iwcmc.2016.7577060

Venkatesh, V., & Davis, F. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies on JSTOR. *www.jstor.org*. https://www.jstor.org/stable/2634758

Wang, K., Jacquillat, A., & Vaze, V. (2022). Vertiport Planning for Urban Aerial Mobility: An Adaptive Discretization Approach. *Manufacturing & Service Operations Management*, *24*(6), 3215–3235. https://doi.org/10.1287/msom.2022.1148

Wang, C., Ahmad, S. F., Ayassrah, A. Y. B. A., Awwad, E. M., Irshad, M., Ali, Y. A., Al-Razgan, M., Khan, Y., & Han, H. (2023). An empirical evaluation of technology acceptance model for Artificial Intelligence in E-commerce. *Heliyon*, *9*(8), e18349. https://doi.org/10.1016/j.heliyon.2023.e18349

Widhy, Ine K.S and Seta Basri. 2021. "*Persepsi dan Harapan Publik terhadap Penangan Wabah di Bidang Kesehatan, Ekonomi, Pendidikan dan Keagamaan*:Studi Importance-Performance Analysis" Jurnal JIA Sandikta Volume VII NO.11. https://researchgate.net

Zand, D. E. (1972). Trust and managerial problem solving. *Administrative Science Quarterly*, *17*(2), 229. https://doi.org/10.2307/2393957

Formulir Persetujuan yang Telah Diberitahukan untuk Penelitian 'How do Indonesian Citizens perceive the potential use of Unmanned Aerial Vehicle Technology in IKN, focusing on concerns regarding the implementation of the technology and governmental trust

Tujuan Penelitian Penelitian ini dipimpin oleh Feodora Vrea Lashanda. Saat ini saya sedang melakukan penelitian untuk keperluan tesis saya yang berjudul "How do Indonesian Citizens perceive the potential use of Unmanned Aerial Vehicle Technology in IKN, focusing on concerns regarding the implementation of the technology and governmental trust". Penelitian ini bertujuan untuk memahami pandangan warga Indonesia terhadap penggunaan teknologi UAV di ibu kota IKN, khususnya mengenai kekhawatiran yang mungkin timbul terkait implementasi teknologi tersebut.

Anda akan berpartisipasi dalam penelitian di mana saya akan mengumpulkan informasi dengan cara:

- Mewawancarai Anda dan mencatat/rekam jawaban Anda melalui rekaman audio/video.
- Transkrip wawancara juga akan dibuat.

Adapun detail wawancara yang saya ajukan adalah sebagai berikut:

- Durasi: sekitar 30-60 menit
- Metode: Offline dan Online melalui platform Microsoft Teams

Hanya untuk kepentingan penelitian, data penelitian yang dikumpulkan akan dibagikan dengan **University of Twente, Enschede, The Netherlands.**

Potensi Risiko dan Ketidaknyamanan: Tidak ada risiko fisik, hukum, atau ekonomi yang terkait dengan partisipasi Anda dalam penelitian ini. Anda tidak perlu menjawab pertanyaan yang tidak ingin Anda jawab. Partisipasi Anda bersifat sukarela dan Anda dapat berhenti berpartisipasi kapan saja. Atau Selama partisipasi Anda dalam penelitian ini, Anda mungkin akan ditanyai pertanyaan yang mungkin Anda anggap sangat pribadi karena sifat sensitif dari topik tersebut. Kami mengajukan pertanyaan ini semata-mata untuk kepentingan penelitian. Namun, Anda tidak perlu menjawab pertanyaan yang tidak ingin Anda jawab. Partisipasi Anda bersifat sukarela dan Anda dapat berhenti berpartisipasi kapan saja.

Kompensasi: Anda tidak akan menerima kompensasi untuk partisipasi dalam penelitian ini.

Kerahasiaan Data: Kami berupaya sebaik mungkin untuk melindungi privasi Anda. Tidak ada informasi rahasia atau data pribadi Anda yang akan diungkapkan sehingga seseorang dapat

mengenali Anda. Sebelum data penelitian kami dipublikasikan, data Anda akan dianonimkan sejauh mungkin.

Dalam publikasi, data anonim atau pseudonim akan digunakan. Rekaman audio, formulir, dan dokumen lain yang dibuat atau dikumpulkan dalam rangka penelitian ini akan disimpan di lokasi aman di Universitas Twente dan pada media penyimpanan data yang aman dari peneliti. Data penelitian akan disimpan selama 1 tahun. Setelah periode ini berakhir, data akan dihapus atau dianonimkan sehingga tidak dapat lagi dihubungkan dengan individu mana pun. Data penelitian akan diberikan kepada pihak di luar kelompok penelitian jika diperlukan (misalnya untuk pemeriksaan integritas ilmiah) dan hanya dalam bentuk anonim.

Penelitian ini telah ditinjau dan disetujui oleh komite etika fakultas BMS (domain Humaniora & Ilmu Sosial) / EU / NWO.

Kesukarelaan: Partisipasi dalam penelitian ini sepenuhnya sukarela. Anda dapat menghentikan partisipasi atau menolak penggunaan data Anda untuk penelitian kapan saja tanpa memberikan alasan. Menghentikan partisipasi tidak akan berdampak negatif pada Anda atau kompensasi yang mungkin telah Anda terima. Jika Anda memutuskan untuk menghentikan partisipasi selama penelitian, data yang telah Anda berikan hingga saat penghentian persetujuan akan digunakan dalam penelitian ini. Jika Anda ingin berhenti dari penelitian atau memiliki pertanyaan dan/atau keluhan, silakan hubungi pemimpin penelitian. [Feodora Vrea Lashanda, feodoravrealashanda@student.utwente.nl]

Untuk keberatan terkait desain dan/atau pelaksanaan penelitian, Anda juga dapat menghubungi Sekretaris Komite Etika / domain Humaniora & Ilmu Sosial dari fakultas Behavioural Management and Social Sciences di Universitas Twente melalui ethicscommittee-hss@utwente.nl.

Penelitian ini dilakukan dari Universitas Twente, fakultas Behavioural Management and Social Sciences. Jika Anda memiliki pertanyaan khusus tentang penanganan data pribadi, Anda juga dapat menghubungi Petugas Perlindungan Data UT melalui email ke dpo@utwente.nl. Anda juga memiliki hak untuk mengajukan permintaan untuk melihat, mengubah, menghapus, atau menyesuaikan data Anda kepada Pemimpin Penelitian.

Appendix B

Interview Questions

1. Bisakah Anda menceritakan sedikit tentang latar belakang akademis dan profesional Anda?
2. Bagaimana Anda dapat mendeskripsikan proyek pengembangan IKN saat ini di Indonesia?
3. Menurut anda, aspek apa yang akan menarik perhatian warga indonesia dalam pembangunan atau perencanaan IKN?
4. Berdasarkan pengalaman atau persepsi Anda, manfaat apa yang menurut bapak dapat diberikan oleh teknologi UAV untuk pengembangan smart city dan kemajuan teknologi di IKN dan Indonesia?
5. Tantangan atau hambatan apa yang Anda prediksi terkait penggunaan teknologi UAV di IKN yang mungkin mempengaruhi penerimaannya di kalangan masyarakat umum dan badan pemerintah?
6. Bagaimana menurut Anda sikap umum warga Indonesia terhadap teknologi UAV akan mempengaruhi niat mereka untuk menerimanya di IKN? Bisakah Anda memberikan beberapa contoh faktor yang mungkin mempengaruhi atau membentuk sikap ini?
7. Mengingat tingkat kepercayaan masyarakat terhadap pemerintah saat ini, bagaimana menurut Anda pengenalan teknologi UAV mungkin mempengaruhi kepercayaan masyarakat terhadap pemerintah dalam konteks IKN?
8. Seperti yang kita ketahui, terkadang ada keraguan atau ketidakpercayaan di masyarakat terhadap informasi yang disampaikan oleh pemerintah. Ini sering disebut sebagai skeptisisme terhadap narasi pemerintah.
9. Bagaimana skeptisisme terhadap narasi pemerintah dapat mempengaruhi penerimaan teknologi UAV di IKN?
10. Strategi apa yang menurut Anda dapat diterapkan oleh pemerintah untuk mengatasi skeptisisme ini dan mendorong persepsi positif serta meningkatkan kepercayaan di kalangan warga?
11. Bagaimana pandangan Anda tentang kemampuan pemerintah untuk mengelola dan mengatur teknologi UAV?
12. Menurut Anda, strategi apa yang bisa diterapkan untuk mengatasi kekhawatiran publik tentang privasi data dan keamanan terkait UAV?
13. Sejauh mana pendekatan kolaboratif dan strategi dalam melibatkan warga yang Anda rekomendasikan untuk memanfaatkan teknologi secara efektif guna mempromosikan pemerintahan yang transparan, akuntabel, dan inklusif di IKN?
14. Apakah ada hal lain yang belum kita bahas yang menurut Anda penting untuk dipertimbangkan ketika memikirkan tentang implementasi teknologi UAV dan keberhasilan pengembangan IKN?"