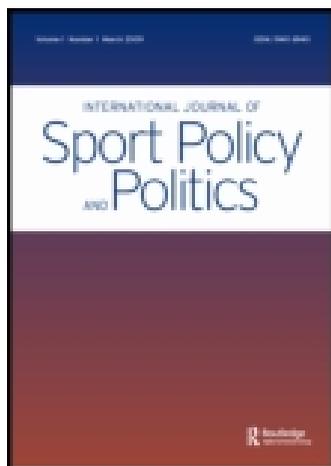


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A resource-based perspective on countries' competitive advantage in elite athletics

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A resource-based perspective on countries' competitive advantage in elite athletics

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The success of a country's elite sport success tends to be concentrated on specific sports or specific events. Additionally, as the predictive value of macro-level factors (e.g. population and GDP) for success decreases, the management of elite sport systems becomes more important. Even though multiple authors developed frameworks referring to common characteristics of these systems, little is known about the organizational development in specific sports and the allocation of resources to elite development. According to the resource-based view (RBV), management strategy is a function of organizations' resources and the efficiency in which these resources are structured and combined in higher-order capabilities. This article identifies organizational resources and first-order capabilities in the development of a competitive advantage in elite athletics. Based on a literature review and 34 interviews with national coaches and high-performance directors, 98 resources and first-order capabilities were categorized according to the nine policy pillars of the SPLISS (Sport Policy factors Leading to International Sporting Success) model. Although this list encompasses key resources for a competitive advantage, there remains a diversity of ways to combine and configure these resources in higher-order capabilities. As countries represent a diverse configuration of these resources, further empirical research is necessary to explore and assess countries' core capabilities and competitive position in elite athletics.

Keywords: strategy; organizational resources; first-order capabilities

Introduction

The growing institutionalization of elite sports development whereby governments invest strategically to produce sporting success is described as *the global sporting arms race* by Oakley and Green (2001). Many authors referred to common approaches and key characteristics of elite sports systems (e.g. Oakley and Green 2001, Green and Houlihan 2005, De Bosscher *et al.* 2006, Digel *et al.* 2006, Bergsgard *et al.* 2007, Houlihan and Green 2008, Andersen and Ronglan 2012). Most of these studies provide a descriptive analysis of high-performance policies in multiple countries. Only a few authors explored elite sport policy systems for specific sports (e.g. Green and Houlihan 2005, Digel *et al.* 2006, Böhlke 2007).

Success of countries tends to be concentrated on specific sports or events. In other words, countries typically specialize. 'There is no country with a competitive advantage in the Olympics. Rather countries have a competitive advantage in individual sports or more specifically individual events within these sports' (SIRC 2002, p. 120). A case has been

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made for more in-depth research at a sport-specific level (Oakley and Green 2001, Sport Industry Research Centre 2002, De Bosscher 2007). Rather than a descriptive analysis of countries' policies, an understanding of the strategic resources to achieve a competitive advantage enables a strategic perspective on a competitor's competitive position (Gerrard 2003).

The present article addresses this need for sport-specific research and aims to identify the *organizational resources* and *first-order capabilities* that may lead to a competitive advantage in elite athletics. Organizational resources are defined as 'all assets, capabilities, organizational processes, firm attributes, information, knowledge, etc. controlled by a firm that enables the firm to conceive and implement strategies that improve its efficiency and effectiveness' (Barney 1991, p.101).

As competitive advantage is linked to the resources of organizations in an industry (Smart and Wolfe 2000, Grant 2010), the resource-based view (RBV) evaluates an organization's or a country's resource allocation which reflects superior organizational performance. The RBV conceptualizes strategy as a function of the resources of organizations and the efficiency with which these resources are structured and utilized (Wernerfelt 1984, Gerrard 2005). Athletics (track and field) was selected as a case because of its rich history and international popularity.

This study attempts to provide an overview of organizational keystones for countries to develop a competitive advantage in athletics. Even though the RBV has been applied to elite sport literature before, this paper will be the first to present a general listing of organizational resources in one specific sport. This listing provides a better understanding on the operational development of elite sport policies.

The next section introduces the RBV in a strategic management context and discusses how this is applied to elite sport literature. Following that, organizational resources in athletics are identified through a literature review and in-depth interviews with coaches and high-performance directors in athletics. The article concludes by listing the critical resources that contribute to the development of a competitive advantage in athletics and explains how a resource-based perspective can contribute to the elite sport development literature.

The resource-based view of competitive advantage

The RBV developed over the last three decades when the focus on strategic management shifted from an environmental perspective (cf. the industrial organization perspective) to the much more organization-centred approach (cf. the RBV) (Shilbury 2012). Both perspectives focus on identifying the sources of competitive advantage and the appropriate strategy to achieve such an advantage. While the industrial organizational perspective adopts an 'outside-in' perspective regarding market structure and its effect on the performance of an organization, the RBV represents an 'inside-out' view as it relates the internal characteristics of an organization to its performance (Wang and Ahmed 2007). Figure 1 represents both perspectives and their main characteristics.

The first approach, the industrial organization perspective (outside-in), conceptualizes organizational performance as a function of the industry structure and the position of the organization in the industry (Spanos and Lioukas 2001). For example, Michael Porters five-force framework classifies economic factors that affect the profits of an industry (Besanko *et al.* 2006). Porter (1980) identifies five forces shaping corporate strategy: competitive rivalry, power of buyers, power of suppliers, threat of substitutes and threat of potential entrants. This means that the competitive strategy of an organization must be

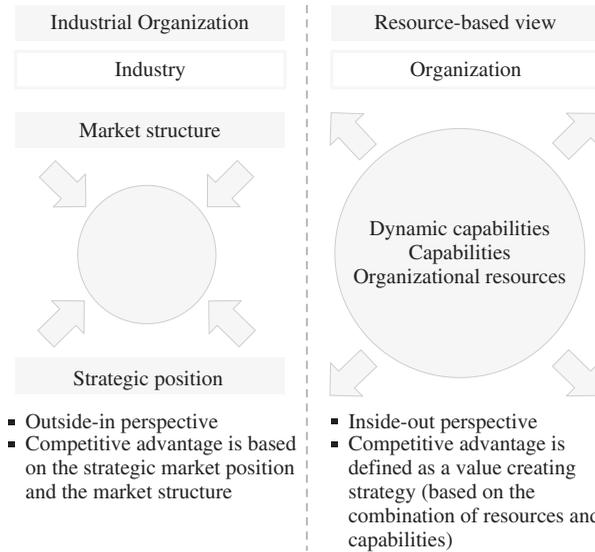


Figure 1. The resource-based view (RBV) and the industrial organization perspective in strategic management.

based on a sophisticated understanding of the structure of the industry and how it is changing (Porter 1990). In the second perspective (inside-out), the RBV conceptualizes strategy as a function of organizations' access to resources and the efficiency with which the resources are structured and utilized (Gerrard 2005). It examines the relationship between a firm's internal characteristics and its performance (Mahoney 1995, Barney 2001). These internal characteristics are described as organizational resources. Resources are the basic units of analysis and may be classified under multiple headings (financial, physical, technological resources, etc.). The subdivision of resources may proceed as far as is useful for the problem at hand (Mahoney 1995). A capability then refers to the organizations' capacity to combine and organize resources, usually in combination with tacit elements (such as knowledge and expertise) embedded in the processes (Amit and Schoemaker 1993). Wang and Ahmed (2007) and Winter (2001) stated that resources, first-order capabilities and core capabilities are related to each other in an 'hierarchical' order. First-order capabilities represent a combination of resources. Higher-order or core capabilities are bundles of first-order capabilities (Wang and Ahmed 2007). While resources and capabilities are the main strategic sources of a competitive advantage, the 'integration' of resources and capabilities in line with an organization's strategic goals is itself the key to developing higher-order dynamic capabilities.

To develop a competitive advantage, prior studies on the RBV emphasized the VRIN characteristics of resources (cf. resources need to be valuable, rare, imperfectly imitable and non-substitutable). If these features are present, resources can be the source of a competitive advantage. For example, a patent for producing a specific good enables unique access to valuable and rare resources. In dynamic market environments, however, VRIN resources do not persist over time and hence cannot be a source of sustainable competitive advantage (Gerrard 2005). Later studies therefore focused on the configuration of resources into dynamic capabilities to explain the competitive advantage (Priem and Butler 2001, Wang and Ahmed 2007). The strategic management process of obtaining and structuring resources (Grant 1996, Sirmon *et al.* 2007) creates value and can lead to

the development of a competitive advantage (Wernerfelt 1984, Barney 1991, Oliver 1997, Simon *et al.* 2007). Organizations with more effective capabilities are likely to have a competitive advantage over firms with less effective capabilities. The dynamic capabilities themselves are not as such the sources of long-term competitive advantage. 'Competitive advantage is based on using specific capabilities sooner, more astutely, or more fortuitously than the competition to create resource configurations that have that advantage' (Eisenhardt and Martin 2000, p. 1117).

The next section provides an overview of how the RBV is applied in sport management studies to explain the competitive advantage of clubs, leagues or NOCs.

A resource-based perspective on elite sport development

A number of authors have previously used the resource-based perspective to evaluate sport resources of organizations in international competition. For example, Robinson and Minikin (2012) compared the competitive advantage of three National Olympic Committees (NOCs) by investigating the resources and capabilities of national federations. Their model (the readiness assessment tool) consists of eight pillars of organizational performance and explains the levels of development of countries' national federations. Wicker and Breuer (2011) investigated the resources of German non-profit sport clubs and indicated that these clubs are characterized by scarce resources defining their organizational capacity. Resources were ascribed to four capacity dimensions: human resources capacity, financial capacity, relationship and network capacity, infrastructure and process capacity. Böhlke (2007) compared specific organizational practices in the Swedish Athletics Association and the Norwegian Skiing Federation, with a specific focus on coach education. On the one hand, the integration of mass sport and elite sport environment was identified as a key success factor in those countries; on the other hand, the success of an elite sport programme was said not to depend as much on the level of resources or the sophistication of the support programmes, but to be more related to environmental conditions prevailing in those countries (e.g. training conditions or the sport being a popular sport). Smart and Wolfe (2000) investigated the sources of inter-collegiate athletic programme success. They found that history, relationships, trust and organizational culture were the resources responsible for an enduring competitive advantage. Finally, Bar-Eli *et al.* (2008) used the RBV to identify significant resources employed by two clubs to gain and sustain competitive advantage. Their results indicated that management in both Maccabi Tel Aviv BC and FC Bayern München deliver a first mover advantage in using long-term sponsorship and media rights in their industries, which were found as important resources to gain a competitive edge.

The merit of much of the research outlined above is that the RBV is applied in sport management studies and provides the foundation for an efficiency-based perspective with regard to the development of a (sustained) competitive advantage for clubs, leagues or NOCs. However, these authors did not attempt to provide an overview of organizational resources; neither did they explain how their interrelationship could be used to develop a competitive advantage. Böhlke (2007) and Bar-Eli *et al.* (2008) also refer to specific environmental conditions or external factors that are partly responsible for the development of a competitive advantage (e.g. the media, historic events, natural access to training conditions, etc.). Thereby, they confirm the idea that the competitive advantage of an organization arises from the strategy that the organization pursues in order to take advantage of the opportunities within its external environment (Robinson and Minikin 2012). This confirms the assumption by Wernerfelt (1984) that the industrial organization

perspective and the RBV constitute two sides of the same coin. The strategy content and implementation (i.e. resources and capabilities) cannot be understood independently of the competitive environment within which an organization operates.

However, the lack of sport-specific research on the operational development of elite sport policies makes it hard to understand how organizational resources of elite sport systems are built and used with a view on gaining a competitive advantage in these sports. This is where policy-based research may lend a helping hand. In sport policy research, most studies provide a descriptive analysis of high-performance policies in different countries (e.g. Oakley and Green 2001, Green and Houlihan 2005, Bergsgard *et al.* 2007). Only few researchers (e.g. Larose and Haggerty 1996, De Bosscher *et al.* 2006, De Bosscher *et al.* 2009) have tried to identify the organizational and institutional prerequisites of elite sport policies (Sotiriadou and Shilbury 2009). Larose and Haggerty (1996) used qualitative comparative analysis (QCA) to explain how nine categories of factors leading to the Olympic success interact. As one of the most comprehensive models, the SPLISS (*Sport Policy factors Leading to International Sporting Success*) model (De Bosscher *et al.* 2006) provides a functionalistic approach to elite sport development, whereby 122 critical success factors (CSFs; which describe crucial national elite sport policy characteristics) are grouped within nine pillars of the model: (1) financial support, (2) structure and organization of elite sport policies, (3) foundation and participation, (4) talent identification and development, (5) athlete career support, (6) training facilities, (7) coaching provisions and development, (8) international competition and (9) scientific research. In a six-country evaluation based on the SPLISS model, a nation's development was assessed on a five-point scoring scale for each CSF using objective and subjective data. A traffic light score for each pillar of the model represented the weighted sum of the aggregated CSF's scores (De Bosscher *et al.* 2006). This study comes closest to the measurement of competitiveness at the national overall sports level and as the authors state they 'attempt to replicate an economic competitiveness approach in an elite sport setting and in this respect explore a method to assess how nations might manage their future success in international sport competitions' (De Bosscher *et al.* 2010, p.568).

To provide an insight into the strategic development of organizational resources in athletics, we apply the RBV to elite athletics development. Using the SPLISS model (De Bosscher *et al.* 2006) as a base model of analysis, a listing of critical organizational resources and first-order capabilities will be composed representing countries' organizational strategy in athletics. Our contention is that organizational resources that are required to develop and implement elite sport policy in athletics need to be identified as potential drivers of a competitive advantage.

Method

The SPLISS model (De Bosscher *et al.* 2006) was used as a starting point to identify crucial resources in elite athletics because the model provides a comprehensive approach to the development of specific factors in elite sport development. It provides a functionalistic perspective of elite sport development at a national level based on nine critical policy areas or pillars leading to elite sporting success (De Bosscher *et al.* 2006). Nine policy pillars incorporate 122 CSFs which can be influenced and changed by sport policies. Furthermore, the model assumes that each sports policy factor that influences success can be classified under one of these pillars (De Bosscher *et al.* 2009). The policy factors of the SPLISS model represent a national inside-out perspective in accordance with the organizational resources of the RBV. Additionally, the SPLISS model is used to

compare the competitiveness of nations in elite sport development (De Bosscher *et al.* 2010). As these pillars correspond to dominant critical policy areas as identified by other authors (Digel *et al.* 2006, Houlihan 2009), the SPLISS pillars are used as main categories to cluster the organizational resources in athletics. This section will describe the different stages of data collection and analysis to develop a listing of organizational resources and first-order capabilities in athletics.

Data collection

To identify critical resources and capabilities in athletics, two stages of data collection were conducted. First, literature research was used to review research on elite sports development at a sport overall level and specific in athletics. This first part of data collection contains an overview of resources used in the athletics development process (Green and Houlihan 2005, Glad and Egilsson 2008, Rocha and Turner 2008, Grix 2009), resources concerning the organizational structure and performance of national governing bodies (NGBs) (Kikulis *et al.* 1989, Slack and Hinings 1992, Bayle and Madella 2002, Fusetti 2008, Winand *et al.* 2009) and the effectiveness of NGBs (Orders and Chelladurai 1994, Papadimitriou and Taylor 2000). The resulting data provided specific information regarding the operational development and the organizational structure of resources available in elite athletics.

Second, 34 face-to-face interviews with athletics experts were conducted during an international athletics competition (the World Championship in Berlin 2009) and the European Athletics Convention in Budapest 2009. Prior to these events, all national athletics federations were informed by email or telephone about the research project. Respondents were selected based on purposive sampling (Patton 2002). Experts were high-performance directors and elite coaches who were responsible for elite athletics development in their country. They were in charge of the provision of national support programmes, elite coach development in athletics and/or selection of athletes for international competitions. They possessed the critical knowledge and experience of national resources and policy structures in elite athletics. Some of them were also personal coaches of elite athletes. Eight participants were interviewed at their own national premises. All interviews were recorded with permission of the participants. The semi-structured interviews last approximately 1.5 hours. In most cases, interviews were conducted in English; two were in French and four in Dutch. In total, 34 participants together represented 24 different countries (as can be seen in Appendix 1).

As such, the identification of what are deemed critical organizational resources in elite athletics is based on the combination of inductive and deductive procedures (Strauss and Corbin 1990, Robson 2003). The interviews consisted of open-ended questions and multiple sub-questions about the organizational resources and first-order capabilities in athletics. Open questions were used to collect data inductively on resources in athletics. Interviewees referred to national or foreign practices that they perceived as crucial in the development of elite athletics. Interviewees were also asked to evaluate and describe the development of specific CSFs of the SPLISS model in one or more pillars of their expertise. CSFs of the SPLISS model were deductively explored in the context of elite athletics. High-performance directors and elite coaches referred to specific organizational resources and how these organizational resources corresponded to these policy factors in athletics. Although not all resources were found to be crucial for the development of a competitive advantage in athletics, they provided important background information about the management of organizational resources.

Data analysis

Digital recordings of the interviews were transcribed and analysed using Nvivo8 (QSR International, Doncaster, VIC, Australia), a software program for qualitative research. Two independent researchers were employed for inductive procedures to identify relevant and critical organizational resources from the literature review and the expert interviews. Once consensus was reached between the two researchers, the organizational resources were categorized into one of the categories of the original SPLISS model. If this was not possible, a new thematic category was developed. The same process was repeated for the organizational resources that were identified through the literature review. Finally, 11 independent athletics experts reviewed the clustering of resources in 10 different resource categories to ensure construct validity.

Results

The results of our analysis represent a listing of 98 resources and first-order capabilities in athletics. These resources and first-order capabilities can be incorporated in a nation's strategy to develop a competitive advantage in athletics. These capabilities represent a configuration of specific resources. Both resources and first-order capabilities are clustered according to the thematic categories of the SPLISS study; (1) financial support for athletics, (2) governance and organization of athletics policies, (3) youth participation, (4) talent identification and development, (5) athletic career support, (6) athletics training and competition facilities, (7) coach provisions and development, (8) international competition and (9) scientific research. A 10th category was added representing the organizational culture and national climate in elite athletics.

Table 1 represents an overview of the resources (R) and first-order capabilities (C) deemed instrumental to achieve a competitive advantage in elite athletics. This list represents a comprehensive first exploration of resources and capabilities that can create organizational value for elite athletics. The characteristics of these resources and capabilities originating from the interviews are listed in *italics*; items from the literature are listed as normal text.

The organizational development of these 70 resources and 28 capabilities constitutes the countries' strategic management process for athletics. First-order capabilities like '4.14 educational support programmes for talented athletes in secondary education' and '7.2 a national coach qualification framework in athletics' represents a combination of multiple resources (knowledge, human resources, physical resources, etc.) that contribute to the development of a competitive advantage. Whether or not the resources in Table 1 are identified as specific resources or first-order capabilities is not a point of discussion in this paper. This paper mainly aims to crystallize crucial assets in elite athletics development.

First, the organizational resources and first-order capabilities will be discussed for each of the thematic categories based on the input of the interviewees and the literature review. In a second part, a more detailed analysis of resources and capabilities indicates that, according to the interviewees, countries have developed divergent configurations of the resources to obtain a competitive position in athletics.

Resources and first-order capabilities

The first category, i.e. 'financial support', clusters seven financial resources for athletics policies. This category contains a differentiated list of financial resources used to maximize opportunities to support and develop athletes and elite athletics (mass participation,

Table 1. Overview of resources (R), first-order capabilities (C) and their major characteristics in elite athletics.

R	Category 1: Financial Support (7)	
R	1.1 Governmental funding for athletics	Augestad <i>et al.</i> 2006, Bayle and Madella 2002, Berret and Slack 2003, Digel 2005, Green and Collins 2008, Houlihan and Green 2008, Madella Bayle and Tome 2005, Papadimitriou 1998, Sam and Jackson 2004, Slack and Hinings 1992
R	1.2 NGBs' private financial resources	
	Increased levels of governmental funding	
	Substantial governmental support and funding	
	Financial resource dependency of the NGB	
	Limited financial capacity as a result of strong resource dependency	
	Own financial resources of sport organizations	
	Private resources, business like funding	
R	1.3 Commercial financial resources	
	External funding (sponsorship)	
	Corporate sponsorships of NGB programs, teams and events	
	<i>Corporate sponsorship (N = 6)</i>	
R	1.4 Partnership or commercial agreement with media agencies	
	TV Sport as an important financial instrument for high performance sport	
R	1.5 Targeted funding for mass participation	
	Funding identified to deliver mass participation objectives	
R	1.6 Targeted funding for elite athletics	
	Governmental funding for elite sport objectives	
	National funding allocated to elite sport	
	<i>Financial support from the army to develop elite athletics (N = 3)</i>	
	<i>Governmental funding elite athletics (N = 8)</i>	
R	1.7 Financial support for athletics clubs	
	National or regional funding for sport clubs	
	<i>Direct financial support to clubs (N = 3)</i>	

- C Category 2: Governance and organization of athletics policies (16)
- 2.1 One national organisation for elite sport policies
A central coordinating organisation for elite sport development
National governmental involvement in elite sport development
- C 2.2 A national coordinated financial support structure for elite sports and disciplines
Governmental regulations for funding
Contractual agreements, performance targets and delivery mechanisms
Priority sport support
Criteria based support for NGB's (N = 4)
Coordinated financial support system for athletics (N = 4)
- R 2.3 A long term policy plan for (elite) sport
A national sport policy plan
- R 2.4 A long term policy plan for (elite) athletics
Sport development plan
The development of policy plans (N = 2)
Policy strategy and policy objectives for elite athletics (N = 3)
- R 2.5 Priority support to successful or popular disciplines in athletics
Priority disciplines in elite athletics (N = 4)
- R 2.6 National committees/departments with specific policy responsibilities
Administrative specialisation (horizontal)
Committees with national responsibilities (N = 2)
High performance committee (N = 8)
Coaching committee (N = 7)
Athletes committee (N = 5)
- C 2.7 Regional departments within the NGB structure
Administrative specialisation (vertical)
Intra-organisational coordination of the support programs (N = 8)
Regional departments for athletics (N = 4)
- R 2.8 A full-time management staff with technical expertise for elite athletics
A board of executive directors
Board specialisation
Day to day business practice in the NGB

(Continued)

Table 1. (Continued)

R	2.9 Administrative personnel at the NGB Quality of the operating network <i>Administrative support for the management staff (N = 4)</i>
R	2.10 Representation of elite coaches in the decision making structure of the NGB Formal involvement of elite coaches in the decision making process
R	2.11 Representation of elite athletes in the decision making structure of the NGB Formal involvement of elite athletes in the decision making process
R	2.12 Representation of the NGB in international sport organisations International representation of the NGB in boards of international sport organisations
C	2.13 Cooperation with other national and international sport organisations A network of independent relationships between organisations Institutional cooperation <i>Cooperation between athletics clubs (N = 5)</i>
R	2.14 Formal communication channels between all levels (national/regional/local) and stakeholders in athletics Internal communication <i>Exchange of information between NGB, coaches and athletes (N = 6)</i>
R	2.15 Athletics clubs affiliated to the NGB Policy implementation in the clubs <i>The cooperation of athletics clubs (N = 5)</i>
R	2.16 Professional and volunteer staff in athletics clubs Volunteers, voluntary work as foundation of sport organizations <i>Club level responsibilities (N = 3)</i> <i>A quality program for clubs (N = 4)</i>

- Category 3: Youth participation in athletics (8)
- R 3.1 Physical education classes in primary and secondary education
Hours of PE in school curriculum
Aman *et al.* 2009, Bayle and Robinson 2007, Digel 2002, Glad and Egilsson 2008, Grossocordon 2003, Kirk *et al.* 2007, Madella *et al.* 2005, Riewald 2003, Sam and Jackson 2004, Sanderson 2003, van Bottenburg 2003
- R 3.2 A certified teacher for physical education
A qualified PE teacher (N = 2)
- C 3.3 A school sport quality management structure
A quality management system for school sport
- R 3.4 Extracurricular school sport competitions for athletics (national/regional/local)
Extra school sport activities
Cooperation between schools and clubs
- R 3.5 Youth participation level in athletics (formal and informal level)
Athletic sport events (N = 2)
Club participation in athletics (N = 9)
- R 3.6 Participation level of competitive youth athletes
Formal sport participation
- R 3.7 A multidisciplinary athletics program for children
Fun and enjoyment for young participants
Broad development basis (N = 4)
Fun and enjoyment (N = 5)
Multi-event development, no early specialisation (N = 6)
- C 3.8 A quality management system to improve professionalisation in athletics clubs
A quality certification system for clubs

(Continued)

Table 1. (Continued)

	Category 4: Talent identification and development (16)	
R	4.1 A national talent identification and development plan	
	A top down national development plan	
R	4.2 Discipline specific talent development plans	
	<i>Talent development plans</i> (N = 4)	
C	4.3 A school level detection test for young talents	
	<i>Cooperation with school teachers during PE classes</i> (N = 3)	
C	4.4 A national standardised test battery	
	A digital talent test	
	Talent confirmation tests	
	<i>Standardised tests</i> (N = 6)	
	<i>Digital talent tests</i> (N = 2)	
R	4.5 A longitudinal database on the results of the national test battery	
	A national sport test database	
	<i>A database of talent test results</i> (N = 4)	
C	4.6 A club level test battery	
	<i>Club level tests</i> (N = 4)	
C	4.7 A scouting system for talent detection and identification	
	Scouting talented athletes	
	<i>Scouting at school runs, school competitions, city runs</i> (N = 9)	
	<i>Club and regional level scouting schemes at competitions</i> (N = 4)	
R	4.8 Individual development pathways (support programmes) for talented athletes	
	Individual performance planning	
	<i>Performance funnels for talented athletes</i> (N = 6)	
C	4.9 National/regional talent pools and training camps for different age groups	
	National/regional training and support programmes	
	Long term training and competition aims and methods	
	Coherent support for talented athletes	
	An integrated holistic and systematic development pathway	
	<i>National training days for talent pools, central training sessions</i> (N = 21)	

Abbott and Collins 2004, Böhle and Robinson 2009, De Vos 2009, Glad and Egilsson 2008, Grossocordón 2003, Lidor et al. 2009, Martindale et al. 2007, Wolstencroft 2002

- Regional training days (N = 5)*
A centralised qualitative training environment (N = 5)
- R 4.10 Discipline specific talent development plans in secondary/higher education
Performance funnels for specific disciplines (N = 3)
Training plans for specific disciplines (N = 4)
- R 4.11 Specific coordinated selection criteria for regional/national talent pools
Age specific criteria (N = 2)
Regional and national criteria (N = 4)
Performance-based criteria (N = 4)
Selection based on the coaches (subjective) evaluation (N = 5)
Entrance criteria for athletics schools or training pools (N = 6)
- R 4.12 A national sporting status for talented athletes
A national elite sport status (N = 6)
A specific status at school or university (N = 4)
- C 4.13 Educational support programmes for talented athletes in secondary education
Training support in secondary schools (N = 8)
Cooperation between secondary schools and local clubs or personal coaches (N = 7)
- C 4.14 Athletics schools in secondary education to combine study and sport development
Sport schools (N = 6)
Educational opportunities in elite sport schools (N = 4)
Centralised training opportunities for junior level athletes (N = 4)
- C 4.15 Athletics schools in higher education to combine study and sport development
 A network of universities to combine education and training for sport
Cooperation with national coaches (N = 4)
- C 4.16 Flexible educational programmes for athletes in secondary/higher education
Use of university training facilities (N = 3)
Individual cooperation with universities (N = 5)
Personal training support (N = 3)

(Continued)

Table 1. (Continued)

	Category 5: Athlete career support (10)		
R	5.1 Discipline specific coordinators/departments for the support of elite athletes <i>Discipline specific departments (N = 4)</i>		Babiak 2009, Binns 2009, Böhlke and Robinson 2009, Clumpner 1994, Duffy <i>et al.</i> 2001, Green and Collins 2008, Greenleaf <i>et al.</i> 2001, Kihl 2007, Orders and Chelladurai 1994
R	5.2 Individual performance pathways for national elite level athletes Individual performance planning Well supported athlete development pathways <i>Performance funnels for talented athletes (N = 6)</i>		
C	5.3 National/regional athlete pools and training camps Elite athlete training pools National/regional training programmes Long term training and competition aims and methods Coherent support for elite athletes An integrated training support plan <i>Sufficient training support (N = 6)</i> <i>National training camps (N = 5)</i> <i>Regional training camps (N = 3)</i> <i>Warm weather training camps (N = 7)</i>		
C	5.4 Discipline specific support programmes National elite training groups		
R	5.5 A national medical team to support elite level athletes Medical and paramedical support <i>Medical support (N = 6)</i>		
R	5.6 Clear selection and performance criteria for national/regional athlete pools <i>Performance based criteria for national pools (N = 8)</i>		
R	5.7 Direct financial support to elite level athletes Direct financial support to elite level athletes Performance based funding to athletes <i>A differentiated reimbursement programme (N = 4)</i> <i>Financial support for athletes (N = 8)</i>		
C	5.8 Support programmes for elite athletes in the police/military service <i>Job opportunities for elite athletes at military/police (N = 3)</i>		

- C 5.9 A social career support programme
Career support for part-time athletes (N = 5)
- C 5.10 A post-athletic career support programme
Cooperation with a recruitment and selection organisation to support an athletes' post-career
Post-career support (N = 2)
- R Category 6: Training and competition facilities (9)
- R 6.1 A national strategy on the construction and renovation of athletics training and competition facilities
A national building plan
A national database of athletics indoor and outdoor facilities
A national facility database (N = 4)
A digital map of training facilities (N = 2)
- R 6.3 National/regional indoor training facilities
Indoor tracks (N = 6)
Rent of indoor track facilities (N = 2)
Cooperation with local governments for the use of indoor training facilities (N = 4)
- R 6.4 National/regional outdoor training facilities
Number of outdoor tracks (N = 3)
Location of outdoor tracks (N = 4)
- R 6.5 Strategic support to athletics clubs during the development of new training and competition facilities
Strategic support to build and maintain athletic facilities
Long term facility planning (N = 4)
- R 6.6 National high performance training centres for elite athletes
Elite focused training facilities
Number of indoor training centres (N = 7)
Training facilities in high performance centres (N = 5)
- R 6.7 Regional training centres with specific support for elite athletes
Regional training centres (N = 4)
Regional/local discipline specific training centers (N = 7)

(Continued)

Table 1. (Continued)

C	6.8 A differentiated support programme for elite athletes at elite training facilities <i>Free access for elite level athletes (N = 4)</i> <i>Medical and paramedical services at the training facilities (N = 3)</i> <i>Living and educational opportunities (N = 5)</i>	
R	6.9 International certified competition facilities <i>National certified competition facilities by the international federation (N = 2)</i>	
R	Category 7: Coach provisions and education (16) 7.1 One national organisation for the coordination and organisation of (elite) coach development	Abraham <i>et al.</i> 2006, Australian Sports Commission 2001, Böhlike and Robinson 2009, Digel and Thiel 2009, Erickson <i>et al.</i> 2007, Gilbert and Trudel 1999, Glad and Eglisson 2008, Irwin <i>et al.</i> 2005, Lynch and Mallet 2006, Muckenhaupt 2009, Reade <i>et al.</i> 2008, Seippel 2002, Skille 2002
C	7.2 A national coach qualification framework in athletics An integrated educational system Academic education, Coaching courses, formal training sessions, Classes from experience coaches, Continuous evaluation <i>A coach education system (N = 11)</i>	
R	7.3 A compulsory system to keep the coach qualification up to date and valid <i>Compulsory (re)qualification requirements (N = 4)</i>	
R	7.4 A qualification level especially for the development of elite coaches in athletics Elite level qualification levels <i>An elite coach qualification level (N = 6)</i>	
R	7.5 Specific criteria to participate in (elite) qualification levels Qualification requirements to participate in elite development Entry criteria for specific qualification levels (N = 4)	
R	7.6 A short track qualification course for former elite athletes <i>A fast track scheme for elite athletes (N = 3)</i>	
R	7.7 National athletics coaches and/or sport scientists Role specialisation Professionalisation of the NGB staff and coaches Foreign expert coaches Full-time personnel and coaches, working sessions with national and personal coaches	

- Professional and volunteer coaches in athletics clubs
National coaches, professionals, specialisation, coach coordinators (N = 7)
National youth coaches (N = 4)
The integration of volunteer coaches in the elite support programs (N = 2)
Support for volunteer coaches (N = 4)
- R 7.8 Courses and clinics for the continuous development of coaches
 Clinics, seminars and courses
Continious learning for coaches (N = 3)
International internships (N = 3)
Supporting development plans for coaches (N = 4)
Cooperation between national and international coaches (N = 5)
Communication with other coaches (N = 9)
Communication with international coaches (N = 3)
A multifunctional team supporting coaches (N = 4)
- R 7.9 A national mentoring scheme for elite coaches
 Formal and informal mentor schemes
Foreign mentor coaches (N = 2)
- R 7.10 Centralised discipline specific meetings for elite coaches
Regional/national training sessions for coaches (N = 5)
Centralised talent development with personal coaches (N = 3)
- R 7.11 A national coordinated system of talent identification for coaches
 An active recruitment system/identification of talented coaches
- R 7.12 A mandatory coach qualification level for club coaches
Quality of club level coaches (N = 5)
Professional status of local coaches (N = 6)
- R 7.13 Direct financial support to elite coaches
 A clear job description for coaches
 Financial support for coaches
Long term contracts for coaches (N = 5)
Financial support for coaches (N = 4)
A differentiated reimbursement programme (N = 6)
- R 7.14 A post-athletic career support programme
 A recruitment and selection programme to support coaches' post-career

(Continued)

Table 1. (Continued)

	<i>Coaches long-term career support (N = 2)</i>	
R	7.15 A legal statute for elite coaches A national athletics coaches association <i>A protected job status (N = 3)</i>	
R	7.16 A support system for jury development An educational system for jury development A reimbursement programme for jury members	
	Category 8 : (inter)national competition opportunities (8)	
R	8.1 National/regional competition opportunities for youth level athletes National championship for junior level athletes <i>Local and regional competition for youth level athletes (N = 4)</i>	Böhlke and Robinson 2009, Digel 2005, Glad and Eglisson 2008, Houlihan 2009, Madella et al. 2005, Papadimitriou 1998
R	8.2 National/regional competitions for senior level athletes National championships for senior level athletes <i>Regional competitions in most athletics disciplines (N = 3)</i>	
R	8.3 Special regional/national competitions for elite level athletes <i>A national competition league (N = 5)</i>	
	<i>Regional/national championships (N = 3)</i>	
R	8.4 International competition opportunities for youth level athletes <i>Commercial competitions or events (N = 6)</i> <i>National selection of youth teams (N = 4)</i>	
R	8.5 International competition opportunities for senior level athletes <i>Youth competitions between countries (N = 5)</i> <i>Participation in international competition (N = 8)</i>	
C	8.6 A national coordinated plan for the bid and organisation process of international athletics events Competition housing <i>A strategy for event hosting (N = 4)</i>	
R	8.7 The NGB generates funding to bid and stage international athletics competitions <i>Cooperation with national sponsors and organizers (N = 4)</i> <i>National funding for hosting programs (N = 2)</i>	
C	8.8 The organisation of international athletics championships and competitions Organisation of international competitions, road race events	

The organisation of international competitions and championships (N = 4)

- C Category 9 : Scientific support (4)
- 9.1 A national sport research centre
A national research centre for elite sport (N = 3)
- R 9.2 A national agreement between NGBs and universities and research centres
 University research in athletes, sport institutes, special laboratories
Cooperation with specific elite athletes (N = 3)
Cooperation with national sport federations (N = 5)
- R 9.3 Multiple research projects to support the development and recovery of talented/ elite athletes
 Scientific research, specialist advice
 A systematic planned scientific approach
 Integration of sport science support into the training of the athletes
- R 9.4 A specific communication channel to communicate results on applied scientific research
 Research findings delivered to elite coaches
Scientific congresses for elite sport (N = 3)
Scientific publications for athletics (N = 6)
Clinics by national sport federations/other organisations (N = 3)
- Category 10 : Environmental success factors (4)

(Continued)

Table 1. (Continued)

R	10.1 The general participation level in athletics Overall sport participation <i>Sport participation level (N = 4)</i> <i>Participation in road race events (N = 3)</i>	Bayle and Robinson 2007, Berret and Slack 2003, Fletcher and Hanton 2003, Fletcher and Wagstaff 2009, Glad 2002, Glad and Egilsson 2008, Greenleaf <i>et al.</i> 2001, Henriksson <i>et al.</i> 2009
R	10.2 Media attention for athletics Sport on television <i>Media attention for athletics (N = 7)</i>	
C	10.3 An Olympic tradition in athletics An athletics culture, Olympic tradition National prestige A feel good factor <i>A sporting culture (N = 4)</i> <i>A tradition in athletics (N = 5)</i>	
C	10.4 A participatory organisational culture The national sporting system The organisational culture Organisational issues A participatory organisational culture <i>The organisational environment of policies (N = 4)</i> <i>A team perspective in athletics policies (N = 2)</i> <i>Organisational effectiveness of policies (N = 3)</i> <i>A key point event in policy success of failure (N = 3)</i>	

elite athletics and club support). General public funding for NGBs from a national sport agency or government to develop sport and elite sport development is of major importance (Green and Collins 2008). Although public sector financial support is defined as one of the main characteristics of elite sport systems (Oakley and Green 2001, De Bosscher *et al.* 2008, Houlihan and Green 2008), the ability to secure additional funding for the support in the development process of elite athletics is presented as an important undertaking for NGBs: 'We are one of the largest funded Olympic sports to run our performance programme. The support is ring-fenced and we use that to pay salaries, the international competition schedule, etc. ... Our NGB should attempt to secure additional funding streams for its high-performance department through corporate sponsorship' (Interviewee 16).

The category 'governance and organization of athletics policies' represents the organization of athletics policies implemented by a national sport organization or the NGB for athletics. The 16 organizational resources in this category describe internal characteristics (e.g. the specialization of individual role assignments and committee roles) and structural dependencies among the national sport organizations, the NGB for athletics and the clubs. Within these perspectives, NGBs have to make specific decisions regarding their organizational structure to fulfil their strategic priorities: 'Our philosophy [the high-performance department of the NGB] is based on the idea that the athlete is the focal point of attention, with a performance-based supporting structure, guided by a national coach. This encompasses the three most important factors in the development of success' (Interviewee 11).

The third category, i.e. 'youth participation' primarily focuses on the formal participation level in athletics and the club structure in a country. The participation level is the basis for further stages of talent identification and development structures. 'Club structure is very important, because basically all the athletes are coming from these clubs' (Interviewee 19). Additionally, the emphasis of athletics in the school curriculum, alliances and cooperation with schools regarding school competitions and especially the quality of the athletics participation programme of young children is of vital importance for their involvement in the sport.

The category 'talent identification and development' emphasizes the selection and development of young talents. The resources and capabilities refer to test batteries, training pools, training and educational support programmes. Different interviewees highlighted the multidimensional characteristics of the talent identification process. More than just the physical abilities of an athlete, a cross-sectional analysis of young athletes should contribute to a broader evaluation of young athletes' potential (cf. sporting history, speed, endurance, flexibility, etc.). 'We started with a programme named Piste. Performance identification sport talent. Basically, these are different tests for young athletes. I mean, in athletics we have results, clear results; measured results. Now we try now to have some other criteria too, other indicators about talent and an athlete's ability; not only results' (Interviewee 18).

Once talents have been identified and selected, they land in a talent development process. Interviewees suggest different organizational settings for the development of young potentials, according to levels of professionalization of coaching and centralization of policies within their countries. As part of the setting, NGBs, clubs and in some countries schools cooperate or provide different development pathways for young athletes. 'In my country, talented athletes have meetings with their personal and more experienced coaches. You can call it meetings for development and experiences. It is like getting together and listens to other coaches. What are their experiences and what is their philosophy? You can pick your philosophy from that...' (Interviewee 14).

Ideally, the programme's support for talented athletes is continued during the athletes' career support once they start performing in senior competitions. This represents the fifth category of 10 organizational resources. Elite athletes receive individualized performance-based support, discipline-specific training camps supported by national coaches or coordinators. In most countries, specific performance targets are tailored to meet an annual or biannual financial and programme support plan. Also, some elite athletes receive additional governmental or commercial support. The quote from the high-performance director exemplifies the value of national training programmes for elite athletes. 'With the national Heracles Champion programme, we can support about 100 athletes. Before, we had less than 20 athletes. Now, the best athletes, the best juniors and best under-23 athletes get the chance to train in better conditions. The Heracles Star-programme supports our best athletes. We do not work in event groups as it is an individual support programme. This in order to help athletes and coaches with the sufficient support they want' (Interviewee 19).

The sixth category refers to the availability of elite training and competition facilities, shared with other sports, sport science institutes or universities which are argued to make a major contribution to the development of success (Oakley and Green 2001, Houlihan 2009). This category represents major physical resources like the availability of athletics tracks, the organizational development of training facilities and regional and national high-performance training centres. Most European interviewees emphasize the importance of indoor training facilities and additional warm weather training camps in foreign training facilities. Given the idea that facilities are achieved largely through the provision of substantial investment of public and lottery funds, high-performance training centres and especially indoor training facilities for athletics are hard to set up. Centralized planning and development of regional and national high-performance centres by the NOC or a national sport organization can be beneficial for elite athletics development.

Complementary to the development of athletes, qualification courses and development programmes are also important for the continuous improvement of coaches. This requires a multi-level approach focusing on developing the personal skills and competences of coaches and providing coaches the opportunity of delivering high-quality coaching to (elite level) athletes. These resources and capabilities are grouped in category 7, i.e. coach education and development. Besides a national qualification framework in athletics, coaching support outside the organic model of coach development from low-to-high-performance coaching through informal and more dynamic learning skills were highlighted as important organizational capabilities. Dynamic capabilities could also comprise additional mentoring schemes, regular collecting coaching sessions or fast-track development scheme as proposed by a high-performance director: 'Emerging coaches with potential should be offered a fast-track development programme. This programme should be spearheaded by the full-time coaches at the high-performance centres, with the contracted elite volunteer coaches assisting in the mentoring process' (Interviewee 17). One of the key issues mentioned by interviewees is the ability to learn constantly through clinics, seminars and additional courses: 'As soon as you are qualified as an elite coach, it stays for life. However, and I suppose it is the same in any country, our best coaches are those who continue to learn' (Interviewee 26).

The organization of national and international competitions for both senior and junior level athletes represents an important resource for athletes to perform, as represented by resources in category 8, i.e. national and international competition opportunities. Interviewees highlighted the importance of a national elite competition for athletics, as it should provide sufficient high-level competition opportunities. Additionally, the hosting of international elite sport competitions (Johnson and Ali 2002, Glad and Egilsson 2008)

and sufficient participation opportunities for youth and senior athletes improves a country's potential for success. As only a limited number of athletes are able to compete in international championships, additional international competition opportunities strengthen the athletes' international experience.

The ninth category encompasses scientific resources and capabilities. For this category, a national sport research centre, specific applied research projects for athletics and educational support to improve their understanding in the added value of scientific support can create potential to develop a competitive advantage in athletics. Multiple elite sport systems develop a systematic, planned and scientific approach to support a country's elite athletes (Green and Houlihan 2005, Green and Collins 2008). Sports medicine, performance diagnostics, biomechanics and physiotherapy are common approaches in elite athletics development. Furthermore, scientific approaches and cooperation can support other categories of the elite sport policy process, including talent identification and coach education programmes. For example, multiple countries seem to use scientific battery tests to evaluate children's potential for athletics.

Finally, the 10th category represents environmental resources for athletics. This category refers to resources that determine the organizational culture and national climate in elite athletics. First, resources point to the development of the sport, based on the country's culture and tradition in athletics and corresponding media attention. Another important resource in this category refers to the management of the athlete's environment and the individual and team interaction within the organization (Fletcher and Wagstaff 2009, Henrikson *et al.* 2009). A subjective evaluation of important stakeholders on the organizational culture provides an understanding of the organizational culture and operations management (Kihl *et al.* 2010). As one of the interviewees indicated, policy-makers have a certain degree of control over the perception of success and organizational development: 'After an international success, you can prove that a systematic approach by the national federation is a successful way to develop elite athletes. You have to communicate about the success you developed with the national team. Young potentials throughout the country will think: "That is what I want. They have proven it is possible. I've got to be there too!"' (Interviewee 10). Another performance director stated that it was necessary to have an elite sport attitude in his country: 'Here was the image of athletics being a game, not a sport. You had to have fun, you had to create an atmosphere wherein all of the disciplines would have aggregated time and it would be joy for all the participants. Partly, we had to overcome this perception...' (Interviewee 9).

The configuration of resources and capabilities

As previously indicated, 98 organizational resources and capabilities in this inventory were clustered according to dominant categories or areas in elite sport development. One of the key issues indicated by the interviewees is that there are multiple ways of integrating and configuring these resources and first-order capabilities. First, resources seem to be organized in different strategic configurations. One interviewee points out that 'creating better cooperation between clubs, athletes, coaches, public structures and federation' is a crucial prerequisite for success at an international level (Interviewee 5). This perspective seems to stress the importance of uniting most vital human resources and organizations in athletics. Another performance director was committed to a centralized development of resources; 'we have centralized the three main important factors to support elite development programmes; the athlete in the middle, supported by a programme which is performance-driven and directed by professional coaches' (Interviewee

11). This strategy represents an integration of resources from three major categories in our list, namely athlete career support (category 5), training and competition facilities (category 6) and coach provisions and development (category 7). Another representative noted ‘if you have a well-educated club, well-educated coaches, then you don’t need the system of our federation. You can be successful on your own’ (Interviewee 27). These examples show that resources and capabilities are combined very differently. Organizational resources can be combined in various ways within and between different categories of elite sport development.

Second, it was clear that some resources and capabilities can be built up or used both at a national or regional level. ‘Also for athletes who are not in the national pool, the clubs or the regional federations have their own system to develop these athletes at a high-level. (...) They work in the same direction; they want to get athletes in competitions and competitors at the international championships’ (Interviewee 16). Different experts provided examples of dependencies between these levels regarding the development of resources. ‘When they finish school, they can go to the military, because the military is a very strong supporter in the sport system; and in most of the high-performance centres, we also have a military centre, involved in the HPC [high-performance centre]. So the athletes do not have to change location from school; they stay in the same centre, but move from the school to the military. They have the same coach, the same locations, the same facilities, the same support’ (Interviewee 31).

In conclusion, it seems that although a list of crucial organizational resources and first-order capabilities in athletics can be identified, there remains a diversity of ways to combine and organize them in higher-order capabilities. This divergence among the use and configuration of specific resources suggests that there are multiple pathways to develop and structure organizational resources into higher-order core capabilities to obtain a competitive advantage in elite athletics. This is illustrated in [Figure 2](#). It shows that even

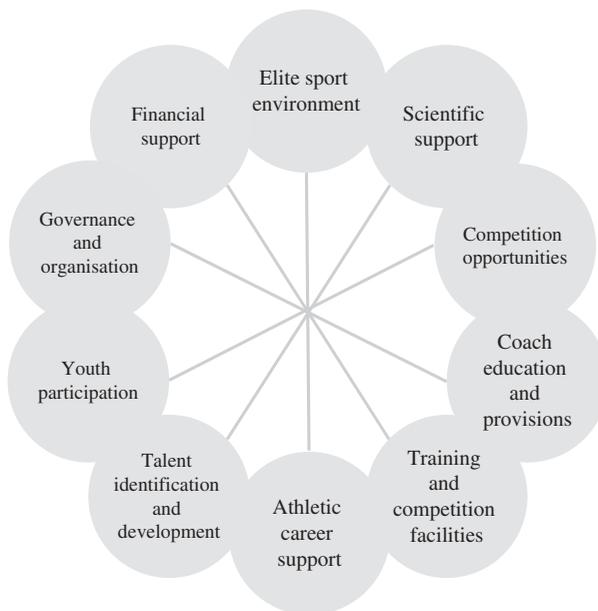


Figure 2. Ten interrelated categories of organizational resources and capabilities in elite athletics.

though resources and clusters of resources deemed to develop a competitive advantage were identified, there are multiple ways of combining these resources and capabilities into dynamic capabilities.

Discussion

The results of this study include a list of 98 organizational resources and first-order capabilities identified through a literature review and expert interviews. These resources and capabilities are identified as the organizational fundamentals to develop a resource-based competitive advantage in athletics. The RBV is a popular perspective in strategic management and economic literature to determine the competitive advantage of organizations. Within this perspective, strategy is described as a function of organizations' resources and the efficiency with which the resources are structured and utilized (Gerrard 2005). Through our analysis, resources and capabilities were classified in one of the nine categories of the SPLISS model and an additional 10th category, i.e. the elite sport environment was added. This category corresponds to the findings of Böhlke (2007), Smart and Wolfe (2000) and Bar-Eli *et al.* (2008) who identified environmental conditions or the organizational culture as important resources of success. From a theoretical perspective, the inclusion of environmental factors as important resources to the development of a competitive advantage confirms the idea that strategy content and implementation (i.e. resources and capabilities) cannot be understood independently of the competitive environment within which an organization operates (Wernerfelt 1984). Additional research at a sport overall level on the interplay of environmental conditions with organizational resources can contribute to the explanation of international sporting success.

Though resources and capabilities were listed in thematic categories, international experts elaborate on the combination of these resources across the different categories leading to various resource-configurations in athletics. As such, these results confirm that resources do not need to represent specific VRIN characteristics (Valuable, Rare, Imperfectly imitable and Non-substitutable) to contribute to a competitive advantage. Based on our analysis, international experts agree on what constitutes key resources in the development of elite athletics. The divergent configuration of these resources as exemplified by the international experts suggests that a competitive advantage can be achieved by using strategic configuration of these resources sooner and more efficiently. Results therefore confirm the added value of the strategic management process in the development of a competitive advantage.

The unique contribution of this research is twofold. First, our inventory provides a first overview of the organizational resources to develop a competitive advantage in one specific sport. Other studies of the operational development or competitive advantage have not delivered such a general overview of important factors or resources. Most organizational studies using a resource-based perspective have described the combination of specific resources of specific sport organizations in a case study. What clearly characterizes this paper is that it is the first study to provide a general listing of organizational resources for one specific sport. Following this paper, the overview of resources could be used as the foundation for empirically assessing a country's competitive advantage in athletics.

Second, this article reduces the gap in knowledge concerning the organizational capacity at sport-specific level (Böhlke and Robinson 2009). Our research includes an overview of sport-specific organizational resources and recognizes that the configuration

of these resources differs among different countries. These results therefore suggest that the homogeneous approach to elite sport policy development as indicated by De Bosscher *et al.* (2009) and Green and Houlihan (2005) is not applicable at sport-specific level. A competitive advantage can be achieved by countries that develop specific resource configurations and dynamic capabilities that take an advantage of the opportunities within its external environment. These configurations do not need to be identical among different competitors. As a matter of fact, in order to achieve a competitive advantage one would look for the 'best' resource configurations. Comparable results were found by Newland and Kellett (2012). They found that there are large organizational differences in the development processes and settings between the USA and Australia for the development of the sport of triathlon. At a sport generic level, Andersen and Ronglan (2012) stated that the four Nordic countries share the same elite sport ambitions and policy discourse, but diverge increasingly at the organizational level of their elite sport policies.

These findings are especially interesting in comparison with previous research on elite sport development and the SPLISS study in particular. As this study started from the nine-pillar SPLISS model, the results of this study provide support for the view that organizational resources in athletics can be classified according to general areas or characteristics of elite sport policy (e.g. Oakley and Green 2001, Green and Houlihan 2005, De Bosscher *et al.* 2006, Digel *et al.* 2006). On the other hand, notwithstanding the fact that the SPLISS study is one of the few studies that aimed at identifying and evaluating policy prerequisites of elite sport, the SPLISS study does not consider the configuration or interrelation of its CSFs. More specifically, the SPLISS model adopts a biased approach regarding the organizational development and configuration of CSFs. For example, CSF 1 in pillar 6 (training facilities) says 'There is a network of high-quality national/regional elite sports centre(s)/facilities, where athletes can train under good conditions at any point in the day, including: an administrative headquarter, sleeping opportunities and a close link with sports medics, sport scientists, cooperation with universities and the education of younger athletes' (De Bosscher 2009, p.122). This CSF incorporated different organizational characteristics in a centralized and cooperative training setting. From a resource-based perspective, this CSF represents a specific resource configuration which is assumed to be developed in the same manner by all competitors. However, in terms of capabilities, it can be assumed that these capabilities differentiate between countries according to their external environment and the resource allocation provided in their country (cf. educational opportunities, scientific cooperation with universities or research centres, etc.). In the current study, 98 resources and first-order capabilities are suggested as the cornerstones in developing resource configurations and competitive advantage in athletics. Interviews with high-performance directors indicate that countries have diverse resource configurations in their pursuit of a competitive position.

One of the limitations of the results of this article is that there is no clear conceptual boundary between resources and first-order capabilities. As resources and first-order capabilities are related to each other in a logical and hierarchical order, it remains hard to distinguish resources from first-level capabilities. The lack of clarity was also identified by Wang and Ahmed (2007). The first-order capabilities in this article mostly refer to support programmes representing combinations of physical, human resources with knowledge and experience about elite athletics development. Whether or not the resources are identified as specific resources or first-order capabilities is not a point of discussion in this paper. This project mainly aims to crystallize crucial assets in elite athletics development. Additionally, this article does not indicate which organizational resources or capabilities are most strongly related to international sporting success.

This article focuses on resources and first-order capabilities. The question remains how these resources and capabilities are structured into higher-order core capabilities both within and between thematic clusters. The configuration of resources and the management of core capabilities in line with a country's strategic goals in elite athletics are still unknown. As Green (2005) stated; 'we have the conceptual tools, we need to learn their applications' (p. 249).

Further empirical research is necessary to validate the list of organizational resources in an empirical environment, to explore a country's core capabilities and to improve our understanding of the development and structuring of organizational resources. Although this article contributes to the identification of the organizational resources and first-order capabilities, the management processes of a country's resources and capabilities need to be explored more in depth.

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Appendix 1. List of countries represented by the Interviewees

Austria (1), Belgium (4) [Flanders (3)/Wallonia (1)], Brazil (1), Canada (1), Czech Republic (1), Denmark (1), Finland (3), France (1), Germany (2), Greece (1), Hungary (1), Iceland (1), Ireland (2), Italy (1), the Netherlands (3), Norway (1), Poland (2), Portugal (1), Russia (1), Spain (1), Sweden (1), Switzerland (2) and the United Kingdom (1).