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The Evolution of Madrasah Education Service Digitalization Policy: An Analysis of Ministry of Religious Affairs Policy Documents, 2010–2026

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Abstract

This study aims to analyze the evolution of policies regarding the digitalization of educational services in madrasahs (Islamic schools) under the Ministry of Religious Affairs of the Republic of Indonesia during the 2010–2026 period. The research focuses on shifts in policy direction, the management of educational data, the development of digital administrative services, and efforts to integrate madrasah educational information systems. A qualitative approach was employed, utilizing a policy document analysis method. Data were gathered through an examination of official Ministry of Religious Affairs documents, ministerial decrees, circular letters, and publications related to the digitalization of madrasah education. The analysis involved identifying policy developments chronologically, categorizing key themes, and comparing shifts in policy orientation over time. The findings indicate that the digitalization of madrasah educational services has evolved incrementally—progressing from the strengthening of administration and data collection toward the integration of information systems. The development of EMIS 4.0 represents a significant milestone in educational data management, further reinforced by the Ministry of Religious Affairs Decree Number 83 of 2022 concerning the Management of Educational Data within the Ministry. Furthermore, the introduction of the Digital Madrasah Report Card (Rapor Digital Madrasah), the Madrasah Performance Report Card, and the integration of data concerning teachers and educational staff demonstrate an expanding use of technology in educational services. Nevertheless, the implementation of digitalization policies continues to face challenges, including issues related to data quality, infrastructure limitations, human resource capacity, and information security. The study concludes that the success of digitalizing madrasah educational services depends not merely on the availability of applications, but also on system integration, equitable access, and the enhancement of the quality of educational services.

Keywords: *digitalization policy, madrasah education, EMIS 4.0, educational services, Ministry of Religious Affairs*

INTRODUCTION

Developments in information technology have brought major changes in many areas of life, including the provision of education. The use of digital technology gives educational institutions opportunities to improve administrative effectiveness, speed up the delivery of information, and support data-based decision-making. In the context of Islamic education in Indonesia, madrasahs, as educational institutions under the guidance of the Ministry of Religious Affairs of the Republic of Indonesia, are also required to adapt to these developments. The digitalization of educational services has become an important step toward madrasah governance that is more effective, transparent, accountable, and responsive to community needs.

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The digitalization of madrasah education services involves not only the use of computers or applications in administrative activities but also changes in data management systems, institutional services, teacher management, learning evaluation, and educational planning and supervision. Before digital systems developed widely, a number of educational administration processes still depended on manual recording and the direct collection of documents. Such conditions can cause problems such as delays in delivering information, repeated data entry, and difficulty integrating information from various educational units. Therefore, digitalization policy is needed to drive changes in service systems so that they are more structured and able to meet the needs of madrasah education management.

The development of madrasah education service digitalization policy in 2010–2026 is worth studying because it covers a process of change from strengthening administration and data collection toward developing increasingly integrated digital services. In the early stage, managing educational information was an important need in supporting the planning and supervision of education. As technology developed, the Ministry of Religious Affairs began to expand the use of information systems across various educational services. One important development is the Education Management Information System (EMIS) 4.0, introduced in 2021 to support madrasah education data management. The development of this system shows that educational data play a strategic role in supporting policy implementation and decision-making within the Ministry of Religious Affairs.

This policy change became more visible through Ministry of Religious Affairs Decree (KMA) Number 83 of 2022 concerning the Management of Educational Data within the Ministry of Religious Affairs. The policy strengthens the position of EMIS as the education data management system within the Ministry while encouraging the integration of existing educational information systems. In addition, the use of the Digital Madrasah Report Card, digital operational licensing services, and the development of the Madrasah Performance Report Card show that digitalization is no longer limited to data collection but has begun to cover various service and evaluation processes in education. These developments indicate an effort to build more connected educational governance through the use of information technology.

Nevertheless, the development of digitalization policy has not always proceeded without obstacles. Implementing digital systems requires technological infrastructure, internet connectivity, human resource capability, and the quality of the data managed by each madrasah. Differences in geographic conditions and institutional capacity can also affect madrasahs' readiness to use digital services. In addition, the many applications developed for different needs risk causing problems if they are not accompanied by adequate coordination and integration. Therefore, the success of digitalization should be judged not only by the number of applications available but also by its ability to simplify administrative processes, improve data accuracy, and improve the quality of educational services.

In public administration studies, digital transformation relates to changes in work processes, information management, institutional coordination, and the delivery of services to the public. This principle is relevant for understanding the digitalization of madrasah education because applying technology requires clear policy support and sustainable governance. Good digitalization policy needs to attend to system integration, information security, ease of use, and equitable access for all educational units. Thus, an analysis of policy documents is needed to understand how the Ministry of Religious Affairs formulates the direction of digitalization change, sets program priorities, and builds educational service systems that fit madrasah needs.

Based on this description, this study focuses on the evolution of madrasah education service digitalization policy within the Ministry of Religious Affairs of the Republic of Indonesia during 2010–2026. The study uses policy document analysis to identify changes in policy orientation, the development of educational information systems, and efforts to integrate digital services over time. It also examines the challenges reflected in the development of these policies, especially those related to data quality, human resource readiness, infrastructure, and coordination among systems. Through this study, a more systematic understanding is expected of the direction of madrasah education digitalization policy and its implications for strengthening governance and improving the quality of educational services in Indonesia.

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METHODS

This study uses a qualitative approach with the policy document analysis method. This approach was chosen because the study focuses on examining and understanding the development of madrasah education service digitalization policy issued by the Ministry of Religious Affairs of the Republic of Indonesia during 2010–2026. Document analysis was used to identify changes in policy direction, the development of educational information systems, and the government's efforts to improve the integration of digital services in madrasahs. Through this approach, policy is understood not only as a written document but also as an expression of the government's direction and strategy in developing information-technology-based educational governance.

The data sources in this study are official documents related to madrasah education digitalization policy, including ministerial decrees, circular letters, strategic planning documents, technical guidelines, and official publications of the Ministry of Religious Affairs and the Directorate General of Islamic Education. The documents of interest included policies on the management of the *Education Management Information System* (EMIS), the development of EMIS 4.0, the Digital Madrasah Report Card, digital madrasah operational licensing services, and the integration of data on teachers and education staff. These documents were selected based on their relevance to the research focus, the clarity of the issuing institution, their fit with the research period, and the availability of information on the purposes and implementation of the policies.

Data were collected through documentation study by searching for documents on the official websites of the Ministry of Religious Affairs of the Republic of Indonesia, the Directorate General of Islamic Education, and the Legal Documentation and Information Network of the Ministry of Religious Affairs. The documents found were then grouped by year of issue, type of document, policy purpose, and the service area regulated. This grouping aimed to build a sequence of policy development from 2010 to 2026 and to identify relationships among policies issued in different periods. Official publications were used as supporting sources to understand the context of program development, while decrees and circular letters were used to examine the formal basis of policies.

Data analysis was carried out in three stages: data reduction, data display, and conclusion drawing. In the data reduction stage, the collected documents were selected based on their relevance to the research focus. The data were then displayed through chronological mapping and theme grouping covering the development of digital administration, educational data management, information system integration, and implementation challenges. The final stage compared the contents of the documents to find patterns of change, continuity, and shifts in the orientation of madrasah education service digitalization policy. The results of the analysis were then interpreted to explain the direction of policy development and its implications for madrasah education governance. To keep the analysis accurate, information from policy documents was distinguished from the researchers' interpretation, and claims about the success of implementation were not determined solely on the basis of program launch documents.

This study has limitations because it uses documents that were available for access and did not involve direct interviews with policy managers or madrasah stakeholders. Therefore, the results are directed more at explaining the evolution of policy in documentary terms than at measuring the effectiveness of its implementation across all madrasahs. In addition, documents for each year in the 2010–2026 period are not always equally complete. This condition was taken into account in the interpretation so that the conclusions remain consistent with the available documentary evidence.

DISCUSSION

1. **Early Phase: Modernizing Governance and the Foundation of Madrasah Education Data Collection (2010–2019)**

   The development of madrasah education service digitalization policy in 2010–2019 can be understood as a stage of building the foundation of administration and educational information management. During this period, the need for accurate data and well-organized administrative systems became an important part of supporting the provision of education under the Ministry of Religious Affairs of the Republic of Indonesia. Data management was needed to know the condition of educational units, the number of learners, the availability of

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educators, and the need for madrasah facilities and infrastructure. This information became the basis for the government in drawing up plans, carrying out guidance, and determining programs to improve educational quality.

In education management, the availability of structured information is closely related to the quality of decision-making. Systematically collected data can help the government understand madrasah needs and reduce dependence on unorganized reports. Conversely, incomplete or outdated data can cause a mismatch between madrasahs' real needs and planned programs. Therefore, developing educational information systems became an important need in the process of modernizing madrasah education governance.

One system that plays an important role in managing Islamic education data is the *Education Management Information System* (EMIS). This system is used to support the collection and management of educational data within the Ministry of Religious Affairs. The existence of EMIS is part of the effort to build an information base that can support educational planning and supervision. The data managed through the system include information on educational institutions and various aspects of education provision needed in administrative processes.

However, the development of information systems in this period cannot immediately be taken to mean a fully integrated digital transformation. Using information systems for data collection differs from applying digital services that allow various administrative processes to be carried out in a connected way. At the foundation stage, the main concerns were still the availability of data, orderly reporting, and the use of technology to help administrative work. Thus, digitalization in 2010–2019 needs to be understood as a gradual process that became the basis for developing digital services in subsequent years.

On the policy side, the 2010–2019 period also needs to be seen in the context of modernizing government administration and the growing use of information technology in public institutions. The Ministry of Religious Affairs faced a need to improve administrative effectiveness, improve information management, and strengthen coordination between the central and regional levels. In the madrasah context, this need related to the large number of educational units that had to be recorded and guided under varied institutional conditions. The use of information systems offered opportunities to speed up data collection and ease monitoring, although the results still depended on the readiness of officers and the quality of the information entered.

Nevertheless, the data collection foundation in this period still faced a number of challenges. Differences in human resource capability, limited technological facilities, and the quality of internet networks could affect data management. In addition, the accuracy of information depended heavily on educational units' discipline in updating data and system managers' ability to verify it. These conditions show that administrative modernization cannot be achieved merely by providing technology; it also requires guidance, clear work procedures, and a well-directed division of responsibilities.

Based on this analysis, the 2010–2019 period can be positioned as the foundation phase in the evolution of madrasah education service digitalization policy. Strengthening administration and data collection became the basis for developing broader systems in later periods. Although the available documentary evidence is not sufficient to conclude that digitalization proceeded evenly during this period, the development shows the importance of data and information technology in supporting educational governance. This foundation became relevant when the Ministry of Religious Affairs began to expand the use of digital services and push for information system integration in 2020–2021.

2. **Acceleration of Madrasah Education Service Digitalization in 2020–2021**

The 2020–2021 period was an important stage in the development of madrasah education service digitalization. During this time, the use of technology in education management was increasingly needed, especially to support administrative activities, data

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collection, learning outcome reporting, and madrasah institutional services. The COVID-19 pandemic reinforced the need for digital-based services because educational and administrative activities had to adjust to limited direct interaction. In this context, the Ministry of Religious Affairs began to encourage the development of various digital applications to support madrasah education management.

One important development in this period was the development of the *Education Management Information System* (EMIS) 4.0. The system was introduced as part of an effort to renew Islamic education data governance so that madrasah data collection could be carried out in a more structured and integrated way. Through EMIS 4.0, madrasah institutional data became an important part of supporting administrative processes and educational planning. This development shows a shift from data management that previously faced various limitations toward a data collection system more oriented to the use of digital technology.

Besides developing EMIS 4.0, the Ministry of Religious Affairs also encouraged the use of the Digital Madrasah Report Card (RDM) to support the management of learners' learning outcomes. The application gives madrasahs an alternative for preparing and managing report cards digitally. Use of the system is expected to help with processing grades, preparing learning outcome reports, and storing academic information. Thus, digitalization was directed not only at institutional data management but also began to touch learning administration activities directly related to learners and teachers.

Another development was seen in the implementation of digital madrasah operational licensing services. This service shows that technology began to be applied in institutional administration processes, including document handling and licensing services. Digitalizing licensing has the potential to speed up service processes, reduce dependence on physical documents, and improve administrative orderliness. Nevertheless, these benefits still depend on the readiness of the system, the clarity of procedures, and madrasahs' ability to follow the established service mechanisms.

Judging by the direction of policy, the 2020–2021 period shows that madrasah education service digitalization began to develop through several channels at once. EMIS 4.0 focused on educational data management, RDM supported learning outcome administration, and digital licensing services related to institutional services. These developments show an expansion in the use of technology from data collection toward more varied administrative services. However, the existence of digital applications does not automatically show that all services have been integrated or can be used evenly by all madrasahs.

In implementation, the acceleration of digitalization also faced a number of challenges. Differences in the availability of internet networks, technology devices, human resource capability, and understanding of application procedures can affect the use of digital services. In addition, data quality remains important because digital systems need information that is accurate, complete, and regularly updated. If the data entered do not match actual conditions, the results of information processing can affect planning and decision-making. Therefore, applying technology needs to be accompanied by mentoring, improved user competence, and supervision of data quality.

Based on the analysis of policy developments in this period, 2020–2021 can be understood as the phase of accelerating madrasah education service digitalization. In this phase, technology use was directed at supporting data collection, academic reporting, and institutional administrative services. However, the change is better understood as a process of developing and expanding digital services, not as proof that all madrasah administrative problems had been resolved. This stage became the basis for strengthening data governance and system integration in the following period.

3. **Strengthening Data Governance and the Integration of Madrasah Digital Systems (2022–2023)**

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The 2022–2023 period was an important stage in strengthening madrasah education data governance. After the use of digital applications began to develop in the previous period, policy attention was increasingly directed at data management that is more orderly, integrated, and usable as a basis for decision-making. In this context, digitalization was understood not only as using applications to complete administrative work but also as an effort to build a more systematic educational information management system. Well-managed data are needed to support program planning, monitoring of education delivery, and evaluation of madrasah services.

One relevant policy in this period is Ministry of Religious Affairs Decree (KMA) Number 83 of 2022 concerning the Management of Educational Data within the Ministry of Religious Affairs. The policy is an important part of the discussion of educational data governance because it positions data management as an element that needs to be regulated in a more directed way. In madrasah education, data on educational units, learners, educators, education staff, and various other supporting aspects play an important role. These data are used not only for administrative purposes but can also support policy formulation and the determination of educational needs.

Strengthening data governance is also related to the use of EMIS 4.0 as one of the Islamic education data collection systems. Use of the system is directed at helping manage madrasah information digitally. However, the quality of an information system is determined not only by the availability of the application but also by the accuracy of the data entered, the regularity of information updates, and users' consistency in following the procedures in force. Therefore, strengthening EMIS 4.0 needs to be understood as part of improving data governance, which requires policy support and the involvement of the parties responsible for managing educational information.

Besides strengthening EMIS 4.0, the direction of application integration became an important issue in the development of madrasah digital services. Using various applications can help meet different administrative needs but can also cause problems if each system has procedures, data formats, and access mechanisms that are not aligned. In such conditions, users may face repeated work, such as entering the same data into several applications. Therefore, system integration is needed so that information management becomes more efficient and does not add to madrasahs' administrative burden. The direction of this integration policy needs to be assessed from its rules and implementation, not merely from the number of applications available.

In the same period, the development of programs to improve madrasah education quality also showed the relationship between digitalization and the need for educational evaluation. Using technology in data management and reporting can support the monitoring of madrasah conditions and help prepare improvement programs. Systematically arranged data have the potential to describe the needs of each educational unit so that program planning can be better directed. Nevertheless, digital data still need to be interpreted according to real conditions in the field. The information available in a system is not always sufficient to explain all the problems madrasahs face without suitable evaluation and follow-up.

Strengthening data governance in 2022–2023 also needs to be linked to human resource readiness. Madrasah heads, operators, teachers, and education staff play a role in ensuring that digital systems are used according to needs and prevailing provisions. If users do not yet understand data management procedures, data entry errors and delays in updating information can occur. In addition, differences in technological capability and infrastructure availability among madrasahs can affect how smoothly policies are implemented. Therefore, applying digital policy needs to be accompanied by outreach, training, technical assistance, and a clear division of responsibilities.

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Data security and protection are also aspects that need attention in strengthening educational information systems. Using digital services means that various educational information is stored and managed through electronic systems. This condition demands the regulation of access rights, care in account management, and compliance with information protection procedures. Educational data must be managed responsibly so that they can be used for service and planning purposes without neglecting information security. Thus, the success of digitalization is measured not only by ease of access to applications but also by managers' ability to maintain data quality and security.

Based on this description, the 2022–2023 period can be understood as a phase of strengthening data governance and the direction of madrasah digital system integration. KMA Number 83 of 2022 is an important policy document for analyzing educational data management, while the use of EMIS 4.0 shows the role of digital systems in supporting madrasah data collection. However, policy document analysis needs to distinguish between the goals set in regulations and the results of implementation that actually occurred. The existence of policies and applications does not by itself prove that integration has proceeded comprehensively or that all madrasahs gain the same benefits.

Thus, developments in this period show that the focus of digitalization began to shift toward strengthening data quality, orderly information management, and coordination among services. This stage became the basis for analyzing later developments, especially changes in reporting systems, performance evaluation, and the management of madrasah education services in 2024–2026.

4. **The Development of Service Digitalization and Madrasah Performance Evaluation (2024–2026)**

The 2024–2026 period is an important stage for analyzing the sustainability of madrasah education service digitalization policy. After the strengthening of data collection and information governance in the previous period, analytical attention began to turn to the use of digital systems to support the monitoring, reporting, and evaluation of madrasah performance. At this stage, the development of digitalization cannot be judged simply by the addition of applications; attention must also be paid to service functions, data connectivity, ease of use, and benefits for educational management. Therefore, policy analysis in this period needs to distinguish between the direction of development written in official documents and the results of implementation that have been demonstrated.

One aspect relevant to examine is the development of the Madrasah Performance Report Card as part of efforts to use technology to support evaluation. A performance reporting system can help present information on madrasah conditions and achievements in a more structured way. Such information could be used by madrasah managers to recognize aspects to maintain and to improve. For those responsible for educational guidance, performance data can also be considered when preparing mentoring and quality improvement programs. Nevertheless, the evaluation function will work better if the data used are accurate, assessment indicators are understood by users, and reporting results are followed up with clear improvement measures.

The development of digital services in this period also needs to be linked to changes in the needs of educational administration. Using technology is expected to help reduce repeated work, speed up information processing, and make it easier to access the data needed. However, these benefits do not appear merely because a service is available electronically. The systems used need clear procedures, easy access, and fit with users' needs. If some services are not adequately connected, madrasahs may still face repeated data entry or difficulty reconciling information across platforms. Thus, efficiency is one important aspect in assessing the direction of digitalization policy development.

A fairly prominent development occurred in 2024 with the launch of the digital Madrasah Performance Report Card (RKM). According to a publication of the Directorate

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General of Islamic Education of the Ministry of Religious Affairs dated 29 October 2024, RKM was designed to integrate data from several educational evaluation platforms, namely EMIS, the Indonesian Madrasah Competency Assessment (AKMI), the Teacher Competency Assessment (AKG), the Madrasah Self-Evaluation (EDM), and the Madrasah Work Plan and Budget e-system (e-RKAM). This integration is directed at supporting a more comprehensive mapping of madrasah quality.

The presence of RKM shows an important development in the direction of digitalization policy, namely efforts to connect data from various instruments to support educational evaluation. Whereas each application was previously discussed mostly by its own function, the development of RKM shows an effort to bring information from several sources into a more comprehensive evaluation framework. This information is expected to help stakeholders recognize madrasah conditions and determine aspects that need improvement. However, the goal of this integration needs to be distinguished from the results of its implementation. A publication about a system launch is not enough to conclude that all data have been perfectly integrated or that the quality of all madrasahs has improved.

Another important change occurred in 2025 with the transition of madrasah teacher and education staff data management from SIMPATIKA to the EMIS 4.0 GTK Madrasah module. According to an official notice from the Directorate General of Islamic Education dated 10 January 2025, data collection through the new system began together with the EMIS data collection period for the even semester of the 2024/2025 academic year. The data managed are used to support various administrative needs, including issuing documents related to the teaching profession, calculating teacher professional allowances, and registering for Teacher Professional Education (PPG).

This transition can be understood as an effort to strengthen the consolidation of madrasah education data management. Using a more centralized system has the potential to reduce data separation among applications and support the consistency of information about teachers and education staff. However, a change of platform also requires an adjustment process. Operators and users need to understand the mechanisms for data collection, validation, and access authority in the new system. If the adjustment process is not supported by adequate outreach and technical assistance, a change of application can cause administrative problems, especially in the early period of implementation.

Entering 2026, policy analysis needs to consider continuity among regulation, system development, and digital service delivery. The year 2026 is the end of the period studied, so documents issued up to the date of the research can be used to see the direction of the latest policy developments. However, conclusions about conditions throughout 2026 cannot be drawn only from documents issued early in the period. Therefore, assessments of the latest developments must be adjusted to the availability of official documents and verifiable data.

Beyond these developments, several challenges remain relevant to analyze. First, data integration requires consistency of formats, definitions, and information update mechanisms so that data from various systems can be used consistently. Second, human resource readiness affects the accuracy of data entry and users' ability to use services. Third, technological infrastructure such as internet networks and supporting devices can affect smooth access, especially in madrasahs with limited facilities. Fourth, data security and protection need attention so that educational information is managed according to its authority and purpose of use.

Another challenge is ensuring that digitalization truly benefits educational services. The success of a policy should not be measured only by the number of applications launched or the amount of data stored in a system. Assessment also needs to consider ease of use, accuracy of information, administrative efficiency, and the use of data in decision-making. With this approach, technology is positioned as a means of improving educational governance, not merely a form of administrative modernization.

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Based on the analysis of developments in 2024–2026, the digitalization of madrasah education services shows a direction of strengthening data integration and using information for performance evaluation. The development of the Madrasah Performance Report Card in 2024 and the transition from SIMPATIKA to EMIS 4.0 GTK Madrasah in 2025 are examples of relevant changes worth studying. Nevertheless, policy documents and official publications need to be analyzed critically so that program goals are not immediately taken as proof of successful implementation.

Overall, this period shows that the challenges of madrasah digitalization began to shift from merely providing electronic services toward the need to strengthen integration, data quality, and the use of information. Policy sustainability requires coordination among system managers, improved user competence, infrastructure support, and periodic evaluation. In this way, digitalization can be directed to produce educational services that are more effective, accountable, and suited to madrasah needs.

5. **Analysis of the Evolution of Madrasah Education Service Digitalization Policy, 2010–2026**

Based on policy developments from 2010 to 2026, the digitalization of madrasah education services can be understood as a process of change that took place gradually. The change is seen in efforts to modernize administration and data collection, develop applications to support educational services, strengthen data governance, and integrate various information systems. Thus, the evolution of digitalization policy relates not only to changes in the technology used but also to changes in how the Ministry of Religious Affairs manages information and supports madrasah education services.

In 2010–2019, the main concern of the analysis was the formation of the data collection foundation and the modernization of administrative governance. EMIS became one important system in Islamic education information management. At this stage, digital data collection served as the basis for developing broader services. However, using information systems to collect data needs to be distinguished from comprehensive digital transformation. Digital transformation also demands changes in work procedures, improved user capability, and the use of data in planning and decision-making.

The 2020–2021 period shows an acceleration in the use of technology in madrasah education services. The launch of the first stage of EMIS 4.0 on 25 February 2021 was one marker of this development. The system was developed to improve the management of madrasah institutional data and became the basis for subsequent application integration plans. In the same period, the use of the Digital Madrasah Report Card and digital-based administrative services shows that technology began to be used to support various operational needs of education.

Subsequently, the 2022–2023 period shows strengthened data governance and growing attention to information system integration. KMA Number 83 of 2022 concerning the Management of Educational Data within the Ministry of Religious Affairs became an important document because it stresses the need for data that are accurate, up to date, integrated, accountable, easily accessible, and shareable in accordance with provisions. In 2023, the Ministry of Religious Affairs also discussed the integration of a number of systems, such as EMIS, the Madrasah Self-Evaluation (EDM), e-RKAM, AKMI, and other supporting applications. This development shows that the quality of data management and the connectivity among systems became increasingly important in the direction of digitalization policy.

In 2024–2026, the direction of development increasingly emphasized using data for performance evaluation and consolidating digital services. The launch of the Madrasah Performance Report Card in October 2024 shows an effort to integrate information from several educational evaluation platforms. Meanwhile, the launch of EMIS 4.0 GTK Madrasah in January 2025, replacing SIMPATIKA, shows a change in the management of

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teacher and education staff data. Both developments can be read as part of an effort to strengthen data connectivity and support more directed administrative processes. Nevertheless, plans for system integration need to be distinguished from integration that has been fully carried out.

Analytically, the evolution of this policy shows three main changes. First, a change in the function of digitalization, from mainly supporting data collection and administration toward using information for educational planning and evaluation. Second, a change in the orientation of data management, from using systems for particular needs toward efforts to build data that are more integrated and consistent. Third, a change in implementation needs, from providing applications toward strengthening integration, data security, user competence, and system sustainability. These three changes show that the development of digitalization requires continuous policy adjustment.

Nevertheless, the evolution of policy has not always been linear. A growing number of digital applications can widen the choice of services but also risk causing repeated work if the systems are not well connected. Differences in internet access, device availability, operator capability, and organizational readiness can also affect the use of digital services. Therefore, the success of digitalization should be assessed not only by the existence of regulations or the launch of applications but also by ease of use, data accuracy, administrative process efficiency, and the use of information to improve educational services.

In the context of Islamic education management, this change is significant because madrasah management needs trustworthy information as a basis for planning, organizing, implementing, and evaluating programs. Digital systems have the potential to help madrasah leaders and education managers obtain the information they need in a more structured way. However, technology remains a supporting means. Educational decisions still require professional judgment, an understanding of madrasah conditions, and responsibility on the part of those who manage the data.

Based on the policy document analysis, it can be understood that the evolution of madrasah education service digitalization in 2010–2026 moved from strengthening the data collection foundation toward developing digital services and efforts to integrate information systems. This direction shows increasing attention to data quality and its use in educational governance. However, this document-based study cannot yet determine the level of implementation success in all madrasahs because it does not include interviews or direct observation. Therefore, the conclusions that can be drawn mainly concern changes in policy direction, not a comprehensive assessment of implementation results.

6. **Policy Implications and Strategies for Strengthening the Digitalization of Madrasah Education Services**

Based on the analysis of the development of madrasah education service digitalization policy in 2010–2026, several implications need attention from the Ministry of Religious Affairs and madrasah managers. The development of digital systems shows that technology plays an important role in supporting data management, administrative services, and educational evaluation. However, these benefits require sustainable policy, good coordination, and human resource readiness. Therefore, strengthening digitalization needs to be directed not only at developing applications but also at improving the quality of educational governance as a whole.

a. **Strengthening Information System Integration**

The first strategy is to strengthen the integration of madrasah education information systems. The use of various applications, such as EMIS 4.0, the Digital Madrasah Report Card, the Madrasah Performance Report Card, EDM, and e-RKAM, needs to be supported by clear and consistent data exchange mechanisms. Integration is needed so that the information used in various services does not differ or have to be entered repeatedly. With interconnected systems, administrative processes are expected

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to become more efficient and education managers can obtain the information they need more easily.

In implementation, system integration needs to attend to the fit of data formats, the division of management authority, and procedures for updating information. The Ministry of Religious Affairs also needs to ensure that changes or developments in applications are accompanied by technical guidance that users can easily understand. In this way, integration is not only a goal in policy documents but can be applied through clear working mechanisms.

b. **Improving Human Resource Competence**

The second strategy is to improve human resources' ability to use and manage digital services. Madrasah operators, madrasah heads, teachers, and education staff are the parties directly involved in implementing digitalization. Their ability to operate applications, update data, carry out validation, and maintain information security will affect the quality of the services produced.

Competence can be improved through periodic training, policy outreach, technical mentoring, and the provision of application user guides. Training should also not focus only on technical skills but include an understanding of the importance of accuracy and responsibility in data management. In this way, users are not only able to run applications but also understand the purpose of using the system in supporting madrasah education management.

c. **Equalizing Infrastructure and Digital Access**

The third strategy is to pay attention to the equitable distribution of technological infrastructure. Implementing digitalization requires adequate devices, stable internet networks, and access to digital services. Conditions differ among madrasahs, so digitalization policy needs to consider the capacities and needs of each educational unit.

Madrasahs with limited networks and devices may have difficulty accessing services or updating data on time. Therefore, mapping infrastructure needs should be part of policy planning. Support can be directed according to level of need, accompanied by technical assistance for madrasahs facing obstacles. Equitable access is important so that digitalization does not benefit only madrasahs that already have adequate technological facilities.

d. **Improving Data Quality and Security**

The fourth strategy is to strengthen the quality and security of educational data. Information stored in digital systems needs to be kept accurate, complete, up to date, and accountable. Data that do not match actual conditions can affect program planning, needs determination, and educational evaluation. Therefore, data validation and updating processes need to be carried out regularly with a clear division of responsibilities.

Besides data quality, information protection also needs attention. System managers must attend to access rights settings, account security, data backups, and the handling of errors or system disruptions. Users also need to understand that educational data must be managed in accordance with the authority and provisions in force. With responsible management, digital systems can be used to improve services without neglecting information security.

e. **Strengthening Policy Implementation Evaluation**

The fifth strategy is to carry out periodic evaluation of digitalization policy. Evaluation is needed to find out whether the systems developed really help administrative work and support educational management needs. Assessment should not be based only on the number of applications or the amount of data collected but should consider the benefits of services for users.

Several aspects that can be evaluated include ease of use of applications, accuracy and completeness of data, time needed to complete administration, technical

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obstacles, and the use of information in decision-making. Evaluation results can be used to determine which parts need improvement, whether in policy, systems, or implementation at the madrasah level.

Evaluation should also involve service users, including operators, teachers, madrasah heads, and education managers. Input from users can help identify obstacles that are not always visible in policy documents. In this way, the development of digital systems can be adjusted to real needs and not merely follow technological change.

f. **Policy Consistency and Inter-Unit Coordination**

The sixth strategy is to strengthen policy consistency and coordination among managers of madrasah education services. Developing applications that involve different units requires a division of roles, data standards, and work procedures that are aligned. Without adequate coordination, a change in one system can cause difficulties for users of other systems.

The Ministry of Religious Affairs needs to ensure that application development policy is accompanied by clear communication about changes in procedures, implementation schedules, and users' responsibilities. When a transition occurs from one application to another, the transition process needs to be well prepared so that administrative services continue to run. Policy consistency is also important to avoid system changes that are not accompanied by sufficient mentoring or explanation.

Based on this description, strategies for strengthening madrasah education service digitalization need to be carried out through a comprehensive approach. System integration, improved human resource competence, equitable infrastructure, strengthened data quality and security, periodic evaluation, and coordination among managers are interrelated aspects. These recommendations are analytical implications of the policy developments discussed, so their implementation still needs to be adjusted to evaluation results and the conditions of each madrasah.

Thus, the direction of digitalization policy development in the future should be oriented not only toward adding technology but also toward improving the quality of educational services. Digital systems will provide greater benefits when supported by clear governance, competent human resources, adequate infrastructure, and responsible use of data.

CONCLUSION

Based on the analysis of Ministry of Religious Affairs policy documents, the evolution of madrasah education service digitalization policy in 2010–2026 shows a gradual development from the modernization of data collection toward strengthened data governance and efforts to integrate information systems. In 2010–2019, data management became an important foundation for developing digital services. The 2020–2021 period showed accelerated use of technology through the development of EMIS 4.0, the Digital Madrasah Report Card, and digital-based administrative services. Subsequently, the 2022–2023 period emphasized strengthening data governance through KMA Number 83 of 2022 concerning the Management of Educational Data within the Ministry of Religious Affairs. In 2024–2026, the direction of policy development became increasingly tied to using data for performance evaluation and consolidating madrasah digital services.

The results of the analysis show that changes in digitalization policy relate not only to the use of technology but also to changes in educational management needs. Information systems are increasingly needed to support the administration, planning, reporting, and evaluation of madrasah education services. Nevertheless, the existence of applications and regulations does not automatically guarantee the success of digitalization. Integration among systems, data quality, human resource capability, equitable infrastructure, information security, and consistent policy implementation remain important aspects that need attention.

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Therefore, strengthening the digitalization of madrasah education services needs to be directed at improving system connectivity, developing user competence, equalizing access to technology, and evaluating policy periodically. The Ministry of Religious Affairs and madrasah managers need to ensure that the use of technology not only eases administration but also supports decision-making and improved educational quality. This study has limitations because it uses policy document analysis without interviews or direct observation of the implementation of digitalization in madrasahs. Thus, the results mainly explain changes in policy direction, while the level of implementation success still requires further field research.

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