

MAQASID SHARIAH-BASED DIGITAL ECONOMY MODEL: INTEGRATION, SUSTAINABILITY AND TRANSFORMATION

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ABSTRACT

This research examines the integration of digital economic models within pesantren (Islamic traditional educational institutions) in East Java, Indonesia, with a particular focus on institutions such as Sidogiri, Al-Yasini, and Sintesa. The research examines how these pesantren reconcile digital progress with Maqāsid Shariah principles, balancing the modernization of economic and educational practices with the preservation of Islamic values. Qualitative methods, such as interviews and focus group discussions, are used to capture the transformative journey of these pesantren toward a digital economy. The study highlights how digital technology is being strategically implemented to improve educational outcomes, operational efficiency, and economic growth while adhering to the core aspects of Maqāsid Shariah the protection of faith, life, intellect, offspring, and property. The research highlights the strategic implementation of digital technologies in pesantren, addressing challenges like technical proficiency and cultural integration. The study underscores the strategic importance of digital integration in Islamic educational institutions for socio-economic and cultural advancement in the digital era. This paper provides important insights into the sustainable adaptation of digital models in pesantren by highlighting the importance of Maqāsid Shariah in guiding these institutions through technological change. This research is essential for policymakers, educators, and stakeholders by providing a nuanced understanding of the intersection between Islamic values and digital innovation in the pesantren sector.

Introduction

Digital transformation is a defining characteristic of our time, reshaping industries and sectors globally through innovative business models and new economic opportunities (Savina, 2018). Islamic fintech instruments and professional competencies are emerging as pivotal elements in this evolving landscape (Abrorov & Imamnazarov, 2021; Shcherbik et al., 2022). Recognizing this shift, the Indonesian Government has taken a proactive approach by establishing a digital roadmap for the period 2021-2024, to promote the country's digital transformation. This roadmap targets critical sectors, including Digital Infrastructure, Digital Talent, Digital Government, and the Digital Economy (Barata, 2019; Darussalam et al., 2019; International Trade Administration, 2021; Kurdi et al., 2021).

A particular focus is on the integration of over 64 million micro, small, and medium enterprises (MSMEs) into the digital space, aiming to 'o digital and global. The government's ambitious goal is to digitize 30 million MSMEs by 2024. The pesantren sector, integral to Indonesia's educational and economic fabric, is an active participant in this digital movement. Traditional Islamic educational institutions, particularly in rural Java, are transitioning towards digitalization and globalization. This shift is propelled by initiatives such as the Pijar Foundation's Digitrend platform and Telkom Indonesia's Pesantren Go Digital Program (Haryanto, 2023; Pijar Foundation, 2022). The COVID-19 pandemic has further expedited this process, necessitating the adoption of digital technologies for distance learning and international collaboration (TBN Asia, 2020).

Pesantren in Indonesia has successfully played an essential role in advancing Islamic education. With the current growth of the digital economy, these institutions can also play an essential role in the development of the Islamic digital economy (LPPM ITB Bandung, 2022; Umam et al., 2023). The digital economy presents new opportunities for pesantren in Indonesia to diversify its income sources and improve its operational efficiency. Through establishing digital business units and digital marketing (Budiantoro, Astuti, Subagyo, & Ahmad, 2022). Pesantren can expand into new markets and capitalize on the growing demand for online Islamic products and services. Additionally, integrating digital technologies in pesantren can create new opportunities for Islamic finance and e-commerce (Syamsu et al., 2022). Therefore, it is imperative for pesantren to actively pursue the development of its digital economy capabilities and integrate them into its operations to remain competitive in today's fast-paced business environment (Syamsu et al., 2022).

Pesantren, historically central to Islamic education in Indonesia, are now poised to contribute significantly to the development of the Islamic digital economy. They face a unique opportunity to diversify their income sources and increase operational efficiency by establishing digital business units and engaging in digital marketing. By doing so, pesantren can access new markets and tap into the burgeoning demand for online Islamic products and services. Moreover, embracing digital technologies could unlock new avenues for Islamic finance and e-commerce, reinforcing the sector's economic viability.

Pesantren in Indonesia have implemented digital literacy and the digital economy in various ways. Pesantren in Semarang has adopted digital marketing in its business units. Pesantren uses digital marketing to increase the number of customers and sales revenue (Budiantoro et al., 2022). Furthermore, the Business incubator at Pondok Pesantren Sunan Drajat successfully generated entrepreneurs and encouraged innovation in the pesantren ecosystem (Ahwarumi & Sawarjuwono, 2017). Pesantren Sidogiri Pasuruan developed pesantren business entities as the basis for the autonomy of Santri, Pesantren, and the community (Humaidi, 2021). Pesantren Darunnajah implemented digital applications for shopping payments at the Darunnajah Store (Sudiarti et al., 2022).

In response to this phenomenon, the Government of Indonesia collaborated with startup Bukalapak to empower Pesantren-based SMEs, including Pesantren's business unit managers (Enthusiast Startup, 2019). Bank Indonesia (BI) has optimized the role of Pesantren in supporting food security (Adji, 2023). BI's support for strengthening the Pesantren economy through Hebitren (Himpunan Ekonomi Bisnis Pesantren) or Pesantren's Economic and Business Association comprises three strategic pillars: empowering the Pesantren economy, strengthening the Pesantren ecosystem, and increasing the capacity of Pesantren's human resources (Indonesia Syariah Economic Festival, 2021).

Despite advancements that have been made, the rapid expansion of the digital economy presents challenges for pesantren. Some struggle to afford and maintain the necessary digital infrastructure, whereas others need to enhance their staff's technological proficiency. To overcome these obstacles, strategic support from both the government and private sectors is required to equip pesantren with the necessary resources, training, and technical assistance. Developing the digital economy in pesantren is considered crucial in today's world, both as an adaptation to the times and to ensure economic independence. This independence is vital to prevent the commercialization of education and to preserve the existence of pesantren amid modernization (Astuti, 2017). The emergence of high-cost pesantren limits access to education for all individuals, making it necessary for these institutions to cover operational costs beyond what students pay (Wasilah & Muslimah, 2022).

Recent research on pesantren and its digitization processes has been explored. Indonesia's Shariah digital economy, particularly the B2B e-commerce and fintech ecosystems, has experienced substantial growth, with potential economic opportunities opening up through digitizing transaction processes in pesantren. (Dellyana & Sudrajad, 2020). Despite the Central Bank's efforts to build an e-commerce platform for the Pesantren market, the unique cultural aspects of the pesantren community require careful planning. Hudaefi et al., (2023) further identified six critical elements of the Islamic fintech ecosystem in Indonesia (financial customers, fintech startups, government, technology developers, traditional financial institutions, and fatwa) that provide valuable insights into the current state.

In education, using Maktabah Syumilah NU 1.0, software for digital learning in pesantren is essential for promoting Islamic moderation in Santri (Ibda et al., 2023). Meanwhile, Zaki et al., (2022) found that community-based cooperation between pesantren businesses contributes to achieving the Sustainable Development Goals, emphasizing the need to improve pesantrens' human resources and business infrastructure. In summary, the development of the Islamic economy and the implementation of digital learning in pesantren can significantly impact Indonesia's economic and educational progress, providing unique characteristics to the pesantren community.

Despite prior studies shedding light on the growth of the Islamic digital economy and the integration of digital learning in pesantrens, there is a scarcity of research that specifically examines the sustainability of these models in the pesantren context. Moreover, the effects of these models on economic expansion, educational achievement, and holistic development of pesantren communities in East Java have not been thoroughly evaluated.

This research aims to explore and understand how pesantren in East Java adopt and integrate digital economic models in their operations and education, in line with Maqāsid Shariah values and principles. In the unique context of pesantren such as Sidogiri, Al-Yasini, and Sintesa, this research will focus on how digital technologies are integrated to enhance operational efficiency, economic growth, educational outcomes, and while maintaining the integrity of Islamic values. In addition, this study assessed the impact of digital economic integration on the social and cultural development of pesantren communities in East Java. As such, this study aims to fill a gap in the literature and provide valuable insights for policymakers, educators, and other stakeholders in the region. Through this research, we aim to understand the broader implications of adopting a digital economy model in pesantren for the economic and socio-cultural transformation of Islamic communities.

Literature Review

Digital Economy in Pesantren

The digital economy refers to economic activity that results from billions of everyday online connections between individuals, businesses, devices, data, and processes. The backbone of the digital economy is hyperconnectivity, which enables people and businesses to interact and transact in innovative ways (Hoderi, 2019). The digital economy is characterized by the use of digital technologies such as the Internet, mobile devices, cloud computing, and big data to create new products and services, streamline business processes, and increase productivity (Kuznetsova & Chmeruk, 2019). The digital economy is an important driver of innovation, economic growth, and competitiveness. More than 15 countries have implemented national digitalization programmes (Hoderi, 2019). The digital economy is also transforming traditional industries and creating new technology-based business models (Kollmann, 2019).

In China, the digital economy has become a dominant science and continues to challenge traditional economic research frameworks (Xu et al., 2022). Universities play an important role in the development of the digital knowledge economy, with their missions and functions revised and updated under the conditions of the formation and development of the digital economy (Vasetskaya & Glukhov, 2019). The introduction of artificial intelligence into the country's economy and the use of Business Intelligence technologies to improve the efficiency of companies are some of the trends in the digital economy (Alimov, 2022).

Research on the digital economy has grown rapidly and has become increasingly important in modern society. The digital economy, which is an important research area, has triggered the need for training with fundamentally new competencies to meet the needs of customer organizations (Vasetskaya, 2020). The concepts of space and time, which have always played an important role in the functioning of society, have changed along with the transformation of the economy, moving space, and time from physical to virtual reality (Voytenko, 2019).

The digital economy's impact is not limited to economic growth and innovation. It also has implications for sustainability and a green economy. The digital economy can improve the overall efficiency of green finance, and there are two threshold effects with the regional industry scale as the threshold variable and one threshold effect with green finance audit support as the threshold variable. The development of the digital economy has improved the investment efficiency of green finance in all the provinces in China. In addition, research has found that the application of the digital economy to a green economy can reduce regional economic development imbalances (Tian et al., 2022).

Concerning the digital economy in Indonesia, Aryanto and Christmastuti (2013) noted that, in 2013, the development of the digital economy in Indonesia was still in its early stages due to several barriers. However, research by Dudhat and Agarwal (2023) shows that Indonesia's digital economy is growing, increasing GDP and productivity, despite threats to national security such as data misuse and cyberattacks. Ameliany et al., (2022) found that Industry 4.0, with new digital-based businesses playing an important role, accelerated the growth of the digital economy ecosystem in Indonesia during the COVID-19 pandemic.

Irawan and Laura (2022) found that Internet literacy in Indonesia can suppress inflation, although the use of the Internet for entertainment and the consumption of digital products from abroad can suppress GDP. Ramda and Supandi (2020) suggested that the government could prepare a digital economy development plan by considering the economic potential of each region. Rumata and Sastrosubroto (2021) found that the Indonesian government focuses on developing the digital economy by improving the connectivity infrastructure and local markets, although existing regulations may create paradoxes that hinder development. Jurriëns and Tapsell (2017) noted that digital technologies are becoming an important part of life, work, culture, and identity in Indonesia, with digital platforms being used to organize mass protests and provide space for greater freedom of opinion and expression.

In the context of education, various studies have shown the importance of the digital economy, especially in Islamic schools and madrasahs. According to Umam et al., (2023), incorporating digital financial services into Islamic schools can improve financial literacy for students and their parents. Furthermore, it can help foster positive financial literacy values and monitor student spending habits. Syamsu et al., (2022) showed that the integration of fintech and social media is important for Islamic schools to achieve the Sustainable Development Goals (SDGs) in the 5.0 era and that the use of social media in market mapping can help Islamic schools' business strategies in developing products.

Hidayat et al., (2022) stressed the need for Islamic educational institutions to strengthen their institutional frameworks and oversee all operations to remain current with political, economic, and socio-cultural changes. Additionally, they recommend enhancing human resources and service quality, optimizing the effectiveness and efficiency of financial management, and placing greater emphasis on marketing expenses. Sholeh et al., (2022) emphasized that madrasah heads need to be aware of the development of digital technology and develop strategies and action plans to use it effectively.

Mustaqim and Ningruma (2021) showed that digital technology has a positive impact on the economy through increased productivity, product innovation, and new business opportunities. They also emphasize that Islamic digital entrepreneurship involves selling products, promoting products, and providing alternative payment methods that comply with religious rules. The Shariah-based digital economy in Indonesian pesantren, particularly in the context of business-to-business (B2B) e-commerce and fintech ecosystems, has undergone significant development. According to Dellyana Sudrajad (2020), digitizing the transaction process between pesantren can create significant economic opportunities. The government, represented by Bank Indonesia, attempted to establish an e-commerce platform for the pesantren market. However, the unique characteristics and strong culture of the pesantren community require careful consideration when establishing such a platform.

Further explorations by Hudaefi et al., (2023) identified six core elements of the Islamic fintech ecosystem in Indonesia: financial customers, fintech startups, the government, technology developers, traditional financial institutions, and fatwa. Their study provided critical insights into the current state of the Islamic fintech ecosystem in Indonesia. In the context of education, Ibda et al., (2023) discussed the implementation of digital learning in pesantren using Maktabah Syumilah NU 1.0. The software is used in various activities inside and outside the pesantren and has been instrumental in fostering Islamic moderation among students. This study recommends the implementation of Maktabah Syumilah NU 1.0 in all pesantren. Zaki et al., (2022) examined the community-based cooperation model among pesantren businesses. They found that this cooperation model contributes to the achievement of the Sustainable Development Goals (SDGs), including no poverty (SDGs 1), quality education (SDGs 4), and partnership to achieve goals (SDGs 17). This study highlights the importance of improving the quality of human resources and the business infrastructure in pesantren.

Maqāsid Shariah

The Maqāsid Shariah doctrine in Islamic legal philosophy is central to guiding the overarching goals and objectives of Shari'ah law, which are integral to promoting social harmony and enhancing public welfare. This concept, originally articulated by esteemed Islamic scholar al-Ghazali, emphasizes the protection of five fundamental aspects of human life that are essential to societal well-being and moral governance (Mutholingah, 2018).

The first is the protection of faith or religion, which ensures freedom and integrity in religious beliefs and practices (As-Salafiyah et al., 2022). This is closely followed by the protection of human life, which emphasizes the importance of health and safety. The doctrine also focuses on preserving the family line, emphasizing the sanctity of birth and family relationships (Nurhadi, 2019a). Equally important is the protection of intellect, which advocates freedom of thought and cultivation of knowledge (Moneim, 2018). Finally, the protection of property is emphasized, underscoring the importance of economic security and property rights (Mahmudah & Alwa, 2022; Rustiana & Hidayat, 2022).

The primary objective of Islamic rule is to safeguard certain fundamental elements from harm. The holistic perspective of Maqāsid Shariah, which prioritizes an all-encompassing way of life over isolated elements, is firmly rooted in Islamic tradition. This foundational principle underlies the formulation of contracts in Islamic banking and insurance and informs all transactions that are categorized as “Islamic” (Rofiq & Hasbi, 2022). Maqāsid Shariah’s theory has been applied in various fields, including the economy. One study analyzed the paradigm of Maqāsid Shariah in terms of economics based on the thoughts of Ibn ‘Ashur (Rofiq & Hasbi, 2022). It discusses Ibn ‘Ashur’s large framework for Maqāsid Shariah, which includes principles such as *qashdi* (intention), responsibility, *istikhlaf* (awareness that everything one has is a gift from Allah), *fitrah* (stewardship and innate nature), and equality (Rofiq & Hasbi, 2022). They also examined the application of these principles in modern economics, contrasting them with the capitalist system, and highlighting how Islamic economics, based on Maqāsid Shariah, addresses both the physical and spiritual needs of individuals and communities (Rofiq & Hasbi, 2022). These include the existence and general nature of benefits and harms, the reality and clarity of benefits in acceptable circumstances, the irreplaceability of certain things in bringing about benefits or harms, measurability and choice between benefits and harms, and the standardization of benefits based on clear evidence (Rofiq & Hasbi, 2022).

In the study by Yafiz (2015), which explores the views of M. Umer Chapra on the internalization of Maqāsid Shariah in Islamic economics, the author presents important findings that shed light on the practical implications of this concept. According to the findings of this study, Chapra argues that the main objective of Islamic economics is the welfare or benefit of people in the context of property or material wealth, which is inseparable from devotion to God. This marks a shift from the view of economics that reduces wealth and possessions as the primary goal of a more holistic understanding, in which material wealth is integrated with spiritual values and Islamic ethics. Chapra outlines how each aspect of Maqāsid Shariah makes an important contribution to the creation of a balanced, ethical, and sustainable economic system. He discusses the five main aspects of Maqāsid Shariah in economics, namely faith, soul, mind, offspring, and property, and shows how each of these aspects is interrelated and mutually reinforcing in creating an economy in line with Islamic principles (Chapra, 2008).

As a worldview, faith plays a central role in shaping the personality and behavior of individuals, including in the economic context. Faith serves as a moral filter that guides individuals in making economic decisions that are not only oriented toward material gain but also toward spiritual and social good. This creates a balance between material and spiritual impulses and strengthens family and social solidarity (Chapra, 2008). In the context of the soul, Chapra emphasizes the fulfillment of the basic needs of the soul that go beyond mere survival but also ensures that the soul can play its role in society. These include dignity, self-respect, human brotherhood, and social equality, all of which are essential to the well-being of the soul (Umer Chapra, 2008). Intellect, a distinguishing characteristic of human beings, requires continuous development. Chapra emphasizes the importance of quality education, research facilities, and freedom of thought and expression as a means of developing intellect. This is important not only for the well-being of the individual but also for society as a whole (Chapra, 2008). In discussing offspring, Chapra emphasizes the importance of quality for future generations, who will be the successors of civilization. Early education and the family's role in raising children with good morals and ethics are essential for creating a strong generation (Chapra, 2008).

Finally, in the context of wealth, Chapra asserts that, although wealth comes last, it does not diminish its importance in achieving other aspects of Maqāsid Shariah. Property plays an important role in ensuring that the needs of faith, the soul, spirit, and offspring can be properly met. According to Chapra, property must be managed in a just and ethical manner that recognizes the right of individuals to enrich their economic resources while emphasizing the importance of the social functions of property (Umer Chapra, 2008).

Methodology

This study employs a comprehensive qualitative approach to examine and evaluate the development of the digital economy in selected pesantren in Indonesia. The data collection process comprised two central techniques: in-person interviews and virtual focus group discussions (FGDs). The interviews were conducted with representatives of three pesantren: Sintesa, Al-Yasini, and Sidogiri. The purpose of these interviews was to gain a thorough understanding of how pesantren embraced the digital economy and incorporated digital technology into its operation and infrastructure. The interview questions encompassed various aspects of the digital economy development, such as technology adoption, digital-based education, community and former student engagement, and digital-based business development.

Virtual focus group discussions (FGDs) were conducted using the Zoom platform. This approach involved structured discussions with several pesantren stakeholders to obtain different perspectives on the digital economy in pesantrens. The FGDs involved participants from three pesantren with knowledge or experience in the digital economy and pesantren education from Sintesa, Al-Yasini, and Sidogiri. The analysis process involved double-checking the interview transcripts and FGD notes to identify the emerging themes and patterns. The goal of this analysis was to comprehend how pesantren in Indonesia embraces the digital economy and how this affects its operations and infrastructure. The data analysis findings were used to formulate the study's conclusions and recommendations.

Results and Findings

Digital Economy in Pesantren Sidogiri

Sidogiri is a pesantren that concentrates on several key areas in its digital economy development, as depicted in Figure 1: digital technology adoption, education and training, community and alumni engagement, and business development. These priorities are exemplified through various initiatives, including the creation and implementation of the E-Maal system, the establishment of institutions such as PT Sidogiri Pandu Utama, which focuses on education and training, and various businesses such as PT Sidogiri Mandiri Utama and PT Sidogiri Mitra Utama. The abbreviation “PT” refers to “*Perseroan Terbatas*”, the Indonesian term for a Limited Liability Company (LLC).

Sidogiri has demonstrated a proactive approach to embracing digital technology. The E-Maal system serves as a prime illustration of this commitment to modernization and innovation. Furthermore, the organization has benefited from the support and funding of its former students, even though they do not hold structural roles within Sidogiri.

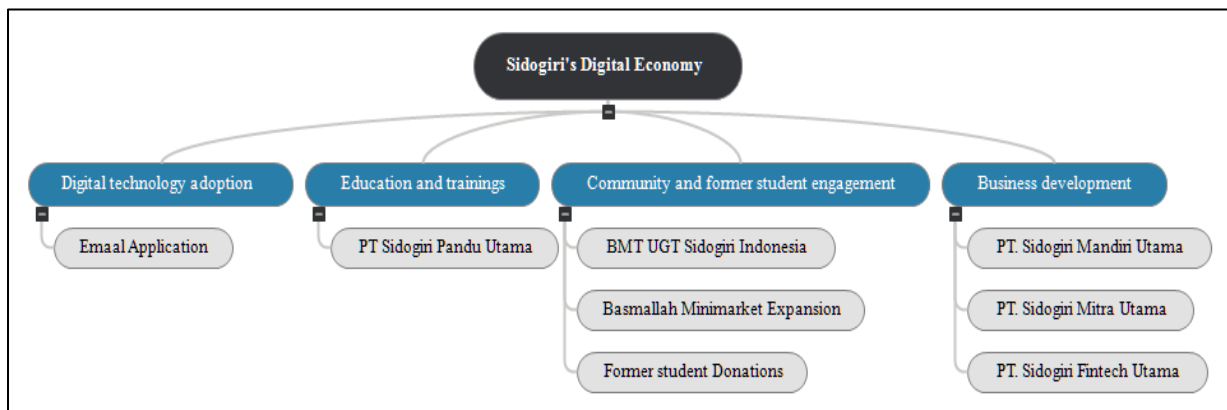


Figure 1. Digital Economy Development Model in Sidogiri

Sidogiri, a pesantren located in Indonesia, has actively contributed to the development of the digital economy in numerous ways. Their proactive approach to digital technology is exemplified by the creation and implementation of the Emaal system, which is a digital payment solution. This initiative showcases Sidogiri's preparedness for a digital economy and underscores its dedication to modernization and innovation.

“Next, we established another holding company known as PT Sidogiri Fintech Utama. PT Sidogiri Fintech Utama specializes in electronic applications, specifically the E-Maal application. The name E-Maal is derived from the Indonesian word “*Maalun*”. Currently, this application is performing well and is profitable, with a substantial financial turnover of up to 300 million per month” (Ilham, personal communication, June 25, 2022).

“All transactions involving Santri and merchants in and around the pesantren are facilitated through E-Maal. Additionally, the pesantren utilizes E-Maal as a payment system for the monthly allowances of Santri. Regrettably, in certain instances when parents send money, it is occasionally lost, resulting in the parents opting to send the funds through E-Maal at Sidogiri instead” (Ilham, personal communication, June 25, 2022).

E-Maal, a groundbreaking innovation in the form of a card issued by Kopontren (Pesantren Cooperative) Sidogiri, serves as tangible proof of ownership rights, specifically designed for use in *mu'amalah syariah* transactions at the Basmallah shop merchant. This system emerges from the advancement of electronic transactions grounded in Financial Technology (fintech), thereby demonstrating the organization's responsiveness to technological progress within the economic sphere (Sulaiman, n.d.). Transactions involving E-Maal applications cover various types of contracts, including *al-bai'u* (buying and selling in Islam) for card ownership, *qardh* (non-interest loans) for top-up processes, *istibdal* (exchange) for

shopping transactions, *hiwalah* (representation to third parties) for transfers, and *wakalah* (contractual representative) for PPS (Pesantren Cooperative) and Ziswaf Santri payments. Withdrawal fees, transfer fees, and Santri payments are subject to *ujrah*, which serves as compensation for the services provided (Sulaiman, n.d.). E-Maal has been designed with robust security measures in place. The database that stores user information is secure, as are the transactions recorded within the E-Maal system. Additionally, the system is equipped with multiple layers of security to guarantee the safety and halalness of all financial deals (Sulaiman, n.d.).

Pesantren Sidogiri is a dedicated institution that focuses on both religious education and economic training. The organization's central mission is to provide quality education and training in these areas. To fulfill this mission, Pesantren Sidogiri has established PT Sidogiri Pandu Utama as an educational institution. Additionally, the organization has formed strategic partnerships with other educational institutions such as Tazkia and UIN Malang. As a result, Sidogiri has developed a student payment and information management application contract.

Pesantren Sidogiri views the economy as a means to an end rather than the ultimate goal. The organization's main objectives are religious education and proselytization, and economic activities are seen as a means of achieving these goals. This perspective is reflected in Sidogiri's rebranding efforts, which aim to shift the public's perception of the organization from one primarily focused on economics to one dedicated to education.

“If we consider Sidogiri, the economy serves as a means rather than an end. The true objective is education, and da'wah, which is the ultimate goal. One of the reasons why Sidogiri has been overshadowed is its reliance on the economy for recognition. Economic institutions such as Baitul wa Tamwil (BMT) have gained fame, while Kopontren Sidogiri has become well-known. In the early 2000s, this caused anxiety among leaders/caretakers of the pesantren. Despite this, economic institutions are only intermediaries and caregivers are uncomfortable. However, people have assessed the economic success of Sidogiri, which caused anxiety among pesantren managers. The community's perception of the economy is also a source of anxiety and one of the underlying causes of the current anxiety in Sidogiri” (Ilham, personal communication, June 25, 2022).

“PT Sidogiri Pandu Utama concentrates on education, training, and mentoring. In this regard, the institution has provided educational services to campuses like Tazkia, which have come directly to conduct comparative studies” (Ilham, personal communication, June 25, 2022).

Community involvement, particularly from the alumni, plays a critical role in the functioning of Sidogiri. Although not officially affiliated, former students provided crucial financial and other forms of support.

“The establishment of BMT UGT Sidogiri was initiated by responsible parties who came together to form a BMT (*Baitul mal Wa Tamwil*) called UGT, which stands for *Urusan Guru Tugas*, or *Gabungan Tugas Guru*. This collective effort aimed to create a more professional association initially named BMT Sidogiri. However, the name was later changed to BMT UGT Nusantara, shifting the focus from an emotional attachment to Sidogiri to a more professional affiliation” (Ilham, personal communication, June 25, 2022).

“UGT's geographical reach of the UGT is primarily East Java, but it has also expanded to other regions such as Kalimantan and West Java. Originally, a provincial initiative evolved into a nationwide operation. BMT UGT Nusantara boasts a substantial asset base of 2.6 trillion, a turnover of 23 trillion, and 296 branch offices distributed across ten provinces, encompassing East Java, Bali, West Kalimantan, Central Kalimantan, East Kalimantan, South Kalimantan, West Java, DKI Jakarta, and Lampung” (Ilham, personal communication, June 25, 2022).

“The former student's passion for this organization is evident in their contributions, which have reached millions, despite not holding a structural stake. Their dedication is demonstrated through their positions as administrators and members, highlighting the crucial role they play in the operations of Sidogiri” (Ilham, personal communication, June 25, 2022).

In addition to its primary objectives, Sidogiri aims to empower local communities by fostering the development of businesses that generate economic benefits. One such initiative is the Basmalah Minimarket in Sampang, which is managed by Kopontren Sidogiri through a *mudharabah* agreement with the Nahdlatul Ulama Branch Management (PCNU) Sampang. This collaboration exemplifies Sidogiri's dedication to supporting local communities and ensures that profits from the business are equitably shared between the investor, Kopontren as the manager, and the NU organization as the partner.

“To establish the Kopontren Sidogiri Minimarket Store, we entered into a *mudharabah* contract with the Branch Manager of Nahdlatul Ulama (PCNU) Sampang. This type of contract means that the store is managed purely by Kopontren and that 100% of the capital comes from individuals who have money. Kopontren does not receive a monthly profit and only receives a royalty fee if there is a minimum profit. However, this is not the case in Kopontren, as the total profit is divided among shareholders at the end of the year. As a result, no profit is made at the beginning of the year, except for expenses such as employee salaries and incoming employees. Profit sharing with the Kopontren parent is divided equally among the 50% ownership of the capital, with 35% going to one party and 15% going to another” (Ilham, personal communication, June 25, 2022).

In addition to its primary focus on education, Sidogiri has also established several businesses to support its operations and goals. These include PT Sidogiri Mandiri Utama, which produces bottled water, PT Sidogiri Mitra Utama, which manages a Basmalah minimarket, and PT Sidogiri Fintech Utama, which provides E-Maal management services. The E-Maal system, which is widely used by schools, is currently in the process of obtaining licenses from Bank Indonesia and the Financial Services Authority (OJK).

“Kopontren established PT, an Indonesian legal entity, thereby integrating the entire business line into the system. The holding company of this enterprise is Kopontren, which operates as a cooperative. PT Sidogiri Mandiri Utama, a subsidiary of Kopontren, specializes in AMDK Santri drinking water. Additionally, PT Sidogiri Mitra Utama oversees minimarkets, while PT Sidogiri Fintech Utama concentrates on financial technology” (Ilham, personal communication, June 25, 2022).

“We established another company named PT Sidogiri Fintech Utama which focuses on electronic E-Maal transactions. E-Maal is derived from "*Maalun*" or Electronic Maal and has a significant user base. Currently, the turnover is good and profit and financial turnover are substantial. The company is licensed by Bank Indonesia and is in the process of obtaining licensing from the Financial Services Authority. This application is similar to other popular platforms like OVO” (Ilham, personal communication, June 25, 2022).

Digital Economy in Pesantren Al-Yasini

Al-Yasini adopted a comprehensive and multifaceted methodology to address the digital economy's development. Their primary focus was on digitalizing the pesantren environment. Al-Yasini has developed an integrated digital model designed to support the operations of pesantren and other educational institutions. To achieve this objective, Al-Yasini utilizes various components, such as cashless systems like “My retailQu App” to monitor the retail business. Moreover, Al-Yasini emphasized digital-based education and training, including training and certification, as well as an online memorization system.

Al-Yasini proactively adapts to changing times and integrates digital technology into its education and finance systems. This demonstrates their dedication to modernization and innovation, although their strategies differ from those of other organizations.

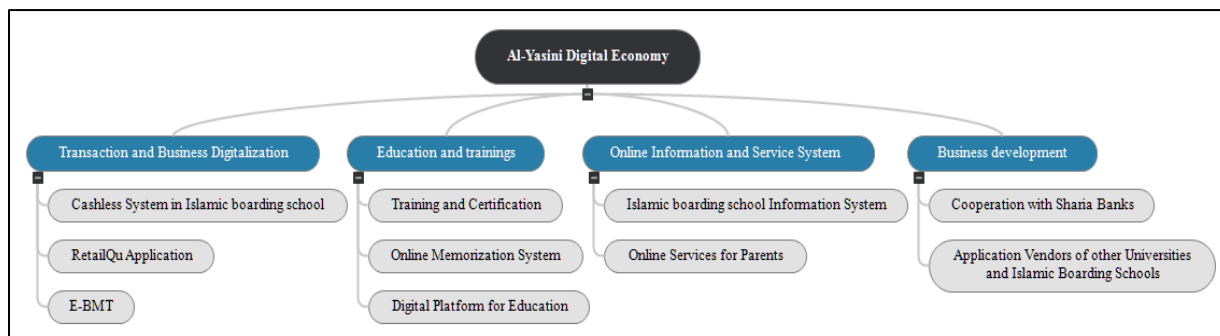


Figure 2. Digital Economy Development Model in Al-Yasini

Al-Yasini, as depicted in Figure 2, is a pesantren that has embraced the digital economy by incorporating four key components into its development: education, retail, agribusiness, and BMT (Baitul Maal wat Tamwil), a microfinance institution. In addition, they developed a pesantren information system called “cashless in pesantren” as part of their digital transformation efforts. This system was adopted by 23 pesantren.

“We are working on digitizing the pesantren environment, and we have developed four modules that are currently in progress. The core system of a pesantren lies in the field of education, and while some pesantren already have core business units, such as retail, BMT, animal husbandry, agriculture, and others, we are now focusing on digitizing these services” (Ghozali, personal communication, June 27, 2023).

“A new application has been released on the Play Store and is now available for download. This type of information system offers numerous benefits, with the first being an update. Originally created for Al-Yasini a year ago, alhamdulillah, it has now been successfully replicated in 23 Pesantren” (Ghozali, personal communication, June 27, 2023).

“In Pesantren, it is necessary to have cash to convert it into digital currency. This process involves using a card with a QR code. To make purchases in the cafeteria, both a card with a QR code and a PIN are required. This is the system that we are working on developing” (Ghozali, personal communication, June 27, 2023).

The implementation of a cashless system at Al-Yasini Pesantren allows the use of cards with QR codes for transactions in canteens and retail shops. This system enables parents to monitor their children's spending using a mobile app and to set daily, weekly, or monthly limits. An integral component of their digital economy is “My retailQu” a retail-based system that provides real-time monitoring of various aspects of the business, such as turnover, warehouse stock, financial reports, attendance, profits, and best-selling items. Additionally, they are working on establishing cooperatives and BMTs in other pesantren countries and on developing an e-BMT system.

Al-Yasini Pesantren has integrated its system with various banks to facilitate transactions and is expanding globally. Furthermore, they developed 40 information systems for UIN Malang and UNISMA.

“The retail application is called “my retail”. In the future, the name could be branded and used in conjunction with the name of each pesantren in the network. Additionally, we are preparing e-BMT” (Ghozali, personal communication, June 27, 2023).

“The system in Kopontren is integrated, allowing us to determine the turnover per second for each shop. This information can be viewed in real time, making it easier to expand to other stores. The system is referred to as Al-YasiniQu and provides a comprehensive

overview of the store's performance. This includes information on sales, warehouse stock, financial reports, attendance, and the progress of top-selling items” (Ghozali, personal communication, June 27, 2023).

“We are in the process of creating a digital ecosystem that aims to reduce the reliance on human intervention, thereby resulting in a more structured and accountable system that utilizes a robust background process” (Ghozali, personal communication, June 27, 2023).

Al-Yasini places a strong emphasis on education and training, providing opportunities for individuals to acquire skills in retail management and coding. They are aware of the obstacles that businesses face, including inadequate human resources or ineffective systems, and have implemented measures to address these challenges.

Furthermore, Al-Yasini embraced technology in education by creating an online attendance system and report cards, which enables parents to monitor their children's attendance and grades remotely. They also established an online consultation platform that allows parents to discuss their children's progress with teachers.

“Therefore, an online attendance system, online memorization, achievement, online report card, consultation, grades, and lesson schedules were all available. In addition, Krapyak Jogja is referred to as KrapyakQu. Pesantren also integrated various banks to create a non-cash tuition payment system. This cooperation between Pesantren and banks is intended to facilitate the payment process” (Ghozali, personal communication, June 27, 2023).

“The purpose of the application is to enable parents to monitor their Santri children's purchases using QR Code cards and attendance records, as cellphones are not allowed for Santri children. Meatballs are sold in the cafeteria and all transactions use QR Codes. By doing so, parents can keep track of what their children buy and set limits on their spending. Parents can set limits on a daily, weekly, or monthly basis, and once the limit is reached, their children will not be able to make any more purchases” (Ghozali, personal communication, June 27, 2023).

Al-Yasini has also created an online memorization system for students and has linked its payment system with various banks to facilitate cashless tuition payments. Additionally, they were commissioned to develop the UIN Malang and UNISMA information systems.

Digital Economy at Pesantren Sintesa

Located in Magetan, East Java, Pesantren Sintesa is a learning institution that focuses on imparting religious knowledge while developing students' digital and online business skills. The institution's curriculum is designed to prepare students for the challenges of the digital age and globalization by providing a variety of training programs.

Pesantren Sintesa also provides extensive training in the realm of digital marketing. The curriculum encompasses a wide range of digital techniques and strategies, such as Search Engine Optimization (SEO) and marketing through social media platforms such as Facebook and Google AdSense. This program aims to equip Santri with the necessary skills to excel in the online business world (Profile - Pesantren Sintesa, 2023). At an advanced level, Pesantren Sintesa provides Sintesa High School and Sintesa Academy, which are designed to improve three essential skills: Technical, Soft, and Conceptual. The curriculum covers a range of topics, including website development and management, digital marketing strategies, mindset development, business administration, and leadership (Profile Pesantren Sintesa, 2023).

Pesantren in Sintesa offers a publicly accessible 2-day intensive learning program called the Sintesa Kilat Program. This program allows individuals to experience the unique learning environment of Pesantren in Sintesa and acquire valuable knowledge and skills within a brief timeframe (Profile Pesantren Sintesa, 2023).

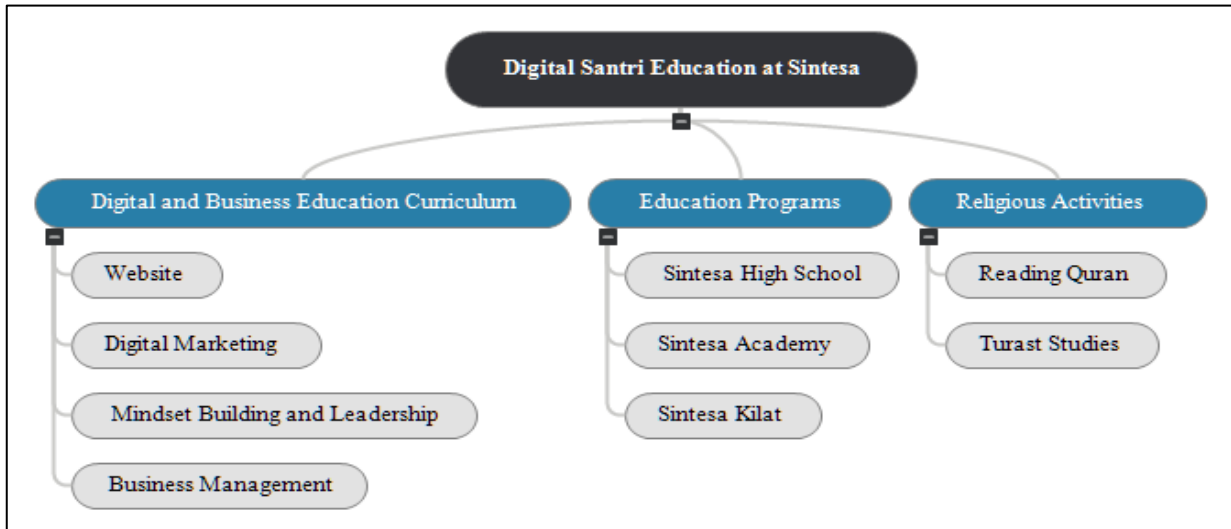


Figure 3. Curriculum design at Pesantren Sintesa

Pesantren Sintesa's primary focus is on fostering the development of digital skills and online business. Additionally, it places a strong emphasis on daily spiritual activities. Santri is instructed in the art of interacting with the Qur'an and engaging in congregational *wirid* and *zikr* (remembering Allah through the recitation of purifying words) after every prayer, as well as in the morning and evening, and the Dhuha sunnah prayers daily. By integrating these diverse areas of study, Pesantren Sintesa provides a comprehensive educational experience that encompasses spiritual, digital, and business dimensions (Profile Pesantren Sintesa, 2023).

Innovation of Digital-Based Pesantrens System in Indonesia

Digitalization within pesantren is implemented to improve efficiency and financial self-sufficiency and to foster a community-based Islamic economy through an online platform. This platform centralizes data on students, teachers, and other stakeholders and offers digital financial services such as mobile banking and e-wallets. The integrated mobile app within this system streamlines communication and offers access to essential information, thereby facilitating efficient financial management. The system simplifies the financial procedures and guarantees transparency and accountability. The platform consists of two main components: the Pesantren Information System, which ensures secure data access, and the Social Fund Management System, which highlights pesantren's social function in managing and collecting social funds accessible via an integrated app and website.

Pesantren implemented a digital information management system as part of its digital transformation efforts. This system aids in the monitoring and management of various operational and financial aspects and supports transparency in the fund management process. It is crucial to ensure that all resources and funds are optimally used following predetermined objectives.

The figure depicted in Figure 4 illustrates three interfaces that collaborate to enhance various aspects of life at pesantren. The E-BMT is a cooperative-based financial system that supports cashless transactions, bill payments, tuition fees, daily needs, and zakat payments. PesantrenQu is an online educational and financial management information system that facilitates interactions and transactions between users and provides comprehensive data on Santri, asatidz (teachers), caregivers, and former students. Kebaikan Nusantara is a social fund collection and management system (ZISWAF) that supports Pesantrens in collecting, distributing, managing, and reporting social funds, as well as providing Zakat and Waqf worship facilities. These interfaces are designed to ensure transparency, accountability, and convenience in financial and information management in Pesantrens.

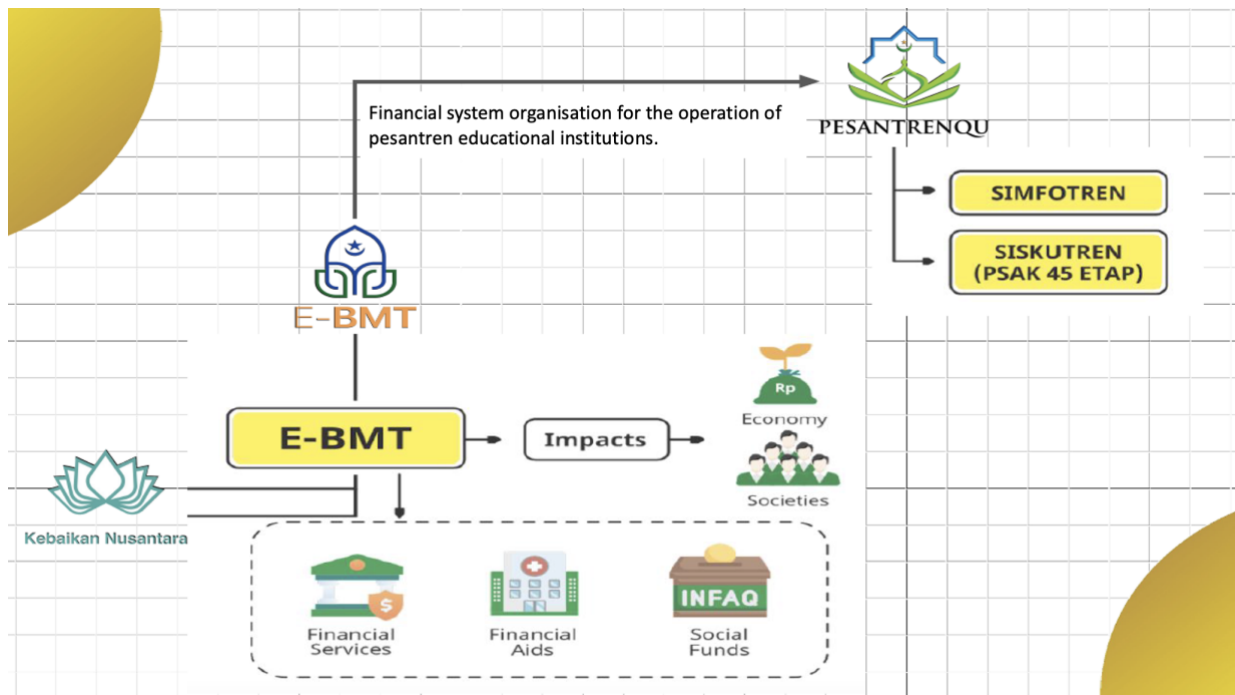


Figure 4. Application Model of Integrated Pesantrens Management (Negara & Ghozali, 2022)

Pesantrens play an active role in nurturing microeconomic ecosystems by supporting local small and medium-sized enterprises (MSMEs). It is crucial to practice effective financial management to cover educational and operational expenses and to establish business units that contribute to the school's overall economy.

The utilization of systems such as E-BMT, PesantrenQu, and Kebaikan Nusantara can be examined through the lens of Bounded Rationality. Decision makers in pesantren make knowledgeable choices about digital adoption that consider the benefits and limitations of the technology. These choices demonstrate a deliberate strategy for harnessing digital tools for economic and educational objectives while acknowledging the constraints and potential of their institutional resources.

A comprehensive financial management system should be implemented to ensure sustainability and growth. This system covers various aspects such as fundraising, allocation, management, and reporting of social funds within the pesantren community. To achieve this, modern technology and digital platforms, such as e-wallets and mobile banking services, should be utilized to facilitate cashless transactions among Santris and staff, thereby increasing efficiency and transparency in financial transactions. Moreover, the pesantren financial management system is critical in driving economic development.

Figure 5 illustrates that LepakQu, RetailQu, PesantrenQu, and E-BMT are the four integrated applications designed to support micro, small, and medium-sized enterprises (MSMEs) in Indonesia. LepakQu helps MSMEs address digital and cashless payment challenges by offering online storage, monitoring, and reporting tools. RetailQu assists retail businesses in scaling and transforming into new retail 4.0 by integrating technology. PesantrenQu, a comprehensive online academic and financial management information system, facilitates user interactions and transactions. E-BMTs enable cashless transactions and bill payments for various purposes. These four applications collaborate to support MSME growth and development by providing efficient and effective technological solutions, streamlining financial transactions, and enhancing business management and monitoring.

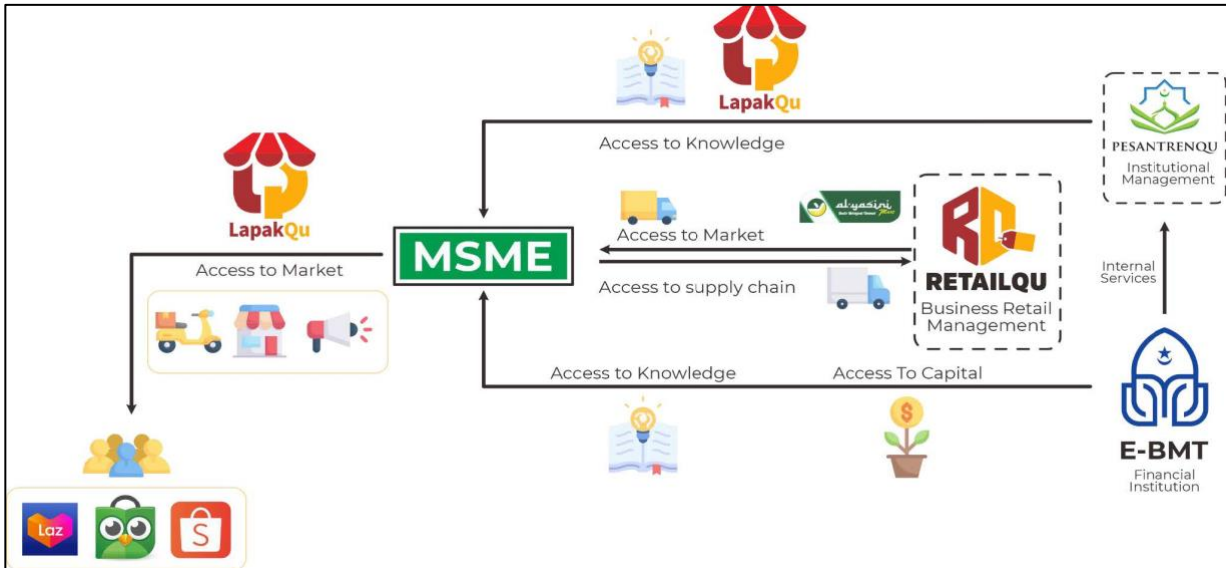


Figure 5. A Community-Based Economic Ecosystem Model Empowered by the Presence & Touch of Technology (Negara & Ghozali, 2022)

The progress of pesantren towards digitalization is evident in Figure 6. This involves various aspects of their operation to establish a more efficient and accountable system. Although the primary function of pesantren is education, many institutions operate other business units such as retail, Baitul Maal wa Tamwil (BMT), and agriculture. To facilitate this transformation, four main modules are being developed: educational, retail, BMT, and pesantren information system modules.

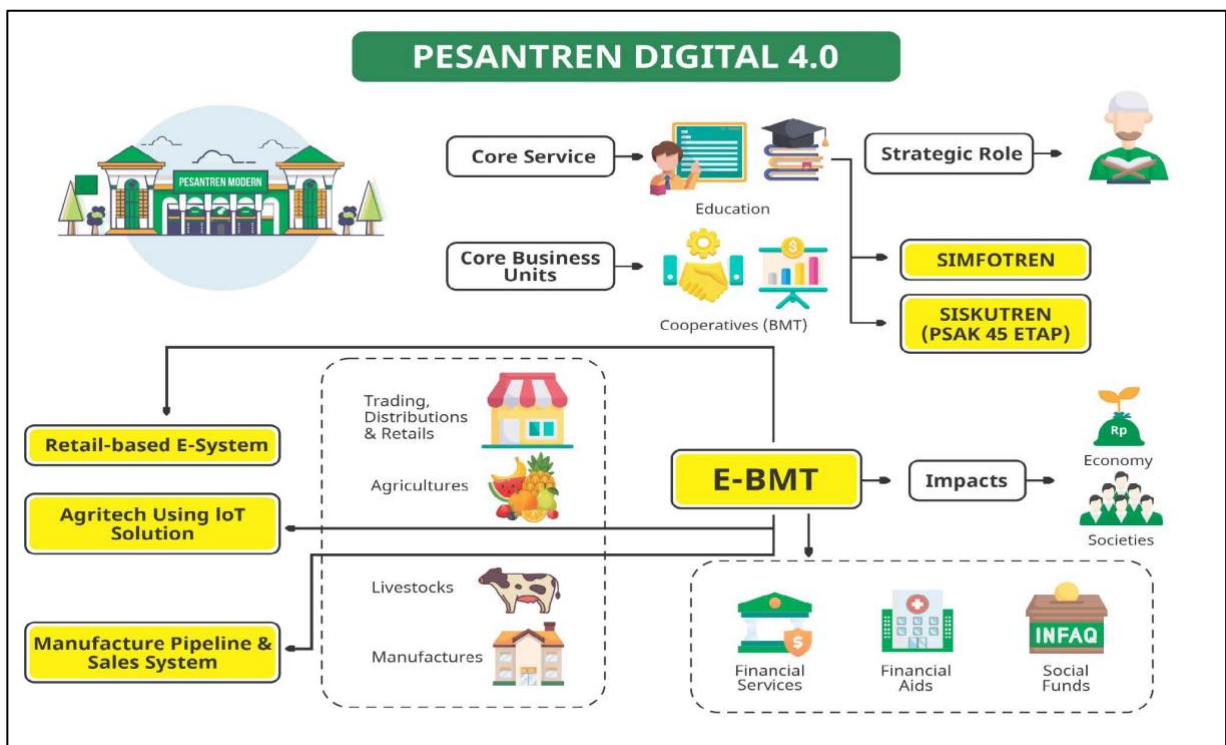


Figure 6. Business Process of Digital Pesantren in Indonesia (Negara & Ghozali, 2022)

Discussion

Model for Integrating Maqāsid Shariah and Digital Economics in Pesantren

Generally, Maqāsid Al-Shari'ah encompasses fundamental and universal objectives that are central to the well-being and preservation of society. These broad objectives encompass essential principles such as the protection of life, property, health, religion, and dignity. These objectives provide a foundation for the application of Islamic principles to various aspects of life, including governance, economics, and foreign policy (Duguri et al., 2021; Wulandari et al., 2022).

In Islamic law, the concept of Maqāsid involves understanding the wisdom behind divine laws, which is essential for accurately interpreting texts (Ibn Ashur, 2001; Aswadi et al., 2021). Maqāsid helps in understanding the reasons behind Islamic practices, moving beyond mere outward observance towards a deeper understanding. Maintaining harmony between the specific and general purposes of Islamic law is important for a comprehensive understanding of Shariah (Ibn Ashur, 2001). Higher goals, such as freedom or justice, should take precedence over specific rules in case of conflict. This approach prevents legal chaos within schools of Islamic law and emphasizes the importance of understanding the general philosophy of Islamic law in interpreting and applying legal principles (Ibn Ashur, 2001).

The integration of technology into pesantren education can have negative consequences if not implemented carefully. Prakosa et al. (2023) found that, although technology can be used to support pesantren traditions, challenges exist, such as the disruption of pesantren culture and the struggle for inclusion and social mobility. Zafi et al., (2021) highlighted the adaptation process of technological advancements in a specific pesantren, but it also revealed a decrease in the authority and sanctity of the Kyai in the eyes of the students. These findings suggest that the use of technology in pesantren can affect the authority structures and traditions within institutions. Therefore, it is crucial to approach the integration of technology in pesantren education with caution, taking into consideration the values and traditions of pesantren to preserve the essence of their educational practices.

Referring to the above research, we find that the basic philosophy of the development of the digital economy in Sidogiri, Al-Yasini, and Sintesa Islamic Boarding Schools is pesantrens' economic independence. The intended economic independence is that the Maqāsid can guide pesantren's business operations and financial systems. Maqāsid Shariah serves as a benchmark for digital economy applications in pesantren to achieve ethical, social, and economic compliance (Nurhadi, 2019b).

In this regard, Pesantren Sidogiri, which implements an E-Maal system based on Shariah contracts, Pesantren Sintesa, which implements ethics-based marketing practices, and Al-Yasini, which integrates Baitul Mal Wa Tamwil, ZISWAF with the PesantrenQu application, is concrete evidence that all three have followed and applied the principles of compliance with ethics, social, and economics.

Interestingly, this economic aspect for the three pesantren is only an intermediary to achieving the main goal, namely, the core value of the pesantren, which is education (human development), to become a perfect Muslim. Thus, *maslahah al-ammah* (General Maqāsid), which is manifested by pesantren's practices, represents economic independence and human development.

The Maqāsid also includes more specific objectives, as outlined by Ibn 'Āshur (Ibn Ashur, 2001; Sulaiman Lebbe, 2021). This includes the protection of religion, life, intellect, progeny, and property (Sulaiman Lebbe, 2021; Eletrebī & Suleiman, 2022). Concerning this specific objective, Pesantrens Sidogiri, Al-Yasini, and Sintesa have demonstrated that the integration of digital technology and Maqāsid Shariah not only fulfills the internal needs of the pesantren but also aligns with global trends in the digital economy. As expressed by Kuznetsova and Chmeruk (2019), the use of digital technology in an economy brings innovation and efficiency. The adoption of systems such as E-Maal, PesantrenQu, My-RetailQu, and E-BMT by these Pesantrens demonstrates how technology can be used to ensure fair and transparent transactions following the Maqāsid Shariah principle of wealth protection.

Pesantren's approach to digital education and training reflects the protection of the mind and soul in Maqāsid Shariah. The use of technology in education, in line with the findings of Umam et al., (2023) and Syamsu et al., (2022), not only improves Santri's digital skills but also prepares them to participate effectively in the growing digital economy.

In addition, digital transformation in Pesantrens is part of the global trend in digital technology adoption. According to Hoderi (2019), a digital economy is driven by hyperconnectivity and continuous innovation. In pesantren, this technology is used to strengthen communities and social networks as well as financial management and education.

However, this integration also shows how traditional institutions, such as pesantren can adapt to times without losing the essence of their core values. This is consistent with Chapra's (2008) view of Islamic economics, which focuses not only on material well-being but also on Islamic spiritual and ethical values.

Finally, Maqāsid also has a special purpose (*maṣlahah al-khāṣah*) that refers to specific interests or benefits. *Maṣlahah al-khāṣah* involves consideration of the specific needs, circumstances, or benefits of a particular individual or group. Generally, Islamic jurists use *maṣlahah al-khāṣah* to adapt legal rulings to serve the best interests of individuals or society while upholding the broader objectives of Islamic law.

In connection with that, Pesantren Sidogiri, Al-Yasini, and Sintesa explained that the existence of their economic institutions both in the form of Limited Liability Companies, Baitul Maal wa Tamwil, Website Development, and Digital Marketing is intended so that pesantren and Santri no longer depend on other parties (economic independence). Pesantren Sidogiri and Al-Yasini stated that the pesantren did not have to depend on *Bisyāroh* (wages) charged to the parents of Santri, the Pesantren independently without having to depend on the parents of Santri, could finance the operational costs of the Pesantren. Likewise, with Sintesa, this pesantren aims to change the image of the Santri, who are generally labelled as unemployed, by turning them into Santri Businessmen. These specific objectives all support the more general *maṣlahah* of economic independence and human development.

In connection with this, we conceptualize the general Maqāsid, specific Maqāsid, and partial Maqāsid practiced by these Pesantrens, it is as described in Figure 9. As the concept in Figure 9, in the context of Maqāsid Shariah, the general Maqāsid to be achieved by the Digital Islamic Boarding School is to preserve and fulfill basic human needs, in the specific Maqāsid level, the Digital Islamic Boarding School 4.0 reflects the practical application of this concept through modern technology. The Core Service of Pesantren Digital, which focuses on education, emphasizes the importance of preserving intellect, where education is considered an important tool for increasing understanding and wisdom. On the other hand, Core Business Units through BMT cooperatives play a role in the preservation of wealth (Property) by offering financial products that are aligned with Islamic principles, guaranteeing justice, and preventing exploitation in economic transactions.

Furthermore, at the partial Maqāsid level, the strategic role carried out by SIMFOTREN and SISKUTREN, which are management information systems, shows a commitment to strengthening the governance and efficiency of pesantren, in line with the Maqāsid Shariah goal of maintaining a just social system and order. The Impacts of E-BMT, which include INFAQ and Social Funds, reflect Pesantrens's social and financial commitment to support the economic and social welfare of the community, illustrating the direct application of the Maqāsid Shariah concept in benefiting the wider community.

Digital Pesantren 4.0, as depicted in the figure, combines traditional values with innovation to achieve the objectives of Maqāsid Shariah, emphasizing the importance of preserving reason and wealth in a broader and integrated scope, harmonizing spiritual and material development in society.

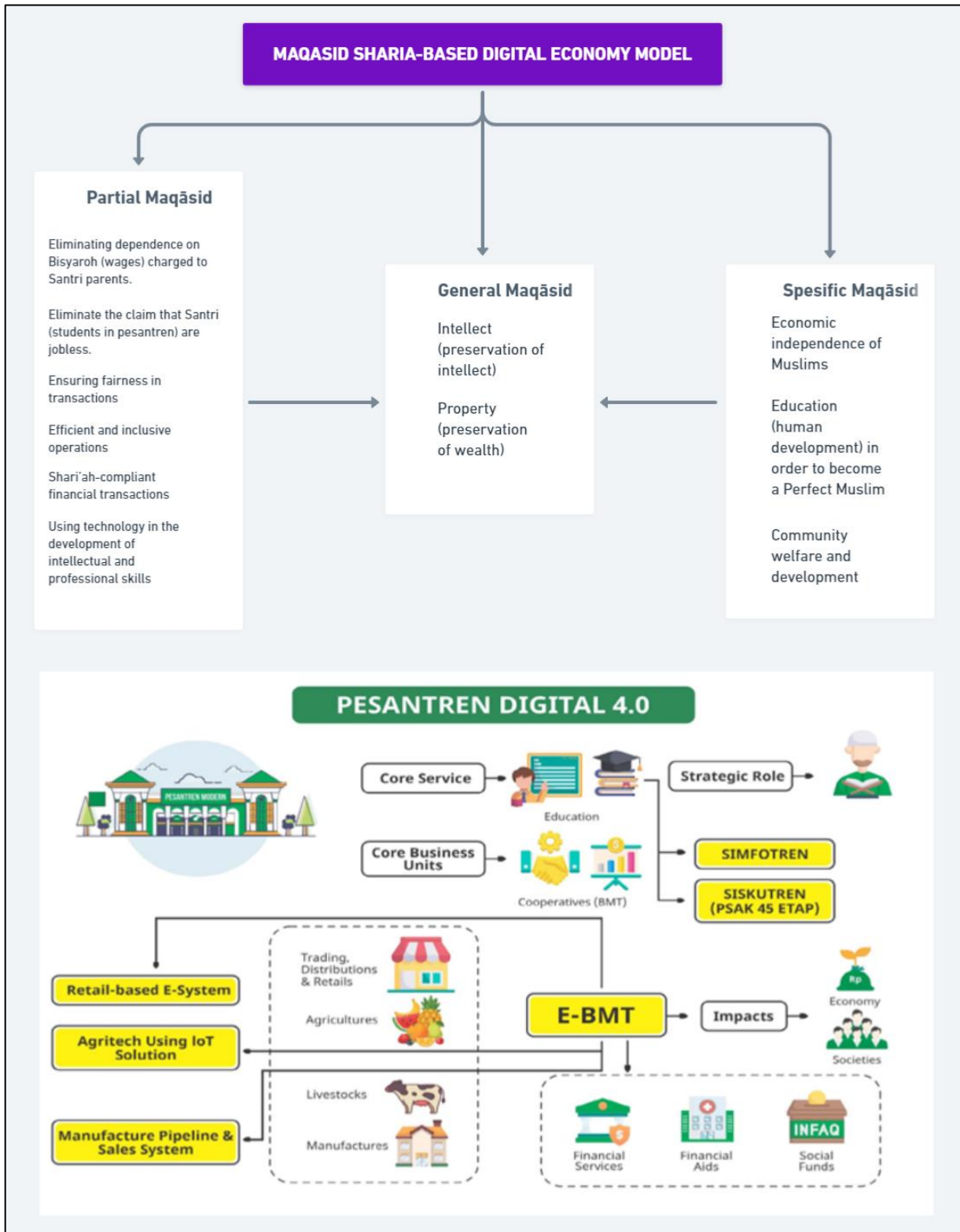


Figure 9. Maqāsid Shariah - Based Digital Economy Model

Potential and Challenges of Digital Economy in Pesantrens in the Context of Maqāsid Shari'ah

Improving Economic Efficiency and Increasing Accessibility

In Pesantren such as Sidogiri, Al-Yasini, and Sintesa, the integration of the digital economy represents a vital step towards enhancing operational efficiency and broadening access. Numerous initiatives, including the e-Maal system in Sidogiri, RetailQu, PesantrenQu, and E-BMT in Al-Yasini, illustrate efforts to bolster the property aspect following Maqāsid Shari'ah, which adheres to Shari'ah-compliant

financial transactions. This transition reflects a shift towards more efficient and inclusive operations, aligning with the research findings on the digital economy in pesantren presented by Kuznetsova and Chmeruk (2019), who emphasized the significance of technology as a catalyst for innovation and growth.

Improving Access to Quality of Education and Community Development

From an educational perspective, the use of digital technology in pesantren supports the development of intellect under the principles of Maqāsid Shari'ah. Digital tools and online platforms have enabled the enrichment of educational materials and broadened the scope of learning. This is in line with the global trend of digital education, which emphasizes the importance of technology in the development of intellectual and professional skills.

Pesantren are vital in fostering knowledge-based communities in the digital economy. They not only offer formal education, but also provide skills training and digital literacy, and facilitate the creation of digital-based micro-enterprises. By adopting this approach, pesantren can serve as centers of economic and social growth, thus reinforcing the principle of the soul in Maqāsid Shari'ah by prioritizing community welfare and development.

Conclusion

Based on the analysis of the integration of the digital economy in pesantren such as Sidogiri, Al-Yasini, and Sintesa, it can be concluded that the adoption of digital technology in these Islamic educational institutions paves the way for increased operational and educational efficiency. Moreover, initiatives such as e-Maal in Sidogiri show how technology can be integrated into the values and principles of Maqāsid Shari'ah, particularly to protect assets and ensure fairness in transactions. This confirms that pesantren can maintain their traditional values while embracing technological innovation, opening opportunities for progress that are not only economically beneficial but also support the social and spiritual well-being of the community.

However, challenges, such as resistance to change and technical security issues, show that integrating the digital economy is not a seamless process. Pesantren needs to carefully navigate these challenges and ensure that the technologies implemented are in line with Islamic values and principles. In conclusion, pesantren in Indonesia face significant opportunities to thrive in the digital age while maintaining their identity and core values, providing a unique example of how educational institutions can adapt to and thrive in a changing global context.

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