Evaluating SATUSEHAT platform through the Lens of Islamic Public Administration in Indonesia's Digital Health Transformation

Master of Science in Public Sector Innovation and eGovernance

Master Thesis

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Date of Submission: 2025-06-16

Abstract

This thesis investigates the extent to which Indonesia's current national integrated digital health platform, called *SATUSEHAT*, created under the Ministry of Health, Republic of Indonesia (MoH), aligns with principles of Islamic Public Administration (IPA). Given Indonesia's unique cultural nuances, and existing research that reports on the SATUSEHAT platform's current and previous model (PeduliLindungi) implementation and its technical and non-technical challenges, this investigation aims to find out whether the current public administration and governance system optimally addresses Indonesia's unique context. It therefore employs qualitative methodology that integrates semi-structured interviews with diverse key stakeholders in Indonesia, including health practitioners, health legal experts, developers, and local community leaders. This analysis is guided by core principles of IPA such as *shūrā* (consultative governance), *amānah*, and *mas'uliyyah* (trust and accountability), focus on public value and the common good, *ʿadl* (justice), contextual embeddedness, decentralized and cooperative governance, and *shari 'a*-based legitimacy.

The thesis concludes that the SATUSEHAT platform only shows partial alignment with IPA. The platform represents more of an effort at modernization rather than participatory and local and contextual embeddedness, imperatives central to IPA. As such, for digital public service initiatives, to secure deeper legitimacy and trust in a country like Indonesia, future policy could engage more seriously with the infrastructure of Islamic governance. This entails not only regulatory compliance and tools but also the moral embedding of public platforms through participatory governance design, spiritual accountability, and culturally grounded implementation strategies.

Keywords: SATUSEHAT, SATUSEHAT platform, Islamic Public Administration, digital health governance, participatory governance, Indonesia, e-health ethics.

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Abbreviations

AI	Artificial Intelligence
ASIK	Aplikasi Sehat IndonesiaKu
BMNU	Bolit Mate Nawar Uman (customary law system in West Kutai)
BPJPH	Badan Penyelenggara Jaminan Produk Halal (Halal Product Assurance Agency)
BPJS	Badan Penyelenggara Jaminan Sosial (Social Security Agency)
BPJS Kesehatan	Indonesia's Health Insurance Administrator
BSSN	Badan Siber dan Sandi Negara (National Cyber and Crypto Agency)
ChatMu	Muhammadiyah's AI chatbot service
DHI	Digital Health Indicator
DIY	Daerah Istimewa Yogyakarta (Special Region of Yogyakarta)
DTO	Digital Transformation Office
Dukcapil	Dinas Kependudukan dan Pencatatan Sipil (Population and Civil Registration Office)
EHR	Electronic Health Record
EMR	Electronic Medical Record
FHIR	Fast Healthcare Interoperability Resources
GDPR	General Data Protection Regulation
HIMSS	Healthcare Information and Management Systems Society
HL7 FHIR	Health Level Seven Fast Healthcare Interoperability Resources (data standard)
ICGIs	Islamic Cooperative Governance Institutions
ICT	Information and Communication Technology
ID	Identity Document
IPA	Islamic Public Administration
ISO	International Organization for Standardization
JKN	Jaminan Kesehatan Nasional (National Health Insurance Scheme)
KaderMu	Digital cadre management platform by Muhammadiyah
Kemenag	Kementerian Agama (Ministry of Religious Affairs)

Kemenkominfo	Kementerian Komunikasi dan Informatika (Ministry of Communication and Information)
KHI	Kompilasi Hukum Islam (Compilation of Islamic Law)
KKHI	Klinik Kesehatan Haji Indonesia (Hajj Health Clinic)
KYC	Know Your Customer
LabMu	Laboratory platform by Muhammadiyah
LazisMu	Lembaga Amil Zakat Infaq dan Shadaqah Muhammadiyah
MoH	Ministry of Health
MORA	Ministry of Religious Affairs
MPKU	Majelis Pembina Kesehatan Umum – Muhammadiyah
NGO	Non-Governmental Organization
NU	Nahdlatul Ulama
OpenEHR	Open standard for Electronic Health Records
OTA	One-Time Authentication (code)
PaaS	Platform as a Service
SATUSEHAT	Indonesia's integrated national digital health ecosystem
TAM	Technology Acceptance Model
UTAUT	Unified Theory of Acceptance and Use of Technology
UTAUT2	Unified Theory of Acceptance and Use of Technology 2

Acknowledgements

There are a few words of genuine thanks the author would like to say. I simply cannot name all of you individually, but to those of you who have stood by me (you know who you are), you have my sincerest thanks.

Most of all, a heartfelt thanks to my supervisor, Professor Wolfgang Drechsler, for his consistent encouragement, comments, and strong belief in the applicability of this research. Your advice and endless patience helped immensely in the development of this thesis, and it would not have been possible to go through it without you. I am also indebted to Salah Chafik, Prof. Dr. Eko Prasojo, and Shobhit Shakya, members of the IPV project team, whose work and ideas impacted profoundly on the substance of this thesis and showed me why the topic is relevant.

To my parents (Mom and Dad), thank you for your unrelenting support and unconditional love. Thank you for accommodating the late-night calls and everything else. I owe both of you, my life. To my brother, M. Harya P., thank you for encouraging me to attempt this master's degree when I had lost faith in myself. To my friend, Vinda T., thank you for being my emotional anchor for all this.

Additionally, I am grateful as well to all PIONEER - KU Leuven, University of Münster, and TalTech friends and peers along the way. Thank you for riding with me and supporting each other along the way. Every moment of camaraderie, and support made even the most difficult moments truly worth it.

I gratefully acknowledge that this thesis and its gestation were supported by a competitive graduate scholarship for my studies at TalTech Ragnar Nurkse Institute in the PIONEER framework by the "Islamic Public Value" John Templeton Foundation project, 2022-2025, based at University College London, Institute of Innovation and Public Purpose (JTF Grant ID no. 62654).

This thesis is not only my own; it is a collaboration with all of you.

1. Introduction

1.1 Background and Motivation of Research

Since 2020, following the COVID-19 pandemic, Indonesia has developed a national integrated digital health ecosystem that connects existing health infrastructure, making it interoperable (Kementerian Kesehatan Republik Indonesia, 2024). Further elaborated in the "Blueprint for Digital Health Transformation Strategy 2024 for Indonesia" established by Ministry of Health of Indonesia (MoH) in 2024, the main strategy is to utilize and restructure existing systems, making it more integrated and comprehensive (Sari, 2022; Kementerian Kesehatan Republik Indonesia, 2021). By doing so, the MoH hopes for easier decision-making, effective public health governance, and better patient care (Kementerian Kesehatan Republik Indonesia, 2021). This initiative that was first led by Indonesia's current Ministry of Health Budi Gunadi Sadikin (Sukawan, Suryani K, Rahayu, & Nindiani, 2024) and was created as an evolution of its past application "PeduliLindungi", a COVID-19 tracking application (Kementerian Kesehatan Republik Indonesia, 2021; Hanum, Miranti, Fatmawati, Diyon, & Prawiro, 2022). The platform has now been transformed, rebranded, and renamed to SATUSEHAT, it has become a digital ecosystem instead of one application, and has continuously further evolved (Kementerian Kesehatan Republik Indonesia, 2025; Hanum, Miranti, Fatmawati, Diyon, & Prawiro, 2022).

Within the SATUSEHAT digital ecosystem, there are several digital products exist, first *"SATUSEHAT mobile",* the official health application of MoH which is dedicated for Indonesian citizens to access its health services and personal health data (Kementerian Kesehatan Republik Indonesia, 2025). Second, *"Aplikasi Sehat IndonesiaKu (ASIK)"* an application that supports the provision and recording of holistic, promotive and preventive primary health services based on the community, this includes immunization monitoring and health screening that can be used by local health officers (*Dinas Kesehatan*), community health centres (*Puskesmas*), professional healthcare workers, and trained community-based health volunteers (*kader kesehatan*), who all play a vital role in extending basic health services and health promotion at the grassroots level (Kementerian Kesehatan Republik Indonesia, 2025). Third, *"SATUSEHAT platform",* a platform dedicated to broad range of stakeholders within the health ecosystem, including healthcare facilitators (*sarana*

kesehatan) and supporting health industry actors (*industri pendukung kesehatan*), to serve as foundational digital infrastructure aimed at enhancing standardization and connectivity across healthcare service providers (Kementerian Kesehatan Republik Indonesia, 2025). Fourth *"SATUSEHAT Data"* that serves as an analytical platform to support responsive policymaking dedicated for government agencies, local health officers, healthcare facilitators, healthcare professionals, academics, and the public (Kementerian Kesehatan Republik Indonesia, 2025). Lastly "*SATUSEHAT SDMK",* a centralized integrated digital portal for managing the human resources and administration of licensing services for medical professionals (Kementerian Kesehatan Republik Indonesia, 2025).

All these digital products within the ecosystem as explained above, its data architecture is supported by the FHIR (Fast Healthcare Interoperability Resources) system alongside the OpenEHR (Open standard for Electronic Health Records) (Sari, 2022). A framework that defines how health data is structured and vendor-neutral (Min, Tian, Lu, & Duan, 2018), making it easier to apply to the existing previously deployed system. Specifically, for the SATUSEHAT platform, this digital product uses the PaaS infrastructure model (Platform as a Service) (Sukawan, Suryani K, Rahayu, & Nindiani, 2024). A model that provides a cloud-based ecosystem where developers can build and manage applications without managing the underlying hardware or software infrastructure (Hossny, Khattab, Omara, & Hassan, 2013). In the context of SATUSEHAT platform, the PaaS model supports the platform's micro and base services, enabling and facilitating seamless data management across healthcare sectors (e.g. health centers, pharmacies, regional hospitals, to insurance) (Kementerian Kesehatan Republik Indonesia, 2021; Sukawan, Suryani K, Rahayu, & Nindiani, 2024).

However, despite the scale, features, and extent of its promises, SATUSEHAT digital products are reported to have challenges, technical and non-technical, and collectively impact the ability of healthcare facilities to align with government mandates and achieve a unified digital healthcare ecosystem (Septarina, Arifiyanto, Irsyad, Farikhin, & Usman, 2025). Technically, the application reported to face system reliability issue and user experience challenges (Imanuddin, Adi, & Gernowo, 2023; Saputra & Kumaladewi, 2023). Research by Imanuddin, et al., (2023) further indicates that the technology frequently crashes, especially during peak usage times, which can

lead to frustration among users. But beyond the technical issues, non-technical issues such as digital literacy, and the acceptance of the new system has been highlighted, also as significant factors as a challenge, influencing the uptake and functionality of the SATUSEHAT platform in Indonesia (Enggriani & Haryati, 2024; El-Tsana, Alvianty, Octaviani, Syahidah, & Wasir, 2025). Additionally, issues for non-technical aspects such as protection of patient data and the mechanisms for obtaining informed consent also remain a central concern (Budiyanti, Fuad, Herlambang, & Kusumastuti, 2023).

As such, many studies call for a deeper analysis of SATUSEHAT, particularly now that a comprehensive supporting legal framework has been established and changes has also been implemented (Kementerian Kesehatan Republik Indonesia, 2025). Additionally, there are also calls for further research particularly on understanding nuances such as user satisfaction and other factors that could promote a more effective interaction (Sulistianingsih, Nurmalasari, Hosizah, & Qomarania, 2024). Other research also highlighted for further review on users' need for better socialization of the platform as well (Sidabutar & Ichwani, 2024). Collectively, a further research SATUSEHAT beyond the technical analysis are called. While many have analysed using different methods including both qualitative and quantitative analysis, most of these investigations seem to be primarily focused or concentrated on technical performance (Sidabutar & Ichwani, 2024; Sulistianingsih, Nurmalasari, Hosizah, & Qomarania, 2024). It is without a doubt these technical researchs are crucial, however, non-technical dimension as previously emphasizes, particularly those related to the cultural context, values remain underexplored.

However, exploring this dimension would need a perspective that can also see Indonesia cultural nuances, and Indonesia is one of the most culturally rich and diverse countries in the world. Indonesia is one of the most populous and the largest archipelagic country globally, with over 17,000 islands (Prastowo, 2023), with over 1,300 distinct ethnic groups (Adi & Bahri, 2023), and approximately 700-800 spoken languages, in which 700 are actively used (Ananta, Arifin, & Hasbullah, 2015; Adi & Bahri, 2023). The country's ethnic and linguistic diversity has profound cultural implications and influences its citizens' social interactions, and social dynamics. Therefore, governance strategies to address local conditions is often needed (Ananta, Utami, & Handayani, 2016). Moreover, Indonesia remains the most populous Muslim-majority country in

the world (Pew Research Center, 2024), with more than 87% of its population embracing Islam. Yet, Indonesia also pluralistic as it also hosts significant populations of Christians, Hindus, Buddhists, Confucians, and Catholics, and it also adhere to thousands various indigenous belief systems (Pew Research Center, 2024; Prastowo, 2023).

These cultural nuances reflect a distinctive cultural character, a uniqueness. One unique aspect related to this, is the establishment of Ministry of Religious Affairs of Indonesia (MoRA). The Ministry plays a pivotal role in managing all religious practices (Syafieh & Anzhaikan, 2023; Hasyim & Saat, 2020). Contrary to other MoRA in other countries, it does not only manage Islamic religious matters, it also helps manage all acknowledge existing religious affairs, education, interfaith dialogue, and even participates and supports other innovative government projects where it is needed (Hasyim & Saat, 2020). A second unique aspect in Indonesia is its existence and acknowledgement of *Hukum Adat* or roughly translated in English as customary law. Hukum adat is the legal framework derived from *adat* practices, and it is recognized in Indonesia as an integral part of the legal system, in which in Indonesia it means that it guarantees the validity of indigenous cultures, traditions, practices and native norms, interwover with local governance (Bedner & Arizona, 2019; Lubis, Runtung, Kaban, & Ikhsan, 2024). Each ethnic group in Indonesia even has its unique set of adat that structures their community social customs, family structures, and governance, and despite its long history, it is still currently actively practiced by its citizens (Trisna, et al., 2022; Engelenhoven, 2020)

Adat influenced extend even in the sphere of resource planning, facilitating many implementations of traditional methods in local governments (Darisera, Letedara, Christi Latue, & Rakuasa, 2024). Such is evidenced in the cases where local institutions (influence by adat) partner together with the local governments to manage land use, mediate disputes (Darisera, Letedara, Christi Latue, & Rakuasa, 2024). Another example can be seen, in local communities in Bali that leveraged adat practices to enhance disaster risk management and support community health measures, practices such as *awig-awig* and *perarem* combined with the function of *pecalang* as a security organization, shows coordination with the local government in monitoring of health protocols (Yudartha, 2021). The Bali Provincial Government even transfers authority and financial resources (budget) to the indigenous villages, granting them ability to monitors compliances of health protocols. (Yudartha,

2021; Ningrum, et al., 2024). This dynamic shows how in Indonesia, intersection of traditional and modern governance are often practices (Ningrum, et al., 2024).

A third unique aspect in Indonesia is the existence of two special specific regions that have a unique implementation of Islamic governance, namely Aceh and Special Region of Yogyakarta (Jogja) (Bustamam-Ahmad, 2007; Abdul & Salasiyah, 2021). Aceh allows more comprehensive autonomous governance granted through Law No. 11/2006, which allows the province to apply Sharia law, and uniquely even have its own specific institution and governance (Feener, 2013). Conversely, Yogyakarta exhibits a nuanced integration of Islam into governance, while it does not officially implement Sharia law, Islamic values are seen to be interwoven into governance through a more symbolic and political role of a Sultan, someone who serves as both hereditary governor to the region, and as the spiritual/cultural leader (Drechsler, 2019). While the administrative framework in Yogyakarta aligns with modern bureaucratic structures, the Sultan as the cultural authorithy plays an important role in legitimizing governance through the blend of Islamic and Javanese (the local adat) values (Drechsler, 2019; Octastefani, T, 2018).

As such, without a doubt, this unique contexts of a state needs to be understood in order to shape effective public administration and governance systems (Drechsler, 2015). In this case IPA could be the instrument that is needed. IPA can bring a perspective that recognizes governance in Muslim-majority context that could review how local custom, religion could affect governance and even innovation. Something that Sabrina et al.'s (2023) research highlighted as important, as ignoring religious-cultural factors can be a blind spot to the digital governance studies. Perceived religious values had a mediating effect on relations of e-governance and public trust, government technology has seemed to indicate more trust by citizens when local leaders (possible religious leaders included) and values of the community were positively involved (Sabrina, Akrim, Hartanto, & Dalle, 2023).

Using IPA will align to arguments by Lumina & Mohammady (2025), that mentioned, beyond historical and philosophical foundations, a study towards practical implementation, specifically in Muslim-majority countries in the process of governance changes, is important. Likewise, Urinboyev (2025) also emphasizes that IPA model can functions as "living traditions," shaped not

only by formal institutions but also by informal religious and cultural practices that influence administration. As Drechsler & Chafik (2025) argue, incorporating Islamic perspectives can expands the theoretical boundaries of PA beyond global Western norms, as mainstream PA has long excluded religion and culture from its discourse. Collectively, these academics challenge the dominant Western focus, often characterized by technical rationality and state-centeredness, and advocate for a more inclusive model of governance rooted in faith-based and community-oriented values

Nevertheless, in consideration to the application of IPA in Indonesia, it is also crucial to recognize that despite its majority citizen identifying as Muslim, many of its citizens, also identify as non-Muslims, raising perhaps a concern around inclusivity in the application of IPA. But IPA while rooted in Islamic principles, is not meant to be exclusive to Muslims or even exclusionary (Drechsler, Chafik, & Kattel, 2025). Many principles of the IPA, such as shūrā (participatory governance), ‘adl (justice), amānah (trust), etc. (which will be further explained in chapter 2), align with universal governance, as Ongaro and Tantardini (2025) highlights, Islamic and Western public value traditions actually share a foundational concerns with principle and ethics such as justice, public welfare, and they argue for a model of governance that respects cultural context while promoting universal principles. In fact, the principles can serve as a culturally resonant framework that can enhance public trust and accountability in a way that is still contextually appropriate without marginalizing minority groups (Drechsler, Chafik, & Kattel, 2025).

Furthermore, Indonesia by no means is an Islamic state, secular state, nor is it a theocratic one; it actually recognized itself as a legal state (negara hukum) based on Pancasila (Indonesia's foundational philosophical and ideological basis, emphasizing pluralism, social justice, democracy, and the rule of law) (Mahfud, 2016). However, evidence shows that Islamic cultural influence is deeply embedded in Indonesia's historical, cultural, and political fabric that can even be traced back to the 7th and 13th centuries (Ningsih et al., 2023). History has shown that Islam has interwoven itself into Indonesia, from its early arrival, by blending with local traditions and even synthesizing itself with pre-existing Hindu and even Buddhist customs, resulting in the current distinctive blend of cultural identity that respects local wisdom and traditions. (Aziz & Arlianto, 2023; Muhammad & Duderija, 2022; Mu’min, 2023). The interplay of this cultural

identity highlights the unique positioning of Indonesia and how they have managed to merge religious and cultural diversity based on *Pancasila*, which embodies the nation's philosophical foundation that accommodates both Islamic and non-Islamic ideologies (Lufaefi, 2019).

Consequently, the objective of this research is to contribute through an analysis into whether the SATUSEHAT, with this research focusing specifically on the SATUSEHAT platform in Indonesia as the central and main EHR backbone and digital health infrastructure in Indonesia, through a lens that can review and reflect cultural nuances. Which in this case the reason why the IPA model is selected. Eventually, it is hoped that this study can serve as a first step in understanding the gap and offer a nuanced contextually grounded approach to determine whether platform governance, implementation, and scalability align with the current Indonesian needs. One can hypothesize that SATUSEHAT at first glance has no cultural nuance, as it is created partially because of the momentum gained from the pandemic, but reported observation indicates many public health initiatives in Indonesia are often community based, local influenced, grass-rooted (Ayuningtyas, et al., 2020). If this is the case, this would be an example of how social, cultural and religious structures have implicated public health responses. By understanding these connections, this research aims to examine how SATUSEHAT platform aligns with IPA, that analyze it considering Indonesia's sociocultural and religious context.

1.2. Research Question and Objectives

This study aims to achieve two main objectives. First, it seeks to evaluate whether the SATUSEHAT platform aligns with the IPA as previously shared. By doing so, the research not only explores the alignment but can also gather insights derived from the case of Indonesia and how it can serve as a reference point for similar Muslim-majority or culturally diverse and rich states. It can also become a reference point to the success or not of other technology-driven eGovernment initiatives and efforts in Indonesia.

Secondly, the objective is to determine whether challenges that the platform faces, when analyzed in-depth, can offer a deeper and more nuanced perspective on Indonesia’s digital health services. This would expand analysis beyond conventional technical analysis (e.g., TAM, UTAUT, and UTAUT2). More perspectives may bring and offer policymakers, administrators, and digital health

technology developers and practitioners, in Indonesia and other regions with similar characteristics, potentially valuable guidance, strategies, and insight for existing and future innovation. Such contribution could bring support to the ongoing efforts that are underway and are aimed at further enhance health services in Indonesia, ensuring continuous improvement in public health and the digital health sectors.

By addressing these objectives, this research poses a central question: **Does the SATUSEHAT platform align with Islamic Public Administration?**

2. Islamic Public Administration as a Framework for Evaluating Digital Health Governance in Indonesia

This chapter provides theoretical and contextual foundation for the use of IPA as an evaluative framework for analysing Indonesia's SATUSEHAT platform. As digital governance takes initiatives and expand across Muslim-majority countries, there is an increasing need to assess technologies not only in the technical grounds, but also in the non-technical (e.g. cultural, ethical) perspectives. The chapter begins with an overview of IPA, tracing to its historical and evolutions over the years. It then outlines core concepts and normative pillars that constitutes IPA, drawing from leading scholar works. Following this, the chapter next contextualizes the application of IPA within Indonesia's unique administrative landscapes, this includes constitutional recognition of religion, formal integration of Islamic principles in various public sectors (e.g. law, education, health, and finance) and then continued with introduction to Indonesia Indigenous Cooperative Governance Institution (ICGIs). Ultimately, this chapter establishes the conceptual tool needed to assess whether SATUSEHAT align with IPA or not. The framework develop can serve as the basis for methodology in subsequent chapters.

2.1 Islamic Public Administration

2.1.1 Overview of Islamic Public Administration

Discussion on IPA encompasses distinct intersection of religious principles, governance and public services that are heavily influenced and rooted deeply in Islamic values that most often can be seen within Muslim-majority societies (Chafik & Drechsler, 2022). Research conducted in Malaysia, indicates that this principles within public sectors where Islamic values are integrated, as Kumar & Rose (2012) mentioned, are shown to be important. As such, central to it, IPA emphasis on ethical conduct, accountability, community centered governance, and many more (Chafik & Drechsler., 2022). IPA as such have a distinct governance paradigm and represent as an alternative to the predominantly Western models usually used to analyse PA, where in this model it can be seen to embed governance within religious and cultural context, thus recognizing pluralism of administrative thought (Drechsler, Kattel, & Chafik, 2024).

Historical examples, such as governance practices during the dynasties of Umayyad, Abbasid, and Fatimid illustrates adaptability of IPA to the sociopolitical landscapes of their respective era, showing endurance and relevancy of Islamic governance. Each dynasty can be seen to employed different strategies unique to its circumstances and foundation of ideology showing flexibility and innovation that can yield cross cultural impact. The Umayyads for example, in 661-750 CE established a more centralized Arab-centric administration that can be seen as absolute monarchy (centralization of power), influenced by pre-Islamic rulers from Byzantine and Persian empires (Dewi, Al-Adawiyah, Tabroni, Mark, & Intes, 2023; Meirison & Saharuddin, 2021). Despite the significant achievement in territorial expansion done by this dynasty, the reliance on Arab nationalism ultimately resulted in many dissatisfactions to the diverse existing communities and enable the Abbasid revolt that established next the Abbasid dynasty (Adhistia & Roza, 2024).

The Abbasids dynasty that reigns from 750-1258 CE, a significantly longer regime in comparison to the Umayyad, embraced a more inclusivity, fostering an era of intellectual, diversity, and cultural achievement (Dani & Mansur, 2025). In this era the dynasty established an institution known as *House of Wisdom in Baghdad* (Wang, 2024). The institution served as a library, educational and translation centre, academy, and preservation center in which contributes to the translating work from Greek, Persian, and Indian sources into Arabic which laid many groundworks for many modern disciplines and influences even European Renaissance at the time (Dani & Mansur, 2025; Alghamdi, Ziermann, & Diogo, 2017). At its peak, House of Wisdom, housed tens of thousands of texts that host many subjects that synthesis culture and knowledge system that facilitated the establishment current scientific practice and education known today (Pratama, Wati, Hasan, & Iswandi, 2023). This era also often referred as the Islamic Golden Age; Baghdad became a cosmopolitan hub that enhance cultural exchanges via network like the Silk Roads (Mansour, 2018). They rejected a more Arab-centric policies and foster a more multicultural empires that embraces various ethnicities within governance (Topçu & Menek, 2022).

Meanwhile the Fatimids from 909-1171 CE on contrast introduced a pluralistic Shia administration, as can be seen by their founding of Cairo, and Al Azhar University, that incorporate various religious and ethnic groups to their administrative framework (Hadi, Gandryani,

Muramuzi, & Razzaq, 2023). On the other hand, with a more pragmatic modernization, balancing centralized and decentralization administrative approach, Ottoman Empire can be seen to integrate Islamic legitimacy in a more autocratic way (Kobas, 2019; Pamuk, 2004). The millet system introduced in this era, facilitated a measure of self-governance among non-Muslim communities at the time, meaning each millet are governing its own laws, and leaders making it capable to have a more cultural approach and identities (Barkey & Gavrilis, 2015). It enables religious identity as a means of governance where communal leaders acted as intermediaries between state and communities (Barkey & Gavrilis, 2015). Furthermore, despite the system face challenges especially in the 19th century due to pressure on centralization and modernization, principles underlying the millet system such as legal pluralism and interreligious space in administration were introduced (Alintaś, 2021). It recognized legal freedom on personal law matters even to Jewish and Christian communities, eventually leaving a lasting impact to the practice administration and social dynamics of the regions that was under the Ottoman control at the time (Alintaś, 2021). The Ottoman model of governance, therefore, again proves and provides another valuable insight into effectively managing diverse populations and balancing authority with community autonomy, reinforcing IPA adaptability and its potential contributions to modern governance systems. (Chafik & Drechsler, 2022).

The adaptability of IPA to modern governance, highlights their focus on contextualization. Rather than being static, IPA evolves to meet societal needs while remain anchored in core Islamic values. This contextual flexibility enables Islamic governance systems to address possible administration implementation challenges and provides a meaningful alternative to Western-centric administrative paradigms (Drechsler, 2015; Chafik & Drechsler, 2022). Something that Brinkerhoff & Brinkerhoff (2015) also highlight also in the study that shared, tailored to local contexts is important, rather than merely imitating Western models, especially for the developing country public sector reforms.

2.1.2 Core Concepts in Islamic Public Administration

This study uses the foundation concepts of IPA as adapted from Drechsler, Kattel, and Chafik (2024), Islamic Public Administration and Islamic Public Value: Towards a Research Agenda

book, supplemented by additional scholarly resources as can be seen in the description below. Deep dives of these concepts, and detailed explanation is provided in the sub-sections.

Principle	Description	Source(s)
Shūrā (Consultative Governance)	Governance must be inclusive and deliberative in nature where rulers are obligated to consult with advisors, and related experts. This could be also conducted through a participatory governance model where there's collective decision making.	Iqbal & Lewis (2009); Talaat, Talaat, Sharifuddin, Yahya, & Majid (2016); Peters (2021)
Non-Delegability of Responsibility, Amānah (trust) & Mas'uliyyah (accountability)	Public officials are steward, where its tasks can be assigned, but ultimate responsibility remains with the leader, who is accountable to society and God.	Al-Mulk N, (1960); Kalantari, (1998)
Focus on Public Value and the Common Good **(Maqasid al-Shari'a)**	IPA aims to promote the higher objectives for the sake of common good, that is protecting life, intellect, property, and progeny.	Al-Shatibi I (1997); Yusuf H (2022)
'Adl (Justice)	Justice is a divine obligation and essential to legitimate Islamic governance. Injustice invalidates rule, even if done in the name of religion. Governance must be just, merciful, wise, and beneficial to the public and citizens.	Ibn Al-Qayyim (1973)
Contextual Embeddedness	Administration must conduct action that are rooted most often by the related local context,	Chafik (2023); Polanyi, (1944); Urinboyev (2014); Peters (2021);

	social, customs, and religious values, and spiritual significance	
Decentralized and Cooperative Governance	IPA has historically relied on local elites and religiously grounded institutions, some examples are like vakıf, mahalla, zawāyā. This institution is created for public service delivery, creating a multi-layered, community-based system.	Al-Baladhuri A (2002); Chafik (2023)
Shari'a-based legitimacy.	Rule is only legitimate if it allows believers to practice sharia and live by divine values like justice, mercy, and wisdom. Human judgment and interpretation (*fiqh*) can be used as a guide to navigate contemporary issues.	Malkawi & Sonn (2011); Ibn Al-Qayyim SAD , (1973); Auda, (2008)

Table 1. Author summarizes the foundational concepts of IPA as adapted from Drechsler, Kattel, & Chafik (2024), with further elaboration from relevant scholarly sources.

2.1.2.1. Shūrā (Consultative Governance)

Shūrā is an Arabic term translates to consultation, a foundational principle in the IPA, as it signifies the practice of collective deliberation among members (community or government) promoting participatory governance (Drechsler, Kattel, & Chafik, 2024). The notion is linked intricately to the historical governance model established back during time of the Khulāfa-e-Rāshidīn (Shabana, Siddiqui, & Taiba, 2023). Shabana, et, al. (2023) research emphasizes that this early leader that embodied shūrā, foster a system that ensures fairness and equity in the Islamic political structures. So shūrā in that sense promotes a participatory governance and decision making, that requires leader to engage actively with specialist, advisors and broader community to ensures policies that was created, reflect collective wisdom, ensuring fairness (Al-Rasyuni, 2012). Drechsler (2015) also in his research notes that these participatory approaches balance ethical governance with

actual practical administration, fostering societal trust and alignment with related values that challenges hierarchical and autocratic tendencies (Drechsler, 2015). Shūrā concept usually accompanies as well by the concept of amānah (trust) and mas'uliyyah (accountability) as can be seen below.

2.1.2.2. Non-Delegability of Responsibility, Amānah, and Mas'uliyyah

Amānah in the Arabic term often translated to trust or trustworthiness, it included aspect of integrity, reliability, and one of the main moral requirements for leaders and public officials (Kay, 2023). Public officials are regarded in IPA as stewards, who are accountable to both the public and to God (Mustafar, Ahmad, & Hasrul, 2024). Ibn Khaldul an Islamic scholar also advocates strong sense of responsibility in leadership, ultimately leaders are expected to assert public trust and accountable regardless of delegation (Al-Kahtani, 2014; Islam & Samsudin, 2008). Next for Mas'uliyyah derived from the Arabic word 's'ala,' meaining as "to ask", Mas'uliyyah are a concept of emphasizing the idea of being accountable for a person, individual or institutions. At its core, it signifies that every individual especially those in position of authority must be accountable, as it is rooted in the fundamentals of Islamic teaching (Wahab & Masron, 2020). Some practical examples can be seen in the application of ethical guidelines and operational practices under the Islamic financial institutions (Hendriarto, 2021). So amānah and mas'uliyyah mean accountability, where leaders, institutions as part of their stewardship to the welfare of populace must be transparent and accountable.

2.1.2.3. Focus on Public Value and the Common Good (Maqasid al-Shari'a)

Next the concept of *Maqasid al-Shari'a* refers to the framework that guides and ensure laws and policies that are practiced in Islamic governance are for the greater good and welfare of society, this concept is guided by elements such as the protection of religion, life, intellect, lineage, property and progeny (Suardi, 2021; Al-Shaitibi I, 1997). Practicing the greater good can occur either individually or through institutions. One example institutional approach is the establishment of *Hisbah* institution, which was created first to oversee marketplace activities and ensure fairness in trade (prevention of fraud), and other unethical or unfair practices that can happen in the market (Oktaviandi & Yogi, 2024; Arifah et al., 2023). But beyond that, it has expanded to also monitoring of area such as social function, and even to conflict resolution (Farkhani, A et al., 2023; Abdullah

and Safriadi, 2022); The underlined concept is whether there's such institution or not, governance are expected to create policies that ensures greater good and welfare of the society.

2.1.2.4. 'Adl (Justice)

'Adl which also mean Justice stands as another core principle in IPA. This one directly influencing the legitimacy of state actions. A person with a position of authority is expected to be fair, uphold justice, and any ruling or policy created that result in injustice or harm that contradicts the ethos of sharia are thus confirmed as invalid from an Islamic perspective (Drechsler et al., 2024). In practice, the government is mandated to practice non-discriminatory practices, with procedural transparency and equitable resource allocation, actively discouraging nepotism, corruption and unfair decision making (Razak & Mahmod, 2021; Drechsler et al., 2024)

In the early Islamic history, as Azad research in (2024) shows, public administration then prioritized the independence of the judiciary by appointing *qadis* who were answerable to the *Prophet* directly. This showed the commitment of the Islamic legal system to objectivity and due process (Azad, 2024). In a modern context, example from Malaysia can be seen as on the establishment of Islamic HR management practices that emphasize the merit-based recruitment to prevent favoritism and nepotism (Hashim, 2010). Similarly in Southeast Asia Islamic microfinance industry, guidelines are established to provide transparent financial operations (Widiarto & Emrouznejad, 2015). These practices illustrate how IPA translates 'adl into actionable policies, fostering public trust and legitimacy across diverse sectors.

2.1.2.5. Contextual Embeddedness

IPA defined contextual embeddedness as recognition that administrative institution is actually shaped by and also operated within communal, cultural and religious norms (Drechsler et al., 2024; Samier, 2017. Institutions such as the Uzbek *mahalla,* Morrocan *zawāyā,* and Turkish *vakıf* represent a form known as Indigenous Cooperative Governance Institutions (ICGIs) are an illustrating example of contextual embeddings is practiced (Drechsler et al., 2024). The vakıf is a service that enhances social cohesion and promote maqasid al-shari'a through the provision of welfare, where they funded mosques, school, hospitals, and other social welfare programs, contributing to community and its development (Singer, 2008). In the hope of

mitigating disparities economics, and foster a collective responsibility, most of this ICGs highlight that institution is more suited to incorporate local traditions into administrative framework (Chafik and Drechsler, 2022). Zawāyā in Moroccan, on other hand, shows community engagement and cooperation are more prioritise then market-driven mechanisms, commonly seen in Western administrative models. Institution such as this, function as semi-autonomously from the state, embodying what Peters (as cited in Drechsler et al., 2024) state as "governing in the shadows" (p.618). Indonesia and Malaysia also have some blends of Islamic community and education institution that merges sharia principles and local customs, fostering a sense of collective responsibility, while still being aligned to its religious and cultural identities (Subekti et al., 2024; Azad, 2024). Particularly in Indonesia context, contextual embeddedness also includes the role of customary law (*adat*) and local governance structures has deep roots in the country, serving as a one of the guiding principles for many communities that articulate local norms and practices integral to their identity and social structure (Hamida, 2022). Further discussion and explanation on *adat* would be explained in 2.1.3.3.

2.1.2.6. Decentralized and Cooperative Governance

Decentralized Governance refers to the distribution of authority and administrative powers from central authority to a more local and regional entities, where it allows decision making to be more inclusive, responsive, addressing local populations needs and aspirations making the governance outcome more empowering to the communities (Umarov, 2023). Decentralized governance in Islamic context shown to enhanced public services and increase political participations (Razak et al., 2024; Batchelor, 2014), and it aligned to the other previous IPA principle such as shūrā. It shows to mitigate risk of centralized decision-making, such as overlooked local context (Grassa, 2015).

Cooperative Governance, on the other hand, emphasizes more on collaboration between various stakeholders, such as government entities, civil society, and community organizations, or in IPA ICGs (e.g. vakıf, mahalla, zawāyā) (Al-Baladhuri A 2002; Chafik; 2023). It enhances the concept of social capital, where relationships built on trust and collaborations within communities can lead to a resilient social network that are capable of addressing local challenges (Razak et al., 2024; Myeong and Seo, 2016).

2.1.2.7. Legitimacy through Shari'a Compliance

Legitimacy in IPA is derived not primarily from democratic consent or bureaucratic efficiency, but from compliance with *shari'a* a comprehensive moral framework that encompasses justice, mercy, public welfare, and wisdom (Ibn Al-Qayyim, 1973; Auda, 2008). Legitimacy is maintained when leaders and institutions facilitate a society in which Muslims can fulfil their religious duties in their daily life, pursuing both worldly and spiritual well-being (Ibn Al-Qayyim, 1973; Auda, 2008). A sharp contrast to the secular Western-models of legitimacy grounded in legal-rational authority. IPA view legitimacy as contingent upon a ruler ability, to enable religiously guided life and uphold shari'a-based values (Drechsler & Chafik, 2023).

In practice, example can be seen through the governance framework institutions in Islamic finance organization as described by Al-Saadi et al. (2022), in Bahrain there's a sustainable practices and compliance of shari'a. Rahim et al. (2023) research also further supported this and investigated that in Malaysia Islamic banks and Gulf Cooperation Council countries some compliance led to an improved financial outcome as it fosters confidence, sharia in this case act as compliance tool for institution growth.

2.1.3. Islamic Public Administration in Indonesia

Indonesia, under article 29 of the 1945 Constitution acknowledges religious practices allowing for its Muslim citizens to practices religion. In this context including embedding some integration of shari'a to the governmental framework such as evidently seen in family affairs policy (i.e. marriages, inheritance) (Wardatun, et al, 2019), halal food regulation (Dewi CK, et al, 2022), Islamic education, and Finance and Banking (Maulina, et al 2023). Furthermore, two specific provinces, in Indonesia Aceh and Daerah Istimewa Yogyakarta (Special Region Yogyakarta) hold a unique authority to implement Islamic principle more prominently, within their respective and specific local governance structures (Bustamam-Ahmad, 2007; Hastuti, 2023; Manan, 2020, Habiburrahim et al., 2020; Zada, 2023; Feener, 2013). Some of these religious administrative duties are governed and supported by the Ministry of Religious Affairs Indonesia (MoRA) or even to specific administrative body like Badan Amil Zakat (institution which oversees the collection and distribution of zakat (charitable donations) as governed under Law No. 23/2011 on Zakat management) (Sinaga, et al., 2022). These institutions play a crucial role in ensuring that the

implementation of Islamic principles aligns with local cultural contexts and the needs of the communities they serve.

2.1.3.1. Special Region in Indonesia with unique implementation of Islamic Governance

There are two provinces in Indonesia that have special, unique governance that allows the implementation and application of Sharia law. One of which is Aceh, otherwise known as Daerah Istimewa Aceh or Nanggroe Aceh Darussalam in the past, the only province in Indonesia that is permitted to implement and apply Sharia law more comprehensively and has been legislated through a special autonomy act after having negotiated with the central government in 2005 (Bustamam-Ahmad, 2007; Manan, 2020). The province is situated in the northern Island of Sumatra, the second most populated island after Java Island, with an Island estimated population of over 59.98 million as of 2024 (Badan Pusat Statistik, 2024). The province has a one-of-a-kind autonomy in accordance with its deal with the central government granted through Law No. 11/2006 on Aceh, that allows more comprehensive autonomous governance, including in areas such as criminal justice, public morality, dress codes, overseen by institutions like the *Wilayatul Hisbah* (an Islamic religious police force responsible for the enforcement of Sharia law in the region), Dinas Syariat Islam Aceh and sharia's courts (Feener, 2013; Winowoda & Quddus, 2021; Aksa, et al. 2023).

On the other hand, Yogyakarta, also known as Jogja or Daerah Istimewa Yogyakarta (DIY), a province located on Java Island, blends traditional Javanese tribe culture and Islamic values into one integration (Drechsler, 2019). Yogyakarta's nuanced and unique integration of Islam into governance does not formally enforce Sharia law; it promotes a syncretic Islamic identity that is greatly influenced by the Sultan, a person who acts as both political governor and symbolic leader to the region (Drechsler, 2019; Octastefani, T, 2018). Something that is legitimized under the Law No. 13/2012 on Special Region Yogyakarta that acknowledges the Sultan as governor. Over two-thirds of Yogyakartan citizens support the Sultan's automatic governorship, demonstrating their faith in this governance system and particularly his administrative and spiritual leadership (Kurniadi, 2009, as cited in Drechsler, 2019). The sultan's administration has a balance of modernization in it, combining traditional metrics with unconventional components such as social justice and multiculturalism (Drechsler, 2019).

Beyond that, other parts of Indonesia, can be seen to apply some aspect of Islamic law, albeit in a less formal way and more integrated into the culture of the region. The Minangkabau tribe in West Sumatra Province have a unique local wisdom called Syarak Basandi Kitabullah, Adat Basandi Syarak perspective, or "custom is based on Islamic law, and Islamic law is based on the Qur'an," which is a guiding principle among the Minangkabau people that demonstrates the close ties between religious and customary norms (Albert, et al., 2022; Alfurqan, 2020; Putri, et al 2023; Taufiqurrahman, 2021)

2.1.3.2. Sharia-Based Administration in Key Public Sectors

In 1989, under the Law Number 7 of the Religious Judicature Act, Indonesia established a new jurisdiction of religious courts that expanded their coverage to authority over family matters such as marriage, divorce, and inheritance (Jayus, et al. 2024). Additionally, another regulation in 2014 that governed food monitoring management established a new government entity called Badan Penyelenggara Jaminan Produk Halal (BPJPH) (Law Number 33 of 2014 on Halal Product Guarantee). Operating under MoRA, the formation of this government agency marks an effort to also comply with Islamic dietary law on halal goods (Faridah, 2019). In education, another regulation in 2019 called the Pesantren Law was also created to enhance Pesantren (Islamic boarding school) to facilitate better resources, training and modernize its educational practices (Nurtawab & Wahyudi, 2022; Mikail, 2022). But more dominantly, Islamic sharia compliance can be seen in the finance industry, as Indonesia, under Law 2008 No. 20, provides a new operational scope for establishing a sharia-compliant banking system and guidelines for Islamic financial institutions (Afandi & Amin, 2019). Furthermore, even the local Financial Services Authority also monitors and plays a pivotal role in regulating the Islamic finance sector, adhering to the regulations even specific to the Islamic bank (Afandi & Amin, 2019).

2.1.3.3. Custom Law and Governance as a Pillar of Local Administrative Practice

Indonesia acknowledges local norms and customs in its legal landscape, and this law or regulation is called “Hukum Adat,” or customary law. This law plays a crucial role in keeping local heritage and practices in Indonesia recognized and protected, as it is still practiced inside Indonesia’s diverse ethnic communities. The laws exist alongside formal state laws and serve as tools of local

governance, dispute resolution, and community cohesion, influencing economic, political, and social aspects for the local communities. (Kurnia & Hakim, 2023; Aunuh, & Alam, 2024).

This diversity is recognized under Article 18B (2) of the Indonesian Constitution, which recognizes the existence of Hukum Adat and ensures adat continues to have a legal standing within the broader system, therefore acknowledging Indonesia as a country with legal pluralism (Risyat et al., 2022). This legal framework enables a contextual approach to justice where many local communities can then continue to live and practice their traditional local customs side by side with the existing national law (Hamida, 2022).

Day-to-day examples of governance practices of adat can be seen in many areas in Indonesia. One example can be seen in specific adat practices in West Kutai, east of Kalimantan Island, that practice Bolit Mate Nawar Uman (BMNU), a legal local governance system to help manage community dispute resolutions (Aunuh et al., 2024). In the political landscape, on the other hand, many also use Hukum Adat for land-use politics and local community resource management (Vel & Makambombu, 2019). In communities like Bima, another blend of Hukum Adat blended with Islamic Law is also practiced (Mutawali, 2021). In public health services, during pandemic even in 2019 local communities in Bali leveraged also Adat practice to enhance disaster risk management facilitated necessary compliance with health protocols (Ningrum, et al, 2024).

2.1.3.4. The Role of the Ministry of Religious Affairs in Public Governance

Established in 1946, Indonesia has a unique government body, the Ministry of Religious Affairs, also known as MoRA (Ali, 2023), that plays a pivotal role in managing existing religious practices in the country. The ministry oversees practices of religious matters in Islam, Christianity, Catholicism, Buddhism, Hinduism, and Confucianism, central to goal of promoting religious moderation (Reza, 2024; Riyanto, 2024; Minister of Religious Affairs Law No. 84/1996). It also helps oversee education and religious educational management of its officially recognized religions, such as Islamic schools (i.e., pesantren, Islamic university), Christian schools, Catholic schools, Buddhist schools, Hindu schools, and Confucian schools (Gaol et al., 2023). It also oversees government agency such as BPJPH that governed halal food, and overseeing Hajj pilgrimage management (Hamzani, et al., 2018).

Even in public health matters, MoRA can be seen to collaborate with MoH in implementing health policies and initiatives such as the "health isthitaah" standard, ensuring Muslim Hajj pilgrims meet physical and mental health requirements before traveling to Mecca as a reaction to the prevalent health issues among pilgrims (e.g., stroke, diabetes, chronic kidney disease) (Pane et al., 2019). These collaborations are further expanded by the existence of the Hajj Health Clinic (KKHI) in Medina, which conducts medical checkups for high-risk pilgrims, demonstrating a multi-agency approach (Kementerian Kesehatan Republik Indonesia, 2023).

2.1.3.5. Other Indigenous Cooperative Governance Institutions (ICGIs) that provide essential services while grounded in Islamic principles in Indonesia

In the previous chapter, institutions such as Turkish *vakıf*, Uzbek *mahalla*, and Moroccan *zawāyā* can be seen to represent ICGIs that provide essential services to the community they serve. In Indonesia, there are some similar institutions operated based on Islamic principles that also deliver support or essential services to the community. These institutions not only reflected the religious and ethical values of Islam; some were created to help modernize the practices while remaining compliant with existing customs. There are a lot of ICGIs identified in Indonesia; however, as this research focuses on public health digital health services, two ICGIs, namely Muhammadiyah and Nahdlatul Ulama, are selected to be in-depth explained, as they have deep influence, presence, and focus on social welfare including public health service delivery in Indonesia.

2.1.3.5.1. Muhammadiyah

Created in 1912 by Kyai Haji Ahmad Dahlan in Yogyakarta, Muhammadiyah is one of Indonesia's largest Islamic organizations, holding a prominent position in Indonesia's social, educational, and religious landscape and seeking to modernize and reform Islamic teachings and practices while also promoting community service (Burhani, 2018). The foundation's ideology is centered on the integration of Islam with modernity and rationality, emphasizing education, health, and social services and demonstrating sustainable practices that can build character education alongside academic achievement, an approach called *"Amar Ma'ruf Nahi Munkar*," which translates to promoting good and preventing wrongdoing, hence aligning its activities towards societal well-being and moral upliftment (Asror, et al., 2025; Hakim et al., 2023; Burhani, 2018). It manages over a thousand institutions across the nation, including universities, high schools, and primary schools

(Hakim et al., 2023; Burhani, 2018). For its social and humanitarian initiatives, it notably also runs hospitals, health clinics, and medical services for the underprivileged in the community. It also participated in the COVID-19 vaccination campaign and took a proactive role in organizing and mobilizing resources for public health response and then running the Muhammadiyah COVID-19 Command Center (Qodarsasi et al., 2021; Ichsan, 2021). It even has a philanthropic arm known as LazisMu that helps provide resources to other social programs, disaster response efforts, etc. (Rahmanto et al., 2023).

Due to its scale and extensive network of millions of members, schools, universities, hospital and charitable institution it manages, Muhammadiyah also embraced digital initiatives to enhance its outreach and efficiency, notable in public health it created "SehatMu", a health information exchange platform connecting healthcare providers, and digital services to improve medical service delivery of its hospital (Muhammadiyah Sehat, n.d.). Additionally, other than that initiatives such as "ChatMu" can be seen as it uses AI-powered chatbot to design to improve access to Muhammadiyah-related information (Muhammadiyah Sehat, n.d.). Study conducted by Adhantoro et al. (2025) shown that the initiatives enable its members to highlight information effectively and accurately, particularly through WhatsApp integration. Beyond those other initiatives such as LabMu, KaderMu, etc can be seen currently being developed in the organization and a way to streamline organizational operations and community engagement can also be seen (Adhantoro, et al., 2025; Muhammadiyah ID., 2025))

2.1.3.5.2. Nahdlatul Ulama

Nahdlatul Ulama or NU is another large Islamic organization in Indonesia that represent socio-religious movement and have played critical role Indonesia effort towards independence (Tania, et al, 2024). Established in 1926 the organization emerged start as pesantren and was formed as part of coalition to the traditionalist Muslim scholar that sought to promote and preserve Sunni Islamic teaching in the face of colonialism and emphasize in Indonesia's independence fostering nationalism (Ulum & Wahid, 2019; Tania, et al, 2024). It moderates and position as counterbalance to more radical interpretation of Islam and its goal is to promote peace and harmony both within Indonesia region (Hariyanto, 2021). It also approaches focuses on Islamic teaching to local

Indonesian cultures, underscoring a model of Islam that prioritizes pluralism and social cohesion (Okamoto, 2020) a termed coined as “Islam Nusantara”.

Like Muhammadiyah NU also promotes social welfare emphasizing in education, health and social justice (Misbah & Munfarida, 2023; Ekawati, 2016; Widarda & Rachman, 2023). NU in its effort to continue to streamline its organization activities like Muhammadiyah has recently launched platform such as NU Online Super App, which integrates its services to education (e.g. access to fatwas), charity management (e.g. donation platform), and community networking, and also even ecosystem data platform Digdaya (Digdaya NU, n.d.).

2.2. Digital Health Transformation Through the Lens of Islamic Public Administration

Research in digital health transformation has increasingly recognized the importance of contextual and socio-cultural embeddedness and ethical dimension to the design and governance of digital health system. In this research, IPA offers a unique governance framework as explained above that can cater the perspective of socio-cultural, ethical, and religious perspective. Although the integration of IPA model within digital transformation studies remains underdeveloped and underexplored, a few significant contributions and research in the recent years can be found, some notable research such as those by Al Kahtani, Kumar, and Gamon can be seen below.

In 2022, Al Kahtani has explored and research digital health transformation in Saudi Arabia, reviewing Digital Health Indicator (DHI) proposed by the Healthcare Information Management System Society (HIMSS), that highlight importance of contextual understanding and promoting initiatives on digital health within Saudia Arabia governance (Al-Kahtani et al., 2022). This study while focus on technical indicators provide contextual understanding of how Islamic value and institution can support guide digital transformation. Which is further elaborated in 2025 research by Kumar et al. That done systematic literature to review integration of AI in public healthcare in Saudi Arabia aligned with Vision 2030 that emphasize more prominently not only technical infrastructure by also Islamic ethical principles, and cultural sensitivity in AI implementation. The review identified AI application in deasses predication, patient care, healthcare administration even public health surveillance. It recognizes that technological integration must be grounded in

Islamic values including privacy (ḥifẓ al-ʿird), dignity, equity, and common good. The AI models are even expected to conform to halal standards maintaining a same-gender interaction in telehealth context and a more culturally appropriate AI model and data governance that align to local socio-religious expectation. This includes patient data masking, and ethical AI explainability, arguing for a more holistic model that support Saudi Arabian society.

However more in-depth and normatively grounded research was further explored by Gamon (2023), who research on *Ethics of Digital Health from an Islamic Perspective*. Gamon (2023), indicates how Islamic concept such as maqasid al-shariah, amānah (trust), ‘adl (justice), and hurmah (privacy) to design are important for the implementation and governance of digital health system. It evaluated through the lens of Islamic ethical and legal theory, that frames digital health as moral and administrative endeavour. It even argues the establishment of Islamic digital ethics boards, and a more culturally sensitive regulatory framework and more integration of spiritual consideration in digital health design, especially in decision such as end-of-life decision making, reproductive health and many more.

2.3. SATUSEHAT: Indonesia’s National Digital Health Platform and Its Implementation Challenges

Despite its capabilities, the most precarious problems of the platform are the technical performance and are especially centred around system reliability and usability. Most reports note that this app often crashes, which can sometimes infuriate its users. This becomes a problem associated with user engagement, partly due to the requirement to track GPS data continuously, therefore depleting device batteries quickly and raising considerable privacy concerns as well (Shahmirul et al., 2023). For example, long login procedures and failure in sending one-time passwords by the OTAs are also things blamed on the application and potentially discourage most users from operating the platform. Some of these challenges in usability dictate a good experience for the user, and some explain why this would encourage more applications to be created. and further erode public confidence in the platform (Shahmirul et al., 2023).

Beyond that, more significantly, the foundational infrastructure of healthcare IT in Indonesia remains challenged, especially with systematic barriers, as can be seen with inefficient data

management and persistent reliance on paper-based systems for some hospitals and, again, fragmented IT environments across hospitals (Sulaiman and Bachtiar, 2024). To further support this, the significant barriers to data management, privacy, and security issues; poor data management continues to characterize many of the Indonesian hospitals (Novianti, 2023; Basani, 2023). Besides, because many of the existing systems are not designed to work with each other, there is fragmented patient information and inefficiency in the delivery of care (Sanjaya, 2023; Asyfia et al., 2023). Many existing hospital information systems remain fragmented, with only 15% of hospitals nationwide having full EMR implementation in 2023 (Sulaiman and Bachtiar, 2024).

Of course, a transition is taking place, but it is still slow and uneven, and once more, the transition itself is influenced by such factors as disparity in the digital maturity level of different hospitals, where some facilities are more developed compared to others (Santoso et al., 2022; Kuntoadil, 2024). Furthermore, all those have been exacerbated by a shortage of skilled IT staff, which, besides financial constraints, resulted in the fact that many hospitals faced budget limits that hampered their possibility to invest in much-needed technology and training (Paramesthi, 2024). Jakarta and other urban centres' hospitals have shown higher digital maturity; smaller or lower-tier hospitals (classes C and D) are often seen to only employ one or two IT staff or EMR staff, which is grossly insufficient for managing a scale transformation. IT can be seen as a cost that they have yet to prioritize (Sulaiman & Bachtiar, 2024).

However, the growth of this information system faces the major obstacle that is one of the non-technical challenges: cultural opposition against change. This is where the medical profession, even in other countries, is commonly more sceptical of shifting from their traditional use of paper to digitized forms because of a certain level of fear of the unknown or because of perceived complexity surrounding new technologies (AlSadrah, 2020; Onuogu, 2023). Resistance is usually very deeply rooted in the organizational culture already in place at health centres for many more reasons beyond the fear of the unknown. Issues such as "lack of familiarity with technology and entrenched practices," as in many instances where new technologies have brought "fear of an increased workload" and apparent complexity of novel systems (Zakerabasali et al., 2021; Chang et al., 2017; Santoso et al., 2022). Which all could lead to feeling overwhelmed, invoking anxiety and resistance in its wake (Chang et al., 2017; Santoso et al., 2022).

Furthermore, this non-technical challenge may also be exacerbated by a lack of confidence in one's own technological skills, the creation of yet another barrier to embracing new systems such as SATUSEHAT (Venkataraman et al., 2023; Alkhaledi, 2023). This is compounded by the culture of healthcare settings, which often reinforces established practice, making the gaining of traction with new initiatives challenging without strong leadership and support (Wardani, 2024; Lazuardy, 2024). This need to deal with cultural resistance findings also shows that these are sentiments expressed in studies emphasizing the need for the addressing of cultural attitudes in conjunction with healthcare professionals' understanding of the benefits digital health technologies hold for both workflows and patient outcomes (Baradwan & Al-Hanawi, 2023; Santoso et al., 2022). So recent studies shared the need for collaboration among stakeholders in medical healthcare and its developers to ensure that the application meets the needs of all users and eventually its interoperability requirements (Hartono, 2024). These factors cumulatively influence the ability of healthcare facilities to conform to government mandates and achieve an effective digital healthcare ecosystem (Sulaiman & Bachtiar, 2024).

2.4. Evaluative Framework: Aligning SATUSEHAT with IPA Principles and Contextual Nuances

Based on the different literature explained above, to assess the compatibility of the SATUSEHAT platform with the values and normative expectation of IPA, and to evaluate the non-technical challenges with an understanding of cultural and contextual nuances, this study builds on a guideline framework. By combining different principles and concept that is sensitive to cultural nuance, structural limitation, and normative ideals within Indonesian context. The following table illustrate IPA principles and how it serves as criterion to evaluate the platform.

The table serve to bridge the theoretical framework with the research by including guiding questions, key indicators for each of those principles, that are then further categorized under assessment dimension. All of which, concludes with key scholarly sources that inform and justify the indicators used, drawing from the theory as explained in the previous section (e.g., Drechsler et al., 2024; Gamon, 2023; Kumar et al., 2025). Together these elements provide a culturally responsive and ethically grounded guidelines for evaluating SATUSEHAT’s platform alignment with IPA value.

IPA Principle	Guiding Question	Key Indicators	Dimension	Sources
Shūrā (Consultative Governance)	Were the development and implementation of SATUSEHAT inclusive and deliberative? (e.g. participation with end-users, health workers, and religious or local community leaders)	- Inclusion of front-line health workers - Religious/civil society engagement - Public feedback mechanisms - Transparent development processes	- Participatory governance - Bottom-up inclusiveness	Drechsler et al., 2024; Kumar et al., 2025; Gamon, 2023
Amānah & Mas'uliyyah (Trust & Accountability)	Does SATUSEHAT demonstrate stewardship over personal health data and system transparency?	- Clear data governance - Data privacy protection (e.g. GPS use concerns) - Responsible leadership with clear defined accountability structures - Ethical and transparent handling of user data	- Ethical stewardship - Clear responsibility and transparency - Public confidence and data responsibility	Gamon, 2023; Al-Kahtani et al., 2022; Drechsler et al., 2024
Focus on Public Value and the Common Good (Maqasid al-Shari'a)	Does SATUSEHAT serve the common good and ensure health benefits for all?	- Access to health services for rural/low-income users - Public health promotion (e.g. Vaccine and epidemic support) - Alignment with public health goals	- Protection of life & dignity - Contribution to Public welfare	Gamon, 2023; Drechsler et al., 2024

'Adl (Justice)	Is SATUSEHAT equitably implemented across digital and geographic divides?	- EMR access across hospital classes (A-D) - Inclusive policy rollout - Equity in usability for older/low-digital literacy users	- Equity in access and service - Procedural and distributive justice - Fair, non-discriminatory use	Drechsler et al., 2024. Sulaiman & Bachtiar, 2024
Contextual Embeddedness	Is SATUSEHAT grounded in Indonesia's cultural and religious context?	- Cultural adaptation of content- Collaboration with ICGIs - Localization of communication and service delivery	Cultural legitimacy Respect for religious and *adat* values	Drechsler et al., 2024; Subekti et al., 2024; Gamon, 2023
Decentralized & Cooperative Governance	Does SATUSEHAT integrate regional/local actors in implementation?	- Role of local health offices in onboarding - Regional customization of services - Community org (e.g., NU/Muhammadiyah) involvement	- Local empowerment - Co-governance mechanism	Drechsler et al., 2024. Chafik, 2023; Razak et al., 2024
Legitimacy through Shari'a Compliance	Does SATUSEHAT uphold Islamic ethics in its structure and user safeguards?	- Ethical guidelines (privacy, informed consent) - Support from religious institutions (e.g., MORA) - Protection of dignity in service delivery	- Ethical-spiritual alignment - Religious endorsement and acceptability	Gamon, 2023; Auda, 2008. Drechsler et al., 2024

Table 2. *This table outlines the key principles of IPA used to assess the alignment of the SATUSEHAT platform. Each principle is paired with a guiding evaluative question.*

3. Methodology

The purpose of this chapter is to provide a comprehensive view of the steps and methods used in this research, all of which are derived from the research question and the theoretical framework explained in Chapter 2. The chapter starts with an explanation of the research approach, followed by research design and data collection, in which details of how the semi-structured interview is conducted are provided. Then, following that, the chapter continues to share the data analysis and validation process, closing with research limitations and ethical considerations. These aspects are crucial to ensure the integrity of the research findings, which will be further explained in Chapter 4, and become a foundation to set the stage for the subsequent discussion.

3.1 Research Approach

The study uses qualitative research approach, situated within an interpretive paradigm, an approach that focuses on looking at meaning of an individual's lived experience, and interpreting a social phenomenon as seen on the perspective of the individual involved (Lyu, 2024). In retrospect Interpretivism posits that knowledge is bound contextually and arises from social interactions, making the qualitative approach particularly suitable for exploring more complex human phenomena (Lyu, 2024; Pathak & Thapaliya, 2022). This approach is chosen to fit the need of this research, to be able to capture the cultural nuanced and contextual setting lens. In this research context, therefore, as the goal is to explore how stakeholders involved in the development, implementation, use, and evolution of the SATUSEHAT platform perceive its alignment with the values and principles of IPA, the use of an interpretive paradigm seems suitable to be used to get a full interviewee's lived experiences.

3.2 Research Design

The design of this research is focused on qualitative research, with a case study research design, a research methodology that seeks a deep understanding of a situation, group, or individuals, beneficial to explore complex and nuanced social phenomena through an in-depth examination of specific instances or cases within real-life contexts (Yin, 2018, Thomas et al., 2021). According to Yin (2018), case study methodology is deemed suitable when phenomena and the context are not clearly defined and when insights that are detailed and rich require many interpretations.

The case selected for the study is the “SATUSEHAT platform.” As previously explained in the introductory chapter, SATUSEHAT is one big digital ecosystem that manages different digital products within it, but the SATUSEHAT platform has a role to be the main national EMR digital infrastructure (Kementerian Kesehatan Republik Indonesia, 2025). SATUSEHAT platform features are needed to let other products in the digital ecosystem function and deliver other extended services (e.g., SATUSEHAT mobile is the mobile application focused on the interaction with the user, but the SATUSEHAT platform is where they can manage the data) (Kementerian Kesehatan Republik Indonesia, 2025). Although its interaction and connection between the SATUSEHAT mobile and the SATUSEHAT platform are interchangeable.

Additionally, SATUSEHAT is selected and no other applications existing in the current public health space at this time with also important roles, such as the Mobile JKN, a digital platform created under the National Health Insurance (BPJS Kesehatan) to help manage insurance matters. This is because, the SATUSEHAT platform's role is more central, as it is envisioned to be the centre of Indonesia's post-pandemic health digitalization plan and as the answer to many fragmented health data management and applications.

Lastly, Given SATUSEHAT's platform extensive features, reach, and role in Indonesian public health governance serving Indonesia diverse citizens**,** a real-life context and cultural nuance, thus this research design enables the study to deeply examined and review the SATUSEHAT platform alignment to IPA, both as a system, and as an infrastructure through in this case multiple data sources and diverse perspective and analyse beyond numbers into a more cultural context. A crucial matter for Indonesia’s public health environment and diverse culture.

3.3. Data Collection

This research collects its data using semi-structured interviews and observation, as these techniques allow flexibility and great in-depth understanding to examine complex social phenomena while trying to understand the world from the point of view of the individuals (Kallio et al., 2016; Kvale, 1996). Before undertaking the interview, a set of standardized questions is prepared to organize the conversation, consisting of thematic prompts or open-ended questions

that align with the research question (Ruslin et al. 2022). In this study, the author follows the guided question as illustrated in Table 2 in Chapter 2.

After the guided question is completed, author also conducts observation and review of formal documents issued by MoH, other latest public declarations by the SATUSEHAT team, technical specifications, review of the website, platform, and even new regulations that relate to the platform as can be seen in Appendix 1. This is to help gain insight into the current platform goals, experience, design logic, and regulatory environment. As understanding context would be important when the interviewer discusses it with the interviewee, additionally, due to the application's fast updates, it is also important to be attentive to the new information. Next, once that stage is completed, the semi-structured interview is conducted. In total, 16 interviews were conducted with key stakeholders involved in or affected by the SATUSEHAT platform. Respondents come from related MoH personnel, MORA personnel, BPJS Kesehatan staff, hospital administrators, central health centre staff, developers of the platform, private sectors working in eHealth or EMR, local and religious organization members, and teams (especially those working under the social welfare and public health) and health and public administration academicians.

The 16 (sixteen) respondents and profiles were selected to also complement a set of five initial semi-structured interviews carried out in 2023 with the SATUSEHAT team and other associated eHealth and MoH teams. The respondents were re-engaged, given context, updates. These previous interviews were undertaken initially for an associated study but align closely with the objectives of this thesis, i.e., to see technical challenges, on SATUSEHAT's creation and early-stage rollout in 2023. With the inclusion of these interviews, the study has more longitudinal depth reviewing research from 2023 to 2025, enabling this research to trace out opinions at different points in the development of the platform. Their inclusion allows for a more informed appreciation of early stage of the application in 2023, which focuses more on the technical aspect, and the 16 complements with all the additional updates alongside non-technical and cultural nuances, totalling 21 (twenty-one) interview and data is collected.

3.3.1. Semi-Structured Interview Process

Interviews were conducted one-on-one, mostly via video conferencing tools (given the stakeholders were in various locations) such as Zoom, Google Hangout, Microsoft Team, with one interview conducted with two colleagues working together, this interview is done together in a shared setting. Despite the online setting, the interviewer tried to encourage interviewee to use verbal and non-verbal cues such as nodding or smiling to create a conversation environment that are comfortable, in hope to give a more in-dept analysis and better flow of conversation as recommended by Ruslin et al. (2022)

All interviews were conducted in a language comfortable to the participant; most were in Bahasa Indonesia with some use of English technical terms, other uses a mix between Bahasa, and English language. The author obtained permission to record the conversations for accuracy, notes and shared to ask permission before the interview begin. The recordings were later transcribed verbatim. For non-English interviews, the transcripts were translated into English carefully to preserve meaning, especially for culturally nuanced, some uses technical term in which the author carefully research, review, and reconfirm.

3.3.2. Selection and Profiles of Interviewees

This study employed a sampling strategy by conducting purposeful sampling methods, a non-probability sampling technique used for qualitative research to select participants who can provide rich relevant and diverse information necessary to address research questions effectively. Contrasting to random sampling often used for quantitative research, mostly used for statistical representation, purposely sampling that are employed for this research are focused on finding and obtaining insights from specific individuals who possess characteristics or experience central to the study (Suri, 2011).

In this research context, given the multifaceted nature encompassing technical infrastructure, product design and product experience, administrative policy, clinical application, local organization involvement, and at its most central academics and government it was therefore essential this research to engage experts to those profile background to ensure the richness and credibility of the insights. Participants were engaged through at first mutual connection

engagement, professional networks, institutional referrals, in which afterwards also evolve to a snowballing technique (Kirchherr, J. and Charles, K. 2018) where participants recommended its college, friends, or connection to join the research.

According to Fugard et al. (2015), the number of interviews required for qualitative research depends on theoretical saturation, which occurs when no new themes emerge from additional data collection. Studies suggest that meaningful patterns can be identified with as few as six interviews (Fugard et al., 2015). Overall, a total of twenty-one (n=21) respondents were interviewed - sixteen in 2025 and five in 2023. All those interviewed received an informed briefing regarding the nature and scope of the study prior to volunteering participation. The interviewee has agreed to share insight confidentially, for each of those participants is referred to using a coded identifier as further explained in ethical consideration below.

Participant ID	Organization	Role
IP-01	Islamic NGO	Health Policy Chair Board Member
IP-02	Islamic NGO	Community Empowerment Officer
IP-03	eHealth Practitioner and Islamic NGO	Co-Founder of an EHR startup and Board Member of Islamic Organization
IP-04	Public University	Head of Population Health Informatics and Researcher of Health Informatic
IP-05	Public University	Assistant Professor of Health Law
IP-06	Public University	Dean of Law Faculty and Governance Digital Health Innovation Researcher
IP-07	Islamic University	Director of Research and Publication
IP-08	Ministry of Religious Affairs	Inspector General
IP-09	Ministry of Health	Legal staff at Ministry
IP-10	National Health Insurance	Technology and Cybersecurity Officer
IP-11	Ministry of Health – formerly with the DTO team	Communications Officer
IP-12	Ministry of Health – formerly with the DTO team	Product Lead
IP-13	GovTech Centre and Ministry of Health – formerly with the DTO team	Head of Engineering
IP-14	Private Sector	eHealth Business Strategist

IP-15	Islamic NGO	Secretary of Association of Lawyer of Islamic Organization
IP-16	Ministry of Health - Formerly with the DTO team	Product Designer Manager
IP-17	Islamic University	Law Researcher
IP-18	Medical Health Centre	General Practitioner
IP-19	Public Hospital	Emergency Doctor in a big regional hospital
IP-20	Dental Practice	Dentist
IP-21	Hospital/Islamic NGO/Private University	Lecturer/Current Deputy Secretary in Public Health within Islamic NGO's and Former Head of Hospital

Table 4. *The composition of interviewees.*

3.4. Data Analysis and Validation

Thematic analysis is a common methodology in qualitative research, with the purpose of identifying and explaining patterns of meaning in the data. This research follows a method as guided by Braun and Clarke's six-phase framework. It outlines a systematic six-step process aimed at maintaining rigor and maximizing theoretical contributions.

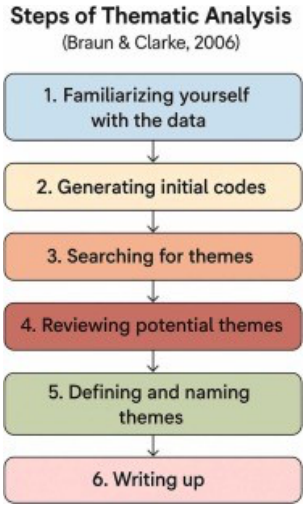

Figure 1. *Six-step process for thematic analysis. Graphic created by Ahmed, et al. (2025) "Using thematic analysis in qualitative research".*

The first step of thematic analysis guided by the six-step process is done by first making a transcription of the interview and familiarizing with the data. Afterwards, an intensive engagement with the material is done to fully comprehend the result of the data collection. While doing this research also conducted an identification for preliminary themes. In this stage because most of the interview is conducted in Indonesian language (Bahasa Indonesia) a translation to English language is also being conducted. Initial notes were made regarding recurring challenges, contradictions, and normative concerns that stakeholders expressed about SATUSEHAT. These informal insights laid the groundwork for the next stage of analysis. Following Braune and Clarke framework the second part of this research goes into generating initial codes after getting more details finding.

Coding was conducted manually using Microsoft Word and Excel, whereby textual data were segmented into meaningful units. These units were assigned descriptive codes representing specific issues such as “data interoperability,” “lack of training,” “consultation gaps,” or “privacy concerns.” Particular attention was paid to semantic repetition, intensity of expression, and contextual embedding within institutional roles. This research also looks at quotes that are emphasized and repeated. This research also highlighted those keywords into different sets of highlight colours, those that are similar are coloured in the same colour.

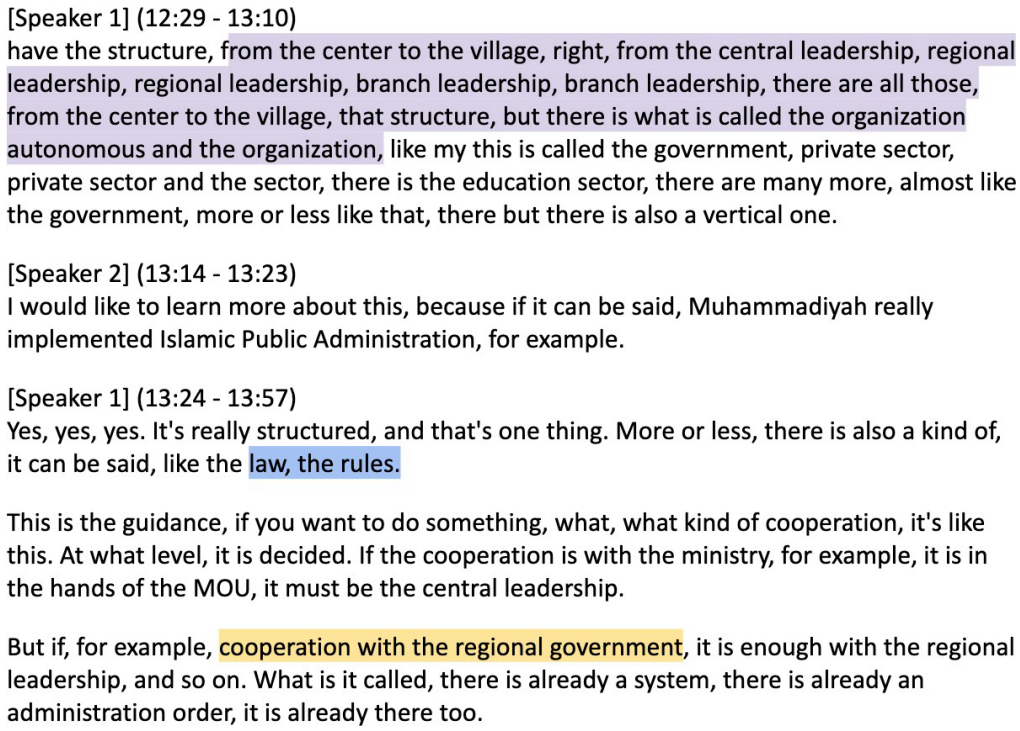

Figure 2. *Illustration of coding identification conducted early in the second step of the process.*

To illustrate the process in the previous chapter, figures 2 can be seen as an example of how the review was done. The process uses colour to help researcher visually cluster similar codes, the process highlights repeated references to ethical terms such as *amanah* (trust), or to technical terms such as FHIR, and general comments that is repeated (e.g. bottom up). This stage focused on generally low level and early abstraction that focus on capturing diverse participant experience while also getting to know the detail. The third to fifth stage focused more on interpretive process of the codes, this process is iteratives and review is done in a way that captured both descriptive and analytical distinction. The process is done manually in Microsoft Excel that allowed for a horizontal comparison, across transcript and vertical deepening within individual quotes.

Themes were initially emergent during these steps but subsequently refined through alignment with the IPA framework elaborated in Chapter 2. As can be seen on column 4 illustration below on this step the focus is now focused and shifted more into an in-depth investigation of codes to

abstract analysis via theme development. The themes generated from the interviews will be systematically mapped to the theoretical framework that was already outlined in chapter 2. This ensures analytical consistency and allows each theme to be critically examined through the lens of IPA. By aligning emergent patterns with these evaluative criteria, the research links qualitative findings with the overarching theoretical framework and enhances the interpretive depth of the analysis. The theme then eventually will transcend the notion of being simple recurrent items, as more of a patterned analysis to eventually connect with each other to answer the research questions.

Exact Quotation	Keywords	Code	Theme
"Public should be informed and have their opinion heard before SATUSEHAT gets fully rolled out."	Consultation, Public Involvement	Shura | Participation	Shura (Consultative Governance)
"Users were not aware how their data was used, there is concern that it's not secure or could be misused."	Data Security, Privacy	Amanah | DataTrust	Trust and Accountability
"This system is supposed to make healthcare more accessible, especially for those in remote areas."	Healthcare Access, Equity	Maslahah | Equity	Maslahah (Public Welfare)
"Many rural hospitals do not have the infrastructure needed to run SATUSEHAT properly."	Infrastructure, Rural Disparity	Adl | Access Inequity	Adl (Justice)
"The platform needs to adapt to local cultural practices and traditional beliefs."	Cultural Sensitivity, Local Custom	Contextual Embeddedness | Adat	Contextual Embeddedness
"When people complain about login errors, they are not responded to. It's frustrating."	Responsiveness, Technical Issues	Service Ethic Responsiveness	Service Ethic
"We were told what to do, but no one from the community was consulted or asked."	Top-down Implementation, Exclusion	Shura Deficit	Shura (Consultative Governance)
"What if this data falls into the wrong hands? There are no clear safeguards or accountability."	Data Misuse, Accountability	Masuliyyah Gap	Trust and Accountability
"The app is too complex, older users don't know how to navigate it."	User Experience, Accessibility	Maslahah Design Barrier	Maslahah (Public Welfare)
"Rural users feel left out, there's no help for them to understand how to use the system."	Marginalization, Inequity	Adl and DigitalDivide	Adl (Justice)
"We need features that recognize our local needs and practices. Not everything works the same here."	Local Relevance, Traditional Systems	Embedded Governance	Contextual Embeddedness

Figure 3. *Author Illustration of theme development after reviewing the keyword, and the coding stage is completed in Microsoft Excel.*

Once the definition of theme is done the research review again the quotes and start to develop themes into a cohesive analytical narrative. Rather than merely reporting recurring topics, the write-up aimed to offer interpretive insights into how the digital governance of SATUSEHAT reflects or diverges from the normative ideals of IPA. Themes were presented in relation to their theoretical significance, empirical support, and implications for public sector reform in culturally plural societies. The figure below shares the process of the analysis done in this stage. Lastly the research ended with bring together all observations made from the data to written paragraphs.

Theme	Quote/Observation	Commentary/Interpretation	Alignment with IPA Principle
Accountability (Amanah)	Concern over centralized data storage and the associated security risks in managing citizen health data.	Reflects deep concern for safeguarding data integrity and citizen trust, a core tenet of amanah.	High
Transparency	Gaps in patient medical history accessibility across regions, impacting treatment continuity.	Lack of transparency and data sharing undermines systemic coherence and informed medical decisions.	Low
Shura (Consultation)	No clear help desk or responsive authority to address e-health system issues.	Lack of user feedback loop lack consultative ideals of shura.	Low
Participation and Empowerment	Digitization of health was mostly top-down with minimal bottom-up input.	Missed opportunities to empower local actors and professionals in shaping health innovation.	Low to Moderate
Digital Inclusion and Literacy	Many systems operate through VPN/LAN access and training is passed informally through colleagues.	Digital access and literacy are uneven, creating operational inefficiencies and inequalities.	Moderate

Figure 4. *Author illustration of author review and analysis of the themes to the existing IPA principles in Microsoft Excel.*

3.5. Research Limitation

This research is done acknowledging that there are possible limitations. First the findings of the interview could be biased arising from stakeholder subjectivity, as SATUSEHAT are being seen in different perspective and in this case might be specific to their positions and interest; for example, perspectives of a government staff and medical staff are motivated by different aspects, developer may emphasize more on the technical aspects of the platform, while medical staff might focus more on practical examples they experience in the field. Because the sample size of the interview is 21 persons, relatively small compared to the multitudes of users and administrators involved, their opinions, be it insightful and very in-depth may not capture the whole varied sentiments of existing stakeholders.

But despite this limitation this research has managed to mitigate this risk, by trying to identify possible persona as can be seen in the selection interview section above at 3.3.2. Most of the profiles are also quite relatively seniors and can see a bigger overview of the platforms, and within it are able to explore very rich insights that qualitative data might not be able to illustrate. Additionally, experts' opinions were also employed for this research to validate conceptual linkages. The involvement of academic experts in the field can help fine-tune the framework and bring more reflection that legitimize the interpretation and concept being used for this research.

Another limitation is this research is very context specific and may not be applicable as universal evidence without contextual verification. Focused on Indonesia, and a platform that could continue

to evolve, comparison with other countries or programs may turn out otherwise inapplicable. It does however offer a new perspective and give a more general overview for those with similar traits in other regions. The boundaries and scope could be used as a basis for comparative analysis for future research. Research on other nations, Muslim majority or not, could take and be investigated as to find best practice between nations to improve and integrate better and deeper analysis. Future research could also integrate quantitative measures (e.g., user ratings or health outcome analysis) with qualitative findings to allow for a deeper analysis.

Thirdly, while doing this research, there are a lot of things that have changed in Indonesia's political and structural landscape, from new leadership and president elected, to new regulations being established including much related matter such as the new regulation (e.g. the new law on mandatory electronic medical record The Ministry of Health's Regulation Number 24 of 2022), to even new programs, structure within the digital transformation effort the country have. Even in this case also on the shift and changes in staff within the ministry, that were even being interviewed. Therefore, this research also considers the different multiple layers of changes that happen as part of the ever/changing living innovation efforts and could be a basis for future research.

3.6. Ethical Consideration

The study considers ethical aspects in this research inherently important, as such prior to interview, all participants received information on the study purposes, procedures (how data is being handled), risk and benefits, etc. The researcher also share that the data would be managed, and their voluntary participation was formalized through the provision of either verbal-recorded or written consent as can be seen in appendix. To ensure their protection, strict measures were implemented to maintain anonymity and confidentiality, including the assignment of coded identifiers instead of personal names. This is implemented as part another key ethical principle in qualitative research is ensuring confidentiality of interviewee (Arifin, 2018).

4. Result and Analysis

This chapter presents the result of the qualitative analysis of the research on the SATUSEHAT platform through the lens of IPA. Building from the methodology and theoretical framework previously explained, this research draws insight from the semi-structured interviews and generally examines the extent to which digital health platforms in Indonesia align with the core principle of IPA. Each section below integrates the anonymized interview evidence (translated quotation), based on each of the principles. Following general analysis by principle, the synthetic and summary discussion of the research and insight will be continued in the next section, Chapter 5.

4.1 Shūrā (Consultative Governance in SATUSEHAT's Development)

Shūrā in IPA stresses the importance of active consultation, extensive participation, including the community, and mutual accountability in the decision-making process (Al-Rasyuni, 2012; Drechsler et al., 2024). IP-17 an expert in Indonesian public administration and public administration law also mentioned that shūrā implementations are also known as meaningful participation, in administrative law, and it is a priority in the formation of public policy and digital innovation in Indonesia. "If the community's meaningful participation has been implemented by the government, I think there is no obstacle in the implementation [of digital innovation]" (IP-17, personal communication, 2025).

The SATUSEHAT application has shown to have extensive collaboration with experts. IP-11 and IP-22 explained that the platform has cooperated with many public administration, legal experts, ICT experts, and even cybersecurity experts (e.g. BSSN). In addition to that the platform has embraced global standards; and followed ISO 27001 and ISO 27799 standardization process, indicating a commitment to expertise-led development. Another interviewee also highlighted that there are ongoing deliberations between institutions within the government, especially those that are key in public health management. "A joint meeting between BPJS Kesehatan (the national health insurer) and the MoH about interoperability for the JKN system and SATUSEHAT has actually been done as well" – (IP-10, personal communication, 2025). According to this participant, reaching a consensus on how to integrate or possibly merge the SATUSEHAT app

with BPJS's existing Mobile JKN app was recognized as essential, given that both systems serve the same population (IP-10, personal communication 2025).

However, despite these, SATUSEHAT falls short of the ideals of the shūrā principle, especially in engaging the public, be it for public feedback mechanism or transparent development processes. Several interviewees (IP-05, IP-06, IP-09, IP-14) pointed out that public scepticism still remains on using SATUSEHAT digital product, in part due to concerns of privacy infringement, cybersecurity issues, and a lack of transparent communication currently, or during the PeduliLindungi era. One participant further explained that issues of privacy, data breaches, and the fragmentation of medical records are the key issue of this trust as IP-05 mentioned. In fact, some hospitals prefer to use private storage "Even large hospitals don't necessarily trust the government... some use private storage like Oracle." — (IP-14, personal communication, 2023).

Most participants noted that while some coordination efforts emerged, such as regional onboarding sessions and national health data forums, a holistic alignment among institutions was missing. One technical expert commented, "There was no agreement in writing amongst Kominfo [Ministry of Information and Technology – the previous developer for PeduliLindungi] and the Health Ministry to use PeduliLindungi as a foundation. That was a lost opportunity." (IP-06, personal communication, 2025). The level of cooperation among district and national health offices shows different responds. Local health offices in some districts managed to provide support, yet in other areas, their comprehension of the operational dynamics of SATUSEHAT was poor. One interviewee recalled asking for support and getting told, "Work it out among yourselves—we have not been trained either." – (IP-20, personal communication, 2025). This describes a vertical communications breakdown. Showing evidence that there is still lack of public consultation, especially to the front-line health workers.

IP-18, IP-19, IP-21 supporting that sentiments also indicates that most of the time the medical team and health center rely a lot on private online messaging platform for issues that arises on the platform. While IP-18 indicates that technical problem issue usually will be fixed in quite a fast time, most of the time the team didn't even know who to contact. IP-21 on the other hand has shared that most the engagement comes from their own hospital or organization, initiatives are

shown to be push from the grown by themselves and then the team will respond. IP-01 (2025) also underscored that “medical professional associations and other local participation were “not too strong” in the process [of development or implementation]”. Some effort can be seen from developer to engage with stakeholders, video, guideline, instruction even roadshows and technical consults can be seen on the website. However, one interview highlight that these efforts were often seen as transactional or episodic “They more act as a sales team than as collaborators*”* – (IP-05, personal communication, 2025).

Local community leaders, religious and civil society groups were seen to have some level interaction during the beginning as stated by IP-04. However official partnership to promote and propagate digital health, little proof of joint efforts was seen for SATUSEHAT, even if there is most of them are focused during the COVID-19 era or maybe to selected hospitals. Islamic organizations, as pointed out by one interview, "could be used to create cultural legitimacy, but were not actively utilized." – (IP-01, personal communication, 2025). Furthermore, despite its administrative authority, MORA also shown to not play a noticeable role in design, or even more importantly of SATUSEHAT, according to interview respondents IP. This is especially noteworthy considering that MoRA has worked with other ministries in the past to support national efforts—most recently in the case of COVID-19 response. Respondents did not mention religious leaders or MoRA-organized programs as part of the public health digitalization program. ‘We coordinated with Kominfo [Ministry of Technology], BSSN, and BPJS — but I don’t recall any coordination with Kemenag [MoRA]’ – (IP-09, personal communication, 2025), This suggests that an opportunity may have been missed for the collaboration and cooperation with moral- religious institutions. The religious instructor network and institutions connected to MoRA could have provided a vital channel for educating the population on issues related to data trust, ethical concerns, and public welfare regarding the system, particularly in zones of low governmental trust but high religious influence.

As for participatory in the policy making surrounding digital health initiative, and SATUSEHAT platform, evidence shown that there have been sandboxes program created by the MoH, IP-09 mentioned this program. Upon further research, this research found that the regulatory sandbox by MoH is created as a testing environment were digital innovation, like wearable devices,

telemedical technology can be trialed on real world but is under the close monitoring of MoH. Originating from a fintech policy, the MoH through Ministry policy in 2023 No. HK.01.07/Menkes/1280/2023 calls for application in July 2024 for innovators to join their program, in which the implementation was hoped to support executions of telemedicine data integration as well with SATUSEHAT platform (DTO Kemenkes RI, 2024; Kementerian Kesehatan Republik Indonesia, 2024). By July 2024, it is reported that 48 applicants submitted, and 15 was selected for testing (Kementerian Kesehatan Republik Indonesia, 2024), in which the result of the sandbox findings were reported to feed to new health regulation expected to be launched in Mid-2025 (Kementerian Kesehatan Republik Indonesia, 2025). As such, there seems to be a level of participatory governance in the policy making space be it limited and still at the early stage.

However, beyond policy making, IP-16, involved in the platform design, describes the lack of user-centered research capacity beyond the MoH, most of them are centralized effort only from the team "The research is mostly from our team... they [other department, or other hospital team and staff] don't have their own research team." – (IP-16, personal communication, 2025). This indicates that citizen needs and feedback were not systematically captured contradicting the participatory spirit of shūrā.

A different respondent noted this might have caused a missed opportunity as there exists an extensive community organization that has national outreach and influence (e.g. of Local Islamic organizations, such as Muhammadiyah or NU). In the interview the participant quoted, they even have the reach of at least half of the population, and now recently under the new presidential regime, their influence within the central government is extensive where "70% of the current ministry have an affiliation with us" (IPA-02, personal communication, 2025).

But while shūrā-like consultations are lacking, one interviewee shared that the ideal intention of the innovation follows the principles of IPA as noted by IP-02. The respondent highlighted "At the current stage in Indonesia, most digital innovation initiators act more like firefighters, focusing on what problem we have later, but making sure things actually roll out first" (IP-02, 2025). The respondent also highlighted that while perhaps most innovation in Indonesia does not strictly

follow principles such as shūrā, during policy making or initial planning, at least those affiliated by the Islamic NGO or local organization are more likely inclined to follow the principle. In fact, albeit not as extensive as SATUSEHAT, existing public health programs created by Islamic NGO such as Muhammadiyah showed that they do actively conduct shūrā-like engagement “MPKU must include stakeholders and citizens in decision-making. It’s part of our governance. We do discussions and hearing sessions before pushing policies at Muhammadiyah hospitals.” (IP-21, personal communication, 2025)

After finding out the alignment, interestingly the interview also highlights some insight on why shūrā principle is lacking in SATUSEHAT, and even to the general public health digital initiatives in Indonesia. One of the participants stated that hospitals in Indonesia generally see their IT department as a cost-center, and in their perspective "hospital view technology as something to be pressed down in its cost, in fact most of the departments are operated under the financial department, because they can monitor and pressed to cut the cost that way” — (IPA-03, personal communication, 2023). This is also supported by another interviewee IP-12 that mentioned "Collaboration with hospitals is difficult… some don’t want to participate even if it's regulated. The cost to integrate systems is also a barrier." — (IPA-12, personal communication, 2023)

Supporting that sentiments, sectoral silos and ministry-level fragmentation pose important impediments to consultative governance were found. IP-03 mentioned that interoperability between institutions is hard, because it hindered by “sectoral ego,” referring to the fact that having interoperability could cause some private hospitals to lose patients and therefore profits. Some hospitals in Indonesia see patient data as competitive assets, hospitals treat patients as economic resources rather than patient owned rights. They resist data sharing to protect pricing opacity, where patient centric data management would allow patients to “shop around” and compare cost, potentially undermining the high margins of private hospitals. A direct opposite of shūrā “Let’s say a patient needs surgery. In one hospital it costs 80 million rupiah, in another just 30 million. If patient data could be accessed everywhere, patients could compare prices. Expensive hospitals don’t want that to happen.” – (IP 03, personal communication, 2025). IP-09 IP-13, and IP-14 also highlighted also “sectoral ego” issue, additionally they further elaborated the existing race for power among current Indonesia government agencies in the exchange of information. IP-13 even

points out that the biggest challenge therefore the SATUSEHAT does not lies in technical issues but in institutional resistance and bureaucratic inertia: "Actually, the challenges are more on non-technical matters... in other sectors, for example in the DKI Regional Government, it is difficult for us to carry out digital transformation... with high sectoral egos" – (IP-13, personal communication, 2025).

An interviewee even mentioned the procedures and bureaucracy that made the implementation lengthy (Interviewee IP-09, 2025). Another interviewee with broad government IT experience noted that *resistance to change* is common at all levels of government — "it's the same everywhere, even in regional governments… politics can interfere, some units support us, others do not" (IP-10, personal communication, 2025). This indicates that getting all internal stakeholders, in this case even among the ministry, on the same page was a challenge. The success of shūrā (consultation) internally depended on overcoming silos and political turf wars.

For instance, if some officials saw SATUSEHAT as threatening their legacy systems or authority, they might slow-roll cooperation as indicated by IP-06 (2025). This governance challenge is subtle but crucial: it requires change management strategies, strong leadership signals, and perhaps incentives for compliance. As such the current Minister of Health was described as "very supportive" and providing good leadership (IP-03, personal communication, 2025), which is a positive factor. But as that interviewee added, "if the subordinates aren't committed, it's difficult". Aligning the entire bureaucratic apparatus with the vision — essentially achieving "komitmen bersama*"* (collective commitment, in his words) — is necessary for smooth implementation. In IPA terms, this speaks to the need for unity and sincere cooperation (which shūrā fosters). Without it, the implementation can suffer from fragmentation or passive obstruction.

As such to overcome this an endeavor to learn from international peers as IP-11, IP-12 noted, has been considered. In fact, a call for inclusivity, more involvement, more patient centric, and more contextual setting for digital health innovation was also mentioned by interviewees. As IP-09 mentioned "We cannot copy and paste NHS or Western privacy models directly into Indonesia. Here, privacy is often a family matter, not just an individual… We need to stop simply annexing Western models. We should be proud to develop our own eHealth systems" IP-08 (2025) also stressed that the collaboration could be more extensive to even other ministries including in this

case perhaps also the Ministry of Religion “If the Ministry of Religion had been involved from the start, perhaps the public would have been more trusting... But now there is no structured communication”.

4.2 Amānah (Trust and Accountability in Managing Health Data)

In the context of IPA terms amānah or traditionally understood as trustworthiness encapsulated the ethical and moral responsibility placed upon leaders, civil servants, and institutions to act in a manner of integrity, transparency and accountability (Al Kahtani, et al., 2022). Leaders are seen as someone in the position of power in which their actions are seen to owe a debt to both the community and to God. They have legal and moral duty therefore to have a strong commitment on delivering its responsibility (Azad, 2024). In the case of SATUSEHAT therefore main analysis focus to the MoH, developer, and other institution who are responsible to manage it, particularly over the personal health data and system management. As can already been seen in the previous quotes that were shared in section 4.1 SATUSEHAT is shown to have a strong commitment to technical and legal integrity, which is an important element of this principle. ISO 27001, ISO 27799, regular check with BSSN (IPA-11; IPA-12).

One even highlighted that “Personal data is amānah, not property. it is a trust granted to the state by the people*”* (IPA-06, personal communication, 2025). A sentiment that was also underscored by IP-07 that stated amānah extends beyond trust to include accountability; it should be a moral foundation. IP-04 also stated that personal health data is even more sensitive than financial data. As such as IP-05 highlighted there’s an emphasize and need to teach public office about this huge responsibility, seeing the position (to manage the data) not as a privilege but as a burden of amānah, requiring transparency and consultative leadership. IP-17 highlighted, as he mentioned "Everything we do is worship... we as caliphs... that is our duty in whatever our profession".

As guided by the guiding question elaborated in section 2.4 of chapter 2, this research found for data governance, there’s seemed to be area in which are filled with gaps. As IP-05 (2025) mentioned, one of health law legal experts, that are often consulted the ministry and parlements about health-related legislation for the country, on regards to the processing of data and information by third parties, the current health law in Indonesia might result in integrity comprise

resulting in medical misinformation. More specifically the Law No. 17 of 2023, an updated to the Law No. 36 of 2009 that covers comprehensive areas such as healthcare governance to even medical technology, health financing and health information system. IP-05 (2025) also mentioned that most of medical legal suits, are also about informed consent issues, indicating there's a gap in the current data governance in the medical sectors. Hence many of the interviewees shows concern to the current health data management and digital security infrastructure Indonesia have. IP-05 (2025) even further highlighted "our data keeps leaking – BPJS Health got breached, the state electric company's data leaked, even the Cyber and Crypto Agency (BSSN) was hacked. So how will we secure people's health data if it's held by third parties or the government?". A sentiment that was further supported by IP-14 (2023) who in 2023 also indicates an issue in data leaked problem.

Building on top of that general lack of trust towards general health data management, specific for SATUSEHAT, one interviewee highlight the issue on lack of public knowledge to the SATUSEHAT platform, "the level of public literacy about the application or even platform for the SATUSEHAT [digital ecosystem] is still relatively low, and that is impacting on public trust in it" (IP-05, personal communication, 2025). IP-01 also even highlighted that they didn't even know the extent of the SATUSEHAT platform capabilities during the interview, despite the organization itself manages more than 100+ hospital in Indonesia. From this observation, we can infer that a large percentage of the population even those very much related to the intended user is not well informed about SATUSEHAT platform, and its advantages, resulting in indifference, suspicion, and doubts. One respondent agreed that "awareness wasn't communicated well. It is beyond the platform's capacity – hospitals were supposed to inform patients to download it, yet that hasn't been done extensively, and marketing activities were poor" (IP-16, personal communication, 2025).

Coordination of marketing, data governance, and accountability between agencies seems lacking, while its quite clear MoH takes the lead especially since COVID-19. But there's seems to be a lack of intra ministerial information amongst different departments. As one participant pointed out in the interview "they [the other ministry] don't share data. Even during COVID, they won't

aggregate" (IPA-09, personal communication, 2025). The fragmented nature of this bureaucracy largely hinders collective responsibility or even clearly defined accountability on the data.

However, regarding the data management in itself and data privacy technical capability, as IP-16 (2025) illustrated there's seems to be a secure process on processing data information. There's an offline security measure (offline KYC) that forces user to verify the SATUSEHAT features. While it does seem more inconvenience than the online KYC which has become the norm to many other fintech application in Indonesia. Offline KYC ensures more data privacy protection. However, interview found that, this becomes an issue to user accessibility and experience. As one interview mentioned that many potential users found the KYC process onerous, because the only way to verify the account is to go to hospital "if I'm not sick, why must I go to a hospital just to verify my account?" (IP-16, personal communication, 2025). However, interviews findings, did not indicate a fully transparent consent process for patients during the initial process of health data recording, while its not related fully to the SATUSEHAT platform, the data managed and governed by SATUSEHAT does not seem to have a feature on revoking consent, or at least it wasn't clear enough. Presumably, the current process seems to indicate that by going to the doctors, and get checked by doctors, one already agrees to terms needed, but given low literacy, true informed consent could be questionable. Ethical alignment would require clear communication about what data is collected, who can see it, and perhaps giving users choices (for instance, the ability to opt in or out of certain data-sharing features).

Hurdles such as that combined with lingering memory of previous data leaks could feed to the narratives that SATUSEHAT features is cumbersome to access and still generally not safe, even if the reality is that MoH have taken many extra additional layers, or even improved process (as can be seen on pursuing the certification). Additionally, this effort is even further supported by the new Law of the Republic of Indonesia No. 27 of 2022 on Personal Data Protection, which is highly inspired by GDPR-style framework, that enacted the mandatory recognition and protection of data privacy and data protection. While the law in 2023 is still being socialize, since October 17th, 2024, two years after the law has been fully operationalized.

Another ethical aspect is how to foster public trust without veering into coercion or misinformation. During COVID, PeduliLindungi's usage was mandated for travel and venue entry,

effectively forcing adoption. SATUSEHAT, in contrast, is voluntary. Ensuring ethical promotion means avoiding the heavy-handed tactics of the pandemic era while still conveying urgency and benefit. So far, the strategy like offering free health checks is ethically sound (it's an incentive rather than a mandate). However, if uptake remains low, policymakers might be tempted to require usage for certain services, which could raise ethical questions about voluntariness. Additionally, combatting any misinformation about the technology (e.g., if rumors spread that it exposes private data) is a responsibility the MoH and faces in its communications. Maintaining honesty and clarity in public messaging is part of accountability. Interviewees so far still implied that communication was a weak point (minimal marketing, etc.). As such, the current challenge is to significantly improve public communication in an ethical manner – being transparent about both benefits and risks – to build trust.

Despite all of that, further technology, encryption, data management, on a technical level seems to be monitored closely. The team's deliberation on whether to use advanced technologies like blockchain for security. As IP-11 (2023) indicates the complexity of balancing innovation with practicality is needed. IP-12 (2023) also further shared "we wanted to run fast with blockchain, but our stakeholders' readiness varies" a sentiment that captures the tension: cutting-edge solutions exist for data security. However, as IP-21 (2025) highlighted not all hospitals or local IT teams can implement them, beyond whatever the reason be it financially, capability, to even willingness. Ultimately, efforts on managing data, goes beyond the responsibility of the central government alone in this case MoH. Joint effort must also come from the hospital as well, in this case however, they seem to still lacks action that shows accountability to this. But, with the new regulation on the mandating EMR starting to get push since 2024, this might be more seen soon in 2025.

4.3 Focus on Public Value and the Common Good (Maqasid al-Shari'a)

SATUSEHAT platform generally are aimed to unified health data in Indonesia, where all from the central hospital to even rural areas can seamlessly connect (Mitaart, 2024). Maqasid al-Sharia focuses on ensuring the laws, policies are practiced for the greater good. As such in the context of SATUSEHAT platform areas such as access to health services, public health promotions, and alignment to public health goals is reviewed. Especially in areas that are rural

IP-01 highlighted that the SATUSEHAT initiative is deemed as an effort to achieve common good and for the improvement of public health showing alignment to this principle, however he emphasized “all that is left is trust”. “If it's a good program then it caters to Maslahah [public welfare] and as such the community will support it” – (IP-01, personal communication, 2025). IP-17 (2025) also highlighted that in the context of IPA SATUSEHAT platform and digital ecosystem has potential to truly improve access and health services, and that is for the common good. His statement explains that equitable access is the goal that should be achieved for digital transformation, so SATUSEHAT depending on how well it addresses disparities, and outcome can be seen focusing on public value and the common good of the community. Culminating all the statements above IP-05 (2025) highlight the condition and contribution however boils to how-well the implementation is, as he underscores that technical design alone is not enough but operational integrity and how it is promoted, executed, and accessed is equally important.

As such while, many interviewees have emphasized that the SATUSEHAT platform does serve for the common good, execution of it still seems to leave many gaps, and these however sadly as IP-18, IP-19, IP-20 acknowledge has been found to be full of gaps. Areas such interoperability, technical supports, to even feedback mechanism seems to be lacking. IP-21 (2025) however stated that the SATUSEHAT does do aligned with public health goals, and in fact the top-bottom approach makes it easier for them to aligned themselves to these principles, all those lefts is IP-16 mentioned as well, how the hospitals and front-line practitioner can co-promote the applications and benefits of the platform. Legitimacy of this principal rest not in data collection alone, or interoperability in one area only, but in public health gained from that as IP-04 (2025) mentioned “What is the point of collecting data if it doesn’t get used to improve health programs? The public must feel the benefit.”. A sentiment supported by IP-21 (2025) that mentioned “If the goal is to strengthen public health, then digitization is very helpful. But we need to make sure it’s not only helping the management but also the patients.”. One participant even highlighted that in today governance in Indonesia, technology-enabled public service is starting to be a norm, as IP-21 (2025) explained, ″our daily activities, in each unit... are recorded... all of that using technology". This systematic and transparent approach represents a deeply ingrained service commitment, where welfare activities are supported by data, accountability, and digital infrastructure.

4.4 ‘Adl (Justice and Fairness in Access to Digital Health)

The implementation of SATUSEHAT across Indonesia reveals structural inequities that challenge the principle of ‘adl, particularly in terms of access across marginalized regions and rural areas in the country. IP-21 highlighted that there are foundational, countrywide technical barriers. “The problem is the internet connection in the area can't be stable. So, there is a delay between the service and the input in the electronic medical record.” This points to the reality that digital infrastructure in Indonesia, basic needs are lacking, and as such, the core function of SATUSEHAT, which is the integration of standardized health records, is compromised for the very populations that might gain the most from improved public health services.

Further reports by IP-14 (2025) further highlight the disparity of digital maturity in hospital EMR systems. Hospitals with classes below B have been shown to have budget constraints, capability issues, and even resistance to the use of EMR. "At least there are 6 hospitals among the 125 hospitals that we managed [Islamic NGOs] that actually built electronic medical records themselves, actually not only electronic medical records but also digital systems in the hospitals." — (IPA-21, personal communication). Further supporting this sentiment, many other interviews also shared the disparity in participation where some big provinces or big hospitals were actively seen to be on-boarded to SATUSEHAT, but smaller clinics and many outer islands lagged and can create an inequity of patient continuous care. IP-05 (2025) wryly contrasted Indonesia’s situation “Estonia has 1.5 million people and is leading in e-health; here we have 270 million across thousands of islands—it’s just different." The scale and infrastructural variance and local needs (e.g., internet connectivity, hospital IT capacity) mean that fairness in access is a real concern.

IP-03 (2025) further emphasized, as mentioned previously, how rollouts for EMR integration in Indonesia are hindered not only by technical issues but also by sectoral egos and economic motives. As such, equity in access, services, and fair use seems to be lacking for the SATUSEHAT platform. It is, however, as IP-02 (2025) acknowledges, an issue that is not particularly unique to SATUSEHAT rollout but general innovation in the public health space in Indonesia.

Unifying a health information system on this scale in Indonesia has also been found as a core issue. Indonesia’s healthcare providers are shown to use a patchwork of record systems with different

standards, and making it standardized requires more than just guidance from the SATUSEHAT team but an actual team in the clinics and hospitals that tries to make it a single standard. “Big hospitals are pretty settled—one had 30 staff just for medical records. But small private hospitals or new clinics don’t have that capacity. Suddenly they’re asked to integrate their patient records into SATUSEHAT and follow standard codes… that’s a heavy operational effort, and most small hospitals can’t do it yet” -- (IP-16, personal communication, 2025). So, interoperability could not be achieved just by having the sheer volume of existing data migrated to the platform but also by continuous use and unified effort by all to use the system (Hartono 2024, also reported that data migration issues were causing problems during the transition).

Another key finding shows that technical limitations in infrastructure also undermine the implementation of ‘adl in SATUSEHAT. As IP-14 put it, “It’s a network effect problem.” Having good infrastructure would lead to better services, while unreliable services would erode the trust in the platform's reliability. In other words, the digital divide remains a major obstacle to equal access. Area’s east of Indonesia, where connectivity is weakest, seem to be most affected. As noted by a senior health official, “Eastern Indonesia’s network is still a challenge… there are even places without stable electricity.” (IP-19, personal communication, 2025).

Another finding also shared how hardware and human resource shortcomings were also a key problem. Many smaller health centres, particularly health centres, as IP-18 mentioned, lack even information technology-trained personnel. For instance, as a participant noted, “How can you expect electronic records to be managed if they barely managed paper-based trails?” IP-14 (2025) highlighted. Emphasizing this digital literacy itself holds great variation, not only among health professionals but among society in general. IP-08 (2025) from MoRA highlighted, “If individuals don’t understand how to use the system, no matter how good it is, it won’t be used properly.” He added that vast portions of citizens have limited education levels and might think digital resources are intimidating or unachievable unless they receive substantial support. Uptake appears high in Java Island (the island where the capital is located) or urban areas but much lower elsewhere. One participant warned that “if it's not in the system, it doesn’t count”—meaning that healthcare realities in under connected regions are underrepresented even in public health national data, potentially distorting policy priorities, IP-14 (2025) stated. More targeted interventions, however,

such as subsidized hardware, offline-input solutions, and user-oriented applications designed for low-resource environments, are still needed.

Another interesting point also found in the interview regarding the health provider challenge; it is found that professional hierarchies and institutional policies in Indonesian could also serve as barriers to SATUSEHAT. IP-03 (2025) highlights a case of caesarean medical care for pregnant women in Indonesia. The new regulations motivated by safety, legal, and professional concerns recently shown to promote procedural consistency where pregnant women now must be done by obstetricians. However, this means that women in rural areas are thus forced to make extensive travels, often in labour and by limited transportation modes, to go to obstetricians in a bigger hospital rather than being treated by locally experienced and trained general practitioners. "If all C-sections [operations] are done by general practitioners, what are the implications for my offset?" IP-03 (2025) highlighted. This underscores the resistance of existing medical associations that are concerned that allowing the C-section medical treatment to be carried out by general practitioners could encroach on professional turf and jeopardize their economic benefits or prestige.

On a good note, this research also finds the government seems to be trying to overcome and find workarounds to this issue. SATUSEHAT recently conducted a digital campaign offering annual free health check-ups to incentivize people to use SATUSEHAT (essentially, you receive a free screening if you register on the app), as noted by an interviewee, IP-12 (2025). While this is a positive step to encourage uptake across socio-economic segments, its impact remains to be seen for months to come, and by the time this interview is done, it's still in the roll-out phase.

Another strategy the MoH has established, as a participant who contributed to policy design also noted, is in the push of the new Ministry of Health Regulation No. 24 of 2022, requiring every healthcare facility to implement electronic medical records and connect to the national system. “In fact, this should be nationally implemented within one year” (IP-05, personal communication, 2025). The aggressive policy indicates that SATUSEHAT is supported by regulation, but Indonesia’s diversity and digital divides make uniform implementation challenging. The MoH regulation deadline passed by the time the interview was done in 2025 and remains unmet, as shared by IP-05 (2025). “It still hasn’t been realized up to now,” the policy expert conceded.

“Geographic conditions and resource disparities mean that not all facilities could implement it, so despite the regulations existing, it couldn't work just yet” (IP-05, personal communication, 2025).

4.5. Contextual Embeddedness

The principle of Contextual Embeddedness in IPA emphasizes harmonizing governance structure with cultural, religious and traditional norms of the population they serve. In the case of SATUSEHAT, more particularly Indonesia, this is an important principle as how many study have shown how Indonesia cultural and rich diversity have shown to effects many of e-Government initiative in the country (Sabrina et al., 2023), even have legitimized Hukum Adat (customary law) as part of its legal framework (Bedner & Arizona, 2019; Lubis, Runtung, Kaban, & Ikhsan, 2024). For SATUSEHAT specifically this research review how the platform has managed to localize its communication, adopts cultural context service delivery, and even see if the platform collaborated with ICGIs in the country.

Finding have shown that “the system is over-centralized—it presupposes equal preparedness in the regions, which it isn't.” (IP -07, personal communication, 2025). IP-05 also highlighted that while the provincial health office (Dinkes) manages in each province the system is centralized. IP-02 even shared its concern on this "Don't centralize everything. You must listen to what the regions need." (IP-02, personal communication, 2025). As a result of this misalignment, one interview also quoted that engagement will be lacking if there’s no contextual embeddedness. “People will obey rules, but that doesn’t equate to engagement—formal compliance versus deep adoption.” (IP-17, personal communication, 2025). Indicating a top-bottom approach driven not by local cultural adaptation or localization.

Another participant even shared that there’s a deep importance in aligning digital health initiatives with existing cultural frameworks. IP-21 (2025) remarks “In our hospitals, we use technology, but also, we have prayer rooms, call to prayer, spiritual support—all integrated into care. Technology should support that, not erase it.” Similarly, IP-17 (2025) stressed “We have to see patients not only as data points. In Islam, health is spiritual too. If we use tech, it must also reflect that reality.” These statements underscore how in Indonesia both physical and spiritual context is needed to

utilize proper initiatives. Platforms like SATUSEHAT therefore could embed and not bypass cultural frameworks if they were to be accepted and internalized across the archipelago.

Several interviewees also noted that public health systems in some regions remain adat based, and "There are health systems existing at a local level, based upon adat—if we can find local advocates there, then they can bridge the gap," -- (IP-17, personal communication, 2025) said one informant. This highlights a viable and existing possible positive path forward of co-governing digital health platforms. Such an approach could ensure better adoption for a pluralistic community like Indonesia.

Despite these centralization issues, findings from the interviewees also indicates emerging practices of contextual adaptation be it informal, particularly through collaborations with local institution. For example, Islamic NGO Muhammadiyah has shown to have begun embedding EMR be it a small number hospital under its management, however for those who does caters for access of spiritual care, patient readiness for payers, reflecting an alignment with local religious practices, as IP-21 (2025) stated, reflecting some partnership be it informal with ICGIs. Moreover, many interviewees also shared how a lot of hospital approach digitalization through a bottom-up approach, especially those private one, while being supported by generally administration staff. However, most of these example remains small case, informal, and largely not driven by the platform or integrated formally in SATUSEHAT framework.

Additionally, regarding cultural adaptation, people find the way SATUSEHAT system is implemented pointed out a top-bottom model that as IP-07 (2025) put it, "people follow orders in that situation—they will use it if told to, but that does not mean they understand or agree." reveals that shallow compliance driven by regulation. One interviewee pointed out that many healthcare workers in Indonesia lack a culture of comprehensive record-keeping culture "writing in medical records isn't a culture here… we still focus on clinical skills, not so much on [health] data management or big data" (IP-05, personal communication, 2025). Even if the system is in place, if doctors and nurses do not diligently input and update data, the benefits diminish. Governance in this sense extends to guiding the behaviors change across the health workforce. It might involve updating medical education curricula to emphasize informatics, providing incentives for using the

digital system and demonstrating to health workers how SATUSEHAT can ease their tasks (for example, by quickly retrieving patient history). Similarly, for general users, promoting a culture of proactive health management (where they value having their records) is needed.

4.6. Decentralized and Cooperative Governance

IPA have long emphasized the value of decentralization and cooperative structures, manifested historically through institutions such as the mahalla, zawaya, and in Indonesia, entities like *pesantren* and faith-based organizations such as Muhammadiyah or NU. These institutions have fostered governance models rooted in community trust, subsidiarity, and shared responsibility.

The analysis of stakeholder interviews reveals that SATUSEHAT platform, while aiming for nationwide digital integration, has struggled to embody these principles in practice. Related to the previous discussion point, multiple respondents expressed concern over its top-down rollout and lack of institutional inclusiveness. For instance, IP-02 (2025) noted that although the government sought input from professional organizations, the engagement was superficial and occurred late in the design process. This sentiment was echoed by other practitioners who described the rollout as bureaucratic and centrally dictated, limiting the space for locally adapted innovation. Indicating regional customization is lacking.

A digital health leader within Muhammadiyah also described how their hospital network has grown organically, with strong bottom-up governance, and while there is some level of partnership informally. Each hospital builds or adapts its digital systems based on contextual needs, often without direct intervention from the central office. IP-21 (2025) and IP-01 (2025) explained that these internal systems prioritize not only operational efficiency but also spiritual integration, such as logging religious visits, accommodating fasting practices, and offering prayer space notifications. Such adaptations are not available at SATUSEHAT, which was described as one-size-fits-all.

Moreover, front-line healthcare workers reported to have some level of onboarding to the local offices regarding SATUSEHAT, that is only for the first roll out. As IP-18 (2025) mentioned, the onboarding to the system especially for newcomers and medical staff, are instructed to the senior

doctors and staff instead. So, while there is some level of onboarding reported it is only seen as a one-time event, or perhaps not being given for all. Additionally, the medical staff also described how technical issues were resolved informally through WhatsApp groups or trial-and-error rather than institutional support, a clear sign that user realities were not adequately planned for in the central design. These practitioners emphasized that they often had to navigate digital health mandates without training or localized adaptation, reinforcing the perception that SATUSEHAT was imposed rather than co-created. Without these, SATUSEHAT risks remaining a symbol of central authority.

4.7. Legitimacy Through Shari‘a Compliance

Lastly the critical aspect in IPA is the compliance to the Islamic ethics, and the present research found that SATUSEHAT while quite progressive technological wise, only aligns with Shari’a partially at its best. Multiple respondents raised concerns about Islamic ethical values and trust of the platform. IP-05 (2025) noted that SATUSEHAT operates within a regulatory vacuum, where third-party data access is poorly governed, and consent protocols are opaque. "There are grey zones in our health data laws”. IP-05, resonated also by IP-18 (2025) highlighted some level of concern to privacy, informed consent process of the platform. In fact, IP-05 (2025) further highlighted that many of medical legal case in Indonesia raises due to informed consent issue, even before the establishment of SATUSEHAT. As such having SATUSEHAT platform doesn’t address this issue and may exacerbated the concern.

Likewise, religious stakeholders like IP-01 (2025) emphasized that public trust depends on perceived ethical and spiritual integrity of digital systems, which is often lacking when such systems are implemented without transparent engagement with Islamic values or institutions (IP-01, personal communication, June 2025). Clinicians’ interviewees emphasized more still on the function and reliability of the system, while there seems to be some levels of security implemented as IP-18 mentioned “Sometimes the system couldn’t be opened, if it’s not accessed through our very own [health center] WiFi”. Many including interviewed medical staff shows a bit of concern in data storage protocols, quoting yet again issue on data breach failure. Without this foundation and confidence on the system, its capacity to serve the public risks remaining structurally limited and spiritually unanchored. IP-18, IP-19 also emphasized in the dehumanizing potential of overly

bureaucratic system SATUSEHAT implement, and how poor patient facing interfaces it have. IP-19 (2025) even stated how overburdened and overworked health workers have, and patient are treated as data points in this case raising question on.

As such while EMR integration can be seen by Islamic NGO's even general private clinics shown to still push a more of bottom uprooted in local religious governance model with their own IT and ethical oversight team (IP-20, personal communication, 2025). These efforts are institution specific, and MoRA or even MoH and the SATUSEHAT team are seen to not have any involvement, and therefore an absence to the general framework. But as IP-02 previously stated as well, most believe that digital innovation in Indonesia by the end of the day need to be roll out first and fast. So, its engagement to ethical framework can now be explored since it has been rolled out, aspect such as formal partnership, etc.

5. Critical Reflections and Recommendations

This chapter provides a summary and critical discussion of the findings presented in the previous chapter, with analysis structured around the Chapter 2 theoretical framework, allowing for a deeper exploration of whether SATUSEHAT aligns or not with the IPA model. Each principle is examined individually and then concludes with a set of targeted recommendations informed by both the stakeholder and/or by the thematic synthesis of the findings. These recommendations aimed to address the gaps in policy implementation and offer some guidelines for enhancing SATUSEHAT effectiveness and inclusiveness as it continues to evolve.

5.1. Summary of Findings and Discussion

From the IPA perspective, the case of the SATUSEHAT platform offers revealing insight into the embedding of culturally resonant and normatively grounded governance models in Indonesia. While the platform's ambition reflects an earnest governmental effort to consolidate public health data and enhance service delivery, as repeatedly discussed, it is aligned to the IPA principle, such as focus on public value and cooperative governance, etc., as Chapter 4 has discussed. However, its actual implementation reveals some misalignment. The legitimacy of governance in a non-Western context, as Drechsler (2015) discussed, is not merely a function of efficiency but also participatory rootedness, contextual embeddedness, and moral coherence, in which SATUSEHAT presents a predominantly technocratic digital product that is impressive in its current features and infrastructural intent but lacking in implementation seamlessness, affecting its alignment to IPA. More details on each pillar can be seen below:

IPA Principle	**Guiding Question**	**SATUSEHAT Alignment Summary**	**Assessment**
Shūrā (Consultative Governance)	Was the development and implementation of SATUSEHAT inclusive and deliberative? (e.g. participation with	Expert and high-level consultation present, but public/community participation (e.g., religious orgs, local clinics) largely absent or mostly informal.	**Partially Aligned (**Can be seen but only for high-level government)

	end-users, health workers, and religious or local community leaders)		
Amānah & Mas'uliyyah (Trust & Accountability)	Does SATUSEHAT demonstrate stewardship over personal health data and system transparency?	Strong technical compliance (ISO, BSSN), but data governance gaps and low public trust undermine full accountability.	**Partially Aligned**
Maqasid al-Shari'a (Public Value)	Was the development and implementation of SATUSEHAT inclusive and deliberative? (e.g. participation with end-users, health workers, and religious or local community leaders)	Technical infrastructure exists, and intent of public value is apparent. However, practical benefits are uneven and public service outcomes are not fully realized yet.	**Partially Aligned**
'Adl (Justice)	Does SATUSEHAT demonstrate stewardship over personal health data and system transparency?	Regulation on data stewardship are found, but significant digital divides persist as a main contributor to implementation challenges, (The system favours urban/large institutions and neglects smaller/rural clinics)	**Not Aligned**

Contextual Embeddedness	Was the development and implementation of SATUSEHAT inclusive and deliberative? (e.g. participation with end-users, health workers, and religious or local community leaders)	Minimal adaptation to Indonesia's pluralistic, Islamic, and local norms; Local Islamic institutions not formally involved.	**Partially Aligned**
Decentralized & Cooperative Governance	Was the development and implementation of SATUSEHAT inclusive and deliberative? (e.g. participation with end-users, health workers, and religious or local community leaders)	Highly centralized; limited local customization. Community-based initiatives not yet interoperable	**Partially Aligned**
Legitimacy through Shari'a Compliance	Does SATUSEHAT demonstrate stewardship over personal health data and system transparency?	Weak engagement with Islamic actors, opaque consent structures, lacks spiritual and moral grounding from public perception	**Not Aligned**

Table 4. *Summary of findings.*

Lack of shūrā, or deliberative governance, is perhaps the most prominent discussion point of Chapter 4; multiple interviewees have shared their concern regarding the top-bottom approach of how the SATUSEHAT platform has rolled out, focusing on only selected hospitals/clinics.

Medical staff also feel unable to engage significantly with the system or provide feedback effectively. Many engagements with local communities are reported to be lacking, informal, or unsustainable. Missed opportunities for engagement with the Islamic social organizations and even MoRA are reported. New findings such as resource constraints were found beyond just fiscal factors, but also human capital and political fragmentation, often attributed to sectoral egos. The current leading health care system in Indonesia seems to still be led by private sectors, and henceforth health data ownership and management are deemed proprietary information, leading to cultural issues in interoperability and even participation for many hospitals and clinics. The study found that even under Islamic NGO-managed hospitals, only 4.8% (6 out of 125 hospitals) even implement EMR. Resistance from the grass roots, both in the rural and central regions of Indonesia, seems to be a common theme that happens for different reasons.

The MoH has ever since pushed a new regulation that enforces the use of EMR to overcome this issue. However, one year after the expected full implementation, studies have shown that practically this implementation remains difficult, especially in rural areas, due to human capital restrictions. Aligned with other research done, resistance to change by the user was also reported, making the implementation ever so challenging and undermining the participatory aspect of shūrā. While there is some level of cooperation done in more high-level governmental settings, research also found that this coordination is not without challenge. This omission undermines legitimacy, as the principle requires active engagement with diverse stakeholders (Al-Rasyuni, 2012).

The rippling effect of the lack of shūrā also can be seen in the lack of alignment to the amānah and mas'uliyyah principles. This study found that the platform operates under insufficiently robust data governance laws and lacks transparent consent mechanisms, raising profound questions about its compliance with Islamic stewardship ethics. While this research was written, even a report of the previous legacy infrastructure, the website of PeduliLindungi, was found to be hacked and redirected to an online gambling site (The Health Ministry, 2024). While the ministry reported that it no longer managed the website, public opinion seems to respond differently. The disjuncture is also compounded by the platform's partial alignment to the decentralized and cooperative governance principle, another critical axis to the IPA. Historically, Islamic governance has been governed through multi-level subsidiarity, as can be seen from the Ottoman era mahalla to Indonesia ICGs' local run clinics. Legitimacy is locally driven, not state fiat, and determines

whether reforms are sustainable or not. Given the SATUSEHAT top-down manner, with a lack of local sustainable engagement, the result of the digital system's lack of efficiency is not a surprise. Most treat the system as a secondary concern, and despite the existing law requiring the adoption, interoperability is still arguable.

Aligning to this principle, the contextual embeddedness of the platform is hence also found lacking. Perhaps an exploration of Yogyakarta's success in embedding governance within Javanese-Islamic norms, fostering legitimacy through cultural resonance, could be explored, and this time for digital health innovation like SATUSEHAT, this involves adapting technologies to local practices. Beyond having a national legal framework, an exploration of implementation and a campaign for it to be applied to Hukum Adat could also be explored to harness more context. As seen already from the success of Bali's health initiatives during COVID-19 (Ningrum et al., 2024). Otherwise, bypassing these networks, SATUSEHAT risks being perceived as an alien imposition, echoing Chafik's (2023) warning that governance detached from local norms lacks legitimacy, not only but certainly specifically in Muslim-majority contexts (p. 617). This misalignment exacerbates digital divides, as rural adat communities face barriers to access due to inadequate infrastructure and training (Santoso & Rokhman, 2022).

Lastly, for the principle of enabling a shari'a-guided life, emphasizing justice, mercy, and wisdom as stated by Ibn Al-Qayyim (1973) and Auda (2008) in the SATUSEHAT context, this research finding shows that the engagement is weak, as the lack of spiritual grounding undermines its alignment with shari'a compliance. However, the researcher would argue that this lack of connection could be due to the complexity and scale SATUSEHAT has to face. As one interviewee mentioned, the SATUSEHAT platform initiator, like any other digital initiator in Indonesia, would sometimes need to act like a firefighter, making sure things roll out first. Building on top of that, then communities can support and endorse how the platform can align to the local customs and traditions.

5.2. Recommendation

Building on the theoretical insights and empirical findings, this section outlines a set of refined synthesis recommendations suggested in the interview:

I. To align with shūrā SATUSEHAT could incorporate the structure of a shūrā-based forum or consultation channel in its platform (community-driven and managed), although it might require more resources. Leveraging existing community resources, i.e., adat leaders in the region, local organizations, local health clinics, or local champions, could reduce resource, and ensure ongoing community input.

II. Establishing regional advisory councils could also foster more trust; this approach would mirror the cooperative governance seen in Yogyakarta, where the Sultan's legitimacy stems from community endorsement (Kurniadi, 2009, as cited in Drechsler, 2019). In fact, the Islamic NGOs also seem to be eager to partner with the MoH to further scale its capability. With its extended reach and grassroots culture, this can be leveraged by the team. As such, establishing a multi-stakeholder council to guide SATUSEHAT implementation could be explored, and this time with representatives also from local leaders. Seeing MoH also have a regulatory sandbox, shūrā councils could be expanded here as well to include MoRA and Islamic NGOs.

III. A refinement to the health data governance needs to be further revisited, as what IP-05 also mentioned. In this case the existing national health data framework could consider adding cultural sensitivities as data-sharing protocols, as reported by Tilaar & Sewu (2023), who stated more comprehensive EMR implementation guidelines are needed, as the current ones seem to be lacking. Additionally tackling this issue can also ensure the platform alignment to the 'adl, amānah principle. The government should introduce clear legal frameworks governing data use, privacy, and responsibilities in SATUSEHAT. This could take the form of a "Digital Health Governance Act" or similar regulation that codifies how health data may be shared, the obligations of officials to protect that data, and penalties for misuse with more specification to Digital Health data management. Such a law would embody both technologies driven need and the Islamic view that leaders are answerable for the trust placed in them. In practice, enforcement of these rules should be transparent.

IV. Building on top of that an independent oversight body or ombudsman possibly under the National Privacy Commission or a new unit in the Ministry could be empowered to monitor SATUSEHAT's operations. By doing so, the government not only adheres to international best practices of data governance but also reinforces public trust, affirming that the platform operates with integrity (amānah) and accountability to the people it serves.

V. Additionally, recommend mandatory encryption, access control, and audit trails of patient data as well could be considered as a part to continue building legitimacy and trust, while the existing system already comply with the ISO standardization. Research finds that many inhouse build it EMR hasn't comply to the general recommendation.

VI. For tackling sectoral egos and political fragmentation is difficult, MoH can explore the use of cross-sectoral MOUs and performance indicators that also mandate collaboration among hospitals. By the end, as reported by IP-18, health centres are dependent as well, with a network of hospitals in the regions. Having bodies that oversee cooperation and integration of the platform regionally, even in the private sector, could be beneficial, fostering peer learning cultures.

VII. As for the uneven services that struggle to adopt SATUSEHAT due to limited IT and resources capacity, perhaps targeting a specific capacity-building program could be implemented. If resources were the issue, MoH could deploy a partnership program with local universities IT department to support rural clinics in digitizing their records and connecting SATUSEHAT. While there is already an existing program between university and clinics in Indonesia called Nusantara Sehat (Healthy Archipelago) program initiated by Indonesian government in 2015 that deploys multidisciplinary healthcare team to health centers in remote and rural areas. Most are still focused on the human resources for health and perhaps can be expanded to also joined with IT departments (Hafez, Meilissa, & Izati, 2022). This will help in line with IPA principle 'adl that demands fairness and inclusion making sure no patient population left unserved especially due to digital divides.

VIII. Next, change management and public education and awareness is also very important. During the research, findings suggest there's even lack of apprehension among health providers of SATUSEHAT capability, updates. MoH could consider having to provide

more informational outreach to all health facilities providing up to date guidelines and recommendation. Current communication through WhatsApp group seems to be overwhelmed health providers, perhaps an exploration of using social media and visual guidelines could be useful and this can be done leveraging again local leaders, by engaging civil society organization like Muhammadiyah and Nahdlatul Ulama or even other local institution in the region, building simultaneously local champions, where community driven initiatives could be empowered. Not only do these institutions possess extensive health care infrastructure, influence, and also infrastructure, but they also have moral authority and alignment to the public health goals, Ultimately as one interviewee suggest, the awareness of EMR and health records is something that need to be campaigned nationwide, and findings suggest this top-down approach lead to fragmented understanding, focusing again to the Java or centralized region. Perhaps by championing this local leader, even those in educational sectors, can bring benefit.

IX. Eventually, to reach critical mass usage as what PeduliLindungi has done initially, some policy mandates with incentives is needed. The government could consider making SATUSEHAT enrolment automated whenever a patient goes to the hospital, making it quasi-mandatory for certain interaction (e.g. when registering newborns, vaccination, usage of the national health insurance). To avoid resistance, incentives such as better services, fast-track lanes could be offered. Another incentive could be providing free annual health screenings for citizens who actively use SATUSEHAT to record their health data, thus aligning with preventative care goals. While free medical check-up is marketed now, it should be formed in a way that incentivizes people to use it, make it seamless, easy to access (Shania, 2025). Importantly, any mandates must be executed with sensitivity and flexibility, ensuring that those who face barriers (e.g. elderly not tech-savvy) are assisted, not penalized. The goal is to normalize the use of SATUSEHAT as a public good, much like owning an ID card, by nudging and with genuine value proposition.

X. Lastly, a robust monitoring and evaluation framework for SATUSEHAT that are transparent and goes beyond technical metrics (uptime, number of records, etc.), could be explore as an indicator. For example, citizen satisfaction and trust levels, equity of usage across regions and groups, improvements in health outcomes attributable to

better data, to even number of locally grown partnership). By treating the implementation and updates of the platform as a learning and community driven process, the administrators of SATUSEHAT can reward citizen engagement to the platform, making it seems as a two ways and participatory system that does not remain static but evolves in alignment with both technological advances and societal values.

6. Conclusion

The study aimed at examining Indonesia's national digital health platform SATUSEHAT's conformity with the principles of IPA (Shūrā, Amānah & Mas'uliyyah, Maqasid al-Shari'a, 'Adl, Contextual Embeddedness, Decentralized and Cooperative Governance, and Legitimacy through Shari'a Compliance) as a response to the call for digital health research with lenses that view cultural context. Given Indonesia's pluralism, diversity, rich culture, and uniqueness, enabling it to merge culture and religious norms into its governance, this study selects IPA as a tool to evaluate the platform, given its focus on embracing cultural nuances. The research was done through a qualitative approach done with interviews, guided by the normative pillar of IPA. The study demonstrated that while the SATUSEHAT platform articulates a technological prowess and sincere administrative desire for modernizing the health system, its normative embedding within the IPA is partial.

Design-wise, the platform is compatible with some IPA ideas, such as delivering public health systems that are interoperable. It has also brought together experts' stakeholders, invested in procedural regulatory compliance. However, its effectiveness only reached certain stakeholders, illustrating the absence of a genuine shūrā (consultative governance), inadequate community engagement, and the absence of religious and cultural institutions' integration. The findings also suggest that challenges related to non-technical dimensions, such as political fragmentation, human capital, and fiscal constraints, contribute to this lack of engagement. Additionally, the platform faced with the digital divide issue also contributed to the lack of alignment to the 'adl principle. Some areas are shown to lack even fundamental facilities (e.g., proper internet) to even adopt the system properly; hence, while regulatory tools are enforced, practically its implementation remains challenged.

Lack of contextual setting is also seen as the norm, although it's expected as interviewees see digital health innovation as an evaluative platform that needs to continue to be improved gradually, given Indonesia's scalability, scalability meaning some areas are expected to be lacking at first launch or rollout. As such, interviewees, especially those coming from Islamic NGOs, can be leveraged for possible engagement to continue enabling future improvement to the local context. Ethically, the SATUSEHAT platform also falls short of the IPA requirement of trustworthiness,

accountability, and shari'a compliance. It lacks transparency regarding the data stewardship, while being addressed by having international standardization such as ISO. Health legal experts also found the platform regulations that govern the health data need to be improved, especially regarding third-party involvement and informed consent. As such, for all technological ambition, the SATUSEHAT platform remains a top-down project that does not cater to for contextual setting. However, et of recommendations such as better framework, more cooperation, change management, etc. was suggested by the interviewee, sharing in this case further motivation to continue to improve the platform's legitimacy. Especially, engaging local organization meaningfully could accelerate adoption and build a sense of ownership and a culture of trust between the central government and the citizens, facilitating the co-creation of a health governance model that reflects the actual needs and aspirations of Indonesian people.

Theoretically, the study adds to the expanding literature that validates public administration models based on non-Western cultural contexts. The framework and analysis can be used for further improvement of the platform as it continues to evolve and as an added baseline to the existing indicators it already has. Future research should examine mechanisms on how to sustain community engagement in digital health governance. Current findings suggest that while there's partnership with local organization, adat leaders, most are sustainable. Additionally, a longitudinal study could be explored to see if there's improvement and an actual result given. Lastly, comparative studies between Indonesia and other Muslim-majority countries that are implementing similar systems could also be explored.

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Appendix

Appendix 1. Set of regulation and publication reviewed

Title	Author/Publisher	Year	Sources
Peraturan Menteri Kesehatan Nomor 18 Tahun 2022 tentang Penyelenggaraan Satu Data Bidang Kesehatan melalui Sistem Informasi Kesehatan	Kementerian Kesehatan Republik Indonesia (Ministry of Health RI)	2022	Kementerian Kesehatan RI. (2022). *Peraturan Menteri Kesehatan Nomor 18 Tahun 2022 tentang Penyelenggaraan Satu Data Bidang Kesehatan melalui Sistem Informasi Kesehatan*. Jakarta: Kementerian Kesehatan RI.
Peraturan Menteri Kesehatan Nomor 24 Tahun 2022 tentang Rekam Medis	Kementerian Kesehatan Republik Indonesia (Ministry of Health RI)	2022	Kementerian Kesehatan RI. (2022). *Peraturan Menteri Kesehatan Nomor 24 Tahun 2022 tentang Rekam Medis*. Jakarta: Kementerian Kesehatan RI.
Keputusan Menteri Kesehatan Nomor HK.01.07/MENKES/133 /2023 tentang Integrasi Data Kesehatan Nasional melalui SATUSEHAT	Kementerian Kesehatan Republik Indonesia (Ministry of Health RI)	2023	Kementerian Kesehatan RI. (2023). *Keputusan Menteri Kesehatan Nomor HK.01.07/MENKES/133/2023 tentang Integrasi Data Kesehatan Nasional melalui SATUSEHAT*. Jakarta: Kementerian Kesehatan RI.
Cetak Biru Strategi Transformasi Digital Kesehatan 2024	Kementerian Kesehatan Republik Indonesia (Ministry of Health RI)	2021	Kementerian Kesehatan RI. (2021). *Cetak biru strategi transformasi digital kesehatan 2024*. Jakarta, Indonesia: Kementerian Kesehatan RI.

Pengantar Interoperabilitas Data Kesehatan (presentation, 13 June 2022)	Digital Transformation Office, Ministry of Health RI	2022	Digital Transformation Office, Ministry of Health Republic of Indonesia. (2022). *Pengantar interoperabilitas data kesehatan* (Presentation, 13 June 2022). Ministry of Health Republic of Indonesia.
Buku Panduan SATUSEHAT: Playbook Imunisasi	Digital Transformation Office, Ministry of Health RI	2022	Digital Transformation Office, Ministry of Health Republic of Indonesia. (2022). *Buku Panduan SATUSEHAT: Playbook Imunisasi*. Jakarta: Ministry of Health Republic of Indonesia.
Ministry of Health Launches SATUSEHAT Platform to Integrate National Health Data (press release)	Ministry of Health, Republic of Indonesia	2022	Ministry of Health Republic of Indonesia. (2022, July 26). Ministry of Health launches SATUSEHAT platform to integrate national health data [Press release]. Retrieved from https://kemkes.go.id/eng/kemenkes-luncurkan-platform-satusehat-untuk-integrasikan-data-kesehatan-nasional

Appendix 2. Informed Consent

The following is one example document informed consent use in this study.

Request for Participation for Thesis Research

You have been invited to take part in the research thesis: "*The Alignment of the SATUSEHAT Platform with Non-Western Public Administration Principles (Including Islamic Public Administration)*"*
**Title might be changed depending on final edit..*

Before deciding on whether you want to participate or not, please read this text carefully.

Summary of the Research Thesis

The overall goal of the Research Thesis is to examine how the SATUSEHAT platform and/or similar eHealth application—a national health data integration system in Indonesia—corresponds to the principles of Islamic Public Administration.

More specifically, the Research Thesis focuses on the alignment between digital public health services and values such as transparency, accountability, justice, and public welfare.

The Research addresses the following research questions:
- How does the SATUSEHAT platform reflect principles of Islamic public administration?
- What are stakeholders' perceptions of its social and ethical implementation?
- Which improvements or policy insights can be drawn from these perspectives?

What Does Participation in the Research Thesis Imply?

With your participation, you will make a substantial contribution to our Research Thesis.

By participating in this research, you will be asked a series of questions concerning your experience, observations, and opinions about the SATUSEHAT platform, eHealth application and experience and public values. The main questions will be:
- Your experience as a user or developer of SATUSEHAT?
- Why are certain aspects viewed as more/less aligned with Islamic public administration?
- Which areas can be improved?

All personal data collected in this Research Thesis will be treated confidentially.

At all times, we assure compliance with the current national and European data protection legislation.

Voluntary Participation

It is voluntary to participate in this research, and the result will be anonymized, and you can at any time choose to withdraw your consent without stating any reason.

If you have any questions concerning the Research Thesis, please contact:
Selma Fitri Ayuanshari, Researcher
Tallinn University of Technology
Email: Seayua@taltech.ee

Consent Form

By checking the box below, you agree to participate in this Research Thesis.

I acknowledge that:
- I know that I will participate in an interview on the SATUSEHAT platform and Islamic Public Administration.
- I know that I can contact the following person for questions and remarks: Selma Fitri Ayuanshari.
- My participation is voluntary and I am free to withdraw from the research at any time without explanation.
- The results of this inquiry are used for scientific purposes and may be published. My name shall not be used, and the confidentiality of my personal data is assured in all stages of the research process.
- The information/answers I provide to the Research Thesis will be stored safely during the Research Thesis at TalTech.
- The information/answers I provide will be stored for three years after the Research Thesis ends at TalTech.
- The data provided that is stored long term after the research may only be used by researchers for future research.

I have received information about the research, and I am willing to participate

I agree to participate [ ]
I do not agree to participate [ ]

_____ _____

Name 01/06/2025

_____

Signature

Declaration of Authorship

I hereby declare that, to the best of my knowledge and belief, this Master Thesis titled ***"Evaluating SATUSEHAT platform through the Lens of Islamic Public Administration in Indonesia's Digital Health Transformation"*** is my own work. I confirm that each significant contribution to and quotation in this thesis that originates from the work or works of others is indicated by proper use of citation and references.

Tallinn, 15/06/25
Selma Fitri Ayuanshari

Consent Form

for the use of plagiarism detection software to check my thesis

Name: Selma Fitri
Given Name: Ayuanshari
Student number: r0967614
Course of Study: Public Sector Innovation and eGovernance
Address: Taman Kebun Jeruk, Jakarta
Title of the thesis: Evaluating SATUSEHAT platform through the Lens of Islamic Public Administration in Indonesia's Digital Health Transformation

What is plagiarism? Plagiarism is defined as submitting someone else's work or ideas as your own without a complete indication of the source. It is hereby irrelevant whether the work of others is copied word by word without acknowledgment of the source, text structures (e.g., line of argumentation or outline) are borrowed or texts are translated from a foreign language.

Use of plagiarism detection software. The examination office uses plagiarism software to check each submitted bachelor and master thesis for plagiarism. For that purpose, the thesis is electronically forwarded to a software service provider where the software checks for potential matches between the submitted work and work from other sources. For future comparisons with other theses, your thesis will be permanently stored in a database. Only the School of Business and Economics of the University of Münster is allowed to access your stored thesis. The student agrees that his or her thesis may be stored and reproduced only for the purpose of plagiarism assessment. The first examiner of the thesis will be advised on the outcome of the plagiarism assessment.

Sanctions. Each case of plagiarism constitutes an attempt to deceive in terms of the examination regulations and will lead to the thesis being graded as "failed". This will be communicated to the examination office where your case will be documented. In the event of a serious case of deception the examinee can be generally excluded from any further examination. This can lead to the exmatriculation of the student. Even after completion of the examination procedure and graduation from university, plagiarism can result in a withdrawal of the awarded academic degree.

I confirm that I have read and understood the information in this document. I agree to the outlined procedure for plagiarism assessment and potential sanctioning.

Tallinn, 15/06/25
Selma Fitri Ayuanshari