

# Pregame Decision-Making by a Football Coach Using the SWOT Method

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*Abstract: Many industries use various statistical models for decision-making, but no industry relies on analytical statistical data as professional sports. Decision-making prompts are observed opportunities and issues faced by those who make the decisions in sports, especially coaches when it comes to decisions pertaining to the upcoming match for the team they are coaching. The development of the sports industry and its global position require that the decisions are made analytically, i.e. that making intuitive decisions is to be avoided. This study used the SWOT analysis method, carried out in four stages, which was supposed to quantify the main objectives of the team in the upcoming match. The sample consisted of the U-21 national team match between Bosnia and Herzegovina and Wales in 2020. The first stage of the study determined key weaknesses of both teams and compared them using the Analytic Hierarchy Process method. The obtained results were then evaluated using Home and Visiting Team Factor Evaluation. The final results were then presented using the Home-Visitor Matrix, while the final decision on match strategy was made using the TOWS Matrix. Five objectives were formulated, of which two, if achieved by the Bosnia and Herzegovina national team, should ensure a victory for the team in this duel. These two objectives are to “build attacks of Bosnia and Herzegovina against Wales’s low compactness” and “try to use the opponent’s low compactness, through poor chance creation of Bosnia and Herzegovina”.*

**Keywords**—coach, decision-making, football game, pregame evaluation, SWOT analysis

## 1. INTRODUCTION

SWOT analysis is a strategic instrument used for a dynamic interplay of the strengths and weaknesses of an organization against the opportunities and threats present in the environment to identify chances and risks for the organization’s existence [1].

In sports, SWOT analysis has been used in various areas, such as: Sports industry [2], sports event management [3], sports equipment [4], sports organizations [5], sports tourism [6], recreational sports to improve fitness and health [7] and sports marketing [8].

When business managers speak of a strategy, their ultimate aim is to devise a strategy which is different from that of the competition. The aim is to achieve a victory in the market, whether by conquering a market segment or by attracting customers. The aim of sports managers is also to win, or to become champion, or to improve competition performance [9-11]. An effective and efficient business strategy seeks to predict future events to allow for proactive responses to those events. In the world of sports, a strategy is also vital for achieving a competitive advantage, i.e. an advantage over the opposing team in the upcoming game or over teams in the league in which we compete. Thus, things we learn from a business strategy can be applied to tactics, i.e. strategy, in a playing field. However, author and sports organization theorists have mainly ignored this parallel [12].

Players, coaches, sports managers, sports physicians, or in one word, all the staff, whether visible (field staff) or invisible

(non-field staff), are constantly facing decision-making situations. For example, during a match, a player must choose between shooting, passing or dribbling; during a time-out a coach must choose a play which the team will execute when in possession of the ball next time; a physician must decide whether a player can keep playing or if they need a substitute; a sports manager must choose which players to bring to the club or who to hire as coach [13-15]. Among other factors, all these decisions can be defined by the available information (data) and the time at which the decision is being made, as well as by the decision-making process [16-17]. It should be noted that improvements in technology in the past 30 years have exponentially increased the complexity of decision-making, mainly due to the increased availability of data [18] (Torres-Ronda & Schelling, 2017).

During a match, coaches can take note of only 30% of the events [19], i.e. 42% of the events that football coaches could recall [20]. The same problem was set in other studies as well [21-22]. On average, around 70% of information is lost [24]. Because of the fact that humans are unable to remember all events, it is vital to provide accurate and objective feedback to improve game performance [25].

Coaches make decisions on tactics in three steps: (1) the pre-interactive stage, which concerns all decisions made before the match; (2) the interactive stage, which deals with decisions made by the coach during a match; and (3) the post-interactive stage, which corresponds to the reflective process brought about by the match results when the match has been won or lost [25].

Studies have shown that coaches share similar ideas when preparing their teams for a match – first they focus on the

characteristics of their own team, and then the behaviour and characteristics of the opposing team [26]. Most football coach activities involve observing player technique and team dynamic in implementing set strategies and in responding to opponents [27].

This paper aims to give a quantitative and methodological evaluation of the weakness and strengths of our team and the opponent using SWOT analysis, in order to aid coaches in setting strategies, i.e. making decisions for the next match.

## 2. METHODS

The SWOT analysis was carried out in four stages, which are presented in Figure 1.

The study used the match between the U-21 national teams of Bosnia and Herzegovina (B&H) and Wales which was played in Zenica on September 4, 2020. The Bosnia and Herzegovina and Wales national teams are in group F of the U-21 EURO 2023 qualifiers. The group also includes national teams of Italy, Swede, Montenegro and Luxembourg.

Having identified key factors of the strengths and weaknesses of the BiH and Wales national teams, using AHP

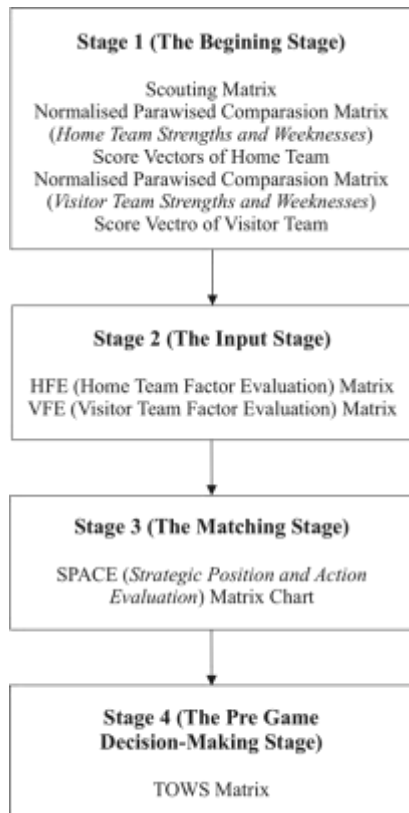


Fig. 1. Game-Decision Strategy Determining Stages

(analytic hierarchy process), structured techniques for analyzing complex decisions, based on mathematics [28], separate pairwise comparison matrices were formed for the home and away team. The  $am \times m$  is a matrix where  $m$  represents the number of the observed criteria. A nine-level

standardized comparison scale was used [29]. Each  $a_{jk}$  entry represents the value of criteria  $j$  compared to criteria  $k$ . If  $a_{jk} > 1$ , then  $j$  criteria is more significant than criteria  $k$  and vice versa, if  $a_{jk} < 1$  then it is less significant than criteria  $k$ . If the two criteria are of equal significance, then we assign 1 as the value of  $a_{jk}$ . Entries  $a_{jk}$  and  $a_{kj}$  must satisfy the following constant:  $a_{jk} \times a_{kj} = 1$ , where  $a_{jj} = 1$  for all categories.

$$A = (\bar{a}_{jk})_{max} = \begin{bmatrix} a_{11} & a_{12} & \cdots & a_{1n} \\ a_{21} & a_{22} & \cdots & a_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ a_{n1} & a_{n2} & \cdots & a_{nn} \end{bmatrix}$$

When the pairwise comparison matrix is formed it is possible to make a normalized pairwise comparison matrix so that the sum for each column of the table would be 1, i.e.  $\bar{a}_{jk}$  from this matrix is calculated as:

$$\bar{a}_{jk} = \frac{a_{jk}}{\sum_{i=1}^m a_{ik}}$$

or

$$\tilde{A} = \begin{bmatrix} \tilde{a}_{11} & \cdots & \tilde{a}_{1n} \\ \vdots & \ddots & \vdots \\ \tilde{a}_{n1} & \cdots & \tilde{a}_{nn} \end{bmatrix}$$

In fact, matrix normalization produces the relative weights. The relative weights, which are later entered into the EFE and IFE matrices, match the eigenvalue  $\lambda_{max}$  as:

$$A_w = \lambda_{max} \times W$$

And finally, the Criteria weight vector (vector of the  $m$ -dimensional columns) was calculated based on the median value of each row of the normalized pairwise comparison matrix, i.e. [30]:

$$W_j = \frac{\sum_{l=1}^m \tilde{a}_{jl}}{m}$$

In the second, input stage, the VFE and HFE matrices were calculated. The VFE matrix is formed by obtaining the input values from the Score Vector of Visitor Team, where the weight of each key factor of the visitor team has already been calculated in the numerical range from 0 (not significant) to 1 (highly significant) and where the sum of the weights must be 1. This weight shows the relative effect of each factor affecting success or failure of a team. Then the result is assigned to each factor (Ratio). The numbers range from 4 to 1, where 4 means high impact of the visitor team on the final score, 3 – above-average impact, 2 – average impact and 1 – low impact. Finally, the weights of all factors (Weight) were multiplied with their individual results (Ratio), giving us the Weighted Score for each factor. The obtained results were added up to produce the Sum Total Weight Scores. The same procedure was used for the HFE matrix, the only difference being in determining the results for the individual factors (Ratio). Namely, major weakness was assigned the result of 1, minor weakness was 2, minor strength was 3 and major strength

represented the result of 4. The result for strength must be 4 or 3, while the result for weakness must be 1 or 2 [31].

In the Matching Stage we compared the intensity of the impact of home team and visitor team key factors on the final score and obtained the selection of the future strategy (Strategic Positioning) by creating the diagram, i.e. SPACE Matrix. This was done by inputting the sums of the weight scores of the VFE and HFE matrices into a graph whose values range from 1 to 4. The x-axis represents the results for the HFE matrix, and the y-axis is for the VFE matrix.

And finally, in the final stage of the Pregame Decision Making, in line with prior results, a TOWS matrix was formed to formulate the objectives of the future strategy and their importance for the upcoming match strategy [32-33].

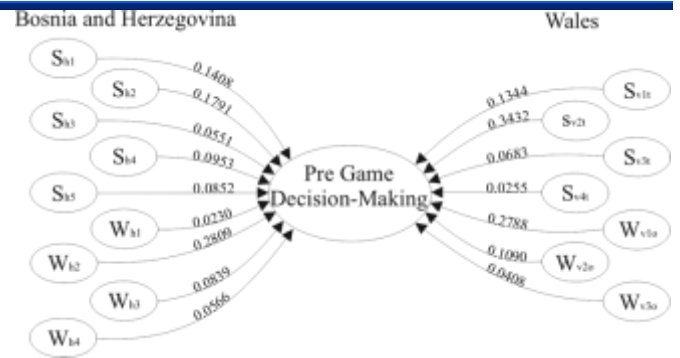
### 3. RESULTS

Table 1 provides key elements of the analysis of the strengths and weaknesses of the home team and visiting team. To facilitate further display of results each of the key factors of the home team and visiting team was given a code ( $S_{h1}$ ,  $S_{h2}$ ,  $S_{h3}$  ...  $W_{v1o}$ ,  $W_{v2o}$ ,  $W_{v3o}$ ).

The AHP mathematical method was used to compare each of the obtained key elements for the home team and visiting team against other strengths and weaknesses, producing a Pa-

**Table 1:** SWOT analysis of the strengths and weaknesses of Bosnia and Herzegovina (home team) and Wales (visitor team)

Strengths (home) $S_h$	Weaknesses (visitor) Opportunities $W_v$
$S_{h1}$ – speed of establishing compactness	$W_{v1o}$ – chance creation
$S_{h2}$ – attack build-up	$W_{v2o}$ – goal scoring
$S_{h3}$ – compact block	$W_{v3o}$ – low positional pressure
$S_{h4}$ – good execution of offensive set-pieces	$W_{v4o}$ – low rate of vertical runs
$S_{h5}$ – efficient organization of defensive set-pieces	
Strengths (opponent) threats $ST_v$	Weaknesses (visitor) Opportunities $S_v$
$S_{v1t}$ – chance creation	$W_{v1o}$ – low compactness
$S_{v2t}$ – goal-scoring	$W_{v2o}$ – poor attack build-up
$S_{v3t}$ – vertical runs	$W_{v3o}$ – defensive set-pieces
$S_{v4t}$ – offensive set-pieces	



**Fig. 2.** The Final Results of the Beginning Stage of Research

irwise Comparison Matrix of Home Team Factor Evaluation (Strengths & Weaknesses) and a Pairwise Comparison Matrix of Visitor Team Factor Evaluation (Weaknesses/Opportunities & Strengths/Threats). Each vertical column of the matrices was then summed, and each individual cell of the vertical column was divided by the number obtained from the vertical result, and the final result was entered into the matrices. The obtained results were then summed horizontally across the rows of the matrices, and each obtained result was divided by the total number of strengths and weaknesses of each team. This resulted in tables for Score Vectors of Visitor Team and Score Vectors Home Team. The sum of the vectors must be 1.0000. Figure 2 gives a graphic presentation of the impact rate of each of the key factors on the final score of the match.

The results obtained in the beginning stage were then input into the HFE (Home Team Factor Evaluation) Matrix and the VFE (Visitor Team Factor Evaluation) Matrix. The results of the second, input stage, are presented in Table 2.

The results of the HFE (2.95) and VFE (2.49) evaluation have been charted in the Home-Visitor Matrix presented in Figure 3.

Based on the results obtained in the final stage of the study, i.e. the Game-Decision Stage, a TOWS Matrix was formed with defined objectives for the next match, as shown in Table 3.

**Table 2:** HFE and VFE Matrix

Home Team Factor Evaluation				Visitor Team Factor Evaluation			
Fact	Weig	Rati	Scor	Fac	Weig	Rati	Scor
$S_{h1}$	0.1418	4	0.5632	$S_{v1t}$	0.1344	2	0.2687
$S_{h2}$	0.1791	4	0.7164	$S_{v2t}$	0.3432	3	1.0296
$S_{h3}$	0.0551	3	0.1654	$S_{v3t}$	0.0683	1	0.0683
$S_{h4}$	0.0953	4	0.3814	$S_{v4t}$	0.0255	1	0.0255

S <sub>h5</sub>	0.08 52	3	0.25 56	W <sub>v1</sub> o	0.27 88	3	0.83 64
W <sub>h1</sub>	0.02 30	1	0.02 30	W <sub>v2</sub> o	0.10 90	2	0.21 80
W <sub>h2</sub>	0.28 09	2	0.56 18	W <sub>v3</sub> o	0.04 08	1	0.04 08
W <sub>h3</sub>	0.08 39	2	0.16 78				
W <sub>h4</sub>	0.05 66	2	0.11 32				
<b>SUM</b>	<b>1.00</b> <b>00</b>		<b>2.95</b>		<b>1.00</b> <b>00</b>		<b>2.49</b>



Fig. 3. SPACE Matrix Chart

#### 4. DISCUSSION

The Scout Method (SM) is used in various sports, such as handball, ice hockey, volleyball, tennis, rugby, basketball... [34-39]. Football is no exception to that [40-42]. Match Analysis is a fundamental process which allows coaches to gather data which provides feedback on player and team performance [43]. It can be said that Match Analysis is a tool which provides information on the strengths and weaknesses of both our players and team and any future opponent [44]. In recent decades, the use of technology has exponentially increased the availability of data to coaches, and consequently the complexity of decision-making [18]. The question is then how the information obtained through the analysis of the key strengths and weaknesses of our team and the upcoming opponent can be assessed properly?

One of the possible solutions when making decisions on which strategy to use for the upcoming match is to apply “lessons learned from business strategy” [12]. Jim Grant, Donelda McKechnie & Ravi Chinta point out that “making the link is not realistic, as the outcome would be that ‘oil and water mix’ — sports on the field/court/ice are not the same as business in the workplace” [9]. “On the other hand, [...] if strategy is used for winning in the business arena, then consider that the same principles have a place when looking for the competitive edge on the sports field/court/ice” [9].

In business, a competitive strategy is devised using SWOT analysis, i.e. the SWOT Matrix, as one of the most familiar and fundamental techniques of strategic analysis in economics. In “Encyclopedia of management theory” points out that companies that regularly analyze their strengths, weaknesses, opportunities and threats have about 60% more chance to survive than those that don’t [45]. “The SWOT template is easily adapted for developing competitive strategy in sports” [9].

Key indicators of strengths and weaknesses of the U-21 national football teams of B&H and Wales are shown in Table 1. The strengths of the opposing team, Wales, were entered into the Scouting Matrix as threats, and its weaknesses as opportu-

**Table 3:** TOWS Matrix of strategic objectives for the match.

	<b>S<sub>h2</sub> (0.1792)</b> <b>S<sub>h1</sub> (0.1408)</b> <b>S<sub>h4</sub> (0.0953)</b> <b>S<sub>h5</sub> (0.0852)</b> <b>S<sub>h3</sub> (0.0551)</b>	<b>W<sub>h2</sub> (0.2809)</b> <b>W<sub>h3</sub> (0.0839)</b> <b>W<sub>h4</sub> (0.0566)</b> <b>W<sub>h1</sub> (0.0230)</b>
<b>W<sub>v1o</sub> (0.2788)</b> <b>W<sub>v2o</sub> (0.1090)</b> <b>W<sub>v3o</sub> (0.0408)</b>	<b>SO strategy</b> 1. Build our attacks against low compactness of the opponent (S <sub>h2</sub> vs W <sub>v1o</sub> ) <b>0.4580</b> 5. Use our offensive quality against defensive weaknesses of the opponent when executing set pieces (S <sub>h4</sub> vs W <sub>v3o</sub> ) <b>0.1361</b>	<b>WO strategy</b> 2. Attempt to use the opponent’s low compactness with our poor chance creation (W <sub>h1</sub> vs W <sub>v1o</sub> ) <b>0.3018</b>
<b>S<sub>v2t</sub> (0.3432)</b> <b>S<sub>v1t</sub> (0.1344)</b> <b>S<sub>v3t</sub> (0.0683)</b> <b>S<sub>v4t</sub> (0.0258)</b>	<b>ST strategy</b> 3. Respond to the opponent's quick and precise counterattacks by quick establishment of compactness (S <sub>v3t</sub> vs S <sub>h1</sub> ) <b>0.2091</b>	<b>WT strategy</b> 4. Respond to the opponent's quick and precise counterattacks by applying pressure at the point of ball loss (S <sub>v3t</sub> vs W <sub>h3</sub> ) <b>0.1522</b>

nities for the B&H team. Then, the AHP mathematical model was used to compare each of the key elements of strengths of the B&H national team against other strengths, and weaknesses against other weaknesses. The same was done with the strengths and weaknesses of Wales, i.e. with threats and opportunities. The Pairwise Comparisons Matrix of Home Team Factors Evaluation (Strengths & Weaknesses) and Pairwise Comparisons Matrix of Visitor Team Factors Evaluation (Weaknesses/Opportunities & Strengths/Threats) were formed accordingly.



The end result of our matrix calculation are the Score Vectors of the Visitor Team and the Score Vectors of the Home Team, which show how much each of the key factors of strengths and weaknesses affects the overall quality of the observed national teams (Figure 2). From that we can see that when it comes to the B&H national team, the greatest impact is from the weakness  $W_{h2}$  "goal scoring" (28.09% of the total impact on the final score) followed by the strengths  $S_{h2}$  "attack build-up" (17.91%),  $S_{h1}$  "speed of establishing compactness" (14.08%) and  $S_{h4}$  "good execution of offensive set-pieces" (9.53%).

When it comes to Wales, two elements are key for this national team: the strength  $S_{v2t}$  "goal-scoring" (34.32%), which is also a great threat to the B&H national team, and the weakness  $W_{v1o}$  "low compactness" (27.88%) which is a great opportunity for B&H. In addition, there is a visible impact of the strength  $S_{v1t}$  "chance creation" (14.44%) and the weakness  $W_{v2o}$  "poor attack build-up" (10.90%).

The results obtained in the beginning stage were then input into the HFE (Home Team Factor Evaluation) Matrix and the VFE (Visitor Team Factor Evaluation) Matrix (Table 2). These two matrices are nothing other than IFE (Internal Factors Evaluation) and EFE (External Factor Evaluation) Matrices which are used in economics [31]. Ultimately, when we entered the AHP results into the HFE and VFE matrices and determined the M Ratio and calculated the weighted score, adding up all the weight scores yielded total results for the HFE and VFE matrices. No matter how many key factors of strengths and weaknesses the teams have, the total sum of weighted scores can be in the range of minimally 1.00 to maximally 4.00, with an average score of 2.50 [46]. The obtained score for the HFE Matrix was 2.95, and for the VFE Matrix. It was 2.49. This means that the B&H national team has better strengths than weaknesses, while for Wales we can say that the ratio of strengths to weaknesses is "balanced", i.e. neutral.

These two obtained results were then represented in the SPACE Matrix Chart (Figure 3), which was formed to establish which future strategy is most favourable to the organization. It is evident that our score belongs to Quadrant V. Fred R. David, Forest R. David and Meredith E. David interpreted each quadrant when it comes to a business strategy [31]. Accordingly, Table 4 was formed.

It should be emphasized that using the SPACE matrix chart is not new in the sports industry, which sports tourism is both part of and a feature of [47-48].

In the end, in the final stage of the study, based on the results of the analysis, objectives were defined in accordance with the selected strategy in Quadrant V, and their hierarchy, as presented in the TOWS matrix (Table 3). In the process, five key objectives were defined, the first two of which yielded such values that they may be considered radical, i.e. that their fulfilment will result in a positive score, i.e. the victory of the B&H national team over Wales. These two objectives are to

"build our attacks against the opponent's low compactness" and "try to use the opponent's low compactness, through our poor chance creation", as very significant segments of the B&H gameplay, which would get the most attention during preparations for the match against Wales (dedicate two training sessions). Less prominent, but not negligible objectives are "Respond to swift and precise counterattacks of the opponent by quickly establishing compactness" and "Respond to swift and precise counterattacks of the opponent by applying pressure at the turnover location", which would be covered in one training session, while the last session before the match would cover offensive set-pieces, to highlight the objective of "Using our offensive quality against defensive weaknesses of the opponent when executing set-pieces". Both by significance and by the attention received, the training session schedule is in direct connection to the obtained results and the recently emerged training methodology in football named Tactical Periodization, which is in use for the U-21 national team of B&H.

When it comes to future research, it is primarily necessary to maintain further quantification of the analysis process using mathematical-statistical methods. The first step is to exclude subjective opinions when creating the HFE and VFE matrices (Ratio), which could be done using the Delphi method. It is also necessary to include statistical methods in determining key factors of the environment in forming the SWOT i.e. scouting matrix. This should be done by testing the value of Cronbach's alpha coefficient for each key factor of the in order to determine its value, i.e. whether it should be included in the study at all, and to carry out factor analysis to ascertain the regularity of the distribution of the key factors into strengths, weaknesses, opportunities and threats. Also, in the case of borderline results between two possible strategies, as is somewhat the case in this study, additional research is called for, using QSPM (Quantitative Strategic Planning Matrix), which would facilitate the choice of the better of the two possible strategies. This method should then be compared to expert opinions, to determine the level of congruence of the results of the expert opinions and of this method.

And ultimately, uncertainty, which stems from the stochasticity of the relations and connections in all spheres of life, there is a special dimension to all events and activities, particularly in sports, which calls for analysis, assessment, prediction and prognosis. The success of these efforts is directly linked to the application of analytical and methodological procedures. Not being able to predict the result of a match with certainty may well be a fortunate thing after all, because if we knew the outcome in advance, the sporting event would lack one of its fundamental characteristics and would likely not appeal to spectators. Prognostic analytics should be pursued, but there should also be room for suspense in anticipation of the result and the sweet taste of victory.

#### 4.1 Conclusion

SWOT analysis is a methodology used by business leaders to devise successful strategies. When it comes to football, and

sports in general, the principles of SWOT analysis can be applied to achieve top results. It is undeniable that pondering the strengths, weaknesses, threats and opportunities in the field of knowledge on sports can significantly improve the capacity of the player and the team to achieve their sporting potential. Using modern knowledge on SWOT analysis, this study has attempted to quantitatively define strategic objectives for the next match. The study was conducted in four stages. In the first stage, key strengths and weaknesses were extracted for both teams in the upcoming match. The AHP mathematical was used to compare the strengths and weaknesses of each team, and then matrix calculation was used to produce the significance of each of the factors on the final outcome of the match. In the second stage of the study, the factors were evaluated and the weight score was calculated by adding up the scores of all the factors individually for each of the teams (2.95 for the Bosnia and Herzegovina national team and 2.49 for the Wales national team). These results were then entered into the SPACE Matrix Chart, deducing that the coach's strategy for this match should be focusing on the greatest strength in the sense of goal scoring, against the opponent's greatest weakness, in their plans to prevent conceding goals. Then, at the stage of pairing using the TOWS method, 5 objectives were defined for the upcoming match, two of which, if executed by the players in the field, should bring Bosnia and Herzegovina the win in this match. These objectives are to build our attacks against the opponent's low compactness, and to try and take advantage of the opponent's low compactness through our poor chance creation.

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## 6. REFERENCES

- [1] Simović, S., & Ilić, G. (2014). Osnove menadžmenta sa menadžmentom u sportu [Fundamentals of management with management in sports]. Banja Luka, Bosnia & Herzegovina: Fakultet fizičkog vaspitanja i sport Univerziteta u Banjoj Luci.  
doi.10.5550/9789993838340.001.0001
- [2] Wei, M. (2019). Swot analysis of sports town construction in hubei province. In Lu, C. (Ed.), 7th International Forum on Industrial Design, Series: Materials Science and Engineering, 573, 012091, 17–19 May, Luoyang, China.  
doi.10.1088/1757-899X/573/1/012091
- [3] Karadakis, K., Kaplanidou, K., & Karlis, G. (2010). Event leveraging of mega sport events: A SWOT analysis approach. *International Journal of Event and Festival Management*, 1(3), 170–185.  
doi.10.1108/17852951011077998
- [4] Garg, A., & Garg, R. (2018). A review of sports goods clusters by SWOT Analysis: Meerut cluster in particular. *International Journal of Research in Computer Application & management*, 5(1), 44–49.
- [5] Wani, I.A., & Faridi, M. (2020). Formulation of sport management strategic planning using SWOT Analysis. *Parishodh Journal*, 9(3), 5479–5486.
- [6] Milinković, Z., Simović, S., Ljubojević, A., Jovanović, J., & Pantelić Babić, K. (2017). Strategic analysis of the external and internal environment of sport tourism at the "Banja Vrućica" spa. *Polish Journal of Sport and Tourism*, 24(4), 252–258.  
doi.10.1515/pjst-2017-0026
- [7] Sperlich, B., Düking, P., & Holmberg, H-C. (2017). A SWOT Analysis of the use and potential misuse of implantable monitoring devices by athletes. *Frontiers in Physiology*, 8, Article 629.  
doi.10.3389/fphys.2017.00629
- [8] Lee, S., & Walsh, P. (2011). SWOT and AHP hybrid model for sport marketing outsourcing using a case of intercollegiate sport. *Sport Management Review*, 14(4), 361–369.  
doi.10.1016/j.smr.2010.12.003
- [9] Grant, J., McKechnie, D.S., & Chinta, R. (2008). Using the business S-Word strategy for sports. *The Sport Journal*.  
Retrieved from <https://thesportjournal.org/article/using-the-business-s-word-strategy-for-sports/>
- [10] Oh, Y.S., Arthur-Banning, S.G., & Domka M. (2020). SWOT analysis on the potential growth of Football 5-a-side programme across the United States: An exploratory case study approach for athletes with visual impairment. *Sport in Society*, 23(6), c. 1–15.  
doi.10.1080/17430437.2020.1768242
- [11] Setijono, H., Ashadi, K., & Khamidi, A. (2019). SWOT Analysis: Special Training Center of Athletic. In Tama, T.D., Hapsar, A., & Al-Irsyad, M. (Eds.), *Proceedings of the 1st International Scientific Meeting on Public Health and Sports (ISMOPHS 2019)*, *Advances in Health Sciences Research*, vol. 31 (pp. 20–25), August 22, Atlantis Press.  
doi.10.2991/ahsr.k.201203.004
- [12] Peatling, G.K. (2005) Rethinking the history of criticism of organized sport. *The Social History Society*, 2(3), 353–371.

- doi.10.1191/1478003805cs0500a
- [13] Grehaigine, J., Godbout, P., & Bouthier, D. (1997). Performance assessment in team sports. *Journal of Teaching in Physical Education*, 16(4), 500–516.  
doi.10.1123/jtpe.16.4.500
- [14] MacMahon, C., & McPherson, S.L. (2009). Knowledge base as a mechanism for perceptual-cognitive tasks: Skill is in the details! *International Journal of Sport Psychology*, 40(4), 565–579.
- [15] Morgulev, E., & Galily, Y. (2018). Choking or delivering under pressure? The case of elimination games in NBA playoffs. *Frontiers in Psychology*, 9(979).  
doi.10.3389/fpsyg.2018.00979
- [16] Makridakis, S., Kirkham, R., Wakefield, A., Papadaki, M., Kirkham, J., & Long, L. (2019). Forecasting, uncertainty and risk; perspectives on clinical decision-making in preventive and curative medicine. *International Journal of Forecasting*, 35(2), 659–666.  
doi.10.1016/j.ijforecast.2017.11.003
- [17] Olade, R.A. (2004). Strategic collaborative model for evidence-based nursing practice. *Worldviews on Evidence Based Nursing*, 1(1), 60–68.  
doi.10.1111/j.1741-6787.2004.04003.x
- [18] Torres-Ronda, L., & Schelling, X. (2017). Critical process for the implementation of technology in sport organizations. *Strength and Conditioning Journal*, 39(6), 54–59.  
doi.10.1519/ssc.0000000000000339.
- [19] Jones, P., James, N., & Mellallue, S. (2003). Use of anticipatory cues during a soccer dribble by skilled and novice players. *Journal of Sports Science*, 21(4), 233–265.  
doi.10.1080/0264041031000071128
- [20] Franks, I.M., & Miller, G. (1986). Eyewitness testimony in sport. *Journal of Sport Behaviour*, 9(1), 38–45.
- [21] Franks, I.M., & Miller, G. (1991). Training coaches to observe and remember. *Journal of Sports Sciences*, 9(3), 285–297.  
doi.10.1080/02640419108729890
- [22] Laird, P., & Waters, L. (2008). Eyewitness recollection of sport coaches. *International Journal of Performance Analysis in Sport*, 8(1), 76–84.  
doi.10.1080/24748668.2008.11868424
- [23] Hughes, M., & Franks, I. M. (2004). *Notational analysis of sport: Systems for better coaching and performance in sport*. London: Routledge.
- [24] Maslovat, D., & Franks, I. (2008). The need for feedback, In Hughes, M., & Franks, I. (Ed.), *The essentials of performance analysis: an introduction*, 2nd ed. (pp.1–7). London: Routledge.
- [25] Cloes, M., Bavier, K., & Piéron, M. (2001). Coaches' thinking process: Analysis of decisions related to tactics during sports games. In Chin, M.K., Hensley, L.D., & Liu, Y.K. (Eds.), *Innovation and application of physical education and sports science in the new millennium - An Asia-Pacific Perspective* (pp. 329–341). Hong Kong, China: Hong Kong Institute of Education.
- [26] Almeida, J., Saramento, S., Kelly, H., & Travassos, B. (2019). Coach decision-making in Futsal: from preparation to competition. *International Journal of Performance Analysis in Sport*, 19(3), 1–13.  
doi.10.1080/24748668.2019.1648717
- [27] Sarmento, H., Pereira, A., Anguera, M.T., Campaniço, J., & Leitão, J. (2014). The coaching process in football: A qualitative perspective. *Montenegro Journal of Sports Sciences and Medicine*, 3(1), 9–16.
- [28] Saaty, T.L. (1980). *The analytic hierarchy process*. New York, NY: McGraw-Hill Publication.
- [29] Albayrak, E., & Erensal, Y.C. (2004). Using analytic hierarchy process (AHP) to improve human performance: An application of multiple criteria decision making problem. *Journal of Intelligent Manufacturing*, 15(4), 491–503.  
doi.10.1023/B:JIMS.0000034112.00652.4c
- [30] Banihashemi, S.A., & Rejaei, Z. (2016). Assessment of environmental conditions and internal capabilities affecting University strategies (IFE, EFE, SWOT & AHP models). *International Journal of Asian Social Science*, 6(10), 558–567.  
doi.10.18488/journal.1/2016.6.10.558.567
- [31] David, Fr.D., David, Fo.R., & David, M.E. (2019). *Strategic management: Concept and cases*. 17th ed. Upper Saddle River, NJ: Pearson Education Inc.
- [32] Fadillah, A., Dewi, T.G., & Hardjanto, A. (2012). Analysis of alternative strategy in coastal tourism development in Aceh Besar, Indonesia after Tsunami Disaster. *International Journal of Social Science and Humanity*, 2(3), 206–212.
- [33] Koontz, H., & Weihrich, H. (2015). *Essentials of management: An international, innovation, and leadership perspective*. 10th ed. New Delhi, India: Tata McGraw Hill Education.
- [34] Ciuffarella, A., Luca Russo, L., Masedu, F., Valenti, M., Riccardo, E., Izzo, R.E., & De Angelis, M. (2013). Notational analysis of the volleyball serve. *Timisoara Physical Education and Rehabilitation Journal*, 6(11), 29–35.  
doi.10.2478/tperj-2013-0013
- [35] Esteves, P.T., Mikolajec, K., Schelling, X., & Sampaio, J. (2021). Basketball performance is affected by the schedule congestion: NBA back-to-backs under the microscope. *European Journal of Sport Science*, 21(1), 26–35.  
doi.10.1080/17461391.2020.1736179

- [36] Lignell, E., Rago, V., & Mohr, M. (2020). Analysis of goal scoring opportunities in elite male ice hockey in relation to tactical and contextual variables. *International Journal of Performance Analysis in Sport*, 8(6), 1003–1017.  
doi.10.1080/24748668.2020.1823161
- [37] Martínez-Gallego, R., Vives, F., Ramón-Llin, J., & Crespo, M. (2021). Time structure in men's professional doubles tennis: does team experience allow finishing the points faster? *International Journal of Performance Analysis in Sport*, 21(2), 215–225.  
doi.10.1080/24748668.2021.1872218
- [38] Praveen Kumar, R., & Chandrasekaran, K. (2017). Notation analysis of playing ability of men handball teams. *International Journal of Current Research and Modern Education*, 2(2), 171–173.
- [39] Zahidi, N.N.B.M., & Ismail, S.I.B. (2018). Notational analysis of evasive agility skills executed by attacking ball carriers among elite rugby players of the 2015 Rugby World Cup. *Movement, Health & Exercise*, 7(1), 99–113.  
doi.10.15282/mohe.v7i1.171
- [40] Flôres, F.S., & Balsan, L.A.G. (2016). Scout analysis of soccer: New look on the Brazilian Championship. *International Journal of Sports Science*, 6(3), 83–87.  
doi.10.5923/j.sports.20160603.02
- [41] Jamil, M., & Kerruish, S. (2020). At what age are English Premier League players at their most productive? A case study investigating the peak performance years of elite professional footballers. *International Journal of Performance Analysis in Sport*, 20(6), 1120–1133.  
doi.10.1080/24748668.2020.1833625
- [42] Vilar, L., Araujo, D., Davids, K., & Bar-Yam, Y. (2013). Science of winning soccer: Emergent pattern-forming dynamics in association football. *Journal of Systems Science and Complexity*, 26(1), 73–84.  
doi.10.1007/s11424-013-2286-z
- [43] Carling, C., Williams, A.M., & Reilly, T. (2005). *Handbook of soccer match analysis: A systematic approach to improving performance*. Hove, UK: Psychology Press Ltd.
- [44] Costa, I., Garganta, J., Greco, P., & Mesquita, L. (2009). Evaluation of tactical performance in soccer: Conception and development of framework of tactical behaviour analysis of GK3-3GK test. *Revista Miniera de Educação Física*, 17(2), 36–64.
- [45] Kessler, E.H. (2013). *Encyclopedia of management theory*. New York, NY: SAGE Publishing.
- [46] David, M.E., David, Fo.R., & David, Fr.R. (2009). The quantitative strategic planning matrix (QSPM) applied to a retail computer store. *The Coastal Business Journal*, 8(1), 42–52.
- [47] Benson, A.M., & Henderson, S. (2005). Strategic characteristics of sport and recreation provision: An application of SPACE analysis. *Managing Leisure*, 10(4), 251–267.  
doi.10.1080/13606710500348110
- [48] Cross, J., & Henderson, S. (2003). Strategic analysis of the English football clubs. *Strategic Change*, 12(8), 2003, 409–420.  
doi.10.1002/jsc.654