

Edited by
Yanuardi Syukur

ASEAN DIGITAL FUTURE

Strengthening Collaboration for Digital Moderation,
AI Ethics, and Socio-Cultural Innovation





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ASEAN Writers Network

Foreword

The Association of Southeast Asian Nations (ASEAN) stands at a pivotal moment in its history. As we approach the Philippines' chairmanship in 2026, the region continues to navigate the profound transformations brought about by the digital revolution—changes that touch every aspect of our social, cultural, economic, and religious lives. This volume, *ASEAN Digital Future: Strengthening Collaboration for Digital Moderation, AI Ethics, and Socio-Cultural Innovation*, brings together insightful chapters that examine how Southeast Asian societies are adapting to and shaping these transformations across multiple domains: from religious authority and cultural diplomacy to ethical governance, education, tourism innovation, and digital literacy.

The title of this book reflects both a recognition and a commitment. We recognize that the digital future is not something that simply happens to us—it is something we actively shape through our choices, our collaborations, and our shared values. And we commit to navigating this future together, as a community of nations bound by common aspirations and facing common challenges. The essays gathered here represent diverse perspectives on this shared journey, each offering unique insights into how

ASEAN can harness the opportunities of digital transformation while addressing its ethical and social implications.

This book continues our commitment, first demonstrated during Indonesia's ASEAN chairmanship, to produce scholarly works that illuminate the complex intersections of tradition and modernity in our region. The previous volume examined broader themes of ASEAN cooperation; this collection deepens that inquiry by focusing specifically on how digital collaboration can strengthen the ASEAN Community while addressing the ethical challenges posed by emerging technologies. As the Philippines prepares to assume chairmanship, this volume offers insights and recommendations to support the region's continued development as a global model of harmonious pluralism, creative adaptation, and ethically grounded digital transformation.

The chapters gathered here address questions of urgent importance from multiple disciplinary perspectives, each contributing unique insights to our understanding of ASEAN's digital future. The volume is organized into three thematic sections that reflect the core pillars of ASEAN's digital collaboration agenda.

Chapter 1: Digital Moderation and Cultural Diplomacy

The opening chapter of this volume explores how traditional authorities and cultural practitioners are navigating the shift to digital platforms while maintaining the values of moderation that characterize Southeast Asian societies.

Yanuardi Syukur's chapter, "ASEAN Ulama and Digital Collaboration: Strengthening Islamic Moderation and Da'wah

Networks in Southeast Asia,” provides an anthropological framework for understanding how traditional religious authorities are adapting to digital environments. Drawing on extensive analysis of regional ulama forums from 2016 to 2024, Syukur examines three critical dimensions: the institutionalization of regional ulama networks, the mainstreaming of Islam *wasathiyah* (moderate Islam) as a shared framework, and the emerging paradigm of digital da’wah. His analysis of the proposed ASEAN Da’i Association—announced by the Indonesian Ulama Council in July 2024—reveals how Islamic scholars are building structured cooperation mechanisms across national boundaries while simultaneously adapting their methodologies to digital platforms. The chapter’s attention to the emergence of “ulama yutubi” (YouTube ulama) and the four pillars of digital literacy articulated by MUI (digital ethics, digital skills, digital culture, and digital security) provides essential context for understanding how religious authority is being reconfigured in the digital age. Syukur’s work reminds us that religious communities are not passive recipients of technological change but active shapers of digital culture, bringing centuries of scholarly tradition to bear on contemporary challenges.

Abdul Kadir Ali and Yanuardi Syukur chapter, “Tuan Guru Abdullah: An ASEAN Scholar from Tidore and Digital Imagination Towards National Hero,” offers a compelling exploration of how digital media can reimagine and elevate local historical figures to national and regional prominence. Through the case study of Tuan Guru Abdullah, a revered scholar from Tidore, Ali examines how digital platforms enable new forms of historical narration and hero-making that transcend traditional boundaries. The

chapter argues that digital imagination—the capacity to envision and circulate alternative narratives through digital media—can revitalize interest in regional scholars whose contributions have been marginalized in national historiography. Ali’s analysis of how social media campaigns, digital archives, and online communities can collectively construct new understandings of heroism offers valuable insights for cultural preservation and identity formation in the digital age. His work demonstrates that digital technologies are not merely tools for communication but powerful instruments for reimagining the past and shaping collective memory.

Ariesza Permata’s chapter, “Bridging Worlds: How Education and Cultural Exchange Shape Our Global Future,” explores the transformative potential of international educational exchange in an increasingly interconnected world. Permata argues that educational exchange programs—whether virtual or physical—serve as crucial bridges between cultures, fostering mutual understanding, reducing prejudice, and building networks of collaboration that persist across generations. Drawing on data from ASEAN exchange programs and interviews with participants, the chapter documents how cross-cultural educational experiences shape worldviews, career trajectories, and lifelong relationships. Permata’s analysis of how digital technologies can expand access to exchange opportunities—reaching students who cannot afford international travel—offers practical recommendations for scaling these programs during the Philippines’ chairmanship. Her work reminds us that behind every policy initiative and economic statistic are human beings whose lives are enriched by the opportunity to encounter other cultures.

Siti Khoirnafiya’s innovative chapter, “Digital Dining Table Transformation: Revolutionizing ASEAN Gastrodiplomacy Through Immersive Technology,” explores how virtual and augmented reality technologies are transforming culinary diplomacy. Khoirnafiya develops the concept of “digital gastrodiplomacy” to describe the use of immersive technologies to share culinary heritage across borders, allowing users to experience not just the flavors but the cultural contexts of ASEAN cuisines. From virtual cooking classes taught by master chefs to augmented reality dining experiences that transport users to Southeast Asian markets, the chapter documents emerging practices that could revolutionize how the region shares its culinary riches with the world. Her proposal for an “ASEAN Digital Food Heritage Network” offers a concrete initiative that could be advanced during the Philippines’ chairmanship. Khoirnafiya’s work demonstrates that culture is not a static inheritance to be preserved but a living reality to be shared and celebrated through innovative means.

Suyanto’s foundational chapter, “Digital Leadership, Human Capital, and Human Resource Performance in ASEAN: Navigating Transformation in the Digital Era,” provides the theoretical and practical framework that underpins the entire volume. Suyanto argues that successful digital transformation depends fundamentally on the quality of human leadership and the development of human capital. Drawing on extensive research across ASEAN organizations, he examines how digital leadership differs from traditional leadership models, requiring new competencies in technological literacy, adaptive management, and ethical decision-making. His analysis of human resource

performance in digital contexts reveals that organizations investing in continuous learning, cross-functional collaboration, and digital competency development consistently outperform those focusing solely on technological infrastructure. Suyanto's framework for understanding the interplay between leadership, human capital, and organizational performance offers essential guidance for policymakers, business leaders, and educators navigating digital transformation. His chapter serves as both anchor and compass for the volume—providing foundational concepts that illuminate the human dimensions of technological change while offering practical direction for those seeking to build digitally capable organizations and societies. Without the visionary leadership and skilled human capital that Suyanto describes, the innovative applications explored throughout this volume would remain unrealized possibilities rather than lived realities.

Chapter 2: Digital Ethics, Data Governance, and Future Education

The second section of this volume addresses the critical ethical and governance challenges that accompany digital transformation, from artificial intelligence and health data to education and digital literacy.

Fery Setiawan's chapter, "AI Ethics and Health Data Governance in the ASEAN Region," addresses one of the most pressing challenges facing digital societies: the ethical governance of artificial intelligence and health data. As ASEAN nations increasingly adopt AI-driven health technologies, questions

of data privacy, algorithmic bias, and equitable access become paramount. Setiawan examines the regulatory frameworks emerging across the region, comparing approaches in Singapore, Malaysia, Thailand, and Indonesia while identifying opportunities for harmonization. His analysis of the tension between innovation and protection—between the desire to leverage AI for improved health outcomes and the need to safeguard patient rights—offers valuable insights for policymakers grappling with these issues. The chapter’s recommendations for ASEAN-wide data governance standards are particularly timely as the region seeks to balance technological advancement with ethical responsibility. Setiawan’s work demonstrates that effective health data governance requires not only technical expertise but also deep engagement with cultural values and ethical principles.

Shorihatul Inayah’s contribution, “Education in The Digital Era: ASEAN 2026 as the Global Center for Collaboration and AI Ethics,” envisions ASEAN’s potential to lead global conversations about the ethical integration of AI in education. Inayah argues that the region’s diversity—linguistic, cultural, religious, and economic—positions it uniquely to develop inclusive approaches to educational technology that can serve as models for other world regions. Drawing on case studies from across ASEAN, she examines how AI-powered personalized learning, automated assessment systems, and digital learning platforms are being implemented in diverse contexts, identifying both successes and challenges. Her vision of ASEAN as a “global center for collaboration and AI ethics” by 2026 provides an ambitious yet achievable goal for the Philippines’ chairmanship and beyond. Inayah’s chapter reminds

us that education is not merely about transmitting information but about forming whole persons capable of ethical reasoning and cultural understanding—goals that technology must serve, not subvert.

Berti Nurul Khajati’s chapter, “Digital Age: Practicality, Productivity, and the Dilemma of Morality,” probes the ethical tensions at the heart of digital transformation. While digital technologies offer unprecedented practicality and productivity gains, Khajati argues, they also generate moral dilemmas that societies have yet to adequately address. From the erosion of privacy to the amplification of misinformation, from algorithmic bias to the commodification of attention, the chapter examines how the very features that make digital tools powerful also create new ethical challenges. Drawing on philosophical traditions from both East and West, Khajati offers a framework for thinking through these dilemmas in ways that honor both the pragmatic benefits of digital technologies and the moral commitments that sustain healthy communities. Her analysis of the “productivity paradox”—the observation that technological efficiency does not always translate into human flourishing—challenges readers to reconsider what we mean by progress and development.

Firly Andrisetiani Permata’s chapter, “Social Media Influence and the Digital Literacy Gap in Indonesia,” addresses one of the most pressing challenges facing digital societies: the gap between social media’s influence and citizens’ capacity to critically evaluate online content. Permata examines how misinformation, disinformation, and algorithmic bias affect Indonesian society, drawing on survey data and content analysis to document the scope of the problem.

Her analysis of digital literacy initiatives—both governmental and civil society—identifies promising practices while acknowledging the scale of the challenge. The chapter’s recommendations for comprehensive digital literacy education, from primary schools to community programs, offer practical guidance for addressing this fundamental challenge to healthy digital societies. Permata’s work demonstrates that digital literacy is not merely a technical skill but a form of civic education essential to democratic participation and social cohesion.

Mariza’s chapter, “The Nexus of Global Digital Collaboration,” serves as a conceptual exploration of the intersecting forces that shape digital cooperation in the twenty-first century. Mariza argues that effective digital collaboration requires attention to multiple dimensions: technological infrastructure, regulatory frameworks, human capacity, cultural context, and ethical principles. Drawing on case studies from across ASEAN, she examines both successful collaborations—such as regional responses to cybersecurity threats—and missed opportunities where fragmentation has limited effectiveness. Her analysis of how ASEAN can position itself as a bridge between global digital powers—the United States, China, and the European Union—offers strategic guidance for the Philippines’ chairmanship and beyond. Mariza’s chapter reminds us that collaboration is not merely a technical challenge but a human one, requiring trust, mutual understanding, and shared commitment to common goals.

Subandriyah’s paper “ASEAN’s Digital Journey: The Halal Product Assurance Law in the Digital Era” discusses Law No. 33 of 2014 concerning Halal Product Assurance (JPH) in Indonesia,

which has shifted halal certification from voluntary to mandatory, with BPJPH as the main implementing body now under the President. In the digital era, the use of technology through the SIHALAL application has improved the efficiency, accuracy, and transparency of the certification process, as evidenced by the achievement of 11.8 million certified products and an increase in halal product exports, placing Indonesia in third place in the State of the Global Islamic Economy (SGIE) Index. Domestic and international collaboration, including Mutual Recognition Agreements (MRAs) with 108 foreign halal institutions as well as regional cooperation within ASEAN through IMT-GT, MABIMS, and AWGHE, plays an important role in harmonizing halal standards and enhancing the competitiveness of Indonesian halal products in the global market. Thus, the Halal Product Assurance Law in the digital era serves as a gateway to international trade, supports sustainable economic growth, and strengthens halal awareness within the ASEAN community.

The chapter “Digital Literacy Centralization: Synergy of Senior High School Libraries and ASEAN” by Beryana Evridawati discusses the centralization of digital literacy through digital libraries in Indonesian senior high schools (SMAs) and its synergy with ASEAN countries. Although nearly 100% of SMAs have physical libraries, their utilization as learning resource centers remains low due to conventional paradigms, a lack of digital transformation, limited librarian competence, and an underdeveloped literacy culture. The centralization of digital literacy through digital libraries is proposed as a strategic solution to provide access to relevant, quality information anytime and anywhere, offering

advantages such as efficient collection access, content curation by librarians, integration with learning platforms, and monitoring of student reading interests. Challenges faced include data security, device availability, infrastructure, and librarian competence. Cooperation with ASEAN is needed through digital networking, sister school library programs, the sharing of e-books and open educational resources, infrastructure assistance, librarian training, and cybersecurity protection. Ultimately, digital libraries transform physical book warehouses into dynamic digital ecosystems, changing the role of librarians into content curators and literacy navigators, and are thus expected to accelerate the improvement of student learning outcomes.

Chapter 3: Digital Innovation, Tourism, and Socio-Cultural Inclusion

The final section of this volume examines how digital technologies are being deployed in specific sectors to drive innovation while promoting inclusion and sustainability.

Putu Ayu Suniadewi's chapter, "Innovative Strategy in Tourism Industry: Integrating AI and IoT to Enhance Operational Efficiency and Sustainability in Bali," provides a detailed case study of how emerging technologies can transform one of ASEAN's most important economic sectors. Suniadewi examines how Balinese tourism businesses are integrating artificial intelligence and Internet of Things technologies to improve efficiency, enhance visitor experiences, and promote environmental sustainability. From AI-powered demand forecasting that reduces food waste to

IoT sensors that optimize energy consumption in hotels, the chapter documents innovations that could be scaled across the region. Her attention to the tension between technological efficiency and cultural authenticity—between the desire to modernize and the need to preserve Bali’s unique character—offers lessons applicable throughout ASEAN. Suniadewi’s chapter reminds us that tourism is not merely an economic activity but a form of cultural encounter that must be managed with sensitivity and wisdom.

Mamdukh Budiman’s chapter, “ASEAN Socio-Cultural Pillar: Education, Cultural Exchange, and Digital Inclusion in the Era of Global Collaboration,” provides a comprehensive overview of the ASEAN Socio-Cultural Community’s efforts to promote regional identity while respecting national diversity. Budiman examines how education policy, cultural exchange programs, and digital inclusion initiatives contribute to the pillar’s core objectives: human development, social welfare, environmental sustainability, and identity-building. His analysis of the ASEAN Cultural Heritage Digital Archive (ACHDA)—which has digitized more than 160 cultural heritage collections from Indonesia, Malaysia, and Thailand with support from the Japan-ASEAN Integration Fund—illustrates how digital technologies can preserve cultural identity while strengthening regional cooperation. The chapter’s attention to digital inclusion as a prerequisite for equitable participation in the digital economy offers important guidance for policymakers. Budiman’s work demonstrates that the socio-cultural pillar is not merely a complement to economic and political cooperation but a foundation upon which sustainable development depends.

Anak Agung Ayu Putri Ardyanti's chapter examines the strategic imperative for unifying ASEAN's manufacturing sector into a cohesive global hub amid technological change and escalating US-China trade tensions. Ardyanti argues that adopting Integrated Flexible Manufacturing strategies underpinned by the 'One ASEAN Integrated Cloning Factory' initiative positions the region as a resilient alternative to China-centric supply chains. Drawing on scheduling optimization theory and analysis of the ASEAN Industrial Cooperation Scheme (AICO), the chapter conceptualizes ASEAN member states as a unified manufacturing network capable of dynamic workload sharing and cross-border exchange of semi-finished goods. By enabling final assembly closest to end customers, this model significantly reduces lead times and enhances logistics efficiency. Her work reminds us that regional cooperation transforms geopolitical challenges into opportunities for collective economic resilience.

Conclusion: Navigating Together

What unites these diverse contributions is a shared recognition that digital transformation is not merely a technical process but a deeply human one—shaped by cultural values, religious commitments, ethical principles, and social relationships. The anthropological perspective informing several chapters reminds us that human societies have always demonstrated remarkable creativity and adaptability in responding to new challenges. The emergence of digital da'wah platforms, AI-driven health systems, immersive gastrodiploacy, and smart tourism infrastructure

represents the latest chapter in this ongoing story of human adaptation to changing circumstances.

Yet adaptation does not mean abandonment of tradition. As the chapters in this volume demonstrate, effective digital engagement requires both technological competency and deep grounding in established cultural, ethical, and religious frameworks. The emphasis on Islam *wasathiyah* across ASEAN ulama forums, the attention to ethical principles in AI governance, the commitment to cultural authenticity in tourism innovation—these reflect efforts to articulate distinctive Southeast Asian approaches to digital transformation rooted in local values while engaging constructively with global developments.

The stakes of these efforts could not be higher. In an era of rapid technological change, algorithmic bias, and post-truth conditions, the ability of ASEAN societies to harness digital tools while maintaining ethical standards, cultural integrity, and social cohesion is essential to the region's future prosperity and harmony. The convergence of regional collaboration and digital transformation presents opportunities to amplify diverse voices, counter divisive narratives, and build inclusive communities. Realizing these opportunities requires sustained commitment to developing digital competencies across all sectors of society, maintaining ethical standards in technological development, and preserving the richness of Southeast Asian cultural traditions while adapting to new media environments.

As ASEAN moves toward more integrated regional cooperation under the Philippines' 2026 chairmanship, the role of scholarly work in fostering mutual understanding and guiding policy becomes

increasingly important. This volume is offered as a contribution to these ongoing efforts—a resource for scholars, policymakers, practitioners, and all those committed to strengthening digital collaboration and ethical innovation in Southeast Asia. We hope it will inform discussions during the Philippines’ chairmanship and beyond, supporting the region’s continued development as a global model of harmonious pluralism, creative adaptation, and ethically grounded digital transformation.

The digital future is uncharted territory, full of both promise and peril. But by navigating together—sharing insights, coordinating responses, and affirming shared values—we can chart a course that honors our diverse cultural heritage while embracing the opportunities of technological innovation. May the essays gathered here contribute to that collective journey.

Jakarta-Ternate, 2025-2026

Editor,

Yanuardi Syukur

TABLE OF CONTENTS

Asean Writers Network	iii
Table of Contents.....	xviii

Chapter 1 Digital Moderation and Cultural Diplomacy

ASEAN Ulama and Digital Collaboration: Strengthening Islamic Moderation and Da'wah Networks in Southeast Asia	2
<i>Yanuardi Syukur</i>	
Tuan Guru Abdullah: An ASEAN Scholar from Tidore and Digital Imagination Towards National Hero.....	23
<i>Abdul Kadir Ali & Yanuardi Syukur</i>	
Bridging Worlds: How Education and Cultural Exchange Shape Our Global Future.....	33
<i>Ariesza Permata</i>	
Digital Dining Table Transformation: evolutionizing ASEAN Gastrodiploamacy Through Immersive Technology..	50
<i>Siti Khoirnafiya</i>	

Digital Leadership, Human Capital, and Human Resource Performance in ASEAN: Navigating Transformation in the Digital Era	60
<i>Suyanto</i>	

Chapter 2 Digital Ethics, Data Governance, and Future Education

AI Ethics and Health Data Governance in the ASEAN Region	75
<i>Fery Setiawan</i>	

Education in the Digital Era:ASEAN 2026 as the Global Center for Collaboration and AI Ethics	99
<i>Shorihatul Inayah</i>	

Digital Age: Practicality, Productivity, and the Dilemma of Morality	113
<i>Berti Nurul Khajati</i>	

Social Media Influence and the Digital Literacy Gap in Indonesia.....	120
<i>Firly Andrisetiani Permata</i>	

The Nexus of Global Digital Collaboration	133
<i>Mariza</i>	

ASEAN’s Digital Journey: The Halal Product Assurance
Law in the Digital Era 141
Subandriyah
Digital Literacy Centralization: Synergy Of Senior
High School Libraries And Asean..... 156
Beryana Evridawati

**Chapter 3 Digital Innovation, Tourism,
and Socio-Cultural Inclusion**

Innovative Strategy in Tourism Industry: Integrating AI
and IoT to Enhance Operational Efficiency
and Sustainability in Bali 171
Putu Ayu Suniadewi
ASEAN Socio-Cultural Pillar: Education, Cultural Exchange,
and Digital Inclusion in the Era of Global Collaboration.. 190
Mamdukh Budiman
Integrated Flexible Manufacturing with Integrated
Cloning Factory One ASEAN..... 213
Anak Agung Ayu Putri Ardyanti

Author’s Biography 219

CHAPTER 1

DIGITAL MODERATION

AND CULTURAL DIPLOMACY

ASEAN Ulama and Digital Collaboration: Strengthening Islamic Moderation and Da'wah Networks in Southeast Asia

Yanuardi Syukur

*This article examines the role of ASEAN ulama in fostering regional Islamic cooperation and adapting to digital da'wah transformation from 2016 to 2024. It identifies three key dimensions: institutionalization of ulama networks, mainstreaming of Islam wasathiyah (moderate Islam), and the emerging paradigm of digital da'wah. The study highlights initiatives such as the Halaqah Ulama ASEAN and the proposed ASEAN Da'i Association. It argues that the convergence of regional collaboration and digital transformation presents both opportunities and challenges for Islamic **propagation** across Southeast Asia's diverse Muslim communities.*

Introduction

The Association of Southeast Asian Nations (ASEAN) represents one of the most diverse and dynamic regions for Islamic civilization, hosting approximately 240 million Muslims across its member states. This diversity encompasses countries where

Islam constitutes the majority religion—Indonesia, Malaysia, and Brunei Darussalam—alongside nations with significant Muslim minorities such as Thailand, the Philippines, Cambodia, Vietnam, Singapore, Myanmar, and Laos (MUI.or.id, 2024). As a universal cultural phenomenon, religion, including Islam, manifests in all societies studied by anthropologists, demonstrating humanity’s almost unlimited creativity and adaptability in facing daily life challenges (Keesing & Keesing, 1971). This demographic reality has historically necessitated cross-border religious collaboration among Islamic scholars (*ulama*) to address shared challenges, preserve religious identity, and promote harmonious coexistence within pluralistic societies.

The tradition of regional *ulama* gatherings is not a recent phenomenon. Since at least 2010, various institutions have facilitated structured dialogues among Southeast Asian Islamic scholars. The Halaqah Ulama ASEAN, initiated by the Indonesian Ministry of Religious Affairs, began as an effort to mainstream moderate Islam throughout the region (Antara, 2016). These forums have progressively expanded in scope and participation, evolving from informal discussions to institutionalized platforms producing concrete recommendations and action plans. In anthropological perspective, such gatherings represent what Durkheim (1912/2001) identified as collective religious phenomena that generate what he termed “collective effervescence”—shared emotional intensity that strengthens social bonds and reinforces group identity. Victor Turner (1969/1995) later enriched this concept with the notion of *communitas*, describing the profound solidarity, equality, and togetherness that transcends everyday social structures.

Simultaneously, the twenty-first century has witnessed an unprecedented digital transformation affecting all aspects of human life, including religious practice and propagation. According to Habib Husein Ja'far Al Hadar (NU Online, 2021), 73.6 percent of Indonesia's population had integrated digital technology into their daily lives by 2021, with average smartphone usage reaching 8.5 hours per day and users checking their devices 47 times daily. This digital immersion has fundamentally altered how Muslims access religious knowledge, seek fatwas, and engage with Islamic teachings. The Alvara Research study cited by Habib Ja'far revealed that YouTube ranked as the fourth most trusted source for religious guidance among Indonesian Muslims, surpassing traditional sources of authority.

This digital transformation of religious practice aligns with broader patterns of religious adaptation to changing social contexts. As Kottak (2015) observes, religion functions to help humans cope with uncertainty, suffering, and life's tragedies by offering hope and spiritual healing mechanisms. The concept of rewards and punishments in religion powerfully influences adherents' attitudes and behaviors. In the digital era, these mechanisms operate within new media environments, requiring religious authorities to adapt their methods of communication and community-building. Malinowski (1931/1978) argued that humans turn to magic and religion when facing situations beyond their technical or rational control—a insight particularly relevant as digital natives navigate the uncertainties of online information ecosystems.

This article explores the intersection between two significant developments in Southeast Asian Islam: the strengthening

institutional collaboration among ASEAN ulama and the accelerating adoption of digital platforms for da'wah. By examining various initiatives, conferences, and statements from 2016 to 2024, this study seeks to understand how regional Islamic scholars are responding to digital transformation while simultaneously building cohesive networks across national boundaries. The analysis draws upon anthropological understandings of religion as systems of symbols that establish powerful, pervasive moods and motivations by formulating conceptions of a general order of existence and clothing these conceptions with such an aura of factuality that the moods and motivations seem uniquely realistic (Geertz, 1973). The analysis focuses on three interconnected themes: the formation of regional ulama associations, the promotion of Islam *wasathiyah* as a unifying framework, and the adaptation of da'wah methodologies to digital environments.

Institutionalizing Regional Ulama Networks: From Dialogue to Association

The past decade has witnessed a remarkable progression in the institutionalization of ASEAN ulama cooperation. What began as periodic consultative meetings has evolved toward more structured organizational forms, culminating in current initiatives to establish formal associations of Islamic scholars and preachers across Southeast Asia. This institutional evolution reflects what anthropologists recognize as the development from simpler to more complex forms of religious organization, paralleling broader social structural developments (Wallace, 1966; Bellah, 1978).

The Halaqah Ulama ASEAN, first convened in 2010, represents the foundational platform for regional ulama collaboration. The 2016 gathering in Bogor, officially opened by Vice President Jusuf Kalla, focused on “Developing Moderate Islam through Islamic Boarding School Networks” (Antara, 2016). This theme recognized the historical role of pesantren (Islamic boarding schools) as institutions preserving and transmitting moderate Islamic traditions throughout the archipelago for over two centuries. Minister of Religious Affairs Lukman Hakim Saifuddin emphasized that these gatherings formed part of broader efforts to mainstream moderate Islam within the ASEAN Community framework (Antara, 2016). From an anthropological perspective, pesantren represent what Bellah (1978) would identify as religious institutions that mediate between the sacred and profane realms, maintaining and transmitting core religious values across generations.

The 2017 Halaqah Ulama ASEAN produced particularly significant outcomes, generating seventeen concrete recommendations across four thematic areas: developing Islam *wasathiyah*, enhancing the competitiveness of Islamic education, strengthening economic cooperation, and advancing socio-political collaboration (Republika, 2017). These recommendations demonstrated the expanding scope of ulama concerns beyond purely religious matters to encompass educational, economic, and social development. Notable proposals included establishing teacher exchange programs for studying Islam *wasathiyah*, creating collaborative research on local wisdom related to religious moderation, developing scholarship programs for students across ASEAN, and planning the establishment of an ASEAN-level Islamic

university (Republika, 2017). This comprehensive approach reflects the anthropological understanding that in many societies, religious values and practices permeate all aspects of social, economic, and political life rather than constituting a separate sphere (Asad, 1983/2008; Lambek, 2008).

Parallel initiatives emerged from non-governmental actors. The *Pertemuan Ulama dan Da'i se-Asia Tenggara, Afrika, dan Eropa ke-V*, held in Jakarta in July 2018 and opened by Vice President Jusuf Kalla, brought together over 500 participants representing diverse Islamic organizations including Muhammadiyah, Nahdlatul Ulama, Persis, Al-Irsyad, and various regional groups (Wapresri.go.id, 2018). This gathering's theme, "Merajut Ukhuwah, Meraih Berkah" (Weaving Brotherhood, Attaining Blessings), emphasized the importance of sustained dialogue for achieving lasting peace and progress. Vice President Kalla explicitly noted that "we cannot resolve problems through a single meeting; we need subsequent meetings to achieve genuine peace" (Wapresri.go.id, 2018). The emphasis on ritual gathering and repeated interaction aligns with Durkheim's (1912/2001) insight that collective religious assemblies generate and regenerate the moral bonds that hold communities together.

The most ambitious institutional development to date is the proposed formation of an ASEAN Da'i Association, announced by the Indonesian Ulama Council (MUI) in July 2024. KH Cholil Nafis, Chair of MUI's Dakwah and Ukhuwah Division, articulated that this association aims to strengthen da'wah and Islamic scholarship throughout Southeast Asia by uniting ulama and preachers across national boundaries (MUI.or.id, 2024). The

association's establishment is targeted during the Conference of Southeast Asian Ulama scheduled for July 26-28, 2024, as part of MUI's 49th Anniversary commemorations. Confirmed participants include representatives from ten ASEAN nations, with only Timor Leste yet to provide confirmation.

This institutional evolution reflects growing recognition that regional challenges require coordinated responses. KH Cholil Nafis emphasized that Muslim communities in Southeast Asia face diverse circumstances—some constituting majorities while others exist as minorities—necessitating a unified framework that accommodates this diversity while strengthening brotherhood among Muslims (MUI.or.id, 2024). The proposed association aims to strengthen ulama networks, consolidate Islamic movements, and enhance regional cooperation in economic development, resilience, and intellectual discourse. This development exemplifies what Wallace (1966) termed the “ecclesiastical” type of religious organization—characteristic of stratified societies that can support full-time religious specialists organized into bureaucratic hierarchies.

Beyond these government-linked initiatives, civil society has also contributed to regional ulama networking. The 2017 muzakarah (deliberation) on Tauhid Tasauf (Sufi theology) cadre development in Gorontalo, organized by the Majelis Pengkajian Tauhid Tasauf (MPTT) in cooperation with Pondok Pesantren Al-Huda, attracted 350 ulama from Malaysia, Singapore, Brunei Darussalam, Thailand, the Philippines, Cambodia, and Indonesia (Merahputih.com, 2017). This gathering emphasized producing future community leaders and successors to the Prophet's da'wah struggle while cultivating

a culture of love for knowledge, deliberation, and consultation in various aspects of life (Merahputih.com, 2017). Such gatherings function as what Turner (1967, 1969/1995) identified as liminal phenomena—moments when participants are suspended between ordinary social structures, experiencing *communitas* and emerging transformed with renewed commitment to their religious roles.

Islam Wasathiyah as a Unifying Framework for Regional Islamic Cooperation

Throughout various ASEAN ulama forums, the concept of Islam *wasathiyah* (moderate or middle-path Islam) has emerged as a dominant framework for articulating a distinctive Southeast Asian Islamic identity. This concept resonates across the region's diverse Muslim communities, offering a counter-narrative to extremist ideologies while remaining firmly grounded in traditional Islamic scholarship. In anthropological terms, *wasathiyah* functions as a key symbol that integrates worldview and ethos—providing both a model of reality and a model for reality (Geertz, 1973).

The 2017 Halaqah Ulama ASEAN devoted significant attention to developing Islam *wasathiyah*, resulting in four specific action plans. These included exchanging teachers and religious scholars to deepen understanding of moderate Islam across ASEAN countries, organizing specialized training on Islam *wasathiyah* for Islamic education administrators, conducting collaborative research on local wisdom related to religious moderation in each ASEAN nation, and cooperating in publishing materials on moderate Islam (Republika, 2017). These initiatives recognized

that Islam *wasathiyah* is not merely an abstract concept but must be contextualized within specific cultural settings—what anthropologists would recognize as the indigenization or localization of global religious forms (Robbins, 2004).

Minister Lukman Hakim Saifuddin, speaking at the 2016 Halaqah, connected moderate Islam to the educational traditions of Southeast Asian pesantren. He noted that the theological perspectives taught in Indonesian Islamic boarding schools—Asy’ariyah and Maturidiyah rather than Jabariyah or Qodariyah—the jurisprudence following the four imams with emphasis on the Syafi’i school, and the Sufism based on Imam Ghazali and Al-Junaid’s teachings all reflect a commitment to balanced, moderate approaches (Antara, 2016). These traditions have been transmitted through pesantren for over two centuries, predating the modern Indonesian nation-state. This emphasis on continuity with established scholarly traditions reflects the anthropological insight that religious systems maintain their vitality through successful transmission across generations while adapting to changing circumstances.

The 2022 Persidangan Ulama Asia Tenggara in Kuala Lumpur, organized by Rabithah Alam Islamiyah in collaboration with the Malaysian Prime Minister’s Office and Ministry of Religious Affairs, further reinforced the centrality of moderation. Dr. Mohammad bin Abdul kareem Al-Issa, Secretary-General of the Muslim World League, emphasized that religious differences constitute natural phenomena (*sunnatullah*) that cannot justify injustice or hostility toward different groups (NU Online, 2022). He explicitly rejected extremist and terrorist groups as representatives of Islam’s noble

values, characterizing them instead as carriers of narrow political agendas. This affirmation of religious diversity as divinely ordained resonates with anthropological understandings of how societies manage pluralism and maintain social cohesion despite differences (Bowen, 2011; Hicks, 2010).

This gathering produced four primary objectives: consolidating moderate religious values and Muslim unity, countering extremist teachings directed at other religious groups, transforming political discourse from divisiveness toward mutual respect and solidarity, and generating programs and recommendations to be disseminated through participant networks (NU Online, 2022). These objectives demonstrate how Islam *wasathiyah* serves both internal functions—uniting Muslims across sectarian and national divides—and external functions—promoting harmonious interfaith relations within pluralistic societies. This dual function exemplifies what anthropologists recognize as religion’s role in both binding communities internally and positioning them within broader social landscapes (Rappaport, 1974, 1999).

The proposed ASEAN Da’i Association explicitly incorporates *wasathiyah* as a foundational principle. KH. Cholil Nafis indicated that the forum will discuss *Wasathiyatul Islam*, the propagation of moderate Islam, harmonizing perspectives, and coordinating constructive da’wah movements for peace throughout ASEAN (MUI.or.id, 2024). This emphasis reflects awareness that Southeast Asia’s religious landscape includes both Muslim-majority and Muslim-minority contexts, requiring nuanced approaches sensitive to local conditions while maintaining Islamic authenticity. The promotion of Islam *wasathiyah* also addresses concerns about

transnational extremist ideologies penetrating the region. By articulating a distinctive Southeast Asian Islamic identity rooted in local traditions of tolerance and moderation, ASEAN ulama seek to immunize their communities against radical narratives while simultaneously engaging constructively with global Islamic discourse. This dynamic mirrors the broader patterns of religious globalization, where global forms are always localized and indigenized rather than simply imposed or adopted unchanged (Robbins, 2004; Martin, 1990).

Digital Transformation and the Evolving Paradigm of Islamic Da'wah

The digital revolution has fundamentally transformed how Muslims access religious knowledge and how preachers disseminate Islamic teachings. ASEAN ulama have increasingly recognized the imperative to engage with digital platforms, developing new competencies while addressing emerging challenges related to digital ethics, information credibility, and online religious authority. This transformation represents what anthropologists of religion would identify as a significant shift in the material and social infrastructure of religious life, with profound implications for how sacred knowledge is transmitted and religious authority is constituted.

Habib Husein Ja'far Al Hadar's analysis of digital da'wah potential reveals the scale of transformation. With 73.6 percent of Indonesians connected to digital platforms in 2021, and average daily screen time of 8.5 hours, digital spaces have become primary

venues for religious seeking (NU Online, 2021). The Alvara Research finding that YouTube ranked as the fourth most trusted source for religious guidance—surpassing traditional authorities—prompted Habib Ja’far to coin the term “ulama yutubi” (YouTube ulama), referring to scholars who disseminate their teachings through video platforms (NU Online, 2021). This phenomenon represents a significant shift in religious authority structures, potentially democratizing access to Islamic knowledge while raising questions about credentialing and quality control. From an anthropological perspective, this shift exemplifies how changes in media technologies can reshape the social distribution of religious knowledge and the nature of religious expertise.

The demographic dimension of digital da’wah is particularly significant for reaching younger generations. Habib Ja’far noted that social media users predominantly fall within the 18-34 age range, making digital platforms essential channels for engaging Muslim youth (NU Online, 2021). This demographic reality compels ulama and da’i to develop competencies in digital content creation, understanding platform algorithms, and communicating Islamic messages in formats accessible to digital-native audiences. This generational shift in religious consumption patterns echoes broader anthropological observations about how religious traditions must continually adapt to remain relevant to new cohorts of adherents (Robbins, 2004).

The Indonesian Ulama Council has responded to these challenges through systematic attention to digital literacy. KH. Masduki Baidlowi, Chair of MU’s Information and Communication Commission, articulated four pillars of digital literacy essential

for contemporary society: digital ethics, digital skills, digital culture, and digital security (MUI.or.id, 2024). He expressed concern that Indonesian society remains vulnerable to hoaxes and misinformation, partly due to algorithmic systems that present one-sided information without comparative perspectives. This algorithmic bias can create “post-truth” conditions where repeated falsehoods become accepted as truth, independent of factual basis (MUI.or.id, 2024). This concern resonates with anthropological work on how new media environments can facilitate the spread of misinformation and the formation of epistemic bubbles that reinforce existing beliefs rather than exposing adherents to diverse perspectives.

MUI’s Information and Communication Commission has consequently prioritized digital literacy initiatives focused on promoting ethical, productive social media use that builds community and supports collaborative da’wah efforts. These efforts recognize that digital platforms are not merely neutral tools but shape how religious messages are received, interpreted, and shared. Effective digital da’wah requires understanding these platform dynamics while maintaining traditional Islamic values of honesty, compassion, and wisdom in communication. This adaptation of religious communication to new media environments parallels historical patterns of religious communities adapting to previous technological shifts, from the printing press to radio and television.

The proposal for da’i certification or competency strengthening, which gained prominence following controversial public statements by some preachers, reflects growing attention to quality control in digital religious discourse. KH. Ahmad

Zubaidi, Chair of MUI's Dakwah Commission, emphasized that da'i must exercise particular care in speech during the digital era, as incautious language can diminish the essence of Islamic teachings and degrade preacher credibility (Tempo, 2024). He stressed that ethics, manners, and proper conduct constitute foundational education for preachers, complementing substantive knowledge. Without ethical grounding, knowledge alone may produce arrogance in da'wah activities (Tempo, 2024). This emphasis on ethical formation alongside knowledge transmission reflects the anthropological understanding that religious authority rests not merely on cognitive mastery but on embodied dispositions and moral exemplarity (Asad, 1983; Mahmood, 2005).

Zainut Tauhid Sa'adi, Vice Chair of MUI's Advisory Council, distinguished between mandatory certification and voluntary competency strengthening programs. He expressed concern that mandatory certification might exclude traditional village preachers and kyai who possess substantive knowledge despite lacking formal certificates (Tempo, 2024). Instead, he advocated for voluntary programs focused on enriching da'i understanding of contemporary issues, including digital media literacy, counter-terrorism, and strategies for engaging Generation Z. This approach seeks to enhance preacher competencies while respecting the diversity of Islamic scholarly traditions in Indonesia. This debate reflects broader tensions in religious authority between formal institutional credentialing and recognition grounded in community acceptance and demonstrated knowledge—a dynamic familiar to anthropologists studying religious leadership across diverse cultural contexts (Bowen, 2011; Lambek, 2008).

The intersection of regional ulama collaboration and digital transformation presents both opportunities and challenges. Digital platforms enable ASEAN ulama to share resources, coordinate messaging, and amplify moderate voices across national boundaries. Collaborative digital initiatives could include joint content creation, cross-border social media campaigns promoting Islam *wasathiyah*, and online training programs for da'i throughout the region. However, digital spaces also expose Muslim communities to extremist content and foreign ideologies that may undermine regional efforts to promote moderate Islam. This dual nature of digital media—simultaneously enabling new forms of connection while facilitating the spread of problematic content—reflects broader patterns in the anthropology of globalization, where new technologies create both opportunities and risks for religious communities (Coleman & Hackett, 2015).

From a broader anthropological perspective, the digital transformation of Islamic da'wah represents a continuation of religion's adaptive response to changing social and technological environments. As Kottak (2015) notes, religion has always been characterized by extraordinary diversity and creativity in addressing human problems. The emergence of digital da'wah platforms, the development of new competencies among religious preachers, and the ongoing negotiation of religious authority in online spaces all exemplify this enduring human capacity for religious innovation. At the same time, the core functions of religion identified by anthropologists—providing explanations for existential questions, offering emotional comfort in times of uncertainty, binding communities together through shared ritual

and belief, and maintaining social order through moral regulation—continue to operate within these new digital environments, albeit in transformed ways.

Institutionalizing ASEAN Ulama

The evolution of ASEAN ulama collaboration from periodic dialogues toward institutionalized associations represents a significant development in Southeast Asian Islamic cooperation. Through forums such as the Halaqah Ulama ASEAN, the *Persidangan Ulama Asia Tenggara*, and the proposed Conference of Southeast Asian Ulama, Islamic scholars from across the region have progressively built frameworks for addressing shared challenges, promoting Islam *wasathiyah*, and coordinating da'wah activities. These initiatives recognize that Muslim communities in Southeast Asia, despite their diversity, share common concerns requiring collective responses. From an anthropological perspective, this institutionalization represents the development of more complex forms of religious organization capable of addressing the challenges of religious life in an increasingly interconnected world (Wallace, 1966; Bellah, 1978).

Simultaneously, the digital transformation has fundamentally altered the landscape of Islamic da'wah, compelling ulama and preachers to develop new competencies while navigating challenges related to information credibility, digital ethics, and religious authority. The emergence of “ulama yutubi” reflects broader shifts in how Muslims access religious knowledge, with digital platforms increasingly serving as primary sources for religious guidance

alongside traditional institutions. This transformation exemplifies religion's ongoing adaptation to changing technological and social environments—a process anthropologists have documented across diverse cultural and historical contexts.

The convergence of regional collaboration and digital transformation presents opportunities for strengthening moderate Islamic discourse throughout Southeast Asia. Coordinated digital initiatives could amplify moderate voices, counter extremist narratives, and support Muslim minorities in countries where they face particular challenges. However, realizing these opportunities requires sustained commitment to developing digital competencies among ulama, maintaining ethical standards in online da'wah, and preserving the richness of traditional Islamic scholarship while adapting to new media environments. As anthropologists have long recognized, successful religious adaptation involves neither wholesale rejection of new forms nor uncritical acceptance, but rather selective integration that preserves core values while responding creatively to changing circumstances (Robbins, 2004; Martin, 1990).

As ASEAN moves toward more integrated regional cooperation across economic, political, and socio-cultural dimensions, the role of ulama networks in fostering mutual understanding and religious harmony becomes increasingly important. The proposed ASEAN Da'i Association, if successfully established, could provide institutional infrastructure for sustained collaboration, resource sharing, and coordinated responses to emerging challenges. Combined with thoughtful engagement with digital platforms, these regional networks may strengthen the distinctive character

of Southeast Asian Islam as moderate, tolerant, and constructively engaged with both tradition and modernity. This vision of Islam aligns with the anthropological understanding that living religious traditions are never static but continually evolve through the creative engagement of adherents with changing circumstances while maintaining continuity with foundational sources and values (Asad, 1993; Lambek, 2008).

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Tuan Guru Abdullah: An ASEAN Scholar from Tidore and Digital Imagination Towards National Hero

Abdul Kadir Ali & Yanuardi Syukur

This article examines Tuan Guru Abdullah bin Qadhi Abdussalam, an 18th-century scholar from the Sultanate of Tidore who spread Islam in South Africa. It explores three aspects: his role as an ASEAN scholar representing Nusantara Islamic civilization, his contributions in establishing the first mosque and madrasah in South Africa, and digital strategies to promote him as a National Hero of Indonesia. The article argues that in the digital era, proposing him as a national hero requires a massive digital literacy movement, not just conventional bureaucratic channels.

Introduction

On Dorp Street, Cape Town, South Africa, stands the imposing Auwal Mosque—the first mosque on the African continent that witnesses the spread of Islam at the southern end of the world. In the mosque's attic, there is a manuscript of the oldest Qur'an in South Africa, written from memory, using ink and paper typical

of the Dutch colonial era. Behind this historical artifact lies the name of a great scholar from the Spice Islands: Imam Abdullah bin Qadhi Abdussalam, better known as Tuan Guru (Faaroek, n.d.).

He is living proof that Nusantara's Islamic civilization did not stop at the geographical boundaries of the archipelago but crossed the oceans to the Cape of Good Hope. At the age of 68, the VOC exiled Tuan Guru to Robben Island—the island that would later become the prison of Nelson Mandela. Yet prison did not extinguish the light of his knowledge. It was behind bars that he wrote great works that became the foundation of Islamic civilization in South Africa.

Now, in an era when national borders are increasingly blurred by the rapid flow of digital information, the figure of Tuan Guru finds new relevance. He belongs not only to Tidore or North Maluku but to ASEAN and the world. This paper seeks to trace the legacy of Tuan Guru as an ASEAN scholar from Tidore, while envisioning digital strategies to bring him to become a National Hero of Indonesia—a recognition long awaited by the people of North Maluku and lovers of Nusantara history.

Tuan Guru: An ASEAN Scholar from Eastern Indonesia

Tuan Guru Abdullah was born around 1712 in Tidore, one of the largest Islamic Sultanates in the eastern region of the Nusantara archipelago. His lineage was not in the sultan's line, but in the line of *bobato* (court officials)—his father, Qadhi Abdussalam, served as Qadhi, Imam, *Jojau* (Prime Minister), and *Kapita Lau* (Admiral) during the reign of Sultan Mas'ud Jamaluddin Syah (1756-1780).

From the lineage of Umar Rakhmat Faaroek (a grandfather from Cirebon who arrived in Tidore in 1694), Tuan Guru inherited a scholarly tradition that combined sharia and Sufism.

In the ASEAN context, Tuan Guru deserves to be called the first ASEAN scholar who brought the influence of Islamic civilization to the southern tip of Africa. Long before ASEAN was politically formed (1967), the civilizational traces of Southeast Asia had explored the world through the spice routes and networks of scholars. Tuan Guru is a perfect representation of the “Tidorean human” as described in Abdulkadir Ali’s study (2023)—a person firmly holding Islamic identity and local culture, yet capable of engaging in dialogue with the global world.

According to Prof. Salie Abrahams, Rector of the International Peace College of South Africa, Tuan Guru’s legacy in South Africa is deeply rooted in the broader network of Nusantara scholars connected to the global Islamic world. He stands alongside Syekh Yusuf Al-Makassari, who arrived earlier in Cape Town in 1694. While Syekh Yusuf is renowned for introducing the Khalwatiyah Sufi order, Tuan Guru established the foundational infrastructure of Islamic civilization in the region—founding the first mosque, the first madrasah, and producing the earliest Islamic literature in South Africa. These monumental contributions earned him the enduring title, “Father of Islam in South Africa” (UIN Jakarta, 2012).

As an ASEAN scholar, Tuan Guru teaches that Islamic and Indonesian identity never become obstacles to contributing to global civilization. He is proof that from a small island in eastern Nusantara, light was born that illuminated a nation on another

continent. In an era when ASEAN is building an inclusive socio-cultural community, the figure of Tuan Guru can become a civilizational icon that unites diversity.

Civilizational Legacy: Mosque, Madrasah, and Manuscripts

Tuan Guru's contribution in South Africa extends beyond mere religious propagation. He built the foundations of Islamic civilization, especially in North Maluku and Tidore, that still stand today (Burdam, 2012; Amal, 2007; Alwi, 2005; Leirissa, 1996). After his release from Robben Island prison in 1793, Tuan Guru settled in Bo-Kaap, an area now known as the center of the Cape Malay community. Here he began a new chapter of struggle—not with weapons, but with knowledge and education.

First, Auwal Mosque. In 1794, Tuan Guru established the Auwal Mosque on Dorp Street—the first mosque in South Africa. The establishment of this mosque was not merely a place of worship but a political and cultural statement. Amid colonial pressure that restricted religious freedom, the presence of the mosque became a symbol of resistance and affirmation of Muslim identity. The mosque also became a center for education, social advocacy, and community organization. To this day, the Auwal Mosque still stands and has been renovated several times, becoming a historical pilgrimage destination for tourists and pilgrims from various countries.

Second, the first madrasah. In 1793, Tuan Guru established a madrasah with 372 students—a remarkably large number for that time. His students were mostly freed slaves and marginalized

communities. Through the madrasah, Tuan Guru taught the Qur'an, fiqh, theology, and morality. He used the Malay-Arabic script (*Jawi*) as a medium of instruction, which made it easier for non-Arab communities to access religious knowledge. The educational system pioneered by Tuan Guru became the precursor to Islamic educational institutions in South Africa—from primary level to higher education.

Third, Manuscripts and literary works. Inside Robben Island prison, Tuan Guru wrote his great works from memory. The most monumental is the oldest Qur'an manuscript in South Africa, written without a physical mushaf as reference. Additionally, he wrote *Ma'rifat wa al-Iman wa al-Islam*, a 613-page textbook that became the main reference for Islamic education in Cape Town for over 100 years. This book discusses Islamic creed, law, and ethics in language accessible to ordinary people. The Qur'an manuscript by Tuan Guru is now kept in a fireproof and bulletproof case at the Auwal Mosque, while a replica of his book is stored in the Cape Town National Library.

Tuan Guru's legacy proves that the strength of civilization is not always measured by the splendor of palaces or the extent of territorial control, but by the depth of knowledge and the courage to spread light in the midst of darkness. He is proof that from exile, civilization was born; from prison, liberation emerged.

Digital Imagination: Strategies Towards National Hero

On November 27, 2025, Indonesian Minister of Culture Fadly Zon pledged support for the Tidore Islands City Government to

propose Tuan Guru as a National Hero. North Maluku Governor Sherly Laos also stated her commitment to collaborate with the local government and the Sultanate of Tidore to complete the proposal documents. Sultan of Tidore Husain Sjah invited all elements of society to strengthen unity to realize this aspiration (Indotimur, 2025)

However, in the digital era, proposing a national hero is insufficient through conventional bureaucratic channels alone. Digital imagination is needed—a collective literacy movement utilizing digital media to build historical awareness and public support. Here are several strategies that can be implemented:

First, cross-platform digital narrative campaigns. Social media such as Instagram, TikTok, YouTube, and Twitter can become arenas to spread Tuan Guru's story in engaging and easily digestible formats. Content can include short animated videos of Tuan Guru's life journey, infographics of his civilizational legacy, and discussion podcasts with historians and descendants. The use of hashtags such as #TuanGuruNationalHero #ASEANScholarFromTidore #NusantaraSpiceRoute can help expand campaign reach.

Second, collaboration with content creators and diaspora. Involvement of history, culture, and religious content creators can strengthen Tuan Guru's narrative in the digital space. The Indonesian diaspora in South Africa, particularly the Cape Malay descendant community, can serve as campaign ambassadors, sharing Tuan Guru's influence from local perspectives. Personal stories from the Cape Town Muslim community about how Tuan Guru's teachings still live in their daily practices will enrich the

narrative and build emotional connections with the Indonesian public.

Third, production of multimedia content and virtual tours. Short documentaries about Tuan Guru's traces in Tidore and Cape Town can be produced and disseminated through streaming platforms. Virtual tours of the Auwal Mosque, Tuan Guru's grave at Tana Baru, and historical sites in Tidore can attract younger generations to learn about history. Collaboration with the Ministry of Culture, Ministry of Foreign Affairs, and the Indonesian Consulate in Cape Town can facilitate the production of this content.

Fourth, strengthening historical literacy in schools and universities. The local history curriculum in North Maluku needs to more deeply incorporate Tuan Guru's role in the history of global Islamic civilization. Essay competitions, student research, and online seminars featuring historians from Indonesia and South Africa can build an academic ecosystem supporting the proposal for Tuan Guru. Journal publications and popular books about Tuan Guru also need encouragement.

Fifth, digital diplomacy through multilateral forums. Moments such as ASEAN meetings, the Southeast Asian Scholars Conference, or interfaith dialogue forums can be utilized to introduce Tuan Guru as an icon of Indonesian cultural diplomacy. The Indonesian government can propose that Tuan Guru be remembered as a figure of ASEAN civilization—a strategic step before proposing him as a national hero.

Digital imagination is not merely a promotional tool but a cultural movement to reclaim historical narratives that have been

marginalized. Until now, the South African public has known Tuan Guru as a “Malay scholar” often associated with Malaysia. Whereas “Malay” in the colonial context referred to a cultural family encompassing Indonesia, Malaysia, Singapore, and Brunei. Through massive digital campaigns, we can correct this historical distortion and affirm that Tuan Guru is a distinguished son of Tidore, Indonesia.

Light from the East

Tuan Guru Abdullah bin Qadhi Abdussalam is proof that from a small island in eastern Nusantara, the light of civilization was born that illuminated a nation at the southern tip of Africa. He was an ASEAN scholar before ASEAN existed, a humanitarian hero who fought colonialism not with a sword, but with ink and knowledge. His legacy—the Auwal Mosque, the first madrasah, the oldest Qur’an manuscript, and the textbook that served as a reference for a century—is an eternal contribution to global Islamic civilization.

Now, at his 313th year (born 1712), we have a moral responsibility to bring him to become a National Hero of Indonesia. This responsibility belongs not only to the Tidore Islands City Government, the North Maluku Provincial Government, or the Sultanate of Tidore, but to all Indonesians who believe that great history is born from small places.

In the digital era, this movement can be carried out by anyone, anywhere. A social media post about Tuan Guru is part of the resistance against historical amnesia. A short video about the

Auwal Mosque is an effort to build emotional connections across generations. An online discussion about Tuan Guru's manuscripts is a contribution to enriching historical literacy.

Let us make digital imagination the vehicle to bring Tuan Guru to the space of official state recognition. Not merely a title, but an affirmation that Indonesia is a great nation that produced figures of global civilization. From Tidore for Indonesia, from Indonesia for the world. Tuan Guru Abdullah bin Qadhi Abdussalam: a hero without a sword, an ASEAN scholar from eastern Nusantara, an eternal light at the Cape of Good Hope.

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Bridging Worlds: How Education and Cultural Exchange Shape Our Global Future

Ariesza Permata

This article explores how cultural exchange—through student programs, artistic collaborations, festivals, and digital dialogue—enriches education, fosters mutual understanding, and bridges diverse communities. Drawing on theories of cultural mediation and examples of cross-cultural interaction in a digital age, it argues that cultural exchange, amplified by digital collaboration, builds foundations for a more peaceful and interconnected world.

Introduction

Cultural exchange can be defined as the exchange of ideas, stories, traditions, and values, particularly when the backgrounds of two countries or communities differ. The diversity of societies creates dialogue as a form of cultural exchange, and in this era of globalization, when different cultures from one country to another come together and interact, the results are certainly fascinating and create compelling narratives (Isnanto, 2024). According to Laila (2021), cultural exchange is a process where individuals or

groups from different cultural backgrounds share and learn from each other's traditions, beliefs, and ways of life.

In the world of art, the exchange between Indonesian and international artists presents particularly interesting dynamics. Artists engage in exchanges of aesthetics and ideas across different cultural backgrounds, with Indonesian artists exchanging ideas with foreign counterparts to create works that reflect both countries' sensibilities. Such exchanges broaden experiences and perspectives, though they certainly face challenges. Language barriers, differences in mindsets, and varying cultural values all present obstacles. However, as Putri (2024) notes, these challenges ultimately enrich the experience and knowledge of all participants, enabling the creation of something genuinely new through cultural fusion.

Cultural exchange plays a crucial role in enriching cultural understanding. Through cultural exchange, we can build bridges between people around the world, enabling us all to understand and respect one another (Linda, 2024). It broadens horizons, fosters understanding and appreciation for different cultures, enhances intercultural understanding and tolerance, and serves as a promotional platform across all aspects of society. Tempo (2024) emphasizes that in an increasingly interconnected world, the ability to navigate cross-cultural interactions has become an essential skill for personal and professional success. The rapid advancement of digital technologies has further accelerated these connections, creating unprecedented opportunities for cultural exchange through virtual platforms and collaborative digital spaces.

The Many Faces of Cultural Exchange: Forms and Platforms in the Digital Age

Cultural exchange manifests in several distinct forms, each offering unique opportunities for cross-cultural learning and engagement. Understanding these various platforms helps us appreciate the breadth and depth of exchange possibilities available in our interconnected world, particularly as digital technologies transform how cultures interact.

Language exchange programs enable participants to learn languages through direct interaction with native speakers, creating organic opportunities for cultural understanding. These programs often pair individuals from different linguistic backgrounds who communicate regularly, exchanging not only language skills but also cultural knowledge and perspectives. According to Laila (2021), such programs build foundational bridges between cultures by facilitating everyday communication and relationship-building. In the digital era, language exchange has been revolutionized by platforms such as Tandem, HelloTalk, and language learning apps that connect learners with native speakers across the globe, enabling real-time conversation practice regardless of geographical distance.

Student exchange programs represent one of the most structured and impactful forms of cultural exchange. According to Jubaer and Hoque (2021), student exchange programs allow students from secondary schools or higher education institutions to study abroad at partner institutions, either for a semester or for a full academic year. These programs may involve international travel, though some exchanges occur within the same country

across different cultural regions. Foreign exchange programs provide students with opportunities to study in another country and experience a different environment, offering experiences that may not be available in participants' home countries, such as learning about the history and culture of other countries and meeting new friends to enrich personal development.

Exchange students typically live with host families or in designated accommodations such as hostels, apartments, or student lodging. Student exchanges gained popularity after World War II, designed to increase participants' understanding and tolerance of other cultures while improving language skills and broadening social horizons. Students participating in study abroad programs aim to develop a global perspective and cultural understanding by challenging their comfort zones and immersing themselves in different cultures. Research suggests that students choose programs based on location, costs, available resources, and heritage connections, with the most popular programs offering academic credit, as many students worry about travel hindering their academic and professional plans.

Digital collaboration has significantly enhanced student exchange programs through virtual exchange initiatives, sometimes called "COIL" (Collaborative Online International Learning). These programs allow students from partner institutions in different countries to collaborate on projects, engage in cross-cultural dialogue, and develop intercultural competencies without physical travel. Such virtual exchanges have democratized access to international experiences, making them available to students who

cannot afford travel or have commitments that prevent extended stays abroad.

Cultural festivals provide platforms for celebrating diversity through music, dance, cuisine, and traditions from various countries. These events create spaces for appreciation and foster a sense of togetherness among diverse communities. As noted by Linda (2024), cultural festivals showcase a wide variety of artistic expressions and culinary traditions, introducing participants to new foods, ingredients, and cultural practices. Tempo (2024) adds that festivals serve as vibrant demonstrations of cultural richness, attracting participants and audiences from around the world. Digital collaboration has expanded the reach of cultural festivals through live streaming, virtual reality experiences, and hybrid events that combine physical attendance with online participation. During the global pandemic, many festivals successfully transitioned to digital formats, reaching international audiences and demonstrating the resilience of cultural exchange in virtual spaces.

Artistic collaborations between artists from diverse backgrounds create innovative works that captivate audiences. In the music world, for instance, Indonesian artists frequently exchange techniques, styles, and inspiration with foreign artists from diverse backgrounds, creating songs that combine elements of Indonesian music with Western pop or other global genres. Isnanto (2024) notes that such collaborations produce hybrid forms that transcend cultural boundaries, with each artist contributing their unique creativity to create something entirely new. Digital collaboration tools have revolutionized artistic partnerships, enabling musicians, visual artists, and performers to collaborate

across continents through cloud-based platforms, shared digital workspaces, and real-time video conferencing. A musician in Jakarta can now record a track that is mixed by a producer in London and mastered by an engineer in Los Angeles, all within the same week.

Social media and digital platforms play a crucial role in promoting cultural exchange in the contemporary era. According to Laila (2021), social media can serve as a tool for intercultural dialogue, enabling students to learn about other cultures from the comfort of their own homes. Increasingly sophisticated technology facilitates interaction and cultural sharing, allowing people to connect easily with individuals from diverse backgrounds and share experiences across geographical boundaries. Digital platforms have democratized cultural exchange, making it accessible to broader populations who may not have the resources for physical travel. Through social media, individuals can participate in cultural learning, observe traditions from around the world, and engage in cross-cultural dialogue without leaving their communities. Platforms such as Instagram, TikTok, and YouTube have become virtual stages where cultural performances, culinary traditions, and daily life practices are shared with global audiences, creating new forms of cultural representation and exchange.

Understanding Cultural Exchange: Theoretical Foundations and Dynamics in Digital Contexts

To fully appreciate the significance of cultural exchange, we must examine the theoretical frameworks that explain how

cultures interact, influence one another, and evolve through contact. These foundations reveal both the possibilities and the complexities inherent in cross-cultural encounters, particularly as digital technologies reshape the landscape of cultural interaction.

Kolaborasi budaya, or cultural collaboration, represents a strategy to unite parties from different cultural backgrounds. According to Isnanto (2024), cultural or cross-cultural collaboration is commonly applied across various fields of life, including social affairs, economics, arts, and education. The practice involves individuals or groups from different cultures working together to create new artistic or cultural works, with each party bringing their experiences, values, and expertise to the project. Cultural collaboration can take various forms, including music, dance, visual arts, theater, and literature. Examples include musical performances combining elements from different musical traditions, visual art exhibitions featuring artists from various countries, and dramas written by authors from diverse cultural backgrounds. The Indonesian Ministry of Education and Culture emphasizes that cultural collaboration can help strengthen relationships between different cultures, increase understanding and appreciation of cultural diversity, and produce unique and engaging works of art.

In the digital age, cultural collaboration has expanded beyond physical co-presence to include virtual creative partnerships. Digital collaboration tools enable artists, educators, and cultural practitioners to work together across time zones and geographical boundaries, creating hybrid cultural products that reflect multiple influences and perspectives. Online platforms have also facilitated

the emergence of global creative communities where individuals from diverse backgrounds share techniques, provide feedback, and co-create works in real-time.

However, as noted by Isnanto (2024), cultural collaboration also presents challenges, including differences in language, norms, and cultural values. Therefore, successful cultural collaboration requires open communication and respect for the uniqueness and diversity of each culture involved. Putri (2024) reinforces this by emphasizing that mutual respect forms the foundation of any meaningful cross-cultural encounter. Digital collaboration adds additional layers of complexity, as participants must navigate not only cultural differences but also technological barriers, time zone challenges, and the limitations of virtual communication.

Janssen and Verboord (2015) provide valuable theoretical insights into cultural exchange, emphasizing the importance of cultural mediators in facilitating international mobility, visibility, and reception of cultural products. Their research, drawing on Crane et al. (2002), examines how meaning is exported beyond national borders and transformed through this process. Cultural mediators—including publishers, critics, translators, and program organizers—play essential roles in determining which cultural products cross borders and how they are received in new contexts.

In the digital era, the concept of cultural mediators has expanded to include digital platforms, algorithms, and content moderators that shape which cultural content reaches global audiences. Streaming services like Netflix and Spotify, social media algorithms, and recommendation systems have become powerful cultural mediators, influencing the visibility and reception

of cultural products from different regions. Digital platforms can either amplify diverse cultural voices or reinforce existing imbalances, depending on how they are designed and governed.

Griswold's (1987) comparative study of American, British, and West Indian reviews of Barbadian novelist George Lamming's work reveals striking cross-cultural divergences in interpretation. While American reviews highlighted racial themes in Lamming's novels, British discussions virtually ignored race, focusing instead on literary qualities and language. This demonstrates how cultural context shapes the reception and understanding of cultural products, underscoring the complexity of cross-cultural exchange and the importance of mediators in framing cultural encounters. In digital contexts, these dynamics are amplified as content circulates globally, reaching audiences with vastly different cultural frameworks and interpretive traditions.

Despite ongoing cultural globalization, Janssen and Verboord's (2015) research indicates that coverage of foreign culture in European and US elite newspapers did not become substantially more global between 1955 and 2005. While global diversity in cultural coverage increased, international art coverage remained largely confined to countries belonging to the core of the cultural world system. Domestic cultural products continue to feature prominently in elite newspaper coverage, suggesting that cultural mediators can both enhance and maintain imbalances in international cultural exchanges. As Janssen and Verboord (2015) note, while technology expands possibilities for cultural exchange, the coverage of foreign culture in traditional media remains concentrated on select

countries, highlighting the continued importance of intentional efforts to promote diverse cultural representation.

In the digital realm, similar patterns of imbalance persist. Global digital platforms often prioritize content from Western countries, and algorithmic biases can further marginalize content from smaller or less-connected cultural communities. However, digital collaboration also offers opportunities to challenge these imbalances. Social media movements, independent content creators, and community-led platforms have created alternative channels for cultural expression and exchange, enabling voices from periphery cultures to reach global audiences directly.

However, cultural mediators can also serve as “gatemakers” pushing the boundaries of international cultural traffic. Sapiro’s (2010) research on French publishers developing foreign literature series with government support, featuring translations from more than 30 small and peripheral languages into French, demonstrates how intentional cultural policy can expand cross-cultural exchange. Similarly, Kuipers’ (2011) study of television buyers who mediate between national and transnational television fields reveals their important role in diffusing quality standards, practices, and programs across borders. In the digital age, similar gate-making functions are performed by curators, playlist editors, and community moderators who actively promote diverse cultural content.

Harvesting the Benefits: Impacts and Strategies for Effective Cultural Exchange in a Digital World

The ultimate value of cultural exchange lies in its tangible and intangible benefits for individuals, communities, and societies. Understanding these impacts, along with strategies to maximize them, helps us design more effective exchange initiatives that leverage both physical and digital forms of collaboration.

Jubaer and Hoque (2021) emphasize that understanding the meaning of instruction and its components is crucial for defining educational frameworks and their implementation. Their research examines comparative approaches to education, noting that recent initiatives emphasize accountability and effective educational control. In the context of cultural exchange, educational programs must be designed with careful attention to both method and content to maximize their impact. Digital collaboration has expanded the toolkit available for educational exchange, enabling blended learning approaches that combine physical mobility with virtual interaction.

In this era of growing globalization, student exchange programs have proven effective in fostering cross-cultural tolerance. Students studying abroad gain truly memorable experiences with new cultures, developing empathy and understanding that persists throughout their lives. As Linda (2024) observes, cultural exchange introduces individuals to challenging lifestyles through direct interaction, fostering empathy for other cultures and promoting tolerance. Research on short-term study abroad programs suggests that face-to-face exchange formats effectively promote intercultural learning, even for shorter programs and diverse types of learners.

Moreover, the positive effects of such exchange programs prove long-lasting, contributing to sustained intercultural competence and global awareness.

Digital collaboration has enhanced these outcomes by enabling pre-departure virtual orientations, sustained connections with host communities after return, and ongoing cross-cultural dialogue that extends the benefits of exchange experiences. Virtual exchange programs have also demonstrated effectiveness in developing intercultural competencies, particularly when designed with structured reflection and facilitated dialogue components.

Cultural exchange demonstrates the creative and innovative power of intercultural interaction in creating something new and exciting. Through collaboration, creativity and artistry flourish, building bridges between cultures through the universal language of art. Putri (2024) emphasizes that the beauty and power of innovation emerge most strikingly when diverse cultural perspectives converge. The benefits extend beyond individual participants to encompass broader society. Cultural exchange reduces stereotypes, builds cross-cultural friendships, and fosters global understanding. Whether through educational programs, artistic collaborations, or everyday cultural sharing, exchange creates pathways toward a more interconnected and empathetic world.

Digital collaboration amplifies these creative possibilities by providing platforms for ongoing interaction and co-creation. Online creative communities, virtual residencies, and digital collaboration tools enable sustained artistic partnerships that transcend geographical boundaries. These digital collaborations

often produce innovative works that reflect multiple cultural influences and reach diverse audiences through online distribution channels.

Jubaer and Hoque (2021) propose concepts of generalizing knowledge and efficiency to gain insights into organizational operations, suggesting that systematic evaluation can maximize educational impact. These insights apply to cultural exchange programs, which require careful assessment to ensure they achieve their intended outcomes. Digital collaboration enables more robust data collection and impact assessment, allowing program organizers to track participant engagement, measure learning outcomes, and continuously improve program design.

To maximize the benefits of cultural exchange, strategic approaches are essential. Government support plays a crucial role in facilitating exchange through supportive policies, making participation accessible to broader populations. Partnerships with other countries promote cultural collaboration, while funding for student exchange programs and exhibitions showcasing diverse cultures expands opportunities for engagement. In the digital realm, governments can support infrastructure development, digital literacy programs, and platforms that enable cross-cultural collaboration.

Isnanto (2024) outlines several essential tips for successful cultural collaboration. First, each party must study the other's culture, including history and background, to appreciate differences that may arise. Second, open two-way communication helps parties become acquainted, minimizing reliance on media that might distort messages. Third, collaboration should proceed on principles

of equality, ensuring all parties feel empowered to participate actively. Fourth, clear division of responsibilities and roles prevents misunderstandings. Finally, maintaining a relaxed atmosphere through humor helps navigate differences and prevent division. These principles apply equally to digital collaboration, though they may require adaptation to virtual contexts where non-verbal cues and informal interactions are limited.

In educational contexts, schools and universities can institutionalize cultural exchange through structured programs, partnerships with international institutions, and curriculum integration that values cross-cultural perspectives. The ASEAN Cyber University Project represents one regional effort to strengthen higher education through e-learning across member states, demonstrating how shared educational platforms can transcend national boundaries. Such initiatives leverage digital collaboration to create sustainable educational networks that facilitate ongoing cultural exchange and academic cooperation.

Linda (2024) adds that creating sustainable exchange programs requires commitment from all stakeholders, including educational institutions, governments, and communities, to ensure long-term success and meaningful impact. Digital collaboration can enhance sustainability by reducing costs, enabling continuous engagement, and creating documentation and resources that benefit future participants. Hybrid models that combine physical mobility with virtual interaction offer promising pathways for expanding access to exchange opportunities while maintaining the depth of cross-cultural learning.

Vital Force

Cultural exchange represents a vital force for positive transformation in an increasingly interconnected world. Through diverse forms of exchange—from student programs and artistic collaborations to festivals and digital dialogue—individuals and communities gain opportunities to develop cross-cultural understanding, empathy, and appreciation for diversity. The benefits extend beyond personal enrichment to encompass societal harmony, innovation, and global cooperation. Digital collaboration has amplified these benefits, making cultural exchange more accessible, sustainable, and impactful while creating new forms of cross-cultural interaction that complement traditional physical exchanges.

As Janssen and Verboord's (2015) research demonstrates, cultural mediators play essential roles in facilitating international cultural traffic, though imbalances persist in global cultural flows. Intentional efforts through educational policy, government support, and institutional partnerships can expand access to exchange opportunities and promote more equitable cultural representation. Digital platforms, when designed with equity and inclusion in mind, can serve as powerful tools for challenging existing imbalances and amplifying diverse cultural voices.

The future holds exciting possibilities for cultural exchange in education. By facilitating connections across borders—both physical and digital—we can build foundations for a more peaceful and compassionate world. Cultural exchange enriches knowledge by encouraging innovation and deeper understanding, enhancing creativity and innovation, broadening perspectives, and

increasing appreciation for human diversity. As diverse cultures come together, interact, and create—whether in person or through digital collaboration—they demonstrate the remarkable potential of human collaboration across all boundaries.

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Digital Dining Table Transformation: Revolutionizing ASEAN Gastrodiplomacy Through Immersive Technology

Siti Khoirnafiya

This article explores how Augmented Reality (AR) and Virtual Reality (VR) can transform ASEAN gastrodiplomacy into a more interactive and emotionally resonant form of cultural engagement. Drawing on frameworks from Westcott, Bjola, and Holmes, it argues that immersive technologies offer a strategic evolution of soft power, not just a trend. The paper examines implementation strategies, challenges (infrastructure, authenticity, cost), and policy pathways, concluding that AR/VR-enhanced gastrodiplomacy serves as an innovative cultural statecraft that brings ASEAN cuisine to the world through immersive storytelling and empathy-building.

Introduction

In an increasingly volatile international landscape, diplomacy is no longer confined to formal state-to-state communication. Every nation is now required to master a new battlefield: the digital realm. Here, public diplomacy—an intelligent effort to influence

global opinion and shape national image—emerges as a strategic force. According to Joseph Nye (2004), public diplomacy is the primary instrument of soft power: the ability to influence others through cultural and ideological attraction, rather than coercion.

One of the most universal and effective tools in public diplomacy is gastrodiploamacy, where food functions as a “cultural bridge” that transcends language and ideological barriers. As introduced by Paul S. Rockower (2012), gastrodiploamacy is the “act of winning hearts and minds through the stomach.” Rockower defines it as a planned and sustained public campaign by governments and non-state actors to enhance a nation’s image through cuisine, creating emotional and cultural connections. Emi Pujayanti (2017) similarly views gastrodiploamacy as an effective public diplomacy tool to promote a country’s cultural uniqueness. Robert Braden (2014) argues that food is a uniquely powerful bridge because the authentic experience of tasting a dish can directly shift negative perceptions into positive ones.

However, in today’s fast-paced digital era, conventional gastrodiploamacy—reliant solely on food festivals or state banquets—feels obsolete. A radical update is required. This paper fills that gap by deeply exploring the revolutionary potential of immersive technologies such as Augmented Reality (AR) and Virtual Reality (VR) as strategic tools to promote ASEAN’s culinary heritage. Why AR/VR? Because these technologies transform static experiences into dynamic, immersive interactions that leave lasting impressions.

This paper aims to articulate a coherent theoretical and practical framework demonstrating how ASEAN can leverage

AR/VR to solidify its position as a global culinary power. Beyond mere technical description, it analyzes the implementation of these technologies through the theoretical lenses of three digital diplomacy pioneers—Nicholas Westcott, Corneliu Bjola, and Marcus Holmes—to prove that digital gastrodiploamacy is not a trend, but a logical and strategic evolution bridging digital efficiency with human interaction.

Digital Diplomacy Theory: Weaving Ideas from Westcott, Bjola, and Holmes

A comprehensive understanding of gastrodiploamacy in the digital era cannot be separated from key ideas developed by leading scholars. The evolving thoughts of Nicholas Westcott, Corneliu Bjola, and Marcus Holmes provide complementary and relevant analytical frameworks to examine this phenomenon.

In the early internet era, Nicholas Westcott (2008) was one of the pioneering academics identifying three fundamental impacts of technology on diplomatic practice. Westcott argued that the internet is not just a tool, but a transformative force significantly reshaping international relations. First, the internet amplifies voices and actors, democratizing access to information and enabling diverse entities—from ministries to ordinary citizens—to participate in public discourse. Second, it accelerates information dissemination, shortening distances and time, forcing diplomats to operate in a fast-paced environment. Third, it enhances diplomatic efficiency, facilitating traditional diplomatic functions more cost-

effectively. Westcott's ideas serve as an important foundation for analyzing the role of digital technology in diplomacy.

Over time, Corneliu Bjola (2015, with Marcus Holmes) expanded these ideas by introducing the concept of “hybrid diplomacy.” Unlike views that see the internet merely as an add-on, Bjola argued that modern diplomacy must strategically adopt technology, integrating physical and virtual interactions. Bjola emphasized that technology should not be seen as deterministic, but as a tool to be used intelligently to achieve diplomatic goals. In his view, hybrid diplomacy is an adaptive approach combining traditional and digital elements to create greater synergy. For example, a virtual diplomatic conference is not meant to replace face-to-face meetings, but to serve as an efficient pre-negotiation forum. This shows that digital diplomacy is about measured strategic adoption, not merely responding to trends.

Complementing Westcott and Bjola, Marcus Holmes (2012) brings a crucial psychological and neurological perspective to digital diplomacy. Holmes, with expertise in social neuroscience, reminds us that while technology enables global communication, face-to-face interaction remains irreplaceable. He argues that essential processes in building trust and diplomatic bonds—such as reading non-verbal cues—occur through the activation of “mirror neurons” in the human brain, which are difficult to replicate in digital interactions. Therefore, Holmes views technology as a bridge that encourages, not replaces, meaningful physical encounters. This provides an important reminder that at its core, diplomacy remains about human interaction. Collectively, these three scholars form a comprehensive framework: Westcott provides the foundation for

why digital matters, Bjola shows how digital can be strategically integrated, and Holmes reminds us why human touch remains central to all efforts.

Implementing AR/VR in ASEAN Gastrodiplomacy

The application of Augmented Reality (AR) and Virtual Reality (VR) in ASEAN gastrodiplomacy directly realizes the theoretical framework outlined above. This implementation reflects a strategic step that not only leverages technological advantages but also remains sensitive to human dimensions.

1. Realizing Westcott's Efficiency and Amplification

Integrating AR/VR into ASEAN gastrodiplomacy is a tangible manifestation of Westcott's vision of efficiency and amplification. Instead of relying on costly and time-consuming physical culinary exhibitions, an ASEAN country can create an immersive VR app offering 360° virtual tours of traditional markets, spice farms, or authentic kitchens. Such platforms can amplify culinary narratives to global audiences with extraordinary efficiency, transcending geographical boundaries. Through AR, users can point their phone cameras at local dishes and receive detailed information on ingredients, history, and recipes, turning dining into an educational experience.

2. Bjola's Hybrid Strategy: Weaving Virtual and Physical Experiences

The use of AR/VR in gastrodiploacy is an ideal example of Bjola's hybrid diplomacy. These technologies are not merely promotional tools, but part of a measured strategy. The goal of virtual experiences is to complement and enhance physical ones. For example, a VR experience transporting users to a Vietnamese village to "harvest" pho ingredients can spark a desire to taste the authentic dish at a local restaurant or even embark on a culinary journey. Guo et al. (2020) reinforce this view, stating that immersive technologies have significant potential in cultural communication due to their ability to create authentic and interactive experiences beyond traditional media.

Moreover, AR can create interactive cooking classes where virtual instructions are projected directly onto kitchen counters, allowing users to learn recipes authentically. This unique blend of digital (AR instructions) and physical (cooking) elements creates memorable experiences. Through this approach, ASEAN countries can control narratives around their culinary heritage, ensuring authentic cultural representation and avoiding distortion—a key element of diplomacy.

3. Bridging Human Gaps à la Holmes: Building Empathy Through Connection

Although AR/VR is virtual, the technology can bridge some interpersonal gaps identified by Holmes. Immersive

experiences can be designed to trigger strong emotional and cognitive responses. For example, a VR film telling the story of a chef whose recipes have been passed down for generations can build deeper empathy and emotional connection than merely reading an article or viewing a photo. This aligns with Holmes' idea that while physical presence may be absent, technology can trigger responses similar to face-to-face interactions. Roslina et al. (2022) also highlight AR's vital role in cultural heritage tourism, effectively enhancing tourist experiences by providing rich contextual information—a method that can be adopted in gastrodiplomacy.

Ultimately, these AR/VR experiences serve as guides directing audiences back to the real world. The primary goal is to trigger a strong desire to taste authentic dishes, interact directly with chefs or local communities, and experience culture firsthand. Thus, AR/VR becomes a tool that facilitates and deepens human interaction, rather than replacing it.

Challenges and Policy Implications

Despite its immense potential, AR/VR-based gastrodiplomacy is not without challenges. As highlighted in the findings of Oke & Arowoiya (2022) on technology adoption in developing nations, the path to deploying AR/VR gastrodiplomacy across ASEAN is obstructed by three intertwined challenges. First, glaring infrastructure gaps persist: high-speed internet remains patchy and affordable AR/VR headsets are still out of reach for large segments

of the population, threatening to turn digital culinary diplomacy into an elite privilege rather than a shared regional experience.

Second, questions of authenticity and cultural representation loom large; crafting immersive narratives that faithfully depict the aromas, stories, and rituals surrounding dishes such as rendang, pho, or laphet thoke demands sustained collaboration among local communities, historians, and culinary custodians. Without this grounded co-creation, the temptation to streamline or commercialise heritage risks flattening centuries of nuanced tradition into shallow stereotypes, thereby undermining the very soft-power gains gastrodiploamacy seeks, as Zhang (2015) cautions.

Third, the financial barrier is formidable: producing cinematic 360-degree footage, photorealistic spice-market reconstructions, and interactive cooking holograms requires multi-million-dollar pipelines of 3-D artists, ethnographers, and cloud servers. Bridging these fiscal chasms calls for orchestrated partnerships that weave together government seed funding, private-sector technological muscle, and university research ingenuity into a single, sustainable ecosystem.

Addressing these challenges requires an integrated and strategic policy framework. Governments must invest in digital infrastructure, facilitate public-private partnerships, and set standards for authentic cultural representation. Programs should also be designed to encourage local community participation and promote sustainable culinary tourism.

Logical Evolution

Interactive gastrodiploamcy through AR/VR is a logical evolution of digital diplomacy, reflecting an intelligent fusion of technological innovation and cultural wisdom. Through Nicholas Westcott's lens, we understand how technology can multiply the reach and efficiency of public diplomacy. Through Corneliu Bjola's hybrid diplomacy framework, we see how AR/VR can be a measured strategy to build strong cultural narratives. And through Marcus Holmes' reminder, we are awakened to the ultimate goal of all these innovations: to bridge gaps and build human connections.

Ultimately, interactive gastrodiploamcy with AR/VR is not just about promoting dishes, but about weaving stories, building empathy, and opening doors to deeper human relationships. It is a bold, innovative, and flavorful form of diplomacy—bringing the ASEAN dining table to the world, one immersive experience at a time.

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Digital Leadership, Human Capital, and Human Resource Performance in ASEAN: Navigating Transformation in the Digital Era

Suyanto

This article examines the relationship between digital leadership, human capital, and HR performance in ASEAN during digital transformation. Through a literature review, it focuses on three aspects: conceptualizing digital leadership for human capital development in higher education and the public sector; challenges and strategies amid ASEAN's resource diversity; and digital leadership's contribution to HR performance through motivation, work environment, and skills development. The article argues that effective digital leadership requires integrating technological competence, strategic vision, and cultural transformation, serving as a key catalyst for preparing ASEAN's human capital for the dynamic future of work.

Introduction

The digital era has brought fundamental changes in how organizations operate, communicate, and create value. In the ASEAN region, digital transformation has become a priority agenda reflected in various regional declarations, including the ASEAN Declaration on Human Resources Development for the Changing World of Work which affirms member states' commitment to

equip human resources with competencies that prepare them for the future (ASEAN Secretariat, 2020). Changes in the world of work due to technological advances, demographic transitions, and green economies offer both opportunities and challenges for the economy, industry, and employment in the region.

In this context, digital leadership emerges as a crucial concept that bridges technological transformation with human capital development. Rizki and Suwadi (2024) assert that leadership theory in the context of higher education is becoming increasingly important along with technological developments and the need for rapid adaptation to digital change. They identify five important typologies for building digital leadership in educational institutions, namely digital competence, digital culture, digital differentiation, digital governance, and digital advocacy.

Meanwhile, Turyadi et al. (2023) define digital leadership as the utilization of digital technologies to lead, manage, and influence employees and business processes. Digital leaders promote innovation, collaboration, and information accessibility, which in turn can increase efficiency, productivity, and innovation in the workplace. Oktapiani (2025) in her study emphasizes that effective digital leadership transcends technical proficiency, requiring vision, agility, and cultural transformation.

The concept of human capital itself, as elaborated by Becker (n.d.), encompasses investments in education, training, healthcare, and values inherent to a person. Education, training, and health are the most important investments in human capital because they can increase earnings, improve health, or add to a person's good habits over their lifetime. In ASEAN, recognition of the importance of

human capital is reflected in various regional policies, including efforts to improve access and quality of skills training for all community groups (ASEAN Secretariat, 2020).

However, the implementation of digital leadership and human capital development in ASEAN faces diverse challenges. Warr (2026) identifies that Thailand, for instance, faces a serious human capital problem with stagnating GDP per capita growth caused by the government's failure to pursue productivity-boosting reforms, particularly major improvements in primary and secondary education. Meanwhile, BRIN Head Arif Satria emphasizes that Indonesia's research strength is determined by human capital and the courage to increase funding, with the number of Indonesian researchers still less than 300 per one million population, far behind South Korea which has more than 4,000 researchers per one million population (BRIN, 2025).

This article aims to systematically examine the relationship between digital leadership, human capital, and human resource performance in the ASEAN context. By understanding the interconnection of these three concepts, it is hoped that comprehensive strategies can be formulated for developing resilient and adaptive human resources in the digital era.

Digital Leadership & Human Capital

Digital leadership in the contemporary context cannot be understood merely as leadership that uses technology, but rather as a leadership paradigm that transforms the way organizations operate, learn, and innovate. Rizki and Suwadi (2024) suggest that

leadership theory in the context of higher education is becoming increasingly important along with technological developments and the need for rapid adaptation to digital change. They identify five important typologies for building digital leadership in educational institutions, which are also relevant for the public sector and organizations in general.

First, digital competence, which includes leaders' understanding and mastery of technology to direct the organization. Leaders do not need to be technical experts, but must have adequate digital literacy to make strategic decisions regarding technology adoption. Second, digital culture, namely the leader's ability to build an organizational environment that supports innovation, collaboration, and technology-based continuous learning. Third, digital differentiation, the ability to distinguish leadership approaches based on diverse digital contexts and needs. Fourth, digital governance, which includes policies, procedures, and structures that ensure ethical, safe, and effective use of technology. Fifth, digital advocacy, the leader's role in promoting and championing digital transformation at both internal and external levels.

Oktapiani (2025) in her study on digital leadership and organizational transformation in the public sector reinforces these findings by emphasizing that effective digital leadership transcends technical proficiency, requiring vision, agility, and cultural transformation. Her study highlights that leadership commitment and organizational readiness are decisive factors in the success of digital initiatives. However, digital transformation

in the public sector remains constrained by structural rigidity and limited digital capabilities.

The relevance of digital leadership to human capital becomes increasingly evident when we refer to Becker's (n.d.) thinking on human capital. Becker asserts that education, training, and health are the most important investments in human capital because they increase earnings, improve health, or add to a person's good habits. In the digital era, human capital investment includes not only formal education but also the development of digital competencies, lifelong learning abilities, and adaptability to technological changes.

In higher education institutions, the integration of digital leadership and human capital development becomes a necessity. Rizki and Suwadi (2024) emphasize that implementing digital leadership in higher education institutions requires the integration of technology in learning, development of digital skills of staff and students, and increasing efficiency through digital systems while still considering data security aspects. This aligns with the ASEAN Declaration on Human Resources Development which encourages innovation and the use of technology in teaching and learning approaches, as well as educational systems that promote competencies that prepare for lifelong learning and 21st-century skills (ASEAN Secretariat, 2020).

Nuraini (2025) in her systematic review adds that digital leadership significantly contributes to the success of organizational transformation by strengthening digital vision, enhancing change management, and increasing innovation capacity. Digital leaders are required to possess competencies in technology, collaborative communication, and adaptive change management. However,

implementing digital leadership also faces challenges such as organizational culture resistance, digital infrastructure limitations, and lack of technological literacy at leadership levels.

Digital Leadership in ASEAN

ASEAN as a region with diversity in economic development levels, technological infrastructure, and human resource quality faces unique challenges in implementing digital leadership. Warr (2026) identifies human capital problems in Thailand as a concrete example. Thailand experiences stagnation in GDP per capita growth caused by the government's failure to pursue productivity-boosting reforms, especially major improvements in primary and secondary education. This problem is exacerbated by negative population growth, soaring household debt, and declining business investment.

Meanwhile, Indonesia faces different challenges. BRIN Head Arif Satria revealed that the number of Indonesian researchers is still less than 300 per one million population, far behind South Korea which has more than 4,000 researchers per one million population (BRIN, 2025). This figure reflects the low interest and commitment of the community towards the research world, which in turn affects national innovation competitiveness. Arif cited Huawei as an example, which has around 200 thousand employees with 54 percent of them being R&D researchers and developers, showing how large the investment in human resources is to support innovation competitiveness.

The diversity of leading resources in ASEAN, as outlined by VOI (2025), shows different potentials and challenges. Indonesia excels in natural resources such as nickel, coal, and palm oil; Malaysia in palm oil and oil and gas; Thailand in agriculture and food industry; Vietnam in textiles and electronics; the Philippines in BPO services; Singapore in finance and technology; while Myanmar, Laos, Cambodia, and Brunei have their respective advantages. This diversity demands a contextual and adaptive digital leadership approach.

Nuraini (2025) recommends the need to develop digital leadership models that align with local contexts and sectoral characteristics to comprehensively enhance digital transformation effectiveness. This recommendation is highly relevant for ASEAN given the diversity in digital readiness levels and economic characteristics of each country.

Another challenge identified by Oktapiani (2025) is structural rigidity and limited digital capabilities in the public sector. Many bureaucracies in ASEAN still operate with hierarchical structures and rigid procedures, hindering technology adoption and innovation. Digital leadership in the public sector requires the courage to break structural rigidity and build organizational flexibility.

Strategies for implementing digital leadership in human capital development in ASEAN can refer to the ASEAN Declaration on Human Resources Development (ASEAN Secretariat, 2020) which includes 15 resolution points, among others: cultivating lifelong learning culture in societies; improving inclusivity of education and training; enhancing responsiveness of labor, education,

and economic policies; promoting policies and initiatives for lifelong learning; enhancing leadership of business, industry, and educational institutions in human resources development; promoting the utility of TVET; and improving accessibility and quality of labor market information.

This declaration also emphasizes the importance of infrastructure, including internet and information technology access, so that opportunities presented by the Fourth Industrial Revolution may be widely enjoyed. This aligns with Rocamora's (2026) statement that under the Philippine chairmanship of ASEAN in 2026, the ASCC will double down on efforts to shape an ASEAN that is not only prepared for the future but confident in leading it, with people at its center.

Digital Leadership & HR Performance

Human resource performance is the ultimate expected output of digital leadership implementation and human capital investment. Turyadi et al. (2023) assert that digital leadership can increase efficiency, productivity, and innovation in the workplace by adopting appropriate digital technologies. Their research shows that digital leadership facilitates improved employee performance, development of digital skills, and achievement of business objectives.

Jumady and Lilla (2021) in their study on civil servants in Pare-pare City, Indonesia, found that work motivation and work environment have a significant effect on performance. This research proves that increasing motivation and work environment

will improve employee performance. To get the best results, an employee needs a balance between the ability to perform given tasks and the willingness to complete the work. This balance can lead to increased productivity and improved inefficiency.

The findings of Jumady and Lilla (2021) have important implications for digital leadership. Digital leaders are not only responsible for adopting technology but also for creating a work environment that motivates employees to utilize technology optimally. A healthy workplace environment, positive workplace culture, and happy corporate culture can keep employees productive and help organizations retain the best employees.

Turyadi et al. (2023) add that digital leadership contributes to business success by facilitating change management, promoting digital transformation, and making sound decisions. In an ever-changing digital era, digital leadership is not only the leader's responsibility but also a shared responsibility. This view aligns with the concept of distributive leadership relevant in the context of dynamic digital organizations.

Skills development becomes a crucial aspect of improving HR performance. The ASEAN Declaration on Human Resources Development (ASEAN Secretariat, 2020) encourages business models that incorporate re-skilling, up-skilling, and new skills acquisition of workers. This reflects awareness that in an era of rapid technological change, skills relevant today may become obsolete in a short time.

Sairmaly (2023) in his study on education investment, information technology, skills, and productive labor concludes that human capital development through investments in education,

information technology, skills, and productive labor plays a crucial role in a country's economic growth. Investment in quality education equips individuals with knowledge and skills, expands employment opportunities, and increases people's purchasing power.

At the ASEAN level, skills development efforts are carried out through various initiatives, including the establishment of the ASEAN TVET Council (ATC) as a platform for coordination, research and development on innovations, and monitoring of regional programs that support the advancement of TVET in the region (ASEAN Secretariat, 2020). This step demonstrates ASEAN's seriousness in preparing a skilled workforce capable of competing in the digital era.

Rocamora (2026) reported that at the ASCC meeting in Manila, Philippine Social Welfare Secretary Rex Gatchalian emphasized four strategic priorities under the "RISE" agenda: resilient and empowered families; inclusive development; smart youth and innovation; and environmentally sustainable and food secure future. These priorities reflect a holistic approach to human capital development that focuses not only on economic aspects but also on social and environmental aspects.

The integration of digital leadership, work motivation, work environment, and skills development creates an ecosystem conducive to improving HR performance. Effective digital leaders are able to articulate a clear digital vision, build a culture of innovation, provide adequate technological infrastructure, and simultaneously pay attention to employee motivation and welfare

aspects. This holistic approach is key to the success of digital transformation in both public and private organizations in ASEAN.

Three Interrelated Pillars

Digital leadership, human capital, and human resource performance are three interrelated pillars in driving organizational transformation and economic development in ASEAN. This literature review shows that effective digital leadership requires integration between technological competence, strategic vision, and the ability to transform organizational culture. The five typologies of digital leadership identified by Rizki and Suwadi (2024) - digital competence, digital culture, digital differentiation, digital governance, and digital advocacy - provide a comprehensive framework for leadership development in the digital era.

The challenges of implementing digital leadership in ASEAN are highly diverse, reflecting the diversity in economic development levels, technological infrastructure, and human resource quality in the region. Thailand faces problems with primary and secondary education quality that hinder productivity improvement, while Indonesia grapples with low numbers of researchers and research investment. Other ASEAN countries have specific challenges according to their respective leading resource characteristics.

The contribution of digital leadership to HR performance is manifested through increased work motivation, creation of a positive work environment, and sustainable skills development. Research by Jumady and Lilla (2021) proves that motivation and work environment significantly affect performance, while Turyadi

et al. (2023) affirm the role of digital leadership in facilitating change management and digital transformation.

ASEAN has shown strong commitment to human capital development through various regional declarations and initiatives. The ASEAN Declaration on Human Resources Development for the Changing World of Work (ASEAN Secretariat, 2020) provides a comprehensive roadmap for member states in preparing human resources to face changes in the world of work. Implementation of this commitment requires strong digital leadership at both national and regional levels, as well as close collaboration between government, private sector, educational institutions, and civil society.

Going forward, developing digital leadership models contextual to ASEAN's characteristics becomes an urgent research agenda. Such models must consider cultural diversity, digital readiness levels, and different economic structures in the region. Additionally, periodic evaluation of human capital development policy implementation is necessary to ensure that no one is left behind in the increasingly dynamic world of work. With effective digital leadership and sustainable human capital investment, ASEAN can realize the vision of a resilient, innovative, and people-centered community.

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CHAPTER 2

DIGITAL ETHICS, DATA GOVERNANCE, AND FUTURE EDUCATION

AI Ethics and Health Data Governance in the ASEAN Region

Fery Setiawan

ASEAN's digital health expansion—from telemedicine to electronic medical records—offers opportunities to improve healthcare quality and accessibility but raises ethical concerns over privacy, data security, algorithmic bias, and clinical responsibility. In forensic odontology, digital dental records and odontograms play a strategic role beyond routine care, supporting disaster victim identification (DVI). However, ASEAN faces challenges including infrastructure disparities, inconsistent odontogram standards, and weak regulatory integration. Strengthening regional collaboration, policy harmonization, and patient-centered governance is essential for a secure, responsible health data ecosystem in ASEAN.

Introduction

Forensic identification represents one of the key pillars in law enforcement and disaster victim management. In various events such as earthquakes, transportation accidents, and other natural disasters, the process of victim identification becomes a crucial step to ensure legal certainty, the fulfilment of victims' families' rights, and accurate humanitarian documentation. Among the

various identification methods used in forensic science, dental records occupy a particularly important position due to the relative resistance of teeth to physical damage and extreme environmental conditions (Pretty & Sweet, 2001).

In dental practice, dental records and odontograms constitute an integral part of clinical documentation that systematically describes the condition of each tooth of a patient. This information includes restorations, missing teeth, treatment history, and various other individual characteristics that may function as biological identity markers. The uniqueness of human dentition patterns makes odontograms one of the most valuable sources of identification data in forensic odontology (Pretty & Sweet, 2001).

However, the practice of recording dental medical records across healthcare facilities still shows considerable variation. Differences in odontogram formats, non-standardized manual recording systems, and the limited integration of digital data often become obstacles when such information is required for forensic identification processes. Previous studies indicate that proper management of dental records not only supports clinical services but also holds strategic value in human identification within forensic contexts. A study conducted by Setiawan et al. (2025) demonstrated that the integration of digital dental records with health information technology systems, including the use of digital platforms for recording dental status, has the potential to improve the accessibility, traceability, and utilization of odontogram data in forensic identification processes. These findings highlight the importance of developing electronic dental record systems that function not only as clinical documentation but are also designed

to support forensic preparedness within modern healthcare systems (Setiawan et al., 2025).

Alongside the rapid advancement of digital technologies, the concept of forensic-aware electronic dental records has emerged. This concept refers to electronic dental record systems designed not only for routine clinical services but also to support forensic readiness. In such systems, odontogram recording is conducted in a more standardized manner and integrated with digital health information systems. This approach enables patients' dental data to possess additional value as a source of identification that can be accessed more quickly, accurately, and systematically when needed in emergency situations (Setiawan et al., 2025).

At the same time, the development of Artificial Intelligence (AI) has opened new opportunities in the management and analysis of health data. AI technologies are capable of assisting in large-scale electronic medical record processing, improving system interoperability, and supporting more efficient data analysis. Within the broader context of digital health, AI is increasingly viewed as a technology that can enhance the quality of clinical decision-making while strengthening modern health information systems (World Health Organization, 2021).

Nevertheless, the application of digital technologies and AI in the management of health records also raises important ethical and governance concerns. Issues such as patient privacy, medical data security, and disparities in digital infrastructure across countries represent significant challenges, particularly within the ASEAN region, which is characterized by diverse healthcare systems and regulatory frameworks. Therefore, comprehensive analysis is

needed not only to highlight the technological potential but also to consider ethical, regulatory, and regional collaboration aspects in the governance of digital health data (Nguyen et al., 2021; World Health Organization, 2022).

Based on this background, this article aims to examine the role of electronic dental records and odontograms as sources of identification data within the context of forensic odontology in the era of digital health. In addition, it analyzes the potential application of artificial intelligence in the management of forensic-aware dental records. Furthermore, this article discusses various ethical issues and health data governance challenges arising from the implementation of digital technologies in the ASEAN region and proposes strategic recommendations for strengthening regional collaboration in the development of digital dental record systems that are secure, ethical, and standardized.

The ASEAN Context in the Management of Dental Records and Digital Forensic Identification

The ASEAN region is one of the areas in the world that faces a high level of disaster vulnerability. Indonesia is exposed to risks such as earthquakes, volcanic eruptions, and tsunamis; the Philippines frequently experiences typhoons; while several other countries in Southeast Asia are affected by large-scale flooding and mass transportation accidents. In such events, the process of victim identification becomes a complex challenge, particularly when the number of victims is large and involves individuals from multiple countries. Therefore, an effective forensic identification system is

an essential component in disaster management and international law enforcement efforts (Interpol, 2018).

In this context, forensic odontology plays a strategic role because teeth represent one of the biological structures most resistant to physical damage and extreme environmental conditions. Well-documented dental records, particularly in the form of odontograms, can serve as highly valuable sources of information to support victim identification in mass disaster situations. Data related to dental restorations, missing teeth, and other dental characteristics are often unique to each individual, making them reliable comparative references in forensic identification processes (Pretty & Sweet, 2001).

Despite this potential, countries in the ASEAN region still face several challenges in establishing standardized dental record management systems. Differences in odontogram recording systems, variations in clinical record formats, and limited integration of digital systems across healthcare facilities often result in dental data that are difficult to access or incompatible when required for cross-border forensic identification processes. These conditions highlight the need to strengthen digital dental record systems as part of improving forensic preparedness across Southeast Asia.

The advancement of digital health technologies offers new opportunities to address these challenges. Electronic medical record systems enable patient data to be recorded in a more systematic, integrated, and accessible manner. In dentistry, the digitalization of odontograms allows dental data to be stored in more standardized formats, thereby supporting faster and more accurate identification

processes. This approach aligns with the concept of forensic-aware electronic dental records, in which record systems are designed not only to support clinical care but also to facilitate forensic readiness when needed (Setiawan et al., 2025).

At the regional level, ASEAN has developed several frameworks to strengthen disaster management coordination, one of which is the ASEAN Agreement on Disaster Management and Emergency Response (AADMER). This framework emphasizes the importance of cross-border collaboration in disaster response, including in the identification of disaster victims. In this context, the availability of standardized digital dental records has the potential to enhance the region's capacity to conduct Disaster Victim Identification (DVI) processes more effectively (ASEAN Secretariat, 2016).

In addition, developments in artificial intelligence provide further opportunities to enhance the use of dental record data within digital health systems. AI technologies can assist in managing large-scale health databases, improving interoperability between health information systems, and supporting more efficient data analysis. When integrated with standardized digital dental record systems, these technologies have the potential to strengthen the role of odontograms as reliable identification data sources in both clinical and forensic contexts.

Therefore, strengthening digital dental record systems in the ASEAN region is not only related to improving healthcare service quality but is also closely linked to regional preparedness in responding to emergency situations. The integration of standardized dental record systems, the support of digital technologies, and sustained regional collaboration represent key factors in building

a more resilient and responsive forensic identification system for the future.

Key Ethical Issues of Artificial Intelligence in Healthcare

The use of Artificial Intelligence (AI) in the healthcare sector offers significant opportunities to improve the efficiency of medical services, including in the management of electronic medical records. In dentistry, the application of AI has the potential to assist in the analysis of clinical data, the management of digital odontograms, and the integration of health information within electronic medical record systems. However, the adoption of this technology also raises a range of ethical concerns that must be carefully addressed (Floridi & Cowls, 2019).

One of the most prominent issues relates to patient privacy and data confidentiality. Dental records contain sensitive information associated with patient identity, medical history, and personal clinical conditions. When these records are connected to AI-driven systems and large-scale digital infrastructures, the potential risks of data breaches or misuse of personal information become significant concerns. Consequently, the protection of health data must remain a primary priority in every implementation of digital health systems (World Health Organization, 2021).

Another important ethical issue concerns algorithmic bias within AI systems. AI systems learn from the data on which they are trained, meaning that the quality and representativeness of the dataset play a critical role in determining the accuracy of the system. If health data do not adequately represent population

diversity, AI-driven analyses may produce biased outcomes that could influence the quality of clinical decision-making. In the ASEAN region, where populations are characterized by significant ethnic and demographic diversity, the issue of algorithmic bias becomes an important consideration in the development of AI-based healthcare systems (Jobin et al., 2019).

Transparency and accountability of AI systems also represent key ethical considerations. Many AI technologies operate through complex algorithms that are difficult for users to fully understand, which may result in decision-making processes that lack transparency. In dental practice, AI should therefore be positioned as a decision-support system that assists dentists in analyzing medical record data rather than replacing professional clinical judgment. Accordingly, the final responsibility for medical decision-making must remain with healthcare professionals (Mittelstadt, 2019).

Another equally important dimension concerns the relationship between technological advancement and human values in healthcare practice. Although AI can significantly enhance the efficiency and speed of medical data processing, the interaction between healthcare providers and patients remains a fundamental component of healthcare delivery. For this reason, the implementation of AI in dental record systems must continue to uphold core principles of medical ethics, including respect for patient autonomy, confidentiality of medical information, and professional responsibility.

Within the ASEAN context, these ethical challenges become even more complex due to differences in legal systems, healthcare

regulations, and digital infrastructure readiness among member states. Without a clear framework for health data governance, the use of AI technologies in medical record management may lead to unequal access or increased risks to data security. Therefore, the development of digital dental record systems in the ASEAN region must be accompanied by stronger regulatory frameworks, professional ethical standards, and robust mechanisms for protecting health data.



Figure 1. Integration model of odontograms, electronic dental records, and artificial intelligence in health data governance for forensic identification in the ASEAN region.

Figure 1 illustrates how forensic identification based on dental science can be strengthened through the integration of digital dental record systems and health data governance. The process begins with the odontogram as the primary dental record that serves as the foundational basis of individual identity. Odontogram data are then integrated into an electronic dental record system that enables the recording, storage, and management of dental information in a more standardized and systematic manner. This integration promotes the standardization of dental data, which supports the interoperability of health information systems and facilitates data exchange across institutions as well as across national borders.

At the next stage, the utilization of Artificial Intelligence (AI) enables more efficient management and analysis of dental record data through systems capable of processing large-scale health databases. The integration of digital odontograms, electronic dental records, and AI technologies subsequently forms the concept of AI forensic-friendly records, referring to record systems designed not only for clinical purposes but also to support forensic preparedness. In the context of the ASEAN region, this approach contributes to strengthening health data governance by emphasizing standardization, interoperability, and cross-border data security. Through integrated and forensic-friendly dental record systems, dentists play a strategic role as guardians of identity, supporting human identification processes in various emergency situations and forensic investigations.

1. Patient Privacy and Data Confidentiality

- AI requires large-scale medical data (electronic health records, radiological images, genetic data, etc.) for training and operation.
- Risks: data leakage, breaches, or misuse for commercial purposes without patient consent.
- Example: genetic data used for research without explicit consent.
- Ethics: upholding informed consent and compliance with data protection standards (e.g., GDPR in Europe, HIPAA in the U.S.).

2. Algorithmic Bias and Fair Access

- AI learns from historical data → if the data is biased (e.g., more samples from specific populations), predictions will also be biased.
- Risks: discrimination in diagnosis or treatment based on race, gender, or socio-economic status.
- Example: AI systems more accurate for light-skinned patients than dark-skinned patients in melanoma detection.
- Ethics: ensuring representative training datasets, algorithm audits, and cross-population validation.

3. Transparency and Accountability

- Many AI algorithms operate as black boxes, making decision-making processes difficult to interpret.

- Challenge: Who is accountable if AI misdiagnoses? The doctor? The hospital? The developer?
- Ethics: the need for explainable AI (XAI), transparency in system design, and clear regulatory frameworks for accountability.

4. Doctor–Patient Relationship

- AI may replace certain diagnostic functions traditionally performed by physicians.
- Risks: reduced patient trust, diminished human interaction, and potential “dehumanization” of healthcare.
- Ethics: AI should serve as an assistive tool, not a replacement for empathy and physician responsibility.

5. Patient Consent and Autonomy

- Patients have the right to know whether medical decisions are made by AI, humans, or a combination.
- Ethical concern: should patients be given the option to refuse AI involvement in their care?
- Principle: respecting patient autonomy and the principle of respect for persons.

6. Patient Safety and Security

- AI algorithms may fail in rare or “outlier” cases not represented in training datasets.
- Risks: misdiagnosis or harmful treatment recommendations.

- Ethics: ensuring rigorous validation and reliability testing before clinical use, alongside continuous monitoring mechanisms.

7. Legal and Regulatory Implications

- Not all countries have clear regulations governing medical AI.
- Ethics: without legal standards, patients may be disadvantaged and lack access to fair compensation.
- ASEAN context: regulatory harmonization for medical AI is still at an early stage.

Health Data Governance in the ASEAN Region

Health data governance in the ASEAN region faces complex challenges due to differences in legal systems, technological capacity, and the readiness of human resources across member states. On one hand, several countries with more advanced digital health systems, such as Singapore and Malaysia, have developed relatively well-established regulatory frameworks for health data management, including aspects related to data security, patient privacy, and system interoperability.

On the other hand, some ASEAN member states still face limitations in digital infrastructure and technological resources needed to support the full implementation of electronic medical record systems. This situation creates disparities in health data management, both in terms of standardization of recording systems and in the capacity to integrate data across healthcare facilities.

In the context of dentistry, these challenges are also reflected in the variations in odontogram recording systems and dental records across healthcare institutions. The lack of uniform recording formats, along with limited integration of digital systems, may hinder the effective management and utilization of dental data. In fact, well-documented dental records hold significant value not only for clinical services but also for supporting forensic identification processes.

Advancements in digital health technologies provide important opportunities to strengthen health data governance in the region. The implementation of standardized electronic dental record systems allows odontogram data to be stored, accessed, and managed in a more systematic manner. In addition to improving the quality of healthcare services, such systems also have the potential to facilitate the integration of health data across institutions and national borders.

Within the regional framework, efforts to strengthen health data governance are also aligned with various ASEAN initiatives aimed at developing digital health systems. Cross-country collaboration in establishing health data standards, improving the interoperability of health information systems, and strengthening human resource capacity are essential factors in building a more secure, efficient, and integrated health data management system in the ASEAN region.

Opportunities for ASEAN Collaboration

The Southeast Asian region possesses unique characteristics marked by high population mobility, ethnic diversity, and significant vulnerability to natural disasters. These conditions necessitate cross-border collaboration in both healthcare and forensic identification. In various large-scale disaster events across the region, the need for rapid and accurate victim identification becomes critically important. Therefore, strengthening regional cooperation in health data management represents a strategic step that should be further developed within the ASEAN framework.

Forensic odontology, as a specialized field within dentistry, plays an important role in the process of human identification. Well-documented dental records, particularly in the form of odontograms, can serve as highly valuable sources of information in assisting victim identification processes. Data related to dental restorations, missing teeth, and other dental characteristics are often unique to each individual, making them reliable comparative references in forensic identification.

Within the ASEAN context, strengthening digital dental record systems can create broader opportunities for collaboration among member states. The standardization of odontogram formats, the development of interoperable electronic medical record systems, and the integration of health data repositories represent essential steps toward enabling more effective medical data exchange at the regional level.

Collaboration opportunities within ASEAN in this field may be directed toward several key areas. First, the development of standardized digital dental record systems that allow odontogram

recording to be conducted consistently across healthcare facilities. Second, improving interoperability among national health information systems to enable more efficient and secure cross-border health data exchange. Third, strengthening cooperation in research and development of digital health technologies, including the application of artificial intelligence for managing large-scale health data.

Through structured regional collaboration, ASEAN member states have the opportunity to build a more integrated and responsive health data management system capable of addressing future health challenges. The integration of digital dental records, the standardization of dental data, and the utilization of modern health technologies may serve as essential foundations for strengthening regional capacity in health data governance and human identification processes.

In this regard, cross-country cooperation within the ASEAN region contributes not only to improving the quality of healthcare services but also to enhancing regional preparedness in responding to emergency situations that require identification systems that are rapid, accurate, and reliable.

Key Ethical Issues of Artificial Intelligence in Healthcare

The development of Artificial Intelligence (AI) technologies in healthcare presents significant opportunities to improve the efficiency of medical data management. In the context of dentistry, the application of AI in electronic medical record systems enables odontogram data and dental treatment records to be managed in

a faster, more systematic, and integrated manner. This technology also has the potential to assist in large-scale health data analysis, thereby supporting both clinical decision-making and the development of health policies.

Nevertheless, the use of AI in health data management also raises a number of ethical issues that must be carefully considered. One of the most prominent concerns relates to the protection of patient privacy. Dental records contain sensitive health information and constitute personal data that must be kept confidential. The use of digital systems connected to multiple information networks increases the risk of data breaches, misuse of health information, or unauthorized access to patient data.

In addition, the use of AI in health data processing raises questions regarding system transparency and accountability. Algorithms used in AI-based systems often operate through complex processes that may not be easily understood by users. This situation may lead to excessive reliance on technology without sufficient understanding of how data are processed within the system. Therefore, the development of AI-based electronic medical record systems must be accompanied by mechanisms that ensure algorithmic transparency, system oversight, and clear professional responsibility in the use of such technologies.

Another ethical concern relates to the potential for dehumanization in healthcare services. The expanding use of digital technologies may reduce direct interaction between healthcare providers and patients if it is not balanced with a human-centered approach. In dental practice, medical records and odontograms do not function merely as administrative documents but also serve as

part of the clinical communication process between dentists and patients. For this reason, the application of AI in medical record systems must continue to uphold the fundamental principles of healthcare that place the patient at the center of care.

Within the ASEAN context, strengthening ethical governance in the use of digital health technologies is particularly important. Countries in the region operate under different regulatory frameworks for the protection of health data and the use of information technologies. These differences highlight the need for policy harmonization and stronger data security standards in the management of electronic medical records. Consequently, the implementation of AI in dental record systems should not only focus on technological advancement but must also prioritize ethical principles, patient privacy protection, and the professional responsibility of healthcare providers in safeguarding the security and confidentiality of health data.

Recommendations

Based on the challenges and opportunities outlined in the previous sections, strengthening the governance of digital dental records in the ASEAN region requires an integrated approach that combines technological development, regulatory frameworks, and ethical principles in health data management. The use of artificial intelligence in dental record systems has the potential to significantly improve the efficiency of data management; however, its implementation must be accompanied by clear and responsible governance structures.

One strategic step that can be taken is to promote the standardization of digital dental record formats, particularly in the recording of odontograms. Such standardization is essential to ensure that dental data recorded across different healthcare facilities follow a consistent structure and can be interpreted uniformly by healthcare professionals across countries. With standardized recording formats, the exchange and utilization of health data at the regional level can be carried out more effectively.

In addition, the development of interoperable electronic medical record systems is an important requirement for supporting the integration of health data across the ASEAN region. Interoperability enables different health information systems to communicate and exchange data securely without altering the fundamental structure of information maintained by each country. In the context of dental records, such interoperability can strengthen the use of odontogram data as part of a broader health information system.

Another key recommendation is the strengthening of human resource capacity in the management of digital health data. Healthcare professionals, including dentists, need to possess adequate knowledge regarding the use of information technology, data security, and ethical principles in managing electronic medical records. Continuous education and training are therefore essential to ensure that the adoption of digital technologies in healthcare services is carried out in a professional and responsible manner.

At the same time, governments and health institutions across ASEAN countries must strengthen regulatory frameworks governing the protection of health data and the use of artificial

intelligence in health information systems. Clear regulations concerning data security, patient privacy, and the responsibilities of system administrators form a crucial foundation for building public trust in the use of digital technologies in healthcare.

By strengthening dental data standardization, improving the interoperability of electronic medical record systems, enhancing human resource capacity, and establishing robust regulatory frameworks, ASEAN countries have the opportunity to develop a more integrated and sustainable system for managing digital dental records. These efforts will not only contribute to improving the quality of healthcare services but also strengthen the region's preparedness to utilize digital technologies in an ethical, secure, and responsible manner.

Strengthening Medical Data

Digital transformation in healthcare has created significant opportunities to strengthen the management of medical data across many countries, including those in the ASEAN region. In the context of dentistry, dental records documented systematically through odontograms play an important role not only in clinical services but also as valuable sources of health information that support various medical and administrative needs. Advances in information technology and artificial intelligence provide new opportunities to improve the efficiency of dental record management through digital systems that are more integrated and easily accessible.

However, the development of electronic medical record systems in the ASEAN region continues to face several challenges related to differences in regulatory frameworks, technological capacity, and the readiness of human resources in each country. These conditions highlight the need for stronger health data governance that can ensure the security of medical information, the protection of patient privacy, and the sustainable use of digital technologies in healthcare services.

Within the framework of regional cooperation, the development of digital dental records also creates opportunities for collaboration among ASEAN countries, particularly in efforts to standardize odontogram recording formats, improve the interoperability of health information systems, and strengthen knowledge and technology exchange in the field of digital health. Such initiatives may serve as strategic steps toward building a more integrated health data management system at the regional level.

At the same time, the use of artificial intelligence in the management of dental records also raises a number of ethical concerns that require careful consideration, particularly those related to patient privacy protection, health data security, transparency of technological systems, and the potential reduction of human interaction in healthcare services. Therefore, the development of digital health technologies must remain grounded in the principles of medical ethics and the professional responsibility of healthcare providers.

By strengthening the standardization of digital dental records, improving the interoperability of health information systems, enhancing human resource capacity, and establishing appropriate

regulatory frameworks, ASEAN countries have significant opportunities to build a more effective, secure, and sustainable system of health data governance. The integration of digital technologies in dental record management is expected not only to improve the quality of healthcare services but also to strengthen the region's preparedness in addressing future health challenges.

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Education in the Digital Era: ASEAN 2026 as the Global Center for Collaboration and AI Ethics

Shorihatul Inayah

The digital transformation of education has positioned ASEAN as a potential global hub for collaboration and AI ethics by 2026. By leveraging regional diversity and shared policy frameworks, ASEAN can lead in shaping ethical AI guidelines, fostering cross-border partnerships, and promoting digital inclusion—ensuring equitable, future-ready education systems aligned with global standards.

Introduction

The rapid growth of digital technologies and artificial intelligence is transforming the way societies learn, work, and connect. In Southeast Asia, these changes are particularly significant due to the region's young population, expanding digital infrastructure, and growing innovation ecosystems. ASEAN 2026 represents a strategic milestone where member states aim to leverage collective strengths to build a more connected, inclusive, and ethically guided digital future.

In today's interconnected world, the digital revolution is reshaping societies globally. The Association of Southeast Asian

Nations (ASEAN), with its young, tech-savvy population and rapidly expanding digital economy, is at the forefront of this transformation. However, this progress comes with a critical challenge: ensuring that technological advancement is both inclusive and ethical. The year 2026 is a key marker, as ASEAN aims to solidify its position as a global hub for digital collaboration, with a strong focus on AI ethics and its integration into education.

Education plays a central role in this transformation. By integrating digital collaboration and ethical AI principles into educational systems, ASEAN countries can ensure that students, educators, and institutions are better prepared for emerging global challenges. Furthermore, positioning ASEAN as a global center for collaboration and AI ethics reflects a commitment to not only adopting new technologies but also leading in setting standards, sharing knowledge, and fostering cross border partnerships that prioritize responsible innovation and lifelong learning.

The global landscape is currently characterized by an unprecedented acceleration of digital adoption. Technologies like AI, blockchain, and Web3 are no longer futuristic concepts but are actively being integrated into daily life and economic systems. This rapid change presents a dual-sided coin: immense opportunities for innovation, economic growth, and social progress, but also significant risks, including the exacerbation of the digital divide, job displacement, and ethical dilemmas related to data privacy, algorithmic bias, and human oversight.

For ASEAN, a region of more than 670 million people with diverse cultures and economies, the digital transformation is not just about keeping pace; it's about leading with purpose. The

region has already made strides in digital public infrastructure and financial technology. However, the path forward requires a unified approach that goes beyond mere technological adoption. ASEAN recognizes that to truly harness the power of AI, it must build a foundation of trust and responsibility. This is where education becomes paramount. By embedding AI ethics and digital literacy into its educational systems, ASEAN is proactively preparing its workforce and citizens to be not just consumers of technology, but informed and responsible creators and users.

As Southeast Asia prepares for ASEAN 2026, the region stands at a pivotal moment in reshaping education for the digital era. With rapid technological advances, ASEAN is positioning itself as a global center for digital collaboration and strong AI ethics. This commitment is not only about adopting cutting-edge tools but also about ensuring inclusive, ethical, and future-ready learning environments for all. By fostering regional partnerships, developing robust AI governance frameworks, and promoting digital literacy, ASEAN 2026 aims to transform education into a catalyst for innovation, equity, and sustainable growth.

In the 21st century, education is undergoing a profound transformation. The digital era brings not only new tools and platforms but also fresh challenges and responsibilities. As ASEAN charts its vision toward 2026, the region has the potential to become a global hub for collaboration and ethical AI in education. This article explores how digital education can evolve in ASEAN, what it means to center collaboration and AI ethics in that vision, and how ASEAN 2026 might become a model for global practice.

The Shift Toward Learner-Centric, Technology-Enabled Education

The transition toward learner-centered, technology-enhanced education is redefining the role of educators—moving them from being the primary source of knowledge to becoming facilitators, mentors, and guides. With the rise of digital tools such as adaptive learning platforms, AI-driven tutoring systems, virtual and augmented reality, and collaborative online spaces, instruction can now be more personalized, feedback more continuous, and learning pathways more flexible. This evolution reflects the principles of Education 5.0, which integrates advanced technologies like artificial intelligence, blockchain, and immersive media to break down learning barriers, boost engagement, and support student well-being.

Generative AI, for instance, has the potential to go beyond delivering content—it can function as a conversational partner or learning guide. However, the design of such systems must be mindful of their limitations and ethical responsibilities toward learners.

Despite the transformative potential, several challenges must be addressed. First, equity and access remain critical concerns—disparities in connectivity, devices, infrastructure, and digital literacy prevent many students from fully participating. Second, the growing collection of student data—ranging from academic performance to behavioral analytics—raises serious questions about privacy, data security, and potential misuse. Third, algorithmic bias poses a risk, as AI systems may inadvertently favor certain groups, making transparency and explainability essential for both

students and educators. Fourth, teacher readiness is a pressing issue; many educators lack the training needed to effectively integrate AI or adopt digital pedagogies, highlighting the urgent need for professional development.

Equally important is the question of ethics and accountability. When AI-generated recommendations lead to harm or misinformation, who should be held responsible? Systems must be built with accountability in mind, incorporating human oversight and clear mechanisms for redress. A recent study on AI governance in higher education underscores the importance of embedding ethical, legal, and practical dimensions into curriculum design, ensuring that future professionals are prepared to navigate these challenges. In the K-12 context, research involving co-designed AI curricula with teachers shows that scaffolding is especially necessary in areas like data ethics and understanding the societal implications of AI.

ASEAN's Current Momentum in AI and Digital Education

ASEAN is actively building the groundwork for responsible artificial intelligence adoption. A key milestone was the 2024 endorsement of the *ASEAN Guide on AI Governance and Ethics*, which establishes core principles like transparency, fairness, accountability, and a human-centric approach to technology, with a strong emphasis on privacy. Building on this foundation, the region launched *AI Ready ASEAN*, a significant initiative designed to boost AI literacy among 5.5 million people, including educators, across member states. This program is explicitly designed to embody

the very ethical and inclusive guidelines the region champions. Further solidifying this commitment, Malaysia hosted an ASEAN AI Summit in 2025, creating a platform to deepen regional dialogue on building a responsible digital future. These collective efforts signal ASEAN's ambition to evolve beyond being a mere adopter of AI technology, positioning itself as an active participant in shaping its norms, governance, and collaborative structures on the global stage.

This regional momentum is a direct response to the profound digital transformation reshaping education worldwide. The era of rigid, one-size-fits-all educational models is giving way to dynamic, technology-enabled approaches. These new models offer personalized learning journeys, provide access to vast online resources, and focus on cultivating the specific skills needed for the future workforce. AI is central to this evolution, powering innovations from intelligent tutoring systems to automated assessment. As a 2024 report from UNESCO observes, the global integration of AI into education holds immense promise for enhancing teaching methods and student outcomes, yet it also introduces a new set of complexities that must be carefully navigated.

Why ASEAN 2026 Could Be a Hub for Collaboration & AI Ethics?

ASEAN is strategically positioned to become a global hub for collaboration and AI ethics by 2026, owing to its unique combination of diversity, flexibility, and shared regional vision.

The association brings together countries with varying levels of digital maturity—Singapore, Malaysia, and Indonesia, for instance, have developed advanced infrastructure and AI ecosystems, while others are still building their foundational capabilities. Rather than posing a challenge, this diversity can be leveraged as a strength: less digitally mature states can learn from the experiences and innovations of their more advanced neighbors, while the latter can test and refine their models to ensure broader applicability across different contexts.

A key enabler of ASEAN’s potential leadership lies in its approach to regional governance. The AI ethics and frameworks adopted by ASEAN are intentionally nonbinding and designed to accommodate national adaptation, allowing them to function as a flexible bridge between diverse regulatory regimes. This adaptability makes it easier for member states to align on shared principles while respecting local legal and cultural nuances. Furthermore, ASEAN has a strong foundation for capacity building through shared educational platforms. Initiatives such as the ASEAN Cyber University Project, which promotes e-learning and cross-border higher education collaboration, demonstrate the region’s ability to develop transnational digital infrastructure. Building on this, ASEAN could expand its efforts to include regional MOOCs, collaborative AI research labs, and shared digital resource hubs that benefit learners and educators across all member states.

Ethics also represents a distinctive value proposition for ASEAN. By successfully embedding AI ethics into education policy, governance frameworks, and everyday practice, the region can position itself as a global leader in “ethics-first” AI

deployment. This reputation would not only enhance ASEAN's standing internationally but also attract global partnerships, research collaborations, and innovation initiatives that seek ethical legitimacy and responsible technology development. Geographically, culturally, and politically, ASEAN is uniquely placed to serve as a bridge between Eastern and Western approaches to AI ethics—mediating, for example, between Western rights-based models and the more pragmatic, regulatory-oriented frameworks prevalent in East Asia.

At the heart of ASEAN's potential is its emphasis on collaboration and shared ethical responsibility. The challenges posed by AI—including algorithmic bias, data privacy concerns, and the risk of widening the digital divide—are inherently global and cannot be effectively addressed by any single country acting alone. ASEAN is well-positioned to lead a coordinated effort to develop a shared ethical framework for AI in education, one that establishes clear standards for algorithmic fairness and transparency, protects student data, and ensures equitable access to AI-powered educational tools for all learners. As scholars have noted, without such a concerted and ethically grounded approach, AI risks deepening existing inequalities rather than alleviating them (Smith & Chen, 2025). By championing this ethical leadership, ASEAN can establish itself as a trusted partner in the global dialogue on responsible technology use, thereby solidifying its role as a global center for collaboration and AI ethics.

Strategic Pillars for ASEAN 2026 in Education + AI Ethics

To realize the vision, ASEAN (collectively and its member states) should focus on several strategic pillars:

Strategic Pillar	Description	Key Actions
Ethical AI Governance in Education	Embedding AI ethics explicitly into education systems	- Embed AI ethics modules in teacher training - Mandate regular audits of algorithmic tools used in schools/universities - Adopt regionally consistent standards for explainability, accountability, fairness
Collaborative Regional Educational Platforms	Shared infrastructure and content across ASEAN	- Joint regional MOOCs, digital libraries, AI research labs - Cross-border student/teacher exchange and collaborative projects - Harmonization of credit and certification recognition
Capacity Building & Literacy	Ensuring stakeholders understand AI and its implications	- Expand programs like AI Ready ASEAN to reach teachers, parents, students - Train master trainers in each country - Fund R&D in AI-in-education ethics
Digital Equity & Infrastructure	Ensuring access for all	- Invest in broadband, devices, connectivity in remote areas - Subsidize cost of access for underprivileged students - Promote “last-mile” connectivity and inclusive design
Research, Monitoring & Ethics Evaluation	Ongoing assessment and improvement	- Establish regional observatories on AI in education - Conduct impact studies, bias audits, user feedback loops - Encourage cross-national comparative studies and transparency of findings

ASEAN’s strategic vision of becoming a global center for education by 2026 is grounded in several interrelated strengths. The region benefits from a rapidly growing, digitally native population and sustained economic development, creating fertile ground for technological innovation and large-scale adoption of digital learning solutions. At the same time, ASEAN’s established framework for regional cooperation provides a solid foundation for pursuing coordinated educational reform across member states. As noted in an ASEAN Secretariat briefing on digital integration, the region’s commitment to building a unified digital economy positions it to take a leading role in developing interoperable and scalable educational technologies—models that could ultimately serve as blueprints for other developing regions around the world (ASEAN Secretariat, 2023). This cohesive approach enables

ASEAN to function as a living laboratory for innovation, where new educational models can be tested and refined to ensure they are both technologically advanced and culturally relevant to diverse local contexts.

The vision outlined in “Education in the Digital Era: ASEAN 2026 as the Global Center for Collaboration and AI Ethics” presents a compelling argument for ASEAN’s potential to shape the future of learning on a global scale. It contends that by harnessing its demographic and economic advantages, the region is well-positioned to emerge as a global leader—not only in advancing educational innovation but also in fostering international collaboration and championing ethical guidelines for the integration of artificial intelligence in education. Through this dual focus on technological progress and ethical responsibility, ASEAN can establish itself as a trusted and influential voice in the global dialogue on the future of learning.

Education in the digital era represents a transformative shift in how knowledge is created, accessed, and shared. Across the world, schools and universities are adopting digital platforms, AI-based tutoring, and collaborative online tools to deliver more personalized and inclusive learning (Siemens, 2023). In ASEAN, this shift is especially significant because of the region’s diversity in economic development, digital infrastructure, and education systems. Emerging concepts such as Education 5.0 emphasize the integration of artificial intelligence, big data, and immersive technologies in classrooms to improve learning outcomes and foster critical thinking (Arinto & Bandalaria, 2024). However, these benefits also raise concerns about privacy, algorithmic bias, and

unequal access, which makes AI ethics an essential component of future education policy (Floridi, 2022).

As ASEAN looks toward 2026, the region's governments have begun positioning themselves not only as users but also as standard-setters in AI and digital education. The ASEAN Guide on AI Governance and Ethics (ASEAN Secretariat, 2024) articulates principles such as transparency, accountability, and fairness in AI systems used in public services, including education. This initiative is complemented by capacity-building programs like AI Ready ASEAN, which aims to train millions of citizens—including educators—on AI literacy and responsible technology use (ASEAN Foundation, 2024). By embedding ethical principles into teacher training and digital curricula, ASEAN could pioneer a model of responsible and inclusive digital education, thereby strengthening its regional identity as a hub for collaboration and AI ethics.

The vision of ASEAN 2026 as a global center for collaboration and AI ethics also reflects its strategic advantage in bridging different cultural, regulatory, and technological systems. ASEAN countries range from advanced digital economies like Singapore and Malaysia to rapidly developing systems in Cambodia and Laos, creating a fertile environment for knowledge exchange and joint innovation (Asian Development Bank, 2024). This diversity enables ASEAN to test and refine ethical AI practices in education across multiple contexts before scaling them globally. Furthermore, initiatives like the ASEAN Cyber University Project demonstrate how collaborative digital infrastructure can support cross-border higher education and harmonize standards (UNESCO, 2023).

It provides a clear roadmap for ASEAN to transition from a consumer of educational technology to a leader in its development and ethical application. The success of this vision hinges on the region's ability to foster genuine collaboration and maintain a steadfast commitment to ethical principles. By doing so, ASEAN can not only transform its own educational landscape but also contribute significantly to a more inclusive, ethical, and effective future for education worldwide.

Nonetheless, realizing this vision requires overcoming significant challenges. Digital inequality remains a major obstacle; without robust investment in broadband, teacher training, and affordable devices, the benefits of AI-enabled education will remain uneven (OECD, 2022). In addition, governance must keep pace with rapid technological advances an approach often described as “living regulation” so that ethical guidelines stay relevant as AI evolves (Cave & Dignum, 2019). By establishing regional observatories, cross-national ethics boards, and shared research centers, ASEAN could create a governance ecosystem that is both adaptive and inclusive.

Education in the digital era presents ASEAN with a historic opportunity. By 2026, if it embeds AI ethics into education policies, builds equitable digital infrastructure, and fosters regional cooperation, ASEAN can position itself as a global model for responsible digital learning and AI governance. This will not only benefit its own students and educators but also offer a template for other regions seeking to combine innovation with ethical stewardship (ASEAN Secretariat, 2024; ASEAN Foundation, 2024).

Evolving Education

As we step deeper into the digital era, education must evolve to meet the demands of a rapidly changing world driven by technology and artificial intelligence. ASEAN, with its rich diversity, youthful population, and growing digital infrastructure, stands poised to become a global hub for collaboration and ethical AI leadership by 2026. To achieve this, ASEAN must prioritize inclusive digital education, strengthen regional partnerships, and establish clear frameworks for AI governance rooted in shared values. By fostering a culture of innovation, digital literacy, and ethical responsibility, the region can not only bridge the digital divide but also lead global efforts in shaping a future where technology empowers all. Together, through education and ethical AI development, ASEAN can illuminate a path forward not just for its member states, but for the world.

ASEAN's commitment in 2026 to establishing itself as a Global Center for Collaboration and AI Ethics represents a crucial, forward-looking commitment to responsibly harness digital transformation. This positioning is not merely about technological adoption but about guiding the global conversation on how technology, especially AI, should intersect with human development and education. The successful realization of ASEAN 2026 as the Global Center is contingent upon a simultaneous and integrated push for transformative digital education and the implementation of a proactive, collaborative, and human-centric AI ethics framework.

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Digital Age: Practicality, Productivity, and the Dilemma of Morality

Berti Nurul Khajati

The digital age presents a paradox: unprecedented practicality alongside growing moral dilemmas. Indonesia remains a major technology consumer, not a creator. Despite government training in Coding, AI, and Deep Learning, challenges persist in teaching quality. The central tension lies between digital efficiency and the erosion of moral values, as virtual interactions replace authentic human connection. Digital progress is unavoidable; the key challenge is integrating moral principles into the evolving digital landscape.

Introduction

Teaching in this digital age is a case of practicality, productivity, and the dilemma of morality. Tony Bates says that technology is leading to massive changes in the economy, in the way we communicate and relate to each other, and increasingly in the way we learn (Bates, 2019). It's clear that all aspects of life will always interfere to each other. The leadership of the Philippines in the ASEAN countries is forming a new paradigm of this digital era. Digitalization makes every spot in the world linked together in very simple ways.

Indonesia – the developing country with the big amount of its citizen – have a lot of opportunities to take part in this digital fast growing world. As the results of some scientists' researches concluded that Indonesia is the country with the biggest consumers of many digital platform of internet. The main reason of using internet di Indonesia is very wide variety, mirroring the role of needs in the users' daily life. The most popular reason is searching information (83,1%), followed by communicating with family and relations (70,9%), finding inspiration (70,6%). Internet is also used for entertainment, education, and economic activity as the product research and financial management (Prasetyo & et.al, 2024). The data above shows that the big part of Indonesian are still act as users or consumers only.

What's the Problem?

Indonesia have had very long time to grow since the proclamation's declare on August, 17th 1945. Until now (the end of 2025) Indonesia move forward in the big amounts of internal problems. The sensitive issues of religions, cultures, and the social gaps among its citizens push stirring conflicts between groups. It is clear that this country need more than just the unity as the jargon of *Bhinneka Tunggal Ika* which is tied between the national symbol of *Garuda Pancasila* as our nationality pride of the unity in the diversity. Problems come from the basic mentality of the citizens on how to make it come true and not to let it as only an empty slogan in our head without touching our heart.

In the educational habitual, the World Bank reported that education in Indonesia need more trigger to reconstruct its global standard of life skills through the way the teachers practice their teaching skills. Indonesian teachers generally perform well on Classroom Culture (88 percent of teachers score three or higher) but moderate on Instruction (26 percent score three or higher) and low on Socioemotional Skills (10 percent of teachers score three or higher). This pattern aligns with findings from other developing countries worldwide (World Bank, 2021) and the East Asia and Pacific Region where less than one-third of teachers achieve a score of three or above, indicates ineffective teaching practices, resulting in inferior learning outcomes (Afkar et.al., 2023; Dini & et.al, 2024). The factual condition above is figuring the big puzzles of Indonesian problem and the impact to the continuity of qualified learning in the classrooms. The students still learn on the surface area, memorizing level, and limited as the only users in this era of the fast growing technology.

Indonesia Movement

As one of the members of ASEAN, Indonesian government implement the policy of digital life especially through the Education Programs. The Minister of Primary and Secondary Education – Abdul Mu’ti – has launched some digital programs for each school in Indonesia based on the main data of education known as Dapodik (*Data Pokok Pendidikan*) that load every information of the field condition in every school so that the Ministry of Primary and Secondary Education can take action to fulfill those schools

detected needs. Through this education canal the trainings for teachers and school citizens run smooth enough.

The Ministry of Primary and Secondary Education also launched educational programs for teacher to foster the skills of the educational practitioners in mastering technology for learning by inviting them to participate on some trainings. The training of Coding and Artificial Intelligence and Deep Learning are delegated to and handled by BBGTK (*Balai Besar Guru dan Tenaga Kependidikan*) in every province. Among the problems of education issues in Indonesia, the Education Minister said that by implementing deep learning Indonesia can create the conducive education community and globally competitive. So far, he underlined the importance of strengthening the figures of teachers, school leaders and supervisors to construct the collaborative and digital education in Indonesia (Suyanto & et.al, 2025). Meanwhile, through the learning of coding and artificial intelligence for the students of Elementary and Middle schools the Minister forces the achievement of the more modern education in Indonesia in order to be relevant with the global needs in this technology era (Riady & et.al, 2025) in order to flame the spirit of learning related to the fast growing world of the digital technology.

Practicality and Productivity

Digital era opens more practical ways to achieve many goals in the world. The openness of information, possibility to grow instantly and mass rapid movement lead many changes of life. Without flash moving anyone can be left behind. No need the

difficult process and long bureaucracy to reach the ambition. Every people can handle their own passion as fast as possible. “The digital age greatly enhances the opportunities and supports the necessity for “making learning a part of life”. But while the growth of technology is certain, the inevitability of any particular future is not. The impact of schooling goes beyond that new information about computers, the Internet, and social media are integrated into the schools of today.” (Fischer, Lundin, & J. Lindberg, 2022)

The practicality comes to our entire life from the early morning to late night. Open the eyes in the morning starting with the sound of the google alarm. People don't need to get out of homes to buy everything. Just make the fingers dance on the keypad their goods come instantly. Moreover, Artificial Intelligence technologies help people create a lot of things in seconds. Texts, pictures, diagrams, videos produced manually in the past growing in the incredible magic. The working of designers, architects, even influencers takes this kind of benefit only in less than one decade. Online businesses reach the most amazing moment. Life seems so easy and that simple controlled by a tip of finger. Even the education world contaminated with the fast production of the administration tasks for teaching. Here's the basic problem of education rise. Like an iceberg floating in the sea, one step service without any stop has begun.

Dilemmatic Morality

Practicality and productivity cling together in the digital life. Speed production and practical process lead everything come

instantly without any choices to think about. Timeless moment grabbed the logical consideration to the matter of speed. It may danger the future generation. They may ignore morality in deciding such a sensitive matter. “With the continuous innovation of artificial intelligence, virtual reality, 5G, and the progress of computer hardware equipment and network infrastructure, there are more and more moral dilemmas between virtual and the reality perceived by human beings.” (Zou, 2022)

The moral values believed in reality change drastically in the virtual world. Face to face communication transform into many various ways to express the messages. Social media are integrated with the overall everyday lifestyle. The world becomes unlimited. Human beings lose the privacy. The morality seems to degrade itself. It no more the most important value to keep in mind. People prefer sounding in a silent way. Actual voice gone substituted by recorded one in the virtual world. Attitude is not very important to show because people don't speak to each other in one time and place anymore.

Inevitable Digital

Wise human say time flies like an arrow. It's always moving forward and never be back again. Digital life is an inevitability. A certainty which will always make color to the entire world. To make everything better is not to come backward. The moment of change from the regular planned modernity to the new eclectic postmodern paradigm. Everything can move fast without any conventional considerations. Artificial intelligence reorganize the

order of core structure become run as fast as lightning in the sky. As the closing of this writing we conclude that digital is a part of life as the meta verse itself. So, it's time to build the new structure based on the morality value run for the digital reality.

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Social Media Influence and the Digital Literacy Gap in Indonesia

Firly Andrisetiani Permata

This study examines how social media expansion in Indonesia creates echo chambers—algorithm-driven environments where users are exposed primarily to confirming viewpoints. Platforms like X, TikTok, Facebook, and Instagram limit diverse perspectives, reinforcing polarization, amplifying misinformation, and constraining balanced dialogue. Using mixed methods, the research highlights the critical need for digital literacy to help citizens evaluate information critically and engage with multiple viewpoints. Social media platforms have a dual capacity: facilitating participation while reproducing societal divisions. The findings underscore the importance of fostering inclusive online environments and broader information exposure.

Introduction

Social media platforms have transformed how individuals access information, communicate, and engage with a wide range of issues globally. They provide unprecedented opportunities for interaction, community-building, and information exchange. In Indonesia, where the digital sphere plays a pivotal role in shaping

everyday life, understanding the impact of social media is essential for examining broader patterns of public discourse and information literacy. This paper investigates the interplay between social media use, echo chambers, and digital literacy, and how these dynamics shape citizens' perceptions of various social issues.

Indonesia, with its large and diverse population, has experienced rapid growth in internet connectivity and social media adoption over the past decade. As of February 2022, the country had around 167 million active social media users, ranking third in Asia-Pacific after China and India, and the largest in Southeast Asia (Statista, 2024). This surge has been driven by rising internet penetration, widespread smartphone use, and the affordability of data services. Platforms such as TikTok, Facebook, X (formerly Twitter), Instagram, and WhatsApp have become integral to daily life, not only for communication with friends and family but also for education, business, and cultural exchange.

Alongside these opportunities, digital transformation also brings challenges. The ease with which information circulates online makes it difficult to verify accuracy, giving rise to misinformation, hoaxes, and manipulated narratives that can influence public perception (Clayton et al., 2020; Meel & Vishwakarma, 2020). Furthermore, algorithmic personalization encourages the creation of *echo chambers*—closed networks of like-minded users—limiting exposure to diverse perspectives and reinforcing existing beliefs. This has significant implications for digital literacy, as individuals require critical skills to evaluate information, identify bias, and engage constructively with contrasting viewpoints.

The primary objective of this study is to examine how social media shapes public perceptions in Indonesia, focusing on the role of echo chambers and the importance of digital literacy in navigating online environments. Specifically, this paper addresses the following research questions:

1. How do echo chambers manifest within Indonesian social media platforms, and what are their implications for public discourse?
2. What role does digital literacy play in enabling individuals to critically evaluate and respond to information encountered online?
3. What strategies can be implemented to strengthen digital literacy and mitigate the negative impacts of echo chambers, misinformation, and polarization?

By addressing these questions, the study contributes to a broader understanding of how digital platforms influence citizen engagement with issues of public concern, while highlighting pathways for fostering more inclusive and informed online spaces. Therefore this paper offers a comprehensive analysis of how social media, echo chambers, and digital literacy intersect in Indonesia, with broader relevance for understanding information ecosystems in the digital age.

Echo Chambers: Conceptual Framework

1. Definition and Characteristics

Echo chambers are socio-technical environments often online in which individuals predominantly encounter information and viewpoints that echo, validate, and amplify what they already believe, while conflicting evidence and dissenting voices are filtered out or discounted (Sunstein, 2007). In practical terms, an echo chamber describes a user network where interactions, content sources, and conversational norms converge to confirm prior beliefs and discourage cross-cutting exposure (Cinelli et al., 2018). Several recurring features characterize echo chambers:

1. Selective exposure: Preference for aligned sources and avoidance of counter-attitudinal information (Bakshy et al., 2015).
2. Homophily and social reinforcement: Users cluster with like-minded peers; social validation encourages conformity and discourages dissent.
3. Confirmatory processing: Heuristics such as confirmation bias make congruent messages feel more credible.
4. Boundary maintenance: Out-group content is down-ranked, distrusted, or framed as low quality, while in-group content is amplified.

In Indonesia's increasingly connected society, trust and information-seeking are progressively mediated by digital platforms, which can relocate interpersonal and institutional trust from offline settings into online spaces (Painter, 2015;

Santa, MacDonald, & Ferrer, 2019; Yang & DeHart, 2016; You & Wang, 2020). When this migration occurs inside narrow information cocoons, it can reshape how communities understand and respond to public issues—health guidance, financial scams, education reforms, environmental risks, or disaster alerts.

2. Formation and Reinforcement Mechanisms

Echo chambers arise from the interplay of cognitive, social, and technological forces.

1. Cognitive mechanisms: Humans prefer cognitively fluent information. Confirmation bias, motivated reasoning, and selective exposure guide users toward congruent messages and away from dissonant ones. Over time, repeated congruent exposure creates an “availability cascade,” where familiar claims feel truer simply because they are frequently seen (Bakshy et al., 2015).
2. Social mechanisms: Social networks incentivize homophily. People form ties around shared language, identity, and norms; likes and shares act as social rewards. Dissent can be penalized through ridicule or exclusion, encouraging self-censorship and deepening within-group coherence.
3. Technological mechanisms: Algorithmic curation optimizes for engagement and retention. Newsfeeds and “For You” pages infer relevance from past behavior, amplifying content similar to what users already consumed (Pariser, 2011). Ranking, recommendation, and trending

systems can therefore entrench attention around familiar narratives, regardless of accuracy. Labels, warnings, or fact-checks can help but have mixed effects, varying by design and user motivation (Clayton et al., 2020).

Together, these mechanisms can stabilize echo chambers: cognitive biases attract, social validation retains, and algorithms fortify. Digital media differ from most legacy channels because users co-produce and curate their information diets. Individuals subscribe to creators, follow groups, and join messaging communities aligned with their needs and identities. Platforms such as X (formerly Twitter), Instagram, TikTok, Facebook, WhatsApp, and YouTube make this curation effortless. While this democratizes voice and diversifies supply, it also enables users to build self-selected ecosystems that may exclude corrective perspectives (Bakshy et al., 2015; Cinelli et al., 2018).

In the Indonesian context, high mobile adoption and widespread social media use mean that discussions about public health, consumer safety, natural disasters, education policy, and intergroup relations often occur in dense, closed loops, public pages, private groups, or encrypted chats. Within these spaces, a claim that “feels right” to the group may spread quickly, outpacing corrections.

Platforms are the infrastructure through which echo chambers form, persist, and scale. Design choices include infinite scroll, algorithmic ranking, frictionless sharing, and notifications optimized for engagement and “session time,” which can unintentionally prioritize novelty, emotion, and controversy

(Tufekci, 2017). The resulting incentive structure rewards high-arousal content (outrage, awe, fear), which is more likely to be shared or encourages identity-expressive posting over deliberative, sourced analysis and it may elevate creator incentives (growth, monetization) that may privilege virality over verification.

These properties are not intrinsically harmful; in fact, they also enable rapid peer-to-peer aid, mutual support, and public awareness during emergencies. The challenge is that the same mechanics can amplify misinformation, polarizing frames, and low-accountability claims, complicating nationwide responses to urgent issues.

Digital Literacy: Concepts, Competencies, and Relevance to Nationwide Issues

Digital literacy extends traditional media literacy to encompass skills for evaluating, producing, and participating in networked information environments. Core competencies include:

1. Information appraisal: Source verification, triangulation, lateral reading, and basic data sense-making.
2. Algorithmic awareness: Understanding that feeds are personalized and that “what I see” $\neq$ “what exists.”
3. Civic and interpersonal skills: Norms for constructive dialogue, empathy across difference, and respectful conflict.
4. Security and privacy hygiene: Recognizing scams, permissions, tracking, and data footprints.

These skills are contextual. In Indonesia, where social platforms are intertwined with daily life from family groups to micro-entrepreneurship, digital literacy is critical not only for civic discourse but also for consumer protection, health safety, and disaster readiness.

Platforms can mitigate echo chamber risks by embedding contextual integrity cues, such as lightweight labels linking to source provenance (Clayton et al., 2020), and by introducing diversity nudges that interleave vetted cross-cutting content (Pariser, 2011). Friction mechanisms like “read before share” prompts or slight delays for high-risk posts can slow the spread of misinformation. Greater user transparency and control—e.g., explanations of “why am I seeing this?”—empowers individuals to shape their own feeds. During crises, time-sensitive overrides can ensure authoritative content is prioritized (Tufekci, 2017).

Technology solutions must be paired with education. Digital literacy programs can integrate verification and algorithmic awareness into school curricula, offer community-based trainings, and provide micro-credentials for creators who cover sensitive topics. Toolkits such as the SIFT framework (Stop, Investigate, Find, Trace) give educators and librarians practical heuristics for teaching evaluative skills.

No single actor can address echo chambers alone. Health agencies and platforms can co-brand corrections in culturally resonant ways. Disaster authorities and telecom providers can ensure low-bandwidth access to official dashboards during emergencies. Consumer regulators and marketplaces can embed warnings for unlicensed financial services and expedite takedowns.

Such collaborations extend the reach of accurate information while reinforcing trusted communication channels.

Digital interventions raise ethical challenges. Privacy and data protection are essential, as personalization relies on behavioral data. Transparent consent mechanisms and protective defaults, particularly for minors, reduce risks. Safeguards are also needed against manipulation and coercion; behavioral targeting should not edge into exploitative choice architecture, especially in health and finance (Saurwein & Spencer-Smith, 2021).

Open data partnerships with privacy safeguards can enable independent research on echo chambers across Bahasa Indonesia and local languages (Nielsen & Fletcher, 2020). Longitudinal designs can track changes in literacy and exposure diversity across cohorts (Pew Research Center, 2021). Policy priorities include mandating algorithmic transparency, establishing interoperable reporting systems for harmful content, and strengthening user empowerment with clear opt-outs and portability of preference settings. Investments in teacher training, civil society mini-grants to localize literacy programs, and creator partnerships to normalize “verify-before-share” behaviors can amplify impact. These efforts ensure that digital literacy is not a niche skill but a nationwide competency.

Finally, interventions must balance freedom of expression with harm reduction. Restrictive measures must be procedurally fair, offering transparent rules, clear appeals, and reasoned moderation. Only then can they achieve legitimacy and public compliance.

Digital Literacy & Echo Chambers

This study set out to examine the intersection of digital literacy and echo chambers within Indonesia's rapidly evolving social media landscape. Three guiding questions shaped the inquiry, and the findings provide a comprehensive picture of the challenges and opportunities ahead.

First, echo chambers manifest on Indonesian social media platforms through algorithmic curation, homophilous networks, and selective engagement behaviors. They are characterized by high modularity, limited cross-exposure, and the reinforcement of shared narratives within closed groups. These dynamics narrow information diversity and contribute to polarization, misinformation, and cycles of mistrust that weaken public discourse. Echo chambers thus not only reflect but also exacerbate existing social, cultural, and economic divides, with tangible consequences for health communication, disaster readiness, education, and consumer safety.

Second, digital literacy emerges as a critical resilience factor in navigating these dynamics. Individuals equipped with evaluative skills such as lateral reading, cross-source verification, and bias recognition are better able to distinguish credible information from misleading claims. In Indonesia's diverse context, digital literacy supports public health efforts, improves disaster communication, safeguards against financial exploitation, and promotes social cohesion across cultural and religious lines. However, echo chambers serve as a stress test, revealing the limits of individual literacy when information ecosystems are saturated with aligned and emotionally charged narratives.

Third, strengthening digital literacy and mitigating the negative impacts of echo chambers requires multi-layered strategies. Platform-level interventions can include contextual integrity cues, diversity nudges, and friction for high-risk content, while public-facing initiatives should integrate media literacy into curricula, provide community-based trainings, and create micro-credentials for creators in sensitive domains. Cross-sector collaboration between platforms, regulators, educators, civil society, and local communities offers pathways to scale these interventions. Ethical safeguards around privacy, manipulation, and freedom of expression must remain central, ensuring that interventions enhance, rather than erode, public trust.

Taken together, the findings underscore that echo chambers are not simply technological artifacts but systemic challenges that test the resilience of democratic discourse, social cohesion, and informed participation. By fostering robust digital literacy, embedding safeguards in platform design, and investing in inclusive collaboration, Indonesia can move toward an information ecosystem that is not only more resistant to misinformation and polarization but also more empowering, inclusive, and resilient.

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The Nexus of Global Digital Collaboration

Mariza

The Philippines' 2026 ASEAN chairmanship marks a pivotal moment for Southeast Asia's digital transformation. ASEAN is emerging as a collaborative innovation ecosystem, with member states contributing unique digital advancements like blockchain and Web3. The region's strength lies in fostering ethical AI frameworks, digital inclusion, and harmonized national strategies. By empowering youth and startups, ASEAN can become a global hub for digital collaboration, ensuring no citizen is left behind.

Introduction

In the vast landscape of global progress, nations often appear as isolated islands, each charting its own course toward prosperity. Yet, a new paradigm is emerging in Southeast Asia, one that sees these islands not in isolation, but as a vibrant archipelago connected by a shared digital sea. The ASEAN Summit in 2026, under the stewardship of the Philippines, represents a critical juncture in this collective journey. It is a moment to transcend national boundaries and cultivate a shared garden of digital enlightenment—a place

where the fruits of innovation are shared equitably and where technology serves as a bridge, not a barrier.

The digital realm, like a sprawling forest, can be intimidating. Its pathways are complex, its potential boundless. For many, the rapid pace of technological change—from the rise of artificial intelligence (AI) to the complexities of Web3—feels like an unstoppable torrent. Yet, within ASEAN, there is a different narrative unfolding. The region is not merely a passive recipient of global technological trends but is actively shaping them. The Philippines, with its youthful and digitally savvy population, has emerged as a beacon, particularly in the pioneering spaces of blockchain gaming and decentralised finance (DeFi) (Bhattacharya, 2024). This leadership is not just a national achievement; it is a testament to the region's potential as a living laboratory for digital innovation.

This article, therefore, is not just a report on technological progress. It is a reflection on a profound philosophical shift: the transition from individual competition to collective collaboration. It seeks to understand how ASEAN, a mosaic of diverse cultures and economies, can unite its digital efforts to build a resilient, inclusive, and ethically grounded digital future. By examining the interplay of technology, society, and governance, we will explore how ASEAN can transform into the undisputed nexus of global digital collaboration, a model for the world to follow.

Weaving the Digital Tapestry

The journey of ASEAN toward becoming a digital powerhouse can be understood through the intricate process of weaving a

tapestry. Each nation contributes its unique thread—its policies, its innovations, its human capital. When woven together, these threads form a cohesive and beautiful pattern, far stronger and more meaningful than any single strand.

1. Pillar 1: Social-Cultural Weaving: Bridging Divides Through Digital Inclusion

The first, and perhaps most crucial, thread in this tapestry is the social and cultural pillar. A digital revolution that leaves citizens behind is not a revolution but a form of digital disenfranchisement. The challenge for ASEAN is to ensure that the rapid pace of innovation does not widen existing inequalities. This is a task of profound philosophical significance, echoing the concept of ubuntu—the belief that “I am because we are.” Digital inclusion in ASEAN is not merely about providing access to the internet; it is about fostering a sense of shared purpose and collective well-being.

Education stands as the primary loom for this social tapestry. The integration of digital literacy into school curricula across ASEAN is paramount. As per a 2023 UNESCO report, the digital divide in education remains a significant challenge, with unequal access to devices and reliable internet hindering learning opportunities, particularly in rural areas (UNESCO, 2023, p. 115). ASEAN must move beyond traditional pedagogical methods, embracing online learning platforms, virtual reality for cultural exchange, and AI-powered educational tools to democratise knowledge. This includes reskilling and upskilling the adult workforce to ensure they are

not made obsolete by automation (World Economic Forum, 2024, p. 28).

Furthermore, digital technology holds immense potential for fostering cultural exchange. Platforms like virtual museums, collaborative art projects, and digital language learning tools can break down geographical barriers and celebrate the rich diversity of the region. This serves a dual purpose: it strengthens regional identity and provides a soft power advantage on the global stage. By leveraging Web3 technologies, such as decentralised identity and Non-Fungible Tokens (NFTs), ASEAN can create new, equitable models for artists and creators to monetise their work and protect their intellectual property, ensuring cultural heritage is both preserved and propagated.

2. Pillar 2: The Vanguard of Innovation: The Youth and Startup Ecosystem

The second thread in the tapestry is the vibrant energy of ASEAN's youth and the dynamism of its startup ecosystem. If the older generation provides wisdom and structure, the youth are the catalysts, pushing the boundaries of what is possible. They are the gardeners who sow the seeds of innovation, tending to the nascent ideas that will one day blossom into world-changing solutions.

The 2026 ASEAN Summit in the Philippines, a country with one of the youngest populations in the world, places a spotlight on this demographic. Filipino youth have demonstrated an unparalleled knack for adopting and pioneering new

technologies, particularly in the Web3 space. The rise of play-to-earn games like Axie Infinity, which has millions of players globally, serves as a powerful case study. It showcases how a region once seen as an outsourcing hub can become a source of original, globally-relevant innovation (Bhattacharya, 2024, pp. 45-48).

This phenomenon is a microcosm of a larger trend across ASEAN, from Vietnam's tech scene to Singapore's position as a startup hub. The challenge for ASEAN leaders is to cultivate this energy rather than contain it. This requires creating an enabling environment: providing access to venture capital, establishing regulatory sandboxes for new technologies like blockchain and AI, and fostering cross-border collaboration among startups. Mentorship programs, regional hackathons, and shared digital platforms can connect entrepreneurs from different countries, allowing them to learn from each other's successes and failures. The concept of the 'ASEAN startup', a business built with a regional market in mind from day one, should be actively promoted. This collaborative spirit, as opposed to a fragmented, nation-by-nation approach, is what will truly set ASEAN apart.

The Ethical Compass: Navigating the AI Forest

The final thread, and arguably the most critical for long-term sustainability, is the development of a robust ethical framework for AI. The power of AI is immense, but so are its risks: algorithmic bias, privacy invasion, and the potential for job displacement.

Without a shared ethical compass, the digital journey could lead to unforeseen and harmful consequences.

Philosophically, this challenge echoes Plato's Allegory of the Cave. Just as the prisoners in the cave only saw shadows, we risk interacting with AI as a black box, not understanding how its decisions are made. ASEAN must take a proactive stance in building a transparent and accountable digital future. This involves establishing a regional framework for AI governance that prioritises human rights, data privacy, and fairness (ASEAN Secretariat, 2025). It is an opportunity for ASEAN to lead by example, demonstrating how AI can be developed and deployed in a manner that serves humanity, not the other way around.

This framework should be a collaborative effort, bringing together governments, technologists, and civil society. It must address issues like data sovereignty, ensuring that the data of ASEAN citizens is protected from misuse. It must also include guidelines on the responsible use of AI in public services, from healthcare diagnostics to traffic management. By building this ethical foundation, ASEAN can assure its citizens that the digital future is being built on principles of trust and integrity.

ASEAN's Digital Sea

The 2026 ASEAN Summit is more than just a political gathering; it is a moment of profound introspection and strategic alignment. The metaphor of a cohesive archipelago, connected by a digital sea, is no longer a distant ideal but a present reality. The threads of social inclusion, youthful innovation, and ethical

governance are being woven together, forming a magnificent digital tapestry.

This tapestry is not just for internal consumption. It is an invitation to the world. By demonstrating a collective commitment to a human-centric digital transformation, ASEAN is positioning itself as the undisputed nexus of global digital collaboration. It is a place where new technologies are not just adopted but are philosophically and ethically integrated into society. It is a model of collaboration that transcends national borders, proving that true strength lies not in isolation but in unity.

The journey ahead will not be without its challenges. The digital landscape is ever-changing, and the work of weaving this tapestry is never truly finished. However, with a shared vision, a commitment to inclusivity, and the boundless energy of its people, ASEAN is well on its way to becoming the digital powerhouse it is destined to be. The garden is blossoming, and its fruits will be shared with the *entire world*.

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ASEAN's Digital Journey: The Halal Product Assurance Law in the Digital Era

Subandriyah

Indonesia's Law No. 33/2014 on Halal Product Assurance shifted halal certification from voluntary to mandatory. Digitalization has significantly improved the performance of the Halal Product Assurance Organizing Agency, both domestically and internationally. These dynamics have positively impacted trade and the economy in ASEAN. Mutual Recognition Agreements with foreign halal institutions can enhance the global competitiveness of Indonesian halal products. The article concludes by emphasizing the need to strengthen cooperation with stakeholders in the halal sector across ASEAN and beyond.

Introduction

The Halal Product Assurance Organizing Agency (BPJPH) was established based on Law No. 33 of 2014 as the institution responsible for the halal certification process. BPJPH underwent a spin-off from the Indonesian Ministry of Religious Affairs to become an agency directly under the President since the end of 2024. It has the following duties and functions: (1) Halal Partnership

and Standardization, (2) Halal Registration and Certification, and (3) Development and Supervision of Halal Product Assurance (Presidential Regulation 153 of 2024).

Law No. 33 of 2014 mandates the mandatory implementation of halal certification for products including food, beverages, raw materials, food additives, auxiliary materials for food and beverage products, slaughter products, and slaughtering services, which became the first stage priority regulated in Government Regulation No. 39 of 2021 (BPJPH, 2024). The derivative regulations of Law No. 33 of 2014 have undergone dynamic changes, starting from Government Regulation No. 31 of 2019, Government Regulation No. 39 of 2021, and Government Regulation No. 42 of 2024. Currently, Government Regulation No. 42 of 2024 concerning the implementation of halal product assurance (JPH) and Regulation of the Minister of Religious Affairs of the Republic of Indonesia No. 20 of 2021 concerning halal certification for Micro and Small Business actors are in effect. Community empowerment through the halal certification process aims to ensure that community halal products are globally competitive and not inferior to imported products entering the domestic market. One form of empowerment is the facilitation of certification costs for micro and small enterprises (MSEs) and micro, small, and medium enterprises (MSMEs) (Khaswar, 2021). Regulation of the Minister of Home Affairs No. 15 of 2024 supports the implementation of halal certification, which has a positive impact on improving the community's economy, especially MSEs and MSMEs. Subsequently, MSEs and MSMEs can move up the value chain to meet ASEAN and global market demand.

Digital technology will increase the efficiency and accuracy of the halal certification process. Digital technology overcomes obstacles and challenges in the halal certification process such as slow verification, prevents certificate falsification, and builds a more trustworthy and accountable halal ecosystem. This is achieved through the digitalization of data from raw materials to consumers using the SIHALAL application (BPJPH, 2025). Before the mandatory implementation of Law No. 33 of 2014, the halal certification process in Indonesia had already been digitalized (halal.mui, 2021) under the name CEROL by utilizing the development of IoT (Internet of Things) technology.

Halal Quality Standard

Halal Product Assurance In Islam, everything that is permitted (halal) may be consumed except what is specifically prohibited (haram), as stated in the Qur'an, Hadith, Ijma', and Qiyas. Halal is universal: "HALALAN THOYYIBAN (Hygiene, Health and Wholesome)." *"O mankind, eat from whatever is on earth that is lawful and good and do not follow the footsteps of Satan. Indeed, he is to you a clear enemy."* (QS. Al-Baqarah: 168).

Halal can be defined as a quality standard that complies with Islamic Sharia law and is applied to every activity carried out by Muslims (Bohari, Cheng and Fuad, 2013). Halal products and services are chosen by Muslims as a form of obedience to Islamic Sharia law. Although halal is closely associated with Muslims, it does not mean that consumers of halal products only come from the Muslim community. The halal lifestyle, which is closely associated

with Muslims, has spread to various countries, even to those where Muslims are a minority. Halal has become a universal indicator for product quality assurance and living standards (Gillani, Ijaz and Khan, 2016).

The quality of halal products, commonly known as *Halalan Thoyyiban*, is one reason why non-Muslims use halal products (Samori, Salleh and Khalid, 2016) because they guarantee cleanliness, safety, and product quality throughout the entire production chain (from farm to plate). A survey conducted in 76 countries consisting of 57 member states of the Organization of Islamic Cooperation (OIC) and 16 non-OIC countries shows that the halal finance and food sectors contribute more significantly compared to other sectors, with potential revenues reaching \$1.9 trillion in 2021 (N Irkhami, 2010).

Halal Product Assurance System

Before the mandatory implementation, Indonesia through the Indonesian Ulema Council (MUI) introduced the Halal Assurance System (SJH) in March 2012 under the name HAS 23000. HAS 23000 is a series of halal standards containing rules for obtaining a halal certificate from MUI (LPPOM MUI 2012). HAS 23000 has been recognized internationally as a reference by several countries such as Canada, Australia, Brazil, the Netherlands, New Zealand, and the United States. Compared to existing quality certification systems such as Hazard Analysis of Critical Control Points (HACCP) and ISO series (ISO 9001:2000 or ISO 22000:2005), which are known as Quality Assurance Systems (QAS), the halal

assurance system is still relatively new. As a quality standard, it inevitably shares similarities and possible mutual adoption with other systems according to respective interests.

According to Apriantono (2011), the halal assurance system that has developed today adopts principles from previously established management systems. Meanwhile, Riaz and Chaudry (2004) and Probowo (2015) emphasize that in producing products guaranteed to be halal, the Three Zero's Concept must be applied: zero limit, zero defect, and zero risk. This means that prohibited materials must not be present in raw materials (zero limit), additives, and products throughout the entire production chain. Additionally, no impure materials may contaminate the materials required to produce halal products. Thus, there must be absolutely no haram products produced (zero defect), considering the significant risk borne by companies if their product is claimed to be haram and the claim proves true.

After the mandatory implementation, the Halal Product Assurance System (SJPH) was introduced. The preparation process of SJPH adopted SJH and refined it according to field needs. The refinement process took approximately three years and involved various related units, including teams from LPPOM MUI. Based on the Decree of the Head of BPJPH Number 20 of 2023 concerning SJPH, there are six points: (1) introduction, (2) scope, (3) terms and definitions, (4) principles of SJPH, (5) criteria consisting of: a. commitment and responsibility, b. materials, c. halal product processes, d. products, e. monitoring and evaluation, and (6) documented information. SJPH is prepared based on the Indonesian National Standard (SNI).

Domestic and International Cooperation

The Halal Product Assurance Law No. 33 of 2014 mandates both domestic and international cooperation. Article 7 regulates domestic cooperation, where BPJPH collaborates with relevant ministries and institutions, the MUI Fatwa Division, Halal Inspection Bodies (LPH), LP3H, the Fatwa Committee, business and industry sectors, academics, business actors, and other stakeholders. Article 46 regulates international cooperation, requiring collaboration between governments through the diplomatic channel of the Ministry of Foreign Affairs. Several countries have established cooperation through G to G, G to B, or B to B mechanisms (Government Regulation No. 42 of 2024).

Achievements of Halal Product Assurance in the Digital Era

Digital technology in halal product assurance using the SIHALAL application has produced outstanding performance and has become a driving force for the development of Indonesia's halal industry for a sustainable economy. Exports of halal products with HS Code 952 have increased significantly, with PEB 97,752, tonnage 21,543, and 266 companies ranging from large to micro scale involved with the top 10 destination ports, loading ports, companies, and types of commodities, including halal products exported for Hajj pilgrims. In terms of international export and trade achievements for halal products, Indonesia currently ranks 3rd in the SGIE indicator and the Top 30 OIC Halal Products Companies, with 15 companies from Indonesia (SIHALAL, 2025).

Performance achievements of the BPJPH Halal Laboratory in 2025 include:

1. The ratification of Laboratory Management Guidelines through Decree Number 135 of 2025 concerning Halal Laboratory Management Guidelines.
2. Training of ten new Halal Laboratory employees for testing in four scopes: Alcohol, DNA, Protein, and Lipid.
3. Socialization and supervision of laboratories under LPH regarding halal laboratory management guidelines at IPB Bogor, BBIA Bogor, Equitras Jakarta, and UGM Yogyakarta.
4. Implementation of BPJPH Halal Laboratory testing: Alcohol testing with samples of fruit juice beverages and alcoholic beverages (17 samples); DNA testing with samples of simple processed meat products and complex products such as gelatin (26 samples); Protein testing with samples of simple processed meat products and complex products such as gelatin (39 samples).
5. Implementation of laboratory consistency and commitment according to ISO 17025:2017.
6. Calibration of four major laboratory instruments and 126 supporting testing tools.
7. Preparation of guidelines related to the Halal Laboratory: implementation of protein validation testing for gelatin matrices and DNA verification testing for soft candy matrices.
8. Implementation of consortium activities of Halal Laboratories discussing halal testing issues by involving experts as resource persons.

BPJPH halal certification achievements show that the issuance of halal certificates has increased by 11 million certified halal products, of which 53.15% are Self Declare products. The total halal certification achievement in Indonesia is 11,804,258 products (SIHALAL, 2026).

ASEAN Cooperation in the Halal Sector

Achievements in international cooperation show that there are MRAs with 108 foreign halal institutions (LHLN) from six continents worldwide (SIHALAL, 2026). Collaboration at the ASEAN and international levels through Mutual Recognition Agreements (MRA) with foreign halal institutions continues to increase. Halal policies in ASEAN indicate that regional cooperation in the halal sector has become a major priority for ASEAN member countries. Harmonization of halal standards in ASEAN can increase consumer trust and boost halal product trade in the region (Gumanti et al., 2025; Zain Akhmad Rifqi et al., 2024). Free trade in ASEAN requires harmonization of halal standards (Yuanita et al., 2023). International cooperation in the halal sector can help increase halal awareness and compliance with halal standards in the ASEAN region (Kamilah & Daspar, 2025).

The ASEAN sub-regional cooperation policy IMT-GT (Indonesia–Malaysia–Thailand Growth Triangle) is regulated in the IMT-GT Blueprint 2017–2026, which serves as a guide for programs and initiatives to enhance connectivity, trade, investment, and inclusive sustainable economic development in the IMT-GT region. This policy includes various aspects such as harmonization

of procedures, tourism development, infrastructure development, and the adoption of green and digital economies, all of which can contribute to the development of the halal industry. The main priorities of the IMT-GT policy include improving connectivity, economic growth, sustainable development, tourism development, harmonization, and standards.

In the halal context, this policy can help increase awareness and compliance with halal standards, thereby increasing consumer trust and boosting halal product trade in the IMT-GT region. The halal sector has become one of the discussion topics in the Working Group Halal Product Assurance (WG HAPPAS), demonstrating the importance of halal in IMT-GT cooperation. Policy development and implementation are discussed in various meetings at the ministerial and head-of-state levels, Strategic Planning Meetings (SPM), and the IMT-GT Summit each year.

The MABIMS (Meeting of ASEAN Ministers of Religious Affairs) policy includes two main areas: determining the beginning of the Hijri month and cooperation among countries on religious issues in Southeast Asia. As a forum for meetings of the Ministers of Religious Affairs of Malaysia, Brunei, Indonesia, and Singapore, MABIMS aims to enhance cooperation and awareness regarding religious and social issues in the region. Since 2019, MABIMS has expanded its focus to include halal issues as one of the main topics of discussion, considering that halal has become a broader societal need. At the 21st MABIMS forum held in Melaka, Malaysia on 16–19 October 2025, discussions covered strategic cooperation in the fields of religion, Islamic education, da’wah, and strengthening the halal product assurance system in the region. Through this forum,

MABIMS seeks to become a driver of a competitive and inclusive halal ecosystem, encouraging economic growth, increasing global market confidence, and strengthening the global halal value chain. Thus, MABIMS can play an important role in increasing awareness and compliance with halal standards while strengthening the halal ecosystem in Southeast Asia.

The AMAF (ASEAN Ministers on Agriculture and Forestry) policy focuses on the development of sustainable, inclusive, and resilient food, agriculture, and forestry sectors. Key points of the AMAF policy include improving food security, gender mainstreaming, the use of technology and innovation, sustainable development and the circular economy, and maritime cooperation.

Since 2018, halal has become one of the topics discussed within AMAF through the ASEAN Working Group on Halal Food (AWGHF). AWGHF is an ASEAN working group on halal food. It aims to promote increased cooperation among ASEAN countries in developing and promoting halal products, harmonizing halal certification standards and procedures in ASEAN to ensure recognized products are clean, safe, healthy, intact, and halal, facilitating information and knowledge exchange on halal food among ASEAN member states, and creating an integrated regional market for halal products. AWGHF seeks to coordinate.

Cooperation on halal issues in ASEAN is also discussed in forums such as the ASEAN–Russia Roundtable Discussion, ASEAN–China, ASEAN–Australia, and ASEAN–New Zealand, which demonstrate the importance of international cooperation related to halal. The Strategic Plan of Action for ASEAN Cooperation in Halal Food (2021–2025) serves as a guideline

for halal cooperation in ASEAN and is part of the agricultural sector cooperation. Through this framework, ASEAN can enhance awareness and compliance with halal standards and increase global market confidence in ASEAN halal products.

Mandatory Halal Certification

Halal certification in Indonesia has shifted from voluntary to mandatory. The Halal Product Assurance Law in the Digital Era provides significant benefits for Indonesian society in building a halal culture. It also builds halal awareness, which is a target outlined in the Indonesian Halal Industry Master Plan (MPIHI) from 2023 to 2029.

The Halal Product Assurance Law in the Digital Era becomes a gateway for international trade and enhances Indonesia's sustainable economic growth. This has an impact on increasing trade and economic activity in ASEAN member countries. The Digital Halal Platform plays an important role in strengthening cooperation with stakeholders at the ASEAN level. ASEAN cooperation in the halal sector is significant through policies aimed at enhancing economic integration and improving community welfare in the ASEAN region, including accelerating economic growth. The Halal Product Assurance Law in the digital era supports the successful implementation of mandatory halal certification for imports by 2026.

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Digital Literacy Centralization: Synergy Of Senior High School Libraries And Asean

Beryana Evridawati

This article discusses digital literacy centralization through digital libraries in Indonesian senior high schools and ASEAN synergy. Physical libraries are underutilized due to conventional paradigms, low digital transformation, and limited librarian competence. Digital libraries offer strategic solutions: anytime access, content curation, and learning integration. Challenges include data security, infrastructure, and skills. The article outlines five development stages and ASEAN cooperation through digital networking, resource sharing, and training. Digital libraries transform libraries into dynamic ecosystems, repositioning librarians as content curators to accelerate learning outcomes.

Introduction

Indonesia continues to strive to improve the quality of learning to produce graduates with 21st-century skills, including mastery of the 4C competencies (Critical thinking, Creativity, Collaboration, Communication), digital literacy (information literacy, media literacy, technology literacy), high adaptability,

and life skills. Educational transformation is being carried out in a structured, massive, comprehensive, systematic, accelerated, and measurable manner. This transformation is implemented through Universal Participation to achieve quality education for all. Universal Participation is one of the most appropriate strategies to address challenges such as limited education budgets, low fulfillment of minimum school infrastructure criteria, gaps in quality and access, suboptimal implementation of school-based management, uneven digitalization of education, and issues with teachers and education personnel in Indonesia. The success level of educational transformation efforts can be seen from the Education Report, PISA scores, and other measurement tools. The essence of universal participation is the awareness that education is not solely the responsibility of the government (central and regional). The active involvement of all stakeholders (government, community, academics, business, media) is a tangible manifestation of universal participation to accelerate educational progress in Indonesia by ensuring that no child is left behind in accessing quality education.

Universal participation can be concretized through stakeholder support and involvement in the school's function as a place for teaching and learning activities and character building of students. Schools can produce graduates at each education level who meet the graduate competency standards, which include eight dimensions of graduate profiles (Ministry of Primary and Secondary Education, 2025):

- a. Faith and devotion to God Almighty;
- b. Citizenship;
- c. Critical reasoning;

- d. Creativity;
- e. Collaboration;
- f. Independence;
- g. Health; and
- h. Communication.

Optimizing teaching-learning in schools is influenced by many factors, including the availability of adequate infrastructure. In the 2024/2025 academic year, there are 14,687 Senior High Schools (SMA) serving 5,401,294 students. Specifically, there are 14,657 libraries in SMAs, meaning 99.79% of SMAs have a library (Pusdatin, 2025). Libraries function as educational vehicles to enhance the nation's intelligence, aiming to provide services to users, increase reading interest, and expand insights and knowledge to enlighten the nation's life. With nearly 100% of SMAs having libraries, the opportunity to improve PISA scores, National Assessment scores, Academic Ability Test scores, and Education Reports is very large.

How Are School Libraries Being Utilized Today?

In the era of the industrial revolution 4.0 and society 5.0, students can quickly access information from digital media. However, until now, libraries have not been popularly utilized to meet students' needs. Generally, SMAs have conventional libraries where the library is understood as a room/building located within the school. In fact, the library is an inseparable part of the learning process. Its function as a learning resource is

limited by walls, chairs, shelves, and tables. If we want students to be interested in making the library a learning resource, it is time to shift the paradigm of the library as a physical barrier (floors, walls, ceilings) towards developing information and communication technology-based library services. All students should be able to access various information from anywhere and at any time to enrich their knowledge and insights. This aligns with Masnezah's (2002) view in Suharti (2019) that a digital library is a large and organized collection of information, digitized in various forms (combination of text, images, sound, and video) that allows information retrieval anytime and anywhere through the concept of a global communication network and maximum use of information technology. However, with libraries existing in almost all SMAs, why hasn't the acceleration of improving student learning outcomes met expectations? Where are the obstacles, challenges, weaknesses, or threats to such acceleration? Why is the physical building of the library not always directly proportional to the improvement in learning outcomes?

There are several factors that can be the root causes:

- a. Library facilities exist, but literacy has not yet become a culture among students. This makes the library more like a "book warehouse" than a learning resource center.
- b. Generally, SMAs are fixated on conventional libraries and do not yet have many digital libraries. This is an obstacle because students need quick access to various knowledge information. On the other hand, when aiming to develop students' critical thinking and creativity, students need data, books, journals, or other relevant information sources quickly.

- c. Reading materials in the library are less relevant to the curriculum or to supporting the formation of 21st-century skills.
- d. Limited competence and number of librarians. Library management is not yet considered “urgent” to be managed professionally. Many SMA libraries are still managed by teachers with additional duties, not professional librarians, even though teachers already have heavy workloads in planning, implementing, assessing learning, and guiding students. Teachers’ workload is regulated at a minimum of 24 to 40 face-to-face hours per week, with a total of 37.5 professional working hours per week including additional duties. Is this additional duty interpreted as teachers also being assigned as librarians? In practice, the librarian position is generally filled by teachers who lack teaching hours. These teachers have limitations as competent librarians.

Digital Literacy Centralization

Students need easy access to relevant and quality information. Centralization of digital literacy through digital libraries is an appropriate strategy where all information, books, teaching materials, etc., are centralized in one digital platform (hub) managed by a librarian. The librarian curates all learning resources that can be accessed digitally by students. The advantages of centralizing digital literacy through digital libraries include:

- a. Efficient collection access where each student has a single account (Single Sign-On) to access digital textbooks, journals,

e-books, and various materials that can enrich student knowledge.

- b. Librarians can control the quality of information entering the digital library (through curation).
- c. Digital libraries can be connected to learning platforms (e.g., Google Classroom) and make it easier for teachers to provide assignment references. Can monitor student reading interests so schools can track trends in books students are interested in, the number of students accessing them. This data is used to answer whether a literacy culture has been established in the school. Cultivating a love of reading can be done by providing easily accessible, diverse, relevant, and quality reading materials.

Basically, libraries have national standards used as references for library organization, management, and development, which consist of standards for library collections, facilities and infrastructure, library services, library personnel, organizing, and management. Library collections must be selected, processed, stored, served, and developed according to user interests while considering information and communication technology developments. Each library develops services in accordance with technological advancements to meet user needs. Library personnel consist of librarians and technical staff, with librarians required to meet national qualifications, and technical tasks may be performed by librarians as needed. Furthermore, libraries are required to have collections of mandatory SMA textbooks, develop other collections supporting curriculum implementation, establish

ICT-based library services, and allocate at least 5% of the school's operational budget (excluding personnel and capital expenditure) for library development. Importantly, a digital library does not simply mean digitizing all conventional library resources, but rather that educational transformation can be supported through digital libraries.

Libraries can cooperate with stakeholders to improve services, both in terms of the number of users served and the quality of library services. Cooperation is carried out by utilizing information and communication technology-based libraries. Community involvement in libraries also occurs in the establishment, organization, management, development, and supervision of libraries.

Under conditions of limited internet access and quota issues, schools cannot fully build digital libraries. Students still need a combination of conventional and digital libraries. The need for users to access information sources from anywhere and at any time can answer information needs. Currently, there are schools that have started to develop digital library systems independently. However, they face obstacles such as: a) non-uniform data formats; b) legal issues related to copyright of digital works; c) non-standardized technology infrastructure; d) service quality not yet well measured; and e) incompetent librarians.

On the other hand, the centralization of digital literacy through digital libraries also faces several obstacles, including the need to guarantee the security of users' personal data, the reality that not all students have devices or that their device specifications vary widely when accessing digital learning resources through the school's

digital library, the level of technology literacy competence among librarians, limited school infrastructure, and the limited ability of schools to provide free internet access to all students within the school environment.

Digital Library as Service Transformation

According to Ariwiguna (2026), the business process for organizing a school digital library is as follows:

A. Stage 0 (no library yet)

- No library collection
- No library room or facilities available
- No library services
- No library staff or person in charge
- Not included in school planning and policy
- No collection and service management system

B. Stage 1 (basic library)

- Basic book collection supporting learning available
- Simple reading room or corner with bookshelves available
- In-house reading and simple borrowing services begin
- A teacher or staff member assigned to manage the library
- Library begins to be recognized as a learning support service in the school
- Collection and borrowing management done manually

C. Stage 2 (organized library)

- Collection grows and begins to be classified according to learning fields or needs
- Library room more organized with adequate reading and storage facilities
- Borrowing, reference, and literacy activity services begin to run more structured
- Library staff with clearer division of tasks
- Library included in school program planning and literacy activities
- Collection management begins using more systematic recording

D. Stage 3 (hybrid library)

- Collection includes printed books and begins to be supplemented with digital sources such as e-books and digital learning materials
- Internet access and devices available to support use of digital sources
- Library services include online catalogs and access to digital learning resources
- Library staff have basic skills in managing digital systems and services
- Library begins to integrate with learning activities and library networks

- Collection management begins using library automation systems

E. Stage 4 (digital library)

- Collection develops into a hybrid collection including e-books, digital databases, and school work repositories
- Digital infrastructure available to support online access to library services
- Library services accessible via online catalogs, digital repositories, and digital reference services
- Library staff have information literacy and digital library system management skills
- Library organization integrated with learning and supported by partnerships with digital source providers
- Library management based on digital systems with periodic monitoring of service utilization

School libraries should have facilities and infrastructure that are utilized and developed in accordance with information and communication technology advancements. Implementation of library automation systems is an absolute requirement in digital libraries. Many library automation systems have been built, but the things to consider when building a digital library are: a) implementation of information and communication technology in library management; b) collections: electronic and non-electronic/conventional; c) hybrid library; d) continuous system development and maintenance processes.

According to Wicaksono, H. (2026), the steps to build a digital library include the implementation of a library automation system—such as SLiMS (Senayan Library Management System), which was developed starting in February 2007 initially for the automation needs of the Ministry of National Education library and later released as open source software under the GPL v3 license—followed by building a school repository, networking within the Indonesian library network, and finally building a union catalog for Indonesian libraries.

Placing teachers as librarians has two sides of the same coin; positively, empowering teachers ensures the availability of human resources to manage the library, but the negative side is the limited number of teachers competent as librarians. Strategies to build the competence of teachers serving as librarians include: teacher librarians receiving training in library management and automation, as well as design training to promote activities or new books on school social media and to train teachers to manage digital book collections so students can access them from anywhere; integrating library use into the curriculum by designing library activities that support classroom subjects; doing internships or comparative studies to A-accredited school libraries that have digital libraries; and building networks by joining librarian organizations and collaborating with school members (educators and students) or school committees.

Forms of Cooperation between Indonesian SMA Libraries and ASEAN Countries

Cooperation between digital libraries of Indonesian SMAs and ASEAN countries is a crucial step to build digital literacy centralization in schools. This collaboration can take the form of building digital networking with ASEAN countries, where Indonesian SMA libraries are given access to digital repositories of libraries in other nations, although librarians must curate the materials to ensure they match student needs. Another form is establishing sister school library programs between Indonesian SMAs and SMAs in ASEAN countries, enabling the exchange of information, e-books, and joint digital literacy activities. Additionally, ASEAN can help address legal issues regarding copyright by providing e-books and other learning resources that can be freely accessed by Indonesian SMA digital libraries and their students.

ASEAN countries can also assist in fulfilling the technology infrastructure needed to build digital libraries in Indonesia, as well as provide training for Indonesian SMA librarians to improve their competence. Furthermore, cooperation should include protection from international cyber attacks, such as student data hacking or the spread of computer viruses between countries. Ultimately, these collaborative efforts aim to support the successful building of digital libraries in Indonesian SMAs, thereby accelerating the centralization of digital literacy in schools.

Digital Ecosystem Center

Digital libraries in SMAs are meant as a service transformation to shift the paradigm of the library as a book warehouse rarely visited by users/students into a digital ecosystem center. This transformation does not necessarily digitize all learning resources from paper (physical) to digital, but most importantly transforms students to consume and manage knowledge. The barriers of conventional library operating hours become ‘anytime’ and ‘anywhere’ students can access e-books or other learning resources. Librarians also transform from ‘book keepers’ to content curators and literacy navigators for students who need guidance in effective information retrieval techniques on search engines and databases. Digital libraries transform school physical spaces into virtual rooms or utilize certain areas in conventional libraries for content creation or digital data-based projects. The existence of digital libraries is expected to accelerate the improvement of student learning outcomes. Building digital libraries requires cooperation from stakeholders and ASEAN countries.

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CHAPTER 3

DIGITAL INNOVATION, TOURISM, AND SOCIO-CULTURAL INCLUSION

Innovative Strategy in Tourism Industry: Integrating AI and IoT to Enhance Operational Efficiency and Sustainability in Bali

Putu Ayu Suniadewi

Bali's tourism faces environmental challenges; this article proposes AI and IoT within an "e-green business" framework to enhance sustainability. Key applications include smart automation and blockchain incentives, positioning Bali as a model for smart, sustainable tourism where operational excellence and cultural integrity coexist.

Introduction

Tourism and hospitality are among the most prominent global industries, contributing US\$11.1 trillion to global GDP which increase around 12.1% year-over-year. By 2034, the industry is projected to contribute US\$16 trillion to the global economy and provide employment to 449 million people. Considering the jobs provided by the tourism industry, education plays a crucial role in meeting the industry's growing employment needs (WTTC, 2024). Over the past few decades, Bali as Global Travel Destination 2025 renowned for its thriving culture, spiritual legacy, and breath-

taking natural beauty—has seen a sharp increase in tourism. Although this expansion has resulted in economic success, it has also placed a great deal of strain on the island's limited resources, creating problems including water scarcity, rising trash production, surges in energy use, and worries about maintaining local culture and community well-being.

Artificial intelligence (AI) is revolutionizing a number of industries by lowering prices, increasing efficiency, and offering new solutions. The term artificial intelligence (AI) describes the creation of computer systems that are capable of learning, problem-solving, perceiving, making decisions, and comprehending language—tasks that normally require human intelligence (Wattenberg, 2019). Artificial intelligence (AI) systems analyse vast volumes of data using a variety of methods, including as computer vision, machine learning, deep learning, and natural language processing, and then utilize the results to anticipate or make judgments.

Innovative solutions that can improve operational efficiency and advance social and environmental sustainability are desperately needed in response to these growing issues. The real-time data, fine-grained control, and predictive powers needed to successfully handle complicated sustainability concerns are frequently absent from traditional management systems. A prospective paradigm shift is presented by the rise of cutting-edge technologies like artificial intelligence (AI) and the internet of things (IoT). AI has the potential to revolutionize decision-making processes through its ability to analyse complex data, recognize patterns, and create predictive models.

Together with the Internet of Things (IoT), which makes it possible to gather data in real time from a large network of physically connected devices, these technologies can offer previously unheard-of insights into trash production, resource consumption, visitor behaviour, and system efficiency. The potential for this integration to transform hotel management could allow establishments to run more effectively, lessen their environmental effect, and improve the visitor experience in a way that is genuinely sustainable. This study focuses on the particular context of Bali, where the use of AI and IoT must not only address environmental issues but also be in line with the island's dedication to community involvement and cultural authenticity.

The integration allows for unprecedented transparency in areas like actual trash production volumes, precise real-time resource consumption, nuanced visitor behaviour patterns like how guests interact with in-room energy controls, and holistic system efficiency across an entire property. This convergence forms the bedrock of an e-green business operation, where every aspect of the hotel's physical environment is digitally monitored, measured, and optimized. The output of such AI innovation is not merely cost savings, but a quantifiable reduction in environmental impact, driven by intelligent, automated adjustments that minimize waste and maximize resource utilization.

In this study, the strategic use of AI and IoT must go beyond simply solving environmental problems, it must be carefully coordinated with the island's deep commitment to maintaining its valued community involvement and protecting its rich cultural authenticity. Bali's with e-green business concept, which is driven

by AI innovation, aims to create hotels that are not just smart but also community and culturally intelligent. This implies that AI-powered systems might give preference to sourcing from the travel and hospitality sector. The end result is a type of sustainable tourism that is ingrained in the local culture, guaranteeing that technical development supports Bali's enduring spirit and ecological well-being.

Furthermore, the research endeavours to explore the role of AI and IoT in improving the guest relationship especially while visit tourist attraction in Bali. Concurrently, it aims to assess how these advanced technologies can enrich the visitor experience by promoting sustainable behaviours while diligently preserving Bali's unique cultural authenticity. Ultimately, this study strives to develop a practical, context-specific framework for the sustainable adoption and scalable implementation of AI-IoT solutions, empirically evaluate their tangible benefits in terms of productivity and cost reduction, and propose robust mitigation strategies for identified implementation barriers, thereby fostering a more resilient, responsible, and economically viable future for Bali's vital tourism industry. Data has been gathered from internet sources using a methodical research approach, with a focus on Google Scholar and Science Direct. The primary research items were "artificial intelligence," "AI and industrial applications," "machine learning," "internet of things," "AI and multiple industries," and a few other related search terms because the study primarily includes data about AI in industries. The dates, abstracts, titles, and journals of research articles were carefully examined before being added to this study. Here, only information with an English provenance

has been included. Furthermore, in order to shed light on the rapid advancement of artificial intelligence in recent years, this study has mostly examined research done within the last five years (2021-2025).

AI-based Intelligence

AI-based intelligence and computer technologies come together at one point in the Industrial Revolution 4.0 to form a smart manufacturing system. The goal of the system is to create human-like machines, targeted intelligent networks, and functions. This industrial revolution is built on the foundation of AI, ML, and IoT, among other networked applications. Numerous industries benefit from these technologies, which have hundreds of applications across various sectors.

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AI is also being used in the sector to assist with planning, production, and demand cycle forecasting and assessment, which promotes effective management of both human and natural resources. AI also supports enhanced processing and environmentally friendly manufacturing. Furthermore, it generates

product awareness for asset efficiency and personalization, as well as differential permutations to draw in customers.

A further significant use case is improved safety profiling and monitoring for everyday products. Through contract tracing technology and scanning, it enables personnel to keep an eye on AI has made it possible to find long-term solutions for identifying the root cause of problems and detecting errors in existing operations, reducing downtime and ensuring a higher final product and process quality. Sometimes humans could overlook or misunderstand the relevant information that it offers. As previously explained, the most common use of it is still in design and manufacturing. AI handles the design and processing procedures in terms of deadlines, financial restrictions, and product specification design by performing iterative design processing based on algorithms and complete designs. AI and ML aim to address the microscope flaws and provide correct information exchange as a result. As previously said, its use in design and manufacturing continues to be the most prevalent. AI handles the design and processing procedures in terms of deadlines, financial restrictions, and product specification design by performing iterative design processing based on algorithms and thorough designs.

AI systems also use digital tools like cameras, video cameras, mobile devices, scanning devices, and teaching apps to find flaws. Additionally, it inspires the younger generation to develop their own innovative techniques; nonetheless, there is always a chance that AI will be misused and applied incorrectly in various areas. On the other hand, AI's quality assessment methods provide a platform for computer-based vision recognition, process optimization, and

quality assurance product assessments. Process optimization is carried out in a clean and efficient manner in fields including robotics-based recognition systems, machine vision, and machine education language modelling. Robotics has made market and inventory administration simpler with the aid of the most recent advancements in machine learning production. If left to humans alone, smart management attempts to break the patterns associated with situations that are prone to errors.

Artificial Intelligence (AI) in the tourism sector is no more a sci-fi idea; rather, it is a current reality that is drastically altering how tourists organize, reserve, and enjoy their trips. Fundamentally, artificial intelligence (AI) provides an unmatched capacity to handle enormous volumes of data, identify trends, and automate difficult jobs, resulting in notable enhancements in productivity, customization, and client happiness. From original inspiration to post-trip involvement, this change encompasses the whole traveller journey, making it more seamless and pleasurable for everyone.

Hyper-personalization is one of the main strategic uses of AI in the travel industry. Tourism organizations may provide highly customized suggestions for destinations, activities, lodging, and even eating alternatives by using AI algorithms to examine client data, including past bookings, search history, preferences, and even social media activity. This degree of personalization goes beyond general recommendations, producing distinctive itineraries that have a profound impact on each tourist, increasing happiness and promoting return business.

AI is also essential for increasing the operational effectiveness of travel agencies. Businesses can predict demand, revenue, and

business trends with surprising precision thanks to AI-powered predictive analytics. This makes it possible to implement dynamic pricing methods that optimize revenue while preserving competitive rates by instantly modifying rates in response to variables like seasonality, booking trends, and rival pricing. Additionally, AI can automate repetitive duties like staff scheduling, check-ins, and booking procedures, freeing up human personnel to concentrate on more intricate, guest-focused services.

AI is also highly effective in improving customer service, which is another important strategic sector. Travelers can get instant, round-the-clock assistance from chatbots and virtual assistants driven by AI, which can answer frequently asked questions, provide real-time information, and offer recommendations. This greatly lessens the effort for human employees while simultaneously increasing client satisfaction by providing prompt and convenient help. AI can also translate languages in real time, removing obstacles to communication and opening up travel to a wider audience. AI enhances safety and security in the travel industry in addition to direct client interaction. In order to detect possible dangers and expedite security procedures, sophisticated AI algorithms can evaluate data, guaranteeing safer travel conditions. For example, AI is being investigated for intelligent baggage handling systems in airports with the goal of automating procedures and reducing lost luggage. Travellers' confidence and trust are increased by this emphasis on security, even if it frequently takes place behind the scenes.

AI provides places with effective marketing and promotion options. Destination marketing companies can develop highly

focused campaigns by using AI to better understand visitor behaviour and preferences through the analysis of traveller data and market trends. AI can even produce interesting text, image, and video content for promotional materials, increasing the effectiveness and impact of marketing campaigns that target particular audience segments. However, a clear plan that takes into account both technology deployment and human integration is necessary for the effective use of AI in the travel industry. Initial capital expenditures, upkeep, software upgrades, and—most importantly—staff training all need large financial outlays. It is critical to overcome organizational resistance to AI adoption and foster an experimental culture. A phased strategy can help reduce risks and show incremental results, beginning with smaller, validated AI tools before moving on to larger operations.

The ultimate goal of the strategic use of AI in the travel and tourism sector is to build an ecosystem that is more adaptable, individualized, and effective. The goal is to enhance human connection rather than replace it, freeing up staff members to concentrate on providing personalized, compassionate services that AI cannot match. Tourism companies may create new revenue streams, improve the tourist experience, and gain a long-term competitive edge in a global industry that is changing quickly by carefully implementing AI.

Artificial Intelligence (AI) is driving innovation in the hotel sector, radically changing conventional operations and raising the standard of the visitor experience to previously unheard-of heights. By incorporating AI into many aspects of hotels, resorts, and associated services, this paradigm change goes beyond

simple automation to produce intelligent, predictive, and highly customized settings. The goal is to use AI to improve productivity, lower expenses, expedite procedures, and eventually increase customer loyalty and happiness.

The ability to customize visitor experiences is among the most significant advancements. In order to predict individual needs and customize services appropriately, AI systems examine a vast amount of guest data, including past visits, preferences, booking trends, and even sentiment on social media. This can manifest as personalized room settings (lighting, temperature, entertainment), customized recommendations for local attractions and dining, or even proactive offers for services the guest might appreciate. AI-powered virtual concierges offer round-the-clock support, providing prompt responses and suggestions that replicate human communication but with unmatched speed and accessibility.

Another essential component of AI-driven innovation in the hospitality industry is operational efficiency. Numerous repetitive operations can be automated by AI-powered systems, including inventory management, cleaning scheduling based on occupancy and guest preferences, and check-ins and check-outs using facial recognition or smartphone apps. By relieving employees of repetitive duties, this automation improves productivity and service quality by freeing them up to concentrate on more difficult problem-solving and direct client interaction. In order for hotels to manage personnel levels and resource allocation, predictive AI technology is also essential for demand forecasting.

AI innovation is revolutionizing revenue management. AI-powered dynamic pricing techniques evaluate rival pricing,

historical booking data, current market conditions, and even outside variables like local events or weather to optimize room rates. This maintains competitiveness while guaranteeing the highest revenue per available room (RevPAR). By comprehending visitor preferences and providing tailored promos for spa services, dining experiences, or improved hotel categories, AI may help spot upselling and cross-selling opportunities.

The Internet of Things (IoT) and artificial intelligence (AI) are combining to create “smart rooms” and intelligent hotel environments. Using voice commands or smart devices, guests can adjust the lighting, temperature, and entertainment systems in their rooms, making their stay more convenient and customized. Additionally, IoT sensors driven by AI can track the wear and tear of equipment and anticipate maintenance requirements before malfunctions, reducing operating downtime and expensive repairs and enhancing the seamless visitor experience. AI also improves security and safety in lodging facilities. AI-powered monitoring systems are able to spot odd activity or possible dangers and notify employees to reduce hazards. Facial recognition for check-in and automated access control further improve security while streamlining procedures. This creative use of AI gives tourists peace of mind and makes the place safer for both guests and employees.

AI innovation is radically changing tourism marketing business strategies, shifting from broad, untargeted efforts to highly customized, data-driven plans. The main goal is to use AI’s analytical powers, automation potential, and capacity to provide hyper-tailored experiences in order to better draw in, interact with, and keep customers. In a fiercely competitive worldwide

industry, this tactical change enables tourism companies to increase conversion rates, maximize marketing expenditures, and foster more brand loyalty.

One of AI's primary strategic outcomes in travel marketing is personalization. Travel packages, activities, lodging options, and destinations are recommended by AI-powered recommendation engines based on user preferences and historical behaviour. Because it presents options that are both relevant and appealing, this hyper-personalization—which is frequently provided through dynamic content on websites, emails, or mobile apps—increases the likelihood of conversion. For example, an AI might suggest an adventure tour to a user who has been booking outdoor activities in the past, or a family-friendly resort to a user who often looks for family vacations.

A Significant innovation in customer involvement is also fuelled by AI through automated communication channels. AI-driven chatbots and virtual assistants respond to consumer questions instantly and around-the-clock on a variety of platforms, including social media and websites. By providing instant information and booking help, this enhances customer service while also enabling companies to collect useful customer data from these exchanges, which may be utilized to tailor future messages and improve marketing tactics. Tourism marketers may predict future demand and trends with the help of predictive analytics, a fundamental AI capacity. Artificial intelligence (AI) can estimate peak seasons, spot new travel trends, and anticipate possible disruptions by examining historical data and market indicators. By introducing promotions at the right times, dynamically modifying prices, and more efficiently

allocating marketing resources to maximize reach and return on investment (ROI), firms may optimize their marketing strategies.

AI also improves the efficacy and efficiency of marketing initiatives. Platforms powered by AI are able to customize ad creatives based on real-time performance data, automate ad bidding, and optimize ad placement across several media. This guarantees that marketing communications with the most impactful content reach the correct audience at the right time. Generative AI is also revolutionizing content generation, saving marketing teams time and money by creating captivating blog posts, social media updates, and email newsletters.

Data protection and ethical AI use are also important factors to take into account when developing a successful AI innovation strategy for tourism marketing. Establishing trust with customers requires being open and honest about the gathering and use of data. Purchasing the appropriate AI tools, educating marketing teams on how to use them, and cultivating an environment that values ongoing learning and adaptability are all essential to optimizing AI's advantages in this fast-paced sector. The use of AI by tourism marketers ultimately enables them to develop more impactful, timely, and relevant marketing that increase reservations and foster enduring relationships with tourists.

Numerous facets of this revolutionary technology have been the focus of in-depth research and study on artificial intelligence (AI). The goal of AI research is to expand the capabilities of machines in terms of perception, cognition, and decision-making, from creating sophisticated machine learning algorithms to creating intelligent systems. Artificial intelligence researchers are looking

into methods to increase the precision and effectiveness of machine learning systems. They are investigating novel approaches and models that can better generalize, manage massive datasets, and make AI systems easier to understand. Scientists are also working to create AI algorithms that can learn from sparse data or adjust to shifting conditions, allowing robots to gradually get better over time.

Additionally, multidisciplinary AI research is accelerating as scientists from many disciplines work together to address challenging problems. To learn more about human intelligence and behaviour, AI researchers are collaborating with specialists in psychology, neuroscience, sociology, and other fields. The goal of this interdisciplinary approach is to develop AI systems that are not just intelligent but also comprehend and communicate with people more like humans.

Smart Tourism Destinations (STDs) are being shaped and elevated to new heights by artificial intelligence (AI), which is an essential force. STDs may maximize operational efficiency and transform destination management by utilizing AI technologies including as machine learning, natural language processing, and computer vision to offer immersive and customized experiences for tourists. The ability of AI to gather, examine, and comprehend vast amounts of data gives STDs the ability to glean insightful information about visitor preferences, habits, and new trends. Setting a new benchmark in smart tourism, this priceless data becomes the basis for providing customized recommendations, allocating resources as efficiently as possible, and eventually improving the entire guest experience.

Smart tourist destinations employ a number of tactics to improve the trip and reduce any problems that can result in unpleasant encounters. These tactics include establishing an early feedback loop, giving the public access to real-time information, and enhancing customer service in areas like lost luggage, security issues, lengthy lines, and waiting periods. In order to meet the needs of each individual visitor, smart tourism destinations must provide individualized services. These services include delivering pertinent information to make travel planning easier, providing real-time data based on user profiles, guaranteeing that visitors have access to the most recent information for exploring the destination, and setting up a trustworthy feedback system to monitor visitor experiences and collect insightful data. Smart tourism locations are using technology like artificial intelligence and the Internet of Things (IoT) for a number of important reasons. These technologies allow for greater transparency, cost savings, safe information exchange, and confidence. They provide direct communication and equal authority between clients and service providers by doing away with the need for middlemen. Smart tourism destinations allow local service providers and big and small businesses to sell their products and services, promoting diversity and economic growth.

The combination of these technologies improves the overall quality of travel help by giving visitors access to current information and real travel experiences. To enhance visitor services and guarantee a smooth travel experience, smart tourism destinations can make use of technologies like traveller surveillance, baggage tracking, expedited check-in processes, and travel insurance. Some

travellers may prefer peer-to-peer cryptocurrency transactions since they provide advantages including speed, security, and independence from third parties when paying for travel-related services. Additionally, integrated ranking and review systems enable travellers to offer genuine comments and assessments, supporting other travellers' choices. Customized services are made possible by these technologies' capacity to provide reliable and accurate data, which raises visitor pleasure and improves their overall experience.

Combining AI and blockchain technology

Combining AI and blockchain technology, which enables the creation of incentive schemes based on cryptocurrency, is one efficient way to encourage sustainable behaviour. These technologies can be combined to create safe, transparent platforms that monitor and incentivize sustainable behaviour in travel locations. There are incentives for both tourists and residents to embrace eco-friendly practices, such as conserving energy and water, using eco-friendly modes of transportation, recycling and reducing waste, and shopping at sustainable local businesses. This system encourages people to make more sustainable decisions by allowing them to earn digital tokens or incentives that can be used for savings on local goods, lodging, or attractions.

AI makes it possible for visitors and local service providers to interact directly, which benefits the neighbourhood. By establishing direct connections, AI-powered platforms and applications enable local companies, craftspeople, and service providers to sell their

goods and services to tourists directly, eschewing middlemen. This empowers local business owners and fosters diversity and economic prosperity in the neighbourhood. By leveraging AI to showcase the unique offerings and experiences available within the local community, destinations enhance the visibility and marketability of local businesses, creating economic advantages for the local community.

AI enables direct communication between local service providers and tourists, which is advantageous for the neighbourhood. AI-powered platforms and applications allow local businesses, artisans, and service providers to sell directly to tourists, bypassing intermediaries, by establishing direct connections. This promotes neighbourhood diversity and economic growth while empowering local business owners.

Destinations increase local companies' visibility and marketability by using AI to highlight the distinctive experiences and offers found in the area. In addition to fostering the growth of small businesses, this guarantees that visitors will receive genuine, superior services catered to their requirements. In the end, AI-powered face-to-face interactions benefit the local economy, promote sustainable development, and deepen the relationship between tourists and locals. This creative strategy guarantees the neighbourhood's continued vibrancy, inclusivity, and economic stability.

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ASEAN Socio-Cultural Pillar: Education, Cultural Exchange, and Digital Inclusion in the Era of Global Collaboration

Mamdukh Budiman

The ASEAN Socio-Cultural Pillar promotes an open, competitive, and people-centered regional society through education, cultural exchange, and digital inclusion. Education unites via standardized curricula and student mobility; cultural exchange preserves traditions and fosters harmony; digital inclusion faces access and literacy gaps. Initiatives like ASEAN Digital Masterplan 2025 and ASCC Blueprint drive progress. Success requires technology integration, youth engagement, and inclusive policies to build a resilient, adaptive community.

Introduction

The socio-cultural pillar is one of three pillars of the ASEAN Community, in addition to the political-security and economic pillars. This pillar emphasises the importance of creating a community that is socially oriented, people-centred, and inclusive. In this light, the cooperation among member states is channelled not only to economic development and political stability but also

to the human values, solidarity of understanding, and enriched cultural diversity that are unique to the Southeast Asian region. While regional integration and globalisation have cast an eye on ASEAN as a global stream, the socio-cultural pillar of ASEAN is all the more relevant. Education, cultural integration, and digital inclusion – these are the three strategic vectors that uphold it. At the core, education is integral to developing ASEAN’s youth who are regional and globally minded citizens. At the same time, cultural exchange enhances mutual understanding and tolerance between countries and is an important form of diplomacy. On the other hand, digital inclusion serves as a bridge to help address the fact that many, if not most, of us are left behind in a world of rapid digital transformation.

The socio-cultural pillar also shows that ASEAN wants to build a global community that is innovative and competitive. The ASEAN Socio-Cultural Community (ASCC) is responsible for creating a good environment for people to grow and develop, making sure that people are healthy, have jobs, and are treated with respect; for social justice and protecting the rights of disadvantaged and marginalised groups; for protecting traditional knowledge and cultural heritage; and for protecting the environment.

For this to happen, cooperation between different sectors and countries is important, especially when it comes to common problems like climate change, migration, and technological changes. So, the socio-cultural pillar is not just a result of the RPC; it is an important part of ASEAN’s nation-building process. In a time of globalization when the world is becoming more interdependent, it is important to move this pillar forward so that

regional integration is not only good for the economy but also helps with social cohesion and cultural longevity in Southeast Asia.

Education as a Catalyst for ASEAN Social Integration

Education is a key tool for the development of an amiable and competitive regional ASEAN identity. Southeast Asia is immensely diverse in terms of languages, social groups, and culture. Educating people to be tolerant, joining, and helpful to one another is a fine use of education. Abdurachman (2025) describes that ASEAN has facilitated the implementation of Sustainable Development Goals (SDGs) in education by working together. Those standards include curriculum harmonisation, cooperation policies, and collaboration among members of the state. Education can transform society by uniting people and making the differences between nearby communities less visible. It is not merely a means to get people better.

One way of doing this is to establish exchange student programs and offer scholarships between ASEAN countries. The ASEAN International Mobility for Students (AIMS) and ASEAN Scholarships programs offer scholarships for students to study in an adjacent country to experience another culture while building friendships with people from other countries. Farrugia, C (2020) suggested that student mobility in the ASEAN region has been transformed as a result of a number of regional initiatives, such as ASEAN International Mobility for Students (AIMS) and cross-border scholarship programs. These programs may be beneficial in two ways: as they make it easier for students to get a college

degree, and they also facilitate people from other countries coming together to study, which is good for helping people from different cultures and backgrounds understand one another. They added that for enhancing interregional cooperation, region-to-region understanding, and the development of professional networks supporting regional development, student mobility is very important. This program allows students to learn in other ASEAN countries, stay with people from all over the world, and experience local and global matters on their own.

They will learn not only about academics but also about each other and how they can work with one another, which is very crucial since we are in this ASEAN region together. Hanisdah Saikim (2023) reveals that the students in ASEAN member countries have many opportunities. The ASEAN International Mobility for Students (AIMS) program is designed to enable students to study something new in college. This helps them forge relationships with people from other cultures, develop skills that are transferable across the globe, and expand their academic horizons. Their study showed that the AIMS program contributed to students' enhanced personal and professional growth, such as better creativity, well-mannered English writing skills, and benefits for global job preparations.

The education curriculum is to be brought into line, and this will also constitute a significant objective to enhance social integration as well as the mobility of pupils. It's been established that introducing multicultural themes to the school curriculum helps children to understand and accept other cultures better, as well as prepare them for the post-Cold War world. Madhakomala

(2025)tolerance, and students' readiness to face the global era. However, its implementation still faces obstacles such as the dominance of majority values, limited teacher competence, and policies that are not fully inclusive. Systematic policies and strategies are needed to ensure equitable and diversity-responsive education”,”author”:[{“dropping-particle”：“”,”family”：“”Madhakomala”,”given”：“R”,”non-dropping-particle”：“”,”parse-names”：false,”suffix”：“”},{“dropping-particle”：“”,”family”：“”Syafrudin”,”given”：“Lutfia”,”non-dropping-particle”：“”,”parse-names”：false,”suffix”：“”},{“dropping-particle”：“”,”family”：“”Abdullah”,”given”：“Sultan Fadhlly”,”non-dropping-particle”：“”,”parse-names”：false,”suffix”：“”}],”container-title”：“International Journal of Advanced Multidisciplinary”,”id”：“ITEM-1”,”issue”：“2”,”issued”：{“date-parts”：[[“2025”]]},”page”：“236-242”,”title”：“Multicultural Curriculum as a Strategy for Strengthening Intercultural Literacy in Responding to Global Challenges”,”type”：“article-journal”,”volume”：“4”},”suppress-author”：1,”uris”：[“http://www.mendeley.com/documents/?uuid=b8b07c91-229a-4828-b49d-2ec4ac62cf56”]]},”mendeley”：{“formattedCitation”：“(2025, supports that a multicultural curriculum is a better approach to intercultural literacy and enforces the teaching of being tolerant in a society with great diversity. But there are still issues with putting it into practice, including the reality that most people have the same taste and not all teachers are good at their jobs. A Multicultural Curriculum Language specialist, Imam Sibaweh (2023) indicates that a useful approach is to design an inclusive and multicultural curriculum, which will help in developing the responsiveness of classes for the different needs of students as well as motivation

and sense of belonging in learning. This harmonising is supposed to make society, over time, more homogeneous and therefore less prone to conflicts between different people.

Students in ASEAN can speak more than one language. Through this method, students learn to appreciate other cultures and gain the social skills and empathy they need to live in a global world. Recent research suggests that combining multicultural education aims with digital technology may increase student participation and better support inclusive classrooms. And so, education is really not only a means to improve the quality of life of individuals within the nation, but it's also a big part of making an ASEAN community – united in diversity. Oyetade, K (2025) argues that when integration of such technologies like AI occur in education settings, it should embrace cultural diversity to prevent a reinforcement of the existing biases. They added: “Growing up in a house where sitting still and being quiet is considered respectful might also be an influence.” They suggested that tech-oriented teaching that draws on culture could help draw more students in, help them understand one another, and generally make classrooms feel like places where everyone belongs. While AI and digital technologies developed from a cultural inclusion perspective can indeed successfully cater to diverse student identities and encourage social cohesion in the global educational spectrum, their findings suggest that this will only occur if they account for these students’ unique backgrounds, experiences, values, and needs.

Cultural exchange: Bringing people from various cultures together

People in the ASEAN area have found that festivals that highlight culture, art, and local history are a good way to communicate to each other. ASEAN Cultural Week and traditional art exhibits are more than simply entertaining. They are also locations where individuals from various cultures may connect and learn from one other, which helps people in the community respect each other better. David Ocón, (2021) noted that arts and culture festivals in ASEAN are vital for creating trust between communities, boosting multilateral collaboration, and supporting the notion of regional integration via cultural expression that embraces everyone

The arts community and cultural groups, on the other hand, assist in bringing people together at the regional level. They build social networks that bring ASEAN communities together by letting artists work together, learn about each other's cultures, and work with other nations. Sanjukta Das (2024) languages, faiths, and cultural traditions in Southeast Asia on the political, economic, and social aspects of ASEAN's integration efforts. The primary objective of the Association of Southeast Asian Nations (ASEAN) believes that the numerous ethnic and cultural groupings in Southeast Asia make it challenging to bring people together, but they also make it simpler. She also notes that cultural clubs enable individuals from diverse backgrounds to get to know each other better by putting on events and activities that teach people about one another's cultures. But in the digital era, it is not simple to keep local culture alive. Digital technology, on the other hand, makes it simpler to capture and disseminate cultural material through online

channels. When digital media is misused, it may also contribute to the commercialisation and distortion of cultural values. Phra Thep Wachirawimol (2024) states that in the digital era, we need to conserve local arts and culture in a way that works for both old and new ways of doing things. In a world that is growing increasingly international, people, artists, and governments must also work together to keep culture alive.

And so, in ASEAN, cultural exchange is not merely “to learn other countries’ traditions,” but to develop relations of respect and cooperation between societies. In an era when people across the globe establish cooperation, cultural power is a significant social asset in composing peaceful and stable regional communities.

Digital Inclusion—Equalising Everyone’s Access to Information

The digital economy has had a deep impact on the social, economic, and cultural structure of ASEAN countries. The rapid progress of information and communication technology (ICT) not only accelerates the transport of information, it also holds new perspectives for learning, services to citizens, or participation in society. The time of digital technology: The digital technology period is a long-wave phase in the history of culture and society that is dominated by algorithms and information automation. It alters the way civilisations speak to each other and obtain their information (Hilbert, 2020). This change would make ASEAN’s regional integration more open to everyone and centred on technology.

The digital gap is still a big challenge, especially for people and places that are currently behind or about to fall behind. To prevent making socioeconomic imbalances worse, digital inclusion policies need to be properly established and put into operation. Ainscow (2020) that of finding ways of including all children in schools. In economically poorer countries this is mainly about the millions of children who are not able to attend formal education (UNESCO, 2015 asserted that policies for marginalised populations, such as children from impoverished areas, minority children, and those living in hazardous or isolated locations, should be amalgamated with access to educational technology. We need to use a strategy of social justice and inclusion to make sure that no one is left behind in the digital shift.

Technology for education and culture: Working together and/or withering apart. For digital inclusion to remain at healthy levels, regions will need to engage in technology collaborations. According to Pozas & Letzel-Al (2023) working together with other teachers or using schools to deliver differentiated CBA teaching may be a helpful means to foster an inclusive school system and address the diversity in their students. Naturally, ASEAN should cooperate across borders to ensure everyone in the region has access to a quality education. This is about constructing learning platforms, making digital information digitally accessible, and teaching people to use digital technologies. We have to create a digital world that's open and fair for everybody because technology is advancing so quickly.

Simply giving people devices and an internet connection does not ensure digital inclusion. The aim is to ensure that

children can use technology in a way that keeps them safe and productive. That's where digital literacy will become increasingly important, especially for young people and vulnerable individuals. Warschauer, M (2010), author of "At the Intersection," notes that supplying technology to people who do not have digital literacy can actually exacerbate inequalities and prevent those marginalised from joining in.

A digital inclusion plan will only succeed if people from all walks of life — including government, business, academia, and civil society — are involved. The ASEAN Digital Masterplan 2025 is a plan that shows how the countries of ASEAN are working together to make it easier for people to get technology and learn how to use it. Governments and regulators might try to eliminate unnecessary rules that delay these market processes. They might also support social programs that help people go online and learn digital skills, build trust in digital services, make rules and standards in ASEAN more consistent, and show people how useful digital services (ASEAN Secretariat, 2021).

Some of these activities are about how to utilise technology to make things more relevant to the region or to get people to think of new ideas. This sort of teamwork not only helps ASEAN become more connected digitally, but it also makes it simpler for individuals to use technology to share their culture and expertise. Digital inclusion is not only about being able to connect. It is also about harnessing technology to defend human rights, making it simpler to obtain information, and making the ASEAN community fair, open, and competitive. People need to work together across

old and new divisions to build a fair and lasting future for everyone. Digital inclusion is an important step in that direction.

Global Engagement: ASEAN in World Affairs

And building global networks through, for example, working with the likes of UNESCO, the EU, and the UN is very much part of ASEAN. ASEAN-UNESCO Afghanistan and UNESCO have partnered to enhance the promotion of education for peace and development through the 2024 Regional Policy Dialogue in Bangkok. This relates to the 2023 UNESCO Recommendation on Human Rights and Sustainability Education (UNESCO, 2024) Such a partnership is critical: there are still nearly 18 million children and youths in Southeast Asia who do not attend school. Another way that the ASEAN-European Union relationship functions is through the €9.3 million SCOPE-HE initiative (2024–2028). It is an extension of SHARE and concentrates on enhancing student mobility, green research, and TVE (ASEAN Secretariat, 2024c).

In the realm of cultural diplomacy, ASEAN has initiated the ASEAN Cultural Heritage Digital Archive (ACHDA), which digitizes more than 160 cultural heritage collections from Indonesia, Malaysia, and Thailand, with support from the Japan-ASEAN Integration Fund (JAIF, Japan-ASEAN Integration Fund, 2021). This project not only preserves cultural identity but also strengthens ASEAN's digital diplomacy on a global scale (Sang-hee Wi & Hee-soo Choi, 2025). Furthermore, the ASEAN Safe Schools Initiative (ASSI) program, supported by the European Union and Australia Aid, serves as a concrete example of cross-

country collaboration in building educational resilience against disasters (Asean.org, 2014).

One way to think about ASEAN's role in global cultural and educational diplomacy is through the idea of knowledge diplomacy (Knight, 2023). which puts working together based on giving and getting ahead of just using soft power. ASEAN is not only a beneficiary but also an active participant in making a lasting framework for international cooperation that is open to everyone. The AYVP youth volunteer program, AUN-ACTS, and SCOPE-HE are all examples of this.

ASEAN is investing a lot of money to reform education so that it can better cope with challenges throughout the world. The ASEAN Digital Masterplan 2025 seeks to use technology to enable kids from diverse nations to get to school and meet each other (ASEAN Secretariat, 2021). UNESCO is also working on the 2023 Recommendation on Education for Peace, Human Rights, and Sustainable Development. This will happen in June 2024 at a Regional Policy Dialogue in Bangkok. In a world where politicians are split, this talk highlights how crucial it is to have information for peace. It also advises schools in the Asia-Pacific area to teach kids about tolerance and sustainability (Bayerlein et al., 2024)there is a dearth of comparative empirical studies testing which norms exhibit the strongest connection. Moreover, peace is usually only measured in terms of the absence of violent conflict, neglecting its positive dimensions. This article uses fresh data from the World Values Survey to assess how different norms correlate with negative and positive measures of peace. It confirms that societal endorsement of democracy, tolerance, and gender

equality significantly correlate with reduced violent conflict. However, only gender equality also correlates with interpersonal trust as a key indicator of positive peace.”;author”:[{“dropping-particle”:””;family”:”Bayerlein”;given”:”Michael”;non-dropping-particle”:””;parse-names”:false;suffix”:”}],{“dropping-particle”:””;family”:”Kamin”;given”:”Katrin”;non-dropping-particle”:””;parse-names”:false;suffix”:”}],{“dropping-particle”:””;family”:”Krahmann”;given”:”Elke”;non-dropping-particle”:””;parse-names”:false;suffix”:”}];”container-title”:”Journal of Intervention and Statebuilding”;id”:”ITEM-1”;issue”:”4”;issued”:{“date-parts”:[[“2024”]]},”page”:”519-539”;publisher”:”Taylor & Francis”;title”:”From Negative to Positive Peace: How Norms Relate to Different Peace Dimensions”;type”:”article-journal”;volume”:”19”;”uris”:[“http://www.mendeley.com/documents/?uuid=19e3defef15a-4c5e-bb44-20e4d2b78db6”]],”mendeley”:{“formattedCitation”:”(Bayerlein et al., 2024 This approach will help reach SDG 4, which is about getting a good education. It will also make ASEAN a more significant role in global education diplomacy.

Problems and Solutions for Putting the ASEAN Socio-Cultural Pillar into Action

There are many difficult problems that come up when trying to put the ASEAN socio-cultural pillar into action. One of the biggest problems is that different countries have different policies, which makes it hard to make socio-cultural programs work together. It is hard to coordinate because each member state has its own rules and priorities. The digital divide is also a very important problem. The ASEAN Foundation report (2024) says that digital literacy

is still not equal in the region. For example, only 25% of people in Thailand have strong critical thinking skills, while 62.2% of people in Cambodia do. Three things are still getting in the way of the ASEAN Socio-Cultural Community (ASCC) pillar: policy fragmentation, the digital divide, and ethno-cultural diversity that is not always easy to bridge. ASEAN Foundation (2024) found that citizens' digital literacy levels are not the same across the board. For instance, only 25% of people in Thailand showed high critical thinking skills, while 62.2% of people in Cambodia did. The Philippines had the lowest level of privacy protection competency (17.42%), while Singapore had the highest (54.37%). This directly affects vulnerable citizens' access to information, education, and social resilience (Foundation, 2024). This condition makes it harder to access information, education, and public services. (Foundation, 2024). The cultural diversity that makes ASEAN strong also makes it hard to create a common identity without losing local values.

To solve these problems, ASEAN has come up with a number of ways to make its institutions better. The High-Level Task Force on ASEAN Community's Post-2025 Vision says that it is very important to build strong institutions, work together to govern, and help people learn new skills. The government and the people are both part of this way of doing things. We need to do real things to make sure everyone is included. This means showing people how to use computers, teaching them how to do their jobs, and letting communities grow in a way that works for them. He said that for socio-cultural integration to happen in the area, the community needs to be involved.

There are more than 213 million young people in ASEAN, and they are highly crucial for coming up with solutions to these problems. ASEAN is trying to solve these issues in two ways: the High Level Task Force on ASEAN Community's Post 2025 Vision (HLTF ACV) and the ASEAN Leaders' Statement on Improving ASEAN's Capacity and Institutional Effectiveness. Retno Marsudi, Indonesia's foreign minister, said, "We need to make ASEAN stronger and work better" (Yashinta Difa Pramudyani, 2023). The ASCC Blueprint 2025 collaborates with these initiatives to establish robust cross-sectoral policy frameworks, including human rights, social protection, health, and disaster management, fostering people-centred development as the foundation for socio-cultural cooperation in the region (ASEAN Secretariat, 2025). They might utilize digital technologies to become change agents who help maintain the area's culture alive and make others feel like they belong there. The ASEAN Work Plan on Youth 2021–2025 and other initiatives like it teach teens how to utilize technology, make choices, and gain skills that will be relevant in the 21st century. Young people can communicate about their dreams and goals at gatherings like the ASEAN Leaders' Interface with Youth. Digital platforms and social media are also fantastic tools to share ASEAN culture with the rest of the world and make people feel like they are part of a community in a world that is growing more linked.

Recent policy data indicates that the inclusion of civil society organisations (CSOs) and the utilisation of cross-pillar processes (sociocultural, economic, security) at the implementation level enhances program effectiveness. The ASCC report on the ASEAN-UN summit says that we need to fill in data gaps. This

includes looking at new ways to finance things, putting money into community action to promote public health, education, and employment opportunities for the future (ASEAN Secretariat, 2025). The ASCC Trend Report 2024 also talks about how important it is to control data and use solutions based on nature to make communities that are weak to disasters and climate change stronger. This, in turn, affects the well-being of society and culture (ASEAN Secretariat, 2024). The major point of the ASEAN Annual Report 2024 will be “Improving Connectivity and Building Resilience.” The policies need to work together to make society strong (ASEAN Secretariat, 2024).

But we also need to make sure that modern technology is used in a way that is fair and lasts. If not planned for, uneven digital change could make the gap between rich and poor people bigger. So, ASEAN needs to take a broad view that includes policies that are open to everyone, building a stronger sense of community in the region, and long-term growth. James Correia and Riznaldi Akbar (2024) wrote the Transforming ASEAN Report in 2024. Putting more emphasis on social integration as a way to bring people together. The government, businesses, and civil society groups need to work together better so that ASEAN can become a strong and flexible community that can handle changes around the world.

The future success of the ASEAN socio-cultural pillar will depend a lot on how well policy, technology, and community involvement work together. We need to come up with new ideas and work together across sectors to solve problems like the digital divide and cultural differences. The younger generation, with their

creativity and tech skills, can help bring people of all backgrounds together in a more inclusive way. If these strategic steps are taken consistently, ASEAN has a good chance of reaching its goal of becoming a strong, competitive community based on strong cultural values.

Building ASEAN Identity

The ASEAN Socio-Cultural Pillar is one of the three major pillars that make up the building blocks of a whole, single market and production base within the region, comprising people who are open, highly competitive, sharing common concerns for health and happiness among community members. Not only does this pillar reinforce the common identity of ASEAN in light of globalization, it complements the other two pillars – political security and economic security.

This is an example: ASEAN wants to “neighbor” its member states, educate them to be more tolerant, minimize the differences between them and attempt to bridge these in the fields of education, cultural exchange, and digital access. Education helps people get along by aligning the curriculum to allow kids to move around and understand other people’s way of living toward cultural unity. This work not only helps people get better at their jobs, but it forms a community among the people in the area.

Cultural exchange helps people from different backgrounds get to know one another and, in doing so, build bridges. Art festivals, artistic collaborations, and initiatives such as the ASEAN Cultural Material Digital Archive enable people of varied backgrounds to

know more about each other and preserve culture in a digital age. But cultural preservation has to be done in a way that does not make things too commercialized or change their value.

This digital transformation holds a huge potential for socio-economic inclusion but also raises some issues (such as the divide in access to and understanding of digital technology). Today, digital inclusion is among the strategic goals of the ASEAN Digital Masterplan 2025. This involves teaching new skills and constructing a technology environment that everyone can utilize. Digital literacy is very important, particularly for kids and teens, so that they can use technology in a safe and effective way. For the digital world to remain a level playing field and contribute positively to people's lives in the future, we have to work together with people from all backgrounds—government, industry, academia, society. The societal side of the ledger may yet be at risk, however, because of weak policies, the digital divide, and cultural divides. To correct this, ASEAN opted to strengthen institutions, engage civil society, and harness technology in a manner that includes everyone. It's the young people of ASEAN that will fix it because they're inventive and know technology. They help create a sense of regional identity and cross-border solidarity. However, to what extent the new technology, inclusiveness, and community engagement are able to work together will significantly determine how much progress ASEAN can make in developing its socio-cultural pillar. If ASEAN can hold to these goals, there is a good chance it will become the powerful and flexible community it hopes to be based on the underpinnings of strong cultural values. This would make it a force with which to solve the world's problems sustainably.

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Integrated Flexible Manufacturing with Integrated Cloning Factory One ASEAN

Anak Agung Ayu Putri Ardyanti

ASEAN aims to become a unified manufacturing hub to counter geopolitical trade conflicts, particularly US-China tensions. The 'One ASEAN Integrated Cloning Factory' initiative proposes a flexible manufacturing network where member states share production loads and exchange semi-finished goods. This model reduces lead times, places final assembly near customers, and strengthens regional supply chain resilience.

Introduction

Accelerated global development, driven by advancements in the Internet of Things (IoT), automated guided vehicles (AGVs), artificial intelligence (AI), and Deep Learning, has significantly propelled Industry 4.0 and paved the way for the imminent Industry 5.0 era. Despite this progress, the industrial sector faces critical challenges, particularly a persistent disconnect between the effective utilization of manufacturing resources and the optimization of production goals and cost efficiency. Pinedo (2012) posits that manufacturing scheduling complications frequently stem from disruptions in machining processes at work

centers during order or sequence allocation, resulting in machine congestion and suboptimal prioritization. In contemporary manufacturing contexts, scheduling is defined as the systematic and logical organization of production tasks in alignment with pre-established plans and market demands (Destouet et al., 2023). Furthermore, production scheduling encompasses determining timing, product sequencing, task prioritization, equipment allocation, and managing human labor (Wang et al., 2024).

Ardyanti et al. (2025) argue that the industry has rapidly transitioned from Industry 3.0 automation to the human-technology collaboration of Industry 4.0. ASEAN nations require active government support via policy and research to strengthen manufacturing. Addressing the complexity of modern scheduling optimization, this study conceptualizes ASEAN member states as a unified network of manufacturing hubs. This approach allows for efficient order fulfillment by utilizing the region's equipped factories, optimizing for both geographical location and scheduling density.

Why is ASEAN?

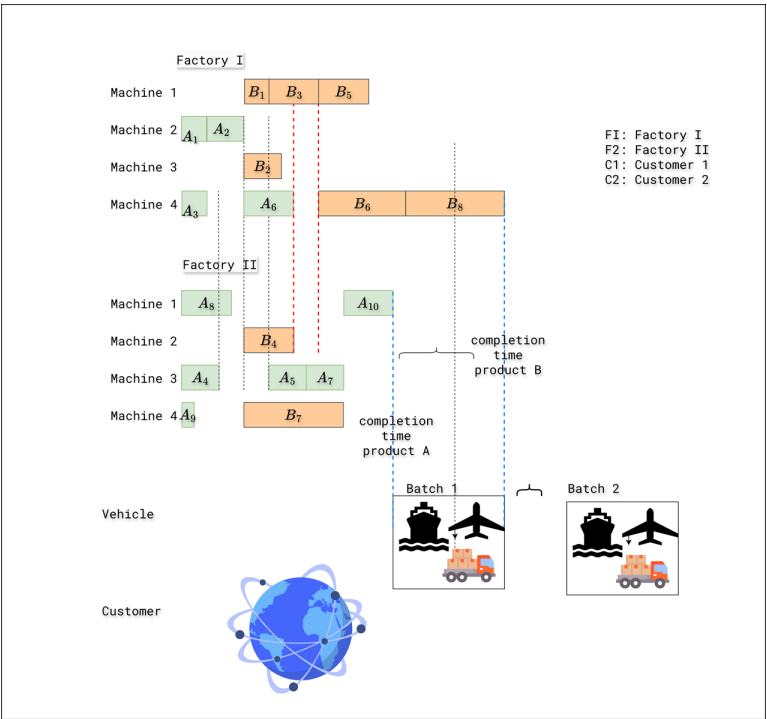
ASEAN is located between Australia, East Asia, Central Asia, and the Pacific Islands. Almost the entire area is ocean, which strategically allows for the distribution of manufacturing around the world. Gross domestic product (GDP) of ASEAN is around US\$13.152 trillion in 2025, making ASEAN member states include some of the fastest-growing economies in the world.

The ASEAN have Industrial Cooperation Scheme (AICO) represents a strategic initiative designed to foster industrial synergy across Southeast Asian nations. This cooperative framework serves as a multifaceted mechanism to stimulate economic development, enhance industrial competitiveness, and accelerate regional integration processes. Implementation of the AICO framework has necessitated extensive collaboration between industrial entities, governmental institutions, and diverse stakeholder groups throughout the ASEAN region. Preliminary assessment of AICO's efficacy reveals measurable impacts, including heightened cross-border capital flows, facilitated technology diffusion, and expanded employment opportunities within member states. Further analysis of AICO's developmental trajectory provides critical insights into the scheme's potential evolution and its implications for future regional economic architecture.

What is Integrated Factories?

Currently, global manufacturing facilities often operate in isolation, lacking systemic integration. ASEAN has the potential to pioneer a fully integrated regional framework that unifies assembly, production, and distribution processes. For instance, in automotive manufacturing—where vehicles comprise numerous modular components such as body frames and steering systems—factories with overlapping production capabilities can collaborate by exchanging semi-finished goods for sequential assembly. This interoperability allows Factory I and Factory II, both capable of producing Product A or B, to share workloads and components dynamically, thereby reducing overall lead times. Crucially, final

assembly and delivery can be anchored in the ASEAN member state geographically closest to the end customer, optimizing logistics efficiency and responsiveness.



Picture 1. Integrated Manufacturing (Ardyanti et al., 2025) in ASEAN

China-US Trade War - Trump’s politics Effect

Rifa’i argues that the resurgence of Donald Trump on the international political landscape, with his “America First 2.0” platform, has initiated a renewed phase of trade tensions between

the United States and China (Rifa'i, 2026). In this research examines the comprehensive effects of Trump's protectionist measures, with specific focus on the reciprocal tariff strategy declared in April 2025. The difference in import taxes into the US explains why integrated manufacturing in ASEAN member countries must be carried out.

ASEAN Manufacturing Growth

ASEAN's manufacturing sector is projected to grow from \$1.7T in 2018 to \$2.3T by 2029, playing an increasingly important role in global supply chains. The region is already developing frameworks for integration, such as the ASEAN Framework for Integrated Semiconductor Supply Chain (AFISS), which aims to position ASEAN as a cohesive production and logistics hub. ASEAN's geographic location and cross-border infrastructure underpin strong supply chain integration. The region is positioned as a resilient, diversified alternative to China-centric supply chains.

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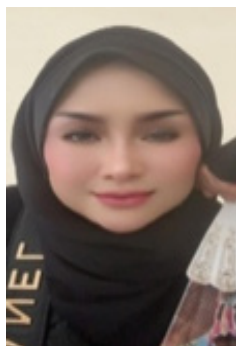
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Mariza is a versatile writer, adventurer, and visual artist. She holds a Bachelor's degree in Chinese Literature and a Master's degree in Management from the University of Indonesia. Her professional journey spans across finance, container logistics, life insurance, and retail trade, enriched with multiple certifications in management, ship & port security, and environmental studies. A prolific author, Mariza has co-written 100 anthologies since August 2020, published two solo books (with two more forthcoming), and completed 10 semi-popular research manuscripts. Her passion for the outdoors has led her to conquer 46 mountains worldwide, including 38 summits above 3,000 meters during the pandemic years (2020–2025), across Indonesia, Malaysia, New Zealand, Nepal, Australia, and Europe. As an abstract acrylic painter, her works—deeply inspired by nature and inner reflections—have been showcased in eight group exhibitions in Jakarta. Mariza embodies the spirit of resilience and creativity—bridging literature, exploration, and art into a life without boundaries.



Putu Ayu Suniadewi, a Balinese woman born in Surabaya in 2000, is currently pursuing a master's degree at two institutions: Bali State Polytechnic, specializing in digital business, and INTI International College Malaysia, majoring in information technology, with a full-distance learning scholarship from INTI

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Siti Khoirnafiya is an anthropologist with deep interest in social and economic development issues, particularly community empowerment. She earned her PhD in Anthropology from the Universitas Indonesia, focusing on cultural social movements. She has served as head of advocacy and regulation at the Directorate of Belief in God and Indigenous Communities. Currently, she works at the Directorate of Cultural Cooperation, Directorate General of Cultural Diplomacy, Promotion, and Cooperation, Ministry of Culture, focusing on partnerships with universities and cultural communities. Her current research focuses on the socio-cultural impact of digital policies and the development of human-centered, culturally rooted solutions, particularly in cultural adaptation, human agency, and knowledge preservation.



Shorihatul Inayah was born in Tuban, East Java, on March 4, 1978. She completed her primary education at MI Salafiyah Mandirejo (1989), continued her studies at SMP Mu'allimin Tuban (1992), and graduated from SMA Bahrul 'Ulum Tambak Beras Jombang (1995). She earned her Bachelor's degree in Chemistry Education from Universitas Negeri Malang (UM) in 2002,

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Subandriyah is a lecturer at STAI Al-Hikmah, Jakarta. She holds a Bachelor's in Education and a Master's and Doctorate in Financial Management, completed TESOL at Monash University, and pursued international training including the Dacum Method, ADB project management, Tokyo University's teaching

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Suyanto is a permanent faculty member at the Graduate Program of Universitas IPWIJA, holding multiple professional certifications that support his expertise, including Professional Lecturer Certification in Management and Accounting, Registered State Accountant (RNA), Chartered Accountant (CA), and certification as an Assessor from the National Professional Certification Agency (BNSP). He has extensive organizational experience, serving as a board member of APTISI, ISEI, and DPP

ARTIPENA, as well as an active member of the Indonesian Ulema Council (MUI) and an Expert Council Member of the PB PGRI. He previously served as Acting Rector of Tanri Abeng University (TAU) and Chairman of the Senate at Universitas IPWIJA, one of Indonesia's prominent private universities. Additionally, he served as Chairman of the IPWI Jakarta College of Economics for three consecutive terms (2009–2021). Currently, the author holds the position of President of the Association of Lecturers and Practitioners of Human Resource Management (ADP MSDM).



Yanuardi Syukur is a lecturer in anthropology at Khairun University, Ternate, North Maluku, with extensive involvement in organizational activism and digital literacy initiatives. He actively writes books and regularly shares his perspectives on international issues across various newspapers and television media. He currently serves as President of Rumah Produktif Indonesia, while also holding research positions as a researcher at the Islamic and Middle East Research Center, University of Indonesia, and as a Research Fellow at INTI International University, Malaysia. He can be reached via email at yanuardisyukur@gmail.com.