

# Coaches' perceptions of innovation programs of the Royal Spanish Tennis Federation

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## Abstract

This research studied the coaches' perceptions of the innovation programs of the Royal Spanish Tennis Federation (RFET) during 2016-2020. The RFET is one of the most relevant national federations in Spain both in terms of results at the highest levels of the game as well as in terms of participation and grassroots tennis. Coaches are considered relevant stakeholders of any sport federation due to their role in delivering the sport. A 29-item questionnaire adapted to tennis was completed by 132 certified coaches RFET members which had different years of experience and coached players of various skill levels. Results showed significant differences between the coaches with more than 20 years of experience as they perceived more rivalry between regional federations in the access to grants and more international competitiveness at high-level tennis as compared to their less experienced colleagues. Coaches also considered that the COVID-19 pandemic had negatively affected the innovation strategy and capability of the organization. They identified a grassroots initiative and a coach education project as the two most valued innovative programs implemented by the RFET in the period. These last findings coincide with those from previous research and highlight the relevance of providing coaches with clear player development guidelines and opportunities for continuous professional development through education. It can be concluded that federation leaders should consider the coaches' perceptions on their innovation programs. This will assist them to better provide initiatives that will satisfy their needs and improve the effectiveness of their federations.

## Keywords

National governing body, organisational culture, sport management racket sport

## Introduction

Played by more than 80 million players worldwide, tennis is one of the most popular sports and, probably, the most popular racquet sport. Apart from being a sports discipline, tennis is a social, cultural, commercial and artistic activity. For some, it's a profession and for others it's a passion that has to be passed on to future generations.<sup>1</sup> Tennis offers social and competitive opportunities for players of all ages, genders and abilities. In the last decades, the tennis ecosystem has become an industry and a relevant actor in the entertainment business. As highlighted by several authors<sup>2</sup> different organizations have vastly increased their financial investment into both high performance and mass participation tennis. The appeal and value of tennis as a research topic has also increased in line with the growth, professionalization and

commercialization of the game. In the quest for optimizing fan experiences, maximizing player performance and increasing mass adoption, different sport science disciplines have extensively explored tennis as a subject of study.<sup>3</sup>

From a governance perspective, there are different organizations that operate in the tennis ecosystem. Private and public, profit and non-profit, local,

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provincial, regional, national and international. The national sport federations (NSF) are the national sport governing bodies (NSGBs) of the sport within their respective countries. As part of their roles of developing and promoting their sport, they should face a considerable complex scenario arising from government, commercial and social demands as well as internal stakeholder needs.<sup>4</sup>

National sport federations (NSF) are key actors within the sport system and as such they need to justify their activities to their stakeholders. Together with the government, the sponsors, the member clubs, the media, the players and the fans, the coaches are relevant constituents.<sup>5</sup> The complex environment affecting society in general and sport in particular has caused considerable organizational changes geared to adapt the structure of the NSFs to the challenges of these developments. This organizational adaptation has led to a transformation of sport federations towards professionalization.<sup>6</sup> These major challenges facing these organizations include, among others, an increasing competitive context both at high-performance and at participation level, a growing competition in attracting funding and sponsors, higher demands in governance, integrity, transparency and democratization, and calls for inclusion, equality and sustainability in the strategy and management of their programs. Scholars have devoted much attention to most of these aspects.<sup>7</sup>

The Real Federación Española de Tenis (RFET) is the NGB of tennis in Spain. Founded in 1909, it is affiliated to the International Tennis Federation (ITF) and it has been considered one of the most successful NGBs in Spain due to its trajectory throughout the years as well as to the recent success of players such as Rafael Nadal or Garbiñe Muguruza. Within its governance, the RFET has different categories of members: players, clubs, referees and coaches. In order to be RFET members, coaches should have a valid coaching license issued by the RFET. The coaches play a crucial role in the operation of the RFET since, among other functions, they deliver programs, organize competitions, and promote tennis at all levels of the game.<sup>8</sup> This relevance is the main reason why they have been selected as the sample for this research. The RFET is responsible for the promotion and development of tennis in Spain. Its tasks especially include representing Spanish tennis at international level, organizing competitions and events, dictating rules and regulations, coordinating the activity of the 17 Autonomous Federations, delivering education for coaches and officials, and promoting grassroots tennis in the country.<sup>9</sup> It is a private non-for-profit organization partially funded by the High Council for Sports (CSD) and operates in a de-centralized inter-organizational network mode by governing its member

organizations operating in specific geographic regions.<sup>10</sup>

Tennis is one of the most popular sports in Spain since it attracts people of different age groups and skills levels,<sup>11</sup> even though the number of registered players has decreased gradually during the last decade.<sup>12</sup> At organizational level, the players, the clubs, the federations and the coaches are the basis and the engine that drive the sport. From a business perspective, tennis in Spain clearly meets the best conditions for commercialization as it is a sport for a lifetime that can be played all-year round, at an affordable cost, and it has the attention of the mass media due to the outstanding performance of great stars such as Rafael Nadal or Garbiñe Muguruza, among many, as role models. From a sporting performance view, the RFET and Spanish tennis have been considered as one of the most successful NSFs in the country during the last decades.<sup>13,14</sup> Internationally, research has also found that Spain has been the most successful tennis nation in the world due to the performance of its top players.<sup>15</sup> Nevertheless, the economic crisis that has affected the country during recent times has had a considerable impact in the finances of the RFET as well as other NSFs.<sup>16,17</sup>

Scholars have acknowledged the crucial role of Spanish coaches in the success of tennis in the country.<sup>18</sup> The holistic approach and the pedagogical methods based on the relevance of movement, conditioning, effort and consistency used by Spanish coaches define the signature of the so-called the “Spanish system”. This has allowed to the development of a training and competition methodology that has proven successful throughout the decades in part due to its practical application and its flexibility and adaptability to the individual features of the players, the coaches and the contexts.<sup>19</sup>

Due to the characteristics mentioned above, the RFET is a unique NSGB organization that plays a central role as key stakeholder in the Spanish tennis ecosystem and, as such, it was felt that its innovation programs would be an appropriate subject of study.

From a general perspective, research has agreed that even though there is not a unique definition of coaching, coaches are main stakeholders in the sport ecosystem. They are considered the key actors in the delivery of instruction to participants in a range of sporting contexts.<sup>20</sup> They are also generators of environments and contexts that transcend the sport itself and foster healthy and holistic developments in people and organizations.<sup>21</sup> They can be viewed as “merely technicians engaged in the transfer of knowledge” or be encouraged to consider their holistic role.<sup>22</sup> Studies have concluded that they are critical in implementing and delivering sport programs.<sup>23</sup> Research has also found

that coaches play many functions within their role. They plan, organize, conduct and assess training, competition, management and education processes in their respective sports. The role that coaches fulfill is based on their experience, knowledge, values, opinions and beliefs. Coaches' activities are considerably influenced by the NSFs in their territory, and they may use innovative approaches to their daily practices.<sup>24</sup>

In the past twenty years the tasks of the coaches have changed considerably as a consequence of the professionalization and commercialization of many sports. The coaching roles have increased in complexity due to the changes, continuous evolution, challenges and developments within a highly unstructured environment. Throughout this process, the coach has become an effective shareholder in an environment that is constantly developing in an organizational and business context.<sup>25</sup> Coaches' perceptions on different aspects of their job have received a considerable attention from research. Studies have investigated their views on their coach education experience,<sup>26</sup> their role frames and philosophies,<sup>25</sup> the social environment of their organizations,<sup>27-28</sup> the relevance and application of sport science,<sup>29</sup> and the factors affecting Olympic performance.<sup>29</sup> Coaches have also been the focus of innovation studies in teaching methodologies,<sup>30</sup> self-reflection processes,<sup>31</sup> resistance to innovation,<sup>32</sup> entrepreneurial orientation,<sup>33</sup> entrepreneurial activity<sup>34</sup> or perceptions of parental involvement in youth sport.<sup>35</sup>

Research in tennis has also concluded that together with competition, coaches are the most important factor or policy area for international success of nations.<sup>15,36,37</sup> Development in the sport has been attributed to innovations in technological advances, sport science, training systems and performance analysis. However, little attention has been given to the views of the coaches regarding these innovations. Recently, Buszard et al.<sup>38</sup> explored how tennis coaches and working within tennis National associations perceived the impact of implementing a modified tennis campaign on participation and skill development in children and adults.

Innovation is a term used to refer to related constructs such as "invention", "creativity" or "change". Even though it has been extensively studied in organizational research there is not a unique definition, but it is commonly understood as "a means to organizational conduct and outcome or performance [...] represents newness or novelty [...] as an instrument of social and economic progress."<sup>39</sup> In the sporting context, the role of innovation is crucial. The specific characteristics of sport create an extremely favorable ground for the generation of innovative practices in its organization, delivery and practice.<sup>40</sup>

Tennis and its industry have been considered a singular market within the entertainment business as one of its most significant providers. The tennis market builds on the interest of the fans, the number of players, the availability of venues, the quality of the deliverers and, of course, the talent of its great stars.<sup>41</sup> Technological progress has drastically transformed recently the tennis market and has allowed the development of mass media to provide access to the game to large numbers of new "consumers of leisure". From an innovation perspective, tennis is particularly considered a favorable scenario. The fact that it needs a given equipment (i.e., rackets and balls) to practice has attracted the interest of the manufacturing industry. Technical innovations in tennis equipment include, among others, the spaghetti strings and the composite rackets,<sup>42</sup> the racket industry<sup>43,44</sup> as well as the adapted equipment<sup>23,45</sup> and its influence on game results.<sup>46</sup> Other relevant studies on innovation in the game have focused on seeding,<sup>47</sup> officiating,<sup>48</sup> early introduction,<sup>49</sup> wear creation,<sup>50</sup> training methods<sup>51</sup> or statistical services.<sup>52</sup> Very few studies have been conducted on innovation in tennis programs<sup>38</sup> and, to the knowledge of the authors, none on the coaches' perceptions of the innovation programs of a NSF.

Therefore, it can be considered that, over the last decades, the tennis industry has experienced an ongoing renewal, with innovating firms introducing new products and services that have addressed not only the supply side of their industry, but also its demand side. On the other hand, innovation diffusion and imitation by competing firms in tennis is largely driven by product endorsements by top professionals and advertising.<sup>43</sup> In some cases, innovation in tennis has generated controversy and uncertainty in the market (i.e., innovation in racket materials and design). The potential benefits of some new products or services (i.e., the slower tennis balls) may cause doubts as they could provoke technical uncertainty and uncertainty about the existence of a market for the innovations. This scenario can occur no matter if the innovations are radical, incremental, or continuous and its characteristics help to better understand successes and failures of innovations in tennis. The role of the International Tennis Federation in governing some of these innovations has been crucial, specifically in those related to rule changes, tournament regulations, equipment recognition, etc.<sup>23</sup>

In tennis, the studies that have investigated the role of innovation in the game have concluded in general that the success of any innovative project relies not only in its generation but also, as it may seem to be even more relevant, in the diffusion and adoption of the innovation by the relevant stakeholders and the broader community no matter if it is a product, service,

technology or policy. Given the key role coaches play as deliverers of the programs of tennis organizations, it could be considered as obvious to investigate their views on the initiatives in which they have to take part to assist in the innovation strategies of a sport such as tennis. The literature review conducted in preparation for this paper has shown that this is not the case. In fact, to the authors' knowledge and surprisingly enough, just one paper has studied the views of coaches on a specific program of a tennis organization,<sup>38</sup> but no research has been conducted to better understand the views of tennis coaches on the overall innovation strategies of a national federation.

Therefore, the goal of this paper was to fill this gap in the knowledge and insight of the innovative process of sports organizations by analyzing the perception of Spanish coaches regarding the different programs offered by the RFET as part of its innovation strategy.

The structure of this paper is as follows: the introduction and the theoretical background summarize the main aspects related to tennis, NSGBs, innovation, coaches, and coaching. This is followed by the material and methods section, which deals with the research design, the data collection, and the analysis. The next part is the results section, which includes the data on the general descriptors, on the statistical analyses conducted, and on the selected most relevant innovative programs put in place by the RFET in the period of study. The discussion section compares the results obtained with those of previous studies and their significance. Finally, the conclusions highlight the theoretical and practical implications and applications of the study, its limitations, its contributions to the body of research as well as the future lines of research.

Based on the scenario presented in this section, it was considered relevant to explore the perceptions of coaches, as key stakeholders, on the innovation programs of a NSF such as the RFET.

## Material and methods

The research design, the data collection and the analysis are presented in this section.

The study has followed relevant the ethical and procedural guidelines in accordance with the ethical standards of the institution.

The data used for this study was based on the first author's involvement with tennis and was collected from a questionnaire and the analysis of content produced by the organization. The period 2016-2020 was the timeframe of the study since during these years the RFET implemented a series of programs in different areas of their activity. This period was chosen as this was the mandate of the actual President and BoD of the RFET as stated by the Spanish Government Law.

## Instrument for data collection

The validated questionnaire used by Winand et al.<sup>53</sup> was adapted for a tennis NSGBs. The attitudes and perceptions are assessed in three levels (managerial, organizational and environmental) and at different subcategories of each level using a Likert scale (1 = completely disagree to 5 = completely agree) in the 29-item questionnaire (Table 1). A full description of the original questionnaire can be found in previous studies.<sup>53,54</sup>

The questionnaire included a section with open answers for respondents to indicate different new initiatives which were implemented by the RFET during the last four years. This section was adapted to tennis from the one used by Winand et al.<sup>53</sup> which referred to innovative sport and non-sport services, products, projects, programs, initiatives or activities that national federations can provide.

Further data and details were collected by analyzing relevant books, articles, and press cuttings, among other documents available in the RFET website as done in previous studies since it was considered that they would complement the details provided in the survey.<sup>55</sup>

## Sample

Following the procedure conducted by Winand et al.<sup>53</sup> a questionnaire was sent to a selected sample of coaches certified by the RFET, to identify and analyze their perceptions on organizational innovativeness. They were identified as the ones to be more likely aware of the relevant features of the current innovations put in place by the RFET because they hold positions as technical directors and head coaches of clubs and regional federations. This was a purposive example as indicated in previous research<sup>56</sup> since these stakeholders were considered expert individuals, with a highly technical view of the context, that are or can be affected by the achievement of the RFET's initiatives. Therefore, it was thought that their expertise and knowledge could provide unique insights and rich information to identify, recognize, and prioritize the issues of interest for the research. Furthermore, they were related to the RFET due to their role of certified teaching professionals. The coaches were grouped according to their experience in two groups: 20-years or less and more than 20-years' experience since this criterion was considered the most objective one to define this aspect of coaching practice.

## Variables

Table 1 shows the levels, categories, sub-categories and items included in the questionnaire. It also included



**Table 1.** Levels, categories, sub-categories and items of the survey.

Levels and categories	Sub-categories	Items (n = 29)
Managerial level determinants		
Attitude towards traditional management	Bureaucracy	1. The structure and responsibilities of the RFET are unlike private firms
	Inflexible structure	2. A traditionally formal and hierarchic administrative model is preferable to a flexible and less structured model
	Against change	3. Change to the internal functioning of the RFET can be counterproductive
Attitude favoring change and newness	Investment in new services	4. More financial investments (even risky) should be achieved by the RFET to develop new services for members
		5. The RFET should invest in the development of new services
	Risk taking	6. To achieve their goals, the RFET should take risks
	Openness to change	7. Change is globally a good thing for the RFET
	Openness to members' expectations	8. The RFET should deliver new expectations of their members
	Openness to club's suggestions	9. Suggestions of clubs should be taken into account by the RFET
	Openness to staff suggestions	10. Paid staff have ideas that the RFET should take into account
Attitude towards contemporary management	Professional management	11. The RFET should be managed like business firms
		12. It is important to have a clear mission and vision statement
	Involvement in decision making processes	13. RFET paid staff should be involved in the decision-making processes
Organizational level determinants		
Perception of organizational culture	Culture and relationships	14. RFET has an organizational culture and relationships between volunteers and paid staff that favors innovation
Perception of innovativeness	General	15. The RFET is innovative
	Specific services	16. The RFET provides innovative services, programs, products and events
	Strategies and policies	17. The RFET has coherent strategies and policies in place geared towards innovation
Perception of ability to lead change	Leadership within the organization	18. The RFET has an organizational ability with their volunteers and staff to lead the change
	Leaders champions	19. There is a clear commitment from the RFET volunteers to innovate in tennis
Environmental level determinants		
Perception of pressures	External pressures	20. There are external pressures to the RFET to change and innovate
Perception of competitive national environment	Attraction of members	21. RFET competes with other sports federations to attract members
	Attraction of grants	22. RFET competes with other sports federations to attract grants
	Competition with commercial sports providers	23. Commercial sports providers are a threat to the RFET's growth
Perception of cooperative environment	Cooperation with other organizations	24. The RFET cooperates with other tennis and non-tennis organizations to innovate
Perception of competitive regional environment	Sport rivalry between regional sport federations	25. There is rivalry between the different regional tennis federations
Perception of competitive international environment	High-level sport competition	26. International tennis competition between national sports federations is increasing
		27. Competition between national tennis federations to obtain international results is high

(continued)

**Table 1.** Continued

Levels and categories	Sub-categories	Items (n = 29)
Perception of COVID-19 impact	Impact on the strategy and structure	28. COVID-19 has negatively affected the strategy and structure of the RFET
	Impact on the capacity to innovate	29. COVID-19 has negatively affected the innovation capacity of the RFET

**Table 2.** Break-down of tennis and non-tennis services that can be offered by a NSGO.

Level and categories	Sub-category	
<b>Tennis services</b>		
Player development	Participation/ grassroots tennis	Programs for players of different categories (i.e., 10, 12, 14, 16 and 18 and Under, adults and seniors).
	Performance/ competition	Programs for players (i.e., sports policy, talent selection, training, “camps”, scholarships, etc.).
Competitive structure	Tournaments	Leagues, circuits, championships (i.e., organization, assistance, promotion, etc.).
Policy	Rules	Regulations, procedures for tennis play (i.e., amateur license, COVID-19, etc.).
Education	Activities	Education programs for coaches, referees, administrators (i.e., courses, conferences, congresses, publications, etc.).
<b>Non-tennis services</b>		
General	Management	General management and administration (i.e., procedures, registrations, sign-ins, etc.).
Marketing Resources	Communication	Marketing and communication (i.e., campaigns, initiatives, etc.).
	Equipment	Facilities and equipment (i.e., scholarships, grants, guidelines, etc.).
IT	Communications	ICT services (i.e., networks, platforms, etc.).
Other services	General	Other services (i.e., services provided but not included in the previous sections).

items related to the COVID-19 pandemic as well as others adapted from the results of previous research.<sup>55,56,58</sup>

At the managerial level there were 3 categories and 11 sub-categories. At the environmental level there were 5 categories and 9 sub-categories, and at the organizational level there were 3 categories and 6 sub-categories. In the open section of the questionnaire, 2 levels were included: tennis and non-tennis, with 4 categories each one See Table 2.

### Analysis

SPSS v. 26 was used to carry out the statistical analysis. The normal distribution of the variables was tested using the Kolmogorov-Smirnov test. Non-parametric tests were used since it was found that data did not distribute normally. Spearman's Rho was used to test for correlations between the items in the different categories. Mann-Whitney U was used to test if there were differences based on the coaches' experience. The significance level was established at 0.05. For all

comparisons the size of the effect was calculated using eta-squared. Small effect values were considered  $0.01 < 0.06$ , moderate effect values were considered  $0.06 < 0.14$  and large effect values were considered  $\geq 0.14$

Data in the open section was extracted and coded by level, category and sub-category using key terms which generated descriptions of initiatives or projects that were matched with the RFET programs. The innovative program most cited was considered the most preferred one in each category as suggested by Winand et al.,<sup>53</sup> who considered the number of innovations as relevant criteria in this section.

### Results

This section includes the results on the general descriptors, on the statistical analyses and on the most relevant innovative programs put in place by the RFET in the period of study.

132 certified tennis coaches took part in the study. 52,7% of the sample had 20 years or less of tennis

**Table 3.** Results on the coaches' perceptions on the different groups according to their years of experience.

	Item	20 years or less experience		More than 20 years' experience		U Mann-Whitney	p	$\eta^2$
		Median	(IQ)	Median	(IQ)			
Managerial level determinants								
Attitude towards traditional management	1	4.00 (2)	4.00 (2)	4.00 (2)	4.00 (2)	2137,00	0.99	0.00
	2	3.00 (2)	3.00 (2)	3.00 (2)	3.00 (2)	2133,50	0.76	0.00
	3	2.00 (2)	2.00 (2)	2.00 (2)	2.00 (2)	2094,50	0.57	0.00
Attitude favoring change and newness	4	4.00 (2)	4.00 (2)	4.00 (2)	4.00 (2)	2039,50	0.61	0.00
	5	5.00 (1)	5.00 (1)	5.00 (1)	5.00 (1)	1946,40	0.30	0.01
	6	4.00 (2)	4.00 (2)	4.00 (2)	4.00 (2)	2148,50	0.94	0.00
	7	4.00 (1)	4.00 (1)	4.00 (1)	4.00 (1)	1969,50	0.29	0.01
	8	5.00 (1)	5.00 (1)	5.00 (1)	5.00 (1)	1888,50	0.21	0.01
	9	5.00 (1)	5.00 (1)	5.00 (1)	5.00 (1)	2082,00	0.73	0.00
	10	5.00 (1)	5.00 (1)	5.00 (1)	5.00 (1)	2040,50	0.63	0.00
Attitude towards contemporary management	11	3.00 (2)	3.00 (2)	4.00 (3)	4.00 (3)	1873,00	0.16	0.01
	12	5.00 (1)	5.00 (1)	5.00 (0)	5.00 (0)	2033,50	0.44	0.00
	13	5.00 (1)	5.00 (1)	5.00 (1)	5.00 (1)	1989,50	0.33	0.01
Organizational level determinants								
Perception of organizational culture	14	3.00 (2)	3.00 (2)	3.00 (2)	3.00 (2)	2052,50	0.60	0.00
Perception of innovativeness	15	3.00 (2)	3.00 (2)	3.00 (2)	3.00 (2)	2084,50	0.72	0.00
	16	3.00 (2)	3.00 (2)	3.00 (1)	3.00 (1)	2062,00	0.51	0.00
	17	3.00 (2)	3.00 (2)	3.00 (1)	3.00 (1)	2007,50	0.53	0.00
Perception of ability to lead change	18	3.00 (2)	3.00 (2)	3.00 (2)	3.00 (2)	2109,00	0.94	0.00
Environmental level determinants								
Perception competitive national env.	19	3.00 (2)	3.00 (2)	3.00 (2)	3.00 (2)	1917,00	0.24	0.01
Perception of pressures	20	3.00 (0)	3.00 (0)	3.00 (4)	3.00 (4)	2061,50	0.55	0.00
Perception competitive national env.	21	3.00 (1)	3.00 (1)	4.00 (2)	4.00 (2)	1708,00	0.02*	0.03
Perception ability to lead change	22	3.00 (2)	3.00 (2)	3.00 (2)	3.00 (2)	2130,50	0.94	0.00
Perception competitive national env.	23	2.00 (2)	2.00 (2)	2.00 (2)	2.00 (2)	2154,50	0.98	0.00
Perception of cooperative env.	24	3.00 (1)	3.00 (1)	3.00 (2)	3.00 (2)	2115,50	0.91	0.00
Perception of competitive regional env.	25	4.00 (1)	4.00 (1)	4.00 (2)	4.00 (2)	2141,50	0.80	0.00
Perception of competitive internat. env.	26	4.00 (2)	4.00 (2)	3.00 (1)	3.00 (1)	1694,00	0.03*	0.04
	27	4.00 (2)	4.00 (2)	4.00 (1)	4.00 (1)	1867,00	0.13	0.01
Perception of COVID-19 impact	28	3.00 (1)	3.00 (1)	4.00 (2)	4.00 (2)	1921,50	0.15	0.01
	29	3.00 (2)	3.00 (2)	3.00 (2)	3.00 (2)	1944,00	0.27	0.01

\*Significant differences ( $p < 0.05$ ).

**Table 4.** Correlations for the category “managerial level determinants.”

Items	1	2	3	4	5	6	7	8	9	10	11	12	13
1		0.16	-0.16*	0.22	0.15	0.17	0.14	0.09	0.02	0.11	-0.11	-0.07	0.01
2			0.28**	-0.12	0.01	-0.04	-0.13	0.04	-0.01	0.14	0.16	0.14	0.09
3				-0.20*	-0.16	-0.19*	-0.38**	-0.02	-0.13	0.03	-0.05	-0.01	0.00
4					0.33**	0.44**	0.39**	0.24**	0.19*	0.04	-0.03	0.16	0.17
5						0.31**	0.43**	0.39**	0.20*	0.24**	0.07	0.22*	0.13
6							0.54**	0.28**	0.16	0.15	-0.01	0.20*	0.10
7								0.40**	0.21*	0.00	0.16	0.15	0.05
8									0.41**	0.27**	0.07	0.31**	0.18*
9										0.24**	0.02	0.23**	0.25**
10											0.14	0.25**	0.45**
11												0.28**	0.11
12													0.42**
13													

\*Significant correlations ( $p < 0.05$ ). \*\*Significant correlations ( $p < 0.01$ ).

coaching experience, and 47,3% had more than 20 years of experience.

The results and the significant differences between the two groups according to the years of experience of the coaches are shown in Table 3.

Significant differences between coaches of both groups were only found in two sub-categories of the environmental level determinants. Results showed that the more experienced coaches perceived a more competitive national environment in the attraction of grants as compared to the less experienced ones. They also perceived a more competitive regional environment in the sport rivalry between regional tennis federations than their less experienced counterparts. Significant differences between the two groups of coaches were not found in the managerial and organizational level determinants. At managerial level, results showed that all coaches had a positive perception of an attitude favoring change, newness and contemporary management. At organizational level, the perception of organizational culture, innovativeness and ability to lead change was also positive but had less support than at the previous level. Experienced coaches also perceived that the COVID-19 pandemic had a considerable impact on the strategy, structure and capacity to innovate of the RFET as compared to their less experienced colleagues.

The correlations between the variables of each category are shown in Tables 4, 5 and 6.

In the managerial level determinants, there were significant correlations in items related to the attitude towards traditional management in terms of bureaucracy, inflexible structure and tendency against change. Also, coaches that perceived an attitude favoring change and newness in the organization also thought that it should investment in new services,

**Table 5.** Correlations for the category “organizational level determinants.”

Items	14	15	16	17	18
14		0.53**	0.47**	0.50**	0.47**
15			0.84**	0.79**	0.66**
16				0.80**	0.66**
17					0.75**
18					

\*Significant correlations ( $p < 0.05$ ). \*\*Significant correlations ( $p < 0.01$ ).

take risk, be open to change, to members' expectations and to club's and staff suggestions. In the same way, coaches that perceived a tendency towards contemporary management in the organization also favored professional management practices and the involvement in decision making processes. Regarding the organizational level determinants, there were significant correlations between all items. Therefore, coaches who perceived a given organizational culture and relationships also perceived a tendency to general innovation of the organization through strategies, policies and specific services together with a perception of the ability of the organization to lead change. As per the environmental level determinants, significant correlations were found so that coaches that had a perception of a competitive national environment and external pressures to the organization for the attraction of members and grants as well as the perception of a cooperative environment with other organizations also perceived a competitive international environment at the high-level tennis competition. Significant correlations were also found between the perception of COVID-19 impact on the strategy and structure and the organization capacity to innovate.



**Table 6.** Correlations for the category “environmental level determinants.”

Items	19	20	21	22	23	24	25	26	27	28	29
19		0.22*	0.50**	0.41**	0.09	0.40**	-0.07	0.06	0.04	-0.13	-0.17
20			0.20*	0.03	0.01	-0.01	0.09	0.09	0.03	-0.05	-0.06
21				0.18*	-0.18	0.17	0.12	0.10	0.05	-0.05	-0.15
22					0.16	0.67**	-0.26**	-0.07	0.04	-0.10	-0.10
23						0.12	0.02	-0.10	-0.08	0.18*	0.08
24							-0.21*	-0.01	0.02	0.01	-0.14
25								0.37**	0.16	0.27**	0.17*
26									0.59**	0.07	0.07
27										-0.04	-0.04
28											0.50**
29											

\*Significant correlations ( $p < 0.05$ ). \*\*Significant correlations ( $p < 0.01$ ).

**Table 7.** Most cited program or service in each category provided by the RFET in the period of study as identified by the coaches in the questionnaire.

Level and categories	Sub-category	Most cited programs or services	Times cited
Tennis services			
Player development	Participation / grassroots tennis	‘TennisXetapas’	56
	Performance / competition	Training camps	23
Competitive structure	Tournaments	Events’ grants	15
Policy	Rules	COVID-19 Guidelines	30
Education	Activities	XVII Online Symposium and National Congress	44
Non-tennis services			
General	Management	Tournament Platform	26
Marketing	Communication	Website	14
Resources	Equipment	Facility grants	7
IT	Communications	RFET App	20
Other services	General	Tennis Card	18

Table 7 includes the innovative programs of the RFET most cited by the coaches classified in levels, categories and sub-categories. Results showed that tennis services programs were the most often considered as innovations. This can be understood as the coaches’ preferences for tennis programs over non-tennis ones. The most cited tennis program was a participation/grassroots tennis project called “TennisXetapas” (Tennis by stages), a strategic long-term plan for player development which provides technical, tactical, physical, mental and competitive guidelines for coaches at each stage. It was launched in 2019 and it is delivered via a website ([www.tenissetapas.rfet.es](http://www.tenissetapas.rfet.es)) which includes a textbook, video clips and various supporting materials. Coaches valued the user-friendly pathway provided and the quality of the contents included. The second most cited tennis program was the XVII Online Symposium and National Congress which was held on 7-8 November 2020 as part of the RFET coach education activities and continuous

professional development project. It was the first ever online Congress and offered free training to the more than 850 coaches registered. Coaches indicated that the combination of practical and theoretical presentations was extremely helpful for their daily practice.

## Discussion

The relationships of the results regarding the differences between coaches of both groups and the significant between the variables of each category with previous studies and their significance will be presented in this section.<sup>57</sup> Only references to studies conducted with coaches will be considered. In all categories there have been correlations in some of the items. This indicates that the perceptions of the coaches in the sample are related for some of these items. However, this does not happen in all items and, therefore, this is not generalized throughout the questionnaire. It is important to note, that due to fact that this is a seminal article on

this subject, it has been not possible to discuss some of these findings with previous studies.

At the managerial level, the support of an attitude towards contemporary management is in line with the results of Ferkins, Shilbury, and McDonald<sup>59</sup> who concluded that the coaches in their sample perceived the need for the professionalization of management and coaching as well as the commercialization of the federation. At the organizational and environmental levels, the results in our study also are congruent with those of De Bosscher, De Knop, and Heyndels<sup>15</sup> who found that the professionalism of the federation and its cooperation with regional federations and clubs were among the top five relevant factors for international success in tennis.

In terms of the innovative programs identified, the fact that the coaches in the sample considered that a participation/grassroots program geared towards the implementation of a long-term plan for player development is the most innovative project of the RFET is in line with the conclusions of Brouwers, Sotiriadou, and De Bosscher<sup>36</sup> who found that the expert coaches in their sample recommended that the tennis federation provides coaches with a clear development pathway and a clear coaching philosophy. The identification of a coach education project as the second most cited innovation event of the RFET is also aligned with the results of Brouwers, Sotiriadou, and De Bosscher<sup>37</sup> who found that expert coaches of national tennis federations indicated that the coaches' education system of the federation appeared to be one of the most important supporting policies for elite tennis success.

## Conclusions

The theoretical implications of our findings help to provide a specific overview on the current state of the innovation strategies in a tennis NSGB. From a practical perspective, several implications for managers, administrators and volunteers can be drawn. As per the management and organizational levels, the views of the coaches emphasize the need for sport federations to establish contemporary professional structures and programs to accomplish their work more efficiently and to adequately meet the expectations of a complex, challenging and dynamically changing environment.<sup>60</sup> At the environmental level, the coaches have highlighted the competitiveness of the tennis ecosystem in the search of grants and funding. The coaches in the sample have also stressed the negative impact of the COVID-19 pandemic on the innovation capability of the RFET.

In terms of specific innovations identified by the coaches in the sample, it is worth mentioning the relevance of coach education and the opportunities for

coaches to attend events that will help develop their competencies.<sup>37</sup>

The sample characteristics and the fact that gender could have been considered as a variable can be considered as limitations of this study, despite they are not dissimilar to several previous research on this field. Future research lines include the study of the views of coaches about the programs of other federations such as local (provincial), regional (continental) and international federations and the study of perceptions of other relevant stakeholders such as athletes, club managers, volunteers, journalists or fans, among others. A qualitative design study would help leaders and executives to gain further insight on the perceptions of relevant stakeholders such as the coaches.

This paper contributes to a deeper understanding of the perception of coaches on the innovation programs of a relevant NSGB in a country. It provides interesting insight on the management, organizational and environmental aspects of innovation in the federation. The results have shown that coaches identify tennis services related to the provision of general development guidelines and educational opportunities as the most valued innovative programs delivered by the RFET in the period of analysis and that the COVID-19 pandemic has negatively affected the innovation strategy and capability of the organization. It can be concluded that leaders and managers should take into account these perceptions to further improve in the generation and implementation of innovative services to satisfy the needs of their stakeholders.

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