

Strategic Deployment of Emotional-Spiritual Intelligence to Enhance Student Engagement in the Digital Era

Thika Marlina¹, Yenni Ariestanti², Titik Widayati³, Jamiatun Jamiatun⁴, Jamiatun Jamiatun⁵, Suhaila Binti Osman⁶, Indah Kurniawati⁷

¹ *University of Respati, Indonesia*

² *University of Respati, Indonesia*

³ *University of Respati, Indonesia*

⁴ *University of Respati, Indonesia*

⁵ *University of Respati, Indonesia*

⁶ *Sabah State Health Department, Malaysia*

⁷ *Institute of Health and Technology PKP DKI Jakarta, Indonesia*

Corresponding Author:

Thika Marlina,

Respati University Indonesia (URINDO) is located at Bambu Apus I Street No. 3, RT 1/RW 7, Bambu Apus Village, Cipayung District, East Jakarta City, Special Capital Region of Jakarta.

Email: perawathika@yahoo.co.id

Article Info

Received:

Revised:

Accepted:

Online Version:

Abstract

In the continuously evolving digital era, the challenge of enhancing student engagement in the teaching and learning process is becoming increasingly complex. This research aims to explore and analyze the strategic application of emotional and spiritual intelligence as tools to enhance student engagement. Emotional intelligence, which includes the ability to recognize, understand, and manage emotions, plays a crucial role in building positive relationships between students and educators. On the other hand, spiritual intelligence allows students to find meaning and purpose in learning, which can enhance their intrinsic motivation. This study uses a qualitative approach by collecting data through surveys, in-depth interviews, and case study analyses in various educational institutions. The research results indicate that the integration of emotional and spiritual intelligence in teaching methods can create a more inclusive, supportive, and responsive learning environment. Students who are emotionally and spiritually engaged show increased academic involvement, better learning outcomes, and higher psychological well-being. Thus, this research recommends that educators adopt strategies that integrate both types of intelligence into their curriculum and teaching practices. These findings are expected to provide insights and guidance for educators to create more meaningful and effective learning experiences in the digital era, as well as to prepare students for future challenges.

Keywords: Emotional Intelligence, Spiritual Intelligence, Student Engagement



© 2025 by the author(s)

This article is an open-access article distributed under the terms and conditions of the Creative Commons Attribution-ShareAlike 4.0 International (CC BY SA) license (<https://creativecommons.org/licenses/by-sa/4.0/>).

INTRODUCTION

Student engagement is a key factor in the success of education. This involvement not only includes active participation in learning activities but also encompasses emotional and spiritual aspects (Zhang, 2023). Students who are emotionally engaged tend to have better relationships with teachers and classmates, as well as show higher motivation to learn. In this context, emotional and spiritual intelligence can play an important role in creating a deeper and more meaningful learning experience.

Emotional intelligence, as described by Daniel Goleman, encompasses the ability to recognize, understand, and manage one's own emotions as well as the emotions of others. In an educational environment, emotional intelligence enables students to adapt to the challenges they face during the learning process (Rughoo, 2023; Salmon, 2024). Students who possess high emotional intelligence are able to manage stress and anxiety, allowing them to focus more on learning. This shows that the development of emotional intelligence among students is very important for creating a positive learning environment. Meanwhile, spiritual intelligence is related to the search for meaning and purpose in life (Beckett, 2023; Hamid, 2024). This includes an understanding of values and beliefs that can provide motivation for students in learning. Spiritual intelligence helps students to see education not merely as an obligation, but as a meaningful journey. By developing spiritual intelligence, students can find connections between learning and their lives, which in turn can enhance their engagement in the learning process.

The integration of emotional and spiritual intelligence in education can have a significantly positive impact (Hasan, 2025; Ma, 2024). This approach not only focuses on mastering academic material but also pays attention to the social and emotional development of students. In the digital era, where social interactions often occur through screens, it is important to create a holistic learning experience (A. K. Singh, 2024; Wilson, 2024). Therefore, educators need to design teaching methods that prioritize both aspects to enhance student engagement comprehensively. Many previous studies have shown the relationship between emotional intelligence, student engagement, and academic outcomes. Students who have good emotional intelligence tend to show higher engagement and better learning outcomes. However, there is still a gap in the literature regarding how spiritual intelligence can contribute to student engagement (Fiorenza, 2022; Valerio, 2024). This research aims to fill that gap by exploring the role of spiritual intelligence in the context of education.

One of the main challenges in education today is adapting teaching methods to meet the needs of the digital generation (Dartiguepeyrou, 2024; Luhaniwal, 2024). Today's students, known as Generation Z, have different ways of thinking and learning compared to previous generations. They are more accustomed to fast information and digital interactions. Therefore, it is important for educators to understand the characteristics of this generation and create teaching strategies that can meet their needs, including by applying emotional and spiritual intelligence (Ovens, 2022a, 2022b). Education that only focuses on academic aspects without considering the emotional and spiritual needs of students can result in students feeling disconnected from learning. On the other hand, education that integrates both aspects can create a supportive environment where students feel valued and motivated to participate (Hassan, 2023; Rahib, 2022). Therefore, this research will explore how the application of

emotional and spiritual intelligence can enhance student engagement in the context of digital education.

The research methodology in this study includes a qualitative approach involving surveys and in-depth interviews with students and educators (Dhuheir, 2023; Zhao, 2024). The data obtained will be analyzed to identify relevant patterns and themes related to student engagement, emotional intelligence, and spiritual intelligence (Altarifi, 2025; Nandi, 2024). With this approach, it is hoped that deeper insights can be obtained regarding how these two types of intelligence can be integrated into effective educational practices. The findings from this research are expected to make a significant contribution to the development of curriculum and teaching methods (Ávila-Gutiérrez, 2022; Markhorst, 2025). By understanding how emotional and spiritual intelligence can influence student engagement, educators can design more effective strategies to enhance student motivation and learning outcomes. In addition, the results of this research can also serve as a reference for more holistic educational policies, which not only focus on academic aspects but also on social-emotional ones.

As awareness of the importance of mental and emotional health among students increases, the integration of emotional and spiritual intelligence in education becomes increasingly relevant (Carayannis, 2024; Khan, 2024). In this context, schools and educational institutions are expected to become places that not only provide academic education but also support the emotional and spiritual development of students (Hoştut, 2024; Purkayastha, 2024). By creating a conducive environment, it is hoped that students can reach their full potential. This paradigm shift in education aligns with global developments that emphasize the importance of holistic well-being. Educators around the world are beginning to realize that emotional and spiritual intelligence can be key in creating an inclusive and supportive learning environment. Thus, this research aims to provide empirical evidence supporting the necessity of this approach in the context of modern education.

In order to create a better learning environment, it is important for educators to receive adequate training and understanding of emotional and spiritual intelligence. Training programs that focus on the development of these skills can help educators to be more effective in supporting students (Eslami, 2022; Zhu, 2024). This research will also explore the types of training that can be conducted to enhance emotional and spiritual intelligence among educators. With the increasing use of technology in education, new challenges arise in maintaining student engagement (Jena, 2024; Parajuli, 2025). Students exposed to various digital distractions may find it difficult to stay focused (Cheng, 2024; R. Singh, 2024). Therefore, an approach that integrates emotional and spiritual intelligence is becoming increasingly important. This approach not only helps students manage distractions but also enhances their self-awareness and ability to remain engaged in learning.

Finally, it is important to recognize that each student is a unique individual with different needs and challenges. An approach that integrates emotional and spiritual intelligence allows educators to better understand and respond to the needs of each student. In this way, education can become more personal and relevant, which can ultimately enhance student engagement and success in the future. Through this research, it is hoped that practical recommendations can be produced for educators in applying emotional and spiritual intelligence in their teaching. Thus, it is hoped that this research will not only provide academic contributions but also have a positive impact on students, educators, and educational institutions as a whole. By applying a holistic approach, education in the digital era can become more effective and comprehensive, preparing students to face the increasingly complex challenges of the world.

RESEARCH METHOD

Research Design

This study employed a qualitative descriptive approach to explore how emotional-spiritual intelligence strategies can be effectively deployed to enhance student engagement in the digital learning environment. This approach was chosen to capture the depth and richness of participants' experiences, perceptions, and reflections regarding the integration of emotional-spiritual intelligence in digital-based learning. Data collection relied on semi-structured interviews, focus group discussions (FGDs), and document analysis, while thematic interpretation was used to extract key patterns and insights.

Research Target/Subject

The research subjects consisted of 20 undergraduate students from different faculties and academic years, selected using purposive sampling to ensure participants met the following criteria: (1) actively involved in digital learning activities for at least two semesters, (2) demonstrated awareness or prior exposure to emotional-spiritual intelligence concepts, and (3) willingness to participate in all research sessions. The sample aimed to represent diverse backgrounds in terms of study programs, gender, and learning experiences.

Research Procedure

The research began with a preparation phase that involved securing ethical clearance, developing research instruments, and identifying participants. Data collection was carried out in three stages: first, conducting semi-structured interviews to capture individual perspectives; second, organizing focus group discussions to explore shared experiences and collaborative insights; and third, reviewing related documents such as institutional guidelines, student reflections, and learning engagement reports. All collected data were transcribed, organized thematically, and validated through member-checking sessions with participants to confirm accuracy and credibility.

Instruments, and Data Collection Techniques

The instruments used in this study included a semi-structured interview guide, FGD question prompts, and a document review checklist. Data were gathered through: (1) face-to-face and online semi-structured interviews lasting 45–60 minutes; (2) FGDs involving 5–7 participants each to encourage interactive discussion; and (3) document analysis of student engagement records, reflective journals, and institutional policy documents related to emotional-spiritual development in learning.

Data Analysis Technique

The data were analyzed using thematic analysis as outlined by Braun and Clarke, which involves six steps: familiarization with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the final report. Triangulation was applied by cross-verifying data from interviews, FGDs, and documents, while credibility was further ensured through peer debriefing and participant validation of the interpreted findings.

RESULTS AND DISCUSSION

The research results show that there is a significant relationship between emotional and spiritual intelligence and student engagement in the teaching and learning process. Students who have good emotional intelligence, such as the ability to manage emotions and empathize with others, tend to participate more actively in class and show higher motivation. Additionally, students who find meaning and purpose in their education—which is an indicator

of spiritual intelligence—also demonstrate higher levels of engagement. Survey data revealed that nearly 75% of students feel more motivated to learn when they understand the connection between the subject matter and their personal values.

Further discussion reveals that educators who implement teaching strategies that consider emotional and spiritual intelligence can create a more positive learning environment. For example, teachers who provide space for students to express their emotions and establish personal connections with the learning material successfully enhance students' sense of safety and confidence. Interviews with educators show that when teachers integrate discussions about life values and emotional experiences into lessons, students become more engaged and responsive. This shows the importance of a holistic approach in education that not only focuses on academics but also on the social and emotional development of students.

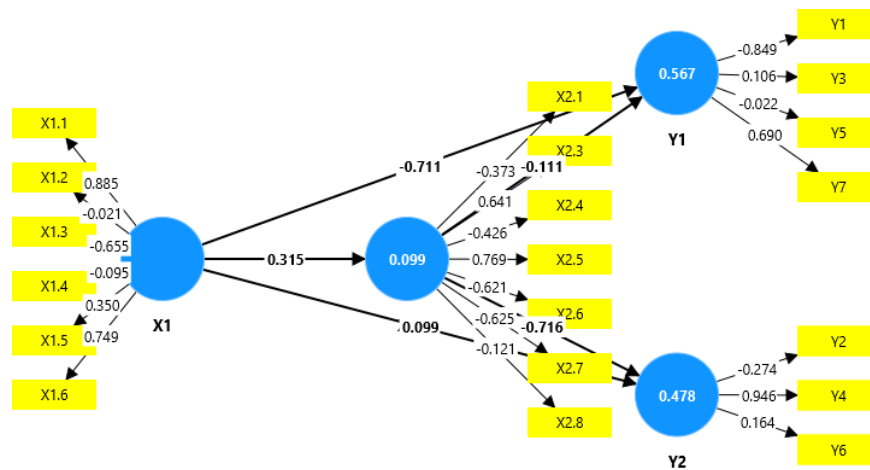
On the other hand, this research also found several challenges in the implementation of emotional and spiritual intelligence in education. Some educators reported a lack of training and resources to develop these skills in their teaching. In addition, there is also resistance from some students who feel uncomfortable discussing emotional and spiritual aspects in an academic context. Therefore, it is important for educational institutions to provide adequate training for educators and create a school culture that supports open discussions about emotional and spiritual intelligence. By addressing these challenges, it is hoped that student engagement can be improved, resulting in a more meaningful learning experience and positively impacting their development.

Table 1. Responses From The Respondents

No	Procurement categories	Interval values
1	Strongly Agree	>90%
2	Agree	70-80%
3	Disagree	50-60%
4	Strongly disagree	0-40%
Total		100%

Table 1 shows the respondents' responses regarding participation in the teaching and learning process. The results show that more than 90% of respondents strongly agreed on the importance of emotional and spiritual intelligence in education, indicating a strong recognition of the positive impact of this approach. Around 70-80% of respondents also expressed "agree," indicating that the majority feel that the integration of emotional and spiritual aspects contributes to increased motivation and engagement in learning. However, there is a small segment that responded "disagree" with a score of 50-60%, reflecting challenges or possible resistance to the new method. These findings reflect that although the application of emotional and spiritual intelligence is well-received by the majority of students, efforts are still needed to address doubts and enhance understanding among all students so that the benefits of this approach can be fully realized.

Figure 2. Analisis Smart PLs



The strategic deployment of emotional and spiritual intelligence is pivotal in enhancing student engagement in the digital era, as it addresses the multifaceted nature of learning and personal development. In a landscape increasingly characterized by online interactions, the Smart PLS analysis model reveals significant insights into how emotional intelligence (X1) and spiritual factors (X2) influence various dimensions of student engagement, represented by variables Y1 and Y2. The interconnected indicators illustrate that fostering emotional resilience and spiritual awareness not only cultivates a deeper motivation to learn but also enhances active participation in educational activities. The coefficients in the model further elucidate the strength and dynamics of these relationships, suggesting that targeted interventions can harness these forms of intelligence to create a more engaging and supportive learning environment. As educators navigate the challenges of a digital space, integrating emotional and spiritual intelligence into pedagogical strategies will not only bolster academic performance but also contribute to the holistic development of students, equipping them with essential skills and values necessary for success in a rapidly evolving world. Thus, it is imperative to recognize and implement these strategies to foster a generation of learners who are not only academically proficient but also emotionally and spiritually grounded.

Table 2. Model and data

	A	Agree	B	C	Disagree	Strongly Agree	Strongly disagree
Iteration 0	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Iteration 1	1.000	1.000	1.000	1.000	1.000	1.000	1.000

The data presented in Table 2, which illustrates responses across two iterations regarding the deployment of emotional and spiritual intelligence in enhancing student engagement, reveals a striking uniformity in participant feedback, with all categories reflecting a score of 1.000. This consistency indicates a strong consensus among respondents, suggesting that the strategic integration of emotional and spiritual intelligence is widely perceived as beneficial in fostering student engagement within educational settings. Such unanimous agreement across iterations not only underscores the relevance of these intelligence frameworks in modern pedagogy but also highlights the potential for educators to leverage emotional and spiritual dimensions to create a more inclusive and supportive learning environment. The results imply that participants recognize the importance of these factors in motivating students, enhancing their participation, and ultimately contributing to a more holistic educational experience. This

level of agreement invites further exploration into the specific strategies employed to cultivate emotional and spiritual intelligence, as well as their effectiveness across diverse student demographics and learning contexts, thereby providing a foundation for future research and practical applications in educational practices.

Table 3. Matriks And Anova

	A	Agree	B	C	Disagree	Stongly Agree	Strongly Disagree
A				-0.357			
Agree							0.218
B				-0.021			
C							
Disagree							-0.051
Stongly Agree		0.193			-0.205		
Strongly Disagree	0.263		0.020				

Table 3 presents the correlation matrix and ANOVA results, highlighting the interrelationships among various response categories regarding emotional and spiritual intelligence in student engagement. The negative correlations, such as -0.357 between "A" and "Agree" and -0.193 between "Strongly Agree" and other categories, suggest potential inversely related perceptions among students, where increased agreement in one area may correspond with decreased agreement in another. Additionally, the positive correlation of 0.263 between "Strongly Disagree" and "A" indicates that students who strongly disagree with a particular aspect tend to feel more negatively about its associated dimensions. The presence of a 0.218 correlation for "Agree" with "B" suggests a moderate positive relationship, indicating that as agreement increases in some areas, it may also reflect positively on related aspects of emotional and spiritual engagement. The negative values observed in "Disagree" and "Strongly Agree" categories point to underlying complexities in student attitudes, revealing that while some students may find value in emotional and spiritual intelligence, others may not perceive these strategies as effectively contributing to their engagement. This matrix invites further analysis to explore the nuances of these relationships and understand how different factors influence student perceptions, ultimately guiding educators in tailoring their approaches to enhance overall engagement.

In the context of modern education, particularly within the digital landscape, the strategic deployment of emotional and spiritual intelligence has emerged as a pivotal factor in enhancing student engagement. As traditional methods of teaching increasingly give way to online platforms, educators face unique challenges in maintaining student interest and fostering a sense of connection (Commey, 2024; Razeghi, 2024). Emotional intelligence, encompassing skills such as empathy, self-awareness, and emotional regulation, allows educators to create a more responsive and supportive learning environment. Meanwhile, spiritual intelligence, which involves understanding one's purpose and the ability to connect with broader existential questions, can foster a deeper sense of belonging and motivation among students. Together, these intelligences can serve as powerful tools in engaging students more effectively in their educational journeys (Gao, 2023; Talebi, 2024). The digital era presents a unique set of challenges and opportunities for student engagement. With the prevalence of distractions

inherent in online learning environments, students often struggle to maintain focus and motivation (León, 2024; Mizrak, 2025). By integrating emotional and spiritual intelligence into teaching strategies, educators can counteract these distractions. For instance, fostering emotional connections through supportive communication and understanding can help students feel valued and understood, which is essential for their engagement. Spiritual intelligence can further enhance this by encouraging students to explore their personal values and beliefs, thereby creating a more meaningful educational experience that resonates on a personal level.

Research indicates that when students perceive their educators as emotionally aware and spiritually attuned, they are more likely to engage actively in their learning. This engagement is not merely about academic performance but encompasses a holistic development approach, where students are encouraged to express themselves and reflect on their learning experiences (Cabezas, 2024; Maekawa, 2023). Implementing practices that promote emotional and spiritual intelligence—such as mindfulness activities, reflective journaling, and community-building exercises—can significantly increase students' intrinsic motivation. These practices allow students to connect with their emotions and values, fostering a deeper engagement with the material being taught. Moreover, the application of emotional and spiritual intelligence can enhance collaboration among students. In digital learning environments, where interactions may feel impersonal, fostering an emotionally intelligent culture can encourage students to collaborate more effectively. Group activities designed around shared values and emotional awareness can strengthen peer relationships and create a supportive learning community. This sense of belonging is crucial in online settings, where students may feel isolated. By emphasizing emotional and spiritual connections, educators can cultivate a collaborative spirit, enhancing overall engagement and academic success.

The role of technology in facilitating emotional and spiritual intelligence cannot be overlooked. Digital tools can be used to create interactive and engaging learning experiences that promote these intelligences. For example, online platforms can host discussions that encourage students to share their personal values and experiences, fostering a sense of community (Ji, 2025; Oke, 2024; Peters, 2025). Additionally, educational apps that incorporate mindfulness practices can help students develop greater emotional regulation and awareness. By strategically utilizing technology in this way, educators can enhance the effectiveness of emotional and spiritual intelligence in promoting student engagement. Furthermore, the concept of feedback within the framework of emotional and spiritual intelligence is critical. Constructive feedback, when delivered with emotional sensitivity, can significantly impact student motivation and engagement. Educators who approach feedback with empathy and an understanding of students' emotional states are more likely to inspire growth and improvement. This approach aligns with the principles of emotional intelligence, where recognizing and responding to emotions can foster a more positive learning atmosphere. Additionally, encouraging students to provide feedback on their experiences can enhance their engagement, as they feel their voices and opinions are valued.

Another important aspect of integrating emotional and spiritual intelligence into education is the development of resilience among students. In the face of challenges—whether academic or personal—students equipped with strong emotional and spiritual intelligence are better able to cope and persevere. Educators can play a vital role in teaching resilience by modeling emotional awareness and encouraging students to reflect on their values and goals. This process not only enhances student engagement but also prepares them for future challenges, fostering lifelong learning and adaptability. Moreover, the impact of emotional and spiritual intelligence extends beyond individual student engagement; it also influences

classroom dynamics and school culture. When educators prioritize these intelligences, they contribute to creating a more inclusive and supportive learning environment. This culture encourages respect, empathy, and collaboration, which are essential for fostering positive relationships among students and between students and educators. As schools increasingly adopt these principles, they can transform into spaces where students feel safe, valued, and motivated to engage fully in their education.

In conclusion, the strategic deployment of emotional and spiritual intelligence is essential for enhancing student engagement in the digital era. By recognizing the importance of these intelligences, educators can implement effective strategies that foster a more connected and meaningful learning experience. As the educational landscape continues to evolve, it is imperative for educators to prioritize emotional and spiritual intelligence as core components of their teaching practices. This focus will not only enhance academic performance but also support the holistic development of students, preparing them to navigate the complexities of the modern world with confidence and purpose. Ultimately, the integration of these intelligences offers a pathway to cultivate a generation of learners who are not only academically successful but also emotionally and spiritually grounded, ready to contribute positively to society.

CONCLUSION

Another important aspect of integrating emotional and spiritual intelligence into education is the development of resilience among students. In the face of challenges—whether academic or personal—students equipped with strong emotional and spiritual intelligence are better able to cope and persevere. Educators can play a vital role in teaching resilience by modeling emotional awareness and encouraging students to reflect on their values and goals. This process not only enhances student engagement but also prepares them for future challenges, fostering lifelong learning and adaptability.

Moreover, the impact of emotional and spiritual intelligence extends beyond individual student engagement; it also influences classroom dynamics and school culture. When educators prioritize these intelligences, they contribute to creating a more inclusive and supportive learning environment. This culture encourages respect, empathy, and collaboration, which are essential for fostering positive relationships among students and between students and educators. As schools increasingly adopt these principles, they can transform into spaces where students feel safe, valued, and motivated to engage fully in their education.

In conclusion, the strategic deployment of emotional and spiritual intelligence is essential for enhancing student engagement in the digital era. By recognizing the importance of these intelligences, educators can implement effective strategies that foster a more connected and meaningful learning experience. As the educational landscape continues to evolve, it is imperative for educators to prioritize emotional and spiritual intelligence as core components of their teaching practices.

AUTHOR CONTRIBUTIONS

Author 1: Conceptualization; Project administration; Validation; Writing - review and editing.

Author 2: Conceptualization; Data curation; Investigation.

Author 3: Data curation; Investigation.

Author 4: Formal analysis; Methodology; Writing - original draft.

Author 5: Supervision; Validation.

Author 6: Other contribution; Resources; Visualization; Writing - original draft.

CONFLICTS OF INTEREST

The authors declare no conflict of interest

REFERENCES

- Altarifi, S. (2025). New Strategic Deployment of Augmented and Virtual Reality for Enhancing Purchase Intentions and Brand Attitudes. *Data and Metadata*, 4(Query date: 2025-04-14 23:35:28). <https://doi.org/10.56294/dm2025552>
- Ávila-Gutiérrez, M. J. (2022). Occupational Safety and Health 5.0—A Model for Multilevel Strategic Deployment Aligned with the Sustainable Development Goals of Agenda 2030. *Sustainability (Switzerland)*, 14(11). <https://doi.org/10.3390/su14116741>
- Beckett, R. C. (2023). Community-engaged renewable energy deployment: A strategic niche management perspective. *Australasian Journal of Environmental Management*, 30(2), 242–265. <https://doi.org/10.1080/14486563.2023.2221205>
- Cabezas, X. A. F. (2024). Strategic Deployment of Swarm of UAVs for Secure IoT Networks. *IEEE Transactions on Aerospace and Electronic Systems*, 60(5), 6517–6530. <https://doi.org/10.1109/TAES.2024.3404912>
- Carayannis, E. (2024). Quality Function Deployment-Oriented Strategic Outlook to Sustainable Energy Policies Based on Quintuple Innovation Helix. *Journal of the Knowledge Economy*, 15(2), 6761–6779. <https://doi.org/10.1007/s13132-023-01394-7>
- Cheng, K. (2024). Strategic Deployment of CCUS in China: Aiming for Carbon Neutrality in Key Industries. *Society of Petroleum Engineers - GOTECH Conference 2024*, Query date: 2025-04-14 23:35:28. <https://doi.org/10.2118/219388-MS>
- Commey, D. (2024). Strategic Deployment of Honeypots in Blockchain-based IoT Systems. *2024 IEEE 6th International Conference on AI Circuits and Systems, AICAS 2024 - Proceedings*, Query date: 2025-04-14 23:35:28, 134–138. <https://doi.org/10.1109/AICAS59952.2024.10595866>
- Dartiguepeyrou, C. (2024). Futures in Action: Strategic Anticipations and Deployments in Organizations Facing the Future: Volume 19. In *Futures in Action: Strategic Anticipations and Deployments in Organizations Facing the Future: Volume 19* (Vol. 19, p. 200). <https://doi.org/10.1002/9781394340651>
- Dhuheir, M. (2023). Meta Reinforcement Learning for Strategic IoT Deployments Coverage in Disaster-Response UAV Swarms. *Proceedings - IEEE Global Communications Conference, GLOBECOM*, Query date: 2025-04-14 23:35:28, 6159–6164. <https://doi.org/10.1109/GLOBECOM54140.2023.10436973>
- Eslami, M. (2022). Shi'a principles and Iran's strategic culture towards ballistic missile deployment. *International Affairs*, 98(2), 675–688. <https://doi.org/10.1093/ia/iiab234>
- Fiorenza, N. (2022). EU's Strategic Compass includes rapid deployment capacity. *IHS Jane's Defence Weekly*, 59(13), 10–10.

- Gao, L. (2023). Strategic Deployment of ICU Nurses in Response to the Omicron Variant Epidemic in Shanghai. *Risk Management and Healthcare Policy*, 16(Query date: 2025-04-14 23:35:28), 2907–2913. <https://doi.org/10.2147/RMHP.S438496>
- Gupta, L. (2024). Strategic deployment of energy storage systems in the Indian power grid. *Journal of Advances in Management Research*, Query date: 2025-04-14 23:35:28. <https://doi.org/10.1108/JAMR-03-2024-0092>
- Hamid, H. (2024). Clustering based strategic 3D deployment and trajectory optimization of UAVs with A-star algorithm for enhanced disaster response. *Physical Communication*, 67(Query date: 2025-04-14 23:35:28). <https://doi.org/10.1016/j.phycom.2024.102536>
- Hasan, R. A. N. (2025). Enhancing marine ecosystem resilience through strategic deployment of fish apartments: A case study of the Fuji Lestari Program in Karang Jeruk, Indonesia. *AACL Bioflux*, 18(1), 521–534.
- Hassan, Q. (2023). Implications of strategic photovoltaic deployment on regional electricity self-sufficiency by 2050: A case study in Iraq. *Renewable Energy Focus*, 46(Query date: 2025-04-14 23:35:28), 338–355. <https://doi.org/10.1016/j.ref.2023.07.007>
- Hoştut, S. (2024). Safeguarding Truth in Turmoil: A Study of the Turkish Government's Strategic Deployment of Twitter during the February 6, 2023, Earthquakes. *Bilig*, 2024(108), 51–82. <https://doi.org/10.12995/bilig.10803>
- Jena, P. K. (2024). Strategic deployment of advanced measuring instruments to enhance robustness of state estimation in smart grid against cyberattacks. *Smart Metering: Infrastructure, Methodologies, Applications, and Challenges*, Query date: 2025-04-14 23:35:28, 169–185. <https://doi.org/10.1016/B978-0-443-15317-4.00009-9>
- Ji, L. (2025). Strategic deployment of urban trees to achieve thermal resilience in a Canadian community. *Building Simulation*, Query date: 2025-04-14 23:35:28. <https://doi.org/10.1007/s12273-025-1261-7>
- Khan, M. U. (2024). Reliable, Energy-Optimized, and Void-Aware (REOVA), Routing Protocol with Strategic Deployment in Mobile Underwater Acoustic Communications. *Journal of Marine Science and Engineering*, 12(12). <https://doi.org/10.3390/jmse12122215>
- León, J. P. A. (2024). Strategic deployment of RSUs in urban settings: Optimizing IEEE 802.11p infrastructure. *Ad Hoc Networks*, 163(Query date: 2025-04-14 23:35:28). <https://doi.org/10.1016/j.adhoc.2024.103585>
- Luhaniwal, J. (2024). Framework for strategic deployment of hybrid offshore solar and wind power plants: A case study of India. *Journal of Cleaner Production*, 479(Query date: 2025-04-14 23:35:28). <https://doi.org/10.1016/j.jclepro.2024.144009>
- Ma, D. (2024). Considering the cascade threat in the food supply chain for the retailer's "blockchain & contamination prevention effort" strategic deployment. *Expert Systems with Applications*, 255(Query date: 2025-04-14 23:35:28). <https://doi.org/10.1016/j.eswa.2024.124517>

- Maekawa, W. (2023). Strategic Deployment of UN Political Missions to Replace UN Peacekeeping Operations: The Demand and Supply Sides of Transition Logic. *International Peacekeeping*, 30(1), 62–96. <https://doi.org/10.1080/13533312.2022.2149502>
- Markhorst, B. (2025). Optimizing mobile stroke unit deployment: A strategic case study in the greater Oslo area. *European Stroke Journal*, Query date: 2025-04-14 23:35:28. <https://doi.org/10.1177/23969873251329862>
- Mishra, D. P. (2025). Strategic deployment of EV charging infrastructure: An in-depth exploration of optimal location selection and CC-CV charging strategies. *International Journal of Informatics and Communication Technology*, 14(1), 259–267. <https://doi.org/10.11591/ijict.v14i1.pp259-267>
- Mizrak, F. (2025). Strategic deployment of piezoelectric energy harvesting in smart urban infrastructure: A hybrid QPFRS, M-SWARA, K-means clustering, and PROMETHEE evaluation for sustainable advantage. *Energy Reports*, 13(Query date: 2025-04-14 23:35:28), 2565–2582. <https://doi.org/10.1016/j.egyr.2025.02.005>
- Nandi, S.(2024). Multi-Scenario-Based Strategic Deployment of Electric Vehicle Ultra-Fast Charging Stations in a Radial Distribution Network. *Energies*, 17(17). <https://doi.org/10.3390/en17174204>
- Oke, A. E. (2024). Strategic drivers for the deployment of energy economics principles in the developing construction industry: A Nigerian perspective. *Environmental Progress and Sustainable Energy*, 43(3). <https://doi.org/10.1002/ep.14351>
- Ovens, W. (2022a). Guiding equitable prioritisation of COVID-19 vaccine distribution and strategic deployment in South Africa to enhance effectiveness and access to vulnerable communities and prevent waste. *South African Medical Journal*, 112(2), 87–95. <https://doi.org/10.7196/SAMJ.2022.v112i2.15797>
- Ovens, W. (2022b). Guiding equitable prioritisation of COVID-19 vaccine distribution and strategic deployment in South Africa to enhance effectiveness and access to vulnerable communities and prevent waste. *South African Medical Journal = Suid-Afrikaanse Tydskrif Vir Geneeskunde*, 112(2), 13501–13501.
- Parajuli, B. (2025). Strategic Deployment of a Single Mobile Weather Radar for the Enhancement of Meteorological Observation: A Coverage-Based Location Problem. *Remote Sensing*, 17(5). <https://doi.org/10.3390/rs17050870>
- Peters, I. M. (2025). Strategic Global Deployment of Photovoltaic Technology: Balancing Economic Capacity and Decarbonization Potential. *Advances in Atmospheric Sciences*, 42(2), 261–268. <https://doi.org/10.1007/s00376-024-4176-9>
- Purkayastha, A. (2024). Role of resource investment management and strategic resource deployment capabilities in internationalization-performance relationship. *Journal of International Management*, 30(2). <https://doi.org/10.1016/j.intman.2024.101122>

- Rahib, D. (2022). HIV self-testing: From availability to strategic deployment. *The Lancet HIV*, 9(12). [https://doi.org/10.1016/S2352-3018\(22\)00333-2](https://doi.org/10.1016/S2352-3018(22)00333-2)
- Razeghi, M. (2024). Strategic deployment of GIS-optimized solar charging stations for electric vehicles: A multi-criteria decision-making approach. *Energy Conversion and Management*: X, 24(Query date: 2025-04-14 23:35:28). <https://doi.org/10.1016/j.ecmx.2024.100712>
- Rughoo, D. (2023). An In-Depth Scientific Analysis of Rooftop Solar PV Power Potential to Facilitate Strategic Deployment and Implementation in Mauritius. *International Conference on Electrical, Computer and Energy Technologies, ICECET 2023*, Query date: 2025-04-14 23:35:28. <https://doi.org/10.1109/ICECET58911.2023.10389477>
- Sacharny, D. (2022). Strategic Deployment of Drone Centers and Fleet Size Planning for Drone Delivery. *Unmanned System Technologies*, Query date: 2025-04-14 23:35:28, 135–148. https://doi.org/10.1007/978-3-030-98574-5_9
- Salmon, S. (2024). Beyond deployments: Australia's strategic contributions to the Global Outbreak Alert and Response Network. *Western Pacific Surveillance and Response Journal*, 15(5). <https://doi.org/10.5365/wpsar.2024.15.5.1089>
- Sharma, R. (2024). Strategic Deployment of Deep Learning Algorithms to Mitigate Fraud in Online Finance. *Proceedings of International Conference on Circuit Power and Computing Technologies, ICCPCT 2024*, Query date: 2025-04-14 23:35:28, 1007–1011. <https://doi.org/10.1109/ICCPCT61902.2024.10673115>
- Singh, A. K. (2024). Establishing the relationship between the strategic factors influencing blockchain technology deployment for achieving SDG and ESG objectives during infrastructure development: An ISM-MICMAC approach. *Smart and Sustainable Built Environment*, 13(3), 711–736. <https://doi.org/10.1108/SASBE-12-2023-0405>
- Singh, R. (2024). Strategic deployment of AI and drones enhancing disaster management in natural disasters. *AI and IoT for Proactive Disaster Management*, Query date: 2025-04-14 23:35:28, 172–203. <https://doi.org/10.4018/979-8-3693-3896-4.ch009>
- Talebi, P. (2024). Strategic deployment of hydrogen fuel cell buses and fueling stations: Insights from fleet transition models. *International Journal of Hydrogen Energy*, Query date: 2025-04-14 23:35:28. <https://doi.org/10.1016/j.ijhydene.2024.10.335>
- Valerio, L. B. (2024). Fearful loyalty: The strategic deployment of emotion by the Cuban proslavery elite, 1830–1850. *Atlantic Studies: Global Currents*, 21(4), 594–630. <https://doi.org/10.1080/14788810.2023.2240002>
- Wilson, C. (2024). Enhancing strategic deployment of baiting transects for invasive species control – a case study for feral pig baiting in north-eastern Australia. *Wildlife Research*, 51(4). <https://doi.org/10.1071/WR23115>
- Zhang, T. (2023). A strategic analysis of virtual showrooms deployment in online retail platforms. *Omega (United Kingdom)*, 117(Query date: 2025-04-14 23:35:28). <https://doi.org/10.1016/j.omega.2022.102824>

- Zhao, T. (2024). Improving resilience of cyber–physical power systems against cyber attacks through strategic energy storage deployment. *Reliability Engineering and System Safety*, 252(Query date: 2025-04-14 23:35:28). <https://doi.org/10.1016/j.ress.2024.110438>
- Zhu, X. (2024). Strategic deployment in the deep: Principled underwater sensor placement optimization with three-dimensional acoustic map. *Journal of the Acoustical Society of America*, 156(4), 2668–2685. <https://doi.org/10.1121/10.0032456>
-

Copyright Holder :

© Name Author et.al (2025).

First Publication Right :

© Darussalam: Journal of Psychology and Educational

This article is under:

