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How do International Olympic Sport Federations innovate? the use of crowdfunding and the impact of COVID-19

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Abstract

The purpose of this study was to contribute to the understanding of innovation and crowdfunding of the International Olympic Sport Federations (IFs), which are the world governing bodies of their respective sports. Three research questions were addressed: the perceptions of the IFs on the implementation of their innovation programs during the last four years (2016-2020), the impact of COVID-19 on the IFs capability to innovate, and the crowdfunding strategies of the IFs. A mixed method combining qualitative and quantitative approaches was used. An online semi-structured questionnaire which included an open answer section was completed by IFs executives ($n = 22$) and an analysis of the information provided by IFs through various content sources was conducted. Results showed that IFs with less funding had significantly a more innovative approach than their counterparts, that the perception of the impact of COVID-19 on the innovative capability was not unanimous, that they identified sport-specific programs as the most innovative of all initiatives delivered during the pandemic, and that crowdfunding projects were implemented in their sport but mostly at individual and local level. From a

research perspective, and since this is the first study ever that investigates the innovation and crowdfunding strategies of IFs, future directions include the need for further research with national and regional federations on these topics. Practical implications are related to the need for IFs to deliver innovative programs to satisfy their stakeholder needs and to consider new funding methods such as crowdfunding as part of their strategies.

Key words: innovation, change, sport, international federations, crowdfunding.

Abbreviations

IFs – International Federations

NFs – National Federations

NPSOs – Non-profit sports organizations

NSGBs – National Sport Governing Bodies

RFET – Royal Spanish Tennis Federation

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Introduction

The objective of this study is to contribute to the understanding of innovation and crowdfunding in the specific context of the International Olympic Sport Federations (IFs). Three research questions are addressed in this study: the perceptions of the IFs on the implementation of their innovation programs during the last four years (2016-2020), the impact of COVID-19 on the IFs capability to innovate, and the crowdfunding strategies of the IFs. Four hypotheses were tested: (H1) IFs with more funding would be more innovative than those with lesser funds, (H2) the innovation capability of the IFs would be significantly affected by the COVID-19 pandemic, (H3) sport-specific programs would be more implemented as innovations by IFs than non-sport ones, and (H4) that their use of crowdfunding would be certainly limited among the IFs.

Innovation in the sport domain has been defined by adapting some of the general definitions used in the literature. For this work, we use the one proposed by Tjørndal (2017, p. 293) as the “*proactive and intentional processes that involve the generation and practical adoption of new and creative ideas, which aim to produce a qualitative change in a sport context.*” Authors such as Hipp and Grupp (2005), Ratten (2016), and Potts and Ratten (2016) have highlighted the importance of innovation in this field due to the inherent innovativeness of the sports industry and the risk-taking culture and proactiveness in adopting new ideas and processes that involve change. This relevance is increased by the transcendent and globalized nature of sport.

Crowdfunding in sport has been defined as “*a method of collecting small contributions through an online funding platform or site from a large number of funders*” (Ming and Huang, 2020, p. 85). It is a new form of financing in this sector which is considered very relevant for the economic growth of the sports industry (Belfiore, 2018). It has also been related to innovation since authors such as Fallon (2014) consider that it is an innovative capital-raising technique that could be used to create more publicly owned organizations in the sports context. The considerable changes operated in the sports eco-system, which have generated a gradual, constant, and progressive evolution from a local event to a world industry, make it an ideal environment for the application of a

variety of crowdfunding strategies at certain level of the business (Leroux-Sostenes and Bayle, 2019).

International Olympic Sport Federations are the organizations that govern their respective sport globally and are recognized by the IOC. They have been defined as “a group of National Sports Federations (NFs) and continental federations, at times completed by individuals, that wishes to promote and develop a specific sport or a group of sports disciplines on a world level” (Chappelet and Kübler-Mabbott, 2008, p. 59).

Research on innovation in regional or national federations has covered a diversity of domains such as resistance to technical innovation (Trabal, 2008), organizational intelligence (Staškevičiūtė-Butienė *et al.*, 2016), attitude towards innovation (Winand *et al.*, 2013), innovation capability (Winand *et al.*, 2014; Winand and Hoerber, 2017; Harris *et al.*, 2021), innovation champions (Winand *et al.*, 2013), and staff disposition (Winand and Anagnostopoulos, 2017). As per crowdfunding in sport, it has received some attention from researchers which have investigated its overall role in sport (Ljumović *et al.*, 2021), its potential and limitations as a means of financing the public ownership of sports teams (Fallone, 2014), the potential substitution or co-existence of sponsorship and crowdfunding (Abdourazakou and Leroux-Sostenes, 2016), the success drivers or factors of a crowdfunding sports campaign (Brochado, 2017; Ciechan-Kujawa and Górniewicz, 2020 or its determinants (Trinidade *et al.*, 2017), among other relevant topics.

However, despite this interest in research settings and relevance in the sport context, to the knowledge of the authors, no research has been conducted on the innovation programs of IFs and on the impact of COVID-19 on their innovation capability or structure, and on the crowdfunding strategies of these organizations.

The COVID-19 has created an unprecedented situation worldwide. It has affected all aspects of human existence, and sports among them. As IOC President Thomas Bach stated “*With the global COVID-19 pandemic, we are all living in much uncertainty. At this point in time, this uncertainty is far from subsiding [...]. This new situation will need all our solidarity, creativity, determination, and flexibility. We shall all need to make sacrifices and compromises. Extraordinary circumstances call for extraordinary measures. This situation requires every one of us to do our part, and this applies to all of us, including the IOC*” (Bach, 2020).

Therefore, the research questions of our study are to understand the innovation programs implemented by the international tennis federations, the influence of COVID-19 in the innovation capabilities of these organizations and the use of crowdfunding by these organizations. It was hypothesized that IFs would implement sport-specific programs more often than non-sport ones, that the IFs with more funding would be more innovative, that the innovation capability of the IFs would be significantly affected by the COVID-19 pandemic, and that their use of crowdfunding would be certainly limited among them.

The structure of the study is the following: The importance, areas, types as well as the research conducted related to these topics as well as the research context, the IFs, are presented in the theoretical background section. The research design, the data collection, the sample, the variables, and the analysis are provided in the methods section. This is followed by the section which includes the results found and then the discussion with previous studies. Finally, the last sections include the conclusions of the research together with its practical applications, contributions, limitations, and the suggestions for new studies.

Theoretical background

Sport is a human activity that has many facets. One of them is its consideration as a business and a global industry that has many ramifications in other contexts of the community. Sport has transcended its initial boundaries and it has become an integral part of society as its traditions and practices are embedded in its functioning (Ratten and Ferreira, 2017a). In the multi-cultural and changing sport eco-system, innovation can have a considerable impact and it can occur in a variety of contexts, both at an institutional and at an individual level, as it is not constrained by cultural, social, and political settings. It is used to gain competitive advantage by providing better services to users (Caza, 2000; Ratten, 2011a; 2011b). In this context, the IFs' objective is to represent all those practicing the sport, notably those holding licenses from the national federations, and even if the individuals in question are not usually members of "their" NF but at most members of their own local sports club" (Chappelet and Kübler-Mabbott, 2008, p. 59).

Research has identified the different areas that are affected by the dynamic innovation process in sport (Tjørndal, 2017) which include: Sport management and leadership: Improvement of different levels of management of sport (i.e., policies, commercial and organizational issues, etc.). Emergence of new sports: Development of new sports, leisure activities or new competitions in existing sports. Technology (Skare & Soriano, 2021): Creation and improvement of equipment, IT devices, platforms, etc. Institutional change: Introduction of new rules and regulations in sport. Entrepreneurship: Development, organization and management of new ideas related to sport. Social issues: Contribution to grassroots and mass-participation programs for greater social justice and equality in sport. Unethical innovation: Creation of new ways of gaining unfair competitive advantages in sport and Market influenced change: Commercialization of professional sport and the sports industry. The main themes of research on sport innovation and strategy have been divided into six categories: Outcomes of strategic management and innovation, innovation processes, innovators and entrepreneurs, innovation types, innovation and strategy in sport organizations, and antecedents of innovation and strategic management (Tjørndal, 2016; Orero et al, 2021).

Of particular interest to our study are some of the research findings on sport management and organizational innovation (Newell and Swan, 1995; Caza, 2000; Desbordes, 2001; Potts and Ratten, 2016; Ratten and Ferreira, 2017a, 2017b). The literature on this category highlights several key issues concerning this complex construct which are summarized as follows: Categories or systems of organizational innovations: Administrative (affect the social system of an organization), and technical (the equipment or operational methods). Innovation requires change in both systems. Phases of innovation: Difference between adoption (the decision to use it), and appropriation (its adaptation to a given organization). Innovation in sport is constantly evolving. Processes of innovation: Process of diffusion of knowledge and information within the organization and the relevance of interorganizational networks to attain adaptive efficiency. Key innovation agencies: Acknowledgment of the role of sports councils, NSGBs, or professional associations as focal points to generate and promote innovation and to determine the balance between sport tradition, athletic challenge, and overall interest. Innovation capacity: Sports and key agencies do not develop at the same pace. Mass practice, fan interest, and results from top athletes influence this progress and affect their innovation capacity. Innovation evolution: It happens along trajectories and is the product of single small collaborative and incremental inspiration efforts of groups of people (scientists, administrators, businesspeople, etc.). Innovation pressure and competitiveness: The attempt of implementing innovations may come from a strong pressure for change from a variety of sources and in several different areas. Many innovations and entrepreneurial business ideas develop in the sports industry due to the

emphasis on competitiveness. Innovation analysis: The need for a holistic and dynamic analysis of innovation and change which considers the content (details), the context (internal and external culture, structure, and politics) and the process (actions, reactions, and interactions). Innovation uniqueness: Sports retain distinct management approaches and innovation processes work differently in different sports.

There are several important features of innovation by NSGOs that can be concluded from the results of the research conducted (Winand *et al.*, 2016; Winand and Anagnostopoulos, 2017). They are a specific type of NPSOs, the study of which can inform the mainstream literature on non-profit management (nature). These organizations are generally managed by a combination of board volunteers and employees (management). They face external control mechanisms (i.e., scrutiny of regulatory bodies) and internal mechanisms (such as social mission and accountability to members), which restrict their strategic choice and decision-making flexibility (control). They exist within a competitive environment and strive for resources to provide services to their members (environment). They do engage in change processes as they develop new services to satisfy and increase/maintain membership and financial support (innovation). These organizations offer new activities (such as leisure sports and sport programs) and services (i.e., online services, sport equipment rental) to meet the expectations of their stakeholders (which can include members, government, and sponsors) (activities).

Regarding crowdfunding in sport, research has investigated a series of topics such as its relevance (Abdourazakou and Leroux-Sostenes, 2016; Belfiore, 2018; Novak *et al.*, 2018), models (Brochado, 2016; Fallone, 2014), context (Belfiore, 2018), success drivers (Brochado, 2017), stakeholders and their roles (Novak *et al.*, 2017), and examples of best practice cases (Leroux-Sostenes and Bayle, 2019; Ming and Huang, 2020; Novak *et al.*, 2017; 2018; Giaretta & Chesini, 2021) among others.

Some research has viewed crowdfunding in sport as the new frontier for sport sponsorship by which corporations and individuals can assist athletes, teams or events and be part of their success. In this context Abdourazakou and Leroux-Sostenes (2016) concluded that sponsorship targeted long-term relationships in sport whereas crowdfunding had a more short-term approach since it was project-based. Regarding its relevance, Belfiore (2018) indicated that it is a new type of active participation that translates into support for sports activities more than just the simple appreciation. In this context, authors such as Novak *et al.*, (2018) have concluded that crowdfunding has a great potential to become the significant source of sports self-financing.

In terms of models, Fallone (2014) suggested that crowdfunding is a concept which comprises various models for fundraising with a unique common characteristic, the fact that they publicly appeal usually for small amounts of money. Three models were identified: (1) pure donations, (2) exchange for some type of reward or membership, and (3) investments in an ongoing business enterprise. Brochado (2017) distinguished between for-profit or investment-based projects (i.e., equity-based, royalty-based and lending-based) and non-profit or reward and donation-based projects (i.e., with no monetary compensation). A new model of crowdfunding based around the concept of shared sponsorship has also been proposed by Leroux-Sostenes and Bayle (2019) to be effective for the sports ecosystem.

The context of crowdfunding in sport has already been investigated, with authors indicating that it has been used by individual amateur athletes, amateur and professional sports teams, leagues and tournaments, competitions, and events. Indeed, crowdfunding is used as a vehicle to fund projects which are very heterogeneous (Abdourazakou and Leroux-Sostenes, 2016; Fallone, 2014). However, Belfiore (2018)

mentioned that the use of crowdfunding to promote a sporting activity or to finance the sporting season was not so usual. In a recent paper, Hodeck *et al.* (2021) investigated crowdfunding as a financing instrument for sport during the COVID-19 pandemic and highlighted the cohesion between individuals and organizations as key factors for the success of the projects.

Another topic which has attracted the attention of research is that of the success drivers of sport crowdfunding campaigns. In a study, Brochado (2017) concluded that donation-based sports campaigns were more likely to succeed than reward-based projects, that crowd-funding projects with fixed funding were more likely to be successful than projects with flexible funding, that over-funding was quite rare, and that campaigns with higher targets were less likely to achieve success. Trinidad *et al.*, (2017) concluded that in a sport crowdfunding project, both the Facebook connection and the number of images per project increased its success of a project. The ability to use the fans of a team as a source of external funds was found by Adam (2018) as a key success factor for a crowdfunding sports campaign. Leroux-Sostenes and Bayle (2019) also suggested that sport campaigns are more likely to be successful if they include a sponsor company. Interestingly enough, Ciechan-Kujawa and Górniewicz (2020) found that one of the success determinants of sports projects financed with donation crowdfunding was the banner link to the website or blog of the YouTuber.

Novak *et al.*, (2017) studied the relationships between crowdfunding and entrepreneurship and identified the participating stakeholders that take part in a crowdfunding initiative and their roles being: (1) the project initiators, who seek funds for their projects, (2) the backers, who provide support to the project, and (3) the platforms, who are the intermediaries. In a follow up study (Novak *et al.*, 2018) they also emphasized the crucial relevance of the internet-based platforms as the crucial means for a successful result of a crowdfunding campaign. In this context, Kościółek (2021) identified emotional engagement with the club, altruism, desire to help family or friends, to belong to a community, and to collect rewards as the main backers' motivations in sports clubs reward-based crowdfunding campaigns.

Examples of best practice examples studied by researchers include those of national federations such as the Lacrosse Team USA to train, travel and compete in the World Cup and World Games (Rallyme, 2021), some of the teams and athletes that took part in the Sochi 2014 Olympics (Miller, 2019), clubs that financed an event (Alois, 2015) or a facility (Kit-it-out, 2017), as well as multiple projects in sports such as volleyball, basketball, alpine skiing, canoeing or judo (Adam, 2018), the co-finance of a sport facility name (Huth, 2018a; 2018b) or a club (Huth, 2020), and its application to intercollegiate athletics (Morehead *et al.*, 2018; Sattler *et al.*, 2019) to name some of the most relevant.

As per the research context, the International Sport Federations are the focus of this paper. They are the central international entity for the sport in question and, as such, their key role as one of the main constituents of the world governance in sports has unanimously been recognized both by researchers (Forster, 2006; Schulze, 2004) and practitioners alike (Chappelet *et al.*, 2019; IOC, 2011). The globalization and professionalization of international sport together with the commercialization and the need for improvements in governance and management policies of these organizations have situated them at the center of the attention of media and research (Clausen, *et al.*, 2018).

However, despite the obvious relevance of the IFs role, the growing interest of non-scientific literature (IOC, 2011), and the fact that many IFs have received considerable attention individually by researchers (Wagner, 2011), which has produced a gradual growing body of research on their activities during the last two decades, surprisingly

there is a paucity of studies that compare the characteristics and programs of these organizations to progress the body of knowledge in this area and to inform policies and practical applications (Bayle, 2015).

Furthermore, despite aspects mentioned above to date no attempt has been made to study their innovation programs, their use if any of crowdfunding strategies, and the impact of COVID-19 in their innovation strategies and capabilities. Therefore, the special characteristics of these organizations make them unique among the sport ecosystem and, therefore, it was thought that they would be an appropriate subject of study to investigate the role of innovation programs in their context.

Methods

Details on the research design, the data collection, the sample, the variables, and the analysis are provided in this section.

Research design and data collection

A mixed research method design was used. An online semi-structured questionnaire that was sent to key management staff of IFs provided the quantitative data whereas the content analysis of information included in documents produced by the different IFs (i.e., reports, memorandums, meeting minutes, emails, and websites) provided the qualitative data. The involvement of the first author in international sport provided the access to these contacts and data. The period 2016-2020 was the timeframe of the study since it was an Olympic quadrennial in which the IFs should implement a diversity of innovation programs, as part of their activities.

This study used the innovation questionnaire from Winand *et al.*, (2013) in their research with NSGOs. This tool has two sections. The first one assesses three levels of innovation perceptions and attitudes (managerial, organizational, and environmental) with 29 items in a 5 level Likert scale (Table 1). Winand *et al.*, (2011), and Winand *et al.*, (2013) provide a full description of this questionnaire. The questionnaire also included other items related to the COVID-19 pandemic and to concepts obtained from previous research (Caza, 2000; Newell and Swan, 1995; Hoeber and Hoeber, 2012) which were thought to be relevant for the study. The second section includes a series of open questions for participants to identify and describe innovative sport and non-sport activities, initiatives, services, projects, products, or programs implemented by their IFs during the period of the study.

[Insert Table 1]

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 my IF are unlike private firms
	Inflexible structure	2. A traditionally formal and hierarchic administrative model is preferable to a flexible and less structured model in my IF
	Against change	3. Change to the internal functioning of IFs can be counterproductive
		4. There can be accountability problems in IFs when services are privatized
Attitude favoring change and newness	Investment in new services	5. More financial investments (even risky) should be achieved by my IF to develop new services for members
		6. My IF should invest in the development of new services
	Risk taking	7. To achieve their goals, my IF should take risks
	Openness to change	8. Change is globally a good thing for my IF
	Openness to members' expectations	9. My IF should deliver new expectations of their members
	Openness to club's suggestions	10. Suggestions of national federations and clubs should be taken into account by my IF
Attitude towards contemporary management	Professional management	11. Paid staff have ideas that my IF should take into account
		12. My IF should be managed like business firms
	Involvement in decision making processes	13. It is important that my IF has clear mission and vision statements
		14. The paid staff of my IF should be involved in the decision-making processes
Organizational level determinants		
Perception of organizational culture	Culture and relationships	15. The paid staff of my IF should have a corporate spirit
		16. My IF has an organizational culture and relationships between volunteers and paid staff that favors innovation
Perception of innovativeness	General	17. My IF is innovative
	Specific services	18. My IF provides innovative services, programs, products, and events

	Strategies and policies	19. My IF has coherent strategies and policies in place geared towards innovation
Perception of ability to lead change	Leadership within the organization	20. My IF has an organizational ability with their volunteers and staff to lead the change
	Leaders champions	21. There is a clear commitment from the IF volunteers to innovate our sport
Perception of economic health	Financial balance	22. My IF does not have difficulties to achieve financial balance
	Risky financial investments	23. My IF has sufficient financial resources to develop new services, even risky
	Attraction of financial resources	24. My IF does not have the necessary expertise to attract financial resources from private companies
	Economic health	25. My IF has good economic health
Environmental level determinants		
Perception of pressures	External pressures	26. There are external pressures to my IF to change and innovate
Perception of competitive national environment	Attraction of members	27. My IF competes with other sports federations to attract members
		28. The promotion campaigns of my IF are useful to attract future members
	Attraction of grants	29. IFs are competing among themselves to obtain grants 30. Competition to obtain grants is high
	Competition with commercial sports providers	31. Commercial sports providers are a threat to my IF's growth
Perception of cooperative environment	Cooperation with other organizations	32. My IF cooperates with other sport and non-sport organizations to innovate
Perception of competitive regional environment	Sport rivalry between regional sport federations	33. There is rivalry between the different national federations of my sport
Perception of competitive international environment	High-level sport competition	34. Competition between IFs to obtain international sport results is high
Perception of COVID-19 impact	Impact on the strategy and structure	35. COVID-19 has negatively affected the strategy and structure of my IF
	Impact on the capacity to innovate	36. COVID-19 has negatively affected the innovation capacity of my IF

The qualitative analysis was done following several steps. Initially there was a search, identification, and collection of the relevant information related to the innovative initiatives from the different IFs which could be found in the different content sources (i.e., internet, emails, memorandums, meeting minutes, brochures, reports, etc.). This was followed by the classification and analysis of the different contents according to the open questions included in the second section of the questionnaire (Table 2). The contents were selected according to their relevance in providing further details on the various initiatives and programs already mentioned in the open section of the questionnaire. The analysis was done by the first author with the assistance of the other two authors. This analysis allowed to obtain more information on the characteristics, descriptions, and concepts of the programs.

[Insert Table 2]

Table 2. Break-down of sport and non-sport services that can be offered by an IF.

Level and categories	Sub-category	
Sport services		
Player development	Participation / grassroots	Programs for athletes of different categories (i.e., 10, 12, 14, 16 and 18 and under, adults and seniors).
	Performance / competition	Programs for athletes (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 play (i.e., sport license, COVID-19, etc.).
Education	Activities	Education programs for coaches, referees, administrators, parents (i.e., courses, conferences, congresses, webinars, publications, etc.).
Non-sport services		
General	Management	General management and administration (i.e., procedures, registrations, sign-ins, etc.).
Marketing	Communication	Marketing and communication (i.e., campaigns, initiatives, etc.).
Resources	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).
Crowdfunding	Specific strategies	Crowdfunding strategies implemented by the organization (i.e., events, projects, programs, etc.).

Sample

Following the procedure of Winand *et al.*, (2013), one key stakeholder of each IF received the questionnaire via email. These stakeholders were selected according to the unique criteria of their belonging to the executive professional staff of the IF. In line with previous studies on innovation in sport (Ringuet-Riot *et al.*, 2014), this research used a purposive sample strategy since the individuals selected were considered experts that had a unique perspective on the innovation programs of their organizations and, as such, could provide extremely relevant views on these programs by identifying, classifying, explaining, and describing key themes, topics and features relevant to the study.

As recommended by previous research (Damanpour and Schneider, 2009), their professional position and relationship with the IF together with their expertise in the field, made them aware of the innovation programs of these organizations. The personal contacts of the first author made possible to contact this group of individuals, which was not easy to access to.

Variables

Table 1 shows the questionnaire's levels, categories, sub-categories, and items of innovation. The categories and sub-categories included at managerial level are attitude towards traditional management (bureaucracy, inflexible structure, against change), attitude favoring change and newness (investment in new services, risk taking, openness to change, to members expectations, to club's suggestions and to staff suggestions), and attitude towards contemporary management (professional management and involvement in decision making processes). The categories and sub-categories included at environmental level are perception of competitive regional environment (sport rivalry between regional sport federations), perception of competitive national environment (attraction of members, attraction of grants and competition with commercial sports providers), perception of competitive international environment (high-level sport competition), perception of COVID-19 impact (on the strategy and on the capacity to innovate), and perception of pressures (external), and perception of a cooperative environment (cooperation with other organizations). Finally, the categories and sub-categories included at organizational level are perception of organizational culture (relationships), perception of innovativeness (general, specific services, strategies, and policies), and perception to lead change (leadership within the organization and leadership champions) and perception of economic health (financial balance, risky financial investments, and attraction of financial resources).

In the open section of the questionnaire the levels included are sport and non-sport, and the categories of services that can be offered by an IF. The categories of sport services included were player development (participation/grassroots and performance/competition), competitive structure, policy, and education. As per the non-sport services they included general, marketing, resources, IT, other services, and crowdfunding strategies.

Analysis

The statistical analysis undertaken are presented in this section. The RStudio v. 1.3.959 and the SPSS v. 26 were used to carry out the statistical analysis. A K-Means cluster analysis was conducted to classify the Federations depending on their budget and number of staff members. Clustering is a technique used to find and classify k groups of data (clusters). Thus, the elements that share similar characteristics will be together in the same group, separated from the other groups with which they do not share characteristics. The gap method was used to identify the optimal number of clusters. The

abovementioned method suggested a 3-cluster model in which Federations were divided into large, medium, and small ones. Subsequently, 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. Kruskal-Wallis and U Mann-Whitney pairwise comparisons with Bonferroni correction were used to test if there were differences between Federations. 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 ≥ 0.14 .

As per the analysis of the content from the open section of the questionnaire, data was initially classified between the two levels of sport and non-sport innovative programs. Then, key higher-order themes and terms were coded within each category of both levels and results of descriptions of programs, projects, or initiatives were matched with the programs in place as labelled by the IFs. The innovative program most cited was considered the most preferred one in each category since, as done by Winand *et al.*, (2013), the number of innovations was considered as relevant criteria. As per the crowdfunding, the views on the participants were also analysed similarly.

Results

This section presents the results as related to the hypotheses previously set. The sample of the study consisted of 22 participants representing the same number of IFs out of the total of 37 IFs which were sent the questionnaire. The response rate was of 60%. As per their gender, 25% of the participants were female and 75% male with an average age of 43 (± 10.3) years old.

In terms of the current operating annual budget in US\$ of the IFs, 42% had from 1,1 to 10 million US\$/year, 33% had from 10,1 to 50 million US\$/year and 25% had more than 50,1 million US\$/year.

For the analysis, it was considered that the funding of the IFs was an appropriate criterion to differentiate the sample. The results and the significant differences between the perceptions of the different groups in the questionnaire items are shown in Table 3 and relate to (H1) IFs with more funding would be more innovative than those with lesser funds, and (H2) the innovation capability of the IFs would be significantly affected by the COVID-19 pandemic.

As per (H1) which hypothesized that IFs with more funding would be more innovative than those with lesser funds. Two sub-categories (items 6 and 8) of the managerial and one of the organizational levels (item 21) determinants showed significant differences between executives of both groups. In the managerial level, the attitude favoring change and newness category, in the sub-category related to investment on new services, and the item 6, smaller IFs felt that their organization should invest in the development of new services more than representatives of bigger IFs. In the same level and category, but in the sub-category of openness to change and the item 8, smaller IFs also felt that change was globally a good thing for their organization more than their counterparts of bigger IFs felt. In the organizational level, the category of perception ability to lead change and the leaders' champions subcategory, and the item 21, representatives of smaller IFs also felt that there was a clear commitment in the sport volunteers to innovate their sport more than those representing bigger IFs. In general, it can be said that results show that there are not too many differences between federations and that smaller federations have more tendency to change and innovation than bigger ones.

Regarding (H2) in which it was hypothesized that the innovation capability of the IFs would be significantly affected by the COVID-19 pandemic, results showed that the representatives of IFs in the sample had mixed perceptions on this aspect and did not show significant differences between IFs.

[Insert Table 3]

Table 3. Results on the IFs representatives on the different levels, categories, sub-categories, and items according to the size of their IF.

Item	Total Median (IQ)	Large Federations Median (IQ)	Medium Federations Median (IQ)	Small Federations Median (IQ)	H Kruskal-Wallis	p	η^2
1	4.00 (1.25)	3.00 (2.00)	4.00 (1.00)	4.00 (3.00)	0.170	0.919	0.096
2	3.00 (2.00)	3.00 (1.00)	3.00 (2.00)	3.00 (2.00)	0.051	0.975	0.103
3	2.00 (1.00)	3.00 (2.00)	2.00 (2.00)	2.00 (1.00)	0.334	0.846	0.088
4	3.00 (2.00)	3.00 (2.00)	3.00 (2.00)	3.00 (2.00)	0.098	0.952	0.100
5	4.00 (1.00)	3.00 (1.00)	4.00 (1.00)	4.00 (3.00)	0.672	0.715	0.070
6	4.00 (0.50)	3.00 (1.00) ^a	4.00 (2.00)	4.00 (1.00) ^a	5.670	0.059	0.193
7	4.00 (1.25)	3.00 (2.00)	3.00 (2.00)	4.00 (2.00)	2.004	0.367	0.000
8	4.00 (1.00)	4.00 (1.00) ^a	4.00 (0.00)	5.00 (1.00) ^a	6.525	0.038	0.238
9	4.00 (2.00)	4.00 (1.00)	4.00 (2.00)	4.00 (1.00)	1.753	0.416	0.013
10	4.00 (1.25)	4.00 (2.00)	4.00 (1.00)	4.00 (1.00)	4.699	0.095	0.142
11	4.00 (1.00)	4.00 (2.00)	4.00 (1.00)	4.50 (1.00)	4.676	0.097	0.141
12	4.00 (2.00)	4.00 (2.00)	4.00 (2.00)	3.50 (3.00)	0.330	0.848	0.088
13	5.00 (0.00)	5.00 (1.00)	5.00 (1.00)	5.00 (0.00)	4.133	0.127	0.112
14	4.00 (1.00)	5.00 (2.00)	4.00 (1.00)	4.00 (1.00)	2.110	0.348	0.006
15	4.50 (2.00)	5.00 (2.00)	5.00 (1.00)	4.00 (2.00)	1.152	0.562	0.045
16	3.00 (1.00)	3.00 (1.00)	3.00 (1.00)	4.00 (2.00)	2.834	0.242	0.044
17	4.00 (2.00)	4.00 (2.00)	4.00 (3.00)	4.00 (2.00)	0.420	0.810	0.083
18	4.00 (1.25)	4.00 (1.00)	4.00 (2.00)	4.00 (2.00)	1.947	0.378	0.003
19	4.00 (1.00)	4.00 (1.00)	4.00 (2.00)	4.00 (1.00)	1.528	0.466	0.025
20	4.00 (1.00)	4.00 (2.00)	3.00 (2.00)	4.00 (2.00)	2.741	0.254	0.039
21	3.50 (1.00)	3.00 (1.00)	3.00 (2.00) ^b	4.00 (1.00) ^b	0.099	0.011	0.100
22	3.00 (1.00)	3.00 (2.00)	3.00 (1.00)	4.00 (2.00)	1.352	0.509	0.034
23	3.00 (2.25)	4.00 (3.00)	3.00 (1.00)	3.00 (2.00)	1.927	0.381	0.004
24	2.00 (1.25)	2.00 (3.00)	2.00 (1.00)	2.50 (1.00)	0.225	0.894	0.093
25	4.00 (2.00)	4.00 (2.00)	4.00 (2.00)	3.50 (1.00)	1.173	0.556	0.044
26	3.00 (1.00)	3.00 (2.00)	3.00 (1.00)	4.00 (2.00)	1.741	0.419	0.014
27	2.50 (1.00)	2.00 (2.00)	2.00 (1.00)	3.00 (2.00)	0.303	0.859	0.089
28	3.00 (1.25)	3.00 (2.00)	3.00 (1.00)	3.00 (1.00)	2.144	0.342	0.008

29	3.00 (2.00)	3.00 (1.00)	3.00 (2.00)	3.00 (2.00)	0.731	0.694	0.067
30	3.00 (1.25)	3.00 (1.00)	3.00 (2.00)	3.50 (2.00)	2.104	0.349	0.005
31	2.50 (1.00)	3.00 (2.00)	3.00 (1.00)	2.00 (2.00)	0.760	0.684	0.065
32	4.00 (0.00)	4.00 (2.00)	4.00 (0.00)	4.00 (1.00)	0.197	0.906	0.095
33	3.00 (2.00)	3.00 (2.00)	3.00 (1.00)	3.00 (2.00)	1.332	0.514	0.035
34	3.00 (1.00)	3.00 (1.00)	3.00 (1.00)	4.00 (1.00)	1.835	0.399	0.009
35	3.00 (2.25)	2.00 (3.00)	3.00 (3.00)	3.00 (2.00)	1.457	0.483	0.029
36	2.50 (2.25)	2.00 (3.00)	4.00 (2.00)	2.00 (2.00)	3.463	0.177	0.077

As per the initiatives, programs and projects delivered by the different IFs during the period of the study including their classification levels categories and sub-categories, they are shown in Table 4. They relate to (H3) which hypothesized that sport-specific programs would be more implemented as innovations by IFs than non-sport ones, and (H4) which hypothesized that the use of crowdfunding would be certainly limited among the IFs.

[Insert Table 4]

Table 4. Most cited programs or services in each category provided by the IFs in the period of study as identified by the managers in the questionnaire and further described in the interviews.

Level and categories	Sub-category	Most cited program or service	Times cited
Sport services			
Athlete development	Participation grassroots	/ Development program	22
	Performance competition	/ Talented tennis kids' programs	14
Competitive structure	Tournaments	Events for players of all age groups	13
Policy	Rules	COVID-19 regulations	16
Education	Activities	Online courses and conferences	20
Non-sport services			
General	Management	Stakeholder services	13
ICT	Communications	Strategy and initiatives	15
Crowdfunding	Strategies	Various considerations	3

Results showed that sport-specific programs were more frequently identified as innovation activities implemented by IFs during the pandemic than the non-sport ones. Some of the most relevant sport and non-sport initiatives as well as their views on crowdfunding will be briefly presented below.

Participation / grassroots

IFs identified development programs in which assistance was offered to their NAs in the form of equipment, material, or subsidies. Programs identified included: Shuttle Time Schools Program, AirBadminton, Get into Rugby, Aquatics Day, Tennis Festivals, Football for schools, Global Laser Run City Tour, Basketball for Goof, Learn2Curl, etc.

One of the development directors indicated “*One of our key programs has been the collaboration with the sport manufacturers association (ATA) to produce didactic videos and items in Social media to explain the sport, help in its initiation and make it attractive to youth!*” [IF-1].

Another participant stressed that: “*The main goal of these programs is to focus on a simple principle: “More than medals”. They have to be accessible to all, and this can be*

done through annual beginner youth and adult training camps, as well as education programs for coaches and team members” [IF-8].

Education

This category was also identified by the participants as one of the most relevant since the goal has been to provide coaches certification programs, judges certification programs mostly delivered with online seminars. The IFs agreed that they were moving from formal coaches’ courses manuals in paper, to "online Education modules" followed with few presidential sessions to practice and evaluate the knowledge.

As indicated by one of the development directors of an IF: *“We have worked on the digitalization of our learning and certification processes, Publication of various manuals, organization of multiple sessions on-line and open to all public or targeted to some profiles, etc.” [IF-11].*

An interesting statement made by one of the IF managers was the following: *“Education is probably one of the areas, beside events, that was hit the hardest by the pandemic as due to financial reasons the implementation of the brand-new Educational Scheme was put on hold. Instead, we put in place a number of initiatives, Webinars, Online Lessons etc., that could be carried out by our staff (almost without any investment)” [IF-17].*

ICT / Communications

Communications, which included ICT services (i.e., networks, platforms, etc.) was the non-sport program mostly cited by IFs’ representatives in the sample. This level generally consisted of full social media and communications strategies and policies which included traditional and digital-based programs.

As indicated by one respondent, some of the communication programs in their IF included the following: *“A new online Training and Education platform, a grants management platform, several Competition management platforms. New ERP Business delivery systems in finance, HR, Business analytics, innovation portal, document storage, internal communications, etc.” [IF-20].*

The principle of customer service was also mentioned by some of the participants as IFs were focused on offering: *“A comprehensive service covering registrations, as well as an event management, and an Athlete Identity and communication Hub which is currently under development” [IF-7].*

Crowdfunding

Representatives of the IFs that took part in the study acknowledged the existence of crowdfunding initiatives in their sport as part of the dynamic and fast-growing tendency in the development of the sport eco-system towards a business-oriented activity. They also emphasized the need for using new methods and initiatives of financing sports projects and activities that would complement the traditional systems being used.

One of the IFs’ managers commented: *“I am aware that some tournaments are using crowdfunding initiatives to access extra funds that will allow them to host the event. We know that, sometimes, clubs and tournament organizers find it difficult to cover the overall expenses of the event which, at the professional level, also include the prize money of the tournament. However, to my knowledge, this seems to be a practice that it is done at local level, at least in our sport. I am not aware of any national association or federation that has used this system” [IF-16].*

The use of crowdfunding by athletes and teams was also mentioned: “Yes, even though we provide assistance and funds to national federations, we understand that the support is limited by the resources available. This obviously affects the development capability of the nations. There may be some athletes, teams and clubs that look at new funding methods to cover the expenses of their training, travels, equipment, etc. This is still new to the sport but due to the changing environment, there is a growing potential for this to be used” [IF-6].

A final note regarding the impact of COVID on the overall activity of the IFs, as one of the managers of an IF commented: “Within our High-Performance Unit we run a number of dedicated athlete-focused programs, such as the global Training Camps, Scholarship programs, etc. Unfortunately, they have been quite heavily affected during the pandemic therefore not much could be done lately” [IF-13].

Discussion

This section will compare of our results with those of previous studies. However, it is important to emphasize that, since this is the first time that innovation and crowdfunding strategies are investigated in the context of IFs, the discussion will be related to the research done with national sport federations.

In terms of innovation our results are in the line of those obtained by Crespo *et al.*, (2021a) who investigated the coaches’ perceptions of the innovative programs implemented by the RFET and concluded that the coaches identified a participation grassroots and a coach education program as the most relevant of all those implemented. However, the views of the coaches that COVID-19 had negatively affected the innovation strategy and capability of the organization were stronger than those found in this study.

Our results are also similar to those found by Crespo *et al.*, (2021b) when they studied the perceptions of stakeholders (i.e., managers, players, officials, etc.) on the innovation programs of the RFET since the components of the sample also preferred tennis innovation programs over non-tennis ones. They also stated that the pandemic had affected the innovation capability of the RFET. Furthermore, regarding the innovation programs identified, our findings coincide with those of Newell and Swan (1995), Harris *et al.*, (2021) and Crespo *et al.*, (2021a; 2021b) since sport-specific programs were the most relevant to be delivered by federations or associations.

As per crowdfunding, our results are in line with those already found in the literature since representatives of IFs acknowledge the existence of initiatives in sport that use this new funding method at different levels, with a variety of actors and with a combination of success factors (Leroux-Sostenes and Bayle, 2019; Ming and Huang, 2020; Novak *et al.*, 2017). They also consider that crowdfunding has a considerable potential in the sport eco-system as already emphasized by authors such as Abdourazakou and Leroux-Sostenes (2016), Belfiore (2018), and Novak *et al.*, (2018).

Unfortunately, since there are no studies conducting on crowdfunding programs implemented by national, regional, or international federations, our results point out the need to further investigate why this initiative which is gradually being used by more organizations in the sports industry is still not present at federation level. Some possible explanation for this lack of application may be related to aspects as varied as the strategy, vision, role, and financial structure of these organizations which may need to

be addressed prior to considering the implementation of the whole crowdfunding strategy.

Conclusions

This research aimed to explore how IF representatives perceive innovation and crowdfunding in their context. The results of this study are the first to present the views of these sport organizations on these crucial topics. Even though there were not too many significant differences between IFs, it has been shown that smaller organizations had a more tendency to change and innovation than bigger ones. As per crowdfunding, it can be concluded that IFs do not generally include this strategy among their programs which, in the sports context, it is more used at individual, local and club level.

Several limitations can be identified in this research. The first one relates to the size of the sample since even though the number of IFs that participated was a considerable one, the results would have been more representative with a higher reply from the IFs. The second aspect has to do with the decision of asking just to one representative per IF to take part in the study. Obviously, if more staff members from each organization would have participated, the data collected could provide further details and insight. Finally, the questionnaire used, and the process followed could have been adapted to include some questions individually tailored to each of the IFs. However, the fact that this is one of the studies done with IFs in which more of these organizations have taken part is of merit.

As per the future research directions, these may include studies with regional or continental federations (i.e., UEFA, Tennis Europe, etc.) which could provide an interesting comparison to the IFs since, many of them are smaller organizations due to their geographical involvement. Another interesting line of investigation could include the possibility of having other experts as representatives of IFs such as technical directors, coaches, referees, team support members, officials, etc. Furthermore, focus could also be on the study of the efficiency and development of sport-specific crowdfunding platforms, their implementation in concrete emerging regions (i.e., Asia) and markets (i.e., amateurs, adults), and the relationships between social media marketing and success factors of these campaigns, among others.

The results of this study present an overview of the innovation programs, the perceptions on the impact of the pandemic and the crowdfunding strategies of IFs representatives which have obvious practical applications and implications for all those involved at the managerial level in these organizations. It is hoped that this study has helped to gain a valuable insight on the innovation and crowdfunding strategies of organizations such as IFs which have a unique role in the global governance of sport.

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