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NETWORK CHARACTERISTICS OF VOLLEYBALL TEAMS IN BRAZIL: AMATEURISM AND PROFESSIONALISM

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Abstract

Objective of the study: This study aims to investigate the characteristics of the networks of volleyball teams in Brazilian context, in amateur and professional level.

Methodology/Approach: This research adopted an interpretive paradigm, in which six Brazilian volleyball teams were studied. The techniques of data collection were qualitative and encompassed interviews, analysis of information available in the press and on websites and observation.

Originality/Relevance: Prior literature has not investigated in-depth with the lens of the networks theory, the sports organizations at an amateur and professional level, considering the firms' life cycle. To address this gap, considering that, similar to the life cycle of firms, amateurism and professionalism are specific strategic contexts.

Main results: Our findings indicated that actor's of team's networks could be divided into two groups, one linked to sports and other to administrative activities. Additionally, teams' networks have in common the fact that paid team members perform activities related to the sport itself.

Theoretical/Methodological contributions: The fact that Superliga B has more collaborations obtained by personal contacts, while Superliga A teams build a more calculated network, meet the propositions made in this study and are aligned to the general idea of the work of Hite and Hesterly (2001) about changes in firm's network and firm's life cycle.

Social contribution/for management: The main implications for management indicated that, whether companies or volleyball teams, should align their networks with the current life cycle stage. If a volleyball team plans to become professional, it should be aware of the need to adapt the network to a new division.

Keywords: Volleyball. Network. Evolution. Amateurism. professionalism.

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CARACTERÍSTICAS DA REDE DE TIMES DE VOLEIBOL NO BRASIL: AMADORISMO E PROFISSIONALISMO

Resumo

Objetivos do estudo: Este estudo pretende investigar as características da rede dos times de voleibol no contesto Brasileiro, em nível amador e profissional.

Metodologia/Abordagem: Essa pesquisa adotou o paradigma interpretativo, onde seis times Brasileiros de voleibol foram estudados. As técnicas de coleta de dados foram qualitativas e abrangiu intrevistas, analise de informações disponíveis em jornais, sites e observação.

Originalidade/Relevância: Literatura anterior não investigou a fundo, organizações esportivas em nível amador e profissional, sob a ótica da teoria de redes, considerando o ciclo de vida das empresas. Para elucidar sobre o tema, considerou-se, o ciclo de vida das empresas similar, ao amadorismo e o profissionalismo enquanto contestos estratégicos específicos.

Principais resultados: Resultados indicam que os atores das redes dos times podem ser divididos em dois grupos, um associado a atividades esportivas e outro a atividades administrativas. Ainda, as redes dos times tem um fator comum, os membros pagos estarem ligados as funções das atividades esportivas.

Contribuições teóricas/Metodológicas: O fato da Superliga B ter mais colaborações obtidas através de contatos pessoais, enquanto os times da Superliga A constroem uma rede mais especializada, converge com a proposição feita neste estudo e está alinhada com a ideia geral do trabalho de Hite & Hesterly (2001) sobre as mudanças na rede e no ciclo de vida das empresas.

Contribuição Social/ para gestão: As implicações para gestão indicam, tanto empresas quanto times de voleibol, deveriam atualizar a rede para o estágio do ciclo de vida vigente. Se um time de voleibol planeja se tornar profissional, ele deveria estar ciente da necessidade de adequação da rede para a nova divisão.

Plavras chave: Voleibol. Rede de contatos. Evolução. Amadorismo. Profissionalismo

CARACTERÍSTICAS DE LA RED DE EQUIPOS DE VOLEIBOL EN BRASIL: AMATEURISMO Y PROFESIONALISMO

Resumen

Objetivos del estudio: Este estudio tiene como objetivo investigar las características de la red de equipos de voleibol en el contexto brasileño, a nivel amateur y profesional.

Metodología/Enfoque: Esta investigación adoptó el paradigma interpretativo, donde se estudiaron seis equipos brasileños de voleibol. Las técnicas de recolección de datos fueron cualitativas e incluyeron entrevistas, análisis de información disponible en periódicos, sitios web y observación.

Originalidad/relevancia: La literatura anterior no ha investigado a fondo las organizaciones deportivas, aficionadas y profesionales desde la persperctiva de la teoría de redes, considerando el ciclo de vida de las empresas. Para dilucidar el tema, consideramos el ciclo de vida de las empresas similar al amateurismo y la profesionalidad como desafíos estratégicos específicos.

Resultados clave: Los resultados indican que los actores de las redes del equipo se pueden dividir en dos grupos, uno asociado con actividades deportivas y el otro con actividades administrativas. Además, las redes de equipo tienen un factor común: los miembros pagos están vinculados a las funciones de las actividades deportivas.

Contribuciones teóricas/metodológicas: El hecho de que Superliga B tenga más colaboraciones a través de contactos personales, mientras que los equipos de Superliga A contruyen una red más especializada, coincide con la propuesta hecha en este estudio y está alineada con la idea general del trabajo de Hite & Hesterly (2001) sobre cambios en la red y el ciclo de vida de las empresas.

Contribución social/ para gestión: Las implicaciones para la administración indican que tanto las compañías como los equipos de voleibol deberían actualizar la red a la etapa actual del ciclo de vida. Si un equipo de voleibol planea convertirse en profesional, debe ser conciente de la necesidad de adaptar la red a la nueva división.

Palabras clave: Voleibol. Red de contactos. Evolución. Amateurismo. Profesionalismo.

INTRODUCTION

Since the last century, society has been seen as a network with members linked by ties or connections, which are economic, social or political (Castells, 2009, 2005; Jarillo 1988). 'A network is a set of actors connected by a set of ties. The actors (often called "nodes") can be persons, teams, organizations, concepts, etc.'(Borgatti & Foster, 2003). According to the paradigm of networks, all organizations are embedded in networks, even if they are not aware of such a fact. These networks shelter social, professional and trade relationships (Granovetter, 1985). Organizations can be understood as social groups or a set of units connected by relations with a stable pattern of interactions (Tichy, Tushman & Fombrun, 1979). A set of organizations that developed recurrent ties while serving the market may be seen as a business network (Ebers & Jarillo, 1997). In the field of sports management, network theories are also valuable. Besides expanding the possibilities of analysis of sport organisations, the network approach has shown interesting empirical results – for example, the association between commercial performance of sponsored sports teams and their rooters (Pieters, Knoben, & Pouwels, 2012), or the report that English football teams with low centralization and a higher number of interactions among its members perform better (Grund, 2012).

In business literature, one may find the idea of an organizational life cycle (Adizes, 1979; Dibrell, Craig, & Hansen, 2011; Mueller, 1972). Many researchers consider that a firm has a birth, followed by an initial growth, later growth, and decline (Hite & Hesterly, 2001). Networks also are not a static phenomenon; they evolve in time (Hite & Hesterly, 2001; Powell, White, White, & Owen-Smith, 2005; Zaheer & Soda, 2009) and are commonly viewed as dynamic and constantly changing' (Halinen & Törnroos, 1998). The comprehension of how networks change in time can be useful to understand their outcome. A study conducted by Zaheer and Soda (2009) found a relationship between a specific change in the structure of networks (an increase in the number of structural holes) and superior team (members of the network) performance.

Recent studies emphasized the importance of the network analysis to understand the relationships and complexities of sports. For instance, Wäsche (2015) analyzed inter organizational cooperation in sports tourism from the perspective of social network analysis (SNA). In this view, Hambrick (2017) also, based on SNA, studied the evolution of sports communication. More recently, Katz, Ward, and Heere (2018) explored the sports behavior through network theory and team characterization in an ice hockey intercollegiate context.

Hite and Hesterly (2001) adopted the perspective of the firm's development through the stages of a life cycle and its insertion in a network context and argued that 'firm networks evolve from identity-based to more calculatedly based as the firm evolves from emergence to early growth.' These researchers, in line with the ideas of Granovetter (1992) and Uzzi (1996), say that identity-based networks are 'networks that have a high proportion of ties were some personal or social identification with the other actor motivates or influences economic actions.'

Networks have an essential role in firms that succeed in their birth and early growth stages (Stuart, Hoang & Hybels, 1999). In this sense, Hite and Hesterly (2001) present four propositions on the evolution of networks of firms that move from the emergency stage to initial growth: 1) the proportion of embedded ties decreases; 2) the cohesiveness of the network decreases; 3) The number of structural holes bridged increases; and 4) during emergence there is a predominance of path-dependent processes, but they become more intentionally managed as the firm moves into early growth. These studies suggest that at different stages of their life cycle, firms also have different networking arrangements. Sports organizations such as teams, clubs, and schools may focus on two distinct sports activities: amateur and professional.

However, prior literature has not investigated in-depth, with the lens of the networks theory, the sports organizations at an amateur and professional level, considering the firms' life cycle. To address this gap, considering that, similar to the life cycle of firms, amateurism and professionalism are specific strategic contexts, this study aims to investigate characteristics of sports organizations networks at amateur and professional levels.

This study brings relevant contributions to theory advance aligning to the general idea of the work of Hite and Hesterly (2001) about changes in a firm's network and life cycle. The main consequence of these findings for the practice is that organizations, whether companies or volleyball teams, should align their networks to its current stage of the life cycle.

This paper is organized as follows: Section 2 highlights the literature review, emphasizing networks theory, and Section 3 presents the

methodology by an interpretive paradigm, considering six Brazilian volleyball teams. In sequence, Section 4 reports the results and findings. Finally, in Section 5, the main implications and conclusions are drawn.

LITERATURE REVIEW

Social network theory

Since the seminal studies of Granovetter (1985, 1973), Burt (1980) and Castells (2009), scholars have dedicated themselves to the study of networks. Although interest in networks had arisen initially in sociology, researchers from other areas such as management soon became interested in the possibilities of analyzing phenomena using the network concept. In management research, networks have been used to study innovation, turnover, unethical behavior, creativity, promotion, and job performance (Borgatti & Halgin, 2011). Networks were also studied in the research of sports management (Balkundi & Harrison, 2006; Grund, 2012; Hambrick, 2012; Kitchin & Howe, 2013; Pieters, Knoben & Pouwels, 2012; Warner, Bowers, & Dixon, 2012).

There is a reasonable consensus among researchers on the concept of network, which is a set of actors connected by ties. According to Borgatti and Foster (2003), ties can be directed (e.g., when someone receives advice from another person the tie is one-directional), dichotomous (e.g., whether there is a friendship between two people) or measured in a scale (e.g., the strength of a friendship).

Networks can be described regarding their structures, which are characterized by the pattern of ties and the positions occupied by the nodes in this structure (Borgatti & Halgin, 2011). In a network structure, an actor's position is central to the extent that all relations in the network involve it (Burt, 1980), with the density index of the network being given by the number of potential ties that effectively occur (Ahuja, 2000; Thomaz & Swaminathan, 2015).

'Network theory refers to the mechanisms and processes that interact with network structures to yield certain outcomes for individuals and groups' (Borgatti & Halgin, 2011). An example of this approach is the work of Grund (2012), which searched for relationships between centrality and density of networks in football teams and their sports results.

Likely, the term social network was first used by Barnes (1954) to describe a community of fishers in Norway, where most individuals appeared to make decisions concerning personal contacts that often cut across organizational boundaries. Although apart from conceptualizing social groupings, the idea of social networks also suggests 'connection between points and a sense of fluidity' (Merchant, 2012). Firms are embedded in networks of social, professional and trade relationships (Granovetter, 1985). According to Portes and Sensenbrenner (1993), the way Granovetter (1985) treats the concept of 'embeddedness' is a 'veritable manifesto for those whose sociological cast of mind have led them to question individualistic analyses' of social, economic phenomena. This context is coherent with the network approach when analyzing organizations.

Networks and organizations

Many scholars based their works on the idea that in the modern industrial society, economic action is embedded in structures of social relations (i.e., social networks) (Ahuja, 2000; Borgatti & Foster, 2003; Cowan & Jonard, 2009; Granovetter, 1985; Portes & Sensenbrenner, 1993; Zaheer, Gozubuyuk & Milanov, 2010). In this sense, it is possible to use the network approach to analyze the actions or the dynamics of firms and organizations.

Researchers found evidence of network phenomena in organizations. Thomaz and Swaminathan (2015) pointed out that in the past decade, the structure of firms shifted from a 'stiff hierarchy to a more fluid and disaggregated organizational structure comprising internal and external networks.' They also observed that networks are a way of reducing risk. Olsen, Prenkert, Hoholm, and Harrison (2014) explored the relationship between the position of firms in network structures and power.

Holm, Eriksson, and Johanson (1999) analyzed value creation based on mutual commitment and mutual dependence in business networks. Verschoore, Wegner, and Balestrin (2015) observed the existence of cooperative strategies among small firms that led to the development of networks, where competitive ability is immersed not only in firms but also in network relations. Grandori and Soda (1995) studied cooperation among firms in a network to coordinate economic activities. In countries like Japan and Korea, interfirm networks are a part of the overall structure of the economy (Parkhe, Wasserman & Ralston, 2006).

Firm networks can be formed and developed in two ways: they can emerge from the random interaction among actors or be the result of conscious

efforts that are designed to achieve specific goals (Verschoore, Wegner & Balestrin, 2015). Actors of a firm network interact to achieve individual goals (e.g., service delivery) or resource acquisition (Stern, 1979). Firms can get resources through network relationships, according to the positions that they occupy in their structures (Jensen, 2003).

Researchers have investigated firm networks using the resource-based view (RBV). Accordingly, networks can be seen as 'capabilities that augment the value of firms' (Kogut, 2000). However, there is a theoretical gap between the traditional RBV and firm network theories, as the former focuses on internal resources while the latter on external relationships (Lavie, 2006). Nevertheless, there is also a rationale that, as put by Dyer and Singh (1998), 'critical resources of the firm may extend beyond its boundaries' and networks of trades can offer relational rents and competitive advantage.

A study conducted with 137 Korean startups showed the influence of internal capabilities and external linkages (i.e., network relationships) with venture capital on firm's performance and concluded that RBV and network theory need to be considered to account for entrepreneurial wealth creation (Lee, Lee & Pennings, 2001). In a more practical view, firm networks can be thought of as a set of alliances that deliver resources to the firm.

Life cycle and network evolution

Management literature foresees that products and firms have a life cycle that, in general terms, comprises a beginning, a development, and an end. The product life cycle was introduced by Levitt in the 1960s and later extended to the company. More recently, researchers have also attributed life cycles to networks.

Networks are dynamic phenomena (Borgatti, Mehra, Brass, and Labianca, 2009). They evolve through continuous interactive processes (Doreian & Stokman, 2013; Halinen & Törnroos, 1998). The evolution of a network can be seen as a sequential process of network dissolution with old partners and the reformulation with new ones (Kim, Oh & Swaminathan, 2006). Networks have structures that 'emerge from the interplay of two complementary forces: structural constraints and network opportunities' (Zaheer & Soda, 2009). Social networks and social identities are evolutionary constructs (Peltier & Naidu, 2012).

Prior research has investigated aspects of network evolution, such as sparseness of network structures and the cost of forming and maintaining new links (Cowan & Jonard, 2009); influence of preexisting ties in the creation of new ties, the design of the network, its evolutionary path and success (Gulatialli, 1998); efforts made by firms to strengthen their capabilities by changing their network partners (Kim, Oh & Swaminathan, 2006); network change from trade partners with close social relationships to sets of individuals who maintain impersonal and constantly shifting exchange ties (Smith & Lohrke, 2008).

Gemser, Leenders & Wijnberg (1996) presented a framework to explain why inter-firm networks change with time. The framework is based on the idea that the patterns of the linkages among firms are linked to the life cycle of the industries and in the way firms appropriate the profits of their innovations.

Researchers developed models for the life-cycle of networks. Wegner, Alievi & Begnis (2015) proposed a life-cycle model for small firms networks with five stages that they named awareness, exploration, expansion, commitment and dissolution. Rollof (2008) proposed a model for the life cycle of networks that comprises seven phases: initiation, acquaintance, first agreement, second agreement, implementation, consolidation and institutionalization or extinction.

As a firm moves forward in its life cycle, the changes – or evolution – in its network are adaptations that permit the firm to continue to gain the resources it needs (Hite & Hesterly, 2001). For instance, Peltier & Naidu (2012) mention that as firms move along their life cycle, there is a change in the learning they obtain from their networks. Oliver (2001) studied the learning networks in the biotechnology industry and their life-cycle patterns of alliance formation of new biotechnology firms. She concluded that alliances changed according to the stage of life cycle of learning of the firms.

Hite & Hesterly (2001) point out that during their emergence stage, firms have a predominantly identity-based network with a high degree of personal or social ties. After emergence, in the early growth phase, a firm's network tends to be more calculative, with ties motivated by economic benefits. Identity-based networks are smaller, less diverse, and more path dependent than calculative networks, which have a significant number of weak ties, with market-like features.

One can think of many possibilities to classify sports organizations. Among them are amateur and professional sports organizations. Although Dellal, Hill-Haas, Lago-Penas, and Chamari (2011) point out that the technical pattern is one of the key factors that

differentiate amateur and professional sports levels, outside the track and field, one would expect that a professional sports organization has more professional management than an amateur one. A professional sports organization is expected to have objectives that 'will be achieved more effectively and efficiently by a paid staff that adopts the management models of companies, applies modern marketing concepts and regards members as customers' (Thiel & Mayer, 2009). Organizations of each of these two categories have organizations inserted into their networks.

Considering that it is possible to make an analogy between amateur sport organizations and firms that are in the emergence stage of their life cycle, as well as between professional sport organizations and firms in the early growth stage – while using the terminology of Hite & Hesterly (2001) – this study proposes that: 1) amateur sport organizations have a predominantly identity-based network, with a high degree of social and personal ties; and 2) professional sport organizations have calculative networks.

RESEARCH METHOD

Context of analysis

An interpretive paradigm was adopted to achieve the objective of this research. Six Brazilian volleyball teams were studied. These volleyball teams compete in a Brazilian championship called the Superliga ('Superleague'). The techniques of data collection were qualitative and encompassed interviews, analysis of information available in the press and on websites and observation (participatory, in one case, and non-participatory in the others). These forms of data collection allowed the triangulation of information obtained.

Data collection

In Brazil, Volleyball is the second most practiced sport, as well as being the most popular sport for women (Maroni, Mendes & Bastos, 2010). The most important Brazilian volleyball tournament is the Superliga, which was created in 1976 (formerly known as the Liga Nacional ('National League') and renamed the Superliga at the end of 1994. Since its beginning, the championship featured men's and women's teams, and in 2012 B series league was added so that smaller teams could access the major division (Superliga, 2015). For both men's and women's teams, Superliga A series has 12 participants and B series, eight.

Three women's teams from series A and three men's teams from series B were surveyed. The samples were considered qualified to address our objective for they corresponded to 25% and 37.5% of the total participants, respectively. All teams of men and women from Superleague A and B were sought after by the researchers, and those agreed to participate in the survey composed the sample, fact that limited the sampling.

According to Miles and Huberman (1984), in qualitative research, 'the conceptual framework and research questions determine the foci and boundaries within which samples are selected.' Therefore, to investigate the networks of amateur and professional teams, a sample of three women's teams from Superliga A and three men's teams from Superliga B were selected, and their networks studied. The researcher assumed that teams in Superliga A were professionals and teams in Superliga B were amateurs – or represent a situation close to amateurism. Coaches and athletes of both A and B Superliga teams agreed that this assumption was not wrong. They also agreed that both men's and women's teams have similar sport and administrative structures.

Data analysis

Zaheer, Gozubuyuk, and Milanov (2010) propose three levels of network analysis: the dyadic (the relationship between two actors), the ego (analysis of the network from one actor's point of view) and the whole network. This research focused on the network in which the volleyball teams were embedded, so the ego level of analysis was adopted. This level of analysis is also called 'egocentric' (Marsden, 1990).

Researchers use diverse sources to obtain data on networks. Surveys and questionnaires soliciting self-reports are the predominant methods (Marsden, 1990). A questionnaire was used in this study, as well as a set of three blocks of questions that were answered freely by the respondent. The questionnaire displayed a list of tasks, and the interviewee was asked to name the person(s) who was/were responsible for it. The objective of the questionnaire was to describe the structure of the team's network. The three blocks of open questions were expected to deepen the information about the networks. These instruments for data collection were developed by the researchers based on the literature review.

The respondents to the interviews (both the questionnaires and the open questions) were the coaches or directors and supervisors of the volleyball teams. They were selected because, in Brazilian volleyball teams, coaches are typically involved both in sporting

activities and administrative tasks. Moreover, many coaches are former players and can understand the players' needs and demands. Table 1 shows the investigated teams and their coaches.

Table 1
Research's sample of Brazilian volleyball teams.

Superliga	Team	Position of the interviewee
A (women's teams)	São Bernardo	Coach
	SESI	Head Coach
	Maranhão	Team supervisor
B (men's teams)	Canoas	Head Coach
	Bento Volei	Head Coach
	Atibaia	Team Director and Athlete

Data were also obtained through observation. Except for one team, observations were not-participatory. The researcher, from the outside, watched Superliga games and tried to identify service providers, partners, and collaborators involved in the activities of the studied teams. The main purpose of non-participatory observation was to confirm information from the interviews and also provide insights into the conclusions. For one team in Superliga A, observation can be said to be participatory, because one of the authors is the team's coach and, therefore, participated in the meetings, decisions and entire workout routine of the team.

A document analysis was conducted for triangulation purposes to check the convergence of data. This procedure is often used in combination with other qualitative research methods to provide credibility (Bowen, 2009). The document analysis included articles published in newspapers and magazines on the Superliga and Superliga games, as well as the website of the Confederação Brasileira de Voleibol – CBV ('Brazilian Volleyball Confederation'), which organizes the Superliga.

RESULTS AND DISCUSSION

The responses from the questionnaires were divided into two groups, corresponding to Superliga A and B. Within each group, answers were compared to identify similarities as well as any specific characteristics of each team. The analysis of those responsible for performing the tasks related to the operation of the teams, which led to the identification of the structure of their networks. Although the approach to the female and male teams has the same nature, it was considered that gender difference potentially introduces bias to some extent, which conditions the results of this study to this limitation of its scope (Comeig & Lurbe, 2018; Teixeira, Andreassi & Bonfim, 2018).

Fig. 1 and Fig. 2 contain a summary of information regarding the structure of the networks of teams in Super League A and B, respectively.

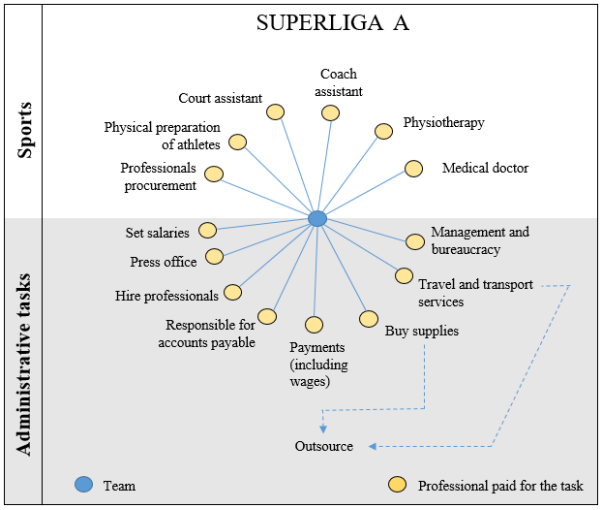

Fig. 1. The network structure of Superliga A teams.

Fig. 1 shows a representation of the Superliga A teams' networks with actors, identified by the tasks they perform. This approach was used because network structure analysis captures patterns of interaction (Balkundi & Harrison, 2006), and the researchers assumed that interaction among the team and other actors could be represented by the tasks they executed. Tasks were divided into two groups, one linked to sports and other to administrative activities. Teams' networks have in common the fact that paid team members perform activities related to the sport itself. Relationships – or network partnerships – were more visible in administrative activities. In these activities, there was also the involvement of paid team members, but in many cases, the task of these professionals was to contract service providers in the market, such as transport companies, travel agencies, and suppliers.

The frequency of their communication can evaluate the intensity of the relationships among the actors in a network. A high frequency in the communication between two actors suggests that they have an intense relationship. In this research, although the results show dispersion, it was noted that there is a tendency for more communication between the team and the actors of sports activities than administrative tasks. So, as one might expect, relationships with those who take care of core activities seemed to be more intense than peripheric tasks. It should be considered as an important caveat the effect of the interviewees' perspective, in the context of social interaction, on the role and participation of other actors, as prescribed by the Social Identity Theory (Macedo, Gosling & Queiroz, 2017; Iuki, 2003).

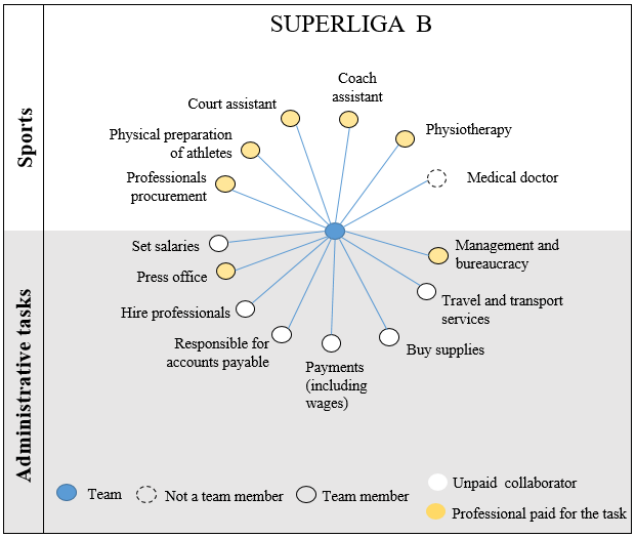

Fig. 2. The network structure of Superliga B teams.

As can be seen in Fig. 2, Superliga B teams also focused their internal resources on their core activities, i.e., those related to the sporting aspects, except the medical care of the athletes, which was done by unpaid partners in the case of Bento and Canoas and by the hospital and health plan that sponsored the Atibaia team. Administrative activities were carried out in many cases by people who, although being considered part of the team, did not receive remuneration to perform those tasks. This collaboration primarily referred to the performance of tasks and occurred due to personal factors, such as friendship or kinship with athletes and the technical team, as well as interest in the team itself.

The structures highlighted in Fig. 1 and 2 cover the usual activities of the volleyball teams competing in Superliga A and B. However, in the periods in which the games of the Superliga occur there are other tasks to be performed that are directly related to infrastructure required for the gaming event, such as ambulance provision on-site, electricity generation, and security. How these specific tasks are carried out was one of the issues explored in the open-answer questions.

The responses obtained to the open questions were recorded, transcribed, and analyzed. Tables 2, 3 and 4 show the similarities found in the answers and also some specific aspects of the teams.

Table 2 Questions with open answers in the network structure.

The object of the question	Superliga B	Superliga A
Network features	The external relationships aimed at meeting basic needs (e.g., a supermarket supplied food).Internally there could be an accumulation of functions (e.g., the coach was also the physical trainer)	SESI had an external network of companies providing services that were sought through bidding.
		Maranhão had partnerships with companies and people to get supplies, logistics services (including games logistics), and medical care.
		São Bernardo had a network bigger at a professional level than an amateur.
Network size and strength of ties	The strongest links were with resources-providing entities that collaborated with the teams (e.g., governments, sponsors, or both). There were also ties with indirect daily partners (e.g., twice a day with cleaning service). There could be unpaid collaborators (e.g., parents who bought uniforms or took care of transportation). Regarding their amateur stage, São Bernardo's coach says that 'collaboration was personal.'	All teams had external ties with service providers or individuals for the logistics of the games (ambulance, a power generator, security, etc). Some teams had sponsors linked to specific items such as uniforms.
		Teams might also have partnered for hosting, the supply of inputs, fitness, transportation, and medical care.
The actor most often contacted	The person in charge of administrative tasks,	Individuals and firms involved with the logistics of the games. Members of the team.
	a representative of the City Hall and medical care (medical and hospital).	

Superliga B teams were part of networks that relied on unpaid collaborators, as well as hired professionals. Unpaid collaborators usually joined the network spontaneously and for personal reasons, although teams are challenged to develop strategies for volunteer retention (Cuskelly, Taylor, Hoye, and Darcy, 2006).

This fact was elicited by the São Bernardo coach when referring to the former amateur period of his team. Unpaid Superliga B collaborators provided resources that the teams lacked. Superliga A teams usually obtained services and supplies in the market. Superliga A teams have administrative structures to procure suppliers and hire personnel.

Respondents found it difficult to quantify their contacts with the actors of their networks. They all indicated that there were many contacts, but failed to inform their average, minimum, or maximum values. Future studies will require a specific strategy for this type of information.

Table 3 Network member's relationships.

The object of the question	Superliga B	Superliga A
Do actors know each other?	They all know each other.	They know each other except SESI. In this case, they may meet by chance.
The intensity of collaboration in the network	There is a high degree of collaboration except for the Canoas team.	There is a high degree of collaboration.
The intensity of commitment in the network	Ranging from a small to substantial commitment, depending on the team. The Canoas team had the worst results in this regard.	There is a high degree of commitment.
The intensity of trust in the network	There is a high degree of collaboration except for the Canoas team	There is a high degree of trust

There are many differences between networks – and contexts – of teams in Superliga A and B. Although predominate in Brazil volleyball teams from clubs, supported by the private sector and municipal governments (Maroni et al., 2010), there are also teams such as SESI, that belongs to an institution maintained by the Brazilian industry, with national coverage, that develops several activities, including other sport modalities (SESI, 2016). It is understandable that in small-town teams, network members know each other. According to the Bento team's head coach, all members of his network 'know each other and eventually communicate with each other.' This statement is coherent to the fact that his team is located in the city of Bento Gonçalves in the Brazilian state of Rio Grande do Sul with 113,287 inhabitants (IBGE, 2016). On the other hand, SESI's head coach said that members of his network might know each other by chance, because he had more than 500 partners spread across the country. The existence of communication among members of a network is linked to the cohesion of the network, which will be discussed later.

Superliga A teams reported having a high degree of collaboration, commitment, and trust among members of their networks. This fact can be attributed to the type of relationship between members, involving formal agreements (contracts). Collaboration and trust were also reported as high in Superliga B, except for the Canoas team. It is possible that this team, from the city of Canoas, also in the Brazilian state of Rio Grande do Sul, with 341,343 inhabitants (IBGE, 2016), had presented these results due to internal problems (the head coach was substituted). There was no convergence on the responses relating to commitment in the Superliga B teams.

The team supervisor of Maranhão reported high degrees of collaboration, commitment, and trust for all actors of his network, except for Federação Maranhense de Voleibol – FMV ('Maranhão Federation of Volleyball'), who received a bad evaluation.

Table 4 Network context.

The object of the question	Superliga B	Superliga A
Cohesion (unity) in the network	Networks are cohesive.	Networks are cohesive. Maranhão has a less cohesive network than in the past.
Actors with spontaneous or personal relationships.	The teams reported the existence of previous informal contacts of external actors with current team members. In the small-town teams, like Bento, there is contact with many residents. Some people spontaneously joined the network. Some specific partners were sought.	All relationships are professional. There are no personal relationships, with few exceptions.
How does the team benefit from the network?	The teams get resources they need (in some cases, money) from the networks.	Services that the organization does not have and also contacts (Maranhão).
Does the network change over time?	Yes. Partners (actors) come and go.	There was no change except in SESI, which was restructured.
There was a critical event in the history of the network?		Only for SESI. There was a restructuring with the reduction of hierarchical levels, shortening the distance between the technical staff and the board.
	No	
Consequences of the critical event	No	It is still not possible to evaluate as it is too recent.

Respondents considered their team's networks as cohesive, although the Maranhão team supervisor reported that in his case there was a reduction in cohesiveness recently due to changes that occurred in the team. Superliga A teams considered their network as cohesive, even in cases when actors may not know each other (e.g., SESI), probably because these networks rely on contracts with service providers.

Answers to the question about the existence of actors with spontaneous or personal relationships with the volleyball teams indicated – as previewed in the literature and the propositions made in this study – that current members of teams in a situation close to amateurism, i.e., those in Superliga B, presented previous informal contacts with external actors and people who spontaneously joined the network. In small-town teams like Bento, there was also contact with many residents. Not all relationships were personal, however, as some specific partners were also sought. On the other hand, teams in a professional situation (Superliga A) had

professional relationships with their partners, with a few exceptions. This information, along with observations made by the researchers and also material from the press and the internet, led the researchers to find out that the propositions made in this study are aligned with the teams in Superliga A and B. As predicted in the literature about networks and the resource-based view (RBV), teams obtain in their network resources that they lack. It was clear to all interviewees that networks change over time by adding or changing their members. Although it was not the intent of this work to investigate how networks grow, there was a response from the supervisor of Maranhão that pointed to an interesting possibility of research. He mentioned – spontaneously – that the team benefits from the network by finding new contacts, suggesting that he considers the network itself and its expansion as an essential asset for his team.

IMPLICATIONS AND CONCLUSIONS

The first conclusion of this study is that running a volleyball team that participates in a tournament like the Superliga (be it A or B) requires the performing of several activities that hardly could be executed only with internal resources of the team, and, therefore, it is necessary to count on a network of partners and collaborators. The field research allowed the representation of networks of Brazilian volleyball teams at a professional (Superliga A) and amateur (Superliga B) level (see Figures 3 and 4). In amateur as well as in professional situations, it is possible to note that coaches are involved not only in sports tasks but also in administrative tasks. Core activities of volleyball teams, i.e., those directly related to sports, were performed mostly by paid team members while activities related to administrative functions could be performed by unpaid collaborators, especially in Superliga B teams.

The main difference between networks of Superliga A and B teams is that the Superliga A teams rely more on paid team members and service providers, such as travel agencies, medical care, and suppliers than Superliga B teams that may count on personal – and spontaneous – partners. The fact that Superliga B has more collaborations obtained by personal contacts, while Superliga A teams build a more calculated network, meet the propositions made in this study and are aligned to the general idea of the work of Hite and Hesterly (2001) about changes in firm's network and firm's life cycle.

In both situations, amateurism and professionalism, teams try to obtain in their network services and supplies that they did not have internally. That was stated by interviewees and is coherent to studies that consider networks as a way to deliver resources to the firm (Dyer & Singh, 1998; Lavie, 2006; Kogut, 2000).

The main consequence of these findings for the practice is that organizations, whether companies or volleyball teams, should align their networks with the current life cycle stage. If a volleyball team plans to become professional, or to ascend to a higher category, e.g., moving from Superliga B to Superliga A, it should be aware that in this higher category teams have networks that are different. So, it is not enough to merely evolve into this new sports area; the development of a new network condition is also pertinent. In this sense, tournaments like the Superliga B should be seen as an opportunity for learning and developing sports and administrative skills.

This study has the usual limitations to studies that adopt the interpretative paradigm and cross-sectional approach. Although without the pretension to present conclusions that can be generalized, the findings of this research may be useful as insights for managers, athletes, and researchers.

Future studies may investigate the networks of other sports or different stages of the life cycle of organizations that go beyond amateurism and professionalism. A particularly interesting aspect, but difficult to approach, is the relationship between the adjustment of an organization's network and its performance. For this, sports organizations would be a potential field of study.

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