Digital Transformation of Sports Club Management: Web-Based Information System at Taekwondo Valentino Club

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ABSTRACT

This community service activity aimed to enhance the productivity and professionalism of Taekwondo Valentino Club management through digital technology adoption. The program addressed administrative and communication processes that were still manual, creating inefficiencies, limited transparency, and poor accessibility. A participatory approach was applied, actively involving partners in socialization, digital literacy training, system implementation, mentoring, and program handover. The results showed significant improvements. The management aspect score increased from 2.34 to 4.46 (+90.6%), while the social aspect rose from 2.44 to 4.50 (+84.4%), both statistically significant at $p < 0.05$. These outcomes reflect substantial gains in administrative efficiency, transparency, and data accuracy. Beyond management, the program strengthened human resource capacity, enhanced community engagement, and improved club visibility through digital media. Overall, the initiative demonstrates that website-based information systems can sustainably transform sports club governance. It also supports SDGs points 4 and 9 and aligns with the Merdeka Belajar Kampus Merdeka (MBKM) policy by involving students in technology development and community mentoring.

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INTRODUCTION

Sport is a structured and planned physical activity aimed at improving physical fitness, health, skills, and character development. This activity can be done individually or in groups, for both recreational and competitive purposes (Karina Nur Safitri et al., 2024). In Indonesia, sports have become a crucial tool for achieving impressive achievements on the international stage. This is evident in the achievements of Indonesian athletes, for example, at the 2024 ASEAN University Games, where the Indonesian team won 17 medals, including taekwondo, which contributed significantly (Prasatya, 2024). This success shows that continuous athlete development has a crucial role in achieving sporting achievements (Lewokeda, 2024; Taekwondo Indonesia Bersinar di ASEAN University Games, 2024)

One community actively contributing to the development of taekwondo athletes is the Taekwondo Valentino Club, located in South Bekasi District, Bekasi City, West Java. Founded in 1999, the club consistently fosters young athletes through intensive and targeted training programs. Its numerous regional and national achievements demonstrate the club's strategic role in supporting the development of talented athletes (Noor Fikri, 2025). Despite these accomplishments, the club still faces challenges in management and administration, as its processes—such as athlete data collection, training schedules, achievement records, and membership administration—are handled manually. These practices often lead to delays, duplication, and limited accessibility for athletes, coaches, and parents.
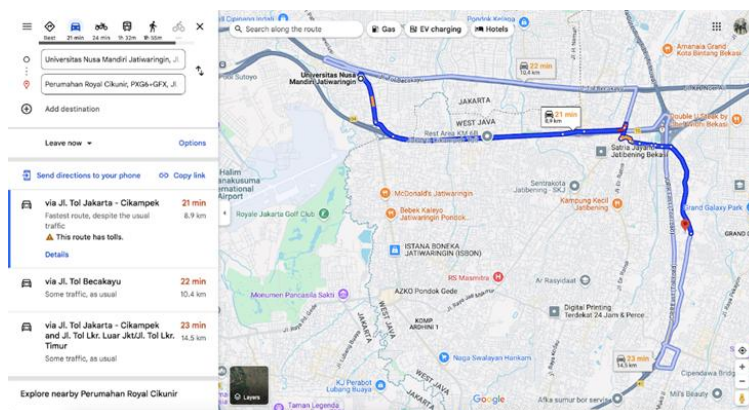

FIGURE 1. Access to the Taekwondo Valentino Club Location

FIGURE 2. Valentino Club Taekwondo Achievements

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To date, athlete data collection, training schedules, achievement records, and membership administration are still handled manually. This situation has the potential to create various obstacles, such as information delays, data duplication, the risk of archive loss, and limited access for athletes, coaches, and parents. Yet, in the era of digital transformation, the use of information technology is an urgent need to improve organizational effectiveness and efficiency (Listyanda et al., 2024).

Previous research confirms that digitalization plays an important role in the governance of sports organizations. Research conducted by Pratama et al. (Noor Pratama et al., 2024) shows that the implementation of a web-based information system at KONI South Kalimantan increases the effectiveness of data management, although its use is not optimal due to minimal assistance. Meanwhile, Nuryadin et al. (2024) developed an integrated database information system at PERBASI Banjarmasin City, which has been proven to simplify administration and enhance organizational professionalism. Other studies also emphasize that digitalization strengthens governance, accelerates communication, facilitates access to information, and increases club visibility in the community (Firasari et al., 2024) (Akhmed, 2022) (Nelva Saputra, 2022). In addition, the use of digital platforms can also increase the club's visibility in the community, open up opportunities for collaboration, and attract more talented prospective athletes to join (Syadzwina et al., 2024; Pratama & Aryanto, 2024) (Yulianto et al., 2025).

Despite these findings, systematic documentation of technology implementation in grassroots taekwondo clubs remains scarce. Moreover, few studies explore participatory approaches involving all stakeholders in the digital transformation process. This gap highlights the need for practical initiatives that not only introduce digital solutions but also ensure sustainability through collaborative involvement.

Based on this background, the implementation of a technology-based management system at the Taekwondo Valentino Club is a strategic step to increase competitiveness and sustainability in athlete development. It also aligns with the Sustainable Development Goals (SDGs), particularly point 4 (Quality Education) and point 9 (Industry, Innovation, and Infrastructure). Furthermore, the program supports the Merdeka Belajar Kampus Merdeka (MBKM) policy by involving students in real-world projects that contribute directly to community needs while enhancing their practical skills.

METHOD

This community service activity uses a participatory approach by actively involving partners at each stage (Prasetyo Jati et al., 2024). The approach was selected to ensure that solutions designed met real field needs and could be utilized sustainably. Thus, partners were not only beneficiaries but also co-creators in program design, implementation, and evaluation. This principle aligns with the concept of community empowerment, emphasizing collaboration between universities and partner institutions.

Participants and Sampling

The participants consisted of 40 people: 15 administrators, 25 coaches of the Taekwondo Valentino Club. The selection followed purposive sampling based on their operational roles in club management. The mentoring team comprised three lecturers and two students. The program was conducted over six months (June–December 2025).

Data Collection Instruments

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The evaluation of program effectiveness employed a structured questionnaire with 10 indicators measured using a 5-point Likert scale (1 = very poor, 5 = excellent). The indicators were grouped into two dimensions: management aspect (5 indicators) and social aspect (5 indicators). The instrument was validated through expert review (n=3) and a pilot test, yielding high reliability (Cronbach's α = 0.89). Pre-test and post-test questionnaires were administered to assess changes before and after the intervention.

Technology Specifications

The system was developed using modern web technologies: frontend (HTML5, CSS3, Bootstrap 5.0), backend (PHP 8.0, MySQL 8.0), and deployed on a cloud-based hosting with SSL certification. The system can be accessed at https://taekwondovalentino.id/. Core features include a member database, training schedule management, achievement recording, news publication system, and an integrated administrator dashboard.
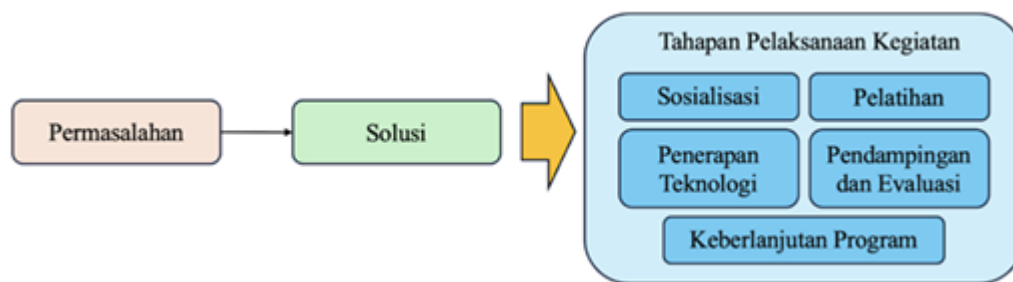
Implementation Stages

FIGURE 3. Flow of stages of implementation of the community service program

The program implementation is divided into five main stages, namely:

- Socialization

  Initial meeting with club administrators to convey the digitalization concept, map administrative problems, and identify information system needs.

- Training

  Improving digital literacy for club administrators, coaches, and members, including introduction to technology, data management, and the use of web-based applications.

- Application of Technology

  Development and implementation of a website-based information system according to partner needs, including features for athlete data collection, training schedules, achievement recording, and membership administration.

- Mentoring and Evaluation

  Direct guidance to administrators in operating the system, as well as collecting feedback from users for feature improvements.

- Program Sustainability

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Handover of the system to partners and long-term mentoring so that clubs are able to manage the system independently, so that the sustainability of the program is maintained after the service activities end.

Overall, the applied method emphasizes synergy between technology implementation and human resource capacity building. This approach not only solves short-term problems but also builds partners' readiness to face future challenges. Thus, the Taekwondo Valentino Club not only gained a digital-based system but also new skills and understanding to manage the club more professionally and sustainably.

RESULTS AND DISCUSSION

Implementation of Community Service Activities

The initial phase of the activity began with program socialization and digital literacy training attended by the Taekwondo Valentino Club administrators and coaches. The socialization aimed to provide an understanding of the urgency of digitalization in managing club administration and communications. The training then focused on introducing the concept of website-based information systems and the basics of using digital technology to support organizational activities. Documentation of this activity is shown in Figure 4, which demonstrates the interactive atmosphere and enthusiasm of the participants.

FIGURE 4. System Socialization and Training

The next stage involved the implementation of a website-based information system designed to support the club's management needs. The system's core features include administrative management, member data collection, training schedule publication, and documentation of achievements and activities. The initial data input process was conducted with club administrators, allowing for immediate testing of the system to meet field needs. Implementation results demonstrated that the website displays information centrally, is easily accessible, and enhances transparency.

As a final step, the program was handed over to partners in the form of a Taekwondo management website accessible at https://taekwondovalentino.id/. The handover included an administrative account, user guide documentation, and initial data entered into the system. This activity ensures the continued use of the system by club administrators independently. Documentation of the activity is shown in Figure 5, while Figure 6 shows a screenshot of the Taekwondo Valentino Club website's homepage as concrete evidence of the implementation results.

FIGURE 5. Program Handover to Partners

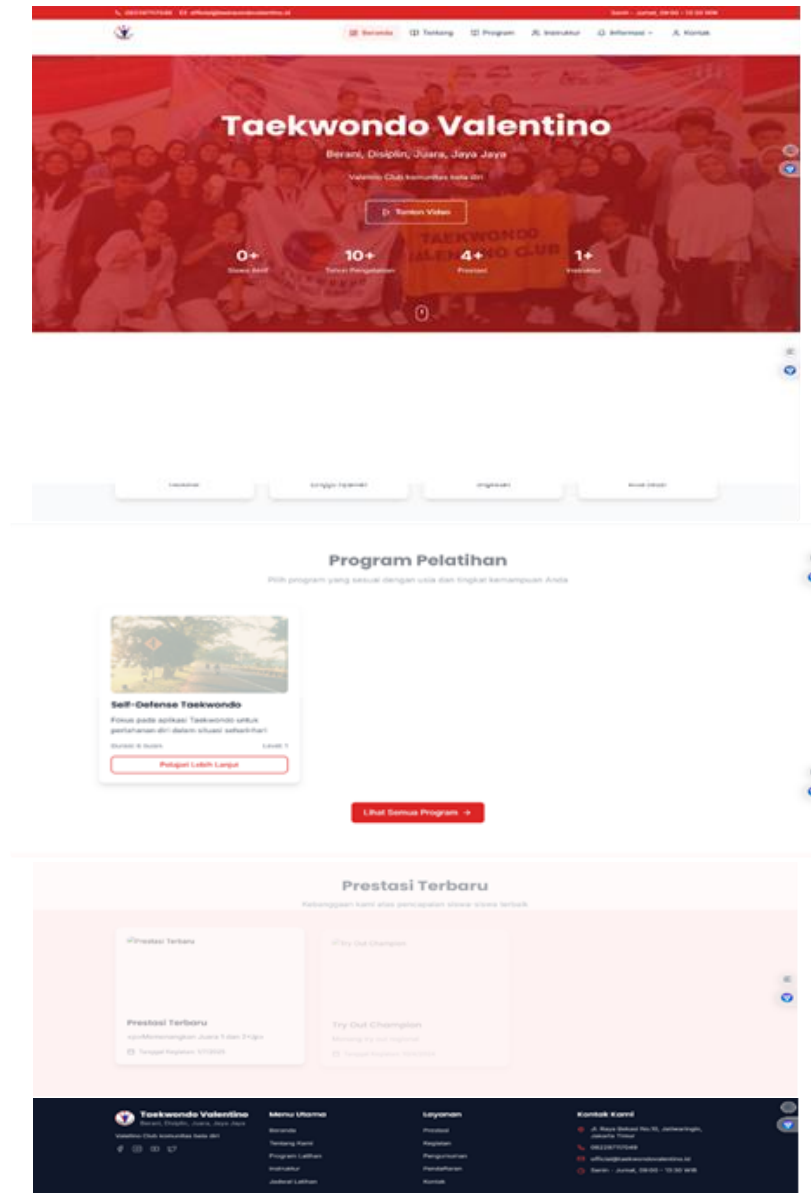Taopik Hidayat [a], Daniati Uki Eka Saputri [b], and Nurul Khasanah [c]

FIGURE 6. Screenshot of the Taekwondo Valentino Club management website

Overall, the implementation of a website-based information system has had a significant impact on improving administrative efficiency, digital literacy, and organizational professionalism. The process of recording member and coach data, training schedules, and documenting achievements, which was previously done manually, is now faster, more accurate, and more transparent. Administrators are also more confident in operating the technology and can adapt independently. Members and parents also benefit through easier access to information, from training schedules to club achievements. Furthermore, the official website serves as a publication and promotional medium, increasing club visibility, strengthening branding, and opening up opportunities for recruiting new members.

Results of Training and Mentoring

The training and mentoring program was attended by 40 participants, consisting of Valentino Taekwondo Club administrators and coaches. Three lecturers and two students actively guided the club

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in using the management website. The implementation revealed significant improvements in two key aspects: management (F2) and social aspects (F3).

Management Aspects (F2)

Table 1 presents the comparison of pre-test and post-test results. The average management score increased from 2.34 (SD=0.41) to 4.46 (SD=0.38), an improvement of +90.6%, statistically significant ($p < 0.001$). The effect size was Cohen's d = 2.15, indicating a very large effect.

TABLE 1. Summary results of participant questionnaires before and after the management aspect program

Indicator	Pre-test Mean (SD)	Post-test Mean (SD)	% Increase	*p*-value	Effect Size (d)
F2-1 Access to club information	2.1 (0.5)	4.5 (0.4)	+114%	<0.001	2.20
F2-2 Information display/format	2.5 (0.6)	4.4 (0.5)	+76%	<0.001	2.05
F2-3 Data input & update	2.3 (0.5)	4.4 (0.4)	+91%	<0.001	2.12
F2-4 Data tidiness	2.3 (0.4)	4.4 (0.5)	+91%	<0.001	2.10
F2-5 Report preparation	2.5 (0.6)	4.6 (0.4)	+84%	<0.001	2.20
Average	**2.34 (0.41)**	**4.46 (0.38)**	**+90.6%**	**<0.001**	**2.15**

Indicator	Pre-Test (Before)	Post-Test (After)
F2-1 Access to club information	2.1	4.5
F2-2 Information display/format	2.5	4.4
F2-3 Data input and update process	2.3	4.4
F2-4 Athlete data tidiness and organization	2.3	4.4
F2-5 Administrative report preparation	2.5	4.6
Average Management Aspect (F2)	**2.34**	**4.46**

Based on the questionnaire results presented in Table 1, club management before the website was low, with an average score of 2.34. This indicates that the manual system was unable to support the effectiveness of management, particularly in the indicators of information access (2.1), data input speed (2.3), and administrative report preparation (2.5). Furthermore, athlete data was not stored neatly, making retrieval difficult.

After the website was implemented, the average score increased sharply to 4.46 (very good). The highest improvement occurred in the information access indicator, with a difference of +2.4 points, followed by the neatness of athlete data, data input speed, and report preparation, which increased by more than +2 points. Overall, the management aspect experienced a +90.6% improvement, indicating that the website was able to transform club management from a slow and unstructured manual system to a fast, organized, and efficient digital system. A comparison visualization is shown in Figure 7.
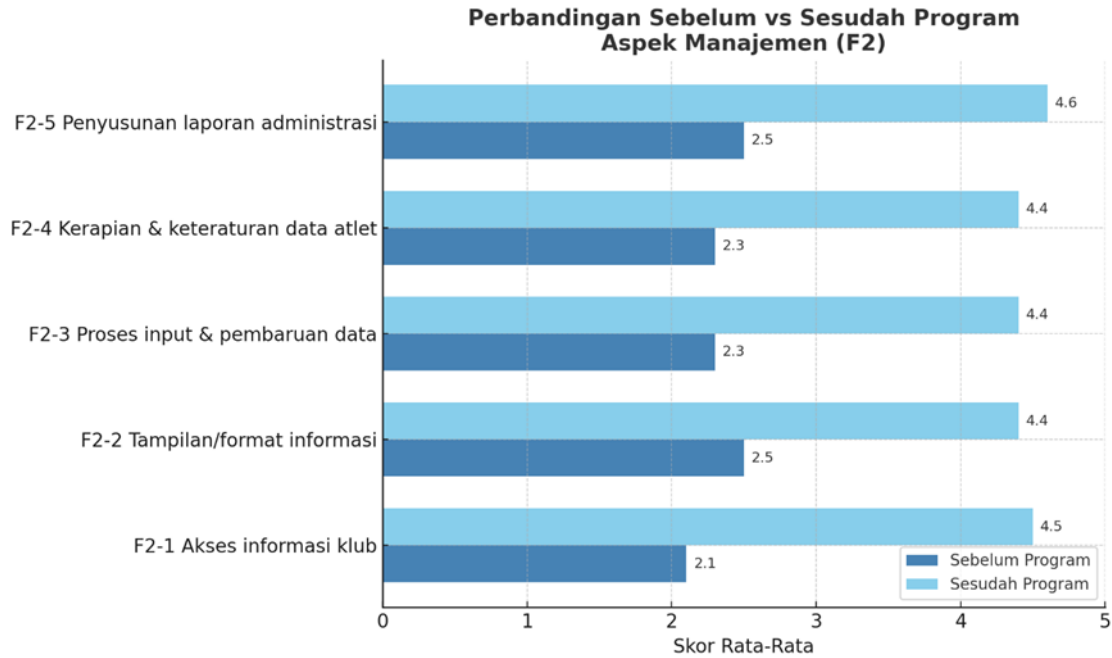
FIGURE 7. Comparison graph before and after the management aspect program (F2)

Social Aspects (F3)

Similarly, Table 2 shows that the social aspect score improved from 2.44 (SD=0.39) to 4.50 (SD=0.42), an improvement of +84.4%, statistically significant ($p < 0.001$). The effect size was Cohen's d = 2.08 (very large).

TABLE 2. Summary of participant questionnaires before and after the social community aspect program

Indicator	Pre-test Mean (SD)	Post-test Mean (SD)	% Increase	p-value	Effect Size (d)
F3-1 Access to training schedule	2.9 (0.6)	4.5 (0.4)	+55%	<0.001	2.00
F3-2 Speed of information delivery	2.3 (0.5)	4.5 (0.5)	+96%	<0.001	2.12
F3-3 Clarity of information	2.3 (0.6)	4.5 (0.5)	+96%	<0.001	2.15
F3-4 Club-member communication	2.4 (0.5)	4.4 (0.4)	+83%	<0.001	2.08
F3-5 Satisfaction with transparency	2.3 (0.5)	4.6 (0.4)	+100%	<0.001	2.10
Average	**2.44 (0.39)**	**4.50 (0.42)**	**+84.4%**	**<0.001**	**2.08**

Indicators	Pre-Test (Before)	Post-Test (After)
F3-1 Access to training schedule information	2.9	4.5
F3-2 Quick delivery of club activity information	2.3	4.5
F3-3 Clarity of information	2.3	4.5
F3-4 Effective club and member communication	2.4	4.4
F3-5 Satisfaction with information transparency	2.3	4.6
Average Social Aspect (F3)	**2.44**	**4.50**

Regarding the social aspect, the results of the participant questionnaire, as shown in Table 2, indicate

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that before the website, the average score was only 2.44 (fair category). The indicators assessed included access to training schedules (2.9), speed of activity information delivery (2.3), clarity of information (2.3), management-member communication (2.4), and information openness (2.3). This situation illustrates that the manual system did not support effective social communication.

After the program, the average score jumped to 4.50 (very good category). The largest increase occurred in satisfaction with information openness (+2.3 points), followed by speed of information delivery and clarity of information (+2.2 points). Access to training schedules increased from 2.9 to 4.5, while management-member communication rose to 4.4. Overall, the social aspect saw an increase of +84.4%, demonstrating that the website successfully strengthened openness, transparency, and effective communication within the club. A comparison graph of the results is presented in Figure 8.
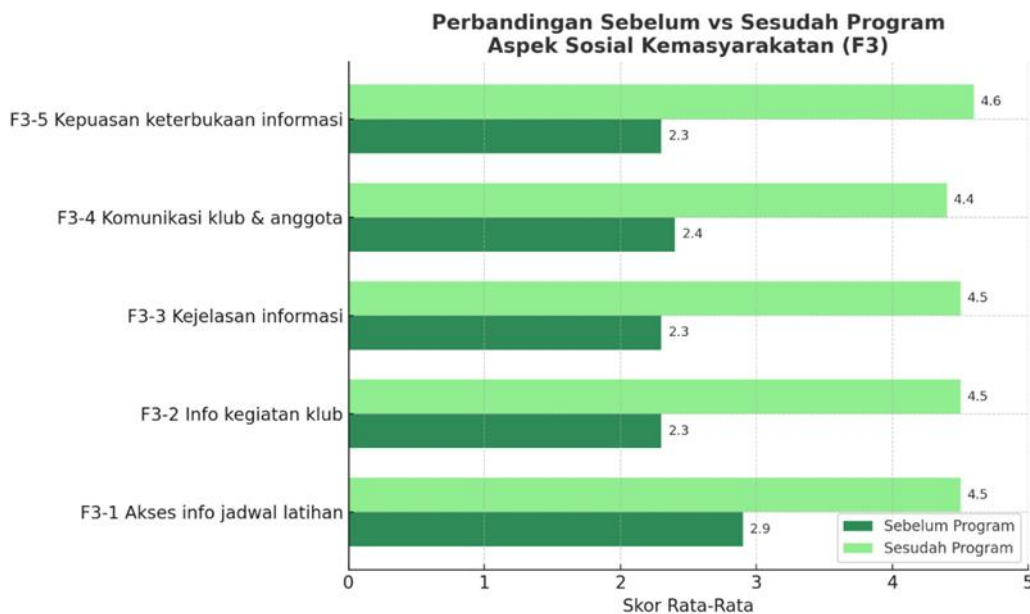

FIGURE 8. Comparison graph before and after the social aspects of the program (F3)

These results confirm that, in terms of management, club administrators now have the skills to manage administration and member data digitally, with efficiency increasing by more than 50% compared to manual methods. Meanwhile, in terms of social engagement, members, parents, and prospective new members have faster, clearer, and more reliable access to information. This transformation not only strengthens internal management but also increases community participation in supporting community sports activities.

Impact of Implementation

The existence of a website-based information system has a tangible impact that goes beyond improving internal club productivity. First, from an organizational management perspective, this system streamlines administrative record-keeping, accelerates information access, and improves the accuracy of member and performance data. This allows administrators to focus more on developing training programs and developing athletes.

Second, in terms of human resource (HR) capacity, the training and mentoring provided have improved the digital literacy of administrators and coaches. They are not only able to operate the website but also have the skills to adapt and develop the system according to future needs. This

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strengthens partners' independence in managing technology sustainably.

Third, in terms of social aspects, the website expands the reach of communication and information transparency. Members, parents, and the community can easily access training schedules, activity information, and club achievements in a transparent manner. This increases public trust, strengthens the organization's image, and opens up opportunities for recruiting new members.

Thus, the implementation of this program not only resolves administrative issues but also provides added value in the form of program sustainability, strengthened human resource capacity, and inclusive social contributions. These positive impacts are relevant, long-term, and adaptable to the evolving needs of partners and the surrounding community.

Discussion

The results of this activity confirm previous research findings that digitalization plays a crucial role in improving the management effectiveness of sports organizations. The implementation of a website-based information system at the Taekwondo Valentino Club has proven effective in optimizing administration, communication, and publication processes. This aligns with Sustainable Development Goal (SDG) 9, which focuses on building resilient infrastructure and strengthening innovation.

Furthermore, student involvement in this activity reflects the concrete implementation of the Independent Learning and Independent Campus (MBKM) policy. Students not only played a role in technology development but also gained practical experience in community mentoring, thus strengthening their academic competencies and professional skills.

The successful implementation was also supported by a participatory approach, with club administrators actively involved from the needs identification stage through final evaluation. This approach ensured that the developed system was relevant, applicable, and independently manageable by partners.

Overall, this community service activity demonstrated that the application of information technology in sports club management not only increased internal productivity but also strengthened the organization's branding, expanded communication reach, and supported digital transformation in the sports sector.

CONCLUSION

The community service program at the Taekwondo Valentino Club successfully improved organizational management and community engagement through the implementation of a website-based information system. The participatory approach ensured system relevance, while student involvement reflected the MBKM policy in practice. However, this study has several limitations, including being limited to a single club, a short timeframe of six months, reliance on self-reported data, the absence of a control group, and a focus on website technology only. Based on these findings, several recommendations can be proposed: in practice, clubs should develop a mobile app, integrate online payments, add performance analytics, and ensure automated backups; in research, future work should include longitudinal and multi-club studies, cost-benefit analysis, and integration with national databases; and in policy, efforts should focus on standardizing digital literacy training, providing regional technical support, and allocating funding for technology adoption in community sports. Looking ahead, future initiatives may explore AI-based analytics for athlete

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performance, mobile integration for broader access, and advanced data visualization to further strengthen digital transformation in grassroots sports.

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