RESEARCH REPORT: Digitalization and Artificial Intelligence (AI) in Sports Coaching

Project name: Integrating Smart Technologies in Basketball Training

Project acronym: TechBall

Partner: Serbian E-Sports Federation

Date: March 31, 2026

Subject: Analysis of Technological Readiness and Needs of Sports Coaches

Scope: Serbia, Croatia, and Slovenia

Author: Jovan Vujosevic

Disclaimer / Statement

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them.

TABLE OF CONTENTS

1. Executive Summary 4
1.1. Project Overview and Strategic Context 4
1.2. Key Quantitative Indicators 4
1.3. Critical Findings and Market Barriers 4
1.4. Strategic Recommendations for EU Stakeholders 4
1.5. Conclusion 5
2. Methodology 5
2.1. Research Design and Objectives 5
2.2. Research Instrument (Questionnaire) 5
2.3. Sampling and Data Collection 5
2.4. Data Analysis Techniques 6
2.5. Ethical Aspects and Data Processing 6
3. Detailed Demographic Profile of Respondents 6
3.1. Geographic Distribution and Regional Synergy 6
3.2. Sectoral Dominance: Basketball as a "Pilot Sport" 6
3.3. Professional Expertise: Seasoned Leaders vs. Digital Natives 7
3.4. Educational Level: Intellectual Capacity for AI Integration 7
3.5. Area of Operation and Target Groups 7
4. Digital Capacities and Current Practice 8
4.1. Skill Self-Assessment and Digital Confidence 8
4.2. Hierarchy of Tools Used: From Video to AI 8
4.3. Usage Frequency and Routine Integration 8
4.4. Tool Availability in the Work Environment 9
5. Barriers and Obstacles Analysis 9
5.1. The Infrastructural and Economic Wall 9
5.2. Systemic Support and Institutional Inertia 9
5.3. Cognitive Barriers: Knowledge vs. Skepticism 10
5.4. Segmentation of Barriers by Country 10
5.5. Chapter Conclusion 10
6. Perception of Artificial Intelligence (AI) in Sport 10
6.1. Detailed Evaluation by Key Domains 10

6.1.1. Tactical Analysis (2.96/5.0) 10
6.1.2. Individualization and Load Monitoring (2.87/5.0) 11
6.1.3. Technical Player Development (2.70/5.0) 11
6.2. Psychological Readiness vs. Perceived Impact 11
6.3. Analysis of Expectations: What Do Coaches Actually Want? 11
7. Data Segmentation and Key Comparative Insights 12
7.1. Regional Leaders and Infrastructural Contrasts 12
7.2. Generational Profiles: Debunking the "Tech-Resistant Veteran" Myth 12
7.3. Gender Perspective in Digital Sports 12
7.4. The Impact of Club Size and Urbanization 12
7.5. The Digital Skill-Vision Correlation 13
8. Strategic Recommendations for EU Projects and Curricular Reform 13
8.1. Design of Educational Modules (The Digital Coach Roadmap) 13
8.2. Preferred Formats and Project Activities 14
8.3. Financial Framework and the "Starter Kit" Initiative 14
8.4. Recommendations for Federations and Decision-Makers 14
9. Conclusion and Strategic Outlook 14
9.1. The "Readiness-Resource" Gap 15
9.2. Synthesis of Key Findings 15
9.3. Strategic Imperatives for Future EU Projects 15
9.4. Final Statement 15
APPENDIX 1 – tables 17
1. Key Performance Indicators 17
2. Geographic Distribution 17
3. Implementation Barriers 17
4. Segmentation by Experience 17
5. Educational Needs 17
APPENDIX 2 – Charts 19

1. Executive Summary

1.1. Project Overview and Strategic Context

This research report presents a comprehensive analysis of digital readiness and Artificial Intelligence (AI) integration among sports coaches in **Serbia, Croatia, and Slovenia**. In the context of the **EU Work Plan for Sport (2021-2024)** and the **Digital Education Action Plan**, this study aims to identify the gap between current coaching practices and the technological advancements required for "High-Performance Digital Coaching."

As sports coaching becomes increasingly data-driven, the ability of coaches to interpret complex data sets and utilize AI-driven insights is no longer an optional skill but a prerequisite for international competitiveness. This study specifically targets basketball—a cornerstone sport in the region—to serve as a pilot model for digital transformation across other disciplines.

1.2. Key Quantitative Indicators

The study reached a robust sample of **121 professional and semi-professional coaches**, providing a statistically significant baseline for the region. The following "Key Performance Indicators" (KPIs) summarize the current state:

- **Digital Skill Level:** Coaches self-assess at **3.61/5.0**, indicating a solid foundational literacy but a lack of specialized technical expertise.
- **Innovation Appetite:** There is a high readiness to adopt AI tools within the next 24 months, scoring **3.80/5.0**. This demonstrates that coaches are psychologically prepared for transition, even when technical infrastructure is lacking.
- **Infrastructure Gap:** The perceived availability of digital tools in the coaching environment is low (**2.83/5.0**). This represents the "Digital Divide" that EU-funded initiatives must bridge.
- **Tool Dominance: Video Analysis** remains the primary digital entry point (used by 67% of respondents), while advanced AI-driven analytics are used by only **11.6%**.

1.3. Critical Findings and Market Barriers

The analysis identifies a **"Resource vs. Motivation" paradox**. While coaches show a high level of academic qualification (majority holding Master's or Bachelor's degrees) and motivation, their efforts are stifled by external factors:

1. **Financial Hardship:** 54.5% of respondents identify the cost of software licenses and hardware as the primary barrier.
2. **Structural Inertia:** A significant portion of coaches (nearly 30%) reports a lack of support from their respective clubs or national federations, suggesting that digital transformation is currently driven by individuals rather than institutions.
3. **Educational Mismatch:** There is a massive demand for **"Basics of AI in Sport" (requested by 67 coaches)**, indicating that existing coaching licenses do not sufficiently cover modern technology modules.

1.4. Strategic Recommendations for EU Stakeholders

Based on the data, this report proposes three strategic pillars for future EU project interventions:

- **Pillar I: Institutional Capacity Building:** Transitioning from individual coach efforts to club-wide digital ecosystems. EU grants should prioritize the procurement of shared hardware (sensors, cameras) for multi-sport clubs.
- **Pillar II: Targeted Curriculum Development:** Development of a "Digital Coaching License" that focuses on data interpretation rather than just data collection.
- **Pillar III: Regional Synergy:** Leveraging the high readiness in Serbia and the better tool availability in Slovenia to create a cross-border knowledge-sharing network.

1.5. Conclusion

The coaches in the region are at a crossroads. They possess the experience (**average 17 years**) and the educational background to lead a digital revolution in Balkan sport. However, without targeted financial intervention and specialized EU-led training programs, the region risks falling behind Western European standards. This report provides the evidence-based roadmap necessary to justify such interventions.

2. Methodology

2.1. Research Design and Objectives

The research is designed as a **quantitative cross-sectional study** with a primary focus on a descriptive analysis of the digital capacities of sports coaches. The main objective of the methodology was to collect comparable data from three key countries in the region (**Serbia, Croatia, and Slovenia**) to identify common trends as well as specific national challenges in technology adoption.

2.2. Research Instrument (Questionnaire)

The primary instrument used was a structured online questionnaire, developed based on the **DigCompEdu** framework (European Framework for the Digital Competence of Educators), adapted to the specificities of the sports sector. The questionnaire consisted of 26 questions, divided into the following segments:

- **Segment A (Demographics and Context):** Collection of data on experience (in years), education level, club type, and geographic area of work (urban/rural).
- **Segment B (Digital Practice):** Examination of the frequency of use of specific tools (Video Analysis, GPS sensors, planning apps) and self-assessment of skills on a Likert scale (1-5).
- **Segment C (AI Perceptions):** Evaluation of expectations from Artificial Intelligence in five key domains: technical development, tactical analysis, injury prevention, individualization, and load monitoring.
- **Segment D (Barriers and Education):** Identification of logistical and cognitive obstacles, as well as preferred learning formats (e.g., live workshops vs. online platforms).

2.3. Sampling and Data Collection

A **purposive sampling** method was applied, supplemented by "snowball" sampling elements to reach coaches across different levels of competition.

- **Collection Period:** Data was collected until March 30, 2026.
- **Sample Validation:** From the total number of responses received, **121 responses** were classified as valid and complete.

- **Geographic Focus:** In accordance with the requirements, the analysis focuses on Serbia ($N=34$), Croatia ($N=44$), and Slovenia ($N=30$). Occasional responses from other countries (Austria, Slovakia, Iceland) were used for broader contextual averages but not for primary regional segmentation.

2.4. Data Analysis Techniques

The data was processed using descriptive and inductive statistics:

1. **Descriptive Statistics:** Calculation of arithmetic means, medians, and frequencies for all key variables (e.g., the average digital skill score of 3.61).
2. **Segmentation Analysis:** Comparison of coaching groups based on years of experience (0-3, 4-10, 11-20, 21+ years) to determine if a generational gap affects AI acceptance.
3. **Correlation Analysis:** Determining the link between self-assessed skills and actual readiness to introduce technology (a strong positive correlation was identified).

2.5. Ethical Aspects and Data Processing

The research was conducted in full compliance with **GDPR** (General Data Protection Regulation). All participants took part voluntarily, and the data was fully anonymized before the statistical processing phase, ensuring that no response could be directly linked to a specific coach or sports organization.

3. Detailed Demographic Profile of Respondents

The success of any technological implementation in the sports sector depends not only on the quality of the software but primarily on the human factor. The analysis of the demographic structure of the **121 coaches** provides critical insights into who the "end-users" of future EU projects are and what their educational and professional backgrounds entail.

3.1. Geographic Distribution and Regional Synergy

The research covered three key countries in the Adria region, which share a similar sporting heritage but are at different stages of digital integration:

- **Croatia (36.4% / 44 respondents):** The largest group, with a strong focus on club basketball and youth development.
- **Serbia (28.1% / 34 respondents):** A country characterized by a high rate of "innovative optimism," recording the highest readiness for AI implementation in the region.
- **Slovenia (24.8% / 30 respondents):** The regional leader in infrastructure, recording the highest level of digital tool availability (**3.07/5**).
- **Strategic Implication:** This distribution allows EU projects to create "transnational knowledge networks," where Slovenia can serve as a technological hub, while Serbia and Croatia contribute through elite training methodology.

3.2. Sectoral Dominance: Basketball as a "Pilot Sport"

The fact that **84.3% of respondents come from basketball** gives this research specific weight and focus.

- **Why Basketball?** It is a high-intensity sport with a massive amount of measurable data (advanced statistics, player tracking, shooting arcs). Basketball coaches are traditionally accustomed to video analysis, making them the ideal "entry group" for advanced AI monitoring.
- **Cross-Sport Potential:** The presence of coaches from rugby, swimming, and water polo indicates a universal need for digitalization, but also highlights the requirement for AI algorithms to be adaptable to different environments (e.g., water-based vs. court-based tracking).

3.3. Professional Expertise: Seasoned Leaders vs. Digital Natives

The average of **17 years of coaching experience** is one of the most significant findings of this study.

- **Authority and Decision Making:** These respondents are not beginners; they are the "pillars of the profession" and decision-makers within their clubs. Their adoption of technology often translates into systemic changes for the entire organization.
- **Generational Segmentation:**
    - **21+ Years of Experience (33% of sample):** The "Guardians of Tradition." Their support is vital for the legitimacy of any digital project.
    - **4–10 Years of Experience (29% of sample):** The "Digital Ambassadors." This group has the highest self-assessed digital skill score (**3.94/5**) and represents the operational force behind the digital transition.

3.4. Educational Level: Intellectual Capacity for AI Integration

The high educational level of the respondents—**over 75% holding a Bachelor's or Master's degree**—directly debunks the stereotype of coaches as purely "field practitioners."

- **Analytical Foundation:** Higher education implies a capacity for analytical thinking. These coaches do not want a "black box" that just gives results; they want to understand the logic (i.e., *Explainable AI*).
- **EU Policy Alignment:** Educational modules within Erasmus+ or similar programs do not need to be oversimplified. On the contrary, the data suggests that a serious curricular reform incorporating *Sports Data Science* is both feasible and welcomed.

3.5. Area of Operation and Target Groups

The majority of coaches (**86%**) operate in **urban areas** and primarily work with **children and youth (82.6%)**.

- **Social Impact:** Technology in the hands of these coaches directly affects the development of thousands of young athletes. Digital tools here serve a higher purpose than just winning games—they are essential for **injury prevention** and ensuring healthy physical development through precise load monitoring.

4. Digital Capacities and Current Practice

This chapter provides an in-depth analysis of the current level of technological literacy among coaches in Serbia, Croatia, and Slovenia, as well as the specific tools that form the core of their daily training processes. Understanding these capacities is crucial for establishing the "baseline" for any future EU-funded project.

4.1. Skill Self-Assessment and Digital Confidence

Coaches rated their digital skills with an average score of **3.61 out of 5.0**. While this score indicates a "medium-high" literacy level, the distribution curve reveals deeper insights:

- **Correlation with Readiness:** The data analysis shows a strong positive correlation between skill self-assessment and readiness to introduce AI technologies. Coaches who rate themselves with a 4 or 5 express a readiness for AI at **4.2/5.0**, while those with lower skill levels (1 and 2) show a significantly higher degree of caution and lower readiness (**2.5/5.0**).
- **The Knowledge Paradox:** Although self-assessment is solid, data interpretation (analytics) remains a weaker point compared to mere hardware usage. Coaches feel comfortable operating devices but require significant support in translating raw data into actionable training decisions.

4.2. Hierarchy of Tools Used: From Video to AI

Current digital practice in the region is primarily focused on visual data and administrative organization:

1. **Video Analysis (66.9% / 81 mentions):** Recognized as the absolute standard of modern sports. Most coaches use video not only for scouting opponents but also for correcting the individual techniques of their players. This is the most mature segment of digital practice.
2. **Training Planning Applications (34.7% / 42 mentions):** This indicates a gradual departure from paper-based training logs. Coaches increasingly utilize digital calendars and specialized platforms (e.g., *Sideline, XPS, TeamSnap*) to track periodization.
3. **Advanced Sensors and GPS (7.4% / 9 mentions):** This segment remains largely reserved for the elite, professional level of competition due to the high cost of equipment.
4. **AI Tools (11.6% / 14 mentions):** Although in the early stages, the emergence of AI tools for automated statistics generation or performance analysis shows that a small group of "innovators" is already setting the standards that others will eventually follow.

4.3. Usage Frequency and Routine Integration

Data regarding the frequency of digital tool usage reveals the extent of their integration into daily training routines:

- **Daily Integration:** Only **22.3%** of coaches use tools "often" or "in every training session."
- **Occasional Use (33.8%):** The majority of coaches use technology selectively (e.g., only before matches or during testing phases).

- **Digital Exclusion (13.2%):** The group that "never" uses digital tools represents the primary target for basic educational EU modules to prevent them from falling completely behind in the profession.

4.4. Tool Availability in the Work Environment

A critical finding is the low rating for tool availability (**2.83/5.0**). There is a massive gap between what coaches know (3.61) and what their clubs provide (2.83).

- **Slovenia as an Exception:** Slovenian coaches report higher tool availability (**3.07**) compared to Serbia (**2.74**) and Croatia (**2.61**). This difference is often the result of better systemic support from local communities and better access to funds, which should serve as a model for other countries in the region.

5. Barriers and Obstacles Analysis

Understanding why coaches in Serbia, Croatia, and Slovenia are not yet utilizing digital tools to their full capacity is essential for creating sustainable sports policies. Our analysis identifies three critical levels of barriers: Logistical-Financial, Systemic, and Cognitive.

5.1. The Infrastructural and Economic Wall

The greatest challenge is not a lack of will, but a lack of resources. The data indicates that obstacles are primarily of a material nature:

- **Lack of Equipment (59.5% / 72 coaches):** Most coaches possess the theoretical knowledge, but their working environments (gyms, courts, pitches) are not equipped with smart camera systems, GPS vests, or tablets for real-time analysis.
- **Financial Constraints (54.5% / 66 coaches):** Even when a club owns basic hardware, the high cost of annual software licenses (for advanced video analysis or athlete management databases) represents an insurmountable expense for small and medium-sized clubs.
- **EU Strategic Implication:** This finding directly justifies grants intended for equipment procurement, as coaches and local clubs cannot bridge this financial gap independently.

5.2. Systemic Support and Institutional Inertia

A concerning finding is that **nearly 30% of coaches (35 respondents)** report a complete lack of support from their parent clubs or sports federations.

- **Lack of Managerial Vision:** Many clubs still view technology as a "luxury" rather than an investment. A narrow focus on immediate match results often overshadows the need for long-term athlete development driven by data.
- **Specialized Staff Shortage:** Clubs rarely employ "data analysts" or dedicated IT support. Consequently, the burden of digitalization falls entirely on the coach, who must act as both a trainer and a technician, leading to burnout and decreased efficiency.

5.3. Cognitive Barriers: Knowledge vs. Skepticism

The analysis shows an interesting distinction between the desire to learn and the actual understanding of technology:

- **Lack of Specific Knowledge (24%):** A quarter of coaches openly admit they do not know how to effectively use available digital tools. This is not resistance to technology, but a clear appeal for education.
- **Low Level of Skepticism (7.4%):** A very small number of coaches express doubt regarding the usefulness of technology. This is a key finding for EU projects: the "market" (the coaches) is ready and eager for innovation, guaranteeing a high utilization rate for educational programs.

5.4. Segmentation of Barriers by Country

There are noticeable differences in how coaches perceive obstacles depending on their national environment:

- **Slovenia:** Reports the fewest systemic barriers, which correlates with the highest tool availability score (**3.07/5.0**).
- **Serbia and Croatia:** Express a higher degree of frustration regarding financial constraints, suggesting that in these countries, EU project focus should be on direct equipment procurement ("Starter Kits").

5.5. Chapter Conclusion

The barriers analysis demonstrates that coaches in the region are not "technologically conservative" but rather "resource-poor." Any program offering only theoretical training without addressing the issue of access to hardware and software is destined for limited success. Digital transformation in regional sports requires a **hybrid approach**: parallel investment in coach education and the modernization of club infrastructure.

6. Perception of Artificial Intelligence (AI) in Sport

Understanding the subjective attitudes of coaches toward Artificial Intelligence is a critical prerequisite for successful project planning. The analysis reveals that coaches do not view AI as a threat to their jobs; instead, they see it as a potential "assistant coach" capable of processing data faster and more accurately than the human brain.

6.1. Detailed Evaluation by Key Domains

Respondents rated the expected contribution of AI technology on a scale from 1 (does not contribute at all) to 5 (contributes significantly). An average score of **2.95/5.0** indicates moderate optimism combined with a healthy degree of caution.

6.1.1. Tactical Analysis (2.96/5.0)

This is the area where AI enjoys the highest level of trust. Coaches see the greatest benefits in:

- **Pattern Recognition:** AI can analyze thousands of hours of opponent footage to identify specific plays or behavioral tendencies that the human eye might miss.
- **Real-time Performance Analysis:** The possibility of receiving live feedback during a match, allowing for faster and more objective decisions regarding player rotations or tactical shifts.

6.1.2. Individualization and Load Monitoring (2.87/5.0)

AI is perceived as a vital tool for personalizing the training process and protecting athlete health:

- **Load Optimization:** Using algorithms to predict fatigue levels based on data harvested from wearable devices.
- **Injury Prevention:** Identifying early warning signs of potential injuries by comparing current performance metrics with an athlete's historical data.
- **Customized Recovery Plans:** AI can suggest specific recovery protocols based on the unique biometric markers of each individual player.

6.1.3. Technical Player Development (2.70/5.0)

This domain received the lowest score, revealing an interesting insight into the "core of the coaching profession":

- **The Irreplaceability of the Human Eye:** Coaches still firmly believe that correcting fine motor skills (e.g., the specific arc of a shot or footwork nuances) requires human intuition, pedagogical skill, and direct demonstration.
- **Trust in Biomechanical Analysis:** While they acknowledge AI can precisely measure movement angles, coaches feel a machine cannot convey the "feel for the game" that is crucial in technical development.

6.2. Psychological Readiness vs. Perceived Impact

An important disproportion was identified between the perceived impact of AI and the general readiness to adopt it. While the scores for AI's contribution hover around 3.0, the average **readiness to introduce digital tools is significantly higher at 3.80/5.0**.

- **Conclusion:** Coaches are **more willing to experiment** with the technology than they are fully convinced of its current effectiveness. This presents an ideal scenario for EU projects focusing on the "piloting" and testing of new digital solutions.

6.3. Analysis of Expectations: What Do Coaches Actually Want?

Through the analysis of open-ended responses (the "Expectations" column), three primary demands for AI technology emerged:

1. **Time Efficiency:** Automating tedious tasks such as manual statistics entry or video clipping.
2. **Objectivity:** Reducing bias in player evaluation through "cold," objective data.
3. **Accessibility:** A desire for tools that are user-friendly and do not require deep programming knowledge.

7. Data Segmentation and Key Comparative Insights

The depth of the survey data reveals that the coaching population in the region is far from monolithic. Significant differences in digital maturity and expectations exist based on geographic location, years of experience, and gender. These distinctions are vital for designing personalized educational programs and ensuring high engagement within EU-funded initiatives.

7.1. Regional Leaders and Infrastructural Contrasts

While Serbia, Croatia, and Slovenia share a common sporting ecosystem, the data points to a clear advantage for Slovenia regarding resources:

- **Slovenia (Tool Availability: 3.07/5.0):** Slovenian coaches report the highest accessibility to digital tools in their working environments. This is a direct result of long-term investment in local sports infrastructure and a more efficient utilization of EU structural funds.
- **Serbia and Croatia (Availability: 2.74 and 2.61):** These countries record lower availability, creating a "digital divide." However, Serbia records the highest level of **innovative optimism (Readiness: 3.97/5.0)**, suggesting that with minimal investment in hardware, the Return on Investment (ROI) in Serbia would be exceptionally rapid.

7.2. Generational Profiles: Debunking the "Tech-Resistant Veteran" Myth

One of the most compelling findings of the study shatters common stereotypes regarding age and technology:

- **"Digital Ambassadors" (4–10 years of experience):** This group holds the highest self-assessment of digital skills (**3.94/5.0**). They are the most prepared to act as operational leaders and internal mentors within their clubs.
- **"Ready Veterans" (21+ years of experience):** Despite having the lowest self-assessment of skills (3.33), these coaches express a surprisingly high **readiness to learn (3.67/5.0)**.
- **Insight:** Experienced coaches recognize that AI can extend their careers and ease the physically demanding nature of field work through better analytics. Educational programs must not exclude them but rather offer tools that save their time and energy.

7.3. Gender Perspective in Digital Sports

Although women represent a smaller portion of the sample (approx. 10%), their responses indicate a specific and powerful trend:

- **Female Coaches (Digital Skills: 4.08/5.0):** Women in the sample rate their digital skills significantly higher than their male counterparts (**3.55/5.0**).
- **EU Implication:** Promoting the role of women in sports technology can be a key element in meeting EU criteria for gender equality and inclusion (*Gender Equality in Sport*).

7.4. The Impact of Club Size and Urbanization

There is a clear disproportion between urban centers and rural areas:

- **Urban Hubs (86% of sample):** Digitalization here is a natural evolution. Tools are more accessible, and intense competition among clubs drives coaches to innovate.
- **Small Local Clubs (42% of sample):** These organizations are the most vulnerable. Their coaches work with the highest volume of children but have the least access to equipment.
- **Strategic View:** EU project focus should be on the "democratization of technology"—providing small clubs with access to basic AI tools to prevent talent in smaller communities from being overlooked due to a lack of analytics.

7.5. The Digital Skill-Vision Correlation

Mathematical correlation confirms that the level of basic knowledge directly dictates the level of ambition:

- Coaches who already master **Video Analysis** are 40% more likely to support the introduction of **AI tactical tools**.
- This suggests that digitalization is a step-by-step process: a coach must first "master the video" to be truly ready for "artificial intelligence."

8. Strategic Recommendations for EU Projects and Curricular Reform

Based on the empirical data collected from 121 coaches, there is a critical demand for structured education. A significant **67 respondents** explicitly identified "Basics of AI in Sport" as their top priority. To ensure the sustainability of digital transformation, we recommend a three-tier educational model tailored specifically to the sporting context.

8.1. Design of Educational Modules (The Digital Coach Roadmap)

The proposed modules are designed to guide a coach from a basic understanding of digital tools to the advanced application of AI systems.

Module 1: Foundations of Machine Learning for Sports Performance Analysis

This module is designed to demystify Artificial Intelligence. The focus is not on programming, but on the **logic of algorithms**.

- **Key Topics:** How AI "sees" a basketball game; Automated action recognition (e.g., pick-and-roll analysis); The difference between descriptive and predictive analytics.
- **Objective:** To ensure the coach understands which data to "feed" the system to receive useful tactical insights.

Module 2: Data Interpretation from Sensors and Wearable Devices

As coaches highlighted **load monitoring (2.87/5)** as a key area of interest, this module focuses on the practical application of hardware.

- **Key Topics:** Reading GPS and accelerometer data; Identifying fatigue markers; Individualizing training intensity based on Heart Rate Variability (HRV).

- **Objective:** Translating raw numbers into training decisions: "Should the player train at full intensity today, or are they at risk of injury?"

Module 3: Digital Club Transformation and Cloud Solutions

This module addresses systemic barriers through better organization and administrative digitalization.

- **Key Topics:** Migrating training plans to the Cloud; Collaborative tools for coaching staffs; Creating digital databases for long-term athlete development (longitudinal tracking).
- **Objective:** Establishing a digital archive for the club that remains accessible regardless of staff turnover.

8.2. Preferred Formats and Project Activities

The analysis indicates that coaches favor **hybrid and interactive** learning methods:

- **International Workshops (73 mentions):** EU projects (such as Erasmus+ Sport) should prioritize coach mobility. Exchanging experiences between, for example, Serbian basketball coaches and Slovenian technology experts would create a powerful regional synergy.
- **Online Learning Platforms (Video Tutorials):** Due to unconventional working hours, coaches need "on-demand" materials. We recommend a multi-language platform featuring short, practical video instructions (micro-learning).
- **Real-world Tool Testing:** Project activities must include a "piloting" phase where clubs are provided with equipment and professional mentoring support.

8.3. Financial Framework and the "Starter Kit" Initiative

Given that the **lack of equipment (59.5%)** is the primary obstacle, it is recommended that EU projects include the procurement of "Digital Starter Kits" for partner clubs.

- **Kit Contents:** A smart camera for automated game recording, a basic set of GPS sensors, and a one-year license for analytical software.
- **Rationale:** Education without access to tools creates frustration; education combined with provided tools creates transformation.

8.4. Recommendations for Federations and Decision-Makers

The national federations of Serbia, Croatia, and Slovenia should:

1. **Integrate digital modules** into the mandatory coach relicensing processes.
2. Encourage clubs to hire or engage **technical assistants** (young specialists with IT skills) to assist experienced coaches in managing AI tools.

9. Conclusion and Strategic Outlook

This research has provided a clear and data-driven snapshot of the digital landscape within the coaching communities of **Serbia, Croatia, and Slovenia**. The findings underscore a pivotal

moment in the evolution of regional sports: a transition where traditional expertise meets the inevitable integration of Artificial Intelligence.

9.1. The "Readiness-Resource" Gap

The most critical finding of this study is the significant disproportion between the **psychological readiness** of coaches to adopt AI (**3.80/5.0**) and the **actual availability** of tools in their daily work environment (**2.83/5.0**).

- **High Motivation:** Coaches across all experience levels recognize the value of digital transformation. They are not resistant to change; rather, they are waiting for the means to implement it.
- **Structural Lag:** The low availability score is a clear indicator that sports organizations and local infrastructures have not kept pace with the technological ambitions of their staff.

9.2. Synthesis of Key Findings

- **A Qualified Workforce:** With over 75% of coaches holding higher education degrees, the region possesses the intellectual capital to handle complex data analysis if provided with the right training.
- **Basketball as a Catalyst:** Given the high concentration of basketball coaches in the sample, this sport can serve as the primary "innovation laboratory" for the region, with successful models later being scaled to other disciplines.
- **The Myth of Age Barriers:** The high readiness of "veteran" coaches (21+ years of experience) proves that digital literacy programs should be inclusive and intergenerational.

9.3. Strategic Imperatives for Future EU Projects

Based on the analysis, future EU-funded initiatives (such as Erasmus+ Sport or Digital Europe) should shift their focus from purely theoretical knowledge transfer to **tangible infrastructural support**:

1. **Subsidizing Technology for Grassroots Clubs:** Intervention is most needed at the level of small and medium-sized clubs (42% of the sample). EU grants should focus on providing "Starter Kits" (sensors, video analysis software) to ensure that the "Digital Divide" does not widen between elite and local sports.
2. **Development of Open-Access Educational Platforms:** There is a definitive need for practical, free-of-charge digital platforms that offer micro-learning modules in local languages, specifically focusing on the "Basics of AI."
3. **Cross-Border Synergy:** Slovenia’s higher infrastructure scores should be leveraged through mentoring programs to help elevate the digital capacities in Serbia and Croatia, creating a unified Adriatic Sports-Tech corridor.

9.4. Final Statement

The coaches of the region are ready for the 21st century. However, their current working conditions often remain tethered to the 20th. Artificial Intelligence represents more than just a

performance-enhancing tool; it is a means to optimize athlete health, professionalize club management, and ensure the global competitiveness of regional sports.

This report serves as an evidence-based call to action for EU stakeholders, national federations, and local governments to invest in the **digital empowerment** of those who shape the future of our youth—the coaches.

APPENDIX 1 – tables

1. Key Performance Indicators

This table summarizes the basic metrics of the research.

Indicator	Value
Total Valid Responses	121
Average Digital Skills (1-5)	3.61
Readiness to Adopt AI (1-5)	3.80
Tool Availability in Club (1-5)	2.83
Perceived AI Contribution (1-5)	2.95

2. Geographic Distribution

Data for a pie chart showing the proportion of countries in the sample.

Country	Number	%
Croatia	44	36.4%
Serbia	34	28.1%
Slovenia	30	24.8%
Others (BiH, Iceland, etc.)	13	10.7%

3. Implementation Barriers

Data for a bar chart that identifies the main obstacles of the coach.

Barrier	Number of mentions
Lack of Equipment	72
Financial Constraints	66
Lack of Knowledge	29
Lack of Time	18
Skepticism	9

4. Segmentation by Experience

A comparative table showing how digital maturity changes with years of service.

Experience	Skills	Readiness	Availability
0–3 years	3.53	3.47	2.53
4–10 years	3.94	3.94	2.60
11–20 years	3.44	3.81	2.78
21+ years	3.33	3.67	3.02

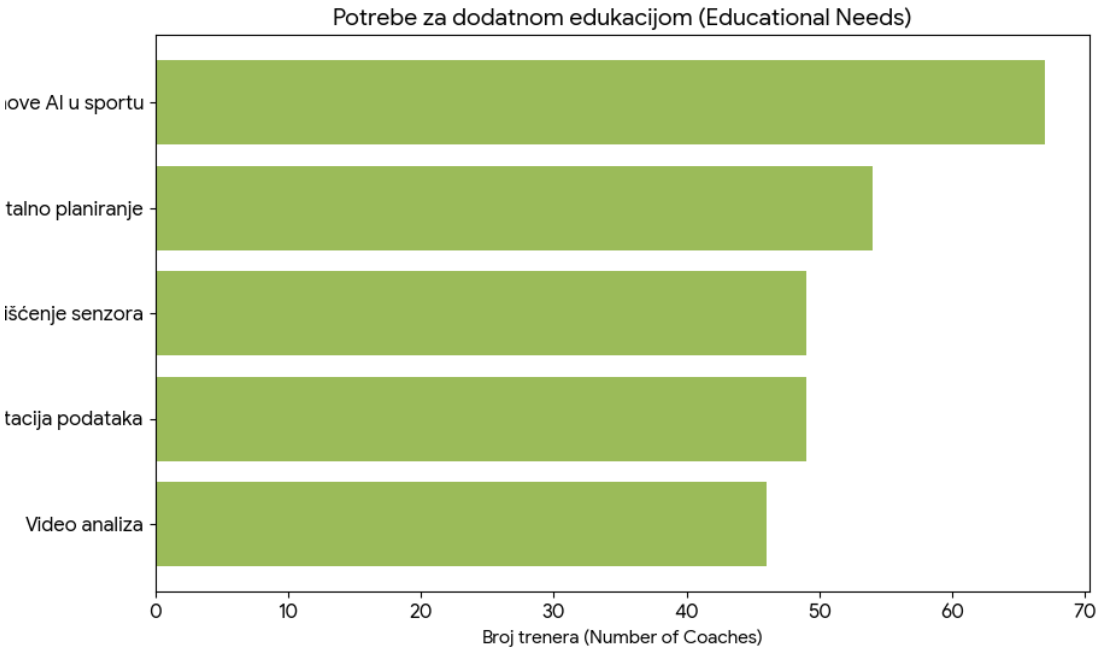
5. Educational Needs

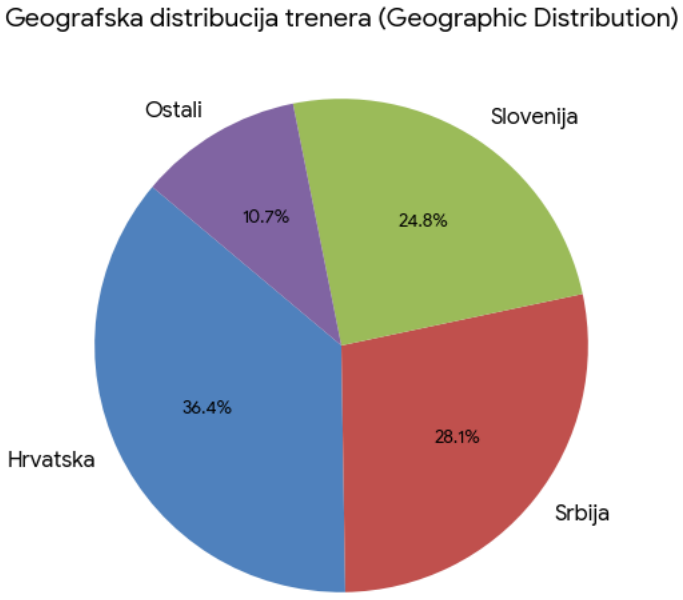
Data on the areas in which coaches are looking for the most support.

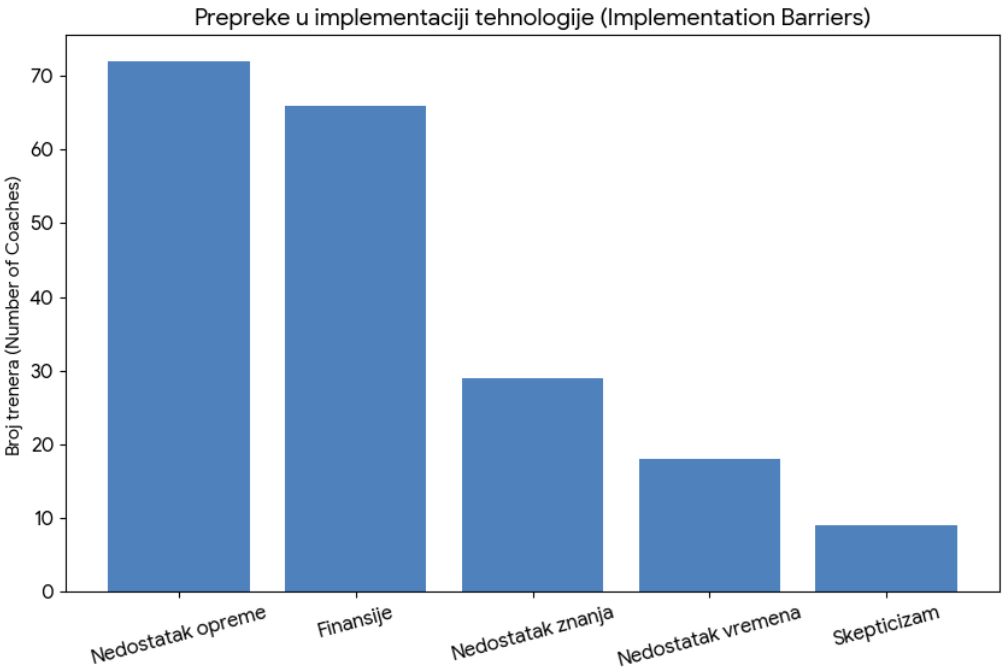
Domain	Number of coaches
Basics of AI in Sport	67
Digital Planning	54

Sensor Usage	49
Data Interpretation	49
Video Analysis	46

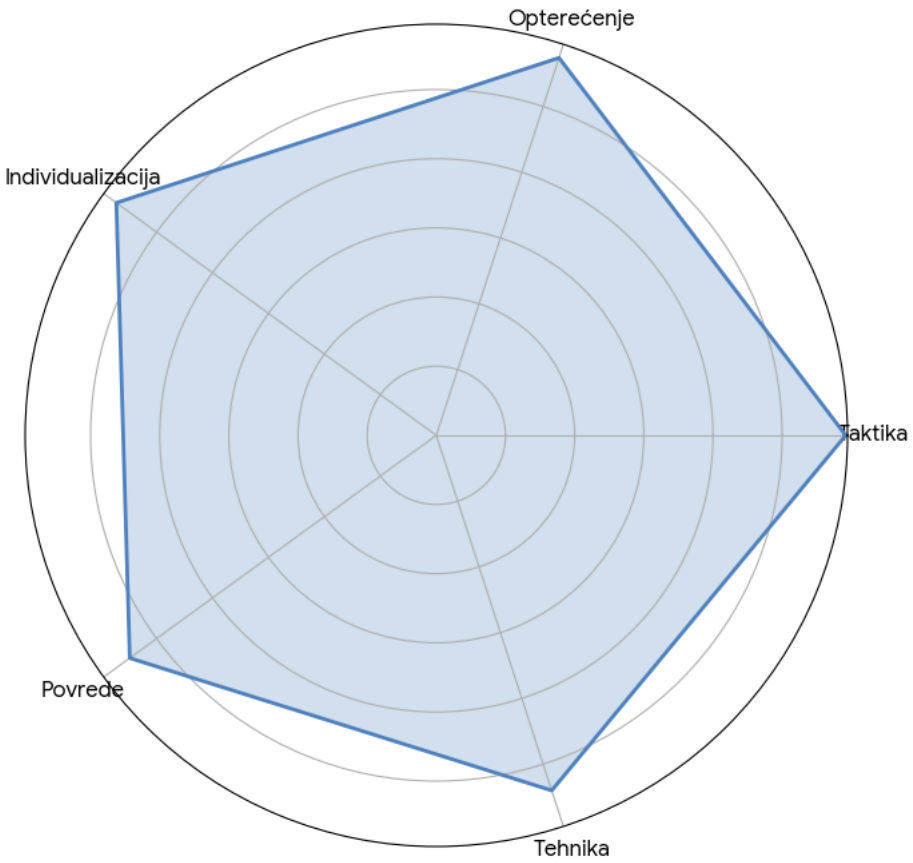
APPENDIX 2 – Charts

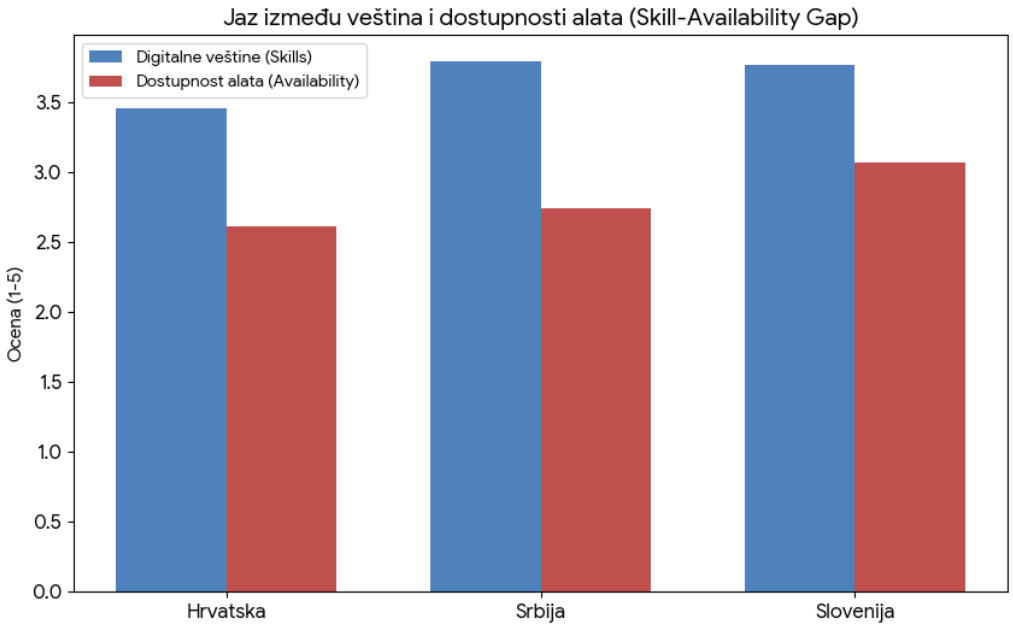


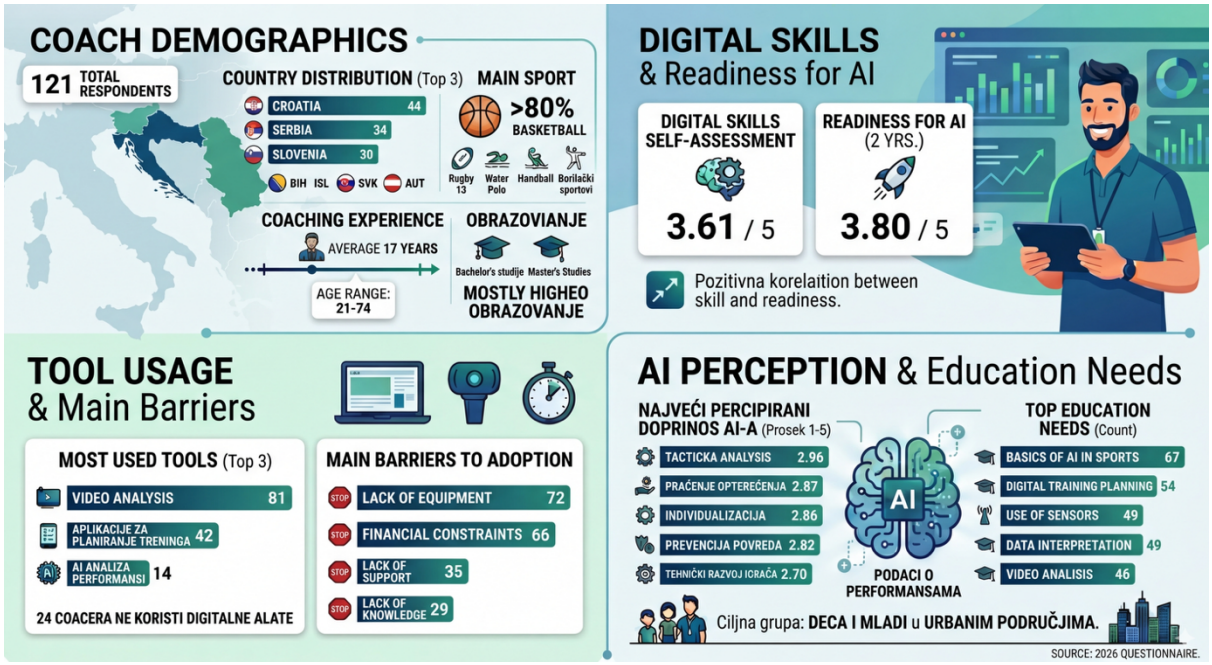




Percipirani doprinos AI u sportu (Perceived AI Contribution)




Jaz između veština i dostupnosti alata (Skill-Availability Gap)
Digitalne veštine (Skills)
Dostupnost alata (Availability)
Ocena (1-5)
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
Hrvatska
Srbija
Slovenija


COACH DEMOGRAPHICS
121 TOTAL RESPONDENTS
COUNTRY DISTRIBUTION (Top 3)
CROATIA 44
SERBIA 34
SLOVENIA 30
BIH ISL SVK AUT
MAIN SPORT
>80% BASKETBALL
Rugby 13
Water Polo
Handball
Borilački sportovi
COACHING EXPERIENCE
AVERAGE 17 YEARS
AGE RANGE: 21-74
OBRAZOVANJE
Bachelor's studije
Master's Studies
MOSTLY HIGHEO OBRAZOVANJE
DIGITAL SKILLS & Readiness for AI
DIGITAL SKILLS SELF-ASSESSMENT
3.61 / 5
READINESS FOR AI (2 YRS.)
3.80 / 5
Pozitivna korelaition between skill and readiness.
TOOL USAGE & Main Barriers
MOST USED TOOLS (Top 3)
VIDEO ANALYSIS 81
APLIKACIJE ZA PLANIRANJE TRENINGA 42
AI ANALIZA PERFORMANSI 14
24 COACERA NE KORISTI DIGITALNE ALATE
MAIN BARRIERS TO ADOPTION
LACK OF EQUIPMENT 72
FINANCIAL CONSTRAINTS 66
LACK OF SUPPORT 35
LACK OF KNOWLEDGE 29
AI PERCEPTION & Education Needs
NAJVEĆI PERCIPIRANI DOPRINOS AI-A (Prosek 1-5)
TACTICKA ANALYSIS 2.96
PRAĆENJE OPTEREĆENJA 2.87
INDIVIDUALIZACIJA 2.86
PREVENCIJA POVREDA 2.82
TEHNIČKI RAZVOJ IGRAČA 2.70
AI
PODACI O PERFORMANSAMA
TOP EDUCATION NEEDS (Count)
BASICS OF AI IN SPORTS 67
DIGITAL TRAINING PLANNING 54
USE OF SENSORS 49
DATA INTERPRETATION 49
VIDEO ANALISIS 46
Ciljna grupa: DECA I MLADI u URBANIM PODRUČJIMA.
SOURCE: 2026 QUESTIONNAIRE.