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IMPLEMENTATION OF DIGITAL LEARNING MANAGEMENT AT THE VOCATIONAL HIGH SCHOOL LEVEL

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Abstrak

Penelitian ini bertujuan untuk mendeskripsikan implementasi manajemen digitalisasi pembelajaran di Sekolah Menengah Kejuruan (SMK) dalam rangka meningkatkan mutu pendidikan dan kesiapan peserta didik menghadapi era industri 4.0. Metode yang digunakan adalah penelitian kepustakaan (library research) dengan menelaah berbagai literatur, jurnal, buku, serta kebijakan pendidikan yang relevan dengan digitalisasi pembelajaran. Hasil penelitian menunjukkan bahwa implementasi manajemen digitalisasi pembelajaran mencakup empat fungsi utama manajemen, yaitu perencanaan, pengorganisasian, pelaksanaan, serta pengawasan dan evaluasi. Pada tahap perencanaan, sekolah perlu menyusun visi digitalisasi, strategi pengembangan sumber daya manusia, dan infrastruktur TIK. Pada tahap pengorganisasian, pembagian tugas dan tanggung jawab dalam tim digital menjadi faktor penting. Tahap pelaksanaan menekankan pada peningkatan kompetensi digital guru, pengembangan konten digital, dan penerapan platform pembelajaran daring. Sementara itu, tahap pengawasan dan evaluasi dilakukan melalui pemantauan efektivitas pembelajaran berbasis teknologi dan pemberian umpan balik digital. Penelitian ini menyimpulkan bahwa keberhasilan digitalisasi pembelajaran di SMK sangat bergantung pada kepemimpinan sekolah, kesiapan sumber daya manusia, ketersediaan infrastruktur, serta budaya inovasi digital.
Kata Kunci: Manajemen Pendidikan, Digitalisasi Pembelajaran, Sekolah Menengah Kejuruan (SMK), Teknologi Pendidikan, Mutu Pendidikan.

Abstract

This study aims to describe the implementation of digital learning management in Vocational High Schools (SMK) to improve the quality of education and prepare students for the Industrial Revolution 4.0. The method used is library research by reviewing various literature, journals, books, and educational policies relevant to digital learning. The results show that the implementation of digital learning management encompasses four main management functions: planning, organizing, implementing, and monitoring and evaluation. At the planning stage, schools need to develop a digitalization vision, human resource development strategy, and ICT infrastructure. At the organizing stage, the division of tasks and responsibilities within the digital team is a crucial factor. The implementation stage emphasizes improving teachers' digital competencies, developing digital content, and implementing online learning platforms. Meanwhile, the monitoring and evaluation stage is carried out by monitoring the effectiveness of technology-based learning and providing digital feedback. This study concludes that the success of digital learning in vocational high schools is highly dependent on school leadership, human resource readiness, infrastructure availability, and a culture of digital innovation.
Keywords: Educational Management, Digitalization of Learning, Vocational High Schools (SMK), Educational Technology, Quality of Education.

INTRODUCTION

Rapidly changing times are pushing the world of education to adapt more agilely than ever before. With the advancement of information and communication technology (ICT), schools are no longer simply required to produce graduates who are employable, but also prepared to face the challenges of a digital, flexible, and innovative industry.[1]

In this digital and technological era, improving the quality of education is inextricably linked to the use of technology itself. This includes how the transition to digital education is also a crucial component of today's educational quality. Several global studies demonstrate the need for a shift in educational culture to improve educational quality, particularly in relation to the use of technology. Studies demonstrate the need for strengthening digital competencies, academic leadership, and institutional support to achieve the potential of digitalization.[2]

Digital technology has the potential to create new conditions for the learning atmosphere, in managing the content and form of learning, which of course are important factors in improving the quality of education.[3] One of the roles of technology in education is to help increase students' interest in learning. With the wide variety of technologies available, students can control the classroom.[4] Implementing a digital-based school management system is an important step that must be adopted by modern administrative staff.[5] Schools need to utilize technology as a tool to strengthen students' creativity, collaboration, and critical thinking. Therefore, new educational digitalization policies will have a significant impact on school quality if implemented comprehensively, from teacher training and infrastructure improvements to utilizing data to improve learning.[6]

Students must be equipped with adequate competencies so that they can develop in the highly competitive digital era.[7] Digital talent is someone who has the talent with the ability to adapt to digital technology and understand the existence of industry 4.0. One way is to instill digital talent through the following: (1) instilling the importance of digital mastery in students as something that is very essential and must be mastered in the present; (2) implementing digital-based learning, both delivered in theory and in practice; (3) developing a digital mindset, so that everything must be

[1] Evrialiani Rosba et al., *Pengembangan Kurikulum Vokasi* (PT. Star Digital Publishing, 2025), 92.
[2] Vanny Nancy Suoth, *Misi, Pendidikan Dan Transformasi Sosial: Pelayanan Holistik Gereja* (Gema Edukasi Mandiri, 2024), 55.
[3] Suoth, *Misi, Pendidikan Dan Transformasi Sosial: Pelayanan Holistik Gereja*, 56.
[4] Hasyim Mahmud Wantu et al., *Transformasi Pendidikan Indonesia: Peluang Dan Tantangan Di Era Digital* (CV. Adanu Abimata, 2024), 84.
[5] Syawal Gultom et al., *Membangun Negeri Dari Sekolah* (Dotplus Publisher, 2025), 60.
[6] Tamrin, *Menata Ulang Sekolah Di Era Digital Tantangan Organisasi Manajemen Sarana Dan Kebijakan Pendidikan Terhadap Mutu Sekolah* (CV. Azka Pustaka, 2025), 178–79.
[7] Marah Doly Nasution et al., *Perkembangan Teknologi Dan Transformasi Digital Dalam Dunia Pendidikan* (Umsu Press, 2024), 101.

considered in accordance with developments in the business and industrial world.[8] The importance of implementing these steps is seen in the improvement of students' practical skills, which rely not only on theory, but also on direct experience.[9]

There are several issues and challenges facing education in the digital era, including educational quality, professionalism of teaching staff, culture (acculturation), learning strategies, challenges to management improvement, and challenges to scientific and technological advancement. Technology in education is a system utilized to support learning to achieve desired outcomes.[10]

In Indonesia, Vocational High Schools (SMK) play a crucial role as gateways to producing skilled workers in various fields. However, in reality, many vocational schools still struggle with the same challenges: conventional learning methods, outdated teaching materials, and assessment systems that are neither transparent nor responsive to technological developments.[11] Despite its many benefits, the transformation to technology-based schools faces a number of challenges, such as inadequate infrastructure, lack of internet access in some areas, and resistance from some educators who are unfamiliar with using technology in the learning process. One crucial element in technology-based school transformation is teacher readiness. Teachers need to have adequate digital skills to effectively utilize technology in learning. Without proper training, technology in schools will remain an ineffective tool. To address these challenges, schools need to provide training and professional development for teachers related to educational technology.[12] Factors such as teacher readiness, availability of facilities and infrastructure, school management support, and socio-cultural conditions in the student environment greatly influence the success of implementation.[13]

Theoritical review

Educational Management Theory

The planning function in educational management is the initial stage in achieving effective and efficient educational goals. In the planning function, managers or leaders of educational

[8] Intan Zakiyyah, *Manajemen Penggunaan Teknologi Digital Dalam Pembelajaran Agama* (PT. Nasya Expanding Management, 2024), 272–73.

[9] Nurlaela Jauhar, *Teaching Factory: Inovasi Dalam Pendidikan Dan Pelatihan Industri Pariwisata Di SMK* (Widina Media Utama, 2025), 112.

[10] Nasution et al., *Perkembangan Teknologi Dan Transformasi Digital Dalam Dunia Pendidikan*, 101.

[11] Rosba et al., *Pengembangan Kurikulum Vokasi*, 92.

[12] Diding Wahyudin et al., *Kepemimpinan Visioner: Kepala Sekolah Dalam Menghadapi Era VUCA* (PT. Adab Indonesia, 2024), 128.

[13] Indri Murniawaty et al., *Desain, Strategi, Dan Evaluasi Pembelajaran Ekonomi* (Seval Literindo Kreasi, 2025), 9.

institutions create plans that will be used to implement educational goals.[14] The organizing function in educational management is to manage existing resources to achieve educational goals. This includes managing human resources, arranging facilities and infrastructure, and developing an effective and efficient organizational structure. The implementation function in educational management is the stage of educational institution leadership where managers or administrators implement the plans made in the planning stage. This implementation includes planned activities and programs, monitoring and controlling the implementation of these activities and programs, and evaluating the results of these activities and programs.[15] The supervisory function in educational management is to monitor and supervise the implementation of educational activities and the performance of teachers and other educational staff. This is done to ensure that educational activities run according to the established plan and to ensure optimal performance of teachers and other educational staff. The evaluation function in educational management is to evaluate the results of educational activities and the performance of teachers and other educational staff, whether the objectives have been achieved or not, and to improve the performance of teachers and other educational staff in making a positive contribution to the advancement of education.[16]

The Concept of Digitalization of Learning

The implementation of digital-based learning offers numerous opportunities for developing more varied and engaging teaching methods. Learning media is no longer limited to static text or images, but can be enriched with various interactive elements, such as educational games, quizzes, and learning materials in the form of vlogs or interactive videos. This aims to create a more dynamic and enjoyable learning environment, thereby preventing student boredom and increasing their interest and engagement in the learning process.[17]

Digital Education Policy

Education and information technology policies encompass government efforts to integrate information and communication technology (ICT) into the education system to improve the quality of learning and educational accessibility. The goal is to harness the potential of technology to create innovative learning environments, expand access to education, and prepare students to face global

[14] Yesi Okta Apriyanti et al., *Ilmu Manajemen Pendidikan: Teori Dan Praktek Mengelola Lembaga Pendidikan Era Industri 4.0 & Society 5.0* (PT. Sonpedia Publishing Indonesia, 2023), 3.

[15] Apriyanti et al., *Ilmu Manajemen Pendidikan: Teori Dan Praktek Mengelola Lembaga Pendidikan Era Industri 4.0 & Society 5.0*, 4–5.

[16] Apriyanti et al., *Ilmu Manajemen Pendidikan: Teori Dan Praktek Mengelola Lembaga Pendidikan Era Industri 4.0 & Society 5.0*, 5–6.

[17] Dora Selvia et al., *Digitalisasi Pembelajaran Pendidikan Agama Islam: Upaya Meningkatkan Motivasi Belajar Siswa* (Dotplus Publisher, 2025), 19.

challenges related to technology. The following are education policies related to information technology, namely technological infrastructure, ICT-based curriculum, teacher training, distance learning (PJJ), provision of digital educational content, and data security and protection.[18]

RESEARCH METHODS

This study uses a library research approach. This approach is carried out by reviewing various literature, books, journals, and other scientific sources relevant to the theme of implementing digital learning management in Vocational High Schools (SMK). Data were collected using a documentation method, namely collecting relevant literature from books, journals, e-books, and scientific articles, conducting searches for educational policy documents related to digital learning in Indonesia, and reviewing the results of previous studies that discuss the implementation of digitalization management in educational institutions, especially at the vocational high school level. The purpose of this library research is to gain a theoretical and conceptual understanding of how educational management functions are applied in the digitalization process of learning.

RESULT AND DISCUSSION

Planning

The use of technology in education encourages a paradigm shift in learning in schools.[19] With a wise and planned approach, Education 4.0 will become not just a concept, but a reality that can bring about a major transformation in the quality of global education. Schools need to establish a vision for educational digitalization that aligns with national policies, develop a strategic digitalization plan that encompasses the development of systems, human resources, and supporting facilities, and allocate a dedicated budget for information and communication technology (ICT).[20] The effective use of educational technology can help improve the quality of education. The effective use of educational technology is crucial to achieving quality education. Educational technology helps improve the quality of education, increase student engagement, and enhance students' ability to respond to global challenges.[21]

Learning is no longer solely teacher-centered; instead, students become the center of the learning process, utilizing technology as an aid. Principals need to encourage teachers to utilize

[18] Astin Lukum et al., *Kebijakan Pendidikan: Konsep & Analisis* (Uwais Inspirasi Indonesia, 2023), 34–35.

[19] Juni Mahanis et al., *Manajemen Madrasah Dan Sekolah: Strategi, Inovasi, Dan Transformasi Pendidikan* (CV. Feniks Muda Sejahtera, 2025), 179.

[20] Nasruddin et al., *Strategi Kepemimpinan Pendidikan Di Era 4.0: Membangun Sekolah Masa Depan* (PT. Nawala Gama Education, 2025), 147.

[21] Ahmad Ruslan et al., *Inovasi Dan Strategi Dalam Pengelolaan Kekayaan Sumber Daya* (Uwais Inspirasi Indonesia, 2024), 55.

various educational applications that can assist in delivering material. The use of interactive media such as instructional videos will increase student interest in learning. Technology-based learning also supports the implementation of blended learning as a flexible learning alternative.[22] To effectively fulfill this role, teachers must master the use of educational technology and understand how to integrate it into learning activities. Mastery of various digital tools, such as online learning platforms, interactive quiz apps, or visual media, must be balanced with pedagogical skills to select and use technology appropriate to the goals and characteristics of students.[23] This planning not only aims to allocate funds effectively, but also to support the achievement of the school's vision and mission in improving the quality of education.[24]

Planning is a crucial first step in any effort to improve the quality of education. School Committees play a crucial role in educational planning at the school unit level. While schools have autonomy in developing plans, the committee's involvement ensures that the planning is relevant, accountable, and supported by the community.[25]

School principals need to ensure adequate infrastructure, such as internet access and digital devices, is available. The challenge faced is the persistence of a digital divide between students. Therefore, strategies for equitable access are crucial in supporting the digitalization of education. This learning transformation requires schools to be prepared to systematically manage change.[26]

Organizing

Organizing is one of the functions of management. Management activities can be carried out effectively if they involve organizational aspects. Planning activities cannot be carried out effectively and efficiently if organizing is neglected.[27] Organization in education involves establishing a clear organizational structure to support the achievement of an educational institution's goals. A good organizational structure will ensure a clear division of tasks, authority, and responsibility among teaching staff, administrative staff, and school leaders.[28] The organizing function in school-based management involves setting up the school's organizational structure,

[22] Mahanis et al., *Manajemen Madrasah Dan Sekolah: Strategi, Inovasi, Dan Transformasi Pendidikan*, 179.

[23] Halimatussakdiah et al., *Guru Cakap Digital: Panduan Literasi Digital Untuk Pengajaran Di Sekolah Dasar* (PT. Adab Indonesia, 2025), 101.

[24] Qistin Toniyah Zamrud and Faizal Amir, *Manajemen Keuangan Pendidikan* (PT. Adab Indonesia, 2025), 97.

[25] Arief K. Syaifulloh et al., *Sahabat Komite Sekolah: Peran Strategis Komite Sekolah Untuk Peningkatan Mutu Pendidikan* (Uwais Inspirasi Indonesia, 2025), 48.

[26] Mahanis et al., *Manajemen Madrasah Dan Sekolah: Strategi, Inovasi, Dan Transformasi Pendidikan*, 179–80.

[27] Nasib Tua Lumban Gaol, *Buku Ajar Manajemen Pendidikan Dasar Dan Menengah* (CV. Feniks Muda Sejahtera, 2022), 194.

[28] Muhammad Subhan Iswahyudi et al., *Dasar Manajemen Pendidikan* (Yayasan Cendikia Mulia Mandiri, 2025), 10.

distributing tasks and responsibilities, and coordinating between various units or divisions within the school.[29]

Developing a digital asset team is a fundamental element of a fixed asset digitalization strategy, as the success of an asset information system implementation depends on the quality and capabilities of its human resources. This team is responsible for designing, managing, overseeing, and optimizing the entire asset digitalization process on an ongoing basis.[30] The team's duties include formulating internal strategies, coordinating implementation, monitoring progress, identifying training needs, and managing cultural change.[31]

Placement of teaching staff must be based on the principle of "the right person in the right place." This means that each individual must be placed according to their area of expertise and the needs of the institution. Assignments must also consider workload balance, task rotation, and individual interests and potential.[32] With clear roles and responsibilities, it can be ensured that each role holder works according to their responsibilities, and responsibilities that are fulfilled optimally will make a big contribution to realizing the school's goals.[33] It is important for schools to have internal policies that support inclusion and Adiwiyata structurally, including in the division of tasks, budgeting, and annual agenda.[34]

Implementation (Actuating)

In the context of implementing learning, the Indonesian Minister of National Education Regulation No. 41 of 2007 details the implementation of learning involving elements starting from the requirements for implementing the learning process which include the number of study groups, minimum teacher workload, test books and class management.[35]

Preparing to enter the digital era, as it is adapted into leadership systems in formal educational institutions, requires Information and Communication Technology (ICT) skills from all school members. Literacy skills in media, information, and digital are prerequisites for

[29] Cornelia Timpal, *Manajemen Berbasis Sekolah* (CV. Mega Press Nusantara, 2024), 28.

[30] Fina Diana, *Transformasi Digital Dalam Pengelolaan Aset Tetap Untuk Efisiensi Organisasi* (Takaza Innovatix Labs, 2025), 111.

[31] Ridha Ramadhany et al., *Transformasi Digital Sektor Publik* (PT. Star Digital Publishing, 2025), 25.

[32] Darmawati and Muhammad Ali Hadidie Parinduri, *Buku Ajar Manajemen Pendidikan: Teori, Konsep, Dan Aplikasi Di Dunia Pendidikan* (Umsu Press, 2025), 93.

[33] Roni Indra, *Model Manajemen Mutu "Merdeka" Di Era Merdeka Belajar* (Indonesia Emas Group, 2023), 189.

[34] Gerry Adhitya Muntu, *Penyelenggaraan Sekolah Pendidikan Inklusif Dan Adiwiyata: Sebuah Transformatif Pendidikan Inklusi Dan Ruang Penghijauan Di Satuan Pendidikan* (PT. Adab Indonesia, 2025), 96.

[35] Candra Wijaya, *Manajemen Pendidikan Islam Teoritis Dan Praktik* (Umsu Press, 2023), 377.

digitalization.[36] Digital learning is essentially learning that involves the innovative use of digital tools and technology during the teaching and learning process, and is often also referred to as Technology Enhanced Learning (TEL) or e-Learning.[37] Supporting factors for the implementation of a digital-based principal leadership system include electrical installations, internet connections (including access strength), school regulations that are in line with the implementation of digital platforms, the availability of programmers, operators, administrators, computer hardware, and digital software (applications) used.[38]

Teachers are required to master five key skills that are highly relevant to technological developments. First, digital knowledge, which includes the ability to access, evaluate, use, and participate in digital activities, as well as adhere to ethics and maintain security in cyberspace. Second, digital communication, which includes the ability to interact and communicate through various digital platforms such as email, social media, video conferencing, and instant messaging applications. Third, the ability to evaluate learning using digital technology, which allows teachers to assess student learning outcomes more efficiently and objectively. Fourth, digital innovation, where teachers are expected to continue to be creative and innovative in creating engaging learning experiences that are relevant to the needs of the times. Finally, digital creativity, which requires teachers to be able to utilize technology in new and creative ways, in order to improve the quality of learning and support the optimal development of student potential.[39]

Therefore, schools must provide adequate training and resources for teachers to ensure they have sufficient skills in using technology for assessment.[40] This training can cover the use of technology, active learning methods, the development of learning materials, and the assessment of student skills. Teachers skilled in integrating Islamic education with digital-age skills development will be able to provide a better learning experience for students.[41] This training should also include how to evaluate assessment data to make informed decisions about student learning.[42] This training program should be part of teachers' continuing professional development.[43]

There are several applications of teacher platforms in competencies, including:

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[36] Wardah Hanafie Das and Abdul Halik, *Kepemimpinan Kepala Sekolah Berbasis Virtual* (Uwais Inspirasi Indonesia, 2022), 6.

[37] Banun Havifah Cahyo Khosiyono, *Teori Dan Pengembangan Pembelajaran Berbasis Teknologi Digital Di Sekolah Dasar* (Deepublish, 2022), 65.

[38] Das and Halik, *Kepemimpinan Kepala Sekolah Berbasis Virtual*, 6.

[39] Selvia et al., *Digitalisasi Pembelajaran Pendidikan Agama Islam: Upaya Meningkatkan Motivasi Belajar Siswa*, 90.

[40] Erna Budiarti, *Teknologi Digital Dan Pembelajaran Desain, Implementasi, Dan Evaluasi* (Damera Press, 2025), 244.

[41] Yuliana et al., *Manajemen Pendidikan Islam Di Era Digital* (PT. Sada Kurnia Pustaka, 2023), 149.

[42] Budiarti, *Teknologi Digital Dan Pembelajaran Desain, Implementasi, Dan Evaluasi*, 244.

[43] Gamar Abdullah et al., *Kecerdasan Emosional Dalam Pendidikan: Membangun Siswa Yang Seimbang* (PT. Nawala Gama Education, 2025), 188.

1. Teacher Platform: Profile and Competency Development, as a tool for teachers to improve competency through microlearning and habituation-based learning;
2. Teacher Platform: Learning, as a tool to help teachers carry out learning with new paradigms and differentiated learning;
3. School Resource Platform, to increase flexibility, transparency and accountability in school resource management;
4. Education Report Dashboard, to accurately and automatically capture the state of education quality. Referenced for evaluation and planning;[44]

Developing digital content aims to foster practical creativity in developing digital content tailored to the needs of school learning. Integrating and re-elaborating digital content is the practical ability to combine and optimally utilize digital content from all available technological resources for school learning. Practical, creative, and innovative skills in developing digital content for school learning.[45]

Supervision and Evaluation (Controlling)

Monitoring learning activities in the digital age focuses more on monitoring the implementation process. Monitoring also involves determining whether the program is running as planned, whether any obstacles have occurred, and how program implementers are addressing these obstacles.[46] Monitoring of learning implementation is carried out to ensure that the teaching and learning carried out by teachers is effective and efficient. Learning activities need to be monitored by the principal or educational unit supervisor.[47] Evaluation and monitoring is the process of periodically assessing and monitoring school performance to ensure the achievement of educational goals and continuous improvement.[48]

The successful implementation of ICT, e-learning, and blended learning in the education system depends heavily on the digital competence of educators as the primary facilitators of the learning process. Digital competence encompasses more than simply the ability to operate devices;

[44] Ayi Suherman, *Implementasi Kurikulum Merdeka: Teori Dan Praktik Kurikulum Merdeka Belajar Penjas SD* (Indonesia Emas Group, 2023), 71.

[45] Aah Ahmad Syahid et al., *Mengintegrasikan Experiential Learning Dalam Kurikulum Pelatihan Kompetensi Digital Guru Sekolah Dasar* (CV. Detak Pustaka, 2025), 149–50.

[46] Sri Astuti et al., *Modul Administrasi Dan Supervisi Pendidikan* (CV. Feniks Muda Sejahtera, 2022), 147.

[47] Hatta Saputra et al., *Manajemen Perubahan Kurikulum Di Era Digital: Dilengkapi Dengan Tinjauan Sejarah Perubahan Kurikulum Di Indonesia Dan Tips Tata Kelola Manajemen Perubahan Kurikulum* (Bintang Semesta Media, 2023), 50.

[48] Lili Nurlaili, *Networking Pendidikan Berbasis Manajemen Sekolah* (CV. Mega Press Nusantara, 2024), 10.

it involves pedagogical understanding in selecting, designing, and managing technology effectively to support the achievement of learning objectives.[49]

Meanwhile, evaluation of the digital learning process can be conducted by observing the extent to which students actively participate in online activities such as forum discussions, accessing multimedia learning materials, taking interactive quizzes, and completing project-based assignments. Teachers also need to evaluate the suitability of the digital methods and strategies used for the characteristics of the students. The use of digital learning applications or platforms, such as animated videos, is a primary focus in assessing the success of the learning process. This evaluation looks not only at activeness but also at the depth of student engagement in contextual understanding.[50]

Strengthening structured evaluation and monitoring, utilizing technology and applying feedback appropriately, is key to improving the quality of learning.[51] Rapid feedback through digital platforms also serves to increase student motivation. When students receive immediate appreciation or correction, they feel their learning efforts are valued and appropriately directed. For example, awarding badges, points, or digital certificates after completing specific tasks can boost learning motivation. Consistent feedback helps students maintain engagement in learning and reduces the potential for loss of interest.[52]

Feedback is not only used as evaluation material but also serves as the basis for continuous improvement. A culture of feedback must be fostered as part of a school's reflective culture. Schools that integrate feedback systemically will be more resilient in the face of change and more adaptive in managing change.[53]

CONCLUSION

The implementation of digital learning management in Vocational High Schools (SMK) is a strategic step in improving the quality of education and preparing students for the Industry 4.0 era. Based on the results of the literature review, the success of digital learning is greatly influenced by the effectiveness of the application of four main management functions: planning, organizing, implementing, and monitoring and evaluation.

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[49] Arif Setiawan, *Belajar Dan Pembelajaran* (Ummpress, 2025), 220.

[50] Nurmayani et al., *Pengembangan Bahan Ajar Pendidikan Agama Islam Bermuatan Sosiokultural Dan Karakter Berbasis Teknologi Digital Era Society 5.0* (Adab, 2025), 146.

[51] Muhammad Miftahul Maulana et al., *Sistem Penjaminan Mutu Pendidikan* (Karya Bakti Makmur Indonesia, 2025), 84.

[52] Nurmayani et al., *Transformasi Perencanaan Pembelajaran Berbasis Digital Pada Guru Sekolah Dasar* (PT. Adab Indonesia, 2025), 152.

[53] Izlan Sentryo et al., *Inovasi Dan Perubahan Dalam Manajemen Pendidikan* (Yayasan Cendikia Mulia Mandiri, 2025), 97.

During the planning stage, schools need a clear digital vision and strategy, including strengthening human resources and developing information and communication technology (ICT) infrastructure. The organizational stage emphasizes the importance of establishing a competent digital team, appropriate division of tasks, and supporting internal policies that support digitalization. The implementation stage requires improving teachers' digital competencies, developing creative digital learning content, and implementing effective online platforms. Meanwhile, the monitoring and evaluation stage is conducted to ensure the effectiveness of digitalization implementation, through monitoring teacher performance, student engagement, and utilizing digital feedback for continuous improvement. Therefore, it can be concluded that integrated and sustainable management of digital learning can create an adaptive, innovative, and highly competitive educational ecosystem. Successful implementation depends heavily on visionary school leadership, human resource readiness, the availability of ICT infrastructure, and a culture of digital innovation within the school environment.

Suggestion

Research facilities for further research,namely to conduct field research to empirically study the implementation of digitalization of learning in various vocational schools using a case study approach to obtain a more comprehensive and applicable picture.

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