National Paralympic sport policy interventions and contexts influencing a country's Paralympic success: A realist-informed conceptual framework

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ABSTRACT

This thesis explored key national Paralympic sport policy interventions influencing a country's Paralympic medal outcomes and the contextual factors influencing these interventions. The aim of this research was to advance conceptualisation of national elite sport policy and programme effectiveness in relation to Paralympic success, to inform research and evaluation on national elite Paralympic sport policy.

The Paralympic Games is the world's second-largest multi-sport event after the Olympic Games. As competitiveness at the Paralympics is intensifying, governments are focusing on developing and implementing effective national sport policies/systems to optimise Paralympic success. While research frameworks have advanced our understanding of national elite sport policy/systems, these frameworks have been Olympic centric. Disability and Paralympic sport studies suggest that current frameworks may not adequately inform policy in the Paralympic domain. Additionally, there is an emerging focus in the sport policy literature on the need to account for the context within which sporting systems are embedded. However, there is currently no framework in Paralympic sport integrating sport policy interventions with contextual influences.

To address this gap, this study followed an exploratory qualitative design and was informed by a realist perspective on policy effectiveness. In this perspective, the success of an intervention (i.e. policy/programme) is dependent on the interaction between the mechanisms underlying the intervention and the contexts in which the intervention is implemented. The social relational and human rights models of disability also informed the research. Twenty-three semi-structured interviews were conducted with national Paralympic sport managers from four successful countries in the Paralympics and who had developed Olympic national elite sport policies: the United Kingdom, Australia, France and Canada. Data was collected and analysed using an inductive-deductive reasoning to identify thematic patterns and relationship between interventions and contextual factors.

Findings confirm that existing national Olympic sport policy interventions are also important for Paralympic success. These include, funding for parasport, effective national governance, programmes for participation, talent identification, and high-performance and career development, the provision of and access to trained coaches, facilities and parasport specialised equipment, and Paralympic sport science. However, within these interventions, parasport-specific processes were identified, and two policy

interventions unique to Paralympic sports were found: integration of disability-specific and Paralympic sport knowledge in the sporting system; and a national framework for Paralympic athlete classification. Contextual factors influenced all policy interventions and were found at the individual level (e.g. coaches' assumptions towards people with disabilities), the organisational level (e.g. level of inclusion within a mainstream sport organisation), and the infrastructural level of society (e.g. policies, social policies, anti-discrimination laws).

The major contribution of this thesis lies in the developed, realist-informed framework, which proposes a way to integrate Paralympic sport policy at the national level with contextual factors. This framework can inform researchers on how to account for contextual features when studying national sport policy effectiveness in both the Paralympic and Olympic domains. Moreover, this thesis suggests that researchers, evaluators, and practitioners need to account for Paralympic-specific policies and processes. Tailoring policies to the specificities of the Paralympic domain, and considering contextual influences when developing sport policies, could allow countries to gain a competitive advantage in the Paralympics.

DECLARATION

I, Aurélie Pankowiak declare that the PhD thesis entitled "National Paralympic sport policy interventions and contexts influencing a country's Paralympic success: A realist-informed conceptual framework" is no more than 80,000 words in length including quotes and exclusive of tables, figures, appendices, bibliography, references and footnotes. This thesis contains no material that has been submitted previously, in whole or in part, for the award of any other academic degree or diploma. Except where otherwise indicated, this thesis is my own work.

Signature  Date: 30 June 2020

DEDICATION

To Paralympic athletes and stakeholders - I dedicate this research to all past, present and future Paralympic athletes who have devoted themselves to perform at the highest level and continue to fight for equal recognition throughout the world. The global Paralympic Movement has much to learn from you. I also dedicate this research to all the passionate parents, coaches, classifiers, technical teams, managers, volunteers, and researchers who contribute to the growth of disability and Paralympic sports. Your collective involvement and advocacy will be essential in the recovery from COVID-19.

To survivors - On a more personal note, I dedicate my PhD submission to all survivors of childhood abuse in sport. To those who, like me, have never stopped dreaming of a career in sport on and off the field, there is a way to reach your dreams. The healing journey is hard, but it is worth it. Keep on fighting. The world needs you.

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To my supervisors - I remember sitting in a classroom in Belgium being intrigued by *Professor Veerle De Bosscher*'s spider web graphs. She was presenting her 15-country evaluation on national elite sport policy to the few sport management students from the Erasmus Mundus programme in Adapted Physical Activities. At that time, I was perhaps more intrigued by the fact that data could look like spider webs than by what these webs actually meant. Spiders aside, Veerle challenged my classmates and I to think about how her research could inform the Paralympic sport domain. Little did I know then that this lecture would become the inspiration for undertaking my PhD, and that the lecturer would become my supervisor. I want to thank my external supervisor, Prof. Veerle De Bosscher, for inspiring me to pursue a field of inquiry I am passionate about. Veerle's leading knowledge of the field of national elite sport policy, critical feedback, brutal honesty, yet encouraging words enhanced my research development. Thank you for empowering me in pursuing diverse theoretical lines of inquiry. I wish to express my equal appreciation to my local supervisors: *Professor Hans Westerbeek*, and *Associate Professor Camilla Brockett*. I am grateful for the opportunity they both afforded me to study in Melbourne, a place I now call home. Thank you also for supporting my stubbornness in learning about and using realist evaluation principles in my PhD. I am eternally grateful for Camilla's dedication to my learning, and particularly for her supporting me in my early PhD candidature. Her ongoing positivity is contagious. Our long flow-state like brainstorms, and the safe sounding board she provided me with, enabled my scientific curiosity to flourish. I am also grateful for Hans' big picture vision, for always ensuring I am on track and challenging me to unlock the words stuck in my head, and put them on paper. He, too, was instrumental in the completion of this thesis. I am deeply indebted to my three supervisors for their ongoing support during the second worst period of my personal life. Their understanding and empathy made all the difference. Their advocacy and financial support enabled me to pursue my studies in extremely challenging times.

To my institution - During the completion of this PhD I experienced, for the first time, the difference a Disability Access Policy makes. While my experience of disability is not a permanent one, my condition dramatically impacted my ability to pursue my studies for several years. Thanks to *Victoria University* Access Plan, I was able to benefit from adapted structures. This was absolutely essential for me to complete this PhD. I am

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Their open mindedness and rich insights allowed me to make sense of their words and, in doing so, I learned how to meaningfully contribute to knowledge. Without their involvement, this PhD would simply not have been possible.

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PRESENTATIONS AND GRANTS

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International Conferences

Pankowiak, A., Brockett, C., De Bosscher, V., & Westerbeek, H. (2015). Developing a theoretical model to compare national parasport policies - Para-SPLISS.
Oral presentation at *The World Congress on Elite Sport Policy,* Melbourne, Australia, 23rd – 24th November 2015.

Pankowiak, A., Brockett, C., De Bosscher, V., & Westerbeek, H. (2016) Reviewing the Determinants Of International Paralympic Success For the Development Of A National Framework Of Elite Sport Policy Factors Influencing Parasporting Excellence.
Poster presentation at *the International Convention on Science, Education and Medicine in Sport*, Santos, Brazil 31st August – 4th of September 2016.

National Conference

Pankowiak, A., Brockett, C., De Bosscher, V., & Westerbeek, H. (2016) Drivers of Paralympic Excellence: Developing a National Elite Sport Policy Framework to Assess Factors Influencing Paralympic Success.
Oral Presentation at the *Sport Management Association of Australia and New-Zealand (SMAANZ), Higher Degree by Research students (mid-year) conference*, Melbourne, Australia, 15th of July 2016

Internal Presentation (Victoria University)

Pankowiak, A., Brockett, C., De Bosscher, V., & Westerbeek, H. (2015) Facilitating Excellence in Paralympic Sport: A Model Of Key Policy Factors Influencing Para Sport Systems Effectiveness.
Poster presentation at *The Institute of Exercise, Health and Active Living (ISEAL) Higher Degree by Research students conference*, Melbourne, Australia

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LIST OF ABBREVIATIONS

AwD	Athletes with Disabilities
GDP	Gross Domestic Product
GDR	German Democratic Republic
ICF	International Classification of Functioning, Disability and Health
IOC	International Olympic Committee
IOSD	International Organisation of Sport for the Disabled
IPC	International Paralympic Committee
ISMGs	International Stoke Mandeville Games
MS	Market Share
NDSO	National Disability Sport Organisation
NOC	National Olympic Committee
NPC	National Paralympic Committee
NSA	National Sport Agency
NSO	National Sport Organisation
	M-NSO Mainstream National Sport Organisation
	P-NSO Parasport specific-National Sport Organisation
OG	Olympic Games
PG	Paralympic Games
PAC	Paralympic Athlete Classification
PwD	People with Disabilities
SPLISS	Sport Policy factors Leading to International Sporting Success
TD	Talent Development
TID	Talent Identification
TT	Talent Transfer
UK	United Kingdom
UNCRPD	United Nations Convention on the Rights of Persons with Disabilities
USA	United States of America
WHO	World Health Organisation

1 INTRODUCTION

It is exceptional to submit a PhD thesis on international Paralympic sporting success in the middle of the COVID-19 world pandemic that resulted in the first ever postponement of the Paralympic Games (PG). The PG are the second biggest multi-sporting event in the world and take place a few weeks after the Olympic Games (OG) in the same host city. The last PG took place in Rio in 2016, and the next ones were planned to take place in Tokyo, in August-September 2020. While the OG were cancelled three times during the World Wars (Girginov et al., 2005), the PG did not initiate until later, in 1960. Therefore, this is the first time in history that the event faces such exceptional circumstances. At the time of writing, both the Tokyo OG and PG have been rescheduled to commence in August 2021. However, it is still uncertain if either event will proceed, due to ongoing health concerns around [international] mass gatherings (Gallego et al., 2020; Parnell et al., 2020). The impacts that this postponement (or cancellation) will have on individual Paralympic athletes and on the countries who have invested millions of public funding into the development of national sport systems to support Paralympic athletes' performance are unclear.

Ongoing environmental and health crises are creating uncertain and rapidly changing public policy contexts. As governments refocus policy development into urgent areas, such as the environment and health, resources for development in other policy sub-sectors, such as elite sport, might become scarce. In such context, it is perhaps more important than ever to build scientific evidence to inform sport policy makers who are working within limited resources, on how to effectively use funding and implement programmes. Specifically, national elite Paralympic sport policy is a domain that has received very little attention from the sport policy scientific community to date. Considering the growth of Paralympic sports globally, and the increasing interest given by governments in achieving international Paralympic success, knowledge development in this area is urgently needed.

This introductory chapter provides further background to the significance of national elite Paralympic sport policy and introduces the research problem this thesis addresses.

1.1 Research context

Over the course of the 21st century, providing sporting opportunities for people with disabilities (PwD) (see Box 1 below for terminology used in this thesis) has been increasingly recognised as a human rights issue. An important milestone in this development was the introduction of the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) (United Nations, 2006). The UNCRPD is the first legally binding international human rights document that aims to guarantee participation by PwD in social life throughout the world. In Article 30.5, the UNCRPD specifically guarantees the right to sport, recreation and leisure for all PwD. As of June 2020[1], 163 nations have signed the UNCRPD and committed themselves to the implementation of policies that ensure the full rights of citizens with disabilities. However, physical, attitudinal and societal barriers continue to impact the participation of PwD in social life, including participation in sport from grassroots to elite levels (Misener et al., 2014; World Health Organization & World Bank, 2011).

Despite ongoing barriers, the sporting movement for PwD has made many strides since the first competition for athletes with disabilities (AwD) in 1924[2]. Three main international sporting events have created opportunities for PwD to take part in competitive sports: the Special Olympics, the Deaflympics and the Paralympics (DePauw et al., 2005). While the Special Olympics provide competition opportunities for people with intellectual impairments, the event privileges participation over elite competition. In contrast, the Deaflympics and the Paralympics are solely focused on elite sporting performance. Although the Deaflympics represent the main elite sporting competition for people with a hearing impairment, the PG are the largest elite sporting platform in the world for people with intellectual, visual and/or physical impairments. The Paralympics are also more closely associated with the OG (Legg et al., 2011). The PG are held every four years just a few weeks after the OG. Since Seoul 1988, both events have taken place at the same venues, and since Beijing 2008, the host cities have had to integrate the preparation of both the OG and PG in one organising committee (Gold et al., 2007). Due

[1] UNCRPD Status: https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=IV-15&chapter=4&clang=_en

[2] The International Silent Games, the first competition for deaf people, were held between August 10-17, 1924, in France. The event later became the Deaflympics (DePauw et al., 2005)

to the prominence of the Paralympics, and in particular their significance in relation to national elite sport policy, the research focuses on Paralympic sports.

The international expansion of Paralympic sports, since their inception during the World War II at the Stoke Mandeville hospital (England), has been remarkable. Sixty years ago, the first PG (Rome, 1960) were attended by about 200 athletes with spinal cord injury. They represented 17 countries. In contrast, the most recent Summer PG (Rio, 2016) were attended by over 4300 athletes with a range of intellectual, visual and/or physical impairments, from 160 countries (International Paralympic Committee, 2020). This makes the PG the second biggest multi-sporting event in the world, and the largest sporting event for AwD.

Box 1 Terminology

Disability and impairment

Disability is a complex social construct explained by different perspectives (commonly known in the literature as disability models). These are further explained in the conceptual framework section of thesis in Chapter 3. Due to the diverse perspectives, different terminologies are used to talk about disability. For example, "*disabled people*" is preferred in the UK social model of disability, as well as in some jurisdictions of Australia. This terminology places disablement on social barriers and not on the individual impairment (Wareham et al., 2018). In other models, such as the human rights model of disability, a model used to inform some aspects of this thesis, a first person terminology is preferred: "*people/athletes with disabilities*". This terminology is used throughout the thesis.
The UN defines persons with disabilities as "*those who have long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others.*" (United Nations, 2006, p. 4).
Impairments refer to "*problems [reduction] in body function or alterations in body structure – for example paralysis or blindness*" (World Health Organization & World Bank, 2011, p. 5). In Paralympic sport, impairment is an important concept as it is used as the basis for determining who is eligible to compete in a Paralympic sport (Misener et al., 2018). This is established through the Paralympic Athlete Classification (PAC). The PAC will be discussed in detail throughout the thesis.
People without disabilities are referred to as able-bodied people/ athletes or Olympic athletes. Athletes with disabilities (AwD) are also referred to as para-athletes. This aligns with the Paralympic sport literature (Misener et al., 2019; Smith et al., 2016) and the International Paralympic Committee (IPC)'s guidelines for language style (International Paralympic Committee, 2014).

Disability sport, parasport, and Paralympic sport

Disability sport is an established broad term referring to sport that accommodates people with intellectual, sensory and/or physical disabilities (DePauw et al., 2005).
Paralympic sport, similar to Olympic sport, specifically refers to sport disciplines for AwD that are included on the programme of the PG.
Parasport is a more recent term, which has increasingly been used in both practice and in research (reflecting the international influence of the IPC), to encompass both Paralympic and disability sports. As Townsend stated, this term "*provided shared understanding across the multi-sport Paralympic context and a single elite sport positioned separately to the Paralympic Games.*" (Townsend et al., 2018, p. 3).
These three terms are used throughout this thesis to talk about sport for PwD.

The number of new nations participating in the Paralympics is increasing, and those that have traditionally been competing are sending larger teams of para-athletes (Darcy et al., 2017). In addition to this growing competitiveness, increased media coverage and interest from sponsors show that the social and commercial status of the PG and Paralympic athletes is also on the rise (Darcy et al., 2017; Legg et al., 2011). The PG have become another opportunity for countries to showcase national sporting excellence (Beacom et al., 2016). With the globalisation and commercialisation of sport since the

1980s/90s, achieving sporting success through winning medals at the OG and increasingly at the PG has become a critical focus of national sport policy for many countries. While national governments have focused more heavily on medal outcomes at the OG, as the PG continue to grow in size and status, governments are increasingly focusing on Paralympic sporting success as well (Dowling et al., 2017; Houlihan et al., 2016).

In response to these elite sport policy goals, countries have developed and implemented national elite sport development systems and strategies aiming to support elite athlete development to increase medal outcomes. In parallel, the scholarly field of national elite sport policy has grown, significantly enhancing our understanding of the development, implementation, and evaluation of national elite sport development systems (De Bosscher et al., 2015a; Digel et al., 2006; Houlihan et al., 2008). However, researchers have primarily focused on Olympic sports, and the body of literature on elite Paralympic sport development programmes and policy is only in its infancy (Dowling et al., 2017; Patatas et al., 2018). Consequently, there is a lack of knowledge on national elite sport development systems in relation to supporting elite Paralympic athletes and achieving Paralympic success.

This lack of knowledge is problematic for two reasons. First, from a public funding point of view, policy makers are developing policies, programmes, and processes without a scientific knowledge base in Paralympic sport, which has the potential to direct investments in ineffective ways. Second, policy makers might be applying sporting systems and policies that were originally developed for able-bodied athletes, directly to Paralympic athletes, without having an understanding of the needs of Paralympic sport and Paralympic athletes. This type of one-size-fits-all approach could risk creating an environment for ableist practices (i.e. practices based on the normative views that able-bodied sport and athletes are superior) (Smith et al., 2018). Therefore, research on national elite Paralympic sport policy is urgently needed, particularly on elements of elite sport implementation systems relating to Paralympic sport success development.

1.2 Research problem and questions

Parasport is an under-developed research topic in the sport management and policy literature (Misener et al., 2014; Shapiro et al., 2014). The body of knowledge on

national Paralympic sport policy specifically has only started to emerge. In fact, most of the literature on this topic has been published since the onset of this thesis (2015). Even still, these few Paralympic sport policy studies have focused either on specific programmes or on a specific country (Houlihan et al., 2016; Patatas et al., 2020a). Due to the lack of knowledge on national elite Paralympic sport policy, this thesis builds primarily on the well-developed body of knowledge on national elite sport development systems in the Olympic domain, and goes beyond by providing an empirical analysis of Paralympic sport specific data, from four successful nations in the PG.

Since the beginning of the 21st century, national elite Olympic sport development management and policy scholars have illuminated the ever-intensifying competitive race between countries to achieve international sporting success. This competition has been termed the Global Sporting Arms Race (De Bosscher et al., 2008a; Oakley et al., 2001). This term describes the fact that nations are competing for recognition on the world stage by achieving top medal outcomes at the Olympics, and as a result are developing sophisticated elite sport development systems to increase the chances of winning medals. Authors have shown that as more nations continue to join this sporting race, competitiveness has intensified. Consequently, governments have had to increase financial investments in elite sport policies just to maintain the country's performances, as well as ensure that the effectiveness of these policies is maximised (De Bosscher et al., 2015a).

Two main frameworks have been developed to understand national elite sport development systems and inform decisions makers on policy effectiveness: the SPLISS (Sport Policy factors Leading to International Sporting Success) framework (De Bosscher et al., 2006) and the Success Resource framework (Digel, 2002). Overall, these frameworks and the body of research on national elite able-bodied sport policy have shown that national sporting systems typically include elements such as: policies for the identification of talented athletes, programmes for the support of the high-performance development and elite career of athletes, policies for the provision of coach training and development, sport science and sport medicine, training facilities, and the effective national horizontal and vertical governance and coordination of a various network of stakeholders.

Moreover, this national elite able-bodied sport literature demonstrates that accounting for contextual factors influencing national policy interventions and programmes is important. Indeed, the contextual features of countries can explain why

some nations have similar level of policy effectiveness despite implementing sport policies differently (De Bosscher et al., 2016). Notwithstanding researchers' recognition of the need to understand contextual influence on national elite sport policy, studies offering a theoretical approach to integrate contextual factors together with national elite sport development system are limited. This gap suggests that advancing our understanding on how to integrate diverse policy interventions underpinning elite sport development systems with contextual factors could assist policy makers in designing effective interventions relevant to the country's context. This thesis aims to fill this gap by using principles of realist evidence-base policy, also known as realist research and realist evaluation (Pawson, 2006; Pawson et al., 1997).

Realist approaches to research and evaluation are based on the assumption that policies and programmes (i.e. interventions) are open-systems. In other words, the workings of policies and programmes are conditioned by the circumstances in which they are implemented. From a realist perspective, the effectiveness of intervention, i.e. the extent to which they achieve the intended outcomes, is contextually dependent. Evidence generated from this lens thus provides information about what intervention works for whom and in what context (Pawson, 2006). Therefore, realist evaluation is a promising methodological approach to integrate sport policy intervention and context factors, to inform national Paralympic sport policy research.

On one hand, it could be assumed that the national policy interventions and strategies implemented for Olympic sporting success may not be so different from those needed to optimise Paralympic success. In this instance, the existing frameworks (i.e. SPLISS or the Success Resource framework) could be useful to study national elite sport policy in the Paralympic domain. On the other hand, disability sport studies, and the broader field of disability studies suggest there are parasport-specific elements that existing frameworks do not account for. These elements include for example, the fragmented national governance models of disability sport, the diversity of Paralympic athletes' profiles and the ongoing physical, societal and attitudinal barriers AwD face (Misener et al., 2014). This suggests that current frameworks may not be adequate to research and evaluate national elite sport policy in the Paralympic domain. However, very little is known about national Paralympic sport policy and programmes supporting Paralympic athletes (Dowling et al., 2017).

Therefore, this thesis advances the current body of knowledge on national elite sport policy by examining a widely overlooked sporting domain. The purpose of this PhD

was to conduct exploratory research to identify key elements of national elite sport policies in relation to Paralympic sporting success. The research objectives were informed by principles of realist research and evaluation, and included:

- To identify key national Paralympic sport policy interventions and processes important for Paralympic success (i.e. medal outcomes)
- To identify key contextual elements influencing these Paralympic sport policy interventions
- To integrate these findings to advance the conceptualisation of national Paralympic sport policies in relation to a country's Paralympic success

To achieve these objectives, this exploratory research was driven by two overarching research questions (Figure 1).

RQ1: What are national Paralympic sport policy interventions influencing a country's international Paralympic sporting success?

RQ2: What are contextual factors influencing these national Paralympic sport policy interventions?

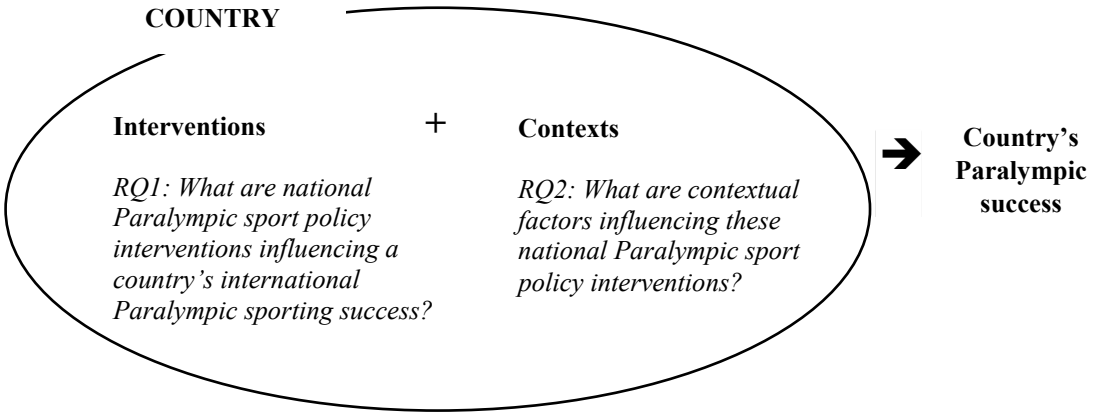

Figure 1 Research questions driving this realist-informed PhD research

1.3 Thesis structure

This PhD thesis follows a traditional dissertation format. This chapter, chapter 1, introduced the topic and focus of this PhD thesis, as well as the research gaps the thesis aims to address. The following chapter, chapter 2, provides a critical review of the social-scientific literature. It reviews the Paralympic sporting movement, the conceptual knowledge base provided by the national elite sport policy literature, key principles of realist research and evaluation, as well as the recent advancements and ongoing gaps in the national elite Paralympic sport policy literature. Chapter 3 describes the research methodology employed in this PhD thesis. It further provides an overview of the overall theoretical framework underpinning the qualitative research design and provides information about the specific data collection and analysis methods. Chapter 4 presents the findings of this research and is divided in two sections. The first section (4.1) describes the key national Paralympic sport policy interventions identified (i.e. research question one). The second section (4.2) describes the contextual factors identified as having an influence on the national elite Paralympic sport policy interventions (i.e. research question two). Finally, chapter 5 discusses the findings, the contribution of this thesis, and conclusions. Specifically, the findings are integrated and discussed together with the relevant literature to propose the initial realist-informed conceptual framework of national Paralympic sport policy. An overview of the theoretical contribution and the limitations of this research are discussed and, finally, avenues for future research are provided.

2 LITERATURE REVIEW

The literature review aims to provide the background for the relevance of the research, to highlight the gaps in the literature and to clarify the conceptual framework. In doing so, this PhD thesis is positioned at the intersection between three main bodies of knowledge, as illustrated in Figure 2. The first section, 2.1, reviews the history of Paralympic sports, focussing specifically on their organisational evolution and the increased competitiveness at the PG. This section demonstrates that Paralympic sport situates well within national elite sport policy. The second section, 2.2, reviews what is known about national sporting systems that aim to achieve international sporting success. The third section, 2.3, builds on section 2.2 to demonstrate that context is critical when studying national elite sport policy. In doing so, section 2.3 demonstrates the relevance of using principles of realism as a conceptual guide to identify contextual factors influencing national elite Paralympic sport development systems. The final section, 2.4, reviews recent key studies that examined national policies in relation to elite Paralympic athlete development, and demonstrates how this PhD thesis advances the findings from these studies by highlighting the remaining gaps in our knowledge on key national sport policy interventions important for a country's Paralympic success and related contextual factors.

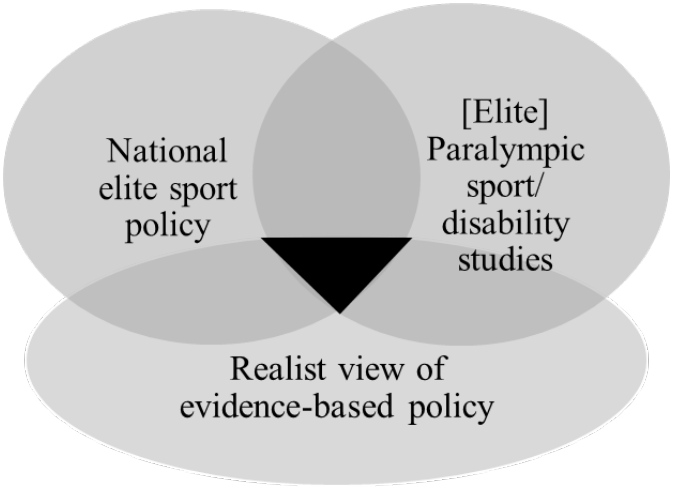

Figure 2 Body of knowledge informing the research

2.1 Historical evolution and management of Paralympic sports - Global and national relevance of the Paralympic Games

Considering the historical evolution of Paralympic sports at the international and national level is critical to situate the relevance of the Paralympic Games in national elite sport policy. This history also provides background to understand the ongoing complexities of managing Paralympic sports in national sporting systems. Any writings on the history of Paralympic sports provides only one lens of history (Howe, 2008). Therefore, the following sections on the history of the Paralympic Games and Paralympic sports should be considered in light of the specific focus of this thesis: elite sporting success.

2.1.1 Early international expansion of Paralympic sports (1945 – 1988)

Paralympic sports were created at the end of World War II (1945) as part of the rehabilitation programmes for veterans at the Stoke Mandeville hospital in the United Kingdom (UK). The first Paralympic sports were wheelchair sports played by men who had acquired spinal cord injuries during the war. Sir Guttman, the medical doctor who initiated this rehabilitation programme through wheelchair sports, is today recognised as the founder of the Paralympic Movement (Tweedy et al., 2011). While the original purpose of these wheelchair sports was to provide rehabilitative (physical health and social) and community benefits, the competitive aspect of Paralympic sports developed rapidly. The first international Paralympic sport competition, the International Stoke Mandeville Games, took place in 1952. This event included five wheelchair sports, and was attended by 130 athletes with spinal cord injuries, who represented two countries: the UK and the Netherlands (Tweedy et al., 2011). In less than 70 years, this modest international competition became the second biggest global multi-sporting event in the world, the PG (Darcy et al., 2017). Illustrating the phenomenal growth of the Paralympics, Rio 2016 PG were attended by over 4300 Paralympic athletes representing five impairment types from 160 countries, who competed in 22 sports (International Paralympic Committee, 2019).

Historical accounts of the Paralympics attribute the remarkable international development of the PG to social, political, and organisational movements that occurred

in unison (Brittain, 2016; DePauw et al., 2005; Tweedy et al., 2011). First, in society at large, the social, legal and human rights[3] movements of PwD have positively impacted their participation in social life, including their participation in sport and their recognition as elite athletes. Second, in parallel to these broader social movements and in the sporting field specifically, the constant efforts by Sir Guttman and other PG committee leaders to associate the PG with the Olympic Games (OG) were a major driver for turning the PG into the mega-sporting event that it is today. Illustrating this effort, the very first official Paralympic sport competition, the Stoke Mandeville Games, took place on the 29th of July 1948, the same day as the 1948 OG opening ceremony (Brittain, 2016). This was a deliberate choice by the organisers of the Stoke Mandeville Games, who wanted the event to be held in parallel to the OG to increase the competitive profile of Paralympic sports (Gold et al., 2007; Legg et al., 2011).

Following further efforts by Sir Guttman to develop relationships with the International Olympic Committee (IOC), in 1960, the International Stoke Mandeville Games were held in Rome, the same host city as the OG. These Games are recognised by the IPC as the first official PG (Tweedy et al., 2011). They included 209 Paralympic athletes with spinal cord injury, from 17 countries, who participated in eight wheelchair sports (Legg et al., 2011). Between 1960 and 1972, the PG, organised and coordinated by the International Stoke Mandeville Games Committee, more than doubled in terms of participating countries (from 17 to 42), increasing the number of Paralympic athletes by more than four times (from 209 to 922). During this period however, only Paralympic athletes with spinal cord injury were eligible to compete in the Paralympic programme, which meant that the Games were composed only of wheelchair sporting events (Brittain et al., 2018, p. 133). This would later change with the inclusion of athletes with other impairments in the PG, thanks to the advocacy of the International Sport Organisations for the Disabled (IOSDs).

Indeed, in parallel to the international development of the PG for athletes with spinal cord injury, a number of IOSDs were created between the 1950s and the 1980s to cater and organise sporting opportunities for participants with impairments other than

[3] Key international Human Rights documents include:
- The Declaration of the Human Rights of Disabled Persons (United Nations, 1975), and,
- The United Nations Convention on the Rights of Persons with Disabilities (UNCRPD), which included article 30.5 on sport and physical activity specifically (United Nations, 2006). The UNCRPD was the first legally binding document, setting minimum standard for nations to support the human rights of people with disabilities.

spinal cord injury. These IOSDs are key founders of the Paralympic Movement and include: the Cerebral Palsy International Sport and Recreation Association, the International Blind Sport Association, the International Sports Federation for Persons with Intellectual Disability, and the International Wheelchair and Amputee Sport Association (Howe et al., 2006; Hums et al., 2018). These organisations, through their national member countries, developed sporting opportunities for the respective public they severed, ranging from sport participation at the grassroots level to competitions at the international level (Howe et al., 2006).

This international growth and improved governance of disability-specific sports led to the inclusion of athletes with varied impairments in the PG programme between 1976 and 1988, including athletes with cerebral palsy, visual impairments, intellectual impairments, amputees and Les Autres[4]. This resulted in the addition of new disability-specific sports to the PG programme: Goalball, for people with visual impairments, and Boccia, for people with physical impairments in all four limbs.

At that time, competitions were organised according to medical classification systems, whereby athletes competed in categories against athletes who had similar impairment as them (Thomas et al., 2008a; Tweedy et al., 2014). Classification systems in sports were developed to ensure that competitions are as fair and equitable as possible. In able-bodied sport, categories of athletes are based on age and weight (e.g. judo, boxing) for example. Similarly, in Paralympic sport, classifications systems are used to ensure that para-athletes' performances are due to talent, training and skills, and not due to a less severe impairment (Thomas et al., 2008a; Tweedy et al., 2014). As Paralympic sport evolved from a disability-based organisation, to a sport-based organisation so did Paralympic Athlete Classification (PAC). These PAC systems are further explained in the next section.

The development of the IOSDs enabled the inclusion of people with diverse impairments to participate in the Paralympic Movement, further contributing to the rapid growth of the PG in the 1980s, and turning the PG into *"disability's sport most visible and marketed event"* (Hums et al., 2018, p. 173).

[4] "Les Autres" ("the others" in French), is the term used to refer to the group of people with locomotor impairments but not eligible to compete under the rules of the other IOSDs (Tweedy et al., 2011).

2.1.2 Modern era of Paralympic sports: a high-profile mega-sporting event (1989 – today)

Two historical milestones at the end of the 1980s marked what is now widely recognised as the beginning of the modern era of the PG: the Seoul 1988 Olympic and Paralympic Games, and the establishment of IPC in 1989 (Bailey, 2008; Legg et al., 2011; Tweedy et al., 2011). Paralympic sport scholars agree that the IPC's institutionalisation of Paralympic sports and the professionalisation of its governance[5] were catalysts for the growth of the PG both in terms of raising the commercial profile of the PG as an elite sporting spectacle, and dramatically increasing participation numbers since 1990s (Bailey, 2008; Brittain et al., 2018; Darcy et al., 2017; DePauw et al., 2005; Gold et al., 2007; Howe et al., 2006; Legg et al., 2011; Tweedy et al., 2011). This growth is best illustrated by the almost tripled number of nations taking part in the Paralympics since Seoul 1988 Games (from 60 to 160) (Figure 3[6]). According to Tweedy et al. (2011), Seoul 1988 PG *"heralded the arrival of Paralympic sport as an elite international sporting event"* (Tweedy et al., 2011, p. 14). For the first time, the PG were hosted in the same sporting venues as the OG, with an opening and closing ceremony of a relatively similar standard, watched by 75,000 spectators. Moreover, these PG focused primarily on sporting excellence, which was a shift from the traditional emphasis on creating participation opportunities for all PwD to take part in sporting events (DePauw et al., 2005; Legg et al., 2011).

[5] When the IPC was first created in 1989, it was only managed by volunteers. Today, the organisation employs more than 70 employees from 17 countries (Hums et al., 2018).
[6] Data source: International Paralympic Committee Historical Results Archive. Retrieved at: https://db.ipc-services.org/sdms/hira

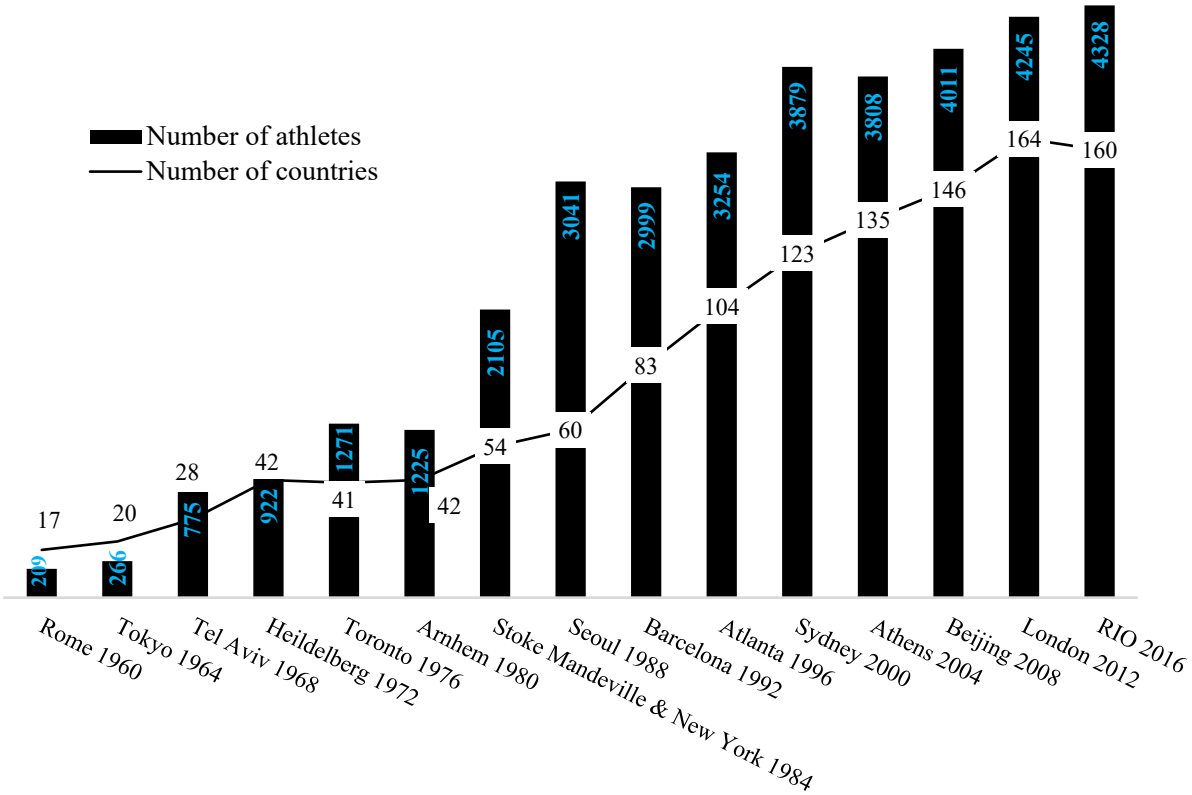

Figure 3 Participation (Paralympic athletes and countries) in the summer Paralympic Games 1960-2016.

Leading up to 1988 Seoul PG, leaders from the IOSDs who had initially come together under one International Co-ordinating Committee in the mid-1980s to coordinate the PG, officially institutionalised Paralympic sports in 1989 by creating the IPC (Brittain, 2016). Because of the advocacy of the IOSDs, the governance of the PG and the Paralympic Movement became better organised under the IPC, as the sole international governing body, undoubtedly facilitating the growth of the Paralympics. By providing coordination of the Paralympic Movement and strengthening ties between the PG and the OG, the IPC's efforts led to the continued growth of the elite status of the PG.

In the early 2000s, the IPC actively sought to raise the public and commercial profiles of the PG by further formalising the link with the OG, primarily through contractual collaborations with the IOC, both at the organisational and financial levels (Thomas et al., 2008b; Tweedy et al., 2011). Initial organisational agreements in 2001 guaranteed that the Summer and Winter PG would always be hosted by the same nations and within the same venues as the OG. This was followed in 2008 by the "One City, One Bid" agreement ensuring that cities bidding for the 2008 PG and OG onwards would have to show the full integration of the organisation of the Games under the same organising

committee (Gold et al., 2007). Moreover, long-term financial agreements between the two governing bodies were signed for administration, revenues, broadcasting and marketing support. These agreements guaranteed payments from the IOC to the IPC, thereby alleviating crucial financial concerns by the IPC (Gold et al., 2007; Howe et al., 2006; Tweedy et al., 2011). These contracts were later extended until 2020, and a recent Memorandum of Understating further prolonged them until 2032 (Hums et al., 2018; International Olympic Committee, 2016).

As a result of these collaborations, the global viewership and commercial growth of the PG has been remarkable. Taking the evolution of the summer PG between Athens 2004 and Rio 2016 as an example, the IPC Annual Report 2016 shows that the global broadcasting reached for Rio 2016 broke all viewing records in terms of both number of countries covering the event (39 more countries than in London 2012) and broadcasting hours (an increase of 90% over London 2012) (International Paralympic Committee, 2017).

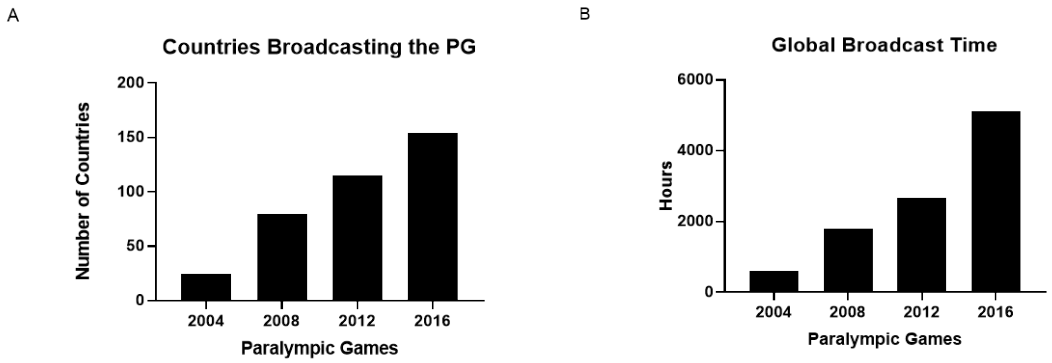

Figure 4 Broadcasting growth of the summer Paralympic Games between 2004 and 2016, in number of countries (A), and global broadcasting time (B), adapted from International Paralympic Committee (2017)

Moreover, the IPC social media re-branding strategy in 2016[7] helped the IPC double its social media audience (from 1,119,071 followers to 2,355,295) during 2016 (International Paralympic Committee, 2017). Since 2012, the IPC has also further advanced its commercial presence and financial security by contracting five additional major corporate partners, until at least 2020 including: Panasonic, Toyota, VISA, BP, and Jet Set Sports.

[7] The IPC rebranded its social media platforms with the consistent use of the tag "@paralympics" across Facebook, Twitter, Youtube, Instagram, and Snapchat.

Beyond increasing the profile of the PG internationally, the IPC facilitated the management of the national Paralympic teams and the promotion of the Paralympic Movement at national levels through the National Paralympic Committees (NPCs). The NPCs have a similar function as the National Olympic Committees (NOCs) in that they are the sole national bodies recognised by the IPC to represent Paralympic athletes from their respective countries and are responsible for the management and preparation of the teams for the PG and other IPC-sanctioned competitions (Hums et al., 2018; International Paralympic Committee, 2019).

2.1.3 Contemporary organisational Paralympic sports issues

Other developments in the mid-1990s further enabled the growth of the Paralympics, while simultaneously adding complexities to its organisation and management. The disability rights movements promoted a positive social change towards PwD; however, there remains lingering constraints to para-athlete participation and performance (e.g. attitudinal, social and physical). Other organisational developments within parasport that likely had significant impacts on the expansion of the Paralympics include: changes in the Paralympic Athletes Classification (PAC) systems; the integration of disability and Paralympic sport in mainstream sporting organisations; and an increased interest by national governments in investing in Paralympic sporting success (Burkett, 2010; Houlihan et al., 2016; Karageorgos et al., 2018; Rioux, 2011; Smith et al., 2012; Thomas et al., 2008a; Tweedy et al., 2011).

2.1.3.1 *Paralympic athletes' constrained experiences*

Social and managerial movements towards the inclusion of PwD in society and sport together with the evolution of the classification system have facilitated the growth of Paralympic athletes with diverse impairments competing at the PG (DePauw et al., 2005; Thomas et al., 2008b; Tweedy et al., 2011). Despite these improvements, sport management researchers have demonstrated how the discrimination that PwD continue to face in today's society not only prevents and constrains access by PwD to sporting opportunities, but is also negatively impacts their overall sporting experience. This discrimination impacts PwD from the grassroots to the elite level (Brittain et al., 2018; Crawford et al., 2008; Misener et al., 2014).

In that regard, studies focusing on individual Paralympic athletes' experiences consistently show that Paralympic athletes can face numerous structural (social and physical) barriers that potentially impact their development at many levels of the sport participation pathway. These barriers include general negative attitudes towards PwD, as well as a lack of awareness and understanding about how to include PwD in sport. Studies also reported a lack of qualified coaches; accessible facilities and transportation; opportunities, and programmes for participation, training and competitions; and funding towards (elite) parasport (Arnold et al., 2016; Brittain et al., 2018; Crawford et al., 2008; DePauw et al., 2005; Dieffenbach et al., 2012; Hambrick et al., 2015; Houlihan et al., 2016; Martin, 2015; Misener et al., 2014; Patatas et al., 2018).

While equity and inclusion issues in the context of elite sporting structures can sound contradictory, since elite sports are by their very nature characterised by exclusivity, Paralympic scholars remind us what social justice in an elite sporting environment can mean:

> *The big question that needs to be answered in terms of social justice is whether governments are being fraudulent towards principles of social justice by treating Paralympic athletes differently to Olympic athletes. One argument put forward in favour of inequitable treatment of the Paralympians might be the lack of international competition for these individuals compared to their 'able' counterparts.* (Howe & Silva, 2017)

In that regard, a few scholars have recently examined how Paralympians and other elite AwD can be better supported in their pathway to the elite level from a national sport management and policy perspective. (Houlihan et al., 2016; Patatas et al., 2020a; Patatas et al., 2018). As these studies are directly related to the specific focus of this PhD research, they are further detailed in section 2.5.

2.1.3.2 ***Paralympic Athlete Classification (PAC)***

Paralympic scholars agree that while classification is a common characteristic to all modern sports, PAC has played a key role in the evolution and growth of the PG, and it provides unique philosophical and managerial challenges for Paralympic sport. Indeed, PAC systems both determine who is eligible (or not) to compete in Paralympic sport, and also influence the long-term development of Paralympic athletes (Howe et al., 2006; Patatas et al., 2020a; Purdue et al., 2013; Thomas et al., 2008b).

As previously mentioned, PAC systems were impairment-based prior to the 1990s, i.e. athletes that had similar impairments competed against each other in the same class. As the number of Paralympic sports in the PG programme increased throughout the 1990s, so did the number of athletes with diverse impairments. This resulted in a significant increase in the number of classes per Paralympic sport. As Thomas et al. (2008b) noted, some Paralympic sports had over 20 distinct classifications. For logistical reasons, and in order to raise the level of competition and performance standards at the Paralympics, PAC shifted from medical (impairment)-based systems to parasport-based systems, also known as functional classification. Since this shift, AwD have been assigned to categories that are based on their functional ability/limitation in a specific parasport (International Paralympic Committee, 2015; Thomas et al., 2008b; Tweedy et al., 2014). As different impairments limit the fundamental activity in individual parasports differently (e.g. amputations of the legs have a different impact on running than amputation of the arms), the same parasport discipline will be composed of different parasport classes. Moreover, since the unit of classification is the impact of the impairment on the execution of a sport task, people with different impairments can be in the same class if their impairments have similar impact on the task required in a given parasport. Subsequently, classification systems vary from parasport to parasport, and not everyone is eligible to compete in every parasport. To be able to compete in a parasport, athletes must undergo evaluations to show that they have an eligible impairment (the IPC classification code currently list 10 eligible impairments, Appendix A) and that this impairment meets the minimum eligible criteria in the particular parasport (Tweedy et al., 2014).

Organisationally, classification evaluations are conducted by trained classifiers. The international sport organisations are responsible for the governance of their own PAC systems, and the national sport organisations (NSOs) governing the Paralympic sport must align their classification rules with their corresponding international governing body, as well as comply with the IPC Classification Code (International Paralympic Committee, 2015).

2.1.3.3 *Mainstreaming and fragmentation in the national organisation of Paralympic sports*

Aligning with the shift from the disability-based classification system to sport-based classification system, in the 1990s, a number of governments began promoting the shift of a governance of sport for PwD based on disability-specific organisations, to the integration of sport for PwD in mainstream NSOs (M-NSOs). This policy was in part to align with the ideal of creating more inclusive societies (Houlihan et al., 2016; Howe, 2007; Jeanes et al., 2018b). As previously introduced, the Paralympic Movement was founded by disability groups, the IOSDs and their national members, which have been responsible for the organisation of sports for PwD (Fay et al., 2009; Tweedy et al., 2011). For a number of nations, the shift from disability groups governing parasport to a sport-based model resulted in several M-NSOs integrating the organisation of parasport in their governing body. For example, para-athletics in Canada was integrated into Athletics Canada in 1994, preceded by the integration of swimmer with disability in Swimming Canada in 1994 (Howe, 2007); and in Australia, the integration of Para-swimming into Swimming Australia started in 1990 (Hammond, 2019). Kitchin et al. (2014) defined this integration policy and process as mainstreaming, or "*integrating the delivery and organisation of all organised sporting opportunities to ensure a more coordinated and inclusive sporting system.*" (p. 66) Drawing from Berry (1997)'s theory of integration, in a truly integrated organisation, the dominant (e.g. able-bodied athletes) and non-dominant groups (e.g. athletes with disabilities) adapt their values and practices in a reciprocal manner (Berry, 1997; Howe, 2007; Sørensen et al., 2006). While the literature on the mainstreaming process tends to use the terms inclusion and integration interchangeably, Kitchin et al. (2014) note that inclusion has a slightly different, more social meaning, which refers to a sense of belonging, and is about providing equitable opportunities to ensure the full participation of PwD in a mainstream sport organisation. An inclusive organisation can be seen as the outcome of a successful integration process (Howe, 2007; Kitchin et al., 2018).

Studies have shown that the mainstreaming policy intent and implementation processes have occurred in Canada (Howe, 2007); the UK (Kitchin et al., 2014; Thomas et al., 2008c); Norway (Sørensen et al., 2006); France (Bouttet, 2016) and other European countries (Thomas & Guett, 2013); and Australia (Hammond, 2019; Hammond et al., 2017; Hammond et al., 2019; Jeanes et al., 2018a, 2018b). While mainstreaming has been rationalised as a process to integrate and support the elite development pathways of Paralympic athletes in mainstream NSOs (Hammond et al., 2017; Howe, 2007), the role of the mainstreaming policy in the development of Paralympic success remains unclear.

In addition, studies have showed that the mainstreaming process has not led to the true integration of AwD. As a result, AwD continue to face discrimination and barriers to participation and athletic development (Jeanes et al., 2018b; Kitchin et al., 2018).

While mainstreaming has occurred in several countries, the IOSDs are still today members of the IPC's General Assembly (Hums et al., 2018). Moreover, the IOSDs have a role in the organisation and delivery of Paralympic sports both at the international and national levels in some countries through their national member organisations, the National Disability Sport Organisations (NDSOs) (Thomas et al., 2008a). As a result of this evolution of Paralympic sport management, there are many organisations involved in the delivery of parasport from community grassroots to the national elite level. In a country, parasport stakeholder organisations can include some or all of the following organisations: parasport specific NSOs (P-NSOs) (e.g. Boccia Australia), and mainstream NSOs in which parasport is integrated (M-NSOs) (e.g. Swimming Canada); NDSOs; NPCs; national institutes of sports (e.g. English Institute of Sport), as well as national sport agencies (e.g. Sport Australia), and government organisations (ministries) (Houlihan et al., 2016; Thomas et al., 2014). Moreover, the national organisation that governs a specific Paralympic sport can vary from country to country. For example, wheelchair basketball is governed by its own NSO in Canada and the UK (i.e. Wheelchair Basketball Canada and British Wheelchair Basketball); in Australia, the sport is governed by Basketball Australia, which also governs basketball for able-bodied athletes; and in France, Wheelchair Basketball is governed by the umbrella NDSO for people with physical impairments (i.e. Fédération Française Handisport).

Overall, mainstreaming and fragmentation seem to be characteristics of contemporary Western sporting systems as it relates to the governance of parasport nationally. Another characteristic is the interest of governments to achieve elite Paralympic sporting success (e.g. Paralympic medal outcomes).

2.1.3.4 *Investment in elite sporting success*

Last year (2019) marked the IPC's 30th anniversary. Putting the historical evolution of the Paralympics as described above into perspective, the global growth of the PG in this short period of time has been phenomenal both in commercial and participation numbers. Today, the Paralympic Summer and Winter Games have a combined total programme of 28 Paralympic sports. The latest summer and winter PG

were attended by Paralympic athletes from 160 and 49 countries respectively. This makes the PG the second biggest multi-sporting event in the world after the OG, and the most prominent elite sporting competition for PwD (Darcy et al., 2017).

With the growing level of visibility of the Paralympics on the world stage and its elite sporting status, there has been increasing interest from nations' leaders to invest in achieving national Paralympic sporting success (Dowling et al., 2017). To fully understand government intervention for enhancing Paralympic sporting success development (in section 2.1.5), it is first important to consider the characteristics of successful Paralympic nations, and the global context in which countries are competing. The following section provides background information on successful sporting countries and on the rationale used to select the countries involved in this research. The section also illustrates how the growing competitiveness at the Paralympics necessitates further research on national elite sport policy in relation to Paralympic sporting success.

2.1.4 Which nations are successful in the Paralympics and why?

2.1.4.1 *Determinants of national Olympic and Paralympic sporting success*

Identifying the top nations in elite sport competitions and what makes them successful has been the focus of numerous studies, and most have had a particular interest in the OG (De Bosscher et al., 2006; De Bosscher et al., 2008b). The total medal count per country has been widely used for decades by the public, the media, policy makers, and the scientific community to compare successful nations in international sporting competitions.

Between 1942 and 2000, numerous studies analysed the predicting influence of a countries' macro-characteristics on their overall Olympic performance. These characteristics include: economic data (Gross Domestic Product, (GDP)), demographic data (population size), geographic data (land size), and political system data (e.g. communism) (De Bosscher et al., 2006; Shibli et al., 2008). Only two studies on the

macro-profile of winning Paralympic countries were identified[8]. The first study focused on Athens 2004 PG (Vanlandewijck et al., 2007) and the second one analysed four editions of the PG (1996 - 2008) (Buts et al., 2011). While evidence of the influence of macro-factors on a country's Paralympic success is not as developed as the evidence for Olympic success, the two Paralympic studies confirmed what is established from the Olympic studies.

Together, these studies on the OG and PG concluded that the most wealthy and populated countries are the most likely to become Olympic and Paralympic winners. In the Olympic studies, wealth (GDP/capita), population size, and being a former communist country, explained 41.6% of a country's medals success at the Olympics (De Bosscher et al., 2015a). In the Paralympics, Vanlandewijck et al. (2007) and Buts et al. (2011) confirmed that these variables are also the best predictors for a country's Paralympic success. In additional, these macro-level studies made suppositions about the importance of national politics and policies for international sporting success based on the following findings.

First, De Bosscher et al. (2015a) found that while GDP/capita, population, and having a (former) communist political system remain the best predictors of a country's medal success, the total predictive power of these three factors decreased over time, i.e. from 50% in earlier findings (De Bosscher, 2007) to 41.6% in the most recent study (De Bosscher et al., 2015a). In light, of the literature on the managed approach that countries started taking in the 1980s/1990s towards achieving Olympic success (reviewed below), this decline in the predictive power of these macro-variables could be partly explained by governments increasingly intervening in the development of elite sporting success. Countries relied less on the size of their population, and took greater advantage of their wealthy economies to invest in elite sport policies (De Bosscher et al., 2009; Shibli et al., 2008).

[8] The scarcity of such studies can be explained by several factors. First, the PG as a global sporting event is relatively new in comparison to Olympics. In the 1950s, the Olympics had already reached a global profile, and Paralympic sports competitions were only burgeoning at the grassroots level. Second, Paralympic scholarship is an understudied field (Darcy et al., 2017). And finally, researchers studying international sporting success have in general moved away from looking at macro-variables for which policy intervention can do relatively little about in the short terms, and have instead focused on studying how national sport policies can influence countries' performance at the Games, as demonstrated in this section (De Bosscher et al., 2009).

A second point that highlighted the importance of national elite sport policies in achieving sporting success was the discovery that "being a host country" for the Olympic and Paralympic Games had a positive impact on both Olympic and Paralympic success (Buts et al., 2011; De Bosscher et al., 2006; Vanlandewijck et al., 2007; Wilson et al., 2018). This success cannot be attributed only (or even primarily) to the "home advantage" typically recognized in sports. Instead, researchers argue that the actions governments take (i.e. policies) in response to receiving the hosting bid for the OG and PG are the actual elements that have critical influence on the host country's medal outcomes. When a government supports the organisation of the OG and the PG, a common behaviour is to invest in the development of high-performance sports with the aim to achieve greater success when hosting the Games (De Bosscher et al., 2006; Shibli et al., 2008; Wilson et al., 2018).

The third finding was the evidence provided by Buts et al. (2011) that being a host country (between the 1996 and 2008 OG and PG) had greater influence on Paralympic success than Olympic success. The home effect was on average 80% larger than the total medal points won other years, which dramatically exceeded the 1.8% advantage of being an Olympic host. The greater impact of hosting the Games on the success of a country at the Paralympics can be a possible indication of a greater lack of policies supporting the development of high-performance sport programmes for Paralympic athletes at the elite level prior to a country being awarded the hosting rights to the Games (Buts et al., 2011). If sport policies did not exist to support Paralympic athletes at the elite level before the nation was granted the organisation of the Olympics and Paralympics, then simply developing and implementing sport interventions for Paralympic athletes could have a significant impact at the next Games.

The above argument is not intended to negate the fact that Olympic and Paralympic athletes are the primary stakeholders performing and winning the medals when representing their national team. Rather, this review introduces the notion that, without the support from their governments through programmes that aim to facilitate their development and sporting careers, it is likely to be more challenging for athletes to succeed in the Olympics and Paralympics (De Bosscher et al., 2015b).

The above evidence allows us to presume that while macro-characteristics of a country are critical for a national sporting success, government' politics and strategic policies most likely provide countries a competitive winning edge. While Buts et al. (2011) study on the 1996 - 2008 Paralympics suggested that simply creating sport policies

supporting Paralympic athletes may have provided a critical advantage in achieving Paralympic sporting success, the evidence below suggests that competitiveness at the Paralympic Games has increased since 2008, i.e. in the past two Paralympic cycles (2012 and 2016). Therefore, it is important that nations aiming for Paralympic sporting success understand what policies and interventions may give them an additional competitive edge.

2.1.4.2 *Competitiveness between top winning Paralympic nations*

The evolution of countries' national performances in the Paralympics indicates that the PG are becoming increasingly competitive. Researchers have widely used medal Market Share (MS) calculations to assess countries competitiveness in international events, as it provides one of the most robust indications of national sporting performance. Introduced by Shibli et al. (2008), MS measures a country's total medals won relative to all medals available in that specific edition of the Games. By accounting for the changes in medal events from one Game edition to another, MS[9] provides a more accurate picture of a country's medal success over time by standardising results (De Bosscher et al., 2008a; De Bosscher et al., 2008b; Shibli et al., 2008; Wilson et al., 2018).

An evolution of the medal MS of the top 15 winning Paralympic countries in Rio PG 2016 since 2000 (Figure 5), shows that the gap between the 15 best performing nations in Rio 2016 compared to their performance in 2000 has narrowed[10]. Figure 5 A also shows that China and Ukraine competitiveness have increased remarkably with a MS% growth of 7.27 and 5.5 points respectively. Great Britain (the UK) has also improved its performance, while the United States of America (USA) performance has remained relatively stagnant. While Australia's performance has dropped by 4.63 points since hosting the Olympic and Paralympic Games in 2000, the country has managed to maintain its place in the top 5 performing nations in 2016 (Table 2). Figure 5 shows that outside of the top 5 nations (Figure 5 A), which are accumulating a total of 46.42% of the Paralympic medals MS, the performance between initial big players in the top 5-15

[9] MS is calculated by "converting the number and type of medals won by each nation in a given edition into points (gold = 3, silver = 2 and bronze = 1); and, second, expressing those points as a proportion of the total number points won by all competing nations in that edition" (Wilson et al., 2018, p. 6).

[10] No study was found on MS evolution at the Paralympic Games. This analysis was conducted by applying the MS calculation to statistics available on the IPC Historical Results archive accessible at: https://db.ipc-services.org/sdms/hira

(Figure 5 B & C) has decreased, and the gap between the former big player and entrant nations has narrowed. Indeed, as Table 1 and Table 2 show, of the top 15 countries in Rio PG, a third of them were new entrants in comparison to the 2000 PG (i.e. Ukraine, the Netherlands, Brazil, Italy, and Uzbekistan), potentially suggesting that more countries are becoming more competitive.

Equivalent pattern of decreasing MS gap and increase of new entrants was observed in the OG between the 1988 and 2004 editions (De Bosscher et al., 2008b). It is therefore reasonable to assume that the following claim, which was made in relation to the increased competitiveness at the Olympics, based on the above observations, can be applied to the Paralympics:

> *"This finding [the decreased market share gap] demonstrates how «traditional market leaders» like x, y and z are confronted with an increased competition from new entrants in the Olympic market. This may reflect the more general tendency of increased competitiveness in sports."* (De Bosscher et al., 2008b, p. 221)

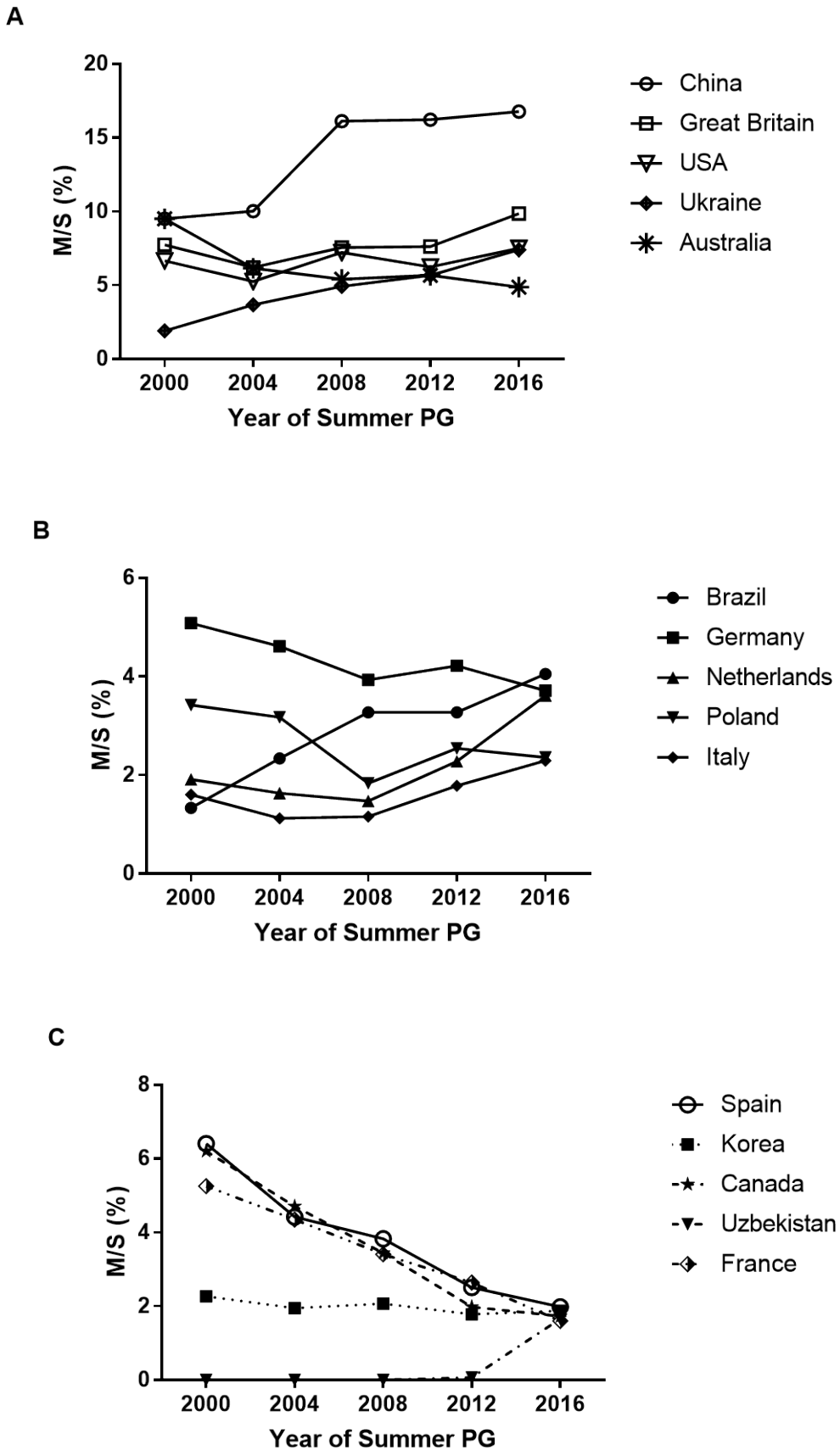

Figure 5 Market Share evolution of the 15 best performing countries in Rio 2016 Paralympic Games between 2000 and 2016 Paralympic Games (A: top 1-5; B: top 6-10; C: top 11-15)

Table 1 Top 15 Countries in Sydney 2000 Paralympic Games (according to Market Share %)

NPC	Gold	Silver	Bronze	Total	Points	MS %
Australia	63	39	47	149	314	9.50%
Great Britain	41	43	47	131	256	7.74%
USA	36	39	34	109	220	6.65%
Spain	38	30	38	106	212	6.41%
Canada	38	33	25	96	205	6.20%
France	30	28	28	86	174	5.26%
Germany	16	41	38	95	168	5.08%
China	34	22	17	73	163	4.93%
Poland	19	22	12	53	113	3.42%
Czech Republic	15	15	13	43	88	2.66%
Japan	13	17	11	41	84	2.54%
South Africa	13	12	13	38	76	2.30%
Korea	18	7	7	32	75	2.27%
Russia	12	11	12	35	70	2.12%
Mexico	10	12	12	34	66	2.00%

Table 2 Top 15 Countries in Rio 2016 Paralympic Games (according to Market Share %)

NPC	Gold	Silver	Bronze	Total	Points	MS %
China	107	81	51	239	534	16.77%
Great Britain	64	39	44	147	314	9.86%
USA	40	44	31	115	239	7.51%
Ukraine	41	37	39	117	236	7.41%
Australia	22	30	29	81	155	4.87%
Brazil	14	29	29	72	129	4.05%
Germany	18	25	14	57	118	3.71%
Netherlands	17	19	26	62	115	3.61%
Poland	9	18	12	39	75	2.36%
Italy	10	14	15	39	73	2.29%
Spain	9	14	8	31	63	1.98%
Korea	7	11	17	35	60	1.88%
Canada	8	10	11	29	55	1.73%
Uzbekistan	8	6	17	31	53	1.66%
France	9	5	14	28	51	1.60%

To summarise key points thus far, the PG have increased in profile, participation, and competitiveness. The evidence on macro-characteristics of successful sporting nations, and in particular the positive effect of hosting the Paralympics, leads to the suggestion that countries have likely been able to increase their medal outcomes in the

PG, due in part to the development of national elite sport policies. By focusing support on developing more high-performance Paralympic athletes, nations may have increased their competitiveness. The following section provides background information introducing government's national interventions in developing the country's international Paralympic sporting success, a phenomenon well established in the Olympic/ able-bodied sport setting.

In comparison, national elite sport policy research in the Paralympic field is scarce. This is problematic because there is evidence that decisions and investments are being made by countries at the highest level of policy making (i.e. in national government) towards supporting Paralympic athletes, while the gap in our knowledge discussed below, suggests that these decisions are not underpinned by scientific knowledge. Moreover, the body of research on disability sport and Paralympic sports suggests that unique aspects pertaining to the needs of Paralympic sports and Paralympic athletes need to be taken into consideration when developing and implementing elite Paralympic sport policies. The next section introduces the specific gap in knowledge on the relation between countries' national government interventions and Paralympic success.

2.1.5 Government interventions in elite Paralympic sport

2.1.5.1 *Precursors of national elite sport policy and development systems*

By the start of the 1990s, when the Paralympics were transforming into a global elite sporting platform, the OG and the FIFA Men World Cup were already well established in terms of worldwide participation numbers, global commercialisation and profile (Houlihan et al., 2008). During the Cold War (1947-1991), communist countries had used international sporting events, in particular the Olympics, to demonstrate world dominance in a context of global political struggle. Nations' leaders from the former Eastern Bloc, communists countries (the German Democratic Republic GDR, and the Soviet Union) believed they could affirm their political ideology through reaching global sporting excellence, demonstrated by achieving top national medal outcomes (Green et al., 2001).

In order to optimise the greatest number of athletes' medal performances at the Olympics, these nations developed systematic highly State-controlled, centralised

approaches to the management of elite athlete development and support. These national systems included programmes such as the identification of talented sportspersons, sport schools for the development of selected talents, and coaching development programmes. Unethical means were also implemented such as the use of illicit drugs and athletes exploitation (Green et al., 2005; Green et al., 2001). Nevertheless, by showing that through governmentalising, institutionalising and professionalising elite sport national sporting medal outcomes could be improved, the GDR and Soviet Union started a global movement of national elite sport policies (De Bosscher et al., 2008a; Oakley et al., 2001). These countries are known for this reason as the precursor of national high-performance sporting systems (Green et al., 2005; Green et al., 2001).

The political salience of achieving medal outcomes expanded to non-communist countries throughout the end of the 20th and 21st century [11], and consequently, so did the development of national elite sport policies in other countries (Green et al., 2005; Houlihan et al., 2008). In a context of intensifying globalisation and commercialisation of sport, competition between nations at international sporting events has increased, resulting in a phenomenon called the Global Sporting Arms Race (De Bosscher et al., 2008a; Oakley et al., 2001).

2.1.5.2 *The Global Sporting Arms Race*

The increased use of elite sport outcomes by politicians as a tool to achieve non-sporting national objectives motivated a number of governments to set success at international sporting competitions (particularly at the OG) as a priority sport policy goal. As the communist nations had dominated the past OG performances, countries that intended to achieve Olympic success started to borrow the GDR and Soviet Union sporting systems through processes of policy learning, whereby nations imitate the policies of other nations with similar goals (i.e. sporting success) (Houlihan et al., 2008).

[11] The associated benefits of national sporting success (an issue for which there is little, and debated, evidence) have often been the justification for numerous governments prioritising the development of elite sport success throughout the 21st century. Political motivations for investing in national elite sport policies have included domestic ones (promoting a sense of national identity and a "feel good factor" to its citizen) and international ones (national branding, prestige, cultural visibility, the demonstration of ideological superiority, and affirmation of a country's presence in the world globalising economy by emerging countries) (Grix et al., 2011; Grix et al., 2013; Houlihan, 2012; Houlihan, 2017).

As a result, an increasing number of countries started spending large sums of public funding in the development and implementation of high-performance development sporting systems similar to the ones found in the former Eastern Bloc (Bergsgard et al., 2007; De Bosscher et al., 2015a; Houlihan et al., 2008; Shibli et al., 2008). Australia and Canada were early adopters of this strategy in the 1990s, but many other countries later followed suit (De Bosscher et al., 2016). Throughout the 21st century, a growing number of countries have invested in the development of elite sport policies, and the traditionally competitive nations have increased their investments. As a result, overall competitiveness at the Olympics has intensified, which has meant that to continue achieving top medal outcomes, countries have had to increase investments just to remain competitive. There has also been continued pressure to develop innovative, strategic and, importantly, effective national sporting systems (De Bosscher et al., 2006).

This phenomenon was named the Global Sporting Arms Race, and it describes how nations are competing against each other for prestige at the OG by developing increasingly expensive and complex national elite sport policies (De Bosscher et al., 2008a; Oakley et al., 2001). The characteristics of national elite sport policies and development systems are detailed in section 2.2, as this body knowledge provides a conceptual corner stone for this thesis.

One characteristic of the study of the Global Sporting Arms Race is that the scholarly field of national elite sport policy has almost solely focused on Olympic success and able-bodied sporting competitions. Despite the recent attention given to national Paralympic elite sport policy by a few researchers, evidence on nations' interventions towards achieving Paralympic success is scarce (Dowling et al., 2017; Patatas et al., 2018). The need to understand national elite Paralympic sport policies is has become critical given there is strong evidence suggesting that a similar pattern of competition of elite sport Paralympic policies is likely to be forming, and/or intensifying in the PG.

2.1.5.3 *Paralympic sporting success: a new national sport policy goal*

As the Paralympics have reached an elite and global mega-event status, so too has the political value of the PG increased. Some authors argue that medal outcomes at the Paralympics have had a growing symbolic importance for politicians who believe that international Paralympic success will serve greater diplomatic, ideological and social

goals for the nation, in particular with regards to the social treatments of PwD[12] (Brittain et al., 2009). This is best illustrated in the words of Beacom et al. (2016):

> *As the Paralympic Games have worked to enhance their profile, they have increased their political currency. States, most notably China, have invested heavily in improving their performance in the medals tally. […] The twin perceptions that improved performance will promote international prestige and states supporting disability in such a visible way will see a more positive light shine on them regarding their social and cultural policies is implicit in such increased investment.* (Beacom et al., 2016, p. 278)

In the past ten years, researchers from the field of disability and Paralympic sport have provided further evidence that nations are setting Paralympic medal outcomes as an elite sport policy goal, and therefore have *"increased investment"* towards the achievement of Paralympic success, as stated by Beacom et al. (2016). First, several historical accounts of the evolution of Paralympic sports in different countries have pointed to a trend of governments developing national sport interventions to achieve national Paralympic sport competitive goals. Studies in the context of France (Ruffié et al., 2014) and China (Guan, 2015; Guan et al., 2016; Shuhan et al., 2011) showed that governments are increasingly supporting Paralympic athletes to achieve international success. Specifically, the French State, which is characterised by one of the highest level of control over high-performance sport (De Bosscher et al., 2015a), officially recognised Paralympic athletes in the ministerial list of high-performance athletes in 1993 (Ngo et al., 2014). This decision had implications in the French sport legal system ("Code Du Sport"), which, according to authors, led to better training environment for high-performance athletes in relation to career support with studies or employment (Ngo et al., 2014).

Second, a growing number of disability and Paralympic sport policy studies in Canada (Howe, 2013; Howe, 2007), Australia (Hammond et al., 2017), the UK (Houlihan et al., 2016), Brazil (Cardoso et al., 2018; Haiachi et al., 2016; Patatas et al., 2020a), Japan

[12] Similar to the lack of evidence on the political rhetoric of the long-terms benefits and impact of achieving Olympic success, the evidence on the rhetoric that Paralympic success of a nation improves perceptions towards people with disabilities in a society is lacking (Braye et al., 2013; Brittain et al., 2016). It is important to note that while this thesis acknowledges that the above political claims are problematic when used as a justification for investing high amount of public funding in developing Paralympic success, the goal of this thesis is not to address, nor to contribute to this debate, despite its importance. Rather the aim of this section is to provide background and evidence on the fact that nations around the world are valuing and investing in increasing their top medal outcomes at the Paralympic Games.

(Nakayama, 2004), and Europe (Thomas et al., 2014), show that countries have been setting elite sport opportunities for AwD as a key sport policy goal. Thomas et al. (2014) found that out of 19 European countries, nine had sport policies that aimed to increase sporting success and numbers of elite AwD (Table 3).

Table 3 Policy for elite disability sport in Europe, adapted from Thomas & Guett (2014)

COUNTRY	**National sport policy with aims related to elite sport success and increased numbers of elite sport competitors**
Austria	"Elite Sport"
Belgium	"Equality in competitive and recreational sport"
Bulgaria	NA*
Cyprus	NA
Denmark	NA
Finland	NA
France	"Elite sport competition"
Germany	"Athletes to have same level of support"
Greece	"To improve support and performance in competitive sport"
Hungary	NA
Italy	NA
Lithuania	"Improved […] competitive results."
The Netherlands	NA
Poland	NA
Portugal	NA
Romania	NA
Solvenia	"[…] increase number and performance of elite competitors"
Switzerland	"[…] increased recruitment and success of elite athletes."
United Kingdom	"[…] maximize success at elite level."

*NA (Not Applicable) refers to the countries for which Thomas & Guett (2014) did not find statement of intent towards elite disability sport in their policy analysis

Additionally, in the UK, using a policy analysis framework Houlihan et al. (2016) demonstrated the convergence of three Paralympic sports towards youth elite sport policy goals, and concluded that elite sport interventions were being developed and implemented in those three Paralympic sports with the aim to achieve Paralympic success. In particular, they noted that increasing investment by the government towards Paralympic sporting success had given rise to a competitive Paralympic sporting structure in the three Paralympic sports studied:

> *One of the defining characteristics of contemporary youth disability sport in the UK is the recent increase in governmental interest in, and funding for, elite disability sport development. Paralympic World Class Performance Programme funding, which is distributed to the Paralympic NGBs [National Governing Bodies], has increased from £10 m for a four-year funding cycle up to the 2000*

> *Sydney Games to £29.5 m for the Beijing Games cycle to an estimated £72.7 m for preparation for the 2016 Rio de Janeiro Games.* (Houlihan et al., 2016, p. 6)

National sport policy analyses on disability sport development in Canada and Australia reported that key national policy texts such as "No Accidental Champions" (Howe, 2013), and the "Australia's Winning Edge", which aimed to keep Australia's Paralympic athletes in the top five of medal outcomes at the Paralympics (Hammond et al., 2017), have driven a performance-focused paradigm for the development of disability sport in the two countries. Similarly, a Brazilian analysis showed the impact that the Ministry of Sport initiatives' "Bolsa Atleta Program" [Brazil Medal Plan, Sports Incentive Law] had on Paralympic athletes career (Cardoso et al., 2018). Confirming the findings of Cardoso et al. (2018), Patatas et al. (2020a) found that increased public funding towards Brazilian Paralympic sport had been an important factor for the development of Brazilian Paralympic athletes. Overall, these studies show that achieving Paralympic success is on the national elite sport policy agenda of a number of countries. This suggests that, similar to what has occurred in the Olympics, competition among nations in the Paralympics will likely be increasingly influenced by the development of Paralympic sport policies to achieve success.

However, little is known about the characteristics of national sport policies influencing a country's Paralympic success (Dowling et al., 2017). The dearth of national elite sport policy literature focusing specifically on Paralympic sport interventions means there is little evidence upon which policy makers can base their decisions. As a result, a number of scholars have called for research on the management of [elite] sport for PwD (Misener et al., 2013), and, in particular, on national Paralympic sport development system and policies (Dowling et al., 2017; Hutzler et al., 2016; Patatas et al., 2018). The following section (2.2) reviews how key concepts and findings from the well-developed body of research on national elite sport policy studies, inform the conceptual framework and the focus of inquiry (i.e. the research questions) of this thesis.

2.2 National elite sport policy scholarship

2.2.1 Key definitions, perspectives and trends

2.2.1.1 *Defining sport policy*

One of the dominant issues that characterises national sport development systems is the role of the State in defining, rationalising, regulating, managing, and investing in sport as a public issue (Bergsgard et al., 2007). Considine (1994, p. 2), a public policy and administration theorist wrote: *"when governments announce a public stance in regard to some contemporary issues [for example sport], they are said to have adopted a policy."* This definition refers to the aspirations, intents, and directions set by a particular group of actors and stakeholders. *Policy* as directions and guidelines is one of several ways *to* define *policy* (Hill, 1997; Houlihan, 2017). *Policy* can also refer to *actions*. As Houlihan (2017) stated "*if the policy [of a nation] is to increase medals, many actions need to be taken to attempt to achieve this goal"* (p. 4*).* Actions in policy generally refer to people's (i.e. policy makers) decisions to commit resources (e.g. human, financial, physical, technical etc.) for the production of sets of outputs and outcomes (e.g. programmes - and their own outcomes - , material and knowledge) that are accessed through diverse processes and which ultimately aim to achieve the policy goal (Houlihan, 2017).

The contemporary issue of sport for governments has traditionally entailed two main foci, often competing in values and interests: 1/ offering opportunities for all to take part in sport and 2/ supporting talented athletes achieving international success. This PhD focuses specifically on the actions, and in particular the sets of interventions that have the potential to lead to the achievement of the second sport policy goal, international Paralympic success.

These two sport policy goals can be seen as dichotomous. They can create institutional tensions between, and sometimes within, organisational actors (e.g. NSOs) implementing national sport policies (Bergsgard et al., 2007; Green et al., 2005; Shilbury et al., 2016). This tension has been the subject of ongoing academic debate in the able-bodied sport policy and politics literature (Côté et al., 2014; Grix et al., 2011). It also underpins the complexity and critiques of the Paralympic Movement and its ethos, which

intends to empower PwD and promote participation by all, while ultimately focusing on being a prestigious elite sporting event for only a few Paralympic athletes (Howe et al., 2016; Purdue et al., 2012). Another conceptualisation of the two main sport policy goals (participation and success) is that of a pathway, from grassroots participation where children or adults acquire basic sport skills, and potentially advance to higher level of performance in one or several paraports. This latter view is often that of researchers who study high-performance sport development at the individual, sport-specific organisational level, as well the national policy level (De Bosscher et al., 2015b; Gulbin et al., 2014; Sotiriadou et al., 2009). This second view informs this PhD research. However the research was not guided by a particular athlete or sport development framework.

Broadly speaking, national sport development policies and systems are those actions within a country, which, in combination, enable or inhibit people from all backgrounds to take part in sporting activities from the community level and grassroots organised sport clubs to the elite level of competition. This general statement hides a more intricate reality; as stated by Considine (1994, p. 2) *"policy is a deceptively simple term which conceals some very complex activities."*

With the established presence of sport in the public policy domain in most economically developed countries since the 1990s, many researchers have aimed to uncover the complex activities that characterise national elite sport policies (Houlihan, 2005). The emergence of the field of national sport politics, policy, and management as a distinct field of research is evidence of such scholarly interest (Houlihan et al., 2008). This field generally comprises two interrelated disciplines: strategic management and public administration, and policy analysis.

2.2.1.1 ***Policy scholarship***

Research that examines the policy-making cycle can be conceptualised on a continuum from analyses *of* policy to analyses *for* policy (Figure 6). Analyses *of* policy seek to understand the policy cycle itself. These studies describe and explain how particular policy issues emerge, are formulated, and then help to clarify its content. For example, these studies would investigate issues such as: how achieving Paralympic sporting success has reached a government sport policy agenda and what this entail in terms of policy response (the set of instruments, interventions, programmes that are chosen and implemented to respond to the policy goal/intent) (Henry et al., 2013).

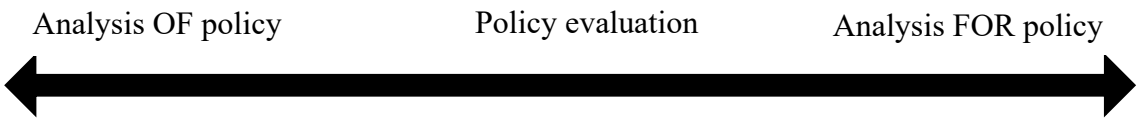

Figure 6 Continuum of policy analysis, adapted from Henry et al. (2013)

Analyses *for* policy seek to inform policy, for example, by improving the policy decision making and/or implementation. While studies tend to focus either on an analysis *of* policies or analysis *for* policies, these two approaches often overlap and can inform together various parts of the sport policy process (Henry et al., 2013). This overlap is particularly true for the middle point of the spectrum, policy evaluation studies, which have grown as a discrete field of inquiry (Patton, 2015). In general, evaluation studies seek to gather evidence with the aim of understanding whether a particular [set of] programme(s) or policy(ies) has(ve) been effective, i.e. if they have produced the intended result(s), in order to inform policy makers' decision (Houlihan, 2011; Pawson et al., 1997).

The continuum of studies provides a useful way to examine scholarship on national elite sport policy and development systems (De Bosscher et al., 2009; Henry et al., 2013; Hill, 1997). Researchers have adopted various approaches to study national elite sport development systems in relation to international sporting success. The overarching questions posed to understand what successful nations do in the development of national elite sport policies (analysis *of* policy), as well as to understand the implementation of elite sport development systems and their effectiveness (analysis *for* policy and policy evaluation) include: What are those elements that make up national sporting systems? How does one study and understand a sporting system? How do we know that sport systems are effective in achieving their goals?

2.2.1.2 ***Key trends***

The literature that aimed to answer the above listed questions presents four main characteristics, including: 1/ the diversity of study framework, 2/ the debate around the homogeneity and heterogeneity of national elite sport policies, 3/ the role of context in influencing policy making, implementation and evaluation, and 4/ a focus on Olympic competitions. The main studies on national elite sport policy are summarised in Table 4

and discussed below. These four issues are relevant because they inform the conceptual backbone of this PhD thesis and indicate the gap that it aims to address.

National elite sport policy scholars have studied elite sport development systems and policies differently. This diversity is often a reflection of the lens the researcher has on policy analysis (Table 4, column 3). These approaches are reviewed to position this PhD thesis in relation to this body of work. Specifically, two frameworks have focused on illuminating the functioning of national sporting systems in more depth, the Success Resource framework, and the SPLISS (Sport Policies Leading to International Sporting Success) framework. They are reviewed in detail as they align with the scope and focus of this PhD thesis.

The ongoing discussion around the homogeneity (similarities) and/or heterogeneity (differences) of national elite sport policies is a second feature of this body of knowledge. Do national sport systems that are geared towards achieving international sporting success converge in terms of policies and practices (homogeneity), and is there still room for diversity in approaches for a country to be innovative in achieving success (heterogeneity)?

The answer to this question leads to the third issue, the recognition that the context of a country is critical in understanding national elite sport policy, and the effectiveness of sporting systems. In all of the studies reviewed below, authors recognise that the *context* of a country is critical to the understanding of national elite sport policy. This was also concluded as necessary by those authors who did not include *context* in their analysis (De Bosscher et al., 2009; De Bosscher et al., 2015a) (Table 4, column 4). As will be demonstrated, this highlights the relevance of taking a realist perspective to examine national sport policy in relation to Paralympic sporting success.

Finally, the literature on national elite sport policy is characterised by a dominant discourse around Olympic sport since the 1990s, with only a very recent and emerging discussion on Paralympic sport policy (Dowling et al., 2017; Houlihan et al., 2016; Patatas et al., 2019; Patatas et al., 2018). There is a gap in our understanding of national elite sport development systems and a framework for understanding policy effectiveness in this field, as it relates to Paralympic sporting achievements.

Table 4 Main studies on national elite sport policy

Authors and study scope	**Aims and respective theoretical approach to achieve each study aim**	**Description and conceptualisation of [effective] elite sporting systems**	**Description and conceptualisation of context**	**Key Conclusions**
1.Green et al., (2001); Oakley et al., (2001) Analysis *OF* policy **Design**: Comparative Qualitative **8 Countries**: Eastern vs Western Olympic sports: overall sporting system	To understand whether there is a trend towards a uniform model of elite sport development, or whether there is room for diversity in national elite sport systems. 1.To explain elite sport elite sport policy development from Eastern European countries to Western countries Theoretical framework: Figurational sociology and theories of globalisation 2. To explore the notion of elite sport development system efficiency and account for national differences Atheoritical/ Descriptive: list policy strategies as policy responses chosen by countries to achieve sporting success	Elite sport development systems are described by 10 "policy items" (i.e. described as the policy responses), common to successful Olympic Western countries These items are evidence of effective sporting systems.	Context is not the focus of the analysis but is discussed for interpretation. Context is described as: length of government involvement, and culture.	There is global sporting flow from East to West leading to diminishing contrast in elite sport policy development, but diversity remains in elite sport development systems. Countries' contextual factors can explain the varieties of choices in elite sport policy instruments.
2. Digel et al., (2002; 2006) Analysis *FOR* policy **Design:** comparative and mixed-methods **8 Countries:** Western countries; China and Russia **Olympic sports:** whole of sport system inferences from 3 sports	To understand the ways in which resources of a country's high-performance sport system and conditions interact to yield unique manifestations of successful actions in high-performance sport. Theoretical framework: 3-level conceptual framework "Success Resource model" specifically developed for the study 1. Level of society 2. Level of the organisation of high-performance sport 3. Level of high-performance sport system and its environment	The theoretical underpinning of the Success Resource framework is not stated. An open view of national elite sport development systems is taken: effectiveness of high-performance sport is assumed to be dependent on the broader societal condition of the country.	Context factors are viewed as necessary component to analyse together with the features of sporting systems. Contextual factors include: economic system, political system, mass media, education system and science, population demographics, values structure of societies, inclusion/exclusion mechanisms, degree of modernisation (infrastructure, economic growth).	There are both differences and similarities between countries on: - The organisation of high-performance sport and culture of sport, - The impact of the socio-political factors on the high-performance system The level of society is critical to understand high-performance system.

Authors and study scope	**Aims and respective theoretical approach to achieve each study aim**	**Description and conceptualisation of [effective] elite sporting systems**	**Description and conceptualisation of context**	**Key Conclusions**
3.Green et al., (2005) Analysis *OF* policy **Design:** Longitudinal multi-case comparative analysis (most similar design) and qualitative **3 Western Countrie**s **Olympic sports**: Overall sporting system + athletics, swimming and volley ball	1. To explain the emergence of elite sport policy and the policy making process. Theoretical framework: Theories of the State (neo-pluralism) and of policy change (Advocacy Coalition Framework) 2.To identify the degree of similarity in elite sport development models Atheoritical/Descriptive: Themes of sport development models are presented as consequences of countries' policy learning	The elite sport policy development system is considered as the implementation system in response to achieve elite sport policy goals. It is also considered as a sub-policy system of each country (i.e. health system being another one). Similarly to Green et al., (2001) and Oakley et al., (2001), elite sport development systems are described in terms of themes that countries share in common. Four common characteristics were identified: facilities, full-time athletes, coaching and sport science and competition	Context is discussed in terms of how power (State politics), history of sport, and norms of a country influence the development and formation of policy goals and associated responses (i.e. implementation system).	Processes of policy learning and transfers from Eastern bloc lead to explanation of similarities in terms of formation and response. Contextual factors of a country explained elite sport policy development (goal formation and policy implementation systems).
4. Bergsgard et al., (2007) Analysis *OF* policy **Design:** Comparative (most similar design) and qualitative **4 Countries: (Western)** **Olympic sports**: – overall sporting system	1. To explain how national elite sport policy has developed and changed because of domestic state involvement and historical background, and pressures of globalisation and commercialisation Theoretical framework: Institutionalisation, Welfare and State theories, and the Advocacy Coalition Framework. 2. To examine the similarities and differences of "the pathway to podium" between nations Athoeritical/Descriptive: Listing of national elite sport structures in each country.	The high-performance system is described in terms of the organisation of the best possible pathway to success from a talented child to successful adult athletes (from talent selection and development to podium success)	Contextual factors are described both at: - the policy development level (aim 1): cultural conditions and political conditions explain the pace of change - the level of the organisation of the high-performance sport system (aim 2): cultural adaption, specifics cultures of socialisation, education and bodily disciplines. These contextual factors influence the organisation of the pathway to podium.	Elite sport policy development converge (because of commercialisation, governmentalisation and globalisation), and diverge (because of role and value of State towards elite sport and relationship with key organisations and political and culture condition) Characteristics of elite development sport system are a consequence of policy learning/ transfer: trend towards a uniform model of national elite development sport system, as well as differences due to country's characteristics.

Authors and study scope	**Aims and respective theoretical approach to achieve each study aim**	**Description and conceptualisation of [effective] elite sporting systems**	**Description and conceptualisation of context**	**Key Conclusions**
5.Houlihan et al., (2008) Analysis *OF* policy **Design:** Comparative case studies on each countries and qualitative (in-country authors, no empirical data collected by main authors) **9 Countries**: (5 continents) **Olympic sports** (overall sporting system)	1. To examine the influence of global pressures and country's history on domestic elite sport policy Theoretical framework: Theories of path dependency; policy learning, policy transfer and policy determines politics used by main authors to draw inferences from chapters 2. To explore trends in elite sport development systems: Is there room for diversity in the global homogeneity thesis? Atheoritical/Descriptive: Clusters (see columns on the right) of sport development models are presented as consequences of countries' policy learning	Elements of effective elite sport systems are clustered under three categories -contextual (culture, funding, media, economy and business, participation, research, support to full-time athlete) -processual (talent identification & development, role and simplicity of administration, coaching) -specific (competition, sport science) The theoretical basis for these clusters is unclear.	Contextual factors influencing elite sport systems are discussed in terms of the global pressures and domestic politics that constraint the development of policy (intensity and direction) and choice of instruments (elite sport policy implementation systems). The contextual factors were the elements listed in the left part of first contextual cluster (in column on the left).	Policy goals converge despite the varied impact of globalisation, commercialisation and governmentalisation of elite sport in one country. Mechanisms and instruments that compose elite sport development systems are similar amongst countries despite political systems and culture. At the same time, domestic politics moderate these similarities, as such there is room for variation in elite sport systems
6. Andersen et al., (2012) Analysis *OF* policy **Design:** Comparative and qualitative (Most Similar design) **4 Nordic countries** **Olympic sports (**successful sports from each country)	1. To show how elite sport policy development is influenced by historical development of institutional arrangements, organisational capacities, and entrepreneurial initiatives. 2. To examine the differences and similarities of the implementation capacity of the system (i.e. organisation and governance) based on four dimensions identified as results of the policy development process: 1. the role of a broad voluntary movement, 2. degree of unified structure, 3. legitimacy of sport elites and 4. centralization of authority and support Theoretical concepts: institutional entrepreneurship/ institutional logic	The analysis of the sporting systems focuses specifically on the organisational capacity of the system, based on four dimensions listed on the left.	The conceptualisation of contextual factors is guided by theories of institutional logic and entrepreneurship; they refer to how people in their own local environment implement ideas and relate to each. These contextual factors are used as a lens to explore the differences found in the organisation of the system.	There are organisational differences between Nordic systems. Sporting systems have evolved differently in the four countries because of entrepreneurial initiatives, political issues in the sport system (sports relationships/ international government relationships). Overall, pressures lead to convergence but diversity remains because of underlying domestic adaptations.

Authors and study scope	**Aims and respective <u>theoretical approach</u> to achieve each study aim**	**Description and conceptualisation of [effective] elite sporting systems**	**Description and conceptualisation of context**	**Key Conclusions**
7.De Bosscher et al. (2008, 2015) Analysis *<u>OF/FOR</u>* policy: evaluation research **Design**: Comparative and mixed-methods design (qualitative data transformed in quantitative for statistical analysis) **Countries:** 6 in SPLISS pilot, study (2008) 15 in SPLISS 2.0 (2015) **Olympic sports** (overall sporting system)	To assess the efficiency and effectiveness of elite sport investment and management systems, and explore if and to what extent there is a relationship between policies and success. <u>Theoretical framework</u>: SPLISS Nine policy pillars composed of 96 critical success factors (CSFs) overall. CSFs are conceptualised as those factors that can be influenced and changed by sport policies. The nine pillars and CSFs are informed by a combination of: -System Thinking/Logic Models (i.e. they are organised according to inputs-throughputs-outputs), -Athlete development models -Organisational effectiveness/strategic management concepts <u>Theoretical application</u>: the framework is used to evaluate national elite sport policy effectiveness	Countries' elite sporting policy systems are conceptualised in terms of key characteristics (nine pillars and critical success factors) critical for a country's sporting success. The throughputs are conceptualised as indicators of elite sport policy efficiency and effectiveness.	Contextual factors of countries are recognised as shaping policy and key for a nation's success, but are excluded from the policy evaluation analysis because it is assumed that they cannot be influenced.	Most pillars correlate positively and significantly with success. Facilities, coaching competitions, and scientific research correlated to a county's success the most. Pillar scores vary greatly between nations. It is unclear under what conditions best practices work. The solution for nations advancing elite sport system systems may lie in the development of policies that correspond to the country's context.

2.2.2 Characteristics of elite sport development systems

2.2.2.1 *Uncovering elite sport policy implementation instruments*

The well-developed body of research on national elite sport policy as summarised in Table 4, has shed light on the characteristics of countries' elite sport development systems in relation to Olympic sporting success. A first group of studies analysed how and why elite sport policy developed as a goal and what policy responses were chosen to achieve this goal. These analyses *of* national elite sport policies are summarised in Table 4 (study groups 1 and 3-6). In this body of work, national elite sport systems were described as policy implementation instruments (the policy responses) (Andersen et al., 2012; Green et al., 2005; Green et al., 2001; Houlihan et al., 2008; Oakley et al., 2001). The instruments uncovered included the ten items described by Green et al. (2001). These items were further explored in Green et al. (2005) and Houlihan et al. (2008), and summarised as follows: sporting facilities, full-time athletes, talent identification and development, simplicity and administration, coaching and sport science and competition, and added processual elements. These studies were not specifically designed to inform decision makers on the development of effective elite sport systems, but rather they aimed to explain the development of these sporting systems.

The descriptive insights on elite sport policy implementation instruments enabled scholars to develop conceptual and theoretically informed frameworks to examine the functioning of national elite sport systems (De Bosscher et al., 2008a; De Bosscher et al., 2015a; Digel et al., 2006). Some of these studies propose advancements to the conceptualisation and measurement of the effectiveness of these systems in influencing countries Olympic success (De Bosscher et al., 2009; De Bosscher et al., 2015a). These analyses *for* policy are summarised in Table 4 (study groups 2 and 7). Digel (2002) and Digel et al. (2006) proposed the Success Resource framework and De Bosscher et al., (2006) proposed the SPLISS framework. Despite the two frameworks both providing an in depth understanding of the key components and operations of successful elite sporting systems, the researchers' approaches differed substantially, particularly in how they implemented their System Thinking. As the focus of this thesis is on the conceptualisation of national elite sport policy systems in relation to Paralympic sporting success, the subsequent sections provide a review of both system thinking (as this informs the conceptual framing of this thesis) and the previously developed models.

2.2.2.2 *System Thinking*

System Thinking describes a general approach to conceptualising complex social interventions (Pawson, 2006), such as national elite sport development systems, in terms of interrelated components and their interactions. System Thinking has a long scientific history and has been applied in many disciplines of natural and social sciences (Kast et al., 1972). In the social sciences, it has been used by theorists of management (Kast et al., 1972) and theorists of public policy (Considine, 1994) to make sense of complex human actions and organisations, before sport policy emerged as a discrete field of academic inquiry (Houlihan et al., 2009).

A system is an abstract entity composed of interrelated and interdependent parts, i.e. sub-systems. It is more than the sum of its parts, meaning that changing part of the system affects other parts and also the system as a whole. Systems can be conceptualised as closed or opened (Kast et al., 1972). In those that lean towards the closed end, the transformation of inputs (resources injected into the system) into outputs (the end products/results), which happens at the throughput level (transformational processes), take place without interacting with the environment. Mechanical systems such as electronic machines (computers, televisions) are examples of closed-systems.

Conversely, in an open-system, the transformation that takes place in the throughputs, often known as the black box, is influenced by the environment in which the system is embedded. In this instance, any explanation of input-output transformations needs to include a dynamic understanding of the relation between a system and its environment. In other words, the features of the contextual setting in which the system exists enable or constrain the workings of the system to produce results, or not (Chelladurai, 2001; Henry et al., 2013; Kast et al., 1972; Pawson, 2006). Understanding how systems' processes and mechanisms work in relation to the context in which the systems are embedded is the particular focus of realist research. Realism is a philosophical stance of science, which conceptualises social interventions as open-system. For realists, what works for an intervention in a specific context, does not necessarily work in another context, because of the impact of the contextual conditions (Maxwell, 2012; Pawson et al., 1997).

A system is also defined by its boundaries, in terms of space and time (Kast et al., 1972; Pawson, 2006). This concept can assist in the conceptualisation of the different

parts of systems and sub-systems and their interactions with the environment. However, in open-systems, identifying these boundaries is very complex (Kast et al., 1972). For example, social interventions, such as public interventions in the form of a national sporting system, are multi-layered in terms of social organisations (from the micro, intra-/interpersonal levels, to the institutional and infrastructural levels), and in terms of their focus (i.e. elite vs participation). As a result, they are hard to control and understand (Andersen et al., 2015; Cairney, 2012; Chelladurai, 2001). Social systems are uncertain and non-linear because of their susceptibility to change in space and time (Andersen et al., 2015; Pawson, 2006). These elements create challenges when tyring to understand why, and how they work (or do not work). Uncovering these facets requires researchers to unpack their complexities by looking into the so-called policy black box (Henry et al., 2013). Researchers of the Resource Success framework and SPLISS framework have grappled with the complexity of national elite sport policy systems, by unpacking some of these black box functioning of national elite sporting systems.

2.2.2.3 ***The Success Resource framework***

The Success Resource framework (Digel et al., 2006) can be seen as an open-system view of national sporting system (Table 4, study 2): *"the search for a more effective structures all have to do with the fact that the system of high-performance sport is increasingly dependent on its environment"* (Digel et al., 2006, p.2). In this model, the sporting system is understood as a result of an interconnection between three analytical levels (Digel et al., 2006) :

1. *The level of society*: the educational, political, science/research systems, the economic situation, selected aspects of the social structure and the mass media (Figure 7);

2. *The level of the organisation of high-performance sport*: finances, management and administrative structures, voluntary and professional personnel, athletes, coaches, referees and judges, talent search, talent development, training, sport facilities, competition structures, social coverage, reward system and the fight against doping (Figure 8);

3. *The level of high-performance sport and its environment*: the economy as a partner, the mass media as a mediator for sport interests, the contribution of political structures, the role of the educational system, the functions of sciences, the importance of

the military culture of sport (environment of sport) and the level of society (overall country's environment) (Figure 9).

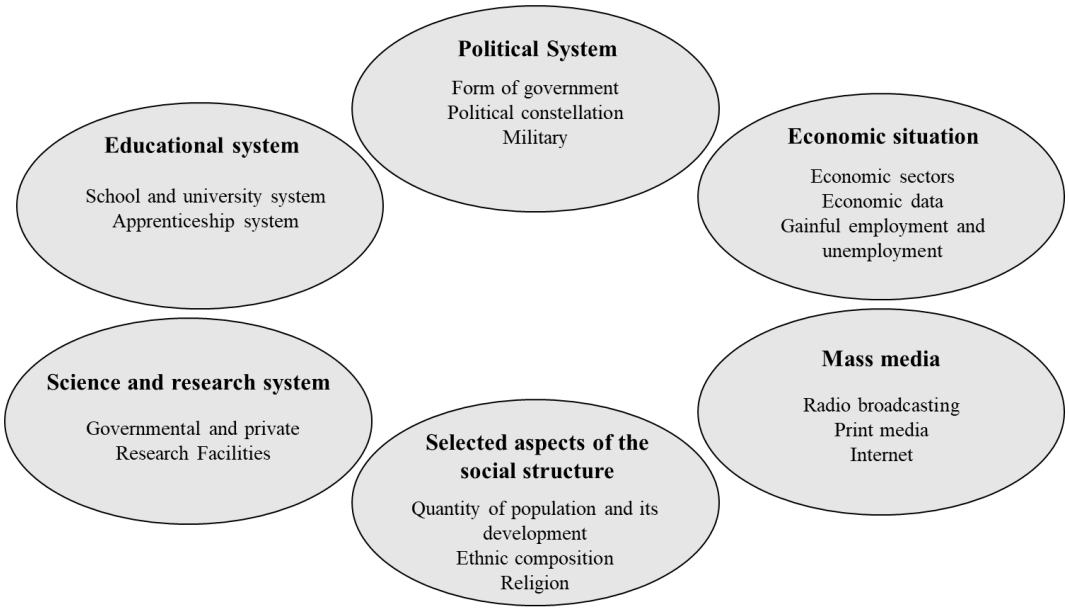

Figure 7 The level of society (Digel et al., 2006)

Figure 8 The level of the organisation of high-performance sport (Digel et al., 2006)

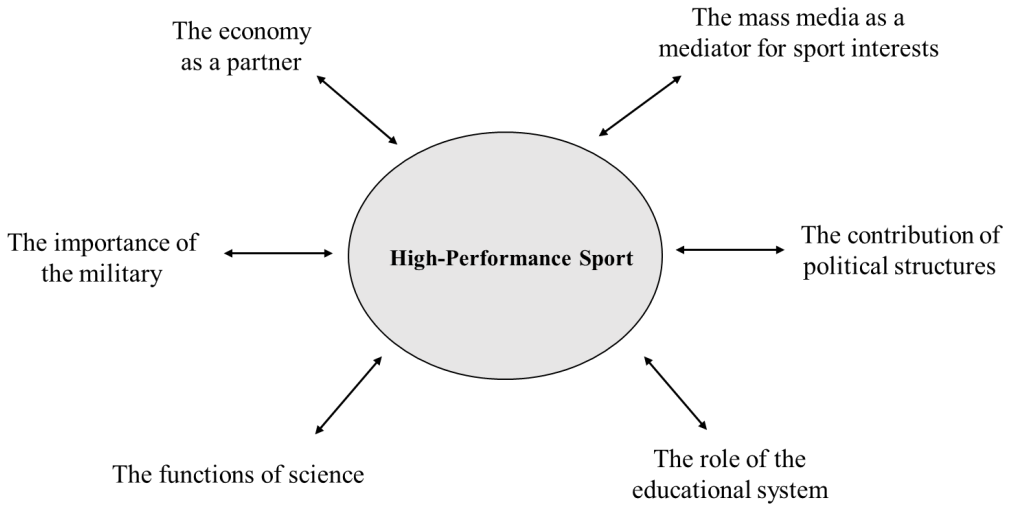

Figure 9 The level of high-performance sport and its environment (Digel et al., 2006)

While an open view of system thinking is implicit in the Success Resource framework, as it is assumed that the effective functioning of the high-performance organisation of sport is conditioned by the environment within which is it embedded, the actual theoretical underpinnings of the framework are unclear. It was not specified how the three analytical clusters and their sub-components listed above were developed, defined, and delineated. Moreover, the theoretical underpinnings of the clustering were not explicitly stated. Digel et al. (2006) used their framework to conduct country case-studies, using mixed-methods, to understand how the resources of high-performance sport systems and their environment interact. The authors described the differences and similarities between the organisation of high-performance sport in different countries. One of the key conclusions of this work was the necessity for researchers and policy makers to take into consideration how the sporting system is conditioned by its environment, based on the discovery that societal factors influence the sporting system's functioning (Table 4, study 2). This conclusion is important to keep it mind as it informs one of the research questions of this PhD thesis. De Bosscher, et al. (2008, 2015) took a different approach to the study of national elite sport development systems.

2.2.2.4 *The SPLISS framework*

The SPLISS framework was developed to compare the effectiveness of elite sport policies. This framework was used to explore the extent to which specific policy items

(termed critical success factors) organised around nine "pillars" correlated with a country's success. De Bosscher et al. (2006) clustered factors influencing international sporting success of a country, at three levels (Figure 10):

1. *The macro level:* the social and cultural context in which people live: economic welfare, population, geographic and climatic variation, degree of urbanisation, political system, and cultural system;

2. *The meso level*: sport politics and policies in elite sport development system;

3. *The micro level*: individual athlete's characteristics, genetics qualities sand close social environment.

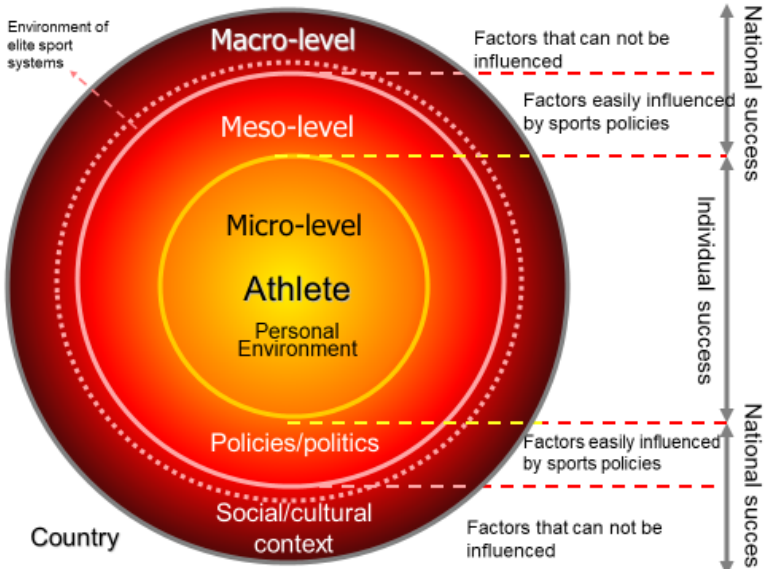

Figure 10 The relationship between factors determining individual and national success (De Bosscher et al., 2006)

SPLISS recognised that a sporting system is embedded in a country's context, and that sporting success relies on the intersection between multi-layers of influence, similar to the three levels identified in the Success Resource framework (Digel et al., 2006). What differentiates the SPLISS studies (De Bosscher et al., 2008a; De Bosscher et al., 2015a), from those of Digel et al. (2006), is the approach employed to conceptualise and analyse the characteristics of competitive of elite sport development systems (Table 4, study 6). While De Bosscher et al. (2006) acknowledged that sporting systems are embedded in the larger environment, they did not integrate contextual factors in the SPLISS analytical framework. This decision was based on the premise that contextual factors cannot be influenced by policies. By not analysing the impact that the environment has on policy

effectiveness, the SPLISS model assumed a closed-system view, which contrasted the open-view approach taken by Digel et al. (2006). The closed-system approach allowed the SPLISS authors to conduct specific econometric measurements between sport policy items and country's medal success, borrowed from the competitiveness and strategic management literature.

The SPLISS framework (Figure 11) is composed of nine policy pillars, developed from the national elite sport policy, sport management and athlete development literatures; coupled with exploratory studies with elite sport stakeholders (managers, coaches and athletes) (De Bosscher et al., 2006). The nine policy pillars were clustered according to system concepts (i.e. input, throughput, output):

- Pillar 1 is the input of the system: the financial resources for sport and elite sport in a country.

- Pillars 2-9 are the throughputs of the system and refer to *"the efficiency of sport policies, that is, the optimum way the inputs can be managed to produce the required output"*(De Bosscher et al., 2006, p. 207). Pillar 2 is concerned with the integrated approach to policy development: governance, organisation and structure of (elite) sport policies. Pillar 3, 4 and 5 aim to represent a pathway of athletes' entry point in sport participation (Pillar 3 - foundation & participation), to their identification and development as talented athletes (Pillar 4 - talent identification and development system), and their ongoing career as a performing athlete to reach excellence (Pillar 5 - athletic and post-career support). Pillars 6, 7, 8 and 9 are the support surrounding the athlete and their teams: Pillar 6 - training facilities, Pillar 7 - coach and coach development, Pillar 8 - international competition, and Pillar 9 - scientific research and innovation in elite sport.

- The output level was medal outcomes, as a measure of the success of the policies.

The nine pillars were underpinned by 96 critical success factors (CSF). CSF is a concept from the strategic management literature *"describing a process or activity that is required for ensuring the success of a company or an organisation"* (De Bosscher et al., 2015, p. 49)

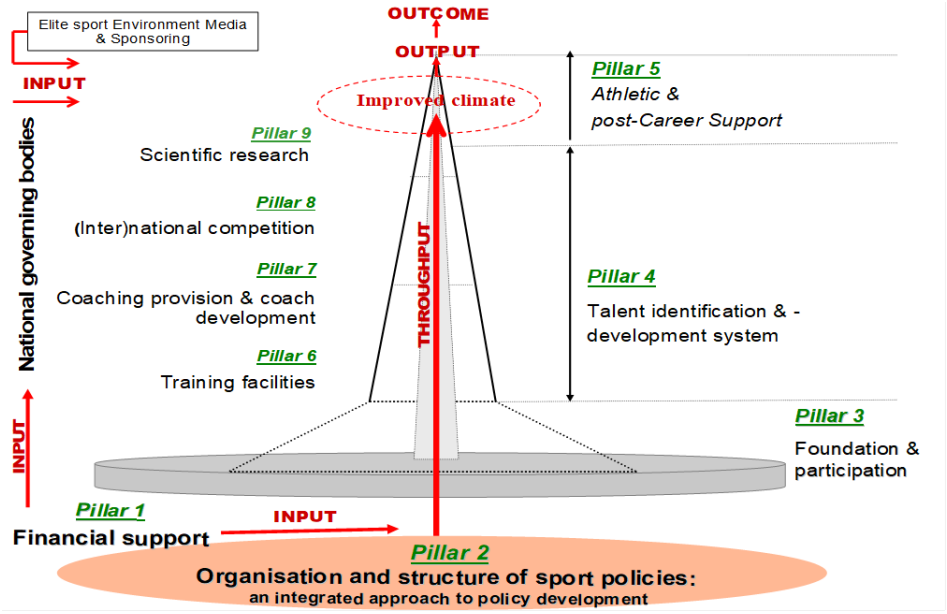

Figure 11 Sport Policy factors Leading to International Sporting Success (De Bosscher et al., 2006)

The findings from SPLISS demonstrate that the absolute amount of funding (i.e. not the funding in relative terms to a country's population size for example) is the best predictor of success. However, "*more money in does not mean equal more medals out*" (De Bosscher et al. 2015a, p. 355). This confirmed the importance for a country to maintain or increase investment into the national elite sport system just to keep up their competitiveness in the Global Sporting Arms Race (De Bosscher et al., 2015a; Houlihan et al., 2008; Oakley et al., 2001). They also concluded that the more efficient countries, those that could produce more medals with less funding, also had the most organised and integrated approach to policy development. Policies on sport participation and talent development were not found to be priorities for short-term success but were identified as potentially crucial for long-term success. Facilities, coaching, and [international] competitions were drivers of an effective elite sport system, likely due to their role as direct support systems for athlete development and performance (De Bosscher et al., 2015a).

Philosophically and methodologically the SPLISS studies leaned towards a positivist epistemology of social science. Positivism assumes that social reality can be known through the observation of social facts in an objective manner and that one can explain a particular social phenomenon through the ongoing testing of relationships between different variables to identify generalisable laws. In other words, in a positivist perspective, it is possible to truly know about a social phenomenon independently of

people's perceptions (May, 2011). Positivism can be seen in SPLISS in the approach to testing effectiveness, i.e. the SPLISS studies followed this hypothesis *"there is a link between how nations perform in elite sport and how they rate against the nine pillars"* (De Bosscher et al., 2009, p. 116).

SPLISS was underpinned by the assumption that the nine pillars could be objectively measured through the operationalisation of each CSF. These were used to collect and analyse data on countries' national elite sport policies and were subsequently scored. One of the functions of these scores was to conduct correlations between CSFs and the success of each country involved in the two SPLISS studies. CSFs were considered as true indicators of effectiveness, but it was recognised that their construct validity (whether they actually measure effectiveness or not for each pillar) needed to be further developed (De Bosscher et al., 2015a). Overall, this design showed methodological rigour and allowed for identification of patterns between indicators of effectiveness and success. However, any perspective in social sciences also has limitations. The limitations of a positivist perspective towards elite sporting systems is introduced below by providing a methodological and theoretical review of the literature on national elite sport policy and policy research more broadly. In doing so, the argument for exploring context in national elite sport policy (i.e. research question 2 of this thesis) through a realist-informed inquiry is presented.

2.3 Context in national elite sport policy is key

2.3.1 From positivism to realism

In positivism, causality is driven by the idea of control. To be able to make any conclusions about cause and effects, positivists require a controlled environment that allow the isolation of two (or more) variables, in order to identify the causal impact of one/several variables (e.g. policies) on another (e.g. success) through strength of association between variables (May, 2011). Therefore, while SPLISS was able to describe relationships, it could not provide conclusions on which factors lead to success, and why. This is because it is not possible to control the many cofounding factors when analysing an open (sporting) system, embedded in a country's complex society.

The limitation of positivism is that it removes the realist aspect that drives open-system policy evaluation (Pawson, 2006; Pawson et al., 1997). As discussed in the System Thinking section above, realism assumes that social interventions, such as sport programmes and policies, are open-systems that are implemented in certain contexts, which influence the effectiveness of those programmes and policies (Henry et al., 2020; Henry et al., 2013; Pawson, 2006). Thus, realism removes the idea of controlling for factors, and instead focuses on grasping the complexity of programmes by studying the underlying mechanisms of interventions which cause programmes to work or not, in their contextual environment (Pawson et al., 1997). This provides a more realistic (as close to social reality as possible) view of how effectiveness is determined. In realism, causation is contextual, not controlled.

Researchers from the field of national elite sport development systems agree that high-performance systems are very complex and prone to change (Andersen et al., 2015; De Bosscher et al., 2015a; Dowling et al., 2017; Dowling et al., 2018; Houlihan et al., 2008). In such a policy environment, where goals and actors' interests compete, the researcher's task is that of dealing with complexity. For this, evaluating policy effectiveness by considering the context in which sporting systems are embedded is critical. In this sense, a positivist approach to evaluating sporting policies provides evidence to policy makers that is de-contextualised, and is therefore limited in showing what works for countries, in accordance with their specific environment (Henry et al., 2020; Pawson, 2006).

There is growing evidence in the national elite sport policy literature that a realist paradigm, whereby policy interventions are understood as an open-system interacting with its context, may be useful to study the national elite sport implementation systems in relation to international sporting success (be it Olympic or Paralympic). Authors continuously highlight that, while there are noted similarities between national elite sport policies of countries aiming to achieve sporting success, there are also differences in the ways policies can be effective in influencing success. Authors of both open and closed-views consistently suggest these variations could be due to the diverse contextual characteristics of a country. A realist approach to policy research is a potential means of further elucidating these contextual factors.

2.3.2 Context explains the heterogeneity of national elite sporting systems

The homogenous (convergence) versus heterogeneous (divergence) aspects of national elite sport policies has been one of the most discussed issues by researchers, whether they focused on analysis *of* the elite sport policy development process, or the evaluation of its effectiveness (analysis *for* policy). In cross-comparative policy research, convergence describes the increasing similarity of policies, both in terms of policy goals and implementations instruments, adopted by different countries (Knill, 2005).

Contributing to this debate, some national elite sport policy analysts have argued that policy makers were constrained in their choice of instruments used to achieve international sporting success due to the nature of the policy goal (i.e. achieving success) (Green et al., 2005; Houlihan et al., 2008). These instruments refer to elements of the elite sport development systems summarised in section 2.2.2. Authors proposed that there was not much room for diversity in elite sporting systems, because elite sport goals could only be achieved with very specific instruments, such as the policies and programmes used in successful countries like the Eastern European Bloc, Australia and Canada (e.g. centralised training facilities, sport science and medicine support, coaching, system of talent identification etc.). As previously discussed, through cross-country policy transfers and the sharing of key learning, countries had essentially copied each other strategies, resulting in this homogenisation of elite sport systems (Houlihan et al., 2008). However, even with this homogenisation of elite sport policies, there were still noted variations within each country (Table 4). Indeed it seems there is both the room and the need for some diversity in elite sport development systems to achieve sporting success. A comparison of relatively similar Nordic countries (Denmark, Norway, Sweden, Finland), showed evidence of growing divergence between the countries' elite sport systems at the organisation level alongside the trends of convergence (Andersen et al., 2012). While the national elite sport policy instruments of these systems were similar, in part due to the similarities of the countries' social and political environments, there was room for diversity in approaches for a country to achieve international sporting success. The SPLISS studies also support this divergence/convergence. On one hand, they confirmed their theoretical propositions that elite sport systems of successful Olympic nations are organised around the nine policy pillars (homogeneous aspect) (De Bosscher et al., 2008a; De Bosscher et al., 2015a; De Bosscher et al., 2016). On the other hand, they showed that there was no one blueprint implementation model to achieve success. Countries with similar levels of success organised and implemented their elite sport policies differently. These findings gave insights into the greater influence that some policies can have on

success and also suggested that countries may learn from each other. However, analysis of the way countries implemented these policies did not show patterns of similar models correlating with success. The SPLISS research highlighted that those countries with relatively similar level of elite sporting success invest in and prioritise different policies. These findings added to the body of knowledge on the heterogeneity of national elite sport development systems. In that regard, De Bosscher et al. (2016) concluded:

> *"There is little evidence to support the notion that a preferred configuration of pillars (and/or CSFs within those pillars) exists that are more likely to lead to elite sport success. To that end, it can be concluded that converging elite sport policies (where aspiring countries "copy and paste" policy from successful nations) are unlikely to lead to duplicating the success of the "model" (or lender) country."* (p. 16)

This key finding refuted the initial argument of Houlihan et al. (2008) that there may not be space for countries to innovate in national elite sport policies, and confirmed Andersen et al. (2012) evidence on the diversity that can be found in elite sport systems. Andersen et al. (2015) provided further evidence on the aspect of heterogeneity in elite sport systems. In their concluding chapter "Managing heterogeneity and complexity" Andersen et al. (2015) concluded that there was not only evidence of heterogeneity[13] between sporting systems, but also within a sporting system.

A common point identified in this body of knowledge is whether or not researchers added contextual factors in their examination of policy development or policy implementation. All authors without exception concluded that countries' contextual factors could explain the differences between countries (Table 4 "Key conclusions"). In the studies that focused in more detail on uncovering the black box of national elite sporting systems (De Bosscher et al., 2008a; De Bosscher et al., 2015a; Digel et al., 2006), authors suggested that contextual factors were integral to understanding the functioning of sporting systems, their variations and effectiveness. Digel et al. (2006) argued that countries features of the sporting systems had to be studied together with the countries' contextual features. To achieve this, as introduced in the description of the Success Resource framework, they integrated the country's overall social context, and the relation

[13] Variations were discussed on the basis of 1. State involvement: domination/partnership, sport movement dominated, and 2. Dynamics, complexities of various management mechanisms used to purse coordinated/efficient use of resources of athletes support analysis, planning and policy tools (Andersen et al., 2015).

of the sporting system with its environment in their analysis of elite sport systems. Contextual factors included:

- the economic system: economic sectors, economic data, gainful employment and unemployment;
- the political system: form of government, political constellation, military;
- the education system: school and university system, apprenticeship system;
- the science and research system: governmental and private research facilities;
- aspects of social structures: population demographics, values structure of societies, inclusion/exclusion mechanisms, ethnic composition and degree of modernisation (infrastructure, economic growth), and religion;
- the mass media: radio broadcasting, print media and the internet.

The theoretical and methodological rationale for including these factors was however not explicitly stated.

Second, while the SPLISS authors excluded contextual factors from their analysis, they recognised that some key contextual conditions in the environment of elite sport potentially had a great impact on policy effectiveness and as such authors speculated whether they could be considered as a 10th pillar (De Bosscher et al., 2008a; De Bosscher et al., 2015a). These contextual factors included: culture, politics, sponsorship, the role the education system, private entities and the media. SPLISS authors also suggested that overall country-contextual issues, the macro-level factors, could be an explanation for the effectiveness of elite sport policies. Because of the probable importance of the context, (De Bosscher et al., 2016) concluded that an open-system approach could be the way forward:

> *"[…] the key challenges for nations remain to "benchlearn," instead of benchmark against other competitors; and to seek broad principles of efficient and effective elite sport policies rather than looking for the simplistic transfer of the so-called best practice. The ultimate aim remains to find the right blend of system ingredients and processes that will fit the context of history, economy, politics, and culture of a nation […]."* (p. 16)

This conclusion joins the open-system view taken by Digel et al. (2006). Moreover, several researchers who used the SPLISS framework to examine national sport policy at an able-bodied sport-specific level addressed the issue of context in their studies on: sprint canoe in Australia (Sotiriadou et al., 2014), tennis (international scope) (Brouwers et al., 2014), and athletics (international scope) (Truyens et al., 2014). These

three studies applied the SPLISS nine pillars in a deductive manner: they used the nine policy pillars as an apriori frame to guide the collection and/or the analysis of the data (which consisted of qualitative and mixed-methods data on the opinions from key sport stakeholders). In addition to finding evidence for the nine pillars with adaptations to the able-bodied sport they respectively focused on, they found additional factors that did not conceptually belong to any of the SPLISS nine categories. They concluded that these additional factors were contextual factors and that they could be conceptualised as a separate 10th pillar (i.e. SPLISS + context). Specifically, Sotiriadou et al. (2014) found evidence of cultural conditions specific to the sport of sprint-canoe and Australia, concluding these were critical to take into consideration when studying the sport's elite policies in a specific country. Brouwers et al. (2014) also found cultural issues specific to the sport of tennis: school culture, general sporting culture and tennis-specific culture. Additionally, they identified that the commercial environment of tennis (i.e. media, sponsors and the private sector) was an important context to consider when examining elite tennis policies. Finally, Truyens et al. (2014) found that the media, general participation level, Olympic tradition and a participatory organisational culture composed the elite sport environment of athletics.

Together these findings confirm the significance of taking into consideration contextual factors when studying national elite sport policy systems. Thus, they align with the SPLISS main findings, the open-system view of the Success Resource framework, and with the general assumption that social science and organisation studies deal with open-systems influenced by layers of contexts (Chelladurai, 2001; Pawson, 2006). In other words, the way forwards in national elite sport development policy research is one that finds a methodological way to deal with an open-system approach. What these studies did not do, however, was integrating the context in their analysis to infer potential interactions between sport interventions, systems and the contexts in which they are embedded, as concluded by De Bosscher (2016):

> *"The open-systems view, considering the interdependencies of different organizations and stakeholders, the interaction of different CSFs, and various mechanisms of policy development, would add a valuable interpretative framework to the SPLISS model. However, the problem is one of complexity and requires further qualitative, descriptive analysis."* (p. 15)

One way to address the above gap and provide a frame to understand the various ways in which nations can be successful is their own context (De Bosscher et al., 2015a),

is to draw on principles of realist-evidence based policy (Pawson, 2006; Pawson & Tilley, 1997). This methodological perspective grounded in scientific realism offers a promising conceptual frame to explore policies and programmes as a function of specific mechanisms of effectiveness and context. This reflects the contingency approach to creating new evidence for policy makers on "what works", as advocated in the latest conclusions by De Bosscher et al. (2016). A realist approach to policy research and evaluation is based on the premise that the effectiveness of a policy or programme (i.e. whether it reached the desired outcomes or not), depends on the context in which the policy or programme is implemented (Pawson, 2006).

2.3.3 Contexts and mechanisms: the engine of interventions effectiveness in realism

Realism is a philosophy of science that has a long history in the social sciences with application in many disciplines; including management studies (see Pawson et al., 2006, p. 3 for examples). Since Pawson et al. (1997) seminal work, realism is now an established approach in the field of policy and programmes evaluation, known as realist evaluation (Pawson, 2006). What differentiates realist evaluation from other types of policy evaluation and effectiveness logics is the perspective on the type of evidence needed to make claims about the effectiveness of an intervention (be it a programme, a managerial or political intervention etc.). For realists, in order to identify effectiveness of policies, and programmes, social sciences need to understand "*what works, for whom, under what circumstances*?" (Pawson, 2006, p. 14)

This fundamental question that drives any realist inquiry, is based on one of realism's central premises: interventions are by nature open-systems, and they are embedded in a broader social reality, which is stratified in multilayers of contextual complexities. This means that what works, for certain people, in certain circumstances, does not necessarily work for other people, in other circumstances. As Pawson states, *"a ceaselessly changing complexity is the norm in social life, and this is the open-system predicament."* (Pawson, 2006, p. 3)

The realist evaluation approach to generating evidence of programmes' effectiveness is driven by the recognition that the complexity of social life needs to be considered in research. For this, it argues moving away from study designs where one or several variables are measured against others in controlled ways to identify patterns of

relationships and infer effectiveness. Controlling for contextual parameters is counterproductive for realists, because contextual issues of society influence the phenomenon under study. Contextual factors are in fact part of the equation of what makes a policy or programme work or not (Pawson, 2006).

Another premise of realist inquires is that the question of "*what works, from whom, in what circumstances"* is a causal one (Pawson et al., 1997). This issue of causality motivates Pawson and other realist researchers (Emmel et al., 2018a) to argue that in order to understand the effectiveness of a policy, researchers must examine how generative causal mechanisms (i.e. those underlying forces that explain why and how an intervention achieve a specific outcome) are activated under specific contextual conditions. In the realist evaluation *"Outcomes = mechanisms + contexts"* represents the causation formula in the social world (Pawson et al., 1997, p. XV).

Mechanisms, according to Pawson (2006): *"are the engines of explanation […]. Mechanisms explain causal relations by describing the 'powers' inherent in a system, be those systems substances or agents, or structures."* (p. 23) Therefore, mechanisms are not the intervention or the activities per se. Mechanisms are those underlying processes of intervention that make things work (successfully or unsuccessfully), under specific conditions. Mechanisms refer to the previously mentioned black box issue of policy evaluation, which De Bosscher et al. (De Bosscher et al., 2009; De Bosscher et al., 2015a) attempted to uncover by developing the SPLISS model around the throughput factors.

Contexts, in realism, do not refer to locations (France versus Australia) or settings (a specific time, or a specific institution). As introduced above, contexts refer to features of a setting, the conditions under which mechanisms are triggered, or not, to lead to specific outcomes. Contextual features therefore can be found at any levels of a social system. Contexts can be classified by what Pawson calls the Four I's (Pawson, 2006; Pawson et al., 2004): Intrapersonal, e.g. someone's beliefs and personal social situation; Interpersonal, e.g. relational dynamics between two or more people; Institutional, e.g. the norms, culture, beliefs, structures of a specific organisation; Infrastructural, e.g. the wider material, social, economic and political elements of a country.

Related to the premise that realist evaluation is about identifying causal powers in context, is that interventions (programmes or policies) are "theories incarnate" (Pawson, 2006, p. 16). This refers to the fact that that when policy makers or managers decide on a specific intervention, they always have implicit or explicit beliefs and ideas about how the programme is going to work and why. As stated by Pawson (2006): *"Interventions*

are always based on a hypothesis that postulates 'If we deliver a programme in this way or we manage services like so, then it will bring about some improved outcome.'" (p. 16)

Illuminating the thinking of policy makers and programmes managers is often the first step of any realist evaluation (Manzano, 2016; Pawson et al., 2012). In other words, there needs to be an identification of the basis on which the policy will be evaluated in order to make claims about policy effectiveness. This principle is central to this PhD. However, this PhD does not aim to accomplish a realist evaluation of elite sport policies' effectiveness for Paralympic success, nor does it aim to develop a national elite sport policy intervention theory that could explain how nations' policy mechanisms could be implemented in accordance with contextual pre-conditions to achieve success. Rather, the aim is to use the guiding principles of realist evaluation to illuminate some of the thinking of policy makers and managers in relation to Paralympic sporting success. This will help identify those interventions, and perhaps some of their mechanisms, which appear to be key for a country's Paralympic success, as well contextual factors that seem to influence them. In other words, this thesis uses key realist principles as a conceptual perspective to guide the exploration of national Paralympic sport policies and programmes (interventions), and contextual factors, instead of using realist evaluation to form specific theories.

The review thus far has highlighted the main national elite sport policy studies in relation to success at the Olympics and other able-bodied sporting international competitions. This is because elite sport development systems scholarship has primarily focused on the OG over the past 20 years, as opposed to the PG. However, there have been recent developments in the literature on Paralympic sport, published during the completion of this thesis. This shows the growing interests of researchers, and is a potential reflection of the evolution of national elite sport policy towards supporting Paralympic athletes' development and achievement at the elite level. These recent advancements are reviewed below to demonstrate both the scholarly relevance of this PhD thesis, as well as to demonstrate that, despite advancements, research gaps remain. These research gaps are specifically highlighted to show how exploratory research on national Paralympic sport policy and related contextual factors, is needed to develop a conceptual framework that could be used to study national Paralympic sport policy system in relation to Paralympic sport success development.

2.4 National elite Paralympic sport policy

2.4.1 Key knowledge development

Only a few recent studies have focused on the topic of national elite Paralympic sport policy. The first one examined Talent Identification and Talent Development (TID & TD) systems in youth elite disability sport in the UK (Houlihan et al., 2016). Two more general studies explored the particularities of the Paralympic domain from a sport policy perspective (Dowling et al., 2017; Patatas et al., 2018). Finally, two studies elucidated elements of the Brazilian Paralympic sport sporting systems and its context (Patatas et al., 2019; Patatas et al., 2020a). A summary of these studies is provided in Table 5 in chronological order.

While the body of work on national Paralympic sport policy remains limited, two observations can be made from these studies. First, there are elements of convergence between elite sport development instruments used for achieving Olympic and Paralympic success, as well elements of divergence. Second, the studies confirmed the above argument, i.e. that context matters when studying elite Paralympic sport policy.

Table 5 Main national Paralympic sport policy studies

Authors, Study scope	Aim(s) and Theoretical approach	Elements of Paralympic sport systems	Study of context	Key Conclusions
Houlihan et al. (2016) **Design:** case study (interviews with Paralympic managers) **Country:** the UK **Sports:** Wheelchair Basketball, Disability Tennis, Boccia England	To examine elite youth disability talent identification and talent development (TID & TD) To assess the evidence for policy convergence between disability TID & TD systems. Theoritical framework: Hall (1986) and Houlihan (2012) dimensions of policy change: 1.Motives, 2. Agenda and aspirations, 3. Contextualising discourse/ideology and values, 4.Implementation, 5. Inputs, 6. Momentum,7. Impact	Implementation instruments and delivery mechanisms of a successful elite youth disability TID & TD system: - a domestic competition structure that supported TID & TD and preparation for major international competition, - specialist facilities/events (training camps), - specialists coaches, - access to specialist services. Inputs: - reliance on charitable funds - administrative capacity support from sport government organisations - elite coaching and science support expertise	Context refers to the deeper values shaping aspirations, policy instruments and delivery mechanisms that significantly affect policy (dimension 3. in column 2.)	Evidence of change in: - the balance of priority between inclusion and participation versus performance and excellence: the policy objective of elite success at the international focuses on the PG. - implementation instruments found in all three sports: high degree of uniformity. The elements of an elite disability sport system mirror those that already exist in non-disabled sport.
Dowling et al. (2017) **Design**: Critical literature review **Sport**: Olympic sport policy literature and Paralympic sport as examples.	To explore the challenges and limitations of conducting cross comparative policy research in the Paralympic sporting domain. Conceptual framework: Examples of Paralympic sport literature integrated with national elite sport policy literature.	The review suggests an open-system view approach to studying Paralympic sport research.	Some example of contextual factors are discussed based on the literature, in terms of items at the broader, macro level of society that impact elite sport development: economics, history and cultural impediments to disability rights (e.g. structural, socioeconomic, attitudes barriers).	Two ways forward for researchers studying the Paralympic domain in comparative elite sport policy: 1/ To apply pre-existing models without considering the unique features of the Paralympic domain, or acknowledge the broader context. 2/ To recognise the layers of complexity within the Paralympic domain, and acknowledges it is not possible to separate context factors from the study of policy system in elite Paralympic sport development.
Patatas et al. (2018) **Design**: Qualitative, 16 interviews (maximum variation sample) **Countries**: 8 successful countries in the	To identify how elite sport policy approaches differ between able-bodied and parasport systems. Theoretical frame: Application of the SPLISS 9-pillar framework deductively both during collection and analysis.	Differences of elite Paralympic sport development systems were found at each of the SPLISS nine policy pillars including: 1/ Extra costs involved in parasport, 2/ More organisation involved in parasport, 3/ Access to parasport participations, acquired vs congenital impairment,	Contextual factors emerged from the analysis and are defined as factors "outside the influence of policy makers": 1/ Classification systems, 2/ Media attention, 3/ Smaller number of para-athletes,	Contextual factors and culture of disability sports need to be taken into consideration when examining factors that influence parasport policy development. The study suggests there is no one-size-fits-all approach to developing parasport systems.

Authors, Study scope	Aim(s) and Theoretical approach	Elements of Paralympic sport systems	Study of context	Key Conclusions
Paralympic Games (Canada n=5; Brazil n=4; others n=7) **Sport**: Paralympic (overall sport system)		4/ Lack of TID programmes, para-athletes are identified later, 5/ Para-athlete progress faster, pathway differ between athletes with acquires vs congenital impairments, lack of post-career support, 6/ Physical accessibility of facilities and transport to them, 7/ Coach transition from able-bodied to parasport, 8/ Lack of opportunities for grassroots/national competitions, lack of readiness of some para-athletes, 9/ Lack of parasport research.	4/ Awareness about disability sport, 5/ Equipment exclusive to Paralympic sport.	
Patatas et al. (2019) **Design**: Qualitative, 32 interviews (16 in managerial positions, 14 coaches, 2 classifiers) **Country**: Brazil **Sports**: 5 Paralympic sports (para-athletics, para-swimming, para-powerlifting, wheelchair basketball, and goalball) inferences on the overall sporting system	To identify and categorize contextual factors that influence the Brazilian parasport system and para-athlete pathways. Theoretical framework: Critical Realism and System Thinking (input-throughput-output) informed an open-view of system. Certo (1992) contextual categories used to identify elements of context: economic, social, political, legal and technology.	Not discussed	Contextual factors found: 1/ Social: parasport awareness, societal attitudes towards PwD, culture, 2/ Political: hosting the PG, educational components 3/ Economic: financial aspects, 4/ Legal: accessibility, 5/ Additional element: classification system	Parasport is embedded and future studies should study parasport policy together with social, cultural, economic context.
Patatas et al. (2020) **Design, Country and Sports:** same as Patatas et al. (2019)	To identify which sports policy factors and stakeholders influence the development of athletic career pathways in Paralympic sport. Theoretical framework:	The 9 pillars of SPLISS as well as Classification (which was considered as a policy factor) are discussed as elite Paralympic sport development factors that influence the development pathways of Paralympic athletes.	N/A	Coaching provision and education is most influential sport policy factor throughout the para-athlete pathway. Para-athletes' career pathways may be dependent on the athlete's sport classification.

Authors, Study scope	Aim(s) and Theoretical approach	Elements of Paralympic sport systems	Study of context	Key Conclusions
	SPLISS and development phases: attraction, retention, competition, talent identification and development, elite, and retirement. Social relational model of disability.	Key stakeholders are discussed for each phase and policy factors, they include: coaches, classifiers, health/medical personnel and support staff, sport scientists, caregivers, family, local sport organisation, sport clubs, schools, special needs schools, the NPC, local sport organisations, sport federations, government, universities.		Para-athletes may need tailored support in all policy dimensions.

Houlihan et al. (2016) examined the extent to which youth TID & TD policies in three UK Paralympic sports (wheelchair basketball, wheelchair tennis and boccia) converged towards those existing TID & TD policies in able-bodied sport. Evidence for convergence was assessed on several dimensions of policy development, including system inputs, as well as, instruments and mechanisms supporting elite AwD (Table 5, column 5). On the spectrum of policy analysis, this study leaned towards the analysis *of* policy focusing on policy change and development. The research demonstrated strong evidence for convergence between the elements of an elite disability sport system and that of an able-bodied sport one in the three sports studied (Houlihan et al., 2016).

In contrast to Houlihan et al. (2016)'s focus on convergence, Dowling et al. (2017), Patatas et al. (2018), and Patatas et al. (2020a) made the case for the uniqueness (divergence) of the Paralympic sport policy domain in relation to the able-bodied sport domain. The scope of analysis in these studies was a national elite sport development system in relation to Paralympic sporting success, and Paralympic athlete development (analysis *for* policy), instead of the development of these policies as in Houlihan et al. (2016). Patatas et al. (2018) and Patatas et al. (2020a) were empirical studies that used the SPLISS framework as a guide to explore the topic of elite sport policy instruments in relation to Paralympic sporting success development. The first study (Patatas et al., 2018) investigated potential differences between parasport and able-bodied sport policy instruments, by interviewing 16 international Paralympic sport experts on the SPLISS pillars. Differences were found in each of the nine SPLISS pillars (Table 5, column 3). These findings suggest that convergence between elite parasport and able-bodied sport policy instruments is occurring in some countries, in parallel to the convergence identified by Houlihan et al. (2016). These conclusions need to be considered in relation to the limitations of the design of this study, which was skewed towards two main countries Canada (n=5) and Brazil (n=4) (six other nations, n=7).

The second study (Patatas et al., 2020a) aimed to identify which sports policy factors influenced the development of Paralympic athletic career pathways in Brazil. Specifically, this included an exploration of how the SPLISS nine policy factors, and classification, which emerged as a policy factor during the analysis, influenced the attraction, retention, talent identification, development, and the elite and retirement phases of para-athletes. This study showed that different policy factors (i.e. specific to Paralympic sports), existed within each of the SPLISS policy dimension in the Brazilian parasport system, in part due to the heterogeneous character of the participation of PwD

in sport in Brazil (Patatas et al., 2020a). The Patatas et al. studies aligned with earlier arguments made in the initial presentations of this PhD research (Pankowiak et al., 2016a; Pankowiak et al., 2016b), as well as by Dowling et al. (2017), that the Paralympic sport domain exhibits unique aspects that need to be taken into consideration when developing the conceptualisation of national elite sport instruments contributing to a country's Paralympic success. However, none of these studies aimed to develop such conceptualisation, therefore a gap in the national elite Paralympic sport literature remains.

All studies except that of Patatas et al. (2020a) addressed the need to take into consideration the influence of contextual factors on national elite sport development system in the Paralympic domain. The conceptualisation of context, however, differed in each study, and so did the contextual factors identified (Table 5, column 4). In Houlihan et al. (2016), contextual factors were conceptualised as the deeper values of social structures that influence the development of elite sport policy goals and instruments. This definition was grounded in the policy change theoretical framework applied in the study.

In the three studies that focused more specifically on exploring the instrument of elite sport implementation systems, conceptualisation of context also varied. Dowling et al. (2017) critical review of the literature identified the broader macro-level of societies as contextual issues to take into consideration in future studies. These included elements of the national able-bodied elite sport literature and some examples of contextual issues found in the Paralympic sport literature (Table 5, Dowling et al. (2017)). In the study that aimed to identify differences between the national elite sport policy landscapes in Paralympic versus Olympic sports (Patatas et al., 2018), identifying contextual factors was one of the objectives. Contextual factors were those that did not conceptually belong to one of the SPLISS categories and were defined as those factors which, to a large extent, are outside the influence of decision-makers. This was in line with De Bosscher et al. (2008a) definition of contextual factors. Based on contextual elements identified, Patatas et al. (2018) concluded that the culture of disability sport should be taken into account when studying parasport systems (see Table 5). The next study by Patatas et al. (2019) specifically focused on identifying contextual factors that influenced Brazil national Paralympic sport policy and para-athletes' pathways. In this study, the identification of contextual factors was guided by the application of Certo (1992)'s clusters: the social, political, economic, legal and technology context. The theoretical rationale for using Certo's categories, however, was unclear. Contextual factors were found at all levels of

Certo's categories and an additional contextual factor found was "classification" (see Table 5, Patatas et al. (2019)).

2.4.2 Key knowledge gaps

Taken together, these Paralympic sport policy studies have started to respond to a critical knowledge gap in the field of national elite sport policy, which has largely been dominated by studies on Olympic and able-bodied sport. These studies have uncovered different aspects of the policy analysis spectrum, and focused on different scopes (three parasport in the UK, and the Brazilian Paralympic sport system). Overall, this body of work suggests that both similarities and differences exist between the policy instruments used to support the development of Paralympic athletes and achieve sporting success, compared to those used to support Olympic athletes. This research also shows that growing attention is given to *context* in national elite sport Paralympic policy. However, these conclusions are limited to three sports in the UK and the Brazilian sporting system; and the definition and understanding of *context* was often not explicitly grounded in specific theoretical framework.

While three empirical studies had a similar scope as this PhD thesis, i.e. overall national Paralympic sport development policy and systems, and contextual factors influencing them (Patatas et al., 2019; Patatas et al., 2020a; Patatas et al., 2018), this research presents key limitations. While two of Patatas et al. studies were guided by the SPLISS framework, they did not specifically aim to identify and develop conceptualisations of key national policy interventions which influenced a country's Paralympic success. Instead, they focused: 1/ on the differences between Olympic and Paralympic policies (Patatas et al., 2018), and 2/ on the national sport polices which influenced the development of para-athletes in Brazil (Patatas et al., 2020a). One could argue, however, that because SPLISS was developed to guide inquiries of potential relationship(s) between national elite sport policy instruments and a country's sporting success, Patatas et al.'s studies did uncover some Paralympic sport policy instruments influencing a country's success by applying them in the Paralympic domain. There are however, two limitations to adopting this approach.

First, these studies primarily represented stakeholders of Brazil. While Patatas et al. (2018) included an international sample of experts (n=16), a quarter of them were Brazilian. Moreover, Patatas et al. (2019) and Patatas et al. (2020a) specifically focused

on the Brazilian Paralympic sporting system. This restricts knowledge on what other Paralympic countries with a long(er) history of both Olympic and Paralympic success, such as the early elite sport policies adopters, e.g. Australia (Oakley et al., 2001) think or do about national elite Paralympic sport policy. To develop policy conceptualisation in relation to Paralympic sporting success, an international field of inquiry by nature, collecting international data in order to identify core issues is critical (De Bosscher et al., 2009; Dowling et al., 2017). This PhD thesis addresses this gap by including a sample representing views of stakeholders from four other successful Paralympic countries: Australia, Canada, the UK and France.

Second, in Patatas et al. (2019) and Patatas et al. (2020a) studies, SPLISS was applied in a deductive fashion, meaning that data analysis, and sometimes data collection as well, were purposefully framed in the SPLISS nine pillars. The Paralympic and disability study landscape suggests that directly applying, in a deductive manner, existing framework from able-bodied sport policy, such as SPLISS, to collect and analyse new data may constrain discovery of new and critical issues. In that regard, this thesis aligns with the conclusion from Dowling et al. (2017) from their methodological literature review on Paralympic studies:

> *[…] any attempt by sport management and policy researchers to collect data based upon a pre-conceived framework, especially one developed around able-bodied sport, has the potential to depict sport systems erroneously because of pre-determined criteria. In doing so, the researcher thus runs the risk of overlooking or entirely ignoring distinctive features and characteristics that make Paralympic nations unique. It would be misleading to adopt approaches used in the comparative analysis of able-bodied sports systems, in the investigation of Paralympic sport.* (Dowling et al., 2017, p. 10)

This PhD thesis differentiates itself from the above studies by taking a primarily inductive approach to the exploration of national Paralympic sport instruments influencing a country's Paralympic success.

Finally, while these studies have reinforced efforts to study contextual factors influencing national sport systems, none framed the inquiry of *contexts* in realist evaluation principles. As the above section has argued, realist evaluation, as an overarching strategy, has the potential to advance our understanding of *context*, together with key policy interventions, thus informing studies researching and evaluating Paralympic sport policies and programmes in a context-relevant manner.

Overall, while these studies advanced the body of knowledge on Paralympic sport from a national elite sport policy perspective, our conceptual understanding of parasport policy interventions and contextual factors influencing these interventions, in relation to Paralympic sport success remains unclear. Therefore, this PhD is driven by the following research questions:

RQ1: What are national Paralympic sport policy interventions influencing Paralympic sport success?

RQ2: What are contextual factors influencing these Paralympic sporting interventions?

3 RESEARCH METHODOLOGY

3.1 Introduction - Overview of the research process

Chapter 2 positioned this PhD thesis within the current body of research on Paralympic sport success development and national elite sport policy. It showed how this thesis aims to advance current knowledge on national elite Paralympic sport policy by informing the research by realist principles. Specifically, the objectives were to identify key national elite sport policy interventions influencing a country's Paralympic success and contextual factors influencing these interventions. The overall purpose was to inform future policy research and evaluation of Paralympic sporting interventions designed and implemented to influence a country's Paralympic success.

Chapter 3 describes the overall research framework and strategy as well as the methods that were implemented to achieve the outcomes of this study (summarised in Figure 12). The first section explains the realist paradigm introduced in chapter 2, and positions how disability is understood in this thesis. The second section provides justification for the realist-informed qualitative research strategy and the subsequent sections detail the specific methods used for collecting and analysing the data. The final section presents the strategies employed to ensure rigour and ethical conduct throughout the research.

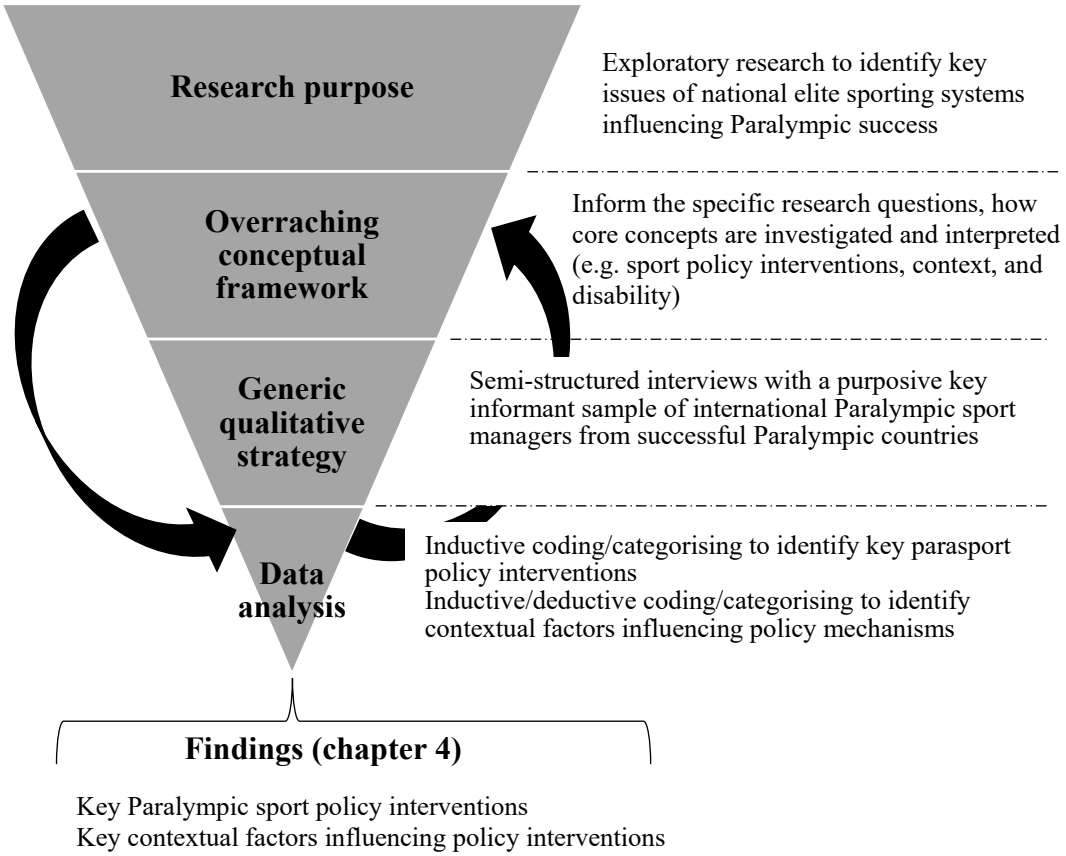

Figure 12 Summary of the research process

While this chapter reconstructs in a linear fashion the logic of inquiry that guided the research process, it is important to note that the conduct of the research process itself was not linear but was characterised by an ongoing back and forth process between the data, the analysis, the theoretical framework and the research questions. This dynamic process was particularly prevalent during the data analysis phase, as is illustrated by the black arrows in Figure 12. This iterative process enabled a proactive engagement with the specific research questions and theoretical framework. This not only ensured that the research was as rigorous as possible (Creswell, 2013; Patton, 2015), but also that its conduct aligned with the research questions purpose and theoretical framework.

3.2 Overarching conceptual framework

3.2.1 Paradigmatic frame of inquiry: realism

This exploratory qualitative research design was informed by a realist theoretical approach to scientific research (Manzano, 2016). Scientific paradigms inform researchers' general worldview. They include the set of ideas, beliefs and theoretical assumptions about how natural or social phenomena exist and work. In other words, paradigms are our *"way[s] of thinking about and making sense of the complexities of the real word."* (Patton, 2015, p. 89) These worldviews have fundamental implications for the research strategies we employ, and thus, the claims we make about truth and facts. Therefore, making these views explicit in research is important as they inform the reader about why the research followed specific questions, how a specific phenomenon was conceptualised and what research design and methods were used to answer questions and elucidate aspects of the problem being studied (Crotty, 1998; May, 2011).

Paradigms are composed of different levels of philosophical and theoretical frameworks. The highest level of theory is *ontology*, the branch of science concerned with explaining *what is*, what constitutes reality. The second theoretical level, which is highly interrelated with ontology, is *epistemology*; it is concerned with explaining how we go about creating knowledge and what constitutes good knowledge (Creswell, 2013; May, 2011). Social science is composed of various ontological and epistemological frameworks, which are often deeply rooted in specific scientific disciplines (May, 2011; Patton, 2015). It is out of the scope of this PhD to review the different paradigmatic lenses that have informed social sciences. The aim of this section is instead to make the framework that informs the research design of this thesis, i.e. *realism,* explicit.

To position the *realist* paradigm, it is helpful to conceptualise paradigms as existing on a spectrum, between an *objective* and *constructionist* conception of reality (Figure 13).

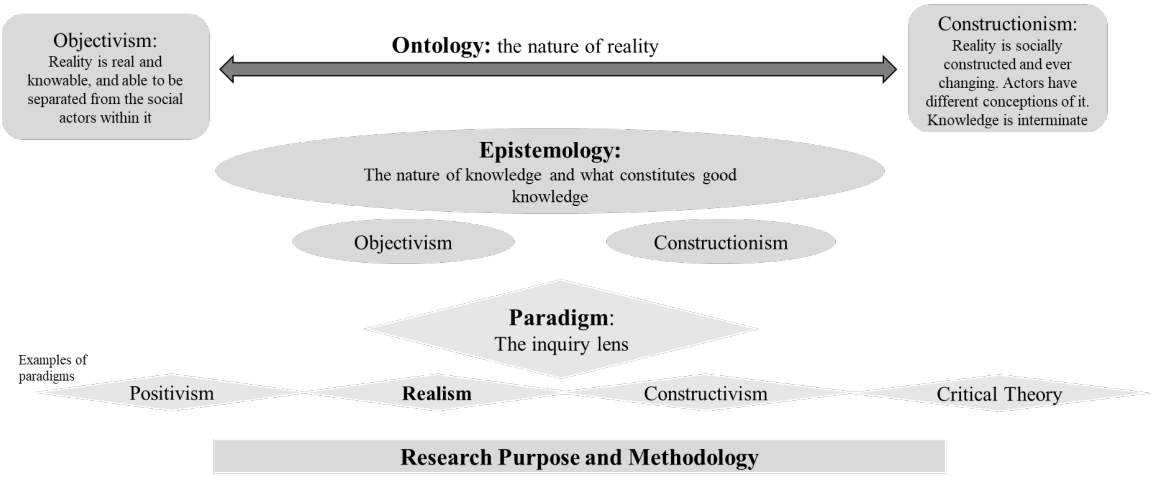

Figure 13 Research paradigms (adapted from Goodrick, 2007)

In an *objective* ontology of social science, researchers assume that social phenomena exist in the real world, independently of human's interpretation of them. In this worldview, truth and facts are *objects* that can be discovered through controlled empirical studies. In such *positivist* view, quantitative research methodology are favoured, because it is assumed that one can uncover the nature of a social phenomenon through careful measurement, with the use of surveys and statistical analysis (Crotty, 1998; May, 2011). On the other end of the spectrum is *constructionism*, or the idea that social reality is constructed. In this ontological perspective, elucidating what we know about social phenomenon is grounded in *interpretative* epistemologies. This is because constructionism assumes that social phenomena exist only because of the meaning that researchers and participants give to them. In other words, social facts are mind-dependent, and thus subjective, suggesting that there is no one truth and realities are multiple. Such approaches to social science rely on qualitative accounts of phenomena, where the researcher aims to be as close as possible to the participants to construct knowledge through observations and interactions with them (e.g. interviews) (Creswell, 2013; Crotty, 1998).

On this spectrum, *realism* sits in the middle ground (Figure 13). The key premise of realism is that social phenomena exist in the real world, independently of people's conscious awareness of them, or of their ability to directly observe them (objective reality aspect), but that our knowledge of the phenomena is gathered and interpreted through our human experiences (social construction aspect) (Miles et al., 2014; Sayer, 2000). For realists, people function in specific social realities that are underlined by structures, but these structures are interpreted through the particular person's context (individually,

culturally, socially, etc.). In policies and programmes the implications are: the *mechanisms* that underline *interventions* and that cause them to work for someone in one *context*, do not necessarily make the same intervention work for someone else in another context (Pawson, 2006). Therefore, in a realist-informed perspective, researchers try to uncover the interventions and mechanisms of social structures in their context, such is the open-view of realists on society. Sayer (2000), a pioneer in the development of realism in social sciences, illustrates how realism differs from positivism:

> *Social systems are always open and usually complex and messy. Unlike some of the natural sciences, we cannot isolate out these components and examine them under controlled conditions. We therefore have to rely on abstraction and careful conceptualization, on attempting to abstract out the various components or influences in our heads, and only when we have done this and considered how they combine and interact can we expect to return to the concrete, many-sided object and make sense of it.* (Sayer, 2000, p. 19)

Realism has a long history in the philosophy of science. In the last decades, the paradigm has been used in the social sciences to develop a strategy to review evidence in order to inform policy development. The systematic review titled Realist Synthesis is growing in the field of programmes and policy evaluation (Pawson et al., 1997). The strategy was also expanded to guide the conduct of empirical research and evaluation in policy-related research (Pawson, 2006). Realist research and evaluation is now a well established research strategy in the field of health and social interventions, and the methodology is growing in other fields, including sport and physical activity policy and programmes (Abbas, 2004; Chen et al., 2016; Girginov, 2016; Harris, 2016; Willis et al., 2018). This approach, however, is not a specific method (e.g. surveys or interviews), but rather an overall flexible methodology for scientific inquiry. The key realist formula: mechanisms + context = outcomes guides data collections and analysis but does not provide specific guidelines (Pawson et al., 2012). The overall pragmatic aspect of this methodology advises researchers to select the tools that will be best to uncover how social interventions function in context, based on the specific purpose of the research (Pawson, 2006). Therefore, both qualitative and quantitative designs and methods are welcome in realist informed inquires.

> *In terms of the practice of research, it [realism] favours neither the qualitative nor the quantitative (Sayer, 1992). It is 'neither nomothetic (that is lawseeking) nor ideographic (concerned with documenting the unique)' (Sayer, 2000). And some*

> *say that because it engages in neither abstracted empiricism nor grand theory, it is Mertonian in its preference for the middle range.* (Pawson, 2000, p. 4)

As introduced in the literature review, the principles of realism as a guiding conceptual framework for this research are promising because they offer a way to conceptualise key Paralympic sporting interventions for Paralympic success within their specific context. In conceptualising and contextualising the many facets of national elite sport policy, which are unique to the Paralympics, it is imperative to first discuss the conceptualisation of disability itself.

3.2.2 Conceptualising disability: social relational and human rights models

Disability is a complex and multi-faceted concept, which can be defined in various ways (Misener et al., 2014). The understanding of disability can be summarised in two broad frameworks, more commonly known as the medical and social models of disability. The academic debate surrounding the definition of disability is outside the scope of this PhD thesis. However, as this research is concerned with national sport policy supporting athletes with cognitive, sensory, and/or physical impairments to succeed at the highest level of sport performance, it draws from disability studies to position the ways in which disability can be understood in this research. Being aware of and explicit about the underlying assumptions driving the researchers' thinking towards disability is important, as these mental representations influence the way we produce knowledge, and the way we make conclusions about topics (Smith et al., 2018; Townsend et al., 2015). The various perspectives on disability can also aid in a better understanding of how sport policy makers, managers, and other key practitioners, such as parasport coaches, perceive and relate to Paralympic athletes, as well as how these assumptions contribute to development of structures and systems (or not) supporting para-athletes (or not) (De Pauw, 2000; Misener et al., 2018; Smith et al., 2018).

Early understanding of disability was solely based on a medical model. In this framework, disability is directly related to the person's medical situation; and, the individual's impairment (loss of limb or function) is the reason for disablement. From this view, PwD benefit from receiving medical treatment and participating in rehabilitation programmes (Barnes et al., 1997). There are three examples in which the medical model has been present in the Paralympic Movement. The first one is the use of

sport as a rehabilitative tool for PwD in which the primary aim is to help them restore their productive citizenship. This is at the roots of Paralympic sports (Legg et al., 2011). Second, the medical model also drove the early management of parasport. As previously demonstrated, the organisation of sport for PwD was initially based on a medical model, through the IOSDs, which are disability-based organisations. While the organisations ultimately shifted to a more sport-based model, the early medical focus has undoubtedly influenced the Paralympics as a whole. The third, and perhaps most prominent medically-based practice underpinning the Paralympic Movement, is the classification of impaired bodies based on the impact an impairment has on sporting tasks. Even today, classification remains a primarily medicalised process (Howe, 2011).

In a synthesis of the literature on disability models, Smith et al. (2018) presented two critiques of utilising a solely medical model of disability. Medical views define disability as a physical deficit, based on assumptions of what a 'normal' body is. This is dangerous, as it suggests that people with impaired bodies are abnormal and defective whereas non-impaired people, are seen as normal and thus superior (Smith et al., 2018). The second critique of the medical model is that disability is entirely placed on the individual. People with disabilities are therefore seen as needed fixing and as having trauma that needs to be overcome. Social barriers are entirely overlooked and left unchallenged, thus perpetuating further social oppression and exclusion of PwD in social participation (Smith et al., 2018).

In response to these critiques and shortcomings, a number of social science disability scholars have developed different models to understand disability from a social standpoint. This approach advocates for positive social, political and legal change by challenging disablism (i.e. the social exclusion and oppression of people with diverse types of impairments), and ableism (i.e. the normative ideal that productive citizens are able and healthy) (Misener et al., 2014; Smith et al., 2018). Some of the main models include the social model, the social relational model, and the human rights model (Smith et al., 2018; Townsend et al., 2015). The social model, in direct opposition to the medical model, defines disability as a social cause. It is society's attitudes and environmental constraints that create barriers to the participation of PwD (Oliver, 1996). It seeks to liberate PwD from the view that they (or their body) are the problem. For example, in the sporting domain, it is the physical inaccessibility of sporting facilities, the lack of coaches, and negative attitudes which disable people from participating in sport, not their physical impairments (DePauw et al., 2005; Misener et al., 2014). This perspective has challenged

pre-conceived notions regarding PwD and has been the basis for major advancements in global Health and Human Rights frameworks, such as the World Health Organisation's (WHO) International Classification of Functioning, Disability and Health (ICF) (World Health Organization, 2001), and the UNCRPD (United Nations, 2006), that were developed to improve the lives and opportunities of PwD globally (Barnes, 2003).

Despite important changes that the social model of disability have brought about, the model has also been criticised. As it views disability as solely social, it negates the lived experience of individuals with impairments, and deprives them of their agency and, to some extent, ignores reality of their medical needs (Shakespeare et al., 2001; Thomas, 2004). The medical and social models have traditionally been seen as dichotomous/binary ways of thinking about disability. Criticisms of this dualism have led researchers to developing more comprehensive frameworks, which merge these two models. The social relational model reconciled this polarisation by recognising that while disability is socially constructed and therefore its meaning changes based on cultures and society, an individual's body impairment can also create real restrictions on their ability to participate in diverse life activities (Thomas, 2004). As such there is room for theorising the impairment effect and its embodied experience (bio and psycho-emotional) based on relationship with other people, while not alienating impairment as the medical model does (Smith et al., 2018; Wareham et al., 2017). In the context of sport, for example, denying the impairment effect can be particularly dangerous. When a coach denies or does not understand that the physical pain experienced by an individual is due to their impairment as opposed to the normalised pain often experienced in high-performance training, there can be dangerous medical and psychological consequences for the para-athlete (Smith et al., 2018). As the social relational model allows for a comprehensive understanding of para-athletes experience, from impairment effects in relational contexts, to the real structural barriers para-athletes encounter, the model is particularly attractive for parasport studies, and has gained momentum in the field (Brighton, 2018; Haslett et al., 2017; Martin, 2013; Patatas et al., 2020a; Townsend et al., 2017; Wareham et al., 2017; Wareham et al., 2018).

Finally, the human rights model has also been an important advancement for understanding disability. It is grounded in a social understanding of disability but goes one step further by adding understanding of the citizenship of PwD, i.e. their fundamental rights for participation in society. This understanding has allowed the development of legally binding documents at the international level, i.e. the UNCRPD, which have

enabled important policy and legal developments in diverse countries, despite a majority of countries in the world still not having ratified the UNCRPD (Smith et al., 2018). The UNCRPD is underpinned by eight principles[14], and importantly, article 30 acknowledges physical activity, recreation, and sports as basic human rights of an individual citizenship (United Nations, 2006). This means that countries that have ratified the UNCRPD are obligated to develop laws and policies to ensure the full access to sport by PwD at all levels of participation spectrums (e.g. integrated, non-integrated, parasport specific, etc.) (Misener et al., 2014). This model has been applied in disability sport management literature to understand how participation of PwD in sport is negatively impacted by discrimination perpetuated by organisations (Darcy and Taylor, 2009). It is an attractive model to conceptualise disability in this PhD due to its link to policy and application to management problems.

Overall, while these diverse ways of understanding disability are commonly called models in the literature, they do not necessarily refer to specific predictions and theories that exclusively explain what cause disability (Townsend et al., 2015). Instead, they refer to various approaches one can use to critically think about disability in biological, relational, social and legal ways. This is not dissimilar to the way in which realist evaluation is a guide for thinking about policy and evidence. Overall, the middle ground approach that the social relational model provides to understanding disability resonates with the realist view, which emphasises that programmes will have different effects on different people. The social relational model will therefore guide thinking in this PhD. Moreover, because of the important link between the Human Rights models and policy, this PhD will also draw on principles from the human rights model.

[14] (1) respect for inherent dignity, individual autonomy including the freedom to make one's own choices, and independence of persons; (2) non-discrimination; (3) full and effective participation and inclusion in society; (4) respect for difference and acceptance of persons with disabilities as part of human diversity and humanity; (5) equality of opportunity; (6) accessibility; (7) equality between men and women; and (8) respect for the evolving capacities of children with disabilities and the right of children with disabilities to preserve their identities (Misener et al., 2014; United Nations, 2006).

3.3 **Research design**

This exploratory research had two objectives: 1/ explore and elucidate initial concepts related to key national Paralympic sport policy interventions and their potential mechanisms, 2/ explore the contextual setting influencing these interventions. The overall purpose was to advance conceptualisation of national elite sport policy in relation to Paralympic success to inform research and evaluation. A major gap in knowledge on the conceptualisation of national parasport policy systems in relation to Paralympic success was identified. Therefore, a "generic qualitative inquiry" (Patton, 2015, pp. 154-155), informed by a realist research design element termed "theory gleaning" (Manzano, 2016, p. 14), was selected for the research methodology. There are several reasons for the selection of this strategy.

Qualitative research is well suited for research problems that need to be explored (instead of being measured/tested), and for which detailed data is lacking to create better understanding of this issue (Creswell, 2013). It provides information-rich data and thus allows for in-depth exploration of a phenomenon for which little is known about (Manzano, 2016; Patton, 2015). Furthermore, the need to gather extensive data on the context in which participants are expressing their views also necessitates a qualitative approach (Miles et al., 2014). As opposed to quantitative approaches, qualitative approaches allow for interaction with people in order to capture information on the views of key actors, which help elucidate deeper information on the phenomenon being studied (Miles et al., 2014).

A realist approach in and of itself does not require a specific methodological instrument, as various tools can be selected to elucidate interventions, their mechanisms, context and outcomes. As the aim of this study was to explore theoretical concepts, and the research required international perspectives, the most suitable methodology for data collection for this study was individual interviews.

Individual interviews with the head programme designers and managers are particularly useful methods to explore initial theoretical and conceptual propositions of the equation (Manzano, 2016; Patton, 2015). Manzano (2016) notes that "theory gleaning interviews" (p. 14) is the first phase of realist-informed research projects. The purpose of this initial sample of interviews is to explore and elucidate propositions on the functioning of programme and policy, by asking to those who know the most about the programme/

policy, what elements of the programmes they think contribute to its effectiveness and why (Manzano, 2016; Marchal et al., 2018). From such approach, initial proposition of key policy/programme interventions, their mechanisms and the contexts constraining them can be developed. Future phases of realist research can then use these propositions to evaluate programmes or policies (Manzano, 2016). As mentioned previously, there is a lack of information on policies and programmes in relation to international Paralympic success. Therefore, this PhD was informed by this first, theory gleaning phase. This research interviewed people who had extensive knowledge and experience in Paralympic sporting success development, from a national sport policy/management perspective. Group interviewing (focus groups) was not selected as a suitable method because the group setting does not enable the collection of rich data relating to the reasoning of specific individuals and their personal experience (Patton, 2015). This approach can to some extent be seen in in elite sport policy studies, in which interviews were conducted with elite sport programme managers (Andersen et al., 2012; Sotiriadou et al., 2016).

In summary, qualitative research is a powerful purposeful and exploratory strategy of inquiry, in which the researcher takes a forefront position in the creation of knowledge both during collection and analysis of the data. Unlike in quantitative social science research where a questionnaire and statistical tests are the collection and analysis tools, in qualitative research, the researcher's mind is the instrument (Creswell, 2013; Miles et al., 2014; Patton, 2015). The researcher then must take on a proactive role, fully engaging with the subject under study, explicitly stating assumptions, and conducting the research process in a neutrally empathetic manner (Patton, 2015). Another duty of the researcher is to be transparent in the choices made throughout the research process, and to be clear on how they relate to the research questions and purpose. In service of research rigour, the sections below provide more details about the specific methodological procedures employed during the research.

3.4 Research methods

3.4.1 Data collection procedures

The data set for this PhD was collected through semi-structured interviews with a key informant sample of 23 senior Paralympic sport policy managers with direct long-

term involvement in the development/management of elite parasport at the overall national level, from four successful Paralympic nations: Australia, Canada, the UK, and France. The following sections elaborate on the sampling strategy and the recruitment procedures.

3.4.1.1 *International key informants sample*

Qualitative research is purposeful; therefore, sampling in qualitative research focuses on the selection of a smaller number of people, in comparison to quantitative research that aims for the gold standard of population representativeness (Creswell, 2013; Patton, 2015). The aim of purposive sampling is to gain access to specific information from people with the relevant expertise and experience who can provide information-rich data relating to the phenomenon investigated (Patton, 2015).

An international key informant sampling strategy was used in this research. Key informants are people who can provide in-depth information and insights on a highly specialised area because of their knowledge, expertise, and experience in the specific area of focus in the inquiry (Manzano, 2016; Patton, 2015). To align with the goal of theory gleaning, it was important that the selected participants have a relatively long employment history within their national sporting system, particularly with respect to the management/ policy-making of Paralympic sport at the high-performance/ elite sport development level.

The inclusion of successful elite Paralympic sport coaches, as well as successful elite Paralympic athletes in the sample was initially discussed with the research supervisory team. These groups are key constituents of national Paralympic sport policy, and thus one could argue that they have an understanding of the policy interventions as they are undoubtedly living the implementation, or lack thereof, of the elite Paralympic sport policies in their respective countries. However, as Manzano (2016) and Pawson (2006) argued, in realist inquiries, the overall managers of policies and programmes are often those that will have the best knowledge to illuminate the rationale and assumptions underlying the successes of interventions and thus potential mechanisms, and some part of the context. Therefore, a purposive sample of Paralympic sport managers aligned with the initial, theory gleaning goal of this inquiry. With this rationale, it was decided that the homogenous aspect of people's positions (i.e. national level Paralympic sport managers)

needed to be privileged so that the diversity of the countries, a critical aspect of the sample, could be maintained.

National elite sport policy studies are usually international in scope. Indeed, elite sport is an international issue by definition, as athletes and countries compete to be the best in international sporting competitions (De Bosscher et al., 2009; Henry et al., 2013). As a result, the sample needed to represent several countries. Moreover, as rich data from an international management perspective on Paralympic sport policies important for success does not yet exist, it was important to collect information from those countries that showcase mature national elite sport systems, as well success in the PG. From such data, theoretical propositions could be tested in other less successful countries, with different contexts. In addition, an aspect of the country-selection of this sample had to be based on ethical aspects: research rigour and research feasibility.

As a result, Australia, Canada, the UK and France were selected for the following reasons. First, these four countries showcase Olympic traditions and well-developed elite sport policies, as demonstrated by the elite sport policy literature (De Bosscher et al., 2015a; Houlihan et al., 2008). Second, in the last four PG (Rio 2016, London 2012, Beijing 2008, Athens 2004), they were ranked in the top 15 countries according to Market Share calculation. Finally, for feasibility aspects of the research, these countries were also selected based on the likelihood of accessibility to elite parasport stakeholders due to the research team's professional network and language.

Overall, this strategy provided a relatively homogenous sample, in terms of interviewee profiles and country characteristics as it relates to developed elite sport policies and Paralympic success. Homogenous samples are powerful to identify key commonalities across the sample, which was necessary to be able to detect elements important for sporting success as well as their contextual underpinnings (Patton, 2015).

3.4.1.2 ***Participants recruitment procedures***

Potential interviewees were identified through the historical literature on Paralympic sport development, and the knowledge of the research team with professional experience and training in the field of national elite sport policy and disability sport. It was assumed that participants with the required profile for the research interview would be working in national Paralympic and elite sport organisations: the national Paralympic

committee (NPC), an umbrella national disability sport organisation (NDSO), a national institute of sport, and/or the national government sport organisation/agency.

To identify potential eligible participants, an internet website search was first undertaken on the professional website of the above organisations in the four countries selected. The managers' positions at the organisation were screened for terminology such as: "high-performance parasport manager", "director of high-performance" (with Paralympic sport included in list of responsibilities) and "Paralympic athlete pathway manager". The experience of people in these positions was verified through the research team's network, through professional profiles accessible on the internet and lastly, by the participants themselves during the interview.

Once a potential participant was identified, a letter of invitation to participate in the research interview was sent to their email address (Appendix A). The invitation email included an introduction to the research, a request to read the "Information to participants" document containing details about the research goals, the interview procedures, and examples of questions (Appendix B), concluded with an offer to contact the PhD candidate to express their interest to participate, and/or to ask any further questions. For the French participants, communication and documents were translated in French by myself, as I am a French native speaker.

Four types of responses were received from this initial email contact: most people accepted directly, some people initially accepted but never responded to follow-up emails, some participants answered but referred to me to other people who they thought had more relevant experience as them to answer to my questions, some never answered. When participants confirmed their interest via email, a second email was sent to invite them to review and sign the research participation consent form (Appendix C), as well as to propose a time to for the research interview.

3.4.1.3 ***Final sample of participants***

As a result of the above recruitment process, 23 participants (12 men and 11 women) were interviewed. Due to the confidentiality and anonymity guaranteed to the interviewees and due to the small number of people in the type of organisations listed above, an overall description of the sample is presented (Table 6).

Table 6 Interview sample: countries and organisations

Countries	Australia (n=6) Canada (n=6) France (n=6) UK (n=5)
Organisations	National Paralympic committees (n=5) National sport institutes/ high-performance sport agencies (n=5) National ministry of sport/ governmental sport agency (n=3) National disability sport organisations (n=10)

It is worth noting that some participants had roles in several national organisations involved in Paralympic sport management. For example, two managers from different countries were each board members of the NPC in their country, but also worked as executive managers in other Paralympic sporting stakeholder organisations. Only the organisation they were contacted through is represented in the table.

Regarding organisational representation, only one country did not have any representative from the NPC, and two countries had two NPC representatives. All four countries had representatives from the National sport institutes/ high-performance sport agencies (one country had two representatives). National sport ministry/ governmental agencies were represented by all but one country. Finally, for the NDSOs, three countries had two representatives, and one country had four participants due to the setup of the sporting system. Interviewees had between 2 and 26 years of involvement in Paralympic sport management position in their respective country, with more than half of the participants having more than 10 years of experience.

3.4.2 Semi-structured interviews

3.4.2.1 *Interview guide and procedures*

A semi-structured interview was employed for data collection. As opposed to structured interviews that mimic survey questionnaire methods, the semi-structured interview technique follows a systematic process but is more flexible than structured interviews, in which priority is given to the standardisation (May, 2011; Patton, 2015). In semi-structured interviews, a shorter list of questions is pre-determined to ensure that the same lines of investigation are pursed with each participants (Patton, 2015). However,

space and time are given for both the researcher and interviewee to reflect, clarify and elaborate on the opinions and views expressed by the interviewee. Such clarification is facilitated by the use probes (May, 2011). The flexible aspect of semi-structured guides also allows for topics deemed important by the participant to emerge. These topics may or may not have been covered in the guide, but this style of interview allows those topics to be freely explored in more depth (Patton, 2015). These features were important for this research because the goal of the interview was to ensure that a conversation could be established with the interviewee in order to explore their view, and understand their reasoning.

Inductive reasoning was used to develop the interview questions, and this was guided by realist interviewing techniques (Manzano, 2016; Westhorp, 2017). As opposed to constructivist interviews that seek to unpack individuals' unique experiences to construct the meaning they give to that experience, a realist interview aims to ask topic-specific experts about their thoughts and reasoning on interventions, and what make them work (mechanisms), or not (Emmel et al., 2018b; Manzano, 2016; Westhorp, 2017). Inductive reasoning is the logic of driving the inquiry from observation (through the data) to generalisation, without imposing theoretical framework to find out about specific concepts (deductive reasoning). Incontestably, all research stems from some knowledge base and in the context of this study concepts were derived from the SPLISS (De Bosscher et al., 2006) and Success Resource framework (Digel et al., 2006), disability/ disability sport studies, as well as from realism-based literature. As the purpose of the research was to privilege exploratory inquiry over confirming the existence of the SPLISS nine pillars, as done in previous studies that applied SPLISS in specific sports studies and the Brazilian Paralympic environment, it was decided that the SPLISS framework would not be used to frame the interview questions. Similarly, topics found in the Paralympic literature (e.g. assistive technology, classification, attitudinal issues), were not specifically asked, but rather used as probes if necessary. The principles of the realist research were used as a guide to develop specific conceptual probes (further explained below) to identify Paralympic sport policy interventions, potential mechanisms and contextual factors.

This research assumed from the literature that there were key issues specific to the Paralympic domain, which would need to be taken into account to develop the conceptualisation of sporting policy and contextual factors in relation to Paralympic sporting success. However, instead of focusing on asking participants to identify the differences between the able-bodied and the Paralympic domain, open-ended questions

were asked (aligning with the inductive reasoning). An initial draft of the semi-structured interview was developed and reviewed by each member of the research team. Feedback on the guide consisted of revision for English interpretation as well as revision of the alignment of the interview questions with the research purpose. Additionally, imagery and specific clarifying probes were used to ensure that participants fully understood the questions. The final English interview guide is provided in Appendix E. The interview guide was also translated in French by myself. The written interview guide was reviewed by a French sport manager to ensure the highest quality and clarity of the French wording.

In the introductory section, participants were reminded of the study's purpose and the specific research aims. To ensure that the data aligned with the scope of the research problem participants were also reminded that every question asked during the interview: 1/ focused on the overall national Paralympic sporting system and not on a specific Paralympic sport, and 2/ that success was defined as the overall medal count for individual countries at the Paralympic games. Importantly, participants were informed of their right to anonymity and that they could withdraw from the study at any time. Participants were asked for their permission to record the interview. After all the details of the study were shared, participants had the opportunity to ask any questions they may have. Though prior to the interview they had provided their written consent to participate, they were asked to verbally consent over the phone before the interview commenced.

The second section of the interview was designed as an icebreaker. Interviewees were asked to provide insights about their involvement in Paralympic sports both as a manager or otherwise. The aim of this question was to build positive rapport between the interviewer and interviewee (Arnold et al., 2012). This is a critical component of interviewing, as it assists with making the participant feel comfortable and feel that they are part of a reciprocal conversation. Ultimately, rapport is an aspect of research rigour as it enhances the quality and richness of the data provided (Patton, 2015).

The third and core section of the interview was composed of the five open-ended questions designed to explore sport policy interventions, mechanisms and contextual factors enabling or disabling the functioning of the interventions (see Appendix D). This is in line both with the theoretical gleaning aspect of this research design, as well as with realist interview techniques discussed above. The first two questions focused on elucidating the key elements and practices of a national sporting system to achieve Paralympic success, i.e. medal outcomes. Questions were: "What would you say are the three most important components that the system must have to ensure that the country

achieves international Paralympic success?"; and "Could you please tell me about the current national practices that you think have played a major role in the success of your country in the Paralympic Games?". The third question focused on contrasting planning for Paralympic vs Olympic success (similarities and/or differences). The aim of this question was not to specifically identify the actual differences or similarities, although it was assumed that those would emerge. Instead, this question was used as a different conceptual lens to further identify potential elements and contextual issues that would not have arisen in the initial, more open-ended questions, which focused on Paralympic sport only. The fourth question of the guide focused on the primary recipients of national elite sport policies, the Paralympic athletes. The pool of Paralympic athletes is very diverse, in terms of types and severity of impairment. Thus, the aim was to uncover in what respect this heterogeneity was considered and managed in relation to Paralympic medals.

In terms of methodological interviewing, as it related to the realist principles, for each of the four questions listed above, probes were used to prompt the participant to expand on their rationale for the inclusion of each element and/or practice they had cited as important for success. The aim was to elucidate the assumptions as to why an intervention and its underlying mechanisms may be important for a country's Paralympic success (Manzano, 2016). As such, this interview differed from a constructivist one in that the focus of the interview was not to understand the specific meaning the participant gave to their experience working as a manager on a Paralympic sport programme. Examples of these probing questions include: "Why this element, can you expand on it?", "Why it is important for Paralympic success?", and "How does it work and contribute to your country's success?" The "how" and "why" probes were used to further uncover national Paralympic sport policy mechanisms. To explore contextual factors, the following probes were used to identify the conditioning (enabler or constraint) of the functioning of these policy interventions: "Can you please expand on what has allowed this to be bee successful", "Are there any, have there been any challenges to implement such practices?", and "Can you expand on what those challenges are?"

Although each of the interview questions and probes were designed to collect data that included contextual features related to the interventions, a final question was included to ask participants directly about contextual factors: "Could you please tell me whether there are things that impact the good functioning of your sporting system when working for Paralympic medals?"

The last, and closing part of the interview asked whether they were was anything important that was missed during the interview, or whether they there was anything the participant wanted to add to this topic. From this question, a number of important elements were added.

Interviews with the 23 participants were conducted between November 2016 and April 2017. Due to the international nature of this research project, the interviews were conducted through two video-based technologies: Skype and WhatsApp. Every interview was audio-recorded on a Dictaphone. All questions listed in the semi-structured interview guide were covered in each interview. In some instances, the questions were not covered in the linear fashion presented in the guide (Appendix E). This approach was used to prioritise the flow of the discussion, another element important to obtain rich data. All interviews with the French participants were conducted in French.

3.4.2.2 *Interview piloting and review*

The interview guide was piloted with one national head coach of a successful Paralympic sport from one of the English speaking countries. The coach had a long-term system wide understanding of the Paralympic sporting system. Due to the small pool of potential interviewees with specific knowledge base to answer to the questions, a national head coach was chosen, so as not to pilot with a potential interviewee. The pilot interview was used to get feedback on rapport building, on the clarity of the interview questions, and on whether the questions formulated prohibited important topics being covered. This pilot interview also served as practice for the student interviewer. Upon completion of this pilot, the participant felt that all the aspects above were covered appropriately and did not have additional suggestion to make.

Recording of the pilot interview, as well as the transcript from the first interview, were also reviewed by an independent researcher experienced in qualitative research. Following their review, as the student researcher I had an in-depth discussion with the researcher to obtain feedback on the interviewing techniques. Specifically we focused on techniques I could use to acknowledge participant's views, particularly in instances when they were critical of practices they had observed in their sporting systems. We also discussed redirecting techniques for when participants would veer onto topics that were outside of the scope of the study. Following this activity, some additional clarification

and elaboration probes were added, and I developed a self-guide that I reviewed prior to each interview.

3.4.3 Raw data description and management procedures

The average length of the interviews was 69 minutes. Eighteen interviews lasted between 1 hour and 1 hour and 40 minutes, and five interviews were shorter than one hour (between 22 min and 56 min). This resulted in a data corpus composed of 406 pages singled-spaced (11 front size) transcripts.

Every interview audio recording was transcribed verbatim by professional transcription services. The French and English interviews were transcribed in their original language. The French and English-speaking transcribers signed data confidentiality agreements. To ensure the quality of the transcription, randomly selected sections of each interview transcription were checked alongside the audio recording.

All interview audiotapes, as well as written transcripts were transferred onto the protected data security management system of Victoria University. Every interview audiotape was deleted from the recording device. As per the data confidentiality agreement, the two transcribers were required to destroy both the audio recording and transcripts from all their devices. Interview transcripts were de-identified, given a number, and uploaded in NVivo 12, a qualitative data management software which was used to assist with the analysis of the data. The French data was not translated in English because of my bilingual skills. Therefore, back translation services were not used. This technique was previously used in studies with bilingual researchers (Sotiriadou et al., 2016).

3.4.4 Data analysis procedures

Qualitative research, and thus qualitative data analysis, is purposeful, whereby the research question and purpose drive the qualitative analysis. As such, a number of decisions needed to be made throughout the analysis. As introduced in Figure 12, the analysis process is not linear, and decisions required reflection and ongoing back and forth between the research questions and the data analysis.

Data analysis is complex as it involves synthetising a large amount of individual extracts of words and sentences into a more comprehensive whole. Any qualitative

analysis uses some type of data grouping, termed coding. Coding allows for the categorising and comparing, with the ultimate aim of discovering patterns, also known as themes, across one data set or between different data sets. This process reduces the individual participant data and makes sense of the information in a meaningful way in line with the conceptual framework. It requires the researcher to take specific extracts of the data and create more abstract conceptualisations of them (Merriam, 2009). There are many ways of coding, categorising and comparing qualitative data. The methods researchers employ for coding and developing categories vary greatly based on the research questions, the theoretical framework as well as the discipline, experience, knowledge, and creativity of the researcher (Creswell, 2013; May, 2011; Miles et al., 2014; Patton, 2015). Qualitative data analysis also requires different types of reasoning logic: inductive (from the specifics to the general, i.e. from data to theory) or deductive (from general to the specifics, i.e. theory applied to data). The following paragraphs highlight the analysis process of this study.

Qualitative analysis requires an active engagement and immersion of the researcher with the data. Therefore, reading and note taking on each transcript were first undertaken to familiarise myself with the information provided by the interviewee and decide what approach to take on the coding and development of the categories. During this familiarisation process, it was apparent that due to different terminologies between countries, it was necessary to code for one country at a time in order to ensure appropriate understanding of the data.

Two coding frames were developed in NVivo 12 to organise the data and assist with the analysis: a structural coding frame and a descriptive coding frame (Saldaña, 2015). Each of the coding frames aligned with their respective elements of the research question, and the realist element of this research design. The structural coding framework aimed to identify key policy/programme intervention important for Paralympic sporting success, and the descriptive framework was developed to analyse contextual factors in relation to the key levels of intervention identified. While the overall analysis employed a back and forth process between inductive and deductive reasoning, it was primarily driven by an inductive process to remain open to new theoretical concepts. Indeed, the literature review highlighted that a deductive approach using guiding framework could potentially inhibit the discovery of new concepts. This specific methodological issue was supported by Dowling et al. (2018) who suggested that using existing framework during

the research process runs the risk of driving preconceived concepts and thereby limits the discovery of new ones.

To align with a realist informed inquiry, the aim of the coding and category development processes were to make sense of the ways in which the Paralympic sport managers understood interventions by identifying their reasoning on why certain processes were important and the context around them (Marchal et al., 2018). Indeed, in realist studies, qualitative data is considered as *"evidence for real phenomena and processes"* (Maxwell, 2012, p. 103, in Manzano, 2016), which is used to infer about them. In constructivist paradigms, interview data are used to reconstruct the meaning and diverse realities of a phenomena that interviewees give to them. In contrast, realist-data are used to infer about the underlying mechanisms that cause a phenomenon to exist (Manzano, 2016; Westhorp, 2017).

A first structural coding frame was developed to categorise policy intervention levels. Table 7 provides an example of how data from interview transcripts were coded. In this study, when an interviewee reported that an element of the sporting system was important for success and why (i.e. the concept of focus), a label was given to the data extract in NVivo. In this first round, coding was entirely driven by the data, a process called open coding in inductive analytic processes (Creswell, 2013; Patton, 2015). Initial coding of all interviews with this technique resulted in an extensive list of codes. The cumulative list of codes were checked for consistency, revised and collapsed where necessary (such as when codes overlapped in their meaning). When a similar overarching dimension could be identified (e.g. codes displayed a similar pattern of ideas), they were gathered under higher order categories, and sub-categories, often referred to as themes and sub-themes in qualitative research (Creswell, 2013; Miles et al., 2014; Patton, 2015). An ongoing back and forth verification process between the data, the codes and the categories was used to ensure the *internal homogeneity* of the categories, meaning *"the extent to which the data belong in a certain category hold together or dovetail in a meaningful way."* (Patton, 2015, p. 555) This process required testing whether a category could hold together conceptually against the data; and was thus more deductive. Overall, this process resulted in the development of ten main categories, and sub-categories, reported in chapter 4.1.

Table 7 Examples of structural coding

Extracts from interview transcript	**Codes**
I-05 […] but for sure in [country] right now it's really athlete identification that is a key priority. We also need coaching to be top of mind as well as insuring that the athletes are able to have the appropriate environment for them to train in so that they can maximise their preparations for longer term results and sustainable results, I would say.	Talent identification Coaching for Paralympic sport Quality daily training environment
I-21 I think the obvious ones are strong partnership, communication, although on the face of it, I mean, speaking for the [country], we're successful in Paralympic sport without a doubt. But underneath that high performance level, there's still a lot of work to be done in terms of inclusion, to ensure that everyone understands disability classification, which you could put in as obviously one of the key elements, strong, robust classification structure. So there's a lot of learning there for every sport and every country because, yeah, there's certainly gaps within that area.	Governance: collaboration Knowledge of parasport: classification Classification: processes

The analysis of contextual influences on interventions required two phases. First, a list of a descriptive codes was formed following the above open coding technique (this coding list was different from the structural codes). In this coding technique, the data corpus was not coded for interventions and processes that interviewees reported as important for their country's Paralympic success; instead, the purpose of this coding scheme was to organise the data in descriptive categories, which could then be used to identify whether it had a contextual influence (or not), on the identified interventions. Examples of this coding are provided in Table 8. Second, a type of coding which aims to look at the relationship between concepts was used. In grounded theory, this technique is called axial coding, were the aim is to theorise about relationships between context and underlying processes (Creswell, 2013). From this more relational data analysis, a matrix was developed, whereby contextual influences were identified at the individual level

(intra- and interpersonal), the institutional level, and the infrastructural level, in order to facilitate interpretation. Contextual influences are reported in chapter 4.2.

Table 8 Examples of descriptive coding

Extracts from interview transcript	**Codes**
I-04 The work that has been done in [country] with respect to integration or moving from a disability specific model into a sports specific model really helped to improve the initial	Integration: mainstreaming
quality of national programmes. What it hasn't been able to do is help the development of the feeder system, so if athletes can magically get themselves to a national level, then we can do a better job at supporting and developing and	Athlete development
helping them move through. Unfortunately the work that had been done nationally has not mirrored from a provincial perspective, and so we're still having conversations with our provincial counterparts that go something along	System organisation: national vs state level
the lines of, "Oh, right. Paralympic sport. Right, maybe we should do something about that," or, "Do we really think that that's our job?" or, "Gee, I don't know."	Attitudes towards parasport
I-02 And quite simply within a school setting, probably potentially that one child or those couple of kids within that school spend most of their sport lessons, PE, doing very little, being the score or just sitting to the side of the gym or going to the library, which probably creates	School: physical education
something in that athlete or within that student that they think, "Oh, sport's just not for me," and they probably don't continue to pursue it when there are probably plenty of opportunities. Because they're not involved in the school sports setting, then they probably	Self-belief of person with disabilities
just cross that one off the list and don't seek out opportunities in their local community and	Grassroots sport participation
other things. So if teachers had a better idea how to do it within the school environment and potentially a knowledge of what might be available within their local area, then that	Understanding of disability sport

would have a significant impact on the students who are in there.

Overall, the analysis performed required a prolonged engagement with the data, two elements that increase the rigour of the research process (Patton, 2015). Additional elements of research rigour are described below prior to presenting the findings that resulted from this analysis.

3.5 Research rigour and ethics

A critical component of research rigour as well as ethical conduct of all research is the ethical review process. This PhD research project received approval by Victoria University Human Research Ethics Committee (VUHREC) on the 14th of October 2016 (Application ID: HRE16195). At all times the protocols and practices outlined in the ethics application were adhered to and strict confidentiality and secure storage of data was maintained throughout the study.

Beyond the standard ethical review requirements for all research projects, qualitative researchers take a range of approaches regarding issues of scientific validity and reliability, also termed trustworthiness and rigour (Patton, 2015). Evaluation and pragmatists researchers, with which this thesis aligns as mentioned above, identified generic research rigour strategies common to various theoretical qualitative frameworks (Creswell, 2013; Patton, 2015). These criteria are individually addressed below, in light of the methodologies and practices employed in this PhD.

First*, immersion with the data* was accomplished through audio recording checks of the interview against the data transcript, as well as prolonged and repeated readings of the interview transcripts. Additional direct note-taking assisted in both comprehension and understanding of the data. Prior to starting the actual computer-assisted phase of the coding of the interviews, each individual interview transcript (n=23) was read in its entirety. Hand written notes were captured on the side of each transcripts. These notes were then reflected upon and they informed the development of both the structural and descriptive frame to enter the data into the NVivo software codes. In addition, the hand written notes were captured in memos in the NVivo software. During the analysis part of

the codes and categories, references was made to the memos to ensure consistency of analysis.

Triangulation of data is a technique that can enhance the validity of the development of the findings. The data can be triangulated by another researcher, or by another data set. Considering that there was no other data set (beyond the literature) to triangulate the data, which limits the claims that can be made from this data, we used an inter-coder triangulation technique. In the case of this thesis, a second researcher (from the supervisory team) independently reviewed the coding and category development process of the interview data. Specifically, after having coded the first interviews (about 3), the NVivo file was shared with the second independent researcher. The researchers went through each interview, checking the codes against the coded data extracts. When disagreements of meaning occurred over a code/extract, a comment was entered in the NVivo software. The meaning of the codes was then discussed between research, until consensus was reached. This triangulation ensured that the definition given to the codes corresponded to the data. In a similar way, *peer-debriefing* sessions with the entire supervisory team were used to discuss the further development of specific concepts and categories and to assist in determining their meaning and interpretation. In a similar way as the triangulation of coding, this *peer debriefing* was used to challenge assumptions, conceptualisation of the student researcher.

By making the philosophical stance adopted in this research and the diverse analytic procedures explicit, the intention was to ensure *transparency of the systematic steps* undertaken. The purpose was in turn to allow the reader to judge for themselves the nature of the claims against the primary assumptions and methods that underpinned the study.

Finally, the *thick description* provided through the presentation of raw data in the next section alongside direct quotes aims to further enhance the credibility and transparency of findings and conclusions of this PhD research.

4 FINDINGS

The purpose of this research was to identify key national sport policy interventions that can influence a country's Paralympic sporting success and to further uncover the contextual factors that may influence the interventions. The findings are accordingly presented in two sections, with the first depicting the key Paralympic sport policy interventions important to achieve Paralympic success and the second presenting the contextual factors influencing those policy interventions.

As previously mentioned, according to realism, interventions (i.e. those policy instruments/ programmes developed and implemented to accomplish specific goals) are open-systems in nature. This means that interventions are embedded in layers of contexts (i.e. intra-/interpersonal, institutional and infrastructural features) that activate (or not) the interventions' mechanisms (i.e. the underlying powers of interventions that make them work). In a national sporting system, policy instruments are numerous. They operate at different levels (from the national to the local; from the grassroots to the elite level), and often involve a multitude of stakeholders (individual and organisational). Therefore, several interventions with specific outcomes must occur at different levels, in order for the ultimate outcome (medal success) to be achieved. This problem is one of complexity; and this thesis does not claim to unpack all this complexity, but rather starts illuminating some key aspects of national elite Paralympic sport policy.

Indeed, in social realism, truth and evidence are always considered partial in that it is only the accumulation of knowledge over time that confirms or disconfirms propositions (Manzano, 2016; Maxwell, 2012; Patton, 2015). While these findings present important insights from key informants about interventions and contextual features that may lead to a country's international sporting success, these remain propositions. Therefore, the following text aims to present theoretical propositions for further research and evaluation. Nevertheless, these propositions contribute to the body of knowledge on national Paralympic sport policy, as to date, no study with an international sample of key sport policy makers and managers has been conducted.

Throughout this chapter, claims are supported by evidence in the form of verbatim data extracts. To enhance readability, missing material is indicated by ellipses within brackets "[…]"; when material has been added, it is indicated in brackets as well, such as "[descriptor]". Moreover, to ensure confidentiality and anonymity of interview

participants, the name of the country or organisations cited are removed, and the French data is presented in English. This is because the aim of the analysis was not to compare countries, but rather to analyse the opinion and reasoning of key informants from successful countries in order to make inferences about key policy actions and the layers of contexts that surround them.

4.1 Key interventions of national elite Paralympic sport development policy systems

This section presents the national elite Paralympic sport development policy interventions that were identified as a result of the analysis of the structural coding frame. Structural codes are sub-sets of the data that captured interviewees' opinions and reasoning on issues in their sporting system they believed were related to a country's medal success in the PG. Thematic analysis of the structural coding led to the development of ten themes. These ten themes represent categories of interventions deemed important for a country's Paralympic success. They are summarised in Table 9 and individually explained in the following sub-sections.

Table 9 Key themes of national elite Paralympic sport policy interventions

Themes	Sub-themes

Funding for parasport and Paralympic sport
(n=21)
	- Targeted and protected national funding for the whole-of-parasport (from grassroots to talent development and high-performance/elite)
	  - Government funding for parasport specifically
	  - Parasport funding incentives in M-NSOs (e.g. Athletics Australia)
	  - Allocation of funding relative to Paralympic sport specific costs (e.g. specialised equipment; classification; additional support person (staff/athlete ratio); accessibility; para-athlete partner)
	- High-performance sport specific funding for Paralympic sport
	  - Sustainable Paralympic sport performance funding
	  - Direct funding to individual talented Paralympic athletes to enable their focus on high-performance Paralympic career

National governance and organisation of parasport and Paralympic sport
(n=23)
	- Whole-of-sport system mainstreaming and coordination of parasport
	  - Government commitment to and incentives for parasport
	  - Integration of parasport into existing M-NSOs (when relevant) and in high-performance sporting structures
	  - Delineated accountability and advocacy for parasport
	  - Professional parasport staffing and structures (managers, coaches, support staff)
	  - Collaboration between stakeholders and coordination of actions for organisational alignment from grassroots to the elite level
	  - Within M-NSOs & P-NSOs: connections of programmes and actions at all levels
	  - Collaborations and coordination between all sporting stakeholders (i.e. NPC, M-NSOs, P-NSOs, NDSOs) at the local regional and national levels
	  - Inter-sectorial coordination (e.g. sport, health, education, and defence)
	- High-performance Paralympic sport planning, coordination and strategies
	  - Capacity for long-term planning around Paralympic Games cycles for strategic decisions

	- National coordination of para-athlete talent identification and transfer strategies - Coordination of & collaborations between service providers to optimise high-performance Paralympic career development - Parasport stakeholders communication for knowledge and experience exchange
Integration of disability-specific and Paralympic sport knowledge in the sporting system **(n=23)**	- Development and formalisation of disability knowledge and Paralympic sports expertise from grassroots to the elite level in policy and practice - National coordinated research and innovation for disability sport and Paralympic sport - Applied sport science & sport medicine support to Paralympic athletes
Participation in physical education and grassroots sport by children and adults with disabilities **(n=21)**	- Nationally coordinated parasport sport awareness, engagement and referral initiatives - M-NSO & P-NSOs specific parasport engagement programmes - Coordination of outreach parasport programmes with non-sport specific institutions (rehabilitation/ health sector, disability sector, military sector and school sector) - Nationally funded, coordinated and organised sport participation structure accessible for PwD - Club system capabilities accessible for PwD - Accesssiblephysical education
Paralympic athlete classification processes and strategies **(n=21)**	- National coordination and capacity for ethical classification processes, both at the national overall Paralympic sports level, and the NSO level (i.e. M- & P-NSOs) - Clear process to identify AwD that are eligible in one or more Paralympic sport class/es, - Ongoing opportunities for classification reviews at appropriate times to confirm parasport class eligibility along the Paralympic-athlete development pathway - Recruitment of national and international classifiers - Training and education of classifiers - Paralympic athlete classification (PAC) awareness and education for all sport systems stakeholders
Paralympic athlete talent identification and transfer **(n=22)**	- Coordinated national talent identification & transfer processes (at the overall sport system level, as well as within M- & P-NSOs) - National coordination of talent identification initiatives with the military - Paralympic talent searches

	- Targeted identification and orientation of para-athletes eligible for classification based on international competitiveness of para-athlete profiles and international parasport class medal analysis.

High-performance development and career programmes for Paralympic athletes
(n=22)
	- Delineated funding, accountability and coordinated organisation of high-performance Paralympic sport
	- Quality daily training environment
	  - Assessment of centralised versus decentralised training environments
	  - Multi-disciplinary Paralympic sport support professionals (e.g. technical experts in coaching, sport scientists, sport medicine practitioners, nutritionists, physiotherapists, sport psychologists etc.)
	- Paralympic athletes' welfare:
	  - Sport/work and/or study balance
	  - Post athletic career preparation and transition
	- Understanding of high-performance sport and disability

Coaching for parasport and Paralympic sport **(n=20)**	- Education of coaches in disability and Paralympic sport, and ongoing development opportunities - Parasport coach recruitment (from grassroots to the elite level) and paid coaches

Provision of technical parasport sport equipment and accessible facilities
(n=17)
	- Provision of and innovation in parasport assistive sport equipment
	  - Adequate access to appropriate sporting equipment at all levels of the pathway
	  - Directed funding scheme for high-performance Paralympic sport equipment
	  - Innovation and expertise in high performance Paralympic sport equipment (e.g. partnership with technology developers, engineers, sports biomechanics)
	- Provision of accessible facilities (i.e. scheduling and physical access)

Parasport competition framework **(n=14)**	- Competition opportunities at all levels of the competitive sporting pathway - Strategies for opportunities for parasport class-specific competitions

4.1.1 Funding for parasport and Paralympic sport

Funding for parasport sport, Paralympic sport and Paralympic athletes was reported by almost all interviewees (n=21) as being important for a country's Paralympic sporting success. Financing parasport sport was discussed in two ways: 1/ targeted funding for disability and Paralympic sport from grassroots to the elite level and 2/ funding processes specific to high-performance sport programmes, including to individual para-athletes committed to a Paralympic career.

4.1.1.1 *Targeted and protected national funding for the whole-of-parasport*

Ensuring that funding is available specifically for PwD at all levels of the sporting system was seen by most interviewees as being important for their countries' success. However, interviewees often reported that the current government model allocated funding mainly to high-performance Paralympic sport programmes and Paralympic athletes "*So they [the government] put a whole bunch of money in the high performance, but they don't put any money into development"* (I-15). According to several interviewees, this inequitable funding of programmes *"below high-performance"* was problematic for the succession of retiring Paralympic athletes; and therefore policy makers needed to consider funding the whole-of-parasport *"to continue to achieve medal success"* (I-20). Interviewee 15 expanded on this rationale:

> *What happens in those situations is your high performance programme will be really good for a few years, but then, as the athletes that are in it get older, and you put nothing into development, you won't have anybody coming up to take their place. So, you will have a two or a three year glory and then you'll have nothing for a while because you haven't put any money into development. What the system needs to do, is put appropriate amounts of funding into all the levels of their sport.* (I-15)

Moreover, more than half of the participants discussed the importance of allocating funding to Paralympic sport development in both a protected and a targeted manner (i.e. targeted to the specific needs of Paralympic sport). This protection of funding was discussed in relation to those Paralympic sports that integrated into the mainstream NSOs (M-NSOs) (e.g. Swimming Australia): *"Both of them [the NSOs] have prioritised funding to a person to be in charge of the para side of things […]."* (I-8) It was suggested that, in M-NSOs, financial regulations and incentives were important to guarantee that

the appropriate level of funding was allocated for the development of the whole-of-parasport: *"To make sure that the [mainstream] national sport or national federation have the focus on the Paralympic side […] they [policy makers] could do that with funding allocation, how much money the federation puts into supplementing the Paralympic budget."* (I-5) From a government and policy making perspective, a representative confirmed the importance of protected funding processes for parasport as follows:

> *There were a number of things that have been built into funding frameworks that have served to incentivise parasport along the way. And so that's included the way in which funding is allocated […] So a sport can transfer money in, but they can't transfer money out [of Paralympic sport programmes]. And that's based on a preoccupation that if push comes to shove, from a policy perspective we're not entirely convinced that a sport organisation wouldn't cut their para programme to fund another programme that's a mainstream [able-bodied sport] programme.* (I-4)

Beyond the need to incentivise and protect funding to ensure Paralympic sport is appropriately financed in M-NSOs, interviewees also reported the importance of prioritising the allocation of funding relative to the specific costs associated with Paralympic sport. Interviewees explained that there were a number Paralympic sports-specific elements to be taken into consideration for financial decision making including, for example: the athlete/support staff ratio (higher requirement for AwD relative to able-bodied athletes), the cost of specialised high-technology sporting equipment (e.g. sport wheelchairs), classification opportunities (domestic or at internationally) and funding schemes for para-athletes with more severe impairments. The aim of this funding mechanism was to ensure that Paralympic sport is equitably funded in relation to able-bodied sport. For example, interviewees reported the need of making financial decisions based on the needs of the athletes, rather than on the number of Paralympic athletes, which is often much lower than the total number of Olympic athletes. The following comment illustrates the view shared by several interviewees.

> *So you cannot split funding equitably by saying it's number of spaces […] the athletes that need a good chunk of funding are para-athletes because of some of their needs in terms of equipment or travel. Sometimes they have to travel with a carer, so you're going to need a little bit of additional funding for that carer and so on, or a pilot in a tandem bike situation or a ramp assistant in a bocce situation […]. So it needs to be equitable according to the needs of the athletes in the programme to achieve success.* (I-5)

Overall, the data suggested that the allocation of funding relative to parasport specific cost should not be limited to high-performance programmes, but rather it should apply to financial decisions at all levels of the sporting system.

4.1.1.2 *Funding for high-performance Paralympic programmes and athletes*

Funding for the high-performance level of the sporting system specifically was the second important financial element reported for national Paralympic success. Most of the discussion centred on the need to financially support individual Paralympic athletes so they could focus on their sporting career. Similar to the above-mentioned parasport-specific costs, interviewees highlighted the need for government funding schemes to consider Paralympic athletes-specific needs. Elements for consideration included for example, discipline-specific requirement (e.g. specialised equipment), and disability-specific requirement (e.g. added cost of transport related to the degree of disability). The following interviewee's statement summarised this finding:

> *But certainly the money, the direct athlete support to the Paralympic programmes since 2006, 2008 have consistently allowed athletes to be far more professional and train more, and just having access to enough money to get themselves to competitions and buy the appropriate equipment they need.* (I-2)

An additional financial issue was the importance for high-performance Paralympic programmes to receive sustainable funding, which allowed for strategic planning around the Paralympic cycles. One individual stated this was the number one element a country needed to consider to achieve Paralympic success:

> *[…] we [country] think eight years at a time, and that's probably the shortest I think. […] so you can plan and deliver and think ahead. […] so we know that the funding that we've got, it's secured until 2021. […] So there is less pressure on results and performances in 2017, and we can use key benchmark events in 2017 as a tool to help us to deliver what we need to deliver in Tokyo.* (I-19)

Complementing the above statement, an interviewee from another country indicated the importance of increasing the funding dedicated to high-performance Paralympic sport programmes the year leading to the PG.

> *[…] we're having to build with a fixed amount of resource, with financial deadlines every year. So there's not much alternatives for us to develop financial and human*

> *resources significantly, even if elite levels require resources that increase exponentially in year prior to the Games […] the [country's] government budget model is not adapted.* (I-14)

In summary, the data suggests that funding interventions for Paralympic sport success development need to consider all levels of the sporting system. There needs to be protected and targeted funding mechanisms in place to ensure that Paralympic sport is equitably and appropriately funded, and, at the high-performance level specifically, funding needs to be sustainable and consider the specific needs of high-performance Paralympic athletes.

4.1.2 National governance and organisation of parasport and Paralympic sport

Organisational and governance processes for the development and delivery of parasport nationally composed one of the most discussed topics in relation to a country's success in the PG. As can be seen in Table 9, this was discussed in two principle ways: the national mainstreaming and coordination of parasport from grassroots to the elite level, as well as the national planning, strategies and coordination of actions specifically at the high-performance intervention level.

4.1.2.1 *Whole-of-sport system mainstreaming and coordination of parasport*

One of the dominant ideas underpinning the whole-of-sport theme is the importance for the organisation and governance of parasport in a country to be centred around the long-term development of para-athletes (i.e. from the entry of a child or an adult with disability into sport participation, to their potential selection and development at the high-performance and elite levels). In some instances, this idea was one of the first elements that interviewees reported as being important for Paralympic success. The following statement summarises the views of interviewees:

> *I think the important thing is that the success or the development at the elite end is only really as ever good as the developments for the levels below. So, for example, you'll never have a gold medal winning Paralympic wheelchair rugby train as we do without there being really strong athlete development pathways and right from the grassroots to state level to national level and after.* (I-6)

Several interviewees suggested that a whole-of-sport governance was important for sustaining the ongoing recruitment of new talented Paralympic athletes, as illustrated by this statement: "*We need to develop the structures lower down the pathway so there's always upper pressure coming to the Paralympic pathway to replenish those athletes that naturally retire or get injured or fall out of the Paralympic Movement*." (I-20) These views underpinned the rationale for several of the governance and organisational processes that compose this theme.

Overall, the data indicated that mainstreaming the organisation of parasport from the grassroots to the elite level within the national sporting system was important for the development of Paralympic sporting success. In the interviews, the integrated delivery and organisation of parasport within the mainstream sporting system was discussed in several ways, including: government commitment to and incentives for parasport; the integration of parasport into existing M-NSOs and high-performance sport structures; the delineated accountability and advocacy for parasport; the professionalisation of parasport; and the collaboration between organisational stakeholders.

Commitment from the government in terms of funding and incentives for parasport were central for the development of the whole-of-parasport: "*the [government sport organisation] saw that there was a real need to have some clear direction here in this area [Paralympic sport], and, yes, about creating change. So that was important."* (I-2). This direction from the government was reported as a driver for the integration of parasport into current sporting systems and processes, which was believed to be beneficial for Paralympic sporting success:

> *[…] I don't think that a commitment to parasport is something that has necessarily been grassroots organic, it's been a very conscious decision that's been made to engage and support and incentivise. And so within the policy framework and the kind of policy framework that I was describing with respect to [Government Organisation] […] we want to do a move to integration. We're changing the way in which we deliver sport. […] And we are going to integrate it [parasport] into our funding systems so that we are being fair and making sure that we're pushing both [Olympic and Paralympic sport] so that it becomes less of an option. […]And so that serves to change the landscape, just like the international federation's policy decision to say, 'We're adopting parasports. Congratulations everybody, here we go.'"* (I-4)

As introduced in the above quote, a second critical issue for mainstreaming parasport was the integration of parasport disciplines, initially managed by National Disability Sport Organisations (NDSOs), into existing M-NSOs (e.g. Basketball

Australia) and high-performance sporting structures (e.g. high-performance programmes in NSOs and institutes of sport). One common rationale given for the importance of mainstreaming policies for Paralympic sporting success was that sport participants with disabilities and Paralympic athletes benefitted from the M-NSOs pre-existing sporting infrastructures such as, club systems, facilities, coaching framework, competition structures, as well as from the technical sporting expertise required at the higher level of sport performance. This idea is illustrated by the following interviewee who elaborated on the influence that integrating parasport in M-NSOs had on their country Paralympic sporting success. This statement summarises the view shared by several interviewees.

> *[…] in some sports where it's probably been a good mainstreaming process. […] I think has helped because you can identify the athletes early, you can train them, you can manage their pathway, there's a communication about identifying challenge, etc., and better funding of the underpinning programmes when it's all under one organisation*. (I-6)

While, in general, the integration of parasport in M-NSOs and high-performance sporting programmes was seen as positive for Paralympic success, a number of interviewees also mentioned that the implementation of the mainstreaming policy had encountered a number of challenges, and their negative influence on developing Paralympic success was unknown. These challenges are associated with contextual factors and will thus be further discussed in the next finding section (See 4.2.2).

An important governance mechanism directly related to the above integration practices was the concept of delineated accountability and leadership for parasport. Most interviewees stated that M-NSOs and institutes of sports that receive government funding for Paralympic sport development and Paralympic athletes support need to develop clearly defined management and reporting mechanisms focused on ensuring the needs of para-athletes, parasport coaches and Paralympic sport programmes are catered for. Clearly demarcated checks in those organisations responsible for Paralympic sport was viewed as critical for the development of and access to equitable sporting structures for Paralympic athletes. The following statements by interviewees from different countries illustrate this situation at the high-performance level.

> *If we're looking at developing a framework that's sustainable, then questions need to be asked. Who is being held accountable for the development of the sports science, sports needs of Paralympic athletes? I don't believe they're done as well as they can be […] what questions are we asking the sports to ensure that the infrastructure is there to support athlete development through coaching*

enhancement? It's reliant on an individual within the sport to be able to say, 'What do you need?' (I-1)

[…] for all decisions taken it is important to ask the questions, to know where there is a specificity [for Paralympic sport] or not. Sometimes, there doesn't need to be any, and so we offer the same [support] mechanism. But if there is a difference, they [the policy makers] need to have in mind 'so, I need to consult disability stakeholders and sport stakeholders to know if what I am going to implement, is going to have the same in impact on Paralympic sport and Olympic sports'. And so, from the start, we need to try to ask ourselves these questions. (I-16)

Several interviewees reported that this delineated focus on parasport could be achieved by practices such as employing staff members who are solely dedicated to the management of parasport development as a whole (in M-NSOs) and Paralympic athlete services (in high-performance sport programmes). The following statements illustrate interviewees shared opinion:

It's a simple answer. It's just having the focus [on Paralympic sport], and we're in high performance sport so if we don't have that personnel, that focus, and understanding what is required, it's just lost in the shuffle of other things within the organisation. (I-5)

[…] even though the organisation may be in charge over Paralympic and kind of inclusive, it's almost important to have a specific person that leads the Paralympic side of things so they don't get lost. (I-7)

Expanding on the above need for parasport-specific managers, several interviewees indicated the importance of professionalising parasport more generally to facilitate Paralympic sporting success development. This included the need for full-time parasport managers, not only for parasports integrated in M-NSOs, but also for parasport-specific NSOs (P-NSOs) (e.g. British Wheelchair Basketball), as well as for parasports managed in NDSOs. Beyond management positions, there was an identified need to professionalise parasport programme delivery, which included hiring full time paid parasport coaches, technical support staff in high-performance Paralympic sport teams, and classifiers. While in some countries there was evidence that this professionalisation had taken place *"[…] there's been people employed within national sporting organisations who would look directly after the Paralympic programmes within those organisations. […]. And having paid staff, I mean, a lot of the pre-2000, a lot of those roles were almost volunteer basis."* (I-2); in other countries, professionalisation was in need of further development: *"There needs to be professionalisation of support teams that would allow to follow athletes closely."* (I-17)

Additional governance elements were identified as important, including collaboration between organisational stakeholders and the coordination of their actions for organisational alignment from the grassroots to the elite level. Interviewees discussed these elements at three organisational levels: at an individual NSO level, at the level of inter-organisational relationships, and at the level of relationships between different sectors (sport, health, education and defence). First, interviewees indicated that connections between programmes at the local, regional and national levels in M- & P-NSOs were central to appropriately address different levels of para-athletes development. In addition, collaboration between the different sporting organisations involved in the development of para-athletes (i.e. NDSOs, M- & P-NSOs, NPC and institutes of sports, sport government organisations/agencies), and coordination and alignment of their roles at different localities of the political system (i.e. federal/national, regional, state and local levels) were important. The following statement describes the opinion shared by interviewees:

> *In [country] our system is very fragmented […] There's no alignment vertically or horizontally. We don't do very well, so I think we need an aligned system. We're getting better on the Olympics side. But the Paralympic side is much more fragmented. We've got disability sport organisations, sport organisations. Some are integrated. Some are not integrated. It's kind of a mess, quite honestly. It's amazing that our athletes do as well as they do. So I would say alignment first and foremost.* (I-10)

Collaborations between NDSOs and M-NSOs were seen as particularly important for two reasons. First, a number of interviewees mentioned that the NDSOs are those with disability knowledge, while the M-NSOs have the technical sport expertise, hence, ensuring that the two parties collaborate would likely lead to better support of para-athletes. Second, several interviewees stated that NDSOs have closer ties with the larger population of PwD at the grassroots level and are more likely to recruit individuals for parasport. An interviewee described a situation reported in other countries as follows:

> *They [people with disabilities] work with those organisations [the disability sport organisations] who help them to become fitter and more active and try different sports. And then they're the ones generally who provide that support network and that mental shift to develop those athletes to the point where they can say, 'Now that I know that I'm talented in this sport' and that's where the high performance kicks in. But unless you really work closely with the disability organisations, you're going to miss a big part of the picture I think. So I think those are the two critical things.* (I-6)

Finally, collaborations between organisational stakeholders from the sporting system and stakeholders from the education and health sector (rehabilitation centres and specialists), as well as the disability support sector and the military were seen important. This is in part due to the engagement of institutions in those various sectors with PwD. According to interviewees, these collaborations help promote the participation of children and adults with disabilities in sport, and also help identifying talented para-athletes.

> *When I talked about the detection of athletes outside of sport, earlier, for example with injured war veterans, or in rehabilitation centres, in this case, those institutions exist but us at the Ministry, we're not well placed to know about these the best. In my opinion, this needs to be another project, it needs to be an inter-ministerial initiative, which could be supported by other ministries, so that goals [high-performance parasport goals] are shared with other sectors, be it the army, health, or a big rehabilitation centre.* (I-23)

Overall, the data from this theme suggests that mainstreaming parasport in the whole of the sporting system was seen as important for a country's Paralympic sporting success, in that it provides a focus on the development and the professionalisation of Paralympic sports, and in some instances provide mechanisms to support specific needs of parasport and athletes. This in turn allows for developing sport structures that support the long-term development of AwD, and build on pre-existing sporting structures when possible. At the same time, evaluating mainstreaming, specifically as the level of M-NSOs was reported by several interviewees, as mainstreaming could also have led to challenges for Paralympic sport development. This will be discussed in section 4.2.

4.1.2.2 ***High-performance Paralympic sport coordination, planning and strategies***

National organisational processes important for Paralympic success were specifically described at the level of high-performance Paralympic sport programmes. Some interviewees stressed the need for directors and managers to have the capacity to plan ahead several Paralympic cycles, as it would ensure that decisions benefited current elite athletes as well as future potential athletes. Moreover, the importance of the coordination of actions between diverse organisations within the country to strategically identify and transfer talented Paralympic athletes was also indicated. A nationally coordinated collective effort between different Paralympic sports to identify talented para-athletes and the career pathway that would best correspond to their sporting potential

was seen as particularly important in light of the very small pool of talented AwD, and the small competition within specific parasport classes (this issue of parasport classes is further discussed in sections 4.1.5 and 4.1.6). Strategies such as the development of national para-athlete management and performance tracking systems, as well as collaborative engagement between sporting bodies (overseeing Paralympic athlete talent programmes) and organisations from the defence/military and health sectors were also considered important, as illustrated by this statement:

> *[…] nationally, the [National Paralympic stakeholder organisations] […] also have systems where they link to [name of organisation], which is a charity for wounded servicemen. They have links to military hospitals, so again when people acquire a disability through accident or an injury.* (I-18)

Some interviewees also reported the importance of efforts to manage and coordinate actions for effective Paralympic athletes support services. In particular, the ability to easily leverage financial and human resources to quickly act on a para-athlete situation at the high-performance/ elite level was highlighted. The need for simplicity of decision making is illustrated by this interviewee:

> *The second key element […] simple administration and the capacity to act rapidly in order to mobilise high-performance sport actors quickly. […] I think we could save reaction time and anticipating issues related to individual high-performance programmes.* (I-14)

Finally, the most discussed organisational issue at the high-performance level was communication channels in order for key individual stakeholders such as para-athletes, coaches, managers, sport scientists, classifiers, and other key support staff to exchange expertise and experience about Paralympic athletes' development, training, and support. Important communication opportunities included the national coordination of forums for cross-disciplines exchanges: *"[…] there are still many opportunities for coaches and administrators to get together, there's all sorts of forums and conferences. […] Those sorts of thing make a difference […]."* (I-3); and the coordination of communication strategies within organisations "*We have an athlete council, so they're usually asked specific questions about the system."* (I-15). Additionally, several interviewees indicated the need for the umbrella organisation of sport in the country to formally coordinate such communication strategies, through review processes for example.

> *[…] every year we have what's called a mission review. […] I will probably have in the room the performance director of [parasport], [parasport] because I believe*

> *the sports are quite similar and that system-wise and process-wise, a lot of what we do is the same. So we have people in the room that can challenge what we do, saying, "No, I don't think that's right," or, "Well, yeah, we have that problem and we deal with it in this way." You get that critical friend looking at what you do, so I think that's strong.* (I-19)

Continuing this communication between Paralympic sports on a more informal level was also seen as critical:

> *So we meet as sports on a regular basis to share knowledge and to share best practice, and I think that's really important because you can get very focused on your own sport and forget that there are 20 other sports out there, and certainly at Paralympic level that's really helpful for the bigger sports.* (I-19)

In summary, interviewees reported the importance of having an aligned, mainstreamed sporting system that support participants and AwD to develop to the elite level of Paralympic sport performance. Organisational processes that focus on elite Paralympic sport programme development and success were also considered important; these included the capacity for long-term planning (i.e. multi-Paralympic cycles), national coordination and strategies for Paralympic athlete talent identification and transfer, the coordination of service providers to optimise individual Paralympic athletes development, and coordinated communication mechanisms for formal and informal Paralympic sport knowledge exchange.

4.1.3 Integration of disability-specific and Paralympic sport knowledge

The development and integration in the mainstream sporting system of a knowledge base and technical expertise relating to disability and sport and Paralympic sport was one of the most discussed topic for a country's Paralympic success. Three issues were reported: first, the need to improve all stakeholders' understanding on what disability in sport entails, including developing Paralympic sport expertise amongst sport professionals and volunteers; second, the need to develop a nationally coordinated research and innovation agenda for the development of Paralympic knowledge; and third, the need to specifically develop the application of sport science and sport medicine to Paralympic sport at the high performance level.

4.1.3.1 *Developing disability and Paralympic sports knowledge and expertise from grassroots to the elite level*

A pattern identified in interviewees' responses was the importance to integrate disability knowledge from grassroots sport to high-performance and elite sport programmes in the sporting system. Specifically, there is a need to improve the understanding and expertise in stakeholders supporting Paralympic athletes (e.g. coaches, technical support staff, and managers). This knowledge development entailed both the delineated consideration for and the understanding of parasport specific elements (described below) in policy and practice, as well as the formalisation of content development in the training of those involved in the development of para-athletes.

When discussing elements of disability and Paralympic sport that need to be understood by stakeholders, interviewees consistently talked about six parasport technical elements, and also emphasised the importance of developing a comprehensive understanding of disability (i.e. that goes beyond a medical view of disability). The six parasport technical elements included: 1/ the need to recognise para-athletes partners, (e.g. guides in para-athletics and tandem pilots in para-cycling) and the fact that they are athletes in their own right; 2/ the understanding that in Paralympic sport training and competitions, the ratios athletes-coaches/ athlete-support staff can be smaller (e.g. para-athletes with more several impairment can need personal assistant); 3/ the understanding of how specific aspects of sport and exercise sciences (e.g. strength and conditioning) might require adaption to how a para-athlete's body responds based on the severity and

type of impairment, at different level of athletic development; 4/ the understanding of Paralympic sport classification fundamentals, such as the concept of minimum eligibility criteria (i.e. does an athlete have the minimum level of impairment to be eligible in a parasport class?), as well as the understanding of classification policies and procedures; 5/ an appreciation for the fact that Paralympic competitions could differ from mainstream competitions in terms of timing (parasport competitions are not on the same calendars as different from mainstream sport competitions) and type (i.e. multi-classes competitions); and 6/ the consideration of para-athletes assistive devices (e.g. running prosthesis, specialised wheelchair, throwing ramp) in terms of cost, and in terms of the impact on training (i.e. the interface between the human body and technology) and on travel demands (e.g. a team of wheelchair rugby or basketball players travelling with their own wheelchair and their sport wheelchair).

The need for sport system stakeholders to develop a comprehensive understanding of disability was a second important issue. This included the importance of conceptualising disability not only as a social notion, but also as a lived experience that varies at the individual and relational levels based on the impairment (i.e. impairment effect). At the society level, interviewees stressed the need for all stakeholders to understand the structural and cultural challenges that PwD may face in daily life. For example, some interviewees noted that it was critical to gain an understanding of the general, oppressive norms around the meaning of being disabled in a society and how these can potentially impact the social environment in which athletes navigate. At the relational level, interviewees indicated the need for stakeholders to understand the fact that PwD can face negative attitudes when participating in sport, including by sport stakeholders themselves. At the individual level, interviewees mentioned the importance of not ignoring the fact that different impairments have different effects on the physical tasks performed in sport and/or in the daily training environment of an athlete.

Overall, interviewees stressed that the integration of this knowledge base in the sporting system was critical at all levels of the sporting system. First, high-level sport policy makers and leaders (i.e. coaching directors and general sport directors in NSOs) should consider Paralympic sport elements to ensure adequate accountability is in place to address the needs of para-athletes and Paralympic sport. The following interviewee explained this as follows:

> *You need someone in the national system with an understanding of Paralympic sport to be asking the questions and digging deeper when the questions are asked to get a true understanding of what's being delivered at an athlete level. Okay. Somebody without knowledge of Paralympic sport would go, "Well, that's okay." Someone with Paralympic knowledge would go, "Well, what's the component of the camps? Is it amputees? Is it cerebral palsy? Are they all together? What are you doing to support your athletes with cerebral palsy? Who's providing information around fatigue? What are you doing with developing componentry? What are you doing with the socket fit? Who are the key prosthetists? What's your succession plan for your next prosthetist?* (I-1)

A Paralympic sport and disability specific knowledge base was also discussed at the NSOs level, in particular in relation to those M-NSOs that have integrated or are in the process of integrating parasport in their organisation. Interviewees often referred to this knowledge integration as the need to combine the best technical sport knowledge (which was reported as residing in M-NSOs) and the best impairment-specific knowledge (which was reported as residing in NDSOs).

> *I think if there's going to be Paralympic success […] then I think it's very important that it's a collaborative spectrum which includes the best sport specific sport technical knowledge from an equipment, coaching perspective, and also the best impairment specific knowledge, again whether it's equipment, whether it's off the field of play types of things.* (I-9)

> *[…] in Olympic federations they have the best technical knowledge of their sports, which is normal, so this… And we [the National Disability Sport Organisation] we have disability knowledge, related issues and constraints. And so, we mix the two, either for the development of training programmes or in research, or in the pooling of resources.* (I-13)

Overall, these statements reflect the importance of integrating Paralympic sport specific issues and impairment-specific knowledge within the sporting organisations that provide participation and performance development opportunities for AwD.

At the high-performance programming level, most interviewees expanded on the need for all stakeholders (e.g. applied sport scientists, sport medicine practitioners and other para-athletes support staff) to understand the interaction between disability and the demands of high-performance sport. The two most discussed issues were the understanding of the interaction between an individual athlete's impairment and physical performance (e.g. the biomechanics of assistive/technology-human interface), as well the understanding of requirements needed in daily training and competitions environment more broadly (e.g. the accommodations that Paralympic athletes may require based on

the type and level of impairment and the socio-psychology of what it means to be disabled in certain societies and impact on schooling, employability etc.). Illustrating this issue, when probed on what was important for elite Paralympic success in contrast to Olympic success, one interviewees noted that:

> *People need to know what the disabilities are and what that entails. […] with somebody that has CP [Cerebral Palsy] there have been opinions that they should not lift too heavy of weights because of the tone in their musculature that might increase the tone, but those are all speculative. I don't know if they're right or wrong. Muscular dystrophy; they talk about, with muscular dystrophy the potential to overwork the muscles and drain the energy levels that they have. In nutrition, you have to know in nutrition that a disabled athlete might not need as much protein as an able-bodied athlete, and that's the kind of services that they need at the higher levels. And it's different.* (I-15)

Moreover, interviewees stressed the need for high-performance stakeholder organisations and individuals to understand Paralympic sport classification due to its critical role throughout an athlete's performance pathway (discussed in section 4.1.5 and 4.1.6). The understanding of these issues by Paralympic sport stakeholders was described by terms such as: *"having the Paralympic reflex", "Paralympic specialists"*, *"the Paralympic technician*".

Several interviewees suggested that such integration of disability sport specific knowledge in the sporting system could be achieved by developing and implementing formal educational content and training for NSOs and high-performance sport technical directors, classifiers, and staff members of high-performance support teams (e.g. physiologists and physiotherapists, biomechanists, nutritionists, medical staff). The need for training and curriculum [re]development was particularly emphasised for coaches' education. This issue is further expanded upon in the coaching sub-sections (4.1.8). While one interviewee stated that going on a course was not necessarily needed to acquire this knowledge because disability specific issues could be resolved by asking the right questions to people who know about disability, most interviewees talked about the formalisation of disability and Paralympic sport knowledge in training contents and its integration in the sporting system as a whole. The following quote summarises the view shared by interviewees:

> *I think that once we have identified a technical staff as being able to support a Paralympic programme, he should be trained in this field specifically. And today, this is not happening. Not systematically. It does raise question regarding technical directors training.* (I-14)

4.1.3.2 *National coordinated disability sport and Paralympic sport scientific research and its application*

Related to the issue of formalisation of training content for knowledge on disability and sport, a number of participants mentioned the importance of developing research and scientific studies on disability and parasport in key disciplines (e.g. exercise science, sport performance, and the social sciences). The following interviewee illustrates the importance of such research initiatives and the link to educational content development:

> *For each type of impairment, we need to create training content that are based on scientific research for example […] because the public [of sport participants with disabilities] is too heterogeneous, so we are in a bit of a difficult situation on this knowledge development. There are very little written resources in [country], and on expertise exchange.* (I-13)

In that regard, interviewees reported the importance of national coordination and support for such research, through government grant schemes for example.

> *We [the country] have not invested nearly as much in parasport research that we need to. There're so many unanswered questions but such limited research budget, so just making sure that whatever the appropriate amount of money going into research on the Olympic side that is going to the Paralympic side as well […]. That needs to be a policy to make sure that it's equal, as equal as it can be, I guess.* (I-10)

Specifically, a number of interviewees noted the need to conduct research and development on sport technology innovation "*because it's the marginal gain"* (I-7), as well as parasport class-specific research (i.e. research that investigates the interaction between a specific impairment and sport training and performance in a specific sport).

> *So I think one of the areas that needs a lot more resource put into it is classification research, the classification system development […]. When you have a coach of a track team who has three different impairment groups on his track team and a range within each of those impairment groups, he can't be an expert in all of those impairment groups. So again, I think that's part of the support that's needed.* (I-9)

As previously mentioned, interviewees further reported the need for the knowledge emerging from these studies to be learnt, translated and applied in practice by sport scientists, sport medicine practitioners and other support staff. The importance

given by interviewees to Paralympic sport and disability-specific knowledge interventions suggests that countries that focus their efforts on developing and integrating a knowledge base on disability into current content, and translate this knowledge in the sporting system, could improve the country's Paralympic competitiveness.

4.1.4 Participation in physical education and grassroots sport by children and adults with disabilities

The majority of participants (n=21) discussed the importance of physical education and community and organised grassroots sport opportunities for children and adults with disabilities for a country's Paralympic success. The rationale was twofold. First, interviewees believed these opportunities allow children with disabilities and children/adults who acquire an impairment later in life, to develop fundamental skills needed to play sport. Second, interviewees noted that it would facilitate the renewal of talented para-athletes when current Paralympic athletes retire. Three main issues were discussed including, the importance of parasport awareness raising initiatives through collaborations with organisations involved in the lives of PwD, the requirement for a nationally organised and inclusive sport participation structure, and the importance for children with disabilities to be able to access inclusive physical education in schools.

4.1.4.1 *Parasport sport awareness, engagement and referral initiatives*

More than half of interviewees (representing all countries), reported the importance of initiatives that aim to provide information about and introduce sport opportunities to PwD. These initial opportunities can assist in engaging early participants in positive first experiences in (mainstream or disability) sport. Some interviewees considered such parasport awareness and information programmes as an important "*recruitment strategy*" or "*detection policy*" to increase participation of PwD in sport and parasport specifically. One of the main reasoning was that by exposing the population of children and adults with disabilities to sporting opportunities, the parasport participation base would grow, which would be critical for Paralympic success. Key parasport awareness and engagement initiatives included outreach programmes, which were primarily described by interviewees as collaborations between the sport sector together with other public sectors involved in the lives of PwD. These other public sectors included

health, disability service, the army and education. This sub-section describes these key collaborations.

Regarding collaborations with the health sector, parasport awareness and referral initiatives with/within rehabilitation centres and specialised medical professionals more broadly (prosthetists, physiotherapists etc.) were considered important. An interviewee noted in that regard *"[…] our rehab units who are very closely linked to our [disability sport] organisations, for example; that pathway is really strong."* (I-6) Some interviewees discussed the important role these interventions played in both raising awareness in heath service professionals, often working with people with acquired disability, and in introducing sport to people with acquired physical injuries (such as spinal cord injuries). Overall, the aims of these initiatives were to ensure: 1/ that people newly disabled and, who did not necessarily have established knowledge of the disability sector, were introduced to opportunities that exist for them, and 2/ that connection between rehabilitation programmes and sport organisations could be facilitated for those people interested in starting organised parasport. The following example describes a specific nationally coordinated intervention, which summarises participants' views regarding the importance of such engagement programmes:

> *[...] with [parasport] we have a system in place […]it goes right into rehab centres or other disability centres and demos [parasports names], brings the equipment, helps people get in and out of the chairs, has peer athletes come and explain the sport and why they love it. And then they follow up by phoning people that have been first time participants afterwards to see if they liked it, to see if they wanted to get involved. And the staff that are involved in that programme are encouraged to actually assist people to get to the sports.* (I-15)

Secondly, collaborations between M-NSOs & P-NSOs, NDSOs and the disability sector (i.e. disability specific associations, e.g. Cerebral Palsy Alliance in Australia, governmental disability insurance and social security provisions) were considered central to promoting parasports and referring athletes to organised parasport opportunities. Interviewees reported that due to the roles that some disability service organisations played in the lives of PwD, parasport awareness initiatives coordinated through such disability service organisations could promote parasport as well as refer PwD to sport opportunities. Additionally, interviewees reported that NDSOs (which were often seen as the link between the disability sector and organised parasport in M-NSOs & P-NSOs) had a critical role in the promotion and recruitment of PwD into organised parasport participation, as illustrated by the following statement.

> *The other thing is identifying and reaching into those communities of people with a disability. It's those organisations of sport for people with a disability that have those connections at the local and state and national level. Yeah, so I think that in that situation to identify the athletes and to bring people into their sport, they need to be dealing with our organisations or it's very hit and miss. […] it may be they have an athlete who before their accident was a triathlete. They know automatically they're going to go back to triathlon. That would be easy, but that's not the majority. The majority of people either haven't done a sport before or they have to do something different from their able-bodied sport they did. And so our organisations are the ones that are doing that and are working with them, so it has to – it's a supply chain. It's a supply chain issue as well.* (I-6)

Collaboration between the sporting sector and military organisations were considered important to raise awareness of parasport opportunities in war veterans. In particular those military organisations linked to rehabilitation programmes for people who acquired a disability in service could have a critical role in promoting parasport. According to several interviewees, these awareness raising initiatives with the military sector assist in para-athletes talent identification. Indeed, as war veterans tend to have athletic profiles, the military is a group targeted for the identification of competitive para-athletes. This is further discussed in the finding section on talent identification strategies.

Finally, several interviewees discussed the need for initiatives targeting parasport awareness to be conducted in partnership with the education sector (e.g. government education departments and schools), and the importance of delivering these initiatives both in the mainstream and special schools. Interviewees either described specific programmes that existed in the country to link pupils to Paralympic sports or talked about the efforts of the nation to develop relationships with the school system.

Beyond the need for the sport sector to establish collaboration with other sectors, interviewees stated that M-NSOs also need to develop their own awareness programmes for the wider public. These could be within their own organisations infrastructures such as "come-and-try" days, or in collaboration with the above sectors, as illustrated by this interviewee: *"for example in [parasport], they [the NSO] will go to the local schools and get kids and have talent camps and come-and-try-it days, all kinds of techniques to get kids involved."* (I-18)

Overall, the data suggest the importance for parasport awareness, engagement, and referral initiatives to be coordinated nationally by government departments of sport in collaboration with other key public domains. While in some countries this type of national coordination seemed to already exist, in other countries, the need to coordinate these initiatives nationally needed to be further considered and developed by national

policy makers, as illustrated by this comment: *"so many disability groups do their own activity programmes, the school activity programmes. If somehow we can coordinate them and tap into that, even in some simple ways and make the connection to sport."* (I-3)

4.1.4.2 *A sport system with an organised sport participation structure accessible for PwD*

More than half of all interviewees discussed the importance of the sporting system as whole to establish an organised grassroots [para]-sport participation offer for PwD, through the development of a systematic club structure: *"You have to have the club-based system where people can come and play for recreation."* (I-15) Interviewees believed that "*to have success, then you need a foundation, a really good, solid, sustainable foundation that's built into the policy, that's built into how things worked"* (I-3). This view was shared by interviewees from all countries. In that regard, another individual stated: *"So if we don't invest in club development, we don't invest in increasing the numbers of participation, we're not going to increase the number of athletes in the Paralympic pathway."* (I-20)

As introduced by interviewee 20 above, many others stressed the need for a funding model of sport that also focuses on the development of parasport opportunities. This issue was discussed in relation to funding models in countries, which tended to heavily finance high-performance Paralympic sport. This is summarised by the following statement:

> *[…] while you may have a well-performing Paralympic team, if all of the funding goes to that, then the other 99% of Australians with a disability, 99.9% of Australians with a disability are becoming less active and not more. And so I think over a long period of time that's not good. […] I think long term in terms of performance it's not sustainable.* (I-6)

Interviewees discussed the importance for the club structure to have a maximised coverage across the country's local jurisdictions, through the NDSOs and NSOs, in part by ensuring that all clubs, particularly the M-NSO clubs *"have a diversified offer […] to ensure that all people with disabilities, whatever their disability is, can participate in sport"* (I-17). Indeed, almost all interviewees talked about the need for those clubs in M-NSOs to work on their inclusive practices, to make sure that their sport is accessible to

all. In that regard, an interviewee suggested that M-NSOs inclusion strategies had an important role to play:

> *And then from there you're really needing a support strategy in terms of clubs and inclusive governing bodies of sport to ensure that any potential athlete has the opportunity to progress in a similar way to their mainstream peers.* (I-21)

The following interviewee expanded on the link between inclusive sporting clubs structure and Paralympic success, illustrating this issue:

> *I think to be successful you want to have everybody have an opportunity to get into the system and test their skills, and then you're going to be able to choose the best group based on everybody […]. But if you have had half of your population of potential Paralympic athletes not even get involved in the system because it hasn't been equitable, it hasn't been welcoming […] there's been people been allowed to discriminate. If then, we haven't got the best group of people to choose from. Just choosing from whoever's been fortunate enough to get through the system by chance, by loud voices, by just having to fall in the right place at the right time, which a lot of our athletes in the past, that's exactly how they've gotten to a team.* (I-8)

4.1.4.3 ***Accessible physical education***

While physical education (PE) was not the predominant focus of the grassroots sport category in terms of depth of discussion, several interviewees reported the importance for children with disabilities, either in mainstream or specialised schools, to have access to PE. This sub-category was judged relevant because it was often reported as part of the whole of grassroots opportunities for those children born and growing up with disabilities to participate in sport and develop fundamental skills.

> *[…] people with disabilities need to be able to play sport in schools. Often they are given medical certificate, which sends the message 'Well, no! You have an impairment, you're exempted from playing sport.' We need to be able to move beyond this, so that people with disabilities can really play sports. And so, there needs to be a support strategy in schools, as well as in clubs, so that activities are allowed to everyone.* (I-16)

Overall, the data suggest that, similar to M-NSO clubs' responsibilities and capabilities, it is important for schools to provide inclusive participation opportunities.

4.1.5 Paralympic athlete classification processes and strategies

The majority of participants (n=21) reported that Paralympic athlete classification (PAC) was critical for a country's Paralympic success. As introduced in the literature review, PAC is the evaluation process conducted by classifiers to determine an athlete eligibility for Paralympic competition, as well as the athlete class allocation based on the impact that their impairment has on the fundamental tasks of a specific sport. As a result, PAC is the entry [and exist] point into a Paralympic sport pathway. Classification processes must comply with and follow the IPC Classification Code and rules. These processes are governed by the International Governing Bodies of a Paralympic sport (IPC members), as well as their respective National Governing Bodies.

Paralympic Athlete Classification was discussed by interviewees in three ways: the importance of clear national classification processes, the provision and training of classification personnel and the importance of awareness and education of the whole sporting system on what PAC is.

4.1.5.1 *National coordination and capacity for ethical Paralympic athlete classification processes*

Half of all interviewees reported the need for national leaders of Paralympic sport (e.g. NPCs and government organisations) to coordinate PAC processes across the nation (i.e. in different Paralympic sports). This coordination included ensuring that the roles of stakeholders in PAC processes are clear, that PAC evaluations are conducted ethically (no misrepresentation[15]), and that they are compliant and up-to-date with the latest iterations of the IPC Classification Code *"The [NSOs] will plan for that [classification update] because often there's classification changes within sport."* (I-21) Interviewees also mentioned the need to a develop PAC procedural framework at the NSOs level (M-NSOs and P-NSOs), and to ensure that NSOs had the capability to manage these classification processes and that they are aligned with their International Federation

[15] Intentional misrepresentation of abilities is the practice of cheating the classification system, it has been defined by Tweedy et al. (2014) as "*exaggerating impairment severity by deliberately underperforming on tests of impairment (e.g, tests of strength or coordination). … [It] is attempted by athletes who aim to gain an unfair competitive advantage by being placed into a class with athletes who have more-severe impairments."* (p.16)

Codes at all levels (i.e. grassroots to elite level). In that regard, dedicated management to PAC processes was considered important:

> *I think primarily we have invested in a classification manager, so we have one person who is full time who's role it is to ensure that our processes are aligned, our co-classifiers are trained appropriately, that we are working with IPC, that we are very clear on national process linking into the international process, that we run international classification in the [country] every year so that we have an international classification opportunity on our shore so that we can not only put our athletes through that, but so we can let our national classifiers see that process and understand that process a bit more. So I think fundamentally for us having that one person who's in sole charge and responsibility for classification is really, really important.* (I-19)

An interviewee from another country complemented the information above, describing the importance of coordinating PAC processes across NSOs with a *"head of classification"* in the country. This could be someone who works with the international federations to lead the development of classification capability within the nation, and ensure the sustainability of classification processes across the various parasports.

In terms of the actual PAC processes, more than half of interviewees reported the need to identify eligible athletes, and the need to ideally allocate them to the right Paralympic sport class as early as possible. This was to ensure that stakeholders were aware which athletes could be recruited in Paralympic sport pathways, and to allow para-athletes to start competing against their direct opponents: "*if an athlete is not classified they can't measure their performance against others so they can't identify if they're talented."* (I-6) Another interviewee also conceptualised PAC in relation the identification of Paralympic talents:

> *To me, classification is really the first stage of the talent ID [Identification] process for Paralympic athletes. If you're not classifiable within the sport, there's no point in you continuing along the Paralympic pathway. Yes, you can continue competing regularly within the sport, but as a nation or as a sport if we can't differentiate between who's borderline eligible and who's borderline not eligible where you can potentially be investing our resources very unwisely, resources that could really be used in a better way.* (I-20)

The link between PAC and Paralympic talent identification is further discussed in the next section on Paralympic talent identification and transfers.

Beyond identifying eligible para-athletes as early as possible, interviewees reported the importance for para-athletes to have continued classification opportunities at all levels of their development, i.e. from the point there are identified as eligible at the

grassroots level, to the regional and national levels (i.e. domestic classification), as well at the elite level (international classification).

> *So having classification all the way through, they [the NSOs] are doing that, and I know this because I'm also a classifier for [parasport] and [other parasport]. So I know how well it happens, and they have a very clear process at only the national level that is then rolled out right through the way down from the point a person identifies that that is a sport they want to do whether elite or not.* (I-6)

For some countries, offering international classification opportunities seemed difficult. An interviewee provided an example of a strategy used to address this challenge:

> *Attracting international classification is hard when you don't have a competition, so it becomes very costly, even for a country like us to bring classifiers in, etc., or host a competition. So a lot of time we have to send athletes away, so that's something as an [name of organisation] that we fund and we help […].* (I-5)

Within these classification opportunities, a few interviewees added the need for classification reviews to be conducted at appropriate times. This was to confirm para-athlete eligibility within the class, in particular for Paralympic athletes with medical conditions that evolve over time, and which could lead them being allocated to another parasport class. An interviewee described this situation:

> *I guess we monitor our current athlete pool quite closely so that we can see if their disability is regressing, in which case they might need to go back into the classification process. […] So if we know that somebody is quite close to borderline of S9 and S8 in swimming, so we can see through our physio-screening that their mobility is reducing, then we might say, 'Look, there's some evidence here that says you might want to go backwards in classification.' And we'll support an athlete in preparing the right information and going to the IPC and doing that to make sure that they're in the right classifications ultimately.* (I-19)

4.1.5.2 ***Classifier recruitment and training***

Classifiers are the key personnel conducting PAC processes. Considering the role of successful classification (i.e. correctly classed para-athletes) for Paralympic success, several interviewees reported the need for targeted recruitment of a sufficient amount of national and international classifiers, and the need to ensure they can be available across the country and that they are appropriately trained. The statement below summarised the interviewees' position:

[…] we have a very robust and stringent approach to training national classifiers, and the reason we do that is because we want the process domestically to be exactly the same as the process internationally. So we rarely make mistakes domestically that then need to be corrected internationally. I think this is where some countries let themselves down. They don't have national classifiers that are trained to the right level. They make mistakes in their national process, and then when an athlete goes to an international competition and into an international classification and they change classification, that creates unrest, anxiety and trauma and all those things. (I-19)

4.1.5.3 ***Classification awareness and education***

One of the most discussed topics on classification was the need for education and awareness amongst those in the broader sport system: from policy makers, NSO managers and support staff in NSOs (in particular in M-NSOs), to sport practitioners, volunteers, and even the athletes themselves. Indeed, as introduced in section 4.1.3, classification is one of the elements of Paralympic sport knowledge that should be integrated in the sporting system. Interviewees suggested that if more parents, club stakeholders and high-performance managers knew about concepts such as minimum eligibility criteria, and Paralympic sport classes, this would lead to greater identification and recruitment into the Paralympic sport pathway.

At the very least, knowing about minimum eligibility in each Paralympic sport. Tomorrow, I am sure that if the [NSO] for example, talks to its technical staff, its coaches, if all know about what minimal eligibility is in Paralympic performance; it's obvious that we would face a large recruitment wave that we haven't experience so far […] The entry door is classification. And as long as we don't understand this, we don't understand Paralympic performance. (I-14)

A couple of interviewees also commented on the need for sport participants with impairments themselves to know how Paralympic classification works, so that they understand the opportunities they have to compete. *"Today, I am a sport participant with a disability, I know what Paralympic disciplines are accessible to me, I know which ones, and who to talk to if I want to engage in a competitive project."* (I-14)

4.1.6 Paralympic athlete talent identification and talent transfer

Almost all interviewees (n=22) reported talent identification and transfer (TID & TT) processes, searches and strategies as central for a country's Paralympic success. Two

main issues were discussed: first, the coordination and management of TID & TT at the national level (generic talent searches and army-specific) and second, a targeted Paralympic TID strategy based on a parasport class niche identification.

4.1.6.1 *Coordinated national talent identification and transfer processes*

Most interviewees noted the importance of nationally coordinating and managing TID & TT processes and initiatives. This included the coordination of overall national initiatives by government sport agencies, as well as the management of TID & TT at the NSO level by specific officers dedicated to the process. Interviewees stated that talent camps and detections processes and initiatives were either parasport-specific and thus ran by the NSO, or generic (non-parasport specific) and ran by either the NPC or the umbrella NDSO in the country. The general opinion was that these initiatives were either effective at recruiting new athletes from the broader population:

> *We have a Paralympian search put on by the [NPC]. And the one thing that that's done, while it's found us some great athletes, it's allowed us to access a population that we couldn't get to before […] they can go out to four different cities in the county across the year and get 50 people to come out to a time that are classifiable. You're able to put people directly onto the national team in [parasport] [...].* (I-7)

While individuals from some several countries agreed with the above interviewee's opinion that NPCs coordination of Paralympic talent search strategies was important, some individuals also felt that developing and implementing TID processes within NSOs was important *"Ideally we really want the sports to work with the province and integrate real athlete ID within their own sport and figure out a way to do that."* (I-7) An interviewee from another country described such process:

> *[…] So there's a sense that there is a system where, for example in [parasport], they will go to the local schools and get kids and have talent camps and come-and-try-it days, all kinds of techniques to get kids involved. And then they have talent ID people around those clubs, and the league system and the cup systems mean the talent can be spotted […].* (I-18)

In addition, targeted TID processes with the army were reported by several interviewees as critical for a country's Paralympic success. Some described how army-specific TID processes first start with increasing awareness of and opportunities for parasport during the rehabilitation phase:

> *There's also systems where nationally the [Organisation] link to [Organisation's name], which is a charity for wounded servicemen. They have links to military hospitals, so again when people acquire a disability through accident or an injury. […] the spinal injury units, they all have links to sporting chances, opportunities. And the Invictus Games; the Invictus Games is the same. It's a talent ID process, so people who are injured have a go at these sports. And then they can be picked up by the coaching and talent systems for each sport. […]And particularly servicemen, they're usually young, quite fit and they like a challenge. That's why they are in the military. They're ideal people to come into the Paralympics program.* (I-18)

Moreover, the importance of having such army-specific TID processes and programmes coordinated by a specific Paralympic talent manager who has defined Paralympic profiles to look for (see pre-determined profiles are explained below), was expanded upon:

> *So those minimum standards [of a para-athlete profile] are set, and then that talent officer can then put them [potential Paralympic athletes] through these range of sports and go, "Oh, well, that's someone here who's ticked the box there for cycling," pick up the phone to cycling and say, "I've got somebody. Do you want to come and have a look at them?" And then that'll send them their development coach or talent coach. They'll go and have a look and take it from there. So that single point of contact's important. The single point of contact with the sport and the injured servicemen is important.* (I-19)

While some countries discussed Paralympic TID processes with the army as being currently implemented *"anything that links injured servicemen into sport [as] hugely successful for a nation"* (I-19); other countries stated that it was something important they needed to focus on but was not developed as yet: *"if the army could collaborate with the sport ministry for a very clear policy […] for a national detection […] at least for the defence ministry to establish Paralympic performance objectives. But objectively, I think it's idyllic."* (I-23)

With regards to TT several interviewees judged it had been one of the most effective strategies for the country's Paralympic success as summarised by the following interviewee:

> *And I think a lot of our [country] success comes from that high performance end and talent searches, talent search or talent transfer cycle to cycle, so every four years looking for new athletes to come into the system to win medals, rather than going further in the pathway developing a wider base.* (I-21)

4.1.6.2 *Targeted identification and orientation of para-athletes based on international competitiveness of the para-athlete profile relative to international parasport class analysis*

Almost all interviewees reported the importance of a targeted Paralympic sport strategy based on international results in specific classes in order to gain a competitive advantage, and ultimately achieve international sporting success. Figure 14 was developed from analysis of this data to represent the process described by interviewees as a whole. This strategy initiates with an ongoing monitoring of international Paralympic sports results, and analysis of the profiles of para-athletes competing in specific parasport classes in international events (see in blue in Figure 14). In this phase, potential gaps or "*niches in certain categories of disability*" (I-13) within a Paralympic class are identified. An interviewee explained that this process was monitored by a talent manager:

> *They [country's organisation] know what the composition of the past medal winners out of the London and Rio cycle have been, and they have identified where they need to replenish their pathway, and they have a lot of profiles. […] I think the [organisation's name] and the [organisation's name] are getting better at mapping trends, at mapping the types of disabilities, types of impairment that are beginning to dominate the move and be successful, again more medal success.* (I-20)

This medal and parasport class analyses seem to be increasingly used by nations to inform Paralympic TID & TT strategies: *"There's a lot of statistical work that goes on in the background to try and identify events that are 'weaker'. So their times might not be progressing games by games or their talent pool might only be five or six athletes internationally. And then sports can target talent identification in those areas."* (I-19) An interviewee from another country indicated how such analyses were also used to inform financial decisions: *"From this analysis of the competition, the weakness and strengths of our competitors […] From this, we can conclude that there are areas where it's not worth investing […]."* (I-16)

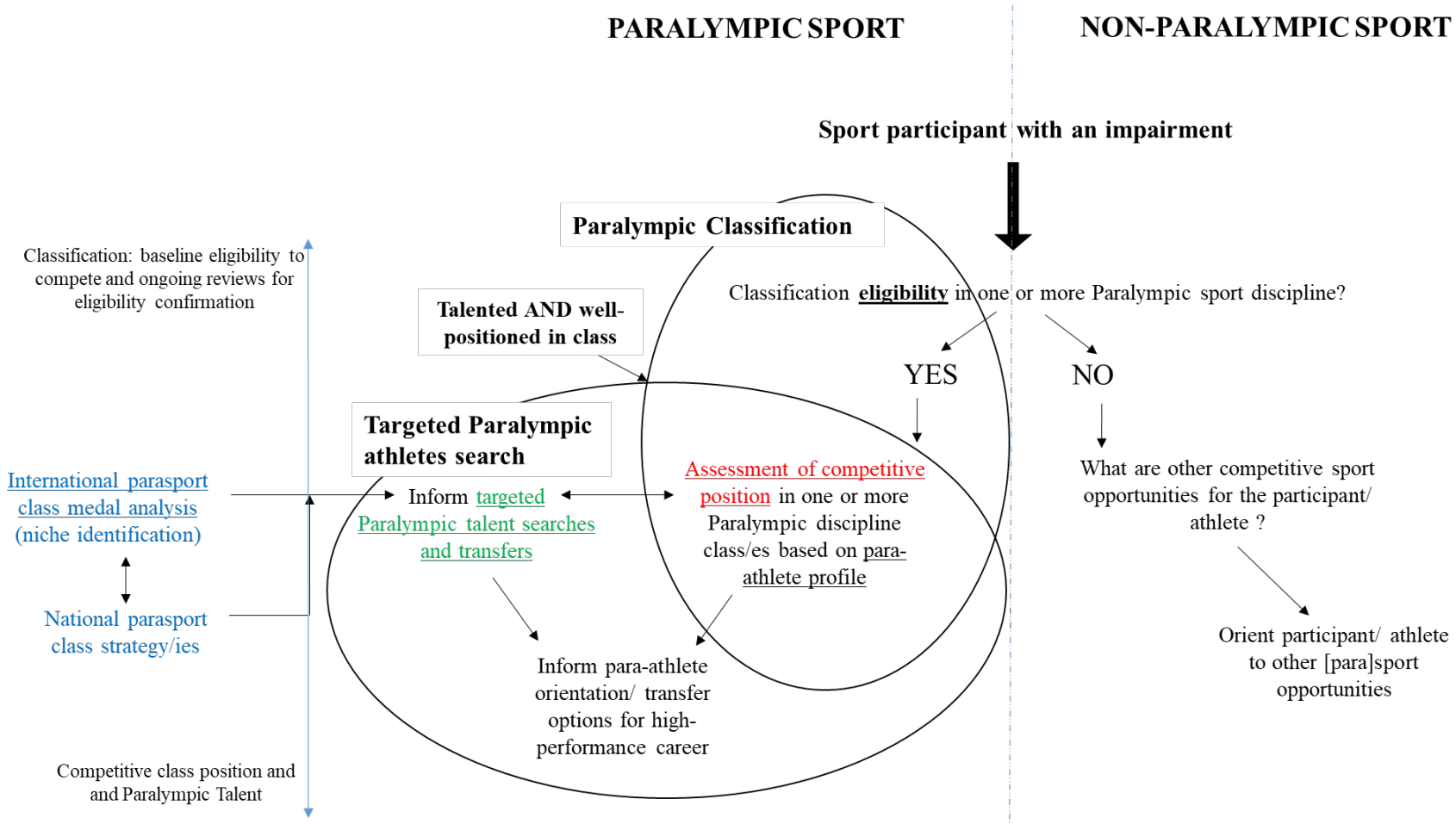

Figure 14 Interface between classification, talent identification and orientation of athletes with disabilities

These international competition analyses also help determine the profiles of para-athletes that would be competitive within the identified parasport class gap. This information is assessed against the profile of para-athletes who have been identified as eligible for classification and talented in (a) specific parasport(s) (see in red in Figure 14), which some interviewees refer to as *"profiling"*:

> *So the [sport organisation 1] will come up with player profiles that are then disseminated into the [sport organisation 2], and it's up to the [sport organisation 2] to try and find players that meet those profiles and get them up to a certain level through then into the [country's name] Paralympic framework.* (I-20)

Overall, this allows the sporting system to both target searches for specific para-athlete profiles as indicated above, as well as to confirm, orient and/or transfer Paralympic athletes, based on a competitive classification profile (see in green in Figure 14). Overall, it is important to note that parasport classes are based on the impact an impairment has on a sport task; therefore, a parasport class represents a spectrum of impairment-impact, whereby a parasport class starts with most impaired and ends with least impaired. Based on interviewees' ongoing report of "*targeting specific disability*", it would seem that the range of parasport classes is such that recruiting a para-athlete with a lesser impairment in a class could provide a larger competitive advantage than recruiting based on talent alone. In other words, if two Paralympic athletes in the same class are equally talented, being less impaired is could give the winning edge. This information is useful to understand the interviewee's statement below where they explain the importance of "*confirming*" Paralympic talent positions based on the process described in this section and summarised in Figure 14:

> *The first thing is talent confirmation because quite often we potentially get people into the system that maybe are classifiable within the sport but there's obviously a range within that class, so quite often we're trying to target athletes that are the higher end of the classification to give them a better chance of medal success. […] It's slightly different for each sport, but I think the sports are really at the stage of trying to tighten up what the ideal athlete, what the ideal Paralympic profile for their sport looks like. […] So resources, whether that's financial or coaching or time, isn't wasted on athletes that would never have the potential to medal within the sport, even if they were talented, but because their classification wouldn't allow them to be competitive. […] So someone might be a good athlete, but their classification or their disability does not allow them to be the most competitive in that class. So although they're very good, their position within their class might prevent them from being selected for a Paralympic Games because they have very little chance of medal success, even though for their impairment they're a very good athlete.* (I-20)

4.1.7 Paralympic athlete high-performance and career development

Almost all interviewees (n=22) reported the importance of the sporting system to develop and implement programmes that aim to holistically support the development and career of talented Paralympic athletes and their athletic partners, i.e. para-athletics guides and para-cycle pilots. This issue centred around three main concepts: delineated funding, accountability and coordination of high-performance Paralympic sporting programmes and institutions (i.e. academies or institutes of sport); the optimisation of training and performance development based on assessment of decentralised and centralised environments, as well as support from a multi-disciplinary team of Paralympic sport professionals; and support for holistic Paralympic athlete' welfare.

4.1.7.1 *Delineated funding and accountability, and coordinated organisation of high-performance Paralympic sport*

Interviewees indicated the importance of a delineated funding and organisation of national high-performance programmes that focus on the holistic development of Paralympic athletes specifically. The first element highlighted was the positive impact that the growth in high-performance funding dedicated to and protected for Paralympic sport specifically had on supporting talented Paralympic athletes, and their partners, in reaching medal outcomes.

> *So the funding system in the [country], athletes are funded, but also the pilots are funded, the guides are funded, the ramp assistants are funded. So these are full-time athletes as well. So as well as training them up and developing them, you've got to have committed individuals to essentially give their life to Paralympic sport.* (I-21)

Several interviewees from two different countries expanded on the type of support to Paralympic athlete that such dedicated funding had allowed.

> *I think it [funding to Paralympic sport] just gave athletes far more support, both in their home daily environments and there were increased levels of support by their state intuitions and academies of sport throughout [countries] in terms of scholarships and things like that. […] have consistently allowed athletes to be far more professional and train more, and just having access to enough money to get themselves to competitions and buy the appropriate equipment they need.* (I-2)

The integration of Paralympic athletes in existing high-performance sporting institutions (e.g. institutes of sport/ sport academies, or M-NSOs high-performance programmes), was also mentioned as beneficial for Paralympic success: "*a performance structure in terms of an institute of sport to enable athletes to get that high performance support to succeed on an international stage."* (I-21) In that regard, several interviewees indicated that the delineated accountability for Paralympic sport high-performance programmes and services through specific Paralympic sport managers was important. "*The best thing that the [NPC] did was put in place someone who head up the performance services area […]."* (I-1) At the M-NSO level, an interviewee attributed the success of a high-performance Paralympic sport programme to its delineated management:

> *So now [M-NSO] have got a – they've funded a position for a [parasport] coordinator . […] So that person is sort of responsible for predominantly national, that happens within [country]. But he also works closely with the person who's in charge of sort of more international stuff, so our athletes in our high performance or our national team. So he is the link between the national programmes and the international group.* (I-8)

It was emphasised however that integrating Paralympic sport in the mainstream high-performance institutes/ programmes, or vice versa (i.e. applying the organisation of able-bodied high-performance sport to Paralympic sport), did not mean that the organisational processes and programmes should be a simple copy paste:

> *We [in Paralympic sport] can do things that are close to what is done in the organisation of sport for able-bodied athletes, but not do everything exactly the same […] it can be detrimental to [Paralympic].* (I-13)

In one of the countries, there did not seem to be national coordination of processes supporting the development of Paralympic athletes. This was despite all interviewees from the country reporting the importance of offering similar level of support to the holistic development of Paralympic athletes and their career. There was evidence however that integration in mainstream able-bodied high-performance institution was occurring:

> *If I take the example of the [country]'s model, we have an important place, [the sport institute] where high-performance athletes prepare and are supported […]. I think that within [the sport institute], and it's about to be created, there needs to be a Paralympic unit, which should be integrated within the institution. Because when we talk about performance, we talk both about Olympic and Paralympic*

performance; but we need to take into consideration the specificities of Paralympic sport. (I-17)

This last sentence reinforced the views expressed by several individuals across different countries, which is that the support of Paralympic athletes needs to be delineated so that their needs are appropriately addressed. Another point highlighted by several interviewees was the importance of developing programmes which are appropriate to Paralympic athlete development levels (from identification of a classified talented Paralympic athlete, to transition programmes from high-performance to world class and elite levels programmes).

The other thing is that it has to be based on realistic progression so the actual, you know, the targeted programme to pick athletes at a particular time for the medals or particular competitions. So it's a systematic approach to the delivery of success which is based on coaching and events and competition structures. (I-18)

Another interviewee gave examples of a specific phasing of para-athlete transition from entry into a Paralympic high-performance career to an elite level; it indicated the importance of such programme, in particular in relation to the smaller number of Paralympic athletes in a specific parasport in specific locations of the country.

[…] from a high performance level […] a lot of sports now have transition programmes […] to bridge that gap between [region] and between world class programme. […] it's a system that helps introduce and embed the high performance cultures and starts raising – it starts discussing the expectations of what would be expected of athletes, if they were to continue on in the world-class programme, and the expectations of the coaches within that system as well. So it's almost like a phasing in into the world-class programme […] – because we're talking very small numbers, we maybe have one [parasport] player, we have two [parasport] players, and there's nobody else at the same level within the [region] structure that are training and providing a level of competition for those athletes. So to take the jump from the [region] structure into the high performance world-class programme is a massive jump and it can be very daunting, particularly for the junior athletes, and it can put them under a lot of pressure very quickly. So the transition programme is really to start introducing that high performance culture at the next level before they commit to the world-class programme. (I-20)

4.1.7.2 ***Quality daily training environment***

In terms of the delivery and implementation of support to the career development and high-performance and elite Paralympic athletes, more than half of the interviewees described the importance of a quality daily training environment in order to optimise

effective training, and performance. A quality daily training environment included: access to training opportunities with expert professional Paralympic coaches that understand Paralympic sport performance (as has been further described in the Paralympic knowledge section), accessible high-performance training facilities (such as sporting institutes), the appropriateness of centralised versus decentralised training environments, as well as the importance of a coordinated multi-disciplinary teams of professionals centred around the specific needs of an individual Paralympic athletes.

> *So you need coaches who are delivering the training itself, and it also requires the supports in and around it. […] it requires a degree of specialised kinds of services to support it. So very often we think of that in terms of sports science and sport medicine. It can also have to do with life skills and other kinds of things that are in and around the sport experience, particularly if it's a centralised model. If the demand and the requirement is that athletes are relocating, we need to be thinking about, what does that experience look like in the context of the rest of their lives?* (I-4)

The "*specialised kinds of services*" cited above refers to the other most discussed issue for a quality training environment, i.e. the need for the coordination of a multi-disciplinary team of professionals to support the athletic development of Paralympic athletes specifically. Beyond technical, and strength and conditioning coaches, these support teams included such professionals as sport scientists (biomechanics, physiology, technology experts), nutritionists, doctors, physiotherapists and psychologists.

Regarding centralised training environment (i.e. where athletes relocate to central, national training centre to receive coaching, support services, accommodation and often schooling support) and decentralised (i.e. where athletes train at local sport institutes in their regions, or within their home environment), interviewees did not favour one approach over another. Rather, the consensus was that decision regarding a Paralympic athlete's daily training environment and programme for development should be based on the specific needs of the particular para-athlete. For example, some reported that Paralympic athletes with more severe impairment, and thus higher level of support needs, may benefit from a home-based training environment. However, some indicated that decisions also depended on the nature of the parasport (team vs individual for example), as well as on Paralympic athlete's specific life circumstances (age, disability, family, work etc.)

> *So I think the important thing is to understand the need – so it's the same process with the Olympics, with able-bodied athletes. […] You are looking at the needs of*

the individual and making sure that they have the right support team around them and facilities around them in order to perform at their best. […] So in [country] we have a big debate about what we call centralisation, which is where, do you bring all of your athletes together to work in one place with the best coaches and the best practitioners? Or do you work with them more regionally, based all over the country? […]we also accept that because of reasons of age or disability or development, you might not be able to live on your own. You might not be able to move to [city]. It might not be the right place for you, and those athletes, we support in their home programme, so whether they are based. So we believe the optimal training environment is in [city], and even if you're not based in [city] we like our athletes to come into [city] so we can test them and monitor them and provide the best advice and support and help them and their coaches to develop. […]. And then we will work with them on creating that optimal training environment, […]. (I-19)

In light of compounding factors influencing the optimal training environment for individual high-performance Paralympic athletes, interviewees noted that decisions required coordination and collaboration between individual sports at the regional (e.g. states, provinces) and the national levels of the sporting system.

So with anything, your strength becomes a weakness. Your strength in developing a local support system may be to the compromise of a national system, and that's where the integrity of the National Sports Federation is critical to ultimate performance of the [country] team. Because they need to be able to go and say, 'This is in the best interest of this athlete at a national level and we need them supported here' or, 'We don't believe that that athlete warrants support at a state level, so why have you got them in the system?' So there needs to be a real close relationship between what's offered at a state level and what's delivered from a national perspective. (I-1)

4.1.7.3 ***Beyond sport: Paralympic athletes' welfare***

Interviewees reported the importance for high-performance sport development programmes to focus on the development of athletes in a holistic manner, i.e. beyond their sporting career, including a focus their wellbeing.

There is a big question about a balance between winning medals and athlete welfare, and athlete welfare is very, very, very important for us. So we have to strive for that balance between pushing hard enough to win medals, but also making sure that we look after the people that are going to deliver those medals. (I-20)

Coordinating training and competition schedules together with academic/vocational studies, work and family life was particularly important to maintaining the welfare of Paralympic athletes. In that regard, some interviewees

mentioned the need to partner with Paralympic athletes' work places (for those older Paralympic athletes) as well as school programmes. Ensuring that Paralympic athletes had a sport/ study-work life balance was important not only for their current sporting career, but also for their future when retiring from sport.

> *That holistic approach to an athlete, so building them so they're prepared for after sport and all the career piece. […] Oftentimes in Paralympic sport you can do five games. You'll have athletes stick around for a lot longer, which means they're older when they retire. […] they don't want to go back to school when they're 38 years old. So we can better integrate what I was talking about, that holistic programme, the dual career. I think that will be much better off.* (I-10)

This issue was interrelated with the discussion around centralised versus decentralised sporting environment, in particular in the case of older Paralympic athletes who have families and sometimes also have established (non-sporting) careers.

> *There's a lot of individuals that are working. Can they manage a working life and a high performance sporting life? […] I think you've got a lot of athletes out there with young families. If an athlete is asked to relocate to different places to train, that has to be considered.* (I-21)

4.1.7.4 ***Understanding of high-performance sport and disability***

Finally, about half of interviewees mentioned the need for the senior decision makers of high-performance sport programmes and institutions, as well as all those practitioners involved in the daily training and performance enhancement environment of Paralympic athletes to understand the interaction between the demand of high-performance training, and disability. As mentioned previously in the Paralympic and disability knowledge section, this ranged from a socio-economic and infrastructural understanding of disability (i.e. understanding that some athletes may face barriers in accessing specific sporting infrastructure), to understanding of the effects of impairment (i.e. recognising that some athletes may require additional medical support and knowing how that may impact on training periodization). An example of the importance of such understanding is provided by the following participant. This example related to how a sporting system should take into consideration impairment effects (i.e. in this case the need for an additional support worker):

So, for example, one of our [parasport] players, he would need to take with him a support worker, a support colleague, to ensure that he can manage himself during competition. Now, the sport doesn't provide that athlete with additional resources or additional funds to support that support worker. […] They might be funded athletes, but that fund goes towards their costs of living. And somebody who's a non-disabled athlete, an Olympic athlete, they don't have that additional burden. So they get penalized because of their impairment because they have got to find resources. Now, some sports are very good at taking their own staff and they don't put a burden on the athletes, and that's where I'm saying some sports are more mature than others in terms of how they support the sport and their athletes. (I-12)

4.1.8 Coaching provision for disability sport and Paralympic sport

The majority of interviewees (n=20) reported the importance of recruiting and training parasport coaches so that they are available and competent at all levels of the sporting system from grassroots to the elite level. The majority of the discussion focused on high-performance Paralympic sport coaches as a crucial part of the daily training environment and performance optimisation of Paralympic athletes.

4.1.8.1 *Education of coaches in disability and Paralympic sport, and ongoing development opportunities*

The most prominent coaching element discussed was the importance for the sporting system to develop and implement education/certification that provides training on coaching AwD, in order for organisations to be truly inclusive from the grassroots to the elite level. *"So how do you make sure that any coach and any club in [parasport] can actually provide a service to an athlete with a disability if they are not trained in all of those specificities?"* (I-5)

The need for this disability sport knowledge was particularly emphasized for high-performance coaches. An interviewee reflected on a forum the organisation conducted with Paralympic stakeholders stated: "*Elite coaches and people with disabilities at that level generally felt, yes, you need to know about the level of impairment and the impact.*" (I-3) Expanding on the need for Paralympic sport coaches to have a technical sport expertise coupled with an understanding of disability, an interviewee gave the following explanation when asked what quality Paralympic coaching meant:

> *So obviously there are multiple elements to coaching. But in parasports, we have the combination of needing to have the sport specific expertise and to have expertise in the adaptive [i.e. parasport] side of the sport. But also to have an understanding of the culture and psychosocial elements of people with a disability, which may be different because of the trauma that they've gone through or how they experience life. […] And so if you have one without the other [parasport and elite sport expertise], that's not great. On the other hand, you can have people who have a fantastic understanding of the disability, the adaptive side of the sport that may not have the high level of capacities in coaching that you have. Then you're not going to achieve as much […].* (I-6)

In M-NSOs specifically, some interviewees felt that disability sport knowledge by coaches in mainstream sport clubs could play an important role in detecting athletes potentially eligible for a Paralympic pathway:

> *One of our really good kids in [parasport] right now always trained in a club that's able-bodied [mainstream clubs], and basically I think his friends don't have an idea that he has a disability but then the coach was like, 'Okay, I think now the [parasport] programmes can take him because he is hitting these numbers." But if the coach hadn't known that there's an opportunity for him [in Paralympic sport], then it would have been a miss, right? So I guess that's another thing. We're trying to work with our coaching association to create more awareness for all coaches and how they can have more of the basic knowledge and at least place someone in a para programme when they see that they have something, and they could be performing on the para side instead of the able-bodied side. So we have a separate coaching association in Canada. […] So right now they're developing a bit of a professional development module for coaches.* (I-5)

While this Paralympic coaching knowledge development was reported important for a country's Paralympic success, most interviewees seemed ambivalent about the quality and development stage of such Paralympic coach education training in their countries. Some mentioned that it was a work in progress: *"We are currently working on a coach accreditation pathway for [parasport] from grassroots up along the entire channel and they're a framework, and that includes a range of competencies including working with people with a disability and understanding that."* (I-6) Some reported that while it was in the federations' mandate "*to develop a coaching certification programme, […] at different levels of the pathway to be able to coach",* there was *"probably different degrees of quality"* (I-5) across parasports. Another interviewee concluded:

> *There's a little bit in coaching about adaptive practices. […] only hesitation is that I don't think it's [coaching education] comprehensive enough. […] It's having better information on which to make decisions to be able to adapt, because I really do think that adaptation is a huge piece.* (I-4)

In one of the countries the coaching education framework seemed to be more developed with "*little bits of disabilities inclusion thread out throughout [the education certification curriculum]"* (I-21), however, it did not seem to occur in "*every sport and it's by no means fool proof, and some [are] quite basic."* (I-21) The interviewee went on explaining that it seemed to be implemented through add-on workshops in the career of a coach. Interviewees from the same country confirmed that the existing Paralympic sport coaching education intervention was implement in the form of additional professional development modules in some NSOs. *"There are coaching courses and educationally you can do sport specific and then you can, within the governing bodies of sport, then there's, I suppose continuous professional development opportunities, for coaches to maybe work on the Paralympic side."* (I-12) Another example of a Paralympic sport coaching programme, which was added for coaches' upskilling in parasport prior to Paralympic Games, was given:

> *So they'd [sport government organisation] always had coach development initiatives and some very, very strong development programmes for developing coaches. But going into Rio, they identified some specific elements where coaches working with para-athletes might need additional support. So they put together a programme that supplemented.* (I-19)

In addition to the importance of formal education frameworks, interviewees reported the relevance for Paralympic sport coaches to learn informally through exchange of knowledge and experiences with other Paralympic sport coaches.

> *[…] but most of the time it was just the ability to meet with other coaches working with para-athletes and chat through those problems, chat through those challenges, to share frustrations. […] and sometimes that problem shared is a problem halved. […] but I think the most important part of it was just that sharing and that understanding.* (I-19)

Finally, ongoing professional development opportunities as an important element for Paralympic success were briefly mentioned by two interviewees from one other country *"It (funding) needs to be on the development of the coaches."* (I-6) The second interviewee added*:*

> *[…] providing them [Paralympic athletes] with a coach that's been developed and given opportunities to continue to develop, Empower the coaches to make decisions, hold them accountable, but also be there to support them. […] If you're going to hold them accountable, make sure they get the support they need.* (I-1)

4.1.8.2 *Parasport coach recruitment (from grassroots to the elite level), and paid coaches throughout the pathway*

Several interviewees noted the importance of both recruiting coaches *"right from the grassroots level."* (I-10) and remunerating professional coaches "*making sure that the professional coaches is rewarded at a similar stage [as Olympic coaches]* (I-5). On this topic, one interviewee emphasized the need to focus on identifying those coaches that are talented, to optimise the country's Paralympic success:

> *[…]in coaches it's also about the identification of talents. They don't all have potentials […] leadership qualities and potential of embodying performance. So we need to be able to identify true potentials, people who, beyond having technical competencies, are able to coach an athlete towards Paralympic medal outcomes. So we also need to work on the identification of coaches.* (I-22)

4.1.9 Provision of technical parasport sport equipment and accessible facilities

4.1.9.1 *Provision of and innovation in parasport assistive sport equipment*

Addressing Paralympic assistive sport equipment (e.g. sport wheelchairs and prostheses) and specialised equipment (e.g. adapted seats in para-canoes) at the national sport system level was mentioned by more than half of all interviewees as being important for a country's Paralympic success. Most interviewees talked about parasport equipment as being one of these Paralympic specificities that decisions makers should take into consideration in a delineated manner when planning the funding and support of Paralympic athletes. Assistive sporting equipment for children and adults with impairments needed to be available at all participation levels, from grassroots to the elite level. At the more grassroots level, the availability of access to assistive sport equipment such as sport wheelchairs was important to allow entry level participants to have access to sporting opportunities:

> *So to be able to get involved in sport and to try this out, they need access to these [sport equipment] […]. To go out and try some sports you just have to go out and buy a pair of shoes maybe, but for them to try a sport out, it's unreasonable for us to think that they're going to fork out an absolute fortune to try something out and they might not even like it. [...] So national federations have to – some are doing it,*

but they have to make priority. Some of the funding needs to go to para sporting equipment because otherwise you're not going to have athletes coming through the system because they can't row. They can't sit in that boat. They can't push on a track because they haven't got access to a chair. (I-8)

Paralympic sport equipment was almost always discussed together with the importance of delineating specific funding towards it, either at the NSO level for the whole-of-sport as mentioned above, or at the high-performance level where parasport equipment require higher technology and is thus more expensive.

Equipment is probably a big one. Access to equipment but access to venues as well, but specialised equipment and chairs. I mean, Paralympic equipment can be very, very expensive, so how does somebody get started? Where do they go to get a $10,000 chair or a $15,000 basketball chair, a sports chair? (I-8)

At the higher level of competition, parasport equipment was a significant component in planning, training and performance. Some interviewees mentioned the importance for sport scientists, coaches, support teams and para-athletes themselves to understand the interaction between the athlete's body and their assistive device, as it was critical for those marginal gains, which some said could make the difference between a medal outcome or not. Additionally, interviewees reported the need for national initiatives to lead research and innovations in technology in sport equipment. In that regard, collaboration between organisational sport stakeholders and engineer manufacturer companies, as well university engineering research programmes were important. This is summarised by this interviewee's statement:

Well, for us it's really equipment and innovation within the equipment, if it's going to give something more to the athletes. So, whether it's fitting a certain equipment or being leading edge in terms of developing a new piece of equipment that's faster, better, whatever, basically that would be another thing that would be considered. […] So actually we provided many different grants programmes, so whether it's to do customisation, or we work with other partners, whether it's the universities or some other engineering groups, to be able to have the best fitted equipment for the athletes that are competing. (I-5)

4.1.9.2 ***Provision of accessible facilities***

When discussing sporting facilities as an important element of a sporting system for a country's Paralympic success, most interviewees highlighted its importance only at the high-performance sporting level, noting that these facilities need to be accessible to

people with diverse impairments (e.g. intellectual, visual or physical). While most of the discussion focused on the need for modern and physically accessible facilities, some indicated that access to facilities needed to be considered in terms of scheduling priority as well, since in many instances able-bodied sports were often get priority. This is further discussed and evidenced in the finding chapter on contextual factors (section 4.2.2.4).

4.1.10 Parasport competition framework

More than half of interviewees reported that national parasport competition frameworks and strategies were critical elements for the sporting system to consider for Paralympic success. In particular, interviewees mentioned that developing adequate competitions opportunities from grassroots organised competitions to national and international competitions was important for Paralympic athletes to acquire sufficient competition-specific performance skills necessary to challenge their athletic development. The following quote summarises these views:

> *I think another one [element for success] is having a suitable competition framework. For some of the more developed sports that is quite easy, but with the Paralympic Movement being newer and not just as developed as the Olympic movement there's still sports that are playing a bit of a catch-up, and quite often we have athletes going into Paralympic Games that maybe have had one or two competitions in the 12 months prior to the Paralympic Games. So quite often they're not particularly well-equipped for competing in front of large numbers of spectators. So having a robust and comprehensive competition structure regionally, nationally and internationally to prepare athletes for the world stage is critical.* (I-20)

The value of national mainstreamed competition events (e.g. Athletics) was also highlighted. Integrating parasport and able-bodied events in the same competition was considered positive as it allows Paralympic athletes greater access to competitive opportunities through pre-existing competitions structures in those M-NSOs. They integrated competitions formats also have the potential to positively impact the wellbeing of para-athletes:

> *[…] they [parasports] have the national championships. They're just national championships for both para and able-bodied together. So our athletes don't feel lesser athletes. They feel as important as able-bodied athletes, […] development has a social and emotional side […] as an athlete you feel respected, therefore you're going to perform better. You're going to challenge yourself more. And*

ultimately going up through the chain that should make you a more competitive athlete further on. (I-8)

Other interviewees mentioned the need for these M-NSOs to consider the Paralympic competitions calendar in a delineated manner:

If they're drawing up a programme calendar, that they're aware that they're responsible for Paralympic athletes and make sure that the Paralympic athletes get as many opportunities to compete as their able-bodied athletes to compete and qualify, then I think that's the better. (I-2)

Finally, there was evidence of different competitions modalities within countries, but there seemed to be discord as to whether competitions should be multi-class or single-class. On one hand, multi-class competitions was a solution to ensure that parasport competitions took place, as illustrated by this example:

So multi-class competition basically are in individual sports, but we don't have large numbers of people with similar disabilities. But you can actually still put them all on the start line. They can all do their event, and at the end of it, you can still determine who the legitimate winner is, and it's not necessarily the first person who crosses the line. It might be somebody who is in a different class, but their percentage based on their world record is better than the person who won. […] So they teach the technical director or technical person and development officer at each of the state member bodies about these tools that they can use within their system and how to run a competition when you've got para athletes in it. And just educating them on those things just at that starting level so that they can start implementing some of these processes, and putting on competitions and putting on races or events at state championships so that these athletes can have a competition opportunity. (I-8)

On the other hand, interviewees mentioned the importance for para-athletes to compete against people from the same parasport class*: "One of the things that I think is very important for an athlete is that they can compete against their equals from an impairment perspective."* (I-9) An interviewee from another country expanded on this issue by describing some of the strategies developed to ensure that Paralympic athletes had parasport class specific competition experience:

We've been very, I suppose, strategic in a way, we've actually taken our athletes to European events where the level of competition is higher, so that our young aspiring academy athletes can see what they need to reach and they might get pushed because, as you know, not every country will have a depth of classification athletes within a group in whichever sport. So you've got to go find those athletes, so that's what we've been doing in terms of, I suppose, exposing our athletes to the

> *right environment. Just going along to win the [country] nationals in an event is all well and good, but in European standards the athlete could be number 20. So they're never going to be pushed. So I suppose for us it's critically targeting where the athletes need to be and from there then they can improve.* (I-12)

Collectively, this data suggests that, regardless of the competition setup, the ultimate aim is to ensure that Paralympic athletes have competition experiences at the appropriate level, against Paralympic athletes who can compete at a similar level as them.

4.2 Exploring context of Paralympic sport policy interventions

Section 4.1 presented key sport policy interventions important for a country's Paralympic sporting success. In line with the gap identified in the literature on the need to identify the contextual complexity associated with national elite sport policies, the second aim of this research was to identify and describe contextual factors that have a potential impact on Paralympic sport policy programmes.

In realism, contexts do not refer to particular settings (e.g. an institute of sport) and localities (e.g. France), but rather refer to Intrapersonal (e.g. someone's beliefs and personal social situation); Interpersonal (e.g. relational dynamics between two or more people); Institutional (e.g. the norms, culture, beliefs, structures of a specific organisation); Infrastructural (e.g. the wider material, social, economic and political elements of a country) circumstances that enable or constrain the operation of mechanisms for the production of outcomes (intended or not) (Pawson et al., 2004). The focus of a realist inquiry is therefore on what it is about the particular setting that conditions the activation of the mechanisms (or not) in programmes and policies leading to sets of outcomes, called outcomes patterns (Pawson, 2006).

It is also important to note that this thesis does not claim to identify all the contextual features that possibly exist. As interventions of a social nature are open-systems, their contexts are ever changing and infinite. Realist theory assumes, however, that it is the accumulation of knowledge, i.e. of different pieces of studies and "nuggets of evidence" (Pawson, 2004), over time, which brings us closer to the truth. This section of the thesis contributes to this overall knowledge building in Paralympic sport policy research.

This section is the outcome of the thematic analysis performed on the second coding structure developed (described in section 3.4.4). First, the data was inductively coded in order to remain open to exploration and formation of concepts. The data was then deductively analysed according to Pawson's "Four Is": the intra- and interpersonal levels, the institutional level, and the wider country's social and physical infrastructural level. The sections below present the intra-/interpersonal contextual factors, followed by the institutional and infrastructural factors. Evidence for each factor is provided with illustrative quotes, and a summary of the contextual factors and sub-factors is provided in a figure format at the beginning of each section to guide the reader.

4.2.1 Intrapersonal and interpersonal contextual factors

Most of the contextual factors found at the micro level, i.e. intrapersonal and relational (interpersonal), were reported at the level of the individual, and when relational factors were reported they were often described in relation to individuals' attitudes towards PwD. Therefore intra- and interpersonal contextual factors are presented together, and are summarised in Figure 15.

Factors were first organised according to groups of individual stakeholders (see left and middle columns), and then clustered to higher order categories (right column). As illustrated in the figure, some contextual factors were found common to different groups, for example, "understanding of Paralympic sport". The five higher order contextual factors are reported below, and are described in relation to the different levels of intervention they influence.

4.2.1.1 *Varied lived experience of PwD*

The varied lived experiences of PwD were discussed in relation to the onset and severity of individuals' impairment, and to whether or not individuals self-identified as having a disability. Interviewees discussed how these diverse personal circumstances should be taken into consideration at different interventions levels in the sporting system, because they have implications for how PwD engage in and experience sport.

People with congenital versus acquired disability

People can acquire impairments at birth or later in life. The data suggests that these two broader groups will engage in sport differently. These differences seem to be prevalent at the participation and at the high performance levels. At the participation level, there are polarised opinions as to the availability of opportunities for entry into sporting participation for athletes with congenital disabilities versus those with acquired disabilities. Some believed that the rehabilitation programmes offered robust entry points for people with acquired injuries, whereas *"there are big gaps, for example in children who are born with disability."* (I-6)

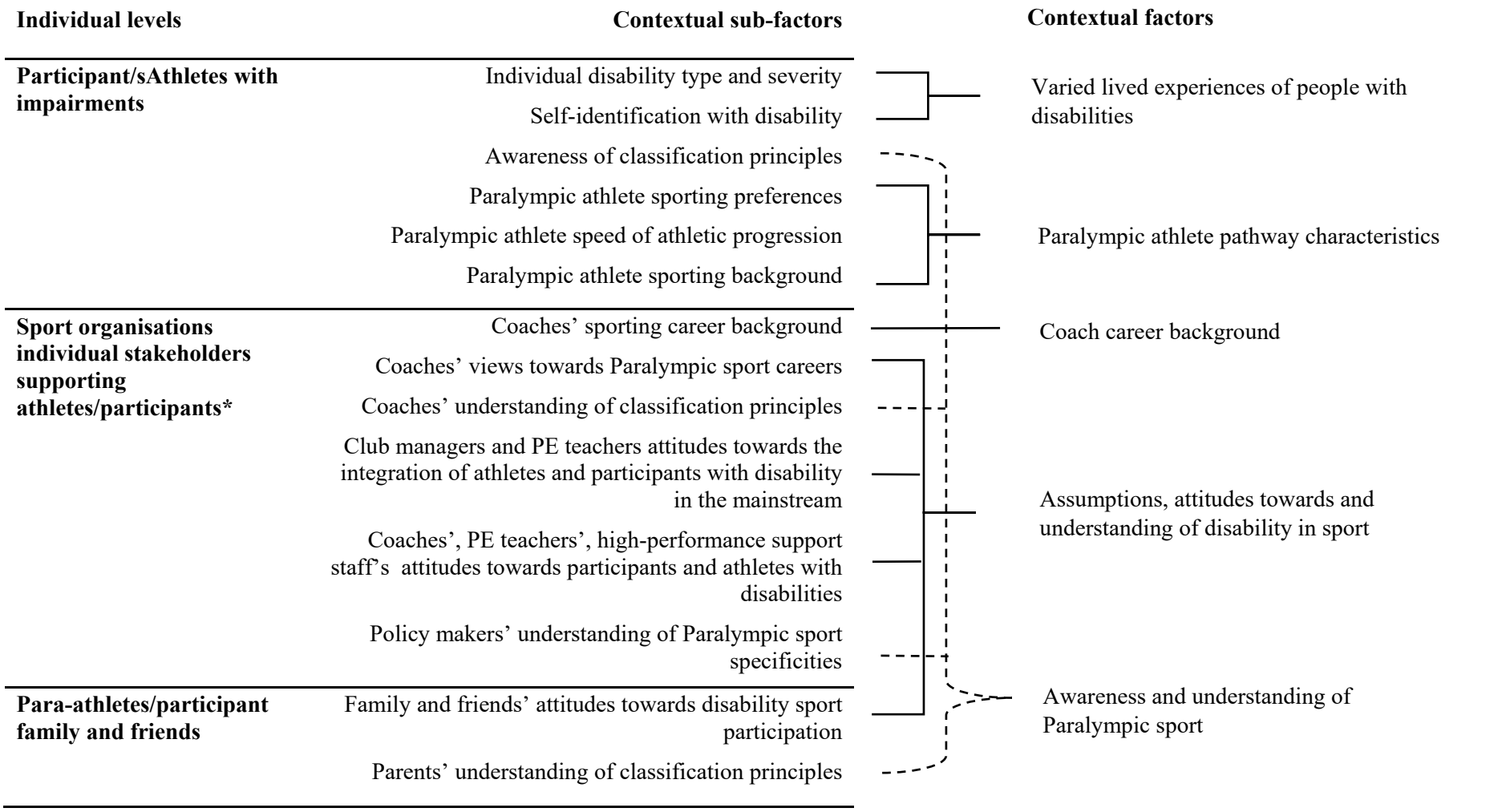

Figure 15 Individual (intrapersonal and interpersonal) contextual factors

Opposing this view, others thought that children born with disabilities were more exposed to disability sport opportunities because they tended to be more connected to the disability service sector and disability sport organisations. This was in contrast to an interview who stated "*those who have an acquired disability who've had no contact with the disability sector before their impairment, really don't know where to start."* (I-2) While it is unclear if opportunities for sport engagement are greater for people with congenital or acquired disabilities, this evidence suggests that the sporting system should account for the fact that individuals access sport in myriad of ways.

At the higher levels of sport performance, late onset of impairment was often reported as being an important consideration to help optimise Paralympic athletes' sport development and environment. An interviewee stated that those para-athletes who had acquired their disability later experienced different processes for training and development. Insights were given by several interviewees as to what some of these differences could be. First, the data suggests that some Paralympic athletes who are talented but acquired disability relatively recently could experience an adjustment period in their individual daily life and development, which could impact their performance development and competition readiness, as explained by the following interviewee:

> *[...] we have some excellent [Paralympic sport] players in [city], but they can't yet attend to a national championship because they're reasonably newly injured, only a couple of years down the track, and it takes longer sometimes for that. Not with everyone, but with a lot of stuff it takes longer to get the rest of their independent living, work, how you travel, organised before they're ready to travel to compete […].* (I-6)

Further comments were made on the influence that acquiring an impairment could have on an individual's athletic progression: *"because the athlete has a tough time transitioning their lives have changed so much […] they haven't been able to consolidate the development from a psychological perspective."* (I-9) Paralympic athletes who acquired impairments late in life will quite often be adults with established work/ family roles and identities. This can be quite different from younger para-athletes born with disabilities who have developed and transitioned through life milestones while developing as a Paralympic athlete.

> *[…] when you crash with your motorbike at 20 years old, the time you get to the high-performance level you will be 24 or 25 years old, he could already have a wife, a child, a profession, it's complicated to say 'so now you're gonna have to go*

across [country] to go and train all yearlong in the high-performance centre. (I-13)

Overall, the evidence shows that acquiring an impairment later in life, in contrast to being born with an impairment, can have implications for sport policy interventions both at the participation level and the high-performance level.

Severity of impairment

The implications of working with para-athletes with more severe impairments were discussed by almost half of interviewees at different levels of the sporting system. The general view expressed was that offering opportunities for these athletes at both participation and high-performance sport levels *"present[s] unique challenges"* and is "*far more challenging"* than supporting para-athletes with less severe impairments. By not providing the required adaptations and resources, the sporting system might be failing in not only recruiting these athletes, but also in retaining them and supporting them in their development to the elite level. An interviewee summarised this sentiment by explaining what this means in a mainstreamed sporting system:

[…] mainstreaming is much easier, the less you deal with disability. So the more disability you have the greater resources, effort, understanding, additional supports are required to mainstream. […] I would say none of them [mainstreamed NSOs] necessarily have the broad knowledge of the impairment groups that they're working with, […] athletes with higher support needs are not included […]. And I believe that's because the system really doesn't understand how to include them." (I-9)

Several interviewees agreed with the above opinion, indicating that knowledge and education policies and programmes should consider what it means to include people with more severe impairments "*there still needs to be a level of awareness [by sport stakeholders] about those [participants and athletes] with higher support needs."* (I-3) Another interviewee added:

Traditionally in [country], we've done better in the higher classes than the more disabled classes, probably because it's required less education. But it's really hurt us in terms of being able to get that ultimate success of winning the medals and climbing up the rankings because we're missing out on a whole bunch of opportunities. (I-4)

Other interviewees agreed that that this cohort provided the country with the potential for increased Paralympic medal outcomes, but that the attitudes of some

stakeholders toward these specific athletes could be a potential blockade to developing such competitiveness:

> *[…] Oh, I think it's [working with athletes with more severe impairment] a great opportunity for medals, but again I think it just does present some unique challenges in terms of finding a coach who really wants to work in that space and sometimes the facilities that are required. Sometimes I think it probably gets puts in a bit of the 'too hard' basket […].* (I-2)

Overall, it was clear that the sporting system should consider the needs of athletes with more severe impairments in a delineated manner, both at the participation and at high-performance levels, to effectively ensure retention and performance of these para-athletes. At the participation level, an interviewee explained that the lack of sporting equipment for athletes with severe impairments was a challenge:

> *He [a coach] said, "I don't have any problems getting people involved in rowing when they're an LTA [Leg Trunk Arm[16]], they have high function." He said, "But I struggle to get them to have a great experience and want to continue rowing if they have higher needs because you can't just down to your local club and do that. You need specialised seating. You need this. You need that." So potentially those guys may never get to the top and achieve success because they'd have such a bad experience to start with that we're going to lose them to the sport or they're going to not develop basic skills properly because they haven't got the right equipment.* (I-8)

At the high-performance level, an interviewee stated that considering the implications of competitions travel for athletes with more severe impairments was important:

> *If you take the higher levels of impairment, for instance, long haul flights, dehydration, not being able to access bathrooms on flights or even fatigue, just not being able to cope with that type of environment, higher risk of infection through air conditioning units on flights.* (I-20)

One interviewee gave an example of management procedures to appropriately account for the needs of all Paralympic athletes at the high-performance level:

> *Whether the athlete's profile is a less severe impairment, or a more severe impairment, I have the same support format. The only thing is that the network that is going to be mobilised won't be the same. […] For an athlete with a severe impairment, the network mobilizations will have a more medical profile because of the impairments associated with the disability, and the impact of the impairment on*

[16] Leg Trunk Arm is the former name of a class in para-rowing, which includes people with mobility in their legs, trunk and arms, and therefore include athletes are less physically impaired.

sport performance […]. But regarding the support methodology, there's no difference. (I-14)

As demonstrated above, the variations in the support system for athletes with diverse levels of impairments were the elements identified to support these athletes, and not the actual assessment procedures.

Sport participants' disability identity and disclosure

Several interviewees reported that some PwD do not necessarily identify as being disabled, and if they do, they do not necessarily want to disclose it. For some interviewees, the increasing attendance of children with disabilities in mainstream schools means that some children do not necessarily identify as having a disability. Interviewees further speculated that this might explain why these children tend not to engage with the sporting programmes offered by NDSOs, which are well connected to special schools programmes in some countries. Interviewees suggested that this situation should be considered when designing parasport engagement programmes and policies.

[…] more young people in sport are going through mainstream education. Quite often as well, through mainstream education if it's a man with a disability they might not consider themselves to have a disability. So for them to come along to a disability sports club or to contact disability sport would be quite alien for them to do that and they might not even be aware that they exist. So actually accessing young people with disabilities or much more difficult than it was 10, 15 years ago […] They're all at the mainstream education to a certain extent, so we don't just go into the special school system now. […] So that's a massive challenge for us [the country]. (I- 20)

While some participants undoubtedly identify as having a disability *"there are many people with disabilities that don't want to be stigmatised and so don't have the motivation to be identified as been a disabled person."* (I-17) Some thought this lack of identification with disability and/or disclosure provide challenges to attracting people to engage in potential Paralympic pathways through classification processes. For example, in relation to Paralympic athlete strategies targeting competitive athletes' profiles, an interviewee stated:

We did a full day of this [recruitment of para-athletes] on Saturday, and one of the things that we talked about was whether there are champions of the sport [mainstream NSOs] that can fast track people in, because we're finding that so often people don't identify as having an impairment or having a disability. So, you know, "I'm just missing a couple of fingers." Well, that's one of the people we really want because they're highly functional […]. (I-7)

Finally, an interviewee resonated the above comment, by indicating how AwD do not necessarily know the opportunities they have to be competitive in Paralympic sport, due to the classification system:

> *[…] with the feedback we [organisation's name] we are receiving from the federations with whom we work, there are a lot of sport participants in mainstream clubs and federations that play sport at a good level, in competitions that are not high-level, […] and have a less severe impairment and they are far from knowing that this small impairment could allow that to participate in a Paralympic event.* (I-23)

Overall, this data suggests the need for sport policies and programmes to consider the fact that some children and adults participating in sport will not necessarily identify with having a disability, nor disclose it. This lack of identification and this non-disclosure can influence the way PwD engage in sport generally, and thus could ultimately determine whether or not they enter Paralympic sport pathways.

4.2.1.2 ***Paralympic athlete pathway characteristics***

The characteristics of the pathways of Paralympic athletes included a rapid progression to the elite level and the individual parasport choice. These characteristics seem to have influences on high-performance sport programmes, and on strategic investments in talented Paralympic athletes.

As the number of potential AwD eligible for Paralympic sports is small, the number of Paralympic athletes per parasport class tends to be very small. This means that, in one class, the competitiveness at the regional and the national level can be limited. As a result, Paralympic athletes can progress very rapidly to the international levels and "*all of a sudden [be] parachuted into a European/World Paralympic Games with the expectation of delivering medals."* (I-21) In addition, the way in which the disability was acquired (i.e. congenital or later onset) and the amount of previous experience in sport can influence the rapidity of Paralympic athletic progression.

> *I think one of the things that we've heard from athletes is this whole idea of, "Overnight I was a success and I felt like a fraud." because there is less depth of field in some para events, there's an ability to move from zero to sixty much more quickly, particularly if an athlete's coming in with […] a solid base of skills in that particular sport.* (I-9)

This rapid progression, according to interviewees, resulted in athletes not having a *"high-performance culture"*, and leaving some stakeholders feeling like para-athletes are "*not elite athletes"* even when they had won medals. One interviewee discussed the potential impact that this sporting culture, or lack thereof, could have on medal performances at the PG:

> *[…] they [the para-athletes] get to the national level quickly. Some went to the Games, got medals, but they just trained for the previous 6 months only […] They don't have this sporting culture and the constraint that able-bodied high-performance athletes have […] Other nations have changed. Today at the Games you can see it. When you see those guys, they are athletes, they train all the time, and we [in our country] have some that still believe that just because of their genetics they are going to win.* (I-13)

The lack of sporting experience was also discussed in relation to those athletes who acquired an impairment later in life, who sometimes progressed quickly to the high-performance level despite not having any prior experience of sport before the onset of their disability. In a setting where both Paralympic and Olympic athletes train together, the diversity in sporting experience can create a situation whereby the teams' managers have to adapt their approach:

> *We have Paralympic athletes that do not know at all about sporting culture. […] I have people in the [country] team of people with disabilities that discovered sport in rehabilitation centres. And so when you have a team leader that talks to a [country] athlete group where there is a mix of Olympic athletes that went to high-performance centres, went on a pathway of a high-performance athletes as we know it, and next to this, there is a person who discovered sport 2 years earlier; there's going to be a huge difference in the discourse [to the athletes].* (I-14)

In the case of athletes who were born with an impairment, the rapidity of athletic progression means that some could become competitive internationally at a very young age. This led an interviewee to question whether it was appropriate for the high-performance programme to invest in very young Paralympics athlete for sustained success, even if they had won medals:

> *Now her performance would mean that, yeah, she is an elite athlete and she can get the top level of funding from [organisation]. But developmentally, she's not. She is an age group swimmer. She is a development athlete, has much to learn, lots of growing to do, and sometimes we need to say, "Well, actually, is it appropriate to give that athlete that top level of funding?" And we can do it because of her performances, but based on her development, is that the right thing to do? Because if we were to give her the top level of funding, then some of that hunger, that desire,*

> *some of that need to move through the system, might be gone, and you might stifle the development. You might hold them back ultimately because you give too much too soon.* (I-19)

A final influencing factor is the para-athlete's own personal sporting preference. With so few para-athletes in the available talent pool, a single athlete may find themselves eligible and competitive for several parasports. The country's strategy for medals outcome may involve directing Paralympic athletes towards specific sports where they will have a competitive advantage (based on level of impairment or the class size). However, the motivation, preference, and interest of the para-athlete may not align with the strategic decision. While some interviewees noted that the priority should be given to the athlete's preference, this may still be constrained by the politics of sport organisations. The following interviewee summarises the views of interviewees on this issue:

> *I think one of the other challenges is you've got all these sports that are essentially fighting for the same athletes as well, if that makes sense. You get a talented athlete that comes along, and all the sports are interested in that athlete because they fit the profile. So what we try and do is avoid that at that point for an athlete. It has to come to what the athlete wants, and we see that a lot.* (I-21)

Overall, high-performance programmes and policies should consider the pathway progression of Paralympic athletes based on 1/ their past sporting background, 2/ whether they were born with an impairment or acquired one later in life, and 3/ the often fast-track nature of Paralympic sport. Factoring in these considerations could assist in creating training and development environments that optimise the long-term performance of the Paralympic athlete.

4.2.1.3 ***Coaches' career background***

The background of Paralympic coaches, either in disability sport or in high-performance able-bodied sport, is another individual factor to consider. This was discussed in relation the development and integration of disability knowledge and Paralympic sport expertise in the sporting system, in relation to high-performance policy intervention in particular. First, several interviewees indicated that some coaches who were successful in able-bodied sports did not necessarily see the importance of acquiring disability specific knowledge. The sentiment expressed in the quote below was shared by interviewees from other countries:

> *Some coaches are very well renowned in their disciplines, so they tend to not question what they do. But they need to understand that it's not because they are the best in their disciplines that there's nothing to adapt, and review how we [in Paralympic sports] are doing things.* (I-16)

Second, and related to the above issue of disability knowledge, while some interviewees felt that the best coaches recruited for Paralympic national teams were those with the most technical knowledge coming from "*the elite of the elite*" of mainstream sport, their able-bodied sport background meant that they did not have the understanding and knowledge to adapt their training to the specific needs of Paralympic athletes. It was suggested that this could lead to inappropriate training:

> *[…] what we see is you have excellent, excellent able-bodied coaches who come along and make recommendations for [parasport], for example, for an athlete with cerebral palsy, but the training regime may exacerbate their medical condition.* (I-2)

This evidence suggests that coaching background needs to be considered in the coach knowledge development framework and when recruiting coaches. The coach's understanding of Paralympic sports can condition the effectiveness of their coaching approaches in high-performance training and development environments.

4.2.1.4 *Assumptions, attitudes towards and understanding of disability in sport*

Attitudes and assumptions of individual family members, friends, coaches, sport programmers, high-performance staff, and school teachers towards children and adults with disabilities in sport was the most reported contextual factor. Attitudes towards PwD seemed to have an influence at the following levels: physical education in mainstream schools, sport participation programmes particularly in mainstream NSOs, coach provision, and high-performance sport programmes.

Stakeholders' attitudes and assumptions in sport participation and physical education settings

At the participation level, interviewees suggested that some parents tended to be over-protective of their children with an impairment in sporting activities, which adversely impact the child's involvement in sport. Interviewees reflected on how the

attitudes of parents could be echoing the general lack of awareness and understanding of sport and disability in society at large. Attitudes of parents also seemed to be associated with the severity of the child's impairment. The following statement illustrates how parents' attitudes potentially impact children's skills development:

> *We still battle a lot with parents […]. So they mollycoddle them a little bit compared to able-bodied kids. But so therefore they don't give them those opportunities as a youngster to develop all those fundamental skills that they might need. […] When you see the Paralympic games, you only see often the high level functional athletes. So just that lack of knowledge of parents at that 'getting started level', again I think because they don't know, they don't take their children out for opportunities.* (I-8)

Further discussion focused on the influence of the attitudes of programme designers and leaders responsible for participation outcomes. For programme manager, the influence of their attitudes were discussed at the interpersonal level (directly with participants with disabilities), but rather, focused on how the assumptions of programme managers could lead to barriers for children and adults with disabilities to participate in sport:

> *[…] in order to make those programmes successful, we've had to break down a lot of those assumptions about 'if you don't show up you don't care' or 'you don't want to be part of the programme'. No, that's not it at all. Physically you can't get yourself there, […] people with some more disabilities, there's going to be a difficulty in moving yourself around any given environment to get yourself to the programme. And if that's not taken into account, no wonder you're going to have trouble recruiting people in order to be part of that programme and then to develop them as athletes.* (I-4)

Similar attitudinal challenges in school settings were also reported as negatively impacting inclusive physical education opportunities. The following interviewees' statement demonstrates the issue: *"I still hear stories of disabled children within an inclusive mainstream school not being allowed to do PE because of their impairments."* (I-12) Ensuring that children with disabilities receive physical education seems to be especially problematic in countries where these children attend mainstream school. In these settings, it seemed common that children with disabilities are *"given time off from physical education to go and sit in the library while their schoolmates do sport"* (I-12)

Coaches' pre-conceptions about Paralympic athletes and sports

Several interviewees discussed how the views of coaches towards Paralympic sports can impact Paralympic coaching provision and retention. Some Paralympic

coaches saw Paralympic sports as a "*stepping stone*" towards coaching in able-bodied sports, and as a "*shortcut to get that international level experience."* (I-2) While coaches viewing the Paralympics as a launching pad could encourage some to choose a Paralympic career, it could also reduce coach retention if their ultimate aim is to move into an Olympic career.

In addition, several interviewees speculated whether the challenges their high-performance Paralympic programme encountered in recruiting coaches, were related to coaches' perceptions of the value of a Paralympic career:

> *For us it's also difficult to attract coaches to the Paralympic side of things in terms of a profession. More and more we have full time coaches in the national team level, but basically succession planning is difficult. I don't know if it's resistance or lack of people who see benefits of coaching on the Paralympic side […].* (I-12)

Another interviewee added: *"From what I can see, there's just still not enough coaches with a good understanding or a willingness probably to take athletes with disability on."* (I-2) The negative attitudes of coaches towards athletes with more severe impairments specifically, seemed to further condition the coach's decision to work in the Paralympic streams:

> *Even at the elite level, there's still fear and ignorance that, "No, I don't have the expertise to be able to administer coach support for AwD." That becomes more advanced with the higher support need athletes than it does with lower support need athletes […] but with the higher support of these athletes there's still a kind of fear and ignorance about that.* (I-3)

This example further shows how sporting experience for PwD can vary based on the impairment type. Overall, the data highlights the possible role that coaches' fear, unwillingness, resistance and hesitancy play on the lack of coaches in Paralympic sports. The evidence also highlights how ignorance, lack of understanding, awareness may play a role in the attitudes of coaches towards AwD and parasport. This reinforces the importance of disability knowledge in the sport system, which was identified as a key intervention for Paralympic success development (section 4.1).

High-performance Paralympic programmes stakeholders' attitudes

The impact of the attitudes of both coaches and support staff on the Paralympic athlete high-performance training environment was discussed in two ways. First, evidence of a pattern of able-bodied centric thinking seems to result in a lack of adaptation

to training environments. Second, there was a need to consider the challenges of living with disability while simultaneously maintaining a level of rigour and exigence towards the athlete.

With regards to the first issue, according to interviewees, the able-bodied centric approach of some coaches could lead to a lack of quality of training practices. A one-size fits-all approach could ultimately results in over- or under-training and even injuries, particularly in instances where training groups are mixed (e.g. composed of both AwD and able-bodied athletes):

> *I think that in coaches' minds, for those who are not used to it [coaching PwD], especially in mixed-training groups, it's easier to do the same thing. You have only one person [with a disability] in the middle of ten others [without disability], it's work to do something that is more specific, different. So they tend to do the same training load, and the same training planning.* (I-16)

Other interviewees provided further evidence for this issue, stating that *"sometimes coaches, they try to coach, athletes with disability like an able-bodied athlete"* (I-5); and that there is a need for giving "*key solutions to national [mainstream] federations"* (I-16) to appropriately address the able-bodied centric thinking of coaches and institutions. Some reported how the assumptions of high-performance staff that AwD have knowledge about the impact of their impairment on their training and development can be detrimental to Paralympic athletes. It sets the expectation that the para-athletes, not the coach, should be the experts in their own training.

> *[…] often we say, "Well, the athletes [para-athletes] know." Well, I would say the athletes may or may not know all of the nuances of their impairment any more than they would know all of the nuances of nutrition or psychology or biomechanics. […] we don't expect me because I'm female to understand everything about being a female athlete. So why would we expect a blind athlete to understand everything about being blind?* (I-9)

Interviewees reported that these ableist approaches to high-performance sport, i.e. assumptions that able-bodied sport practices are the more effective/ better norms, were particularly problematic. It can prevent the Paralympic athlete receiving an optimal training environment, which could be detrimental to the para-athlete's health.

> *[…] we realise sometimes that the impairment is not taken into consideration, and then the training is not adapted, and some sometimes this leads to exacerbation of the impairment, injuries, and problems, because by wanting to copy everything done with able-bodies athletes we forget that there needs to be adaptation. I think*

> *there needs to be aware that even if we have the same objective, reach performance, there is individualisation.* (I-5)

This interviewee reinforced the importance of policies and programmes aiming to enhance disability sport knowledge in the sport system.

> *[…] how do you make sure that any coach and any club in [country] can actually provide a service to an athlete with a disability if they are not trained in all of those [disability sport] specificities […]. First, we need to make them understand what is different, and then they need to have the keys to be able to adapt, because, at the end of the day, the job of the coach is to individualise and adapt training to the athlete's characteristics.* (I-5)

With regards to the need to balance understanding of the challenges associated with living with disability, while maintaining exigence and rigour towards the athletes' training, interviewees agreed that the support staff need to acquire a comprehensive understanding of disability, i.e. one that included both social and biological aspects of disability. An interviewee illustrated that this understanding could potentially influence the high-performance environment:

> […] *oftentimes there's a traumatic experience and there's an element of PTSD [Post Traumatic Stress Disorder], or they've got internal injury or, you know, different things. So I think we are really quick to say, "Oh, you're just missing a leg," as opposed to saying, "You're a whole person and we have a medical team and a coaching team." There's probably other things around there that we need to pay attention to and not put our blinders on.* (I-7)

In addition, the pre-(mis)conceptions coaches and support staff may have towards Paralympic athletes could cause them to *"lose the exigence they have acquired on the Olympic side and lose their means when they are in front of someone with a disability […]"* (I-14) and could leave them confused *"between level of exigence and adaption to athletes' capacities."* (I-14) This situation seems to be problematic for the optimisation of Paralympic athlete achievements, with one interviewee indicating that "*it can have a direct impact on performance."* (I-14) An interviewee reinforced the fact that *"the perception of the coach mustn't be "Oh they [para-athletes] can go and hurt themselves"* (I-7). An interview speculated that this type of attitudes were related to a lack of knowledge of disability:

> *There's obviously a fear factor there with a lot of coaches that just start working with individuals for the first time. They don't know how far to push someone, understanding an individual's disability and their needs.* (I-21)

4.2.1.5 *Awareness and understanding of Paralympic sport*

Understanding Paralympic sport specificities was reported as an important policy intervention in relation to a country's Paralympic sporting success (section 4.1.3). Having an awareness and understanding of parasport is also conceptualised as an individual-contextual factor. Indeed, in the absence of such an understanding by individual stakeholders (operating at different levels of the sporting system) can negatively impact various interventions and their effectiveness. Beyond the importance for individual decision makers to understand the need for equitable, effective financial support to para-athletes at the high performance level, the same needs were identified as important at the grassroots level. Indeed, at the participation level, a lack of awareness and understanding of the classification system by either the coach or the parents was reported as having a potential negative influence on the child's participation in organised parasport participation and their potential opportunity to enter in a Paralympic sporting pathway. The following statement provides an example of this situation:

> *[…] [parents] probably not understanding the nature of parasport and the classification process, to the point where they won't even engage their children in the sport because they just cannot imagine that that child who's walking around with a limp or in a wheelchair or can't even communicate or struggles so much in daily life. It's hard for them to imagine that that child can actually play sport, and because of the classification system they potentially can be competitive.* (I-8)

This statement also reflects how the attitudes of parents towards children with more severe impairments could influence children with different disabilities differently, providing evidence of the impairment effect, i.e. the diverse lived experience of disability.

4.2.2 Institutional contextual factors

Institutional factors were the most discussed contextual features (Figure 16). In this section, institutional factors refer to the values, norms, rules and structures in sporting organisations. It also refers to the relationships between the sporting sector and other sectors. Institutional factors are summarised in Figure 16. As can be seen in the left column, factors were found at the level of the national sporting system as a whole, including its interaction with other sectors such as the education system, the health and the military system. Contextual factors were also found at the sport-specific

organisational level (from national organisation, such as M-NSOS and P-NSOs, to local ones, such as community clubs). Schools were also mentioned. The identified factors (column 2) were organised in higher-level categories (right column), and are discussed below in relation to the different levels of sport policy intervention they influence.

4.2.2.1 *Sport policy goal orientations*

At the highest level of decision making in the sporting system, the decision by national governments to host the Olympic and Paralympic Games was reported by identified as an important catalyst for positive changes in the development of the governance of parasport sport in general, and elite Paralympic sport in particular. Some of the interviewees reported an increased awareness and focus by policy makers on the Paralympic field as a result of deciding to host the Games.

Moreover, several interviewees in one country indicated that, while Paralympic sport performance is on the policy agenda, sport policy for PwD is still strongly focused on using sport as a tool for social inclusion, rather than on high-performance sport outcomes. According to an interviewee, mixing Paralympic sports with such *"societal objectives"* was a potential *"barrier to Paralympic performance*" (I-23), and further developing the high-performance focus of disability sport policy goals would enable the development of a more strategic structure for Paralympic sporting success in their country.

4.2.2.2 *Inter-sector relational dynamics*

Relationships between the sporting sector and the disability service, education, health, and military sectors seemed to enable or constrain specific interventions reported as being important for a country's Paralympic success.

Institutional level	Contextual sub-factors	Contextual factors
Sporting institution (as a whole in the country)	Participation vs elite sport focus of the national disability sport policy goal	Sport policy goal orientations
	Hosting the Paralympic Games	
	Relationship of NDSOs versus M-NSOs with the disability sector	Inter-sector relational dynamics
	Relationship of the sport sector with the defense (military), health and education sectors	
	Cross-disciplinary understanding	
	Multiplicity and role fragmentation of organisations involved in Paralympic sport	Institutional tensions and features of disability and Paralympic sport governance in a country
	Political dynamics between sporting organisations (e.g. NDSOs and M-NSOs) regarding disability and Paralympic sport management	
	Legitimacy of an organisation to deliver a Paralympic sport programme	
	People with lived experience of disability in decision making position	
Sporting organisations (M-NSOs & P-NSOs, NDSOs, clubs, high-performance sport institutes, schools)	Mainstreaming as enabler	Mainstreaming implementation and value given to Paralympic sport
	Values towards parasport integration in M-NSOs	
	Leadership towards integration in M-NSOs	
	How integration is managed in M-NSOs	
	Understanding and implementation of inclusive practices in mainstream clubs	
	Level of integration in physical education	
	P-NSOs capacity to generate funding	Parasport specific governance and organisational issues
	Governance of a parasport at the international level	
	Number of Paralympic athletes vs Olympic athletes in a sport	Para-athletes demographics
	Demographics (type of impairment and number) of people with disabilities in a sport	
	Degree of sporting offer for people with disabilities in a country	Sporting offer for people with disabilities

Figure 16 Institutional contextual factors

At the grassroots level of sport participation, several interviewees reported that the NDSOs' established relationships with the disability sector tended to facilitate the entry into and awareness of sport for the groups the disability-specific organisation served (e.g. Cerebral Palsy Alliance). On the contrary, the absence of a developed relationship between M-NSOs and disability sector organisations tended to impact the recruitment of PwD into their sport. An interviewee explained:

> *Olympic federations [i.e. mainstream NSOs], they have a lot of issues with recruitment [of PwD] because it is not their primary job, they're not used to go into rehabilitation centres, they're not used to work with [list of names of disability specific associations].* (I-13)

Building on the above commentary, another interviewee from a different country referred to NDSOs as *"the broker"* between the supply, i.e. M-NSOs offering inclusive sport opportunities in their clubs, and the demand, i.e. PwD wanting to participate in the mainstream sport. The interviewee depicted the situation as follows:

> *I would have to say generally speaking the supply is good so that when you do turn up generally at the local sports club or association or state body, they'll generally be really receptive and they'll understand about inclusion generally, not always but generally. So the supply has been put on for years, but the demand hasn't. We haven't gone to disability sector in particular and really pushed demand and say, "Well, you're saying your people here want to get involved in sport and recreation. There's a supply here that's pretty easy to take. Let's join them up." People in disability sport organisations and disability associations, that's what they'll do. They're the broker. They're the joiner, so that's exactly what they do.* (I-3)

Several interviewees also suggested that the relationships between the sporting sector and the education, health and the military sectors, constrained the effectiveness of diverse policy levels (e.g. parasport participation and classifications). Institutional tensions between these sectors were a specific focus of interviewees' reports. These tensions included, for example, the fact that the sporting and health sectors have different policy goals as it relates to high-performance.

Such institutional dynamics were particularly present in one country. Interviewees discussed the challenges that sport system stakeholders are encountering when working with military groups. The military sector seems to have its own competitions and membership systems, which are directly competing against M-NSOs and P-NSOs in para-athletes recruitment. Interviewees noted this specific institutional issue impacted talent identification and transfer interventions, in particular because military groups tend to have

participants with athletic profiles. In that regard, an interviewee stated that "*they [military organisations] didn't want others [the mainstream sport system organisations] to take it over [parasport competition for war veterans with a disability].*" (I-16)

Another inter-sectorial issue discussed by one country was the general lack of cohesion between sport science researchers and the sport team technical leaders, and how it created potential barriers to the application of sport science to both Olympic and Paralympic sports:

> *We (country) are really bad with this (sport science) […] It's an issue we really struggle developing. I think able-bodied sport also struggle, in the Olympic field. […]. I saw it because [company's name] proposed to work on this issue [sport science issue]. But researchers' language, mixed with sport technical staff and coaches, they just don't understand each other, we need a translator.* (I-17)

4.2.2.3 ***Institutional tensions between parasport organisational stakeholders***

Multiplicity of organisations, role fragmentation and historical politics between organisational stakeholders involved in the Paralympic Movement

The number of organisations involved in parasport at the international, national, regional, and local levels was indicated by interviewees as having an impact on the coordination of actions for Paralympic sport success development. As mentioned throughout this thesis, organisational stakeholders usually include the NDSOs, M- & P-NSOs (and in some cases their State/Province-based organisation in Federated countries), the NPCs, the institutes of sports, the National and State government sport organisations, and the NSAs. Most of the discussions regarding parasport organisational stakeholders focused primarily on the effect of the perceived roles of organisations in the governance of parasport within the country, and the resulting dynamics between organisations. In that regard, an interviewee stated that organisations "*all have differing views about [what] their role may or may not be with respect to parasport.*" (I-4)

Specifically, the roles of and relationships between NDSOs and M-NSOs was one of the most discussed issues, an interviewee commented: *"the dilemma between the role of disability sport agency [National Disability Sport Organisation] and a national body [NSO] hasn't been particularly well handled here."* (I-3) Several other interviewees (from three different countries) reported the existence of political tensions between the NDSOs and the M-NSOs as a result of mainstreaming processes. A representative linked

this tension back to the historical authority of NDSOs, as the founders of the Paralympic Movement:

> *More and more federations [the NDSOs and M- & P-NSOs] are being placed in a situation of competition between each other, which is not a good idea. But it's true that [the NDSOs] have the legitimacy to be responsible for it [disability sport].* (I-17)

Other interviewees suggested that the tensions exist in part because the NDSOs are protective of their governance power of Paralympic sports:

> *Nobody wants to give it up [parasport management in NDSOs]. They think they're the best ones to run it and that they know what they're doing. It also means people are out of jobs, so instead of the greater good where we're going, everybody's really in a turf protection.* (I-10)

> *[…] the presidents of the [NDSOs] were really not happy at all if it [mainstreaming] meant that they were going to lose the parasport disciplines. And so they used political levers to ensure it would not happen. So we lost a bit the meaning of what we wanted to do initially, which was to create the most performant model [to manage Paralympic sport*]. (I-23)

In addition to tensions between the M-NSOs and the NDSOs, an interviewee also suggested that power dynamics within the disability sport movement exist (i.e. between the NPC and the NDSOs) and impact on governance coordination of parasport in the country:

> *The [country's] Paralympic Committee received a large grant from the [company's name] foundation to run developments of activity because that's what [company's name] foundation want to do. However, the [country] Paralympic Committee's role is not to do development. […] And so I think they've [the NPC] maintained this thing of "they are THE organisation" and it creates a role perception because they are a very significant organisation and a wonderful organisation, but they are not the whole picture. […] government and things at policy levels, they don't even think about the area below the [country's] Paralympic Committee. […] one of the most senior people in the [country's organisation] who hadn't even heard of our organisation, and we're one of the bigger national sporting organisations for the disabled and he'd never even heard of us. He hadn't even heard that we procured the world championship of a sport that we're number one of the world in.* (I-6)

Another interviewee speculated on the potential impact these organisational conflicts may have on the development of Paralympic sport within the country: *"They [the NSOs] want our help, our resources, but not the other way around. So that's quite difficult because I think long term that inhibits our [the National Disability Organisation]*

ability to develop those athletes anyway. […].” (I-6) For others, the multiplicity of organisational actors and their diverse roles in the sporting system was particularly confusing for PwD, and this confusion potentially negatively influenced recruitment in grassroots participation:

> *Disability sport organisations struggle to survive […], so we used to have disability sports groups like CP [Cerebral Palsy] Sport and Amputee Sport and Wheelchair Sport used to be separate. They've all come together under one body these days. People are confused about who's [organisational] and who's [organisation] […] all this kind of thing is pretty confusing even for people like me about what role they have. So it's confusing for the public.* (I-3)

Overall, the evidence suggests that the number of and political tensions between organisations involved in parasport sport management possibly impact the effective coordination of parasport, and potentially influence the engagement of para-athletes in sport.

Legitimacy of a specific organisation in delivering Paralympic sport programmes

Expanding on the issue of fragmentation in parasport governance, an interviewee highlighted that giving responsibility to the NPC to organise talent searches across the country in collaboration with sporting organisations was particularly successful in identifying and recruiting talented Paralympic athletes, in part *“because of their [the NPC] credibility and even just the legitimacy. They're seen as being able to hand off someone with a disability.”* (I-7) The interviewee believed that “*who is doing the call and who is doing the lead has been really important.”* (I-7)

Inter-sport organisations relationships

The tendency of different governing bodies (either M- & P-NSOs or NDSOs) to retain Paralympic athletes in their sports potentially conditioned the effective coordination of the orientation and transfers of Paralympic athlete into the most competitive pathway. This situation seemed to be exacerbated by the funding model in some countries that rewards sporting programmes based on their medal potential, as illustrated below:

> *The way our funding system works is that you want your best athletes in your programme. You don't want them to leave your programme for part of the year because you lose your funding and they lose their athlete direct funding.* (I-7)

Another interviewee expanded on this issue:

> *We certainly have a challenge with handling athletes. So even amongst our sports that are successful, so we're trying to do more talent identification, but even sports themselves are trying to recruit athletes from their other sports […]. We need more athletes in the pool. These are trying to take wheelchair basketball, rugby, athletics […] because they know that those athletes are already trained, so it's easier sometimes to go that route. But there's already a limited pool.* (I-10)

In addition, the complication of having such a limited pool of AwD was highlighted: *"the other thing is they all want to protect their athletes because they don't have a lot."* (I-5) As a result of these tensions, national Paralympic talent management and coordination seemed to be particularly dependent upon individual leaders' commitments to establishing collaborative relationships, as illustrated by the following interviewee:

> *I also think we're becoming a lot more open and honest to sports. And because the relationships exist between the leaders of each of the sport, if I've got somebody leaving my programme but I think they'll be good for [parasport], I will literally just pick up the phone to the director of [parasport] […].* (I-21)

An interviewee wondered whether the coordination of Paralympic talent recruitment interventions was going to be further challenged by the tensions that seem to underline the M-NSOs-NDSOs relationships. A manager reported that NDSOs in their country tended *"to hold the people [para-athletes] inside"* potentially because of their sport-for-all motives, which conflicted with institutions primarily focused on the recruitment of the best. One could speculate that a high-performance focus versus a sport-for-all approach increases tension between NDSOs and NSOs.

Overall, inter-organisational dynamics seem to impact on collective efforts towards coordinated talent identification and transfer practices, in a multi-layered context that includes: a small talent pool, the historical development of Paralympic sport that fragments the organisation of parasport today, and a funding model that rewards organisations based on their medal potential.

People with lived experience of disability in decision making positions

The presence of managers and other sport individual stakeholders with lived experience of disability (particularly those with sport participation and performance experience) was reported by two interviewees as being a condition that enabled a greater understanding of parasport in decision-making processes. This was highlighted by an

interviewee who stated: *"we're incredibly fortunate at the moment to have a federal sport minister who is a former alumni athlete who is blind who understands the importance of that [impairment-specific knowledge integration in the system]."* (I-9) Another interviewee extended this view to the integration of PwD in decision making generally: *"first and foremost, but also within the generic national sports bodies (Paralympic or non-Paralympic) because there's knock-on effects to all that, are people with disabilities being involved in that process, being integrated into that decision-making processes."* (I-3)

4.2.2.4 ***Mainstreaming processes and level of integration***

Mainstreaming as enabler

Mainstreaming policies and processes have taken place in all countries represented in this research, albeit at different times and different speeds. Mainstreaming was seen by the majority of interviewees as an institutional context that has enabled the improvement of various interventions important for a country's Paralympic success including: sport technical expertise in national programmes, coaching, competition structures, and classification processes, from the grassroots to the elite level. The following interviewee introduced this shared sentiment by stating:

> *The work that has been done in [country] with respect to integration or moving from a disability specific model into a sports specific model really helped to improve the initial quality of national programmes. [...] it also allowed the opening of access to sport technical information and training information that has been a base to work on.* (I-4)

Indeed, most interviewees agreed that mainstreaming *"was a huge catalyst for Paralympic sport in [country] and really started a significant and positive change in the country."* (I-2) It was also suggested that mainstreaming has had the dual benefit of streamlining government spending across sports, as well promoting inclusion throughout the whole of the sporting organisation:

> *[…] it's more effective, cost effective, for the mainstream sport to take responsibility for those extra bits and pieces [parasport specificities] and just do the inclusive because I believe that filters down into local clubs. And if people see it at the top level, they just do it as second nature. […] That sport becomes responsible. And for me that's another way for the Paralympic pathway to grow*

> *because people engaged in sport and welcomed into sport at a very early age and there are existing pathways.* (I-11)

The need for M-NSOs to offer participants *"an inclusive model into sport"* was judged important for para-athletes to have opportunities to develop from the grassroots to the elite level, and to know that *"right from the start it's okay for an athlete to walk through your [mainstream club] door."* (I-8) This opinion was shared by several interviewees and is summarised by the following statement:

> *Speaking generally for all countries, I think inclusion issues is a huge factor because in order for a potential para athlete to succeed at that [elite] level, we need to be able to access the same level of coaching in club and national expertise as a mainstream athlete. For that to happen, you've got to have inclusive thinking coaches, inclusive thinking governing bodies of sport, inclusive thinking clubs, and you need people thinking inclusively right through the system so that their athletes with a disability have got that ability to progress like their mainstream peers.* (I-21)

However, illustrating the challenges of mainstreaming, several interviewees suggested that creating inclusive environments throughout the organisation has relied on individuals' commitment to inclusion. At the same time, an interviewee reported *"you can't just assume people [sport stakeholders in M-NSOs] will do it [be inclusive]",* so the sporting system *"need[s] some people who are going to be that facilitator of change."* (I-3) Confirming the need not to assume that all individuals will commit to inclusion, another interviewee described how fearful and hesitant mainstream sport organisations could be towards including disability sport because it means changing their way of doing business:

> *This [integrating disability sport in mainstream organisations] sounds like an awful lot of work, and it might fail. Does this mean that I have to change my particular approach or my particular mix of things? And the answer is yes. And I think that that's also a very human component. Particularly for organisations that have not been involved in parasport, there is a fear about, what if I don't know how to do this? What if I as an individual can't do it? Which becomes circular with the lack of knowledge.* (I-4)

As illustrated in this quote, not fully understanding what it means to integrate parasport and PwD in their organisations could be another condition giving rise to organisations' hesitation towards the integration of PwD. This reinforces the idea that disability knowledge throughout the system may be a mechanism of change in sporting organisations. While mainstreaming seems to provide an institutional catalyst enabling

access to sporting expertise and structures for AwD in M-NSOs, whether mainstreaming provides a positive context for Paralympic sport seems to be contingent on the way Paralympic sport is valued and integrated within specific M-NSOs.

M-NSOs value towards parasport integration

The extent to which parasport integration is valued and managed both at the overall sport system level as well as in M-NSOs specifically is the most prominent contextual factor in this data. It was discussed by all countries and seems to impact most levels of national sport policy interventions for Paralympic success. The level of integration of parasport in an M-NSO appears to be contingent on how the mainstreaming process has been managed and how parasport has been received culturally in the organisation. Interviewee 3 explained this issue in detail:

> *The idea was then [staff name, person with disability sport knowledge responsible for facilitated the mainstreaming process] would sit down with them [mainstream NSO staff] […] so they understood […] how to go about it in the most inclusive kind of ways. […]. But at the end of the day, there were mixed success from that because it was so easy for people to let [mainstreaming facilitator's name] do it all, [….] so what happens is when [facilitator] leaves a lot of stuff goes with her […]. We've got to think, "Well, somebody may be the agent of change, maybe the person, but it's not my job to do all this actually. I shouldn't be doing any of it. I should be just teaching everybody else how to do it and train them up and educate them and letting them make mistakes and be aware of what the issues might be rather than just doing it yourself.* (I-3)

Another interviewee confirmed that overall, the success of mainstreaming seems to depend on the specific M-NSO's response to organisational change:

> *We had our [government unit responsible for disability sport mainstreaming], […] working very, very hard, as I said, to try and change the culture and thinking within sports, so the inclusion was just part of what they did and what should have pushed to the side. And we had some good success there, and it felt like we were bashing our heads against a brick wall with other sports.* (I-2)

Similarly, an interviewee highlighted that when M-NSO leaders show strong moral and value towards integrating parasport, ongoing top-down institutional integration in the organisation is more likely to occur, which could enable the development of parasport in the whole-of-sport. However, the interviewee also questioned the quality of mainstreaming across various M-NSOs because of varied levels of parasport leadership, accountability, and a lack of evaluation of the mainstreaming process in M-NSOs.

> *So mainstreaming I think was a nice principle, and in some cases where, as I said, you happen to have had a really ethical motivated organisation that embraces it, it's been effective. But because there's not been any checks and balances […] it's failed in many cases. So it's still not been evaluated. So I think that that is a policy and a systemic issue that is exacerbating or making the problem worse about the difference between parasport and able-bodied sport […]. But what happened in a large number of sports is the moment the accountability and the funding stopped, the mainstreaming just fell into, "Okay, we have to say we do this so we'll do a couple of little token things to say we do it."* (I-4)

Overall, there was evidence that these organisational values and the collective consciousness towards the integration of Paralympic sport (both in the sporting system as a whole and in a specific M-NSO) influence various sport policy interventions important for a country's Paralympic success. In terms of impact on funding interventions, an interviewee noted: *"[…] there's an increasing conscience, that indeed, we need more money if we want to perform [in the Paralympic Games] similarly to the Olympic Games. It's more and more in the discourse because we need more money."* (I-14) In contrast, another interviewee thought that the general *"collective unconscious"* towards parasport had negatively impacted Paralympic sport development, noting that this was changing:

> *More and more, we think "Olympic AND Paralympic". So it means that in all interventions that are proposed, in particular those proposed by the [national] State, we should try not to forget this Paralympic part. I have to remind it often and often […] Today, we need to recognise that the resources we need to invest to succeed in the Paralympics, because of international competition, get closer to the resources that we need to invest for the able-bodied.* (I-16)

In line with the above comments, several interviewees reported that organisationally *"disability was not a priority"* and that parasport is *"the Cinderella of the family because the other athletes, the athletes going to the Olympics, tend to scream louder, get more profile."* (I-7) Interviewees agreed that these views potentially impact funding to Paralympic sport, and they concluded that strong advocacy and leadership is critical to improve organisational culture towards parasport development *"we [Paralympic sport] can also be a second thought, so we [Paralympic managers] have to push that forward."* (I-5) An interviewee added:

> *I think there are some organisations who from choice wouldn't resource their disability programme as strongly or as seriously as their mainstream programme. So I think having that commitment and that understanding in the national boards of NGBs [National Governing Bodies] and in national government is really important. It creates a climate for it to progress and prosper.* (I-18)

The general sentiment was that because the integration of parasport in M-NSOs is undervalued, there is a need for parasport managers to constantly advocate for AwD in order to ensure appropriate investment for Paralympic athlete development:

> *Basically we [Paralympic sport managers] call it naked at forefront priority […] just make sure we're as important as the Olympic side when conversations happen, investment and other kinds of conversation around our Paralympic pathway.* (I-5)

Beyond the impact on funding, the value given to parasport, or lack thereof, also seems to impact the attention given to the day-to-day management of parasport at an M-NSO level. An interviewee explained that in some organisations, the Paralympic programmes tend to get marginalised, when managers have to distribute their workload between parasport and able-bodied sport programmes:

> *Other sports [...] have to prioritise [between Olympic and Paralympic programmes]. They don't always just get money for a para person, so their organisation might just get this bucket of money and they're going to prioritise and make decisions about where it goes. […] So they rely on already people that are overworked and involved in so many things in the organisation and the para side of it because it's only five athletes, it doesn't get the attention it deserves […] to put together all the plans and the processes and the structures and the documents and the tools that somebody needs to develop and help educate the space from that national top down method.* (I-8)

Several interviewees discussed how the unwillingness *"of the able-bodied sports to engage with the Paralympic components"* led to a "*lack of rigour*" in the Paralympic programmes. In particular, the interviewees illustrated how the lack of priority given to Paralympic sport impact Paralympic sport science and expertise interventions. This situation seems to be exacerbated by institutional pressure on the delivery of Olympic medals:

> *All of those things [disability related sport science issues] need a specific knowledge base, and I don't believe that the sports have the focus or particularly a commitment. They have so much pressure on them to produce Olympic results that I think the Paralympic sports get overlooked […].* (I-1)

The perceived value of Paralympic medallists also suggests that attitudes towards Paralympic athletes in the high-performance environment could influence the optimisation of their training and performance:

> *He's just had a conversation with someone who coordinates some of their training bookings and everything up there. And, yeah, basically they're the last priority*

> *group. Even though they've won two gold medals at international level in the Paralympic games, the last two gold medals, their rights to training or respect or level of importance from the people that they're hiring the stadium from is not important.* (I-6)

A final impact was reported on the rigour of classification processes. Some interviewees highlighted that the degree to which integration is taking place in M-NSOs conditions the development of classification processes and implementation from the grassroots to the elite level, resulting in situation where Paralympic athletes only accessed classification at the international level. For example, an interviewee stated:

> *[…] some sports really still don't feel that it [classification]'s really that important. They don't enforce classification for their players. So the only time they would enforce it is when they are about to choose a team that needs to go away [internationally], and then they're going to check that everybody is then classified.* (I-8)

Understanding of what it means to manage diversity and integration

Another issue that related to mainstreaming is the way in which M-NSOs have approached and managed diversity and integration. Some interviewees were critical of the policy makers' rationale that *"putting everyone together"* (through mainstreaming) would provide economic benefits and promote inclusion. They suggested that for mainstreaming to be beneficial, there needed to be a true understanding by policy makers of the specificities of integration of disability sport and a recognition that "*integration has a cost, in terms of human and financial resources"*. (I-17)

> *I think that this specificity [towards AwD] is really important […] But it's a bit like at school, we can include a young deaf kid in a mainstream class, and I think it's important to do it, but if there is no sign language translator during the day, the kid will still be excluded inside the school. So it's a bit the same if we [sporting stakeholders] don't adapt training. But this means that we need additional resources, and that's probably what they [the policy makers] struggle to get.* (I-17)

Another interviewee highlighted how the extent to which organisations understood *"what it meant to treat a person with a disability the same"* as a person without a disability could lead to negative consequences for the equitable treatment of Paralympic athletes.

> *To imitate Scandinavian models, we want to integrate, well we want to include, we say that PwD need to be treated the same as able-bodied people. There's nothing to say to that, but people think that treating them the same means not differentiating.*

> *But we [disability sport organisations] believe that not differentiating is trivialising disability or denying it, and that's a lot more detrimental for the individual.* (I-13)

Finally, others wondered whether mainstreaming has actually been a beneficial policy. For example, an interviewee explained that mainstreaming could be a system that benefit para-athletes with particular impairments, because the system does not understand what it means to include everyone.

> *I would not agree that the inclusive model [mainstreaming model] is always the best model for all athletes at all times. And I would say that particularly when you look across impairment groups and across classifications, I also think that as a sensory impairment, blindness and vision impairment is impacted differently than other impairment groups in the Paralympic system. […] So welcoming everybody is fine, but the understanding of what it truly means to welcome and include people isn't something that parents, children, instructors should have to figure out on their own. Often we [the National Disability Sport Organisations] end up helping a sport governing body, local club coach or community instructor to understand someone who's blind because the message isn't often well received when it comes from parents or when it comes from individuals because the system doesn't really understand*. (I-9)

One can speculate whether mainstreaming policies have actually led to the full integration of PwD throughout M-NSOs. As one interviewee mentioned, there seems to be a lack of evidence on the implementation and effectiveness of mainstreaming policies. In order to fully understand the impact of mainstreaming impact on the development of Paralympic success in the country, there is a need to evaluate its effects in M-NSOs and the sporting system as a whole. In parallel, an interviewee believed that the level of integration in M-NSOs may have improved because of the broader social change towards PwD in society, and not because of the prioritisation of disability sport by organisations:

> *So as sports have become much more aware and much more in tune with disability sport and Paralympic sport, that's been great and more people have become aware of it, so it's not missed by a mark in departments anymore. […] That's the sort of thing [ensuring inclusion in mainstream NSO] that people like the [sport government organisation] probably should do, but it hasn't been done. I think it's evolved and it's improved, but that's simply because in the world we're always more aware of those things.* (I-3)

From the above data, one can infer that in an institutional context where integration is not valued as core business by sporting organisations, where mainstream and Olympic sports take precedent over Paralympic and disability sports, and where individuals sport stakeholders fear integration and do not understand what integration

means, M-NSOs might be failing in providing equal opportunities to Paralympic athletes to develop to the elite level.

Coaching development in mainstream NSOs

According to interviewees, the way coaches' certification and education curricula integrates disability sport content in M-NSO has a potential impact on the ability of coaches to provide truly inclusive environment at the grassroots club level. The following quote provides an illustration of the effect of giving coaches the choice of taking a disability sport training module:

> *The way that it's constructed is the coaches can choose to take the module at any time that they want. What that in a sense tends to mean is that the coach is going to take it when the coach is confronted with the issue, as opposed to be in a situation to say, "I've got all the information. Therefore when the person walks in the door, I'm not freaking out." It's like, "No, I've had my freak out, and now I've gone and sought the information.* (I-2)

In contrast, the following example shows the opposite effect that integrated educative content has on inclusive coaching:

> *We found if it was a separate resource or even if it was its own chapter within a resource, just the way the courses are generally run for coaching, that was something that might be left off the programme. But if we managed to intertwine inclusive practices and ideas throughout all the coaching manuals, coaches were getting a much, much better and all coaches were getting a better understanding of inclusion within their sport.* (I-4)

An interviewee reflected on the influence that International Governing Bodies of a sport can have on the culture of integration and in particular on disability sport coaching at the national level:

> *[…] when the international federation says to the NSO "You should be doing this. This is really important," the NSO has more of a tendency to say, "Right, we should be doing this. We're going to take this on and we're going to drive it right down into our provincial sport organisations and we're going to make it part of our coaching […]there's a lot more built in, I'll say both social incentives within the organisation as well as political and funding incentives. […] So it's not [country's name] telling you, "You should be doing this." It's the sport itself taking it on board, and I think that that's the real tangible difference in the way in which people uptake the [parasport] work.* (I-5)

This statement further illustrates how the top-down leadership of an organisation towards the integration of PwD can positively change organisations norms towards Paralympic sport specifically.

Mainstream club level of integration

Two interviewees' reports suggest that, at the grassroots level, mainstream clubs (in M-NSOs) seem to lack an understanding of anti-discrimination policies, and in particular may not know that they are now legally mandated to offer opportunities for PwD to participate in their sport. Indeed some clubs *"don't necessarily see it as being their role [to cater for people with disabilities in sport], and so it totally depends on the person."* (I-4) The second example further indicates that the environments of some clubs towards the integration of PwD, likely negatively influence participation opportunities for PwD at the community level.

> *I was doing a little bit of work for [parasport] last year on inclusion and ensuring that every club had opportunities for para athletes to join […] and I had a few people say to me, "What if the people at the club just don't want to deal with AwD?" It's kind of like, "Well, they shouldn't have a choice. It should be part of your policy that we are an inclusive organisation and this is what it looks like." […], understanding of inclusive practices and equitable treatment and making sure that their policies with regard to bullying and discrimination are not just sitting on a shelf somewhere, but they're actually implemented.* (I-6)

Level of integration in physical education

The level of integration in physical education (PE) in mainstream schools seems to have an impact on participation outcomes for children with disabilities; and the inclusive practices in PE may relate the level of training that mainstream school teachers have undergone as it related to the integration of children with disabilities. The interviewee explained:

> *[…] the level of information [in pre-service training] provided to them [PE teachers] regarding disability and particularly disability sport in terms of disability sport or inclusion and how to include some practical ideas and information in this regard, for my knowledge is very, very poor. I think that would have a significant influence on the system as a whole because more and more PwD are in mainstream school.* (I-2)

The interviewee further reflected on the potential impact that this lack of inclusive environment had on children's self-perception about their place in sport:

> *Those couple of kids within that school spend most of their sport lessons, PE, doing very little, being the score or just sitting to the side of the gym or going to the library, which probably creates something in that athlete or within that student that they think, "Oh, sport's just not for me,". And they probably don't continue to pursue it when there are probably plenty of opportunities.* (I-2)

Overall, the shows that the way parasport integration is managed, the degree to which parasport is valued in an M-NSO, and the degree to which integration is understood by sport managers and practitioners, make up the context of various sporting organisations. The data suggest that these contextual features enable environments in which AwD do not enjoy the same opportunities as able-bodied athletes. This in turn may impact the country's competitiveness for success.

4.2.2.5 ***Parasport specific governance and organisational issues***

Other institutional issues included the capacity of smaller parasport-specific NSOs (P-NSOs) (e.g. Boccia UK) to generate funding and the international governance of a parasport. While not prevalent in the data, these issues are worth discussing because of their reported influence on Paralympic sport policy interventions for Paralympic success.

Parasport capacity to generate funding

Two interviewees reflected on the effect that their government's reward-based funding model for high-performance sports (based on medal potential) had on smaller P-N-NSOs. Some of those organisations tend to be smaller and less developed, and have less capacity to generate funding than bigger M-NSOs. This highlights a potentially vicious cycle constraining the development of Paralympic success in smaller P-NSOs:

> *My concern is with our current funding structure that as soon as a team stops performing well they just lose most of their funding pretty quickly. And then once you've lost funding, if you're in able-bodied sport usually the federation can afford to find sponsorship or have other ways to pay for that. In para sport, there is no other funding. […]So if you have a para sport and they lose some of their high performance funding from the government, they don't have the capacity that the able-bodied sport has to generate additional revenue and funding. So then they keep going down and down and they can't get back up as easily.* (I-6)

Governance of a Paralympic sport at the international level

A final institutional context was related to the unstable nature of specific Paralympic sport competition frameworks. This was highlighted as an international parasport governance issue which created challenges for investment planning, thus possibly impacting financial interventions. This was mentioned by several interviewees and is summarised by the following statement:

> *So it's [competition frameworks] very different from the Olympics in that sense that even some of your marquee events could be moved around and shoved around. And so that's going to have an impact in your Paralympic success as well […] it can become very difficult to be able to suss out because it still has a tendency to change. And so it makes it more difficult to be able to direct invest in a way in which it's a little dicier.* (I-5)

4.2.2.6 ***Demographics of participants with disabilities and sporting offer***

The demographics of participants, in particular the number of para-athletes and their competitive profiles in one parasport, was discussed in relation to 1/ sporting offers at the participation level, 2/ targeted Paralympic sport class strategies, and 3/ competition structures.

According to interviewees, despite the ongoing challenges that PwD encounter today in accessing sport, the participation offer for PwD is growing and diversifying (e.g. informal sport and extreme sports). Coupled with the relatively stagnant and small number of PwD, the growing and diversifying participation opportunities create challenges for traditional parasports to recruit participants with disabilities into their sports.

> *[…] there are so many things on offer to disabled people now, much more than they were able to even 20 years ago, there's more choice. So they've got to make the sport accessible, so removing the barriers, so they've got to make sport attractive to get into.* (I-12)

The number of PwD in a country (smaller in comparison to able-bodied people) was also mentioned as being a condition that required specific sport participation recruitment strategies to be more proactive in attracting participants with disabilities in their sport programmes. This early identification could be particularly beneficial to the recruitment of athletes into Paralympic pathways. The classification strategies in Paralympic sports drive some of the talent identification practices. However, several interviewees reported that the small number of PwD restricts the effectiveness of this

intervention, and also constrains the ongoing recruitment of para-athletes into competitive para-sport classes for succession of current national Paralympic teams. As a result, some stated that para-athletes' recruitment into Paralympic sport pathways needed to be proactive and strategic.

> *[…] that population is so small. And the specific factoring [classification profiles], for example if we could find one skier, female, that had a visual impairment, I bet we could put her on the podium, but we can't and there's nobody. […] We've got 30 million people in [country] and I would bet there's a strong population of them – well, 7 to 8% of them ski, and how many people have some form of visual disability? And you would think we could find one athlete, but no. So I think it's getting out there and being more targeted with the recruitment.* (I-7)

Another interviewee expanded on the impact that this targeted recruitment could have on Paralympic sports created for people with specific disabilities (e.g. Boccia, Goalball). According to an interviewee, these Paralympic sports could be more affected because the population they serve (i.e. athletes with severe impairments), often face greater challenges with accessing sport.

> *In boccia when you're looking for the severest disabilities in society, it's a small population. And you're looking for those individuals to want to take part in sport, which is an even smaller population, and then you're looking for individuals that can excel in sport, which is a tiny population. So boccia has probably got the biggest challenge out there because of the demographic that they're looking for, and these individuals aren't necessarily taking part in sports because it's a challenge there.* (I-21)

The small number of AwD who are eligible to compete in the same parasport class was reported by several interviewees as having an influence on the competitions structures. Interviewees explained that they employed different strategies within their countries to ensure that Paralympic athletes experienced the appropriate level of competition to develop their athletic competitiveness. The following example was provided:

> *Not every country will have a depth of classification athletes within a group in whichever sport. So you've got to go find those athletes, so that's what we've been doing in terms of, I suppose, exposing our athletes to the right environment. Just going along to win the [country] nationals in an event is all well and good, in [Continent] standards, it might be number 20. So they're never going to be pushed, so I suppose for us it's critically targeting where the athletes need to be and from there then they can obviously improve.* (I-12)

4.2.3 Country infrastructural contextual factors

Contextual factors relating to the country's social and physical infrastructure are summarised in Figure 17. They included political, cultural, geographical, legal, and social policies contexts.

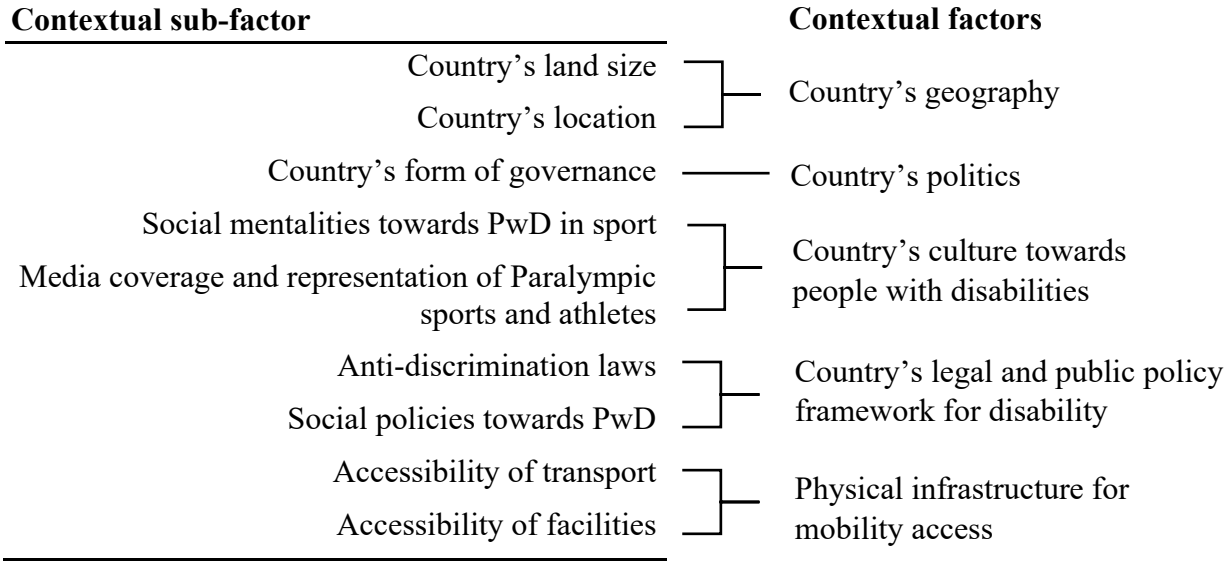

Figure 17 Infrastructural contextual factors

4.2.3.1 *Country's geography*

The land size and location of a country were reported as an infrastructural contextual feature that influences financial interventions, competitions structures, classification opportunities and the high-performance training environment. The following example illustrates how country size and location can create challenges (financially and logistically) for the organisation and development of national competition opportunities.

> *So physical environment; [country's name] is huge. And so it's very expensive for travel, and that's one of the barriers. So when we want to run national competitions, […] teams from [city] travelling over to [city] for a team of 15 it's about $15,000 to travel. Whereas if you were in Holland and you were travelling from Amsterdam to Apeldoorn or you can go by car or by bus and the cost is much less, so the distances in [country] is a critical factor of increasing cost. […] We try and have strategies where we all equalise the cost so all teams pay the same but it makes it more expensive for everybody. And when everybody is having to pay, people with a disability are having to pay for themselves because there's no money for any of our*

organisations to pay for them, then if you can't afford to go, same thing, if you can't afford it, you can't go. (I-6)

The second part of the statement highlights how organisations adopt specific funding methods to address the constraints created by the size of the country so that all para-athletes pay similar amounts. This clearly illustrates how these geographical factors can dramatically impact funding interventions. Moreover, this financial impact seems to be exacerbated by the context of the parasport in terms of type of sport (e.g. team vs individual) and population (i.e. athletes using wheelchairs). The size of a country was also reported as having an impact on accessibility of classification opportunities *"for people in remote areas, to get access to classifying opportunities, can be a bit restrictive. […] And as a result, we see fewer athletes come in from those areas, even though we know that they're out there."* (I-1)

Moreover, several interviewees from large countries illustrated the challenges they encountered in designing the best training options for Paralympic athletes; a situation which was exacerbated by the smaller number of Paralympic athletes.

If you want to be the best you can be you need a good training group of athletes, and because the population of athletes with a disability is smaller, it's harder to find a training group, especially in [country]. It's such a large country, right? So having a really good training group does require athletes to move, to relocate. So that's challenging as well. (I-10)

In response to the diverse issues associated with geographical location, some questioned whether a fully centralised training environment would be best for Paralympic athletes: *"I can see there's so many benefits to that [centralised live-in facility], instead of our coaches struggling to try and either travel every couple of weekends to every State see the athletes."* (I-8) However, interviewees were divided on this, with some believing that Paralympic athletes who had quality home support system would be best supported in a decentralised training environment. An interviewee noted that a solution would be to focus on the delivery of more frequent training camps:

Well, we need to get our guys together a lot because we're a big geographical country. Our players live hundreds and hundreds of miles away from each other in many situations, so we need to have really good training camps and we need to watch carefully they're not over - we have to balance it all. (I-15)

4.2.3.2 ***Country's politics***

Several interviewees reported that the federated governance could provide challenges in the coordination of all levels of the sporting system, particularly at those levels which intersected with other policy sectors such as health and education (e.g. for sport engagement purpose). This overall view is summarised by the following interviewee:

> *[…] so every health ministry or every education ministry has different laws or a different way to deliver, […] So I feel it's always a work to, not start over, but as soon as there are new governments in the province then the health and education policy changes. So it's one of those things that I feel it's always a moving target and it's really hard to get a handle of it. And because we deal with both those sectors in the local level and our federation as well, it's really hard to grasp […].* (I-5)

4.2.3.3 ***Country's culture towards people with disabilities***

The overall social norms towards disability in a country and the general social meaning of PwD's participation in sport were reported by several participants has having an impact on the sporting institution as a whole. The following statement provides a summary of interviewees' shared opinion:

> *And for parents who are getting mixed messages about what they're supposed to do with their kid with a disability. So on the one hand some folks are telling them they need to wrap them in fine wool and don't let them out because they might get themselves hurt and they've been experiencing probably some kind of an over-medicalised system. And, on the other hand they've got a kid that they want to socialise with their peers and help them to feel good about having physical skills and doing something. What are you going to do with them? You might bring them from place to place and try to figure it out. I know that my own parents were quite apprehensive about this whole, you know "What's this whole thing about disability sport? Do we want to label [interviewee's name]?" It's a complex kind of social endeavour […].* (I-4)

Interviewees believed social pre-conceptions towards disability can have a direct impact on how PwD perceive themselves in sport.

> *[…] And so that cultural expectance and celebration of disability sport in [country's name] I think is quite critical because it means that people are much more willing […] to get involved, run programmes, donate and so on. So I think the profile and respect that sport for people with a disability has in [country] I think is*

> *something that is a positive. It also means that when people acquire a disability, they assume that they should be able to do something.* (I-6)

At the high-performance level, an interviewee noted that the shifting societal views towards AwD have positively influenced Paralympic athletes' ability to find financial partners (e.g. sponsors):

> *[…] when you go see a company to ask for a professional contract, a split contract so that the person can train, we will see the person as an athlete, before seeing them disabled. And so the relationship isn't the same at all, the company is the partner of a sport person, the aim is not to do philantropic work with a disabled person.* (I-13)

4.2.3.4 ***Parasport media coverage***

According to some interviewees, the media coverage of Paralympic sport and Paralympic athletes could impact views towards PwD and sport. It could *"help facilitate people [with disabilities] to start to think about 'Oh, maybe I should get involved'"* (I-2), or help more PwD realise *"'Ah well, it's possible, what if I could do sport as well'"* (I-16). In addition, some thoughts that social representations through the media could be particularly important for showing the different demographics of Paralympic athletes, in order to encourage recruitment of diverse athlete profiles. For example, the portrayal of 40-50 years old Paralympic medallists could encourage older generations to enter parasport.

4.2.3.5 ***Antidiscrimination laws and social policies***

About half of the interviewees reported that the existence of laws and social security policies (such as disability compensation schemes) established to prevent discrimination towards PwD and facilitate their participation in society, influenced interventions targeting the participation of PwD in sport. The development of social policies that provide targeted for sport participation was also discussed in one country. The importance of laws and policies was also discussed in terms of how they allow for organisations to be held accountable for potentially discriminatory practices (e.g. lack of physically accessible facilities), were specifically mentioned.

[…] there are fantastic policies in [country] and legislation around accessible venues and accessible transport and being able to get funded to become independent with driving or taxi transport subsidies. So there are some really fantastic things in place which mean that for a person with a disability, the community and sporting systems are able to be accessed […]. (I-6)

While the countries involved in this study do tend to have laws and policies in place to facilitate the participation of PwD in sport, as mentioned in the previous section on mainstreaming, the degree to which stakeholders in mainstream sport organisations are aware of these laws and policies, and the degree to which they implement them seem to vary from one organisation to another. While the mere existence of laws and policies is a precondition for action at other levels, it seems that another pre-condition for the effectiveness of inclusive sport participation interventions is the response of organisations towards implementing these anti-discrimination laws and policies.

In one country, several interviewees discussed how the disability compensation scheme interacted negatively with the government financial support for Paralympic athletes' career. According to current regulations, Paralympic athletes could not receive both a Paralympic scholarship and a State social subsidy at the same time. The direct competition of these two schemes created a challenging financial situation for the Paralympic athletes.

4.2.3.6 ***Physical access***

Several interviewees discussed the impact that the physical accessibility of sporting facilities and transportation can have on the training environment of Paralympic athletes. The effect of accessibility (or absence thereof) could also vary based on the level of impairment of the para-athlete. An interviewee provides an example of the higher accessibility needs of a para-athlete with a severe impairment.

[…] because they have higher support needs, training and supporting those athletes is far more challenging too. So while it's acknowledged that there's a number of classifications [classifications eligible for athletes with more severe impairments] in [parasport], where there's great opportunities to medal, finding a coach and a training environment where you might need some significant changes to the pool […] that actually limits opportunities where those athletes can train. (I-2)

Accessibility issues coupled with the participants living area (i.e. being regionally based) could impact decisions on the centralisation or decentralisation of the training environment:

> *One of the challenges we have in [country's name] is that people with visual impairment struggle to travel anywhere by public transport […]. You've got individuals in rural areas which might struggle to get to places for training. A lot of centralised programmes are delivered which maybe aren't the best thing in each sport.* (I-21)

Finally, an interviewee further explained the impact of accessibility on quality training environment for high-performance Paralympic athletes: "*what you want to do at that high performance level is take away any distractions, anything that's going to use up the energy of the athlete in a negative way. So ensuring that it's easy for somebody to find their way around […].*" (I-9) Overall, this infrastructural accessibility is conditioned by the presence of legislations around this issue, as previously reported.

5 DISCUSSION AND CONCLUSION

5.1 Introduction

This PhD thesis is founded on the premise that governments value Paralympic sporting success, and, as a result, are investing in the development and implementation of effective Paralympic elite sport development programmes and policies. However, the lack of knowledge on the elements of national Paralympic sport development policy systems influencing elite sporting success has limited the conceptualisation of key interventions, which could be used to develop, design and evaluate national elite sport policies in relation to Paralympic sport success. A crucial element of the research was the recognition that national elite sport policies do not operate in a vacuum but are influenced by layers of contextual complexities. Therefore, any attempt to develop concepts to research and evaluate national elite Paralympic sport policy, should be driven by a contextual understanding of policies and programmes. Accordingly, this research was inspired by principles of realist evidence-based policy, which was identified as a promising approach to identify and conceptualise contextual influences. Overall, this led to the development of two research questions that guided this exploratory research:

RQ1: What are national Paralympic sport policy interventions influencing a country's international Paralympic sporting success?

RQ2: What are contextual factors influencing these national Paralympic sport policy interventions?

The first section of the findings chapter (4.1) addressed research question 1, by describing themes and sub-themes of national sport policy interventions deemed important for a country's Paralympic success. The second section of the findings (4.2) addressed research question 2 by focusing on a thematic description of the context at each of Pawson's contextual levels, i.e. the micro level (individual and interpersonal) factors, institutional level factors and the wider infrastructural level of a country's society (Pawson, 2006; Pawson et al., 2004).

In the next section of the discussion (5.2), findings from section 4.1. and 4.2 are integrated to advance the realist-informed framework. The subsequent sections discuss the overall theoretical contribution of this PhD thesis (5.3), its limitation and avenues for

future research (i.e. beyond those focusing on the framework sub-system) (5.4). Finally, implications for research and policy are presented (5.5).

5.2 **Findings integration**

Drawing upon the policy interventions (section 4.1) and contextual factors (section 4.2.) resulting from the analysis, as well as the scholarly literature, the initial framework was developed. Figure 18 presents a diagrammatic representation of this framework. The design of this figure was inspired by one realist evaluation and one realist research study conducted on governance in the field of public and health systems administration (Emerson et al., 2011; Tremblay et al., 2019).

Informed by realist thinking, the figure visually represents the integration of the ten national policy interventions levels found in relation to Paralympic success, together with potential various contextual levels in which a sporting system is embedded (i.e. individual, institutional, country's infrastructural level). Specifically, each national sport policy intervention level is discussed together with the contextual factors, which have an influence on them. While most of the intervention levels reflect those seen in the national Olympic elite sport policy literature, key additional unique levels of intervention were found to be potentially critical for the development of elite Paralympic sport success specifically. These levels include the integration of disability knowledge and Paralympic sport expertise and science in the sporting system, a national framework for Paralympic athlete classification (PAC) processes and strategies, and part of the facility and equipment interventions, i.e. parasport mobility equipment. Moreover, within each level of intervention, this study identified elements specific to disability sport and Paralympic sport. These unique elements are discussed in depth in this chapter.

Informed by system thinking and realist principles, each of these intervention levels (i.e. the circles in Figure 18) are conceptualised as sub-systems, which are individual components of the broader national sporting system. These sub-systems are used as the basis of discussion of the framework (section 5.2.1 to section 5.2.10 below). Presenting the framework through the integration of sub-systems, together with the contextual factors which influence them, aligns with a realist-informed view of evidence-based policy. The purpose of section 5.2. is not to present a repetition of the findings per se, but rather, to propose the framework, and in doing so provide a way for policy

researchers, evaluators and policy makers to conceptualise the embeddedness of the sporting system in a country's context. The next section integrates the empirical evidence from this thesis together with secondary scientific evidence (in instances where literature is available), in order to advance potential theoretical propositions and avenues for future research and evaluation in the sub-systems identified.

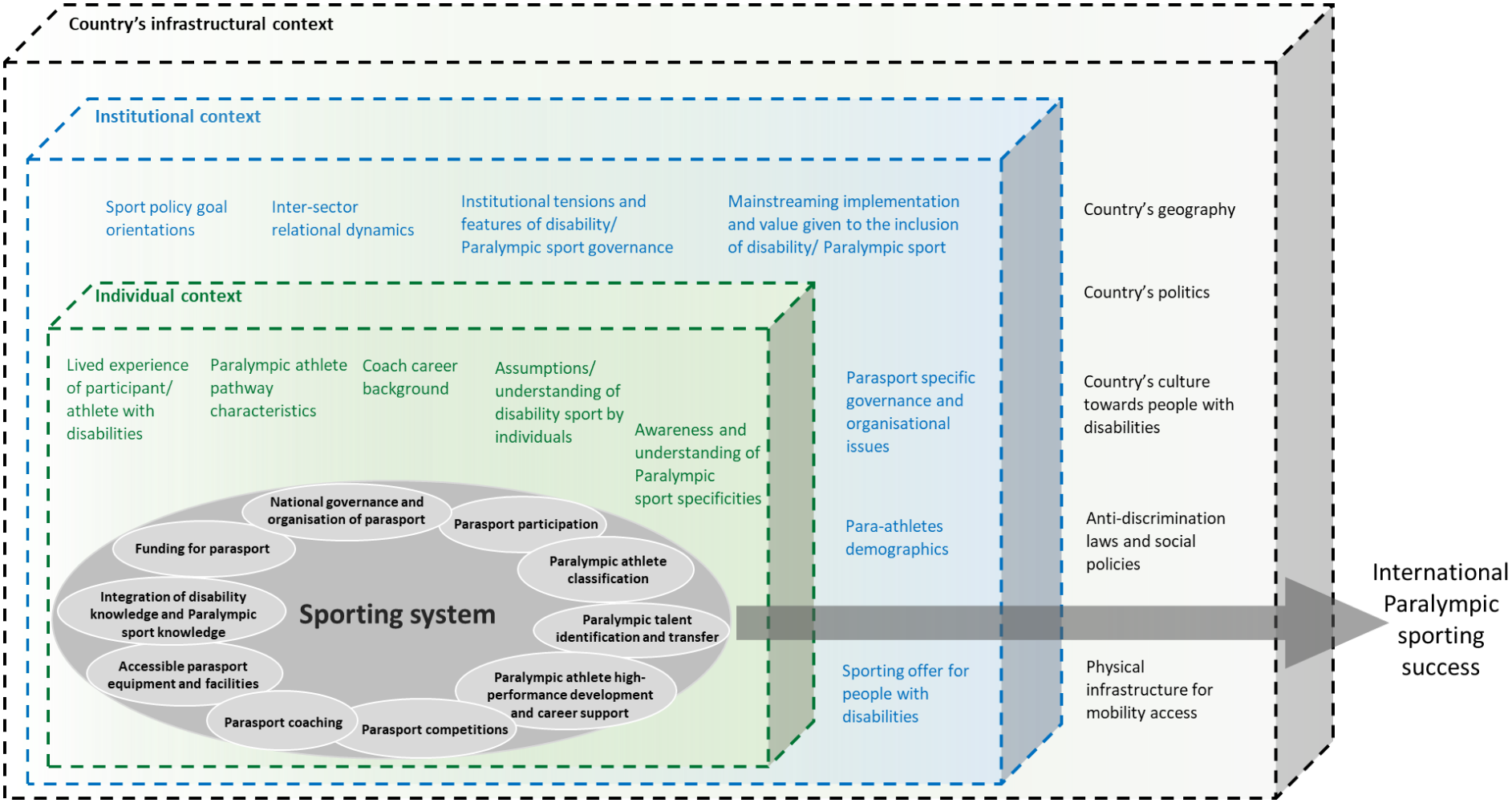

Figure 18 An initial integrated framework of national sport policy interventions and contextual factors influencing a country's Paralympic success

5.2.1 Funding for parasport sport sub-system

National government funding for sport in general and elite sport development, including funding for individual athletes, is widely accepted as important for a country's Olympic success (Andersen et al., 2015; Clumpner, 1994; De Bosscher et al., 2019; De Bosscher et al., 2015a; Digel et al., 2006; Houlihan et al., 2008; Oakley et al., 2001). Recent studies on the UK and Brazilian sport system have reported increased financial investments in the development of Paralympic programmes, as well as direct support to Paralympic athletes (Cardoso et al., 2018; Haiachi et al., 2016; Houlihan et al., 2016; Patatas et al., 2020a).

Findings from this study confirm the importance of funding and specifically suggest that funding for parasport should be based on the long-term development of athletes (from grassroots sport participation to the elite level) with the aim to sustain the country's Paralympic success, and it should be considered for all levels of parasport. This aligns with the SPLISS framework that considers funding at all levels of the sporting system important for Olympic sporting success (De Bosscher et al., 2006; De Bosscher et al., 2015a). Additionally, the most recent studies that examined the relationship between national elite sport policies and Olympic sporting success (i.e. the SPLISS studies), concluded that it is the absolute amount of funding (not relative to population size) that can explain a country's success in the OG (De Bosscher et al., 2008a; De Bosscher et al., 2015a). A proposition is therefore that similar to patterns of increased investments in the Olympic domain, those countries investing in Paralympic sport development from grassroots to the elite level might be more competitive at the PG, and other Paralympic sport competitions. However, a plethora of research in the disability sport literature has reported a general lack of funding to Paralympic athletes, Paralympic sport, and disability sport, particularly for the grassroots sport participation and developmental levels (Allan et al., 2018; Arnold et al., 2016; Misener et al., 2014; Patatas et al., 2020a; Patatas et al., 2018; Wareham et al., 2017; Wareham et al., 2018). In contrast, two studies from the UK have shown that individual Paralympic athletes have received increased funding from the NSA (National Sport Agency) over recent years to focus on their Paralympic career (Bundon et al., 2018; Houlihan et al., 2016). Research is therefore needed to understand national patterns of investments in disability and Paralympic sport, at different levels of the sporting pathway and to further examine

whether funding distributed across all levels of disability sport can positively impact PG outcomes.

The research also highlighted two sub-elements specific to Paralympic sport: allocation of funding for Paralympic sport relative to the needs and requirements associated with the specific sport and individual para-athlete, and the importance of targeted and protected funding mechanisms for the development of Paralympic sport. To ensure equitable funding, decisions on the allocation of finances should be considered in relation to individual situations, such as diversity of impairment, age, and overall life circumstances. Furthermore, contextual factors suggest that such equitable decisions seem to be impacted by the overall understanding – or lack thereof – by senior decision makers in sport ministries/ NSA and M-NSOs, of what Paralympic sport entails. Paralympic sport has unique aspects which need to be taken into consideration such as: 1/ the understanding that some Paralympic athletes compete with athletic partners (guides and pilots), 2/ that Paralympic sport requires finance for classification processes and classifiers, and 3/ that costs of equipment can be particularly high in team sports (wheelchair basketball/rugby). These elements align with some that have been recently reported in the burgeoning Paralympic sport policy literature, as being important for consideration when developing a support system for the development of Paralympic athletes (Houlihan et al., 2016; Patatas et al., 2020a; Patatas et al., 2018).

The need for targeted and protected funding mechanisms for Paralympic sport development (both in M-NSOs and high-performance sport institutes/centres), should be considered in light of the institutional contextual factors highlighted in section 4.2.2. Findings suggest that within various sporting organisations, ableist assumptions (either conscious or not) promote able-bodied athletes as being the "better" norm, resulting in AwD being treated as lesser than. Such ableist contexts have been previously identified in organisational disability sport studies in Australian Swimming (Hammond et al., 2019). This thesis suggests that all countries may want to explore the influence of such assumptions in policy making. In the national sporting system, ableist assumptions could lead to circumstances where Paralympic athletes and Paralympic programmes are not as valued as Olympic sport programmes. Policy makers should seek to ensure that parasport government funding provided to relevant M-NSOs is protected and clearly appropriated so that it is not unfairly redistributed to specific areas of needs of Olympic/ able-bodied sport programmes potentially considered more important.

Overall, funding interventions for Paralympic sport success have the potential to be most effective when there is a comprehensive understanding by decision makers as to full costs associated with Paralympic sport; as well as when the funding for Paralympic sport in integrated organisational contexts is protected, to ensure that it is appropriately allocated at a Paralympic programme or athlete level. Moreover, a marginal increase in the absolute amount of funding invested in Paralympic sport might provide a competitive for Paralympic sporting success, for those countries that equitably fund Paralympic sport. In light of the dearth of research on funding policies and mechanisms for Paralympic sport, further research should not only explore the above proposition, but also explore important funding interventions that were not discovered in this thesis.

5.2.2 National governance and organisation of parasport sub-system

The governance and coordinated organisation of parasport development from grassroots participation to high-performance/elite programmes was one the most discussed topic. The prevalence of this topic does not necessarily convey that a higher degree of importance is given to this intervention level, but rather, it could reflect the complexities and challenges characterising the national organisation of Paralympic sport. These challenges are attributable, in part, to unique institutional tensions between the various organisational parasport stakeholders (in particular between the M-NSOs and NDSOs) and to the role that other sectors, such as education, health, and defence play in parasport. The involvement of multi-sector is consistent with other studies on national disability and Paralympic sport management (Patatas et al., 2018; Thomas et al., 2014). The prevalence of this topic could also be reflective of the interviewees being parasport managers, who would likely place particular importance on the organisation and governance of sport.

Many researchers have examined the links between the national governance of sport and a country's Olympic success, highlighting the need for simplicity of administration, as well as coordination and communication between organisational stakeholders, i.e. government/ NSA, the NOC, and the NSOs (Andersen et al., 2015; Andersen et al., 2012; De Bosscher et al., 2015a; Digel et al., 2006; Green et al., 2005; Houlihan et al., 2008; Oakley et al., 2001). Specifically, studies demonstrated the importance of a nationally managed and collaborative approach to able-bodied TID and high-performance/ elite career support programmes, coaching, facilities and sport science

and medicine. In the body of knowledge on national able-bodied elite sport policy, the SPLISS studies were the only ones reporting on the quality of grassroots club management in relation to a country's sporting success (De Bosscher et al., 2009; De Bosscher et al., 2015a). This relationship between elite sport success and grassroots sport management was examined on the premise that most talented athletes start sports in community clubs (De Bosscher et al., 2015a). Similar to SPLISS, this thesis highlights the importance of an organised whole-of-sport system in the parasport domain, i.e. a sporting system aligned and coordinated from grassroots sport initiatives for PwD to elite Paralympic sporting programmes. This finding aligns with the SPLISS view, in that it assumes that effective governance and coordination from community club management to the elite level may be of importance for sustained Paralympic sporting success. Moreover, in line with the Olympic sport policy literature, this research indicates the importance of coordination and governance mechanisms for Paralympic TID & TT, high-performance Paralympic sport programmes, and active communication between organisational parasport stakeholders (through forums and formal performance review processes). Unique parasport governance elements uncovered in this research include: 1/ the need to coordinate TID & TT with PAC processes, and 2/ the mainstreaming of parasport, and the associated delineated accountability of mainstream organisations (M-NSOs and institute of sports) to ensure the appropriate management of parasport.

Several findings echo the importance given to the coordination of the whole-of-sport system for parasport. Firstly, grassroots parasport awareness and recruitment initiatives and development programmes are seen important both for the long-term development of the para-athlete and for the country's Paralympic success. Secondly, Paralympic athletes appear to progress rapidly from their entry in a parasport to the international and elite levels; this finding is consistent with the Paralympic sport literature (Patatas et al., 2020a; Patatas et al., 2018). Finally, there is a very small talent pool of para-athletes per class, which seems to necessitate countries to be constantly seeking and recruiting more para-athletes. Together these findings, coupled with the numerous sporting and non-sport organisations (e.g. rehabilitation centres, military groups, schools) involved in the governance of parasport, suggest that to ensure for the swift elevation of para-athlete to elite status, their progress needs to not be hindered by a lack of organisation and coordination between the grassroots parasport level and the high-performance/elite level. If an adequate coordination of the whole-of-parasport

stakeholders is not ensured immediately from the grassroots level, potential Paralympic athletes could be missed by the sporting TID system.

A contextual factor that appears to influence the vertical alignment from grassroots (local) to elite (national) level and the decentralised management of high-performance parasport programmes was the country's political mode of governance. Federated national governments, ones where States/Provinces have jurisdiction over their own laws and public system, seem to provide challenges for vertical coordination. This complexity should be accounted for when studying the effectiveness of national policies that cover the vast political landscape of a country.

This thesis indicates that a whole-of-sport mainstreamed governance, one where parasport is integrated in all relevant sporting organisations (e.g. M-NSOs and institute of sport) involved in the development of Paralympic athletes, might be important for Paralympic success. Indeed, mainstreaming emerged as the institutional contextual factor that seems to have enabled the development of other key interventions for Paralympic success such as: coaching policies, the quality of high-performance training environment for Paralympic athletes and the national classification processes.

However, the effectiveness of the mainstreaming process in fully integrating AwD in the whole-of-sport system seems to be influenced by the ethos (e.g. the values, attitudes and understanding) of the M-NSO leadership and sport practitioners towards the integration of disability sport and Paralympic athletes. The contextual analysis further suggests that when integration is not well managed or accepted by the M-NSO, sport participants and athletes with more severe disabilities can be more negatively impacted than athletes with less severe disabilities. This finding is supported by the social relational model of disability, which acknowledges the impairment effect, i.e. the fact that people with different impairments will face different experiences of oppression (Patatas et al., 2020b; Smith et al., 2018; Townsend et al., 2017). This system-focus, evidenced by preference for those athletes who are perceived as providing less challenges for the established sporting structures, should be a critical focal point for future research. The exclusion of athletes on this basis alone (consciously or not) calls into question how well diversity and integration are managed in M-NSOs (Hammond et al., 2019; Howe, 2007; Jeanes et al., 2018b; Smith et al., 2018). This thesis complements other studies that highlighted the potential of mainstreaming policies in positively influence the development of AwD and the inclusive culture of an organisation, and at the same time,

persisting integration challenges within mainstream organisations (Hammond, 2019; Howe, 2007; Sørensen et al., 2006).

It appears critical for countries who have mainstreamed, or are in the process of mainstreaming their sporting system to evaluate the development and implementation of these practices in order to understand their impact on elite athlete development and ultimately the impact on national Paralympic sporting success. Further exploration into whether some athletes are more impacted by these mainstreaming practices than others is warranted as well. Theoretical frameworks such as those employed in Kitchin et al. (2018); Kitchin et al. (2014) and Jeanes et al. (2018b) could be useful when teasing out the extent to which integration has occurred in countries showing Paralympic sporting success.

In line with organisations that are now responsible for the provision of programs and services for AwD, the importance of dedicated Paralympic sport managers, both in M-NSOs and high-performance sport institutes, was reported as a critical governance/ organisational mechanism to ensure that Paralympic sport programmes and athletes were appropriately developed, managed and supported. In institutional contexts where Paralympic athletes/ programmes in both M-NSOs and sport institutes are not as valued as in Olympic sport, dedicated and delineated funding and management mechanisms might continue to be crucial.

Lastly, and surprisingly, only one interviewee briefly mentioned the need to consult primary stakeholders, such as Paralympic athletes and coaches, through commissions and advisory committees to inform the development of sport policy. This element was perhaps not reported because it is not a well-developed practice in Paralympic sports, or because interviewees focused on coordination and fragmentation challenges taking place in their sporting system. Despite the need for these consultations not being prominent in the findings, there is much evidence from this thesis and other research suggesting the need to integrate disability and Paralympic sporting knowledge sharing and expertise in the sporting system. Undeniably, experienced Paralympic athletes, coaches, and scientists are in some of the best positions to provide insights on such knowledge development and integration, being the most important agents of Paralympic sports (Howe, 2007). While the sample of managers could have impacted the prevalence of this finding, it is important to note that several interviewees were either former Paralympic athletes and/or coaches. Perhaps those with previous experience as para-athlete and/or coach, already uniquely situates them with the experience-based

knowledge to inform their practices, thus they did not directly identify consultations as being necessary.

The importance of consultation with key informants to ensure policy effectiveness has also been highlighted by realist and pragmatist policy evaluators as a necessary step in the policy implementation processes as these individuals can provide important knowledge about the context of implementation (Patton, 2015; Pawson et al., 2004). In addition, the organisational effectiveness literature recognises that engaging key constituents (such as athletes, coaches, and middle [programme] managers) in feedback processes is an imperative aspect of effective organisations (De Bosscher et al., 2015a; De Bosscher et al., 2011).

5.2.3 Integration of disability and Paralympic sport knowledge sub-system

The former GDR and Soviet Union were the first nations to systematically develop and apply science to optimise Olympic athletes' performance (De Bosscher et al., 2015a). Since then, the national production, dissemination, translation, and integration of scientific knowledge in high-performance sport programmes has been a characteristic of competitive national elite sport development (Andersen et al., 2012; De Bosscher et al., 2006; Green et al., 2005; Houlihan et al., 2008; Oakley et al., 2001). It is therefore unsurprising that scientific knowledge development and its application to Paralympic sport are also considered to be central in relation to Paralympic sporting success. Innovation in mobility equipment (i.e. sport wheelchair and running prosthesis) was reported to be particularly important. This finding aligns with recent studies that found scientific support important for Paralympic athlete support and development in the UK and Brazil (Houlihan et al., 2016; Patatas et al., 2020a).

While interviewees reported the importance of developing Paralympic scientific research programmes, the sentiment was that such initiatives are either currently still being developed or rely on individual researchers working in isolation. Moreover, there seems to be insufficient knowledge in Paralympic sport science and applied scientists, a finding which aligns with other reports in the high-performance Paralympic sport literature (Kohe et al., 2016; Patatas et al., 2020a; Patatas et al., 2018). Therefore, it would be interesting to know, for example, if a country such as Australia, which has one of the most developed national elite sport science policy in able-bodied sport (De Bosscher et al., 2015a), has also developed a research agenda for Paralympic sport and whether they

further promote the production of scientific Paralympic sport science in universities and/or the training of current applied sport scientists in Paralympic sport.

Developing cutting edge knowledge in Paralympic sport classification and sport performance could bring a competitive advantage to the athletes and the nation, particularly at the elite level. A more thorough understanding of classification, and, more specifically the intersection between an athlete's impairment and their performance in a parasport is needed. Indeed, the importance to obtain a high level understanding on the human body interaction with mobility equipment was mentioned in this thesis, confirming emerging findings in parasport specific research (Perret, 2017). Furthermore, high-performance disability sport coaching literature has designated that research on classification to inform coaching programmes should be a focal point of future research (Kohe et al., 2016). However, a contextual factor impacting the application of Paralympic sport science was the potential difficulty for sport scientists, and the sport research community more broadly, to communicate, translate and work with sport practitioners to integrate knowledge in the sporting system. This knowledge translation/integration challenge was also reported in the Brazilian sporting system (Patatas et al., 2020a). We can therefore speculate that a country's effective intervention in [Paralympic] scientific sport knowledge integration will be influenced by the ability of the two communities of practice (social/sport scientists, and coaches/practitioners) to work together.

Another reported concern (a contextual challenge) was the low number of para-athletes per class, which necessitates the use of individual case study designs to be utilised in research studies. This is in contrast to Olympic sport science where larger cohort of athletes can be part of the same studies. These limitations must be considered and addressed if research programmes are to ensure that Paralympic athletes equitably benefit from sport sciences.

The research uncovered a new element to the dimension of knowledge development specific to parasport. This includes a need for national sport systems to understand Paralympic disciplines as sporting disciplines in their own right, which have their own technical characteristics and requirements. These include, rules (e.g. classification), equipment (e.g. specialised wheelchair), athletes (i.e. guides/pilots), and support staff (i.e. individual support persons for people with more severe impairment). In addition, the understanding of the technical requirements of Paralympic disciplines needs to be coupled with a critical understanding of disability contexts, at different levels (Townsend, 2017). These levels include the biological effects of various impairments

(e.g. physiologically or biomechanically) in relation to fundamental human movement and sport specific skill acquisition. Other levels include knowledge and understanding of psychological elements. These include relational aspects (e.g. the impact that social stigma and oppression towards PwD can have on the mental wellbeing of participants), as well as impairment-specific elements (e.g. post-traumatic stress disorders, which can be experienced by athletes who have acquired disability through traumatic experiences) (Macdougall et al., 2015; Smith et al., 2018; Swartz et al., 2019). A final level includes the need for a broader understanding of infrastructural barriers and how these negatively impact para-athletes. These barriers include a lack of accessible transportation and training centres, and problematic social views towards PwD. Overall, by highlighting biological elements of disability, as well as physical and social elements, this thesis aligns with the growing number of studies supporting the social relational model of disability in Paralympic and [elite] disability sport studies (Patatas et al., 2020a; Smith et al., 2018; Townsend et al., 2017; Townsend et al., 2018; Townsend et al., 2015; Wareham et al., 2017; Wareham et al., 2018).

Such knowledge and understanding was reported as being critical in the formal training of individual stakeholders working in the sporting system, from grassroots mainstream clubs to practitioners in high-performance sport programmes, as well as national decision makers in M-NSOs and in NSAs/ sport ministries. This knowledge was seen as critical to ensure that Paralympic sports and athletes are supported equitably, and that the sporting system as whole is inclusive of sport participants and athletes with disability. In other words, national sporting systems may need to move away from the normative idealist view of able-bodied sport, on which they have been developed, and critically understand the distinct needs of Paralympic sports and AwD.

However, this knowledge and its integration in the sporting system seems to be lacking, suggesting that current Paralympic sport practitioners, managers and other individuals, might be working without a formal knowledge of disability sport. This aligns with numerous Paralympic and disability studies which highlighted the lack of disability knowledge in diverse areas of parasport development. For example, studies on sport management curriculum in higher education in the USA have shown that disability sport is still not included in all sport management courses, which likely results in sport managers not being trained in disability specific issues (Pitts et al., 2017; Shapiro et al., 2012). This thesis suggests that sport systems stakeholders are currently applying their able-bodied sport discipline experiences (as coach, administrator, scientist, volunteer,

etc.) to Paralympic sport, uncritically, through trial and error. Numerous researchers in the field of Paralympic sport and disability sport have demonstrated that the lack of knowledge and critical consideration for disability in practice, education manuals, training delivery, and policies was detrimental to the participation of PwD in sport and Paralympic sport development (Bouttet, 2013; DePauw et al., 2005; Patatas et al., 2018). Indeed, even when policies and programmes have well-intended objectives, if disability is not critically positioned in the formal training of people and in the underlying assumptions driving these policies and programmes, there is a risk to perpetuate disablist practices in elite sport development systems (Townsend et al., 2017). Townsend et al. (2017) argued that a "*Lack of training and knowledge can act as a barrier to inclusion, hence reproducing the very structures that can limit disabled people."* (p. 347) The only contextual factor identified as potentially influencing the development and integration of such knowledge, was the recruitment and general involvement of people with lived experience of disability in decision-making positions, as advocates and drivers of change.

Overall, we propose that national sporting systems that focus on developing knowledge and integration of a critical understanding of disability in the whole-of-sport, and engage with people with lived experience or expertise of disability sport, might appropriately address the needs of AwD. This in turn increase might increase countries' competitiveness for Paralympic success.

5.2.4 Grassroots parasport participation sub-system

The importance of the systematic development of sport participation programmes for PwD in sport aligns with the SPLISS framework (De Bosscher et al., 2015a). As explained in section 5.2.2.1, the importance of sport participation can be considered in light of the perceived lack of talented and competitive Paralympic sport profiles. Additionally the concept of participation also extends to the importance of sustaining the succession of retiring Paralympic athletes.

One aspect of participation that is critical, and perhaps more enhanced in the Paralympic sporting domain due to the social context of disability, is the need to raise awareness of sporting opportunities in PwD. Such initiatives typically reside in rehabilitation programmes, the disability service sector as well as in schools. The contextual analysis shows that despite improvements in the societal view of individuals with disabilities, ongoing social stigma towards PwD might perpetuates the idea that PwD

do not belong in the sporting realm. This, in turn, could be internalised by children with disabilities, their parents and adults with acquired disabilities (Brittain, 2004). Other contextual factors, such as the media representation of PwD in sport could be problematic and negatively impact sport participation. Disability sport scholars have argued that parasport media representation tends to be dominated by the ideal sporting body (i.e. able and masculine). Typical Paralympic athletes portrayed would be those men that can show human movements that are most familiar to able-bodied people (i.e. being in a chair, running as fast as able-bodied athletes). Thus oftentimes the Paralympic athletes that the media shows are men racing in wheelchairs or men running with flex carbon fibre legs (DePauw, 1997; Howe et al., 2017). This type of representation of Paralympic athletes tends to have negative impacts for more diverse Paralympic sports and those athletes or individuals with more severe impairments (DePauw, 1997; Howe et al., 2017). This suggests that sport awareness and engagement programmes might be more effective if they consider the diversity of experiences of people with different impairments, a proposition which aligns with the impairment effect of the social relation model of disability. In socially excluding contexts, awareness initiatives are likely to continue to be needed to ensure that people with diverse disabilities know that they have the right and ability to access sporting spaces.

The point at which people acquire an impairment (at birth or later in life) can impact their access to sport (Howe, 2016). Rehabilitation programmes/centres and health professionals are important facilitators for the participation in sport by people who acquire impairment (Chockalingam et al., 2012; Patatas et al., 2020a; Pate et al., 2019). And schools, disability service for children with disabilities, and community clubs (either disability specific, or mainstream) play a significant role in providing sport opportunities for those children born with an impairment (Howe, 2016). To account for this diversity of individual experiences that characterises the Paralympic Movement, national sport policies may have to carefully consider the different entry points in sport participation when creating sport awareness and engagement programmes. Not doing so might discriminate for specific populations and potentially miss talented para-athletes in the longer term. Therefore, sport recruitment and referral interventions which aim to bridge the gaps between rehabilitation programmes and sporting organisation seem important, as well as participation by youth with disability in sport in schools and clubs.

An organised club structure for PwD, as well access to sports in PE (in ‘specialised’ or mainstream schools) enables kids to develop fundamental skills and

enjoyable early experiences in sport. However, the existence of preconceptions towards disability engrained within these specific organisational cultures, and/or within individual PE teachers, club coaches/managers, are contexts which give rise to children not necessarily experiencing the same opportunities as able-bodied kids to participate in sport. Studies on the implementation of integration policies in mainstream grassroots club, including the interpretation by stakeholders of their legal obligations to provide spaces free of discrimination to PwD, have shown that inclusive environments in mainstream clubs remain more an ideology than a reality (Hammond et al., 2019; Jeanes et al., 2018b; Kitchin et al., 2014). This further reinforces the need for evaluation of mainstreaming, and the influence, interpretation and compliance to anti-discrimination laws, at all levels of the sporting system. If sport participants are not enjoying positive experiences in organised sport participation because the environment has not been inclusive and welcoming, then they will likely drop out.

Finally, the multiplicity of disability sport organisational stakeholders including their perceived role in disability sport and the political tensions that exist between them (e.g. between NDSOs and M-NSOs), was reported as an element potentially influencing both the coordination of actions between stakeholders at the participation level, as well as the public's understanding of disability sport participation opportunities. This suggests that communication to PwD about the options that exist for them to participate in sport could be another useful mechanism for countries to consider. In some countries, the NDSOs continue to play an important role in participation as well as in the high-performance development of Paralympic athletes. Effective national sport communication interventions that aim to promote sporting opportunities to the wider public of PwD, may include consideration of the history of the governance of disability sport in the country, as well as an understanding the current role organisational stakeholders are playing.

5.2.5 Paralympic athlete classification sub-system

Paralympic athlete classification (PAC) is the entry and exit point into a Paralympic sporting pathway. The research shows that PAC national framework should be considered as its own policy sub-system, and that within that should be a training framework for classifiers. This aligns with a study on development pathways for Brazilian Paralympic athletes, which also indicated the importance of classification processes at all

levels (Patatas et al., 2020a). Indeed, providing classification opportunities from the para-athlete entry point through to the international competition level requires clear and rigorous national framework for PAC processes. Errors in classification can be detrimental. Early mistakes at the regional and national level can result in an athlete being unexpectedly re-assigned at the international level to a classification they may not be competitive in. This miss-classification can be detrimental to the mental well-being of para-athlete, and in some instances, end their career (Bundon et al., 2018).

The contextual analysis suggests that those M-NSOs that value Paralympic sport and have managed integration better than others, also had more rigorous classification processes. Moreover, P- & M-NSOs organisations with dedicated managers for PAC processes were regarded as potentially more effective in developing and implementing PAC national frameworks and processes. While it seems important for nations' sport policies to set criteria to both ensure ethical processes and compliance with the IPC Classification Code, and to guide sports in developing classification plans and capacity; it might also be important for P- & M-NSOs to take ownership of PAC processes and align with their international governing body.

The importance of developing PAC framework closely relates with the Paralympic sport expertise sub-system, in that there is a need to develop an agenda on scientific development in classification research (International Paralympic Committee, 2015; Tweedy et al., 2014). In light of the fact that innovation is important for competitiveness (De Bosscher et al., 2015a), those countries who invest in the development of classification research could improve upon the training of classifiers and coaches, resulting in a competitive advantage.

This thesis indicates that countries with populations that are more spread out or countries in distant locations of the world (e.g. Canada and Australia) encounter unique challenges in improving classification practices due to having less opportunities to host international Paralympic championships. A future line of inquiry and evaluation could examine how countries with these characteristics manage to develop strategic and innovative solutions for their para-athletes to access international classification systems. One option might be to invest in the training of their own international classifiers.

Overall, those countries which feature well-developed and managed PAC processes (at all levels of competition), trained classifiers and scientific research in classification might have a competitive advantage in Paralympic competition. Moreover, classification is so critical for Paralympic athlete development and success that leaving

the understanding of PAC principles to individuals' volition may ultimately hinder identification of talented athletes.

5.2.6 Paralympic athlete talent identification and talent transfer sub-system

One of the key novel findings of this research was the level of insights the data provided on the link between PAC and Paralympic talent identification and transfers (TID & TT). Talent identification and selection processes are a well-established feature of able-bodied elite sport development systems (Andersen et al., 2012; De Bosscher et al., 2006; Green et al., 2005; Houlihan et al., 2008; Oakley et al., 2001), though its direct influence on a country's sporting success is debated (De Bosscher et al., 2015a). Aligning with the national able-bodied elite sport elite sport policy, this thesis demonstrates that national coordination of TID & TT processes may be important for a country's Paralympic success. Recent national Paralympic sport policy studies have shown that TID practices are being implemented in a range of Paralympic sports in the UK, Brazil and Canada (Dehghansai et al., 2020; Houlihan et al., 2016; Patatas et al., 2020a).

While the involvement of the NPC seems to be having successes in some countries through their Paralympic Search programmes conducted throughout the nation, it also seems critical for the P- & M-NSOs to drive these processes in their respective organisations. The importance of the NPC's country-wide talent search practices should be evaluated, as analysis suggests their presence could be a compensatory measure for the lack of TID processes within P- & M-NSOs. Indeed, other authors have reported that Paralympic sport-specific TID processes remain in their infancy (Houlihan et al., 2016; Patatas et al., 2018). A recent study analysed the effectiveness of the Canadian NPC "Paralympian search" initiative. Interestingly, the reported initiative goals were *"increasing awareness, attracting novice athletes, and providing opportunities for experienced athletes to transfer between sports."* (Dehghansai et al., 2020, p. 130) The implicit goal was to leverage the initiative as a talent scouting event. While it was successful in capturing para-athletes from a wider range of groups and experiences, its reach did not extend beyond those people who were already aware of and participating in parasport. Moreover, the initiative only captured a low volume of high-quality para-athletes from provincial, national and international levels, as opposed to recruiting novices (Dehghansai et al., 2020). It will be important for countries who use the

Paralympic Search programme in order to influence their country's Paralympic success, to understand the underlying assumptions driving the designing of the initiative, the actual outcomes and effects of the programme, as well as its limitations.

One of the main findings of this study is the importance for national TID and selection programmes and processes to be designed and implemented in accordance with PAC. Talented Paralympic athletes could be inhibited by their specific placement in a class if their level of impairment exceeds that of their direct competitor. The proposition of this thesis is that countries that systematically analyse international results in Paralympic sport classes, through for example the aid of information systems, and use these insights to inform the scouting of competitive profiles in specific classes, and in turn target investment towards those para-athletes, will have greater chance to achieve international Paralympic sporting success. The contextual analysis also suggests that the effectiveness of such a strategy is contingent on individual stakeholders understanding Paralympic sport classification principles, on the politics between sporting organisations "wanting to keep their talents in", and ultimately and importantly, on the informed choice of the para-athlete to compete in their preferred sport.

This type of strategy would undoubtedly have consequences related to which sports or athletes receive government funding. Team sports, sports such as wheelchair rugby/basketball, which only bring one medal could receive less support whereas the medal-heavy individual sports, such as para-swimming/-athletics, which have several classes per event, could become a focal point. From a strategic investment point of view (in terms of medal optimisation for the country), individual Paralympic sports might be more attractive. Prior to employing this type of TID strategy, countries will have to consider whether investing in this manner is culturally and ethically appropriate. The implications of these types of decisions has also been discussed by others authors (Houlihan et al., 2016).

Talent transfers were not discussed in-depth, but seems to be a strategy compensating for the lack of new talented Paralympic athletes recruited for succession of current teams. Moreover, the literature suggests that TT practices might be important in light of the frequently revised classification system. Amended classification guidelines could result in some athletes being re-classified, necessitating transfer to another parasport in which they would be more competitive (Bundon et al., 2018; Houlihan et al., 2016). Further research is needed to explore the impact of these Paralympic TT.

Another relevant TID finding is the importance of a strategic coordination of TID and selection strategies within the military. The link between rehabilitation programmes for war veterans and the PG has existed in the UK since the initiation of Paralympic sports, at the Stoke Mandeville Hospital in the mid-20th century (Brittain et al., 2012). Recruitment directly from the military has continued through present day, with evidence of an increasing managed approach, most notably through national partnerships and programmes between Paralympic sport organisations such as the NPC, and the military sector, in the UK, Canada, and the USA, Australia, and recently in Brazil (Batts et al., 2011; Brittain et al., 2012; Chockalingam et al., 2012; Haiachi et al., 2020). We propose that more competitive countries in the Paralympics might showcase systematic and coordinated approaches for recruitment within military organisations. However, potential institutional and cultural tensions existing between the military sporting system and the mainstream sporting system may hinder effective coordination.

Finally, the study by Houlihan et al. (2016) on TID confirmed suggestion from this thesis that sporting programmes in schools and rehabilitation settings might play a dual role in the sporting system. Beyond offering awareness and sport engagement opportunities, they might also have an important role in the identification of talented AwD. As Houlihan et al. (2016) remarked, at present this may be more reliant on the individual PE teacher and health worker, as there does not appear to be a systemic approach. If countries were to develop more systematic approach for Paralympic TID with these sectors, countries might increase their chances for Paralympic success.

5.2.7 Paralympic athlete high-performance and career development support sub-system

This sub-system is concerned with support structures for the holistic long-term athletic development of Paralympic athletes, from their entry into a high-performance Paralympic pathway to their elite career. While not necessarily explicit in the data, we can infer from the literature that this intervention level applies to Paralympic athletes who are committed (or are in the process of committing) to specialising in one or several Paralympic sports with the aim to achieve high-performance outcomes, and were identified/confirmed as being talented and competitive based on their profile in the class (Andersen et al., 2015; Andersen et al., 2012; De Bosscher et al., 2015a; Digel et al., 2006; Green et al., 2005; Houlihan et al., 2008; Oakley et al., 2001). The high-

performance development programmes and career support programmes are often considered as separate levels of intervention in national sport policy and athlete development frameworks and studies (De Bosscher et al., 2015a; Patatas et al., 2020a). This is in part because only a few athletes achieve elite/ international performance levels at which they are supported by funding (governmental or sponsors). However, in this study these two concepts were intricately related under support programmes for high-performance para-athletes, and therefore combined in the same sub-system.

The underlying element driving this intervention was the importance for the sporting system to create an environment, which optimises the training, development and ongoing performance of Paralympic athletes. It also included welfare interventions, meaning a broader view on the development of the individual beyond their sporting career, in terms of balancing the demand of their sport, their education (primary/secondary/tertiary), work, and considering their overall health and wellbeing. Furthermore, the process of preparing for retirement and the actual transition period for post para-athletic career was included as part of the broader athlete welfare issues. The literature affirms that while this is an important area of consideration for policy, supporting career transition remain undeveloped in practice, particularly in the Paralympic domain in the UK and Brazil (Bundon et al., 2018; Patatas et al., 2020a).

Key elements of this sub-system included having a coordinated multi-disciplinary team of support services including sport medicine professionals, psychologists, physiotherapists, coaches, trainers, and sport scientists. These multi-discipline service teams are well established in Olympic sport, and have also been reported in the Paralympic sport literature (Kean et al., 2017; Patatas et al., 2020a). Additionally, assessing whether a decentralised or centralised training environment is best for the individual Paralympic athlete (in the context of their life and sport) emerged as an important point of evaluation for Paralympic success. Some of the contextual factors potentially influencing decisions of centralisation versus decentralisation included accessibility of facilities and transportations for para-athletes, their close social support (friends, and family situation, parents for young athletes and, partners and children for older athletes), the number of Paralympic athletes individuals can train with in their home environment (this will likely be different between Paralympic sports), and the size of the country. Some of these contextual features have been highlighted previously in a study with Paralympic wheelchair basketball players in Australia and the USA (Kean et al., 2017).

Contextually, mainstreaming policies and the evolution of the governance models of Paralympic sport were seen as a positive institutional enabler for the improvement of high-performance sport programmes targeting para-athlete development. However, there was also a need for delineated Paralympic sport high-performance managers, particularly given how undervalued Paralympic sport appears to be within some sporting institutions.

Funding support (or a lack thereof) is both its own policy intervention as well as an element in many of the subsystems. With regards to supporting para-athlete development and their career, funding support through government or other mechanisms is undeniably a critical component. However, most of the literature published on the support of high-performance/ elite Paralympic athletes consistently report a lack of funding to individual athletes, exacerbated by difficulties to attract sponsors, in Australia, Brazil and the UK (Arnold et al., 2016; Bundon et al., 2018; Cardoso et al., 2018; Kean et al., 2017; Patatas et al., 2020a). Further research is needed to understand the financial support mechanisms for Paralympic athletes' development and career support.

Finally, this sub-system was strongly intertwined with the need for Paralympic sport expertise and knowledge. Trained Paralympic sport professionals with an understanding of disability was central. This includes an understanding of biological issues (interaction between an individual's impairment and training techniques and loads) as well as a broader understanding of the socio-psychological experiences of disability (Brighton, 2018; Guerrero et al., 2018; Macdougall et al., 2016; Swartz et al., 2019). This holistic approach to Paralympic athlete training knowledge would provide high-performance sport practitioners with an understanding of physical and emotional barriers, on and off the field. There are individual factors to consider as well, such as the disparities in age or experience of para-athletes. Of those athletes competing for international medals, some could be very young (as young as 13 years) who experienced a rapid Paralympic sporting progression, while others could be 50+ years old with an established non-sporting career and familial responsibilities (Houlihan et al., 2016). As explained in previous sections, the diversity of individual experiences will need to be understood by all stakeholders involved in the high-performance sporting programme. Brighton (2018) provided a practical example of the usefulness of applying a social relational understanding of disability when working with high-performance athletes with spinal cord injury:

> *[…] SCCs [Strength and Conditioning Coaches] could reverse roles as the "expert" (3) and seek to learn from the athlete as part of co-constructing S&C [Strength & conditioning] practices and programs. Questions could be asked such as: What barriers do you face in achieving your S&C goals? What experiences of oppression do you encounter in S&C as a result of your disability? How can these be addressed in helping you reach your S&C goals? Listening to these answers and challenging bioscientific knowledge holds potential to open up discourses of performance enhancement that may more appropriately frame athletes with a disability as superhuman (31,64), by developing a "non-normative" performing body effective for the unique requirements of a given disability sport. SCCs' knowledge in relation to disability should therefore be co-constructed with athletes with a disability themselves, not to be used on them. (p. 34)*

A recent systematic review on influences on development of AwD from a training perspective identified lack of knowledge of impairment as a critical issue, as well as lack of tailored training programmes to AwD *"Unfortunately, the majority of the studies in this review emphasized the lack of training programs and sport-specific guidelines for athletes with a disability."* (Dehghansai et al., 2017b, p. 87) Moreover, the lack of value given to Paralympic athletes identified in the contextual analysis, potentially further influences athlete's wellbeing, and performance. This is also consistent with the literature on Paralympic athletes' experiences (Allan, 2018).

Overall, it is proposed that countries are likely to be more successful in the Paralympics if they have well-designed, holistic support programmes for Paralympic athlete training, which are effectively governed at the national level, and where Paralympic athletes receive sufficient funding to commit to their sport. In additional, the contextual analysis suggests that countries might be more effective if they seek to understand and address 1/ how disability is positioned by individual sport practitioners, and 2/ how the value that high-performance stakeholders give to Paralympic sport impact para-athletes.

5.2.8 Coaching for disability and Paralympic sport sub-system

The disability and Paralympic sport coaching sub-system aligns with SPLISS (De Bosscher et al., 2006) and other athlete development-focused frameworks, which view the recruitment of a sufficient amount of educated coaches and processes for their ongoing development as critical at all levels of participation and performance. This sub-system is consistent with recent research on the development of elite para-athletes specifically, in Brazil (Patatas et al., 2020a), in the UK (four parasports) (Houlihan et al., 2016; Kitchin

et al., 2018), in the USA and Canada (wheelchair basketball) (Kean et al., 2017). Together, these studies concluded that provision of high-quality coaching was a necessary component for ensuring that AwD have positive experiences throughout the pathway and for the optimisation of Paralympic athletes' training and performance.

The integration of parasport (historically managed by NDSOs as demonstrated in the literature) in M-NSOs, have potentially been an important institutional enabler for Paralympic athletes to access technical coaches in high-performance sport. Indeed, NDSOs have traditionally focused on participation and M-NSOs high-performance sport programmes and sport institutes have had established technical sport expertise, including coaches. However, this thesis highlights that M-NSOs values and culture of inclusion, as well potential challenges in implementing integration, might impact the effectiveness of various interventions levels, such as coaching. Further research should examine the quality of coaching policies in M-NSOs in relation to parasport, and whether they appropriately benefit Paralympic sport and AwD at levels of the pathway.

The extent to which coaches are critically educated on disability in sport requires further research and evaluation. Indeed, the coaching sub-system strongly overlaps with the disability and Paralympic sport knowledge sub-system, in that they cumulatively highlight the need for the development and implementation of national frameworks for the formal education and training of coaches (and other stakeholders) in various disability sport domains (i.e. biological, social, relational aspects etc.). While all interviewees agreed that a national framework for disability-specific training is critical, the data suggests that this is not currently well-developed in any of the participating countries. This finding is confirmed by numerous parasport coaching and para-athlete development studies conducted in North America, the UK, Australia and France, which have stressed that: 1/ disability and Paralympic sport coaches face challenges in understanding disability; 2/ disability-specific knowledge needs to be integrated in training and education of coaches and 3/ resources in developing formal structured courses and education in disability sport coaching remain scarce. Due to limited formal structures, at present, parasport coaches seem to almost exclusively rely on mentoring and creativity to learn (Arnold et al., 2016; Bouttet, 2013; Cregan et al., 2007; Dehghansai et al., 2017a; Dieffenbach et al., 2012; Fairhurst et al., 2017; Lepage et al., 2019; Martin et al., 2014; McMaster et al., 2012; Pate et al., 2019; Tawse et al., 2012; Wareham et al., 2017). It is therefore important for further research to evaluate the national frameworks for the education of coaches in Paralympic sport and disability sport more broadly, and the extent

to which these frameworks vary from one Paralympic sport to another, as this may have impact on Paralympic success.

Contextual factors indicate that different modes of education and training might need to be considered for specific circumstances. For example, specific training modules for coaches transferring from a career in able-bodied high-performance sport to Paralympic sport. Despite the experience some coaches have in elite level sport, interviewees noted the need for them to gain an understanding of disability, not only from a biological perspective (e.g. physiology, biomechanics), but also from a social perspective (e.g. experiences of social oppression and physical barriers), as well as practices related to Paralympic sport (i.e. classification). Moreover, there seems to be a clear need to assess and address any pre-conceived notions coaches may have about what they think para-athletes may or may not be able to do because of their impairments. These negative underlying assumptions were reported by interviewees as problematic for the relational dynamic between coaches and AwD. One of the few studies conducted on the coach-athlete relationship specifically in parasport, reported that female Canadian Paralympic athletes experienced not only negative comments about their disability, but also sexual harassment by their male coaches (Alexander et al., 2019). The sexually based comments call attention to the need to take into consideration additional contextual issues such as intersectionality (the diverse experiences of oppression linked to interconnected social background, e.g. race, gender, sexual orientation, beyond the diverse experiences of disability) (Brighton, 2018). The preconceptions and the lack of knowledge of coaches towards disability was also discussed as having a potential negative impact at the participation level, in particular on the early experiences of children with disabilities participating in mainstream club.

Furthermore, while the findings highlight that recruitment of quality coaches and their professionalisation at the high-performance level in particular is essential, the data suggests that there was not a strong strategy for coach attraction to Paralympic sport. The situation might be evolving as recent studies have reported increased investment in coaching provision since the beginning of this thesis (Wareham et al., 2018). However, even with financial investments, negative assumptions towards disability potentially prevent coaches from seeking to work in disability and Paralympic sport. Furthering these findings, recent studies on Australian Paralympic coaches showed that the stigma associated with taking on a Paralympic sporting career, as well as lack of knowledge on how to navigate the diverse social and physical barriers imposed upon AwD in society,

negatively impacted coach's recruitment and retention. A pay differential between Paralympic and Olympic sports was another identified barrier (Wareham et al., 2018).

Overall, it is proposed that a national framework for the attraction and education of coaches in parasport, is likely to be a crucial component of an effective Paralympic sport development system. The findings of this thesis highlights the need for coaching curricula to integrate diverse aspects of disability (biological and social). It also uncovers the potential negative impact that the lack of disability knowledge may have on para-athletes/ coach relationships. These findings align with authors from the disability coaching literature who argue for critically informing the design and implementation of mainstream coaching education from grassroots to the elite level by disability models. This has the potential to improve the development and provision of an inclusive coaching work force in the overall sporting system (Brighton, 2018; Townsend et al., 2017; Townsend et al., 2015). This, in turn, could impact Paralympic success, by providing an inclusive sporting environment for athletes with disabilities choosing to participate in the mainstream or in parasport specific programmes and organisations.

5.2.9 Parasport equipment and accessible facilities sub-system

Access to facilities and mobility sport equipment are not only important to optimise the daily training environment and performance of Paralympic athletes, they also have a role in enabling participants with disabilities to access sporting opportunities at the grassroots level. The cost and variety of specialised equipment and the physical access of facilities are specific issues that policy makers should consider for Paralympic success.

While some Olympic sports require costly equipment (e.g. cycling, skiing, bobsleigh), in Paralympic sport many athletes and disciplines need equipment, often to assist for mobility. In relative terms to Olympic sports, many para-athletes require very expensive equipment. In numerous Paralympic sports athletes require specialised sport wheelchairs: wheelchair basketball, wheelchair rugby, para-dancing, para-athletics, para-badminton, wheelchair tennis and wheelchair fencing. Moreover, the specialised equipment required differs significantly based not only on the discipline (specialised seating equipment for sledge-hockey, para alpine skiing, para-canoe), but also based on the parasport class (cyclists needing prostheses, tricycles or hand cycles). All these specialised pieces of equipment need to be custom-made for the para-athlete to be able to

train safely (non-fitting equipment can lead to injury) and perform (Burkett, 2010; Patatas et al., 2020a).

This thesis shows that national sport policy interventions allowing participants and para-athletes to access the above equipment should be considered at all levels of the pathway. At the participation level, access to sufficient and appropriate equipment is important to provide initial positive experiences in parasport, and/or provide participants the opportunity to try a variety of parasports. At a more competitive level, this thesis highlighted that specific equipment funding mechanisms are potentially critical in facilitating individual Paralympic athletes access the highly individualised technology they need. Moreover, Paralympic sport science and innovation were evident in this sub-system. Gaining an understanding of the athlete-equipment interface was a point of consideration for improving athletic performance; the importance of considering this interface in Paralympic sport performance was demonstrated in a recent systematic review on elite wheelchair athletes (Perret, 2017). Furthermore, partnerships between high-performance sport stakeholders and engineering departments or other innovation institutions were seen as important to advance the development of cutting edge technology.

Parasport studies have consistently reported on the significant barrier created by a lack of access to sporting equipment at the grassroots level, as well as by affordability challenges associated with specialised equipment at the high-performance levels (Arnold et al., 2016; Crawford et al., 2008; Kean et al., 2017; McLoughlin et al., 2017; Patatas et al., 2020a; Wareham et al., 2018). A promising development to address this was recently presented in Brazil, where a government intervention was established to financially support Paralympic athletes to access specialised sporting equipment, at the high-performance sporting level specifically (Cardoso et al., 2018). This Brazilian government's response is consistent with this thesis' finding.

Overall, it is proposed that countries that develop policies to ensure that sporting organisations have sufficient equipment for children and adults to participate, establish specific funding schemes for high-performance athlete's to access equipment, and create partnerships between Paralympic programmes and equipment optimisation and innovation efforts, may increase their chances for Paralympic sporting success.

Beyond the need for specialised equipment, this sub-system also highlights the importance of physically accessible gymnasiums and training centres. Training facilities are a well-established policy consideration in the national elite sport policy literature (De

Bosscher et al., 2015a; Digel et al., 2006; Green et al., 2005; Houlihan et al., 2008; Oakley et al., 2001). Most parasport studies report the accessibility of facilities as enabling or constraining positive training and participation environment for AwD (Arnold et al., 2016; Crawford et al., 2008; Jaarsma et al., 2014; Kean et al., 2017; McLoughlin et al., 2017; Patatas et al., 2018). The findings from this research confirm that the development and evaluation of interventions targeting the physical access of facilities is important for minimising barriers that para-athletes experience and for ensuring positive focus on their training. These findings align with two national sport policy studies focused on parasport, which also found that accessible training facilities are key a policy implementation instrument for the development of AwD (Houlihan et al., 2016; Patatas et al., 2020a).

The contextual analysis showed that legal and individual factors need to be taken into consideration for the effectiveness of policies in promoting available and accessible facilities for participants and AwD. Anti-discrimination laws have focused on improving physical access in the countries part of this study. However, the extent to which these laws have actually been reinforced and implemented throughout the country seems to be inconsistent. A human rights lens might be helpful in understanding the extent to which countries' laws and policies are influencing accessibility of sporting facilities for the community of PwD (Misener et al., 2014). In terms of individual considerations, the individual's impairment can mean that various types of accommodation are required. A one-size-fits-all approach may not be sufficient in resolving these issues and flexibility and adaptability may be required. Finally, attitudinal issues towards Paralympic athletes in comparison to Olympic athletes, seem to also have an influence on the scheduling time given to a cohort (Olympian) over another (Paralympian). These diverse elements require further examination and should be taken into consideration at the level of sporting facility policies, to assess and ensure their effectiveness.

Facilities and sporting equipment are important aspects of elite able-bodied sport development systems. This study confirms that they are also key policy elements important for Paralympic sport success development.

5.2.10 Parasport competitions sub-system

Competitions are an important component of the development of athletic skills and competitiveness (De Bosscher et al., 2015a), and this study suggests the need to develop a framework for Paralympic sport competitions at the regional, national and

international levels. While competition opportunities are the least discussed intervention levels (reported by 14 interviewees), the increasing number of studies on elite Paralympic athletes' development consistently report the importance of planned competition structure (Houlihan et al., 2016; Martin, 2015; McLoughlin et al., 2017; Patatas et al., 2020a; Patatas et al., 2018). As a result, this sub-system should be carefully considered by national sport policy makers.

As in other sub-systems, the mainstreaming process was regarded as having positively impacted access to competition as this process allowed, in some instances, national competitions, in some to integrate parasport disciplines within their competition framework. However, an important element for consideration is the need for the M-NSO to ensure that the integrated competitions actually align appropriately with the international competition calendar of the Paralympic sport. This contextual component further illustrates that integration practices need to go beyond the act of simply combining the two parts and seek to fully understand the unique aspects.

The size and the location of the country in the world were reported as contextual factors that impact the organisation of national and international competitions. Interviewees did indicate that there was similar challenges in organising competitions for Olympic athletes at the international level, but they highlighted that the impact was exacerbated in the Paralympic domain. Indeed, as there are less Paralympic athletes per class in a country, they tend to reach the international level faster. Therefore, some para-athletes require other international competitors to be able to get sufficient level of competition experience prior to the PG. Some interviewees went as far as reporting that the PG was the first international experience for some para-athletes. For countries located in Europe, the situation seemed more manageable as countries are relatively close in proximity. However, for countries such as Australia and Canada, which both have sprawling populations and are situated relatively far from other countries in the world, there is a specific need for strategies focused on the provision of high-level competitions for para-athletes.

An added contextual influence repeatedly reported was the need to plan for a lack of accessible transport and accessible venues when travelling abroad. Additionally, long travel times (in particular long flights) can have detrimental physiological effects on athletes with certain impairments. There are many logistical considerations when travelling with a team of wheelchair athletes with some players having both a daily use

wheelchair and a specialised one for sport (Kean et al., 2017). All of these considerations increase the cost and complexity of travel for para-athletes and are important to consider.

Overall, countries that have well-developed competition frameworks that provide appropriate levels of competition for a Paralympic athletes, and appropriately account for their accommodation and mobility needs when travelling, will be more likely to achieve Paralympic success.

5.3 **Overall theoretical contribution**

This thesis filled a major gap related to the identification of key national elite sport policy interventions important for a country's Paralympic sport excellence. While there is a range of studies on national elite Olympic/ able-bodied sport policy, research on national Paralympic sporting success development is in its infancy. Recent studies have improved our understanding of individual Paralympic athletes' pathways and associated policies, in the UK and Brazil (Bundon et al., 2018; Houlihan et al., 2016; Patatas et al., 2020a). Moreover, Patatas et al. (2019) explored the social, political, economic, legal and technology context influencing the Brazilian Paralympic sporting system. This thesis complements and extends these studies in three ways: 1/ by analysing data from four successful countries in the PG (i.e. France, Australia, Canada and the UK), 2/ by taking an exploratory, top-down approach, focusing on the conceptualisation of overall (non parasport-specific) national policy interventions based on the reasoning of national Paralympic sport policy makers and managers, and 3/ by integrating these policy interventions with contextual factors in order to propose a way to understand and study the effectiveness of national sport policy in Paralympic sport. This approach led to the major contribution of this research, i.e. the development of an initial conceptual framework, whose final presentation in Figure 18 was inspired by realist evaluation and research on governance in the field of public health systems administration (Emerson et al., 2011; Tremblay et al., 2019). The framework does not intend to be a prescriptive, all-encompassing or exhaustive evaluation tool, which can be applied empirically to make claims about Paralympic success. Rather it provides a conceptual tool for further research and evaluation in national Paralympic sport policy. Specifically, this framework advances the theoretical understanding of national Paralympic sport interventions and adds value to the mainstream national elite sport policy literature.

In the mainstream national elite sport policy literature, numerous authors have stated that national sport policy and implementation systems are contextually dependant (Andersen et al., 2015; Andersen et al., 2012; De Bosscher et al., 2015a; Digel et al., 2006; Houlihan et al., 2008). Specifically, the SPLISS framework and studies acknowledged that the success of national elite sport policies rely on the societal, cultural, political context of a country, but did not include these contextual factors in the analysis (De Bosscher et al., 2015a; De Bosscher et al., 2016). The Success Resource framework directly included contextual factors at the societal level of a county (Digel et al., 2006). However, the clustering of context was not grounded in any theoretical framework, making the underlying rationale of these factors, and their analysis in relation to policy, unclear. Theoretically, the strength of the framework proposed in this thesis (Figure 18) lies in the integration of policy interventions and contexts informed by a realist perspective on policy effectiveness (Pawson, 2006; Pawson et al., 1997). This perspective conceptualises the success of interventions as the interaction between the mechanisms of change underlying the interventions and the contexts within which the interventions are embedded (Pawson, 2006). In that regard, Figure 18 and section 5.2 demonstrate the ways in which all layers of context, i.e. the individual (intra- and interpersonal levels), institutional and country's infrastructural contexts, can influence various policy intervention and their effectiveness. In turn, the level of effectiveness of interventions may impact the influence that the country's sporting system has on sporting success. It is important to note that the empirical reality of the contexts identified and their influence in an individual country may vary. Thus, one individual contextual factor such as "societal views towards disability" may impact the intervention differently in different countries. Moreover, contextual elements are infinite because interventions are open-systems and therefore, they are susceptible to ongoing societal change (Pawson, 2006). The proposed framework assists with the difficulty of capturing the contextual-independence of sport policy effectiveness, by proposing a way to conceptualise how context at different levels can influence sport policy interventions, which is informed by a realist perspective.

The second major contribution of this framework lies in the elucidation of both commonalities between Olympic and Paralympic policy interventions, as well as unique policy elements to the Paralympic sport domain. To develop a conceptualisation of the key national sport policy interventions related to a country's Paralympic sporting success, the research primarily followed an inductive-driven exploratory strategy. In other words, the research did not apply an existing framework on elite sport policy development

systems, such as the Success Resource framework (Digel et al., 2006) or the SPLISS framework (De Bosscher et al., 2006). This primarily inductive approach was used in order to remain open to new conceptualisations. Therefore, while policy interventions uncovered in this research are unequivocally influenced by the existing knowledge in the national elite sport policy literature, the research was empirically and analytically driven by Paralympic sport-specific thinking. This ensured that the framework was developed in a manner that is relevant to Paralympic sport.

Overall, ten key categories of national sport policy interventions (conceptualised as sub-systems of the sporting system) were identified (Figure 18), as well as initial sub-components (processes and potential mechanisms) for each of the interventions. Eight national policy interventions were found common to both Olympic and Paralympic sporting development success. These included: national government funding for sport and elite sport, effective national sport governance, participation in sport at the grassroots, talent identification and transfer (TID & TT), programmes for holistic development of athletes and career support, coach provision and development, and facilities (Andersen et al., 2015; Bergsgard et al., 2007; De Bosscher et al., 2015a; Digel et al., 2006; Houlihan et al., 2008). This research provides evidence for the importance of these elements in the Paralympic domain, particularly in the absence of an existing framework, and it demonstrates some key alignments for policy interventions in the Paralympic and Olympic domains.

However, this PhD also demonstrates that parasport-specific elements exist both at the level of national policy interventions, as well as at the level of processes and mechanisms within each of the aforementioned national policy interventions. The two national parasport-specific policy interventions identified include, national Paralympic athlete classification (PAC) processes, and the integration of disability-specific and Paralympic sport knowledge in the sporting system. This confirms the study by Patatas et al. (2020a), in which classification emerged as a policy factor influencing various level of Brazilian para-athlete development pathways. This PhD extends the importance of the consideration of national PAC policies to four other countries as well as provides further evidence of potential PAC sub-system components: national coordination and capacity for ethical ongoing classification opportunities, recruitment and training of national and international classifiers, and awareness and education on classification for all sport system stakeholders.

In addition, the integration of disability-specific and Paralympic sport expertise sub-system includes processes such as the development of a national agenda for research and innovation in disability sport and Paralympic sport, and its application through Paralympic sport scientists. This sub-system also includes the need for individual stakeholders in the sporting system to have a critical understanding of disability, with the ultimate goal of creating a more inclusive sporting environment. The research highlights how the social relational model of disability and the human rights model of disability are important frameworks to understand disability in sport policy. This aligns with recent calls by researchers in the field of Paralympic sport, which have argued that disability sport research and practice would be enhanced by critically engaging with the field of disability studies (Smith et al., 2018; Townsend et al., 2015). Critically, the emergence of the disability and Paralympic sport knowledge policy intervention indicates that sporting systems might need a paradigm shift; whereby whole-of-sport systems, which have been founded on able-bodied sport as the norm, critically assess their potential ableist policies and practices, in order to positively consider participants and AwD and their lived experiences, based on various models of disability.

Beyond these two parasport-specific policy interventions, parasport-specific processes and mechanisms were identified within the eight aforementioned interventions (those previously found in Olympic sport policy research). These include, the importance of targeted, protected, and dedicated funding and governance processes for parasport specifically, at all levels of the sporting system. These funding and dedicated management processes were particularly stressed in mainstreamed organisations, such as in sporting agencies and/or government organisations managing all of sporting goals (disability related or not), in M-NSOs and their clubs, and in sport institutes. Additional parasport-specific elements were the importance of Paralympic sport outreach programmes developed in collaboration between the sport sector and the health, military, disability service and education sectors. These collaborative outreach programmes were found both within participation and TID & TT policies. This research also provides evidence for the closely intertwined relationship between TID and PAC processes, which comprises the targeting of specific Paralympic athlete profiles based on the athlete's position in a class. In terms of interventions related to the built-in environment, this framework includes the need to provide accessible training facilities for people with all types of impairments, as well as access to appropriate specialised sport equipment at all levels of the sporting system. Parasport competitions should take into consideration the specificities of

parasport classes. Finally, programmes supporting the high-performance development and elite career of Paralympic athletes need to carefully consider the training environment (decentralised versus centralised) and the athlete's welfare in relation to the impairment effect.

Overall, the literature on national elite sport policy has traditionally focused on national elite sport policy in relation to Olympic success. This research complements the recent studies on Paralympic sport policies (Houlihan et al., 2016; Patatas et al., 2019; Patatas et al., 2020a), and extends them by proposing a framework that integrates national Paralympic sport-specific knowledge and which is informed by realist-evidence based policy and disability models. This thesis demonstrates that while there are elements of national elite sport policy common to Paralympic and Olympic success development, there are unique elements to Paralympic sport policy, both at the national intervention policy level, as well as within common interventions. This thesis proposes that countries might be able to become more competitive in Paralympic sport by ensuring that sporting organisations and individual stakeholders are held accountable to delivering programmes that are inclusive of Paralympic sport and athletes, take the distinct needs of parasport and para-athletes into consideration, and account for the specificities of the contexts in which interventions are implemented across the country.

It is important to note that this thesis provides theoretical propositions, which contribute to knowledge in the field of sport policy research and evaluation by proposing initial elements of investigation for Paralympic sport researchers and evaluators. Suggestions for future research are offered in the next section.

5.4 Limitations and future research

Limitations of this exploratory study present opportunities for future research. The study is based on key informants' opinions and these informants are working in Western (and mostly Anglo-Saxon) countries: Canada, Australia, the UK and France. It was important to include these four successful Paralympic countries to obtain information that would allow to appropriately answer the research questions, which specifically focused on Paralympic success. The inclusion of these countries specifically further enhanced research rigour and feasibility. However, inclusion of other successful countries with

different languages, and social and political contexts such as the Netherlands, Ukraine, Brazil, and China, can add critical insights to the field of Paralympic sport policy.

Additionally, it is important to acknowledge the global politics underpinning the Paralympic Movement. It is estimated that 80% of all individuals with disabilities reside in resource-poor nations (World Health Organization & World Bank, 2011). The divide between resource-poor and resource-rich nations in the Paralympics is significant and has been termed *"the gulf in resourcing for para-sport between high- and low-resource regions"* (Beacom et al., 2016, p. 286). The divide has been specifically highlighted against the IPC's mission to advocate for disability rights throughout the world (Beacom et al., 2016; Darcy, 2018; Dowling et al., 2017). While research on Paralympic sport management in some developing nations exists, it is very limited (Crawford et al., 2008; Mharakurwa et al., 2017; Patatas et al., 2020a). We encourage further research to be conducted within these regions and countries, to inform the development of their [elite] Paralympic sport policies and structures. For example, the IPC and/or the IOC could develop funding schemes for research projects specifically targeting Paralympic sport systems and programmes in these countries specifically. Key policy interventions identified in this PhD could be used as a starting point of analysis, and the realist framework could be useful to identify further contextual issues within these countries.

This research is underpinned by one source of data (i.e. interviews with managers). While critical consideration was given to the overall theoretical framework underpinning this research and the rigour of the analysis to ensure validity of the claims made in this PhD, the single source of data limits triangulation, which could highlight the potential existence of any discrepancies in the data. Future research could combine additional methods to further advance knowledge in this area, such as other sources of qualitative data, including policy documents or focus groups, mixed-methods surveys, and the collection of other quantitative data, as well as include other stakeholders.

It was important to include senior national sport policy makers and managers in this research, as these are the stakeholders that could specifically provide insights that aligned with the scope of the study, i.e. overall national sport policy. Specifically, selecting a sample of policy-making experts on the interventions developed and implemented in their respective countries to achieve Paralympic success, was important to identify the potential functioning and effectiveness of these policy/programmes. In realist research designs, this refers to the initial, theory gleaning phase. Indeed, identifying managers' reasoning and assumptions on why a policy/programme may be

effective, allows the researcher to develop theoretical propositions regarding the importance of the policy/programme, as well as its underlying mechanisms (Manzano, 2016; Pawson, 2006, 2013). While these policy-level experts can also identify some aspects of contexts influencing the interventions, their knowledge of implementation contexts will be limited (Pawson, 2006). In realist evaluation, diverse stakeholders groups, such as programmes' middle-managers and recipients can provide information to further elucidate other aspects of the interventions (e.g. contexts). In particular, middle managers and recipients can highlight and expand on features of the context as well as interventions' outcomes (Manzano, 2016; Pawson, 2006). Therefore, developing studies with parasport programme-specific managers (i.e. the middle-managers), such as for example, P- & M-NSOs parasport managers, national coaches/ directors, technical and other support staff, as well as with programmes recipients, such as para-athletes and/or home-coaches in some cases, will further advance the theoretical propositions of this thesis.

As previously mentioned, the claims made in this research are theoretical propositions. While they hold important insights for the advancement of Paralympic research and practice, these propositions should be considered as such and be predominantly viewed as a thinking-guide for research and practice. One way to advance these theoretical propositions would be to further theorise, at a specific intervention level for example, the context-mechanism-outcomes patterns. Such theorising could allow to show configurations of effectiveness specific to each country. This could be done by collecting policy document data, which could highlight whether or not there are intentions to develop the policy interventions identified in this thesis. If so, this data could be used as a basis to understand the underlying mechanisms of change. This could also be done by surveying and interviewing key stakeholders for each of the specific sport policy interventions (Manzano, 2016; Pawson, 2006). In turn, this would allow for identification of whether the specific policy was effective in creating change outcomes towards Paralympic success. Cases studies with various countries could also provide comparative insights on context-mechanisms-outcomes configurations.

This study is based on a whole-of-sport system view, which is useful to provide overall themes of interventions that may be relevant to several Paralympic sports. However, it is acknowledged that national elite sport policy is largely implemented by individual sporting organisations (Brouwers et al., 2014). It is therefore important for further research to consider analysis on a parasport-specific basis, particularly as some

sport are mainstreamed (M-NSOs), others are parasport specific (P-NSOs), and some still have a fragmented structures (NDSOs).

Based on the prevalence of the governance and mainstreaming theme in the data, it is recommended for further research to examine mainstreaming policy implementation at the whole-of-sport organisational level, as well as at an M-NSO level. Understanding both the positive and negative outcomes, as well as the intended and unintended effects of the policy in relation to Paralympic sport success or otherwise, will be important. As previously suggested by Houlihan et al. (2016), comparing sports that have been mainstreamed, and those that have not (e.g. GB Boccia, or Wheelchair Rugby Australia) would be an interesting line of inquiry. A limit of our analysis is that specific theories of integration were not used in this thesis to frame this data. This is primarily because the focus of the thesis was not on mainstreaming. We encourage future research to use theories of integration, such as Berry (1997)'s work used in the disability sport integration/ mainstreaming literature, or others from the field of inclusive education (Jeanes et al., 2018b; Kitchin et al., 2014).

A final point concerns the prioritisation of high-performance funding for specific Paralympic talents, by identifying the competitiveness of their profiles according to their position in a class (and therefore, based on their level of impairment). This strategy was well articulated as important for Paralympic success by all interviewees. However, very little is known about this intervention. The research did not provide the scope to identify the extent to which this strategy is developed and implemented in these countries. Further research could investigate this, as well as the extent to which it has an impact on Paralympic success. Beyond identifying the value of this type of Paralympic profile-based strategy in terms of success achievement, it is also important for future research to study its potential unintended effects. Indeed, the practice of identifying competitive profiles means that people with the least impaired bodies per parasport class are selected. Previous studies on classification have indicated that focus on specific bodies (less impaired) over others (more impaired) has many negative consequences on the Paralympic Movement. This practice legitimises certain profiles over others, which authors argue goes against the Paralympic ethos (Howe et al., 2006). A critical question for future research could be: does a focus on classification turn away parasport participants, discouraging others to participate, and ultimately diminish the talent pool?

5.5 Implications for policy makers

The framework proposed in this research encapsulates how current programmes and policy evaluation tools specifically targeting Paralympic sport can holistically consider that the needs of AwD are appropriately assessed and met at all levels of the sport pathway. For example, policy makers and programme designers should challenge their own assumptions about what disability and Paralympic sport need. They must also include PwD, especially Paralympians and coaches with disabilities, in decision-making processes. Considering the importance given to mainstreaming, sporting organisations that have implemented or are in the process of implementing mainstreaming policies should critically and carefully evaluate whether the original intents of the mainstreaming policies have been actualised and have benefited AwD.

When policy makers examine and potentially adapt the policies and practices of successful countries in the Paralympic domain to apply them in their own countries, they should carefully consider what this will look like in the context of their country. This context of the country can be thought about not only in terms of wider infrastructural elements, such as the size of the country and the laws and social policies for PwD, but also in terms of sport-specific institutional issues, such as organisational culture and individual views towards disability.

While it is not the goal of this research to make recommendations for policy priorities within countries, the research suggests that sporting systems as a whole would benefit in investing in the education and training of sport managers, coaches, support staff, volunteers and parents in critically understanding disability in sport. Furthermore, education institutions (e.g. universities) training future coaches, managers and sport scientists have a key role to play in integrating disability awareness and education throughout their curricula. While this is perhaps beyond the boundary of sport policy makers specifically, they could still collaborate with universities and accrediting bodies to ensure that, in the long-term, the professionals working in high-performance sport systems are appropriately trained to be inclusive of disability in their practice.

A concluding point is the significant ethical implication of the findings for the sport policy makers overseeing the whole-of-sport system. Policy makers should carefully consider the balance between the potential consequences of targeting competitive Paralympic athletes based on impairment levels, with the inclusive values

underpinning sport for all policies in the country, as well as the Paralympic Movement. Indeed, the new vision of the IPC is to “Make for an inclusive world through Para sport.” (International Paralympic Committee, 2019).

5.6 Conclusion

This thesis contributed to knowledge on national elite sport development systems in relation to Paralympic sporting success, using data from four successful countries in the Paralympic Games. This research offered a unique lens on national elite sport policy by using realist evaluation principles to advance the conceptualisation of contextual factors influencing the effectiveness of sport policy interventions. As a result, this work responded to two research gaps: the need to identify Paralympic sport specific issues on elite sport development systems, as well the need to propose an approach that allows to make sense of the ways in which the contextual factors influence elite sport development policy interventions.

This study demonstrated that while sport policy instruments important for success in the Paralympics may be similar to the instruments used in able-bodied sport to achieve Olympic sporting success, there are also several novel Paralympic sport-specific policy interventions, processes and mechanisms. Moreover, inspired by realist research and evaluation, this study proposes a way to conceptualise how contextual factors at the individual, organisational, and infrastructural levels can impact the effectiveness of these interventions. Contextual factors influencing these interventions were found at all levels.

This thesis suggests that researchers, evaluators, policy-makers and managers working in the sporting system should consider a paradigm shift, away from able-bodied centred thinking, and towards critically considering AwD and their lived experience based on various models of disability. Paradoxically, this study suggests that being successful in the Paralympics, one of the most exclusive and elitist sporting events in the world, might require the whole sporting system to shift towards inclusive thinking and action at all levels. In an uncertain, post COVID-19 world, champions of change may matter more than ever.

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APPENDIX A – Eligibility for Paralympic classification

Table 10 Impairment types eligible for Paralympic sport (adapted from IPC, 2013)

Impairment	Explanation	Example of health condition (not exhaustive)
Impaired muscle power	Reduced force generated by the contraction of a muscle or muscle groups, such as muscles of one limb, one side of the body or the lower half of the body.	Paraplegia and quadriplegia (spinal cord injury), muscular dystrophy, polio, spina bifida.
Impaired passive range of movement	The range of movement in one or more joint is reduced in systematically way. However, hypermobility of joints, joint instability, and acute conditions causing reduced range of movement, such as arthritis, are not considered eligible impairments.	Arthrogryposis, ankylosis, post burns joint contractures
Limb deficiency	There is a total or partial absence of bones or joints as a consequence of trauma.	Amputation resulting from trauma (car accident, illness, e.g. bone cancer) or congenital limb deficiency (e.g. dysmelia)
Leg length difference	Bone shortening occurs in one leg.	Congenital deficiency or trauma
Short stature	The standing height is reduced due to aberrant dimensions of bones of upper and lower limbs or trunk, for example due to Achondroplasia or growth hormone dysfunction.	Achondroplasia, growth dysfunction
Hypertonia	Hypertonia is a condition marked by an abnormal increase in muscle tension and a reduced ability of a muscle to stretch. Hypertonia may result from injury, illness, or conditions that involve damage to the central nervous system.	When the condition occurs in children under age of two (2), the term cerebral palsy is often used. It can be due to brain injury (e.g. stroke, trauma) or multiple sclerosis.
Ataxia	Ataxia is a neurological sign and symptom that consists of a lack of co-ordination of muscle movements.	
Athetosis	Athetosis can vary from mild to severe motor dysfunction. It is generally characterised by unbalanced, involuntary movements and a difficulty in maintaining a symmetrical posture.	
Vision impairment	Vision is impacted by either an impairment of the eye structure, optical nerves or optical pathways, or visual cortex of the central brain.	Myopia, tunnel vision, scotoma, retinitis pigmentosa, glaucoma, congenital cataract, macular degeneration
Intellectual impairment	An intellectual impairment is characterised by a limitation in intellectual functioning and adaptive behaviour as expressed in conceptual, social and practical adaptive skills. This impairment originates before the age of 18.	Learning deficiency

APPENDIX B – Invitation email sent to participants

Dear …,

My name is Aurelie Pankowiak. I am currently working on the development of a national Paralympic sport policy framework, which will be used to assess the effectiveness of national sport systems in optimising the development of elite Paralympic athletes. This project is being conducted as part of my PhD research at Victoria University (Melbourne).

I would like to invite you to participate in the first phase of the framework development. The primary aims of this phase it to identify the key components of national sporting systems that are critical for Paralympic success. For this I am conducting interviews with national Parasport managers in Australia, UK, Canada and France.

Considering your experience in the management of (elite) Parasport at the national level, your insight would greatly contribute to the development of the policy framework.

I have attached for your consideration a facts sheet that provides more information about what your participation would entail if you accept to take part in the interview: the goals of the study, the interview procedures (questions, length, etc.), as well as details about confidentiality/protection of the information that you would provide if you participate.

If you would like further information before deciding whether or not you would like to participate, or if you have any concerns or questions, please do not hesitate to contact me via email or by phone: +61 421207170 (AUS).

If after reviewing the document attached you wish to participate, I will send you the consent form and we can schedule the interview whenever is convenient for you in the next couple of weeks.

Thank you in advance and I look forward to hearing from you.

Kind regards,
Aurelie.

APPENDIX C – Information to participants' letter

VICTORIA UNIVERSITY
MELBOURNE AUSTRALIA

INFORMATION TO PARTICIPANTS INVOLVED IN RESEARCH

Invitation

You are invited to participate in **the first phase** of a research project entitled: "**National Paralympic Excellence: Developing an elite sport policy framework to assess the effectiveness of national elite sport systems for Paralympic success.**"

This project is being conducted by a student researcher Ms Aurélie Pankowiak as part of her PhD study at Victoria University (Melbourne, Australia). The project is under the supervision of Professor Hans Westerbeek (Chief Investigator) and Dr Camilla Brockett (Associate Investigator) from the College of Sport and Exercise Science (Victoria University) and Associate Professor Veerle De Bosscher (Associate Investigator) from the Free University of Brussels (Belgium).

Project explanation

In line with the growing global competitiveness at international sporting events, competition between nations at the Paralympic Games is intensifying. The profile of the Paralympics is on the rise and national policy/decision makers are starting to recognise the need to strategically invest in elite Parasport support structures to increase their country's chances for Paralympic success. However, research on the effectiveness of national elite sport policies/systems in the Parasport environment is limited. Such evidence could inform policy makers working towards the success of their nations in the Paralympics.

The primary aim of this project is to **develop a national elite sport policy framework to assess the sport policies and strategies that a country designs in order to achieve national performances at the Paralympic Games** (and other international Parasport benchmark events). To develop this framework, the researchers will consult with elite Parasport international stakeholders in two phases:

- Phase 1 involves interviews with key senior decisions makers directly involved in the development and management of elite Parasport at the national level (e.g. national elite Parasport performance directors), in Australia, the United Kingdom, France and Canada.
- Phase 2 involves surveys with international elite Para-athletes, coaches, high performance Parasport managers and other potential key elite Parasport experts.

You are invited to participate in **the first phase of the project**, which aims to identify:

1/ The **key national policy areas** and principles which are critical for optimising the pathways of talented Para-athletes; in other words, to identify the 'success drivers' of competitive national elite sport systems for Paralympic success.

2/ The **key contextual factors** which impact the effectiveness of these policies and structures. Contextual factors could include such things as accessibility of elite sport structures, societal attitudes towards elite Para-athletes, environmental barriers and facilitators to elite Para-athlete's pathways, etc.

What will I be asked to do?

You are invited to participate in this project because of your knowledge of elite sport systems in relation to elite Parasport management and development at the national level specifically. If you agree to participate you will be asked to provide information in an interview of approximately 60-90 minutes. The interview will include open questions and discussion. Questions will ask your opinion about the areas of national elite sport systems/national initiatives which you think have a critical influence on the success of your country in the Paralympic Games. Other questions will aim to gain an understanding about the context in which these structures and policies are embedded.

Participation is voluntary. You can choose to not respond to any questions that you feel are uncomfortable and you can withdraw at any time. With your permission this interview will be audio recorded. The information you provide will be confidential and all sources will be anonymous.

If you decide at any time that you would no longer like to be involved in the research project, please inform Aurélie Pankowiak or any of the investigators listed below (contact details below). You can discontinue your participation at any time without any penalty or prejudice.

What will I gain from participating?

Through this interview, you will have the opportunity to participate in an international Parasport research project. Sharing your views and insights will greatly contribute to the development of a national policy framework, which will then be used to guide countries' assessment of national elite sport policies towards international Paralympic achievements.

We anticipate that the framework and knowledge resulting from this project will inform policy makers working towards optimising the pathways and support of talented elite Paralympic athletes.

How will the information I give be used?

If you give us permission by signing the consent form, we plan to use the information collected in a doctoral research thesis, scientific publications and conference presentations. All the data will be confidential and anonymous; it will be kept safe in the data base/archives protected by Victoria University. The results will be published in such a form that does not allow you to be identified. That is, your name or any identifying information will not be used in any reports. You can receive results of this research by mail, social media or by telephone.

What are the potential risks of participating in this project?

There are no risks to harm to participants as a result of participation in this research project.

How will this project be conducted?

In this first phase, data will be collected by interviewing participants. Prior to starting the interviews, you will will have the opportunity to contact the researchers to ask questions or discuss about any concerns.

These interviews will either be conducted face-to-face or via Skype or other telecommunication means when face-to-face is not possible. If conducted face-to-face, interview locations may include a quiet office space at your place of employment or a quiet public place that is of easy access and comfortable for you. If conducted via Skype, interviews can be done where most convenient for you. The only requirement is that the place remains as quiet place as possible.

Each interview will be audio-recorded and then transcribed. Only the researchers will have access to the transcripts and when the transcripts are analysed, they will be coded so that your personal details are removed. Your details will be kept in a secure database.

The analysis will be performed to identify and report the content of the interview transcripts, which will be used to develop and frame the content of the national elite sport policy framework for Paralympic success. The draft model will be used for validation in Phase 2 of the study, which will involve surveys (online questionnaires) with a larger group of elite Parasport stakeholders.

Subsequent to your participation, if you accept to, you may be contacted again to participate in Phase 2, or/and to nominate elite Parasport stakeholder peers. If you do not give the permission to researchers to contact you again, they will not contact you, and no prejudice will be held against you.

Who is conducting the study?

Institute of Sport, Exercise and Active Living (ISEAL)

Student Investigator:
Ms Aurélie Pankowiak, PhD Candidate
(ISEAL, College of Sport and Exercise Science, Victoria University)
Email: aurelie.pankowiak@live.vu.edu.au
Phone: +61 421207170

Chief Investigator:
Professor Hans Westerbeek
(ISEAL, College of Sport and Exercise Science, Victoria University)
Email: Hans.Westerbeek@vu.edu.au
Phone: +613 9919 9473

Other investigators:
Dr Camilla Brockett (Victoria University), Associate Professor Veerle De Bosscher (Free University of Brussels)

Any queries about your participation in this project may be directed to the Chief Investigator listed above.
If you have any queries or complaints about the way you have been treated, you may contact the Ethics Secretary, Victoria University Human Research Ethics Committee, Office for Research, Victoria University, PO Box 14428, Melbourne, VIC, 8001, email researchethics@vu.edu.au or phone (03) 9919 4781 or 4461.

APPENDIX D – Consent Form

VICTORIA UNIVERSITY
MELBOURNE AUSTRALIA

CONSENT FORM FOR PARTICIPANTS INVOLVED IN RESEARCH

INFORMATION TO PARTICIPANTS:

We would like to invite you to take part in the **first phase** of an international elite Parasport research project titled: "**National Paralympic Excellence: Developing an elite sport policy framework to assess the effectiveness of national elite sport systems for Paralympic success**."

The primary aim of this project is to develop a national elite sport policy framework to assess the sport policies and strategies that a country designs in order to achieve national performances at the Paralympic Games (and other international Parasport competitions). This framework will be developed in 2 research phases. **This study is Phase 1 of the broader research project.**

To inform the development of this policy framework, in this first phase the researchers will conduct interviews with senior decisions makers directly involved in the development and management of elite parasport at the national level in order to identify:

1/ The **key national policy areas** and principles which are critical for optimising the pathways of talented Para-athletes; in other words, to identify the 'success drivers' of competitive national elite sport systems for Paralympic success.

2/ The **key contextual factors** (e.g. accessibility, societal attitudes towards elite para-athletes, environmental barriers and facilitators to elite para-athlete's pathways) which impact the effectiveness of these policies and structures.

Participation in this first study involves taking part in a **60-90 minute interview**.

Participation is entirely voluntary; you may withdraw at any time. Information you provide during this interview is strictly, anonymous and confidential.

There are no risks to harm to participants as a result of participation in this research project.

CERTIFICATION BY SUBJECT

I, _____ (name)
of _____ (location)

certify that I am at least 18 years old and that I am voluntarily giving my consent to participate in the study: "National Paralympic Excellence: Developing an elite sport policy framework to assess the effectiveness of national elite sport systems for Paralympic success." being conducted at Victoria University (Australia) by PhD researcher Aurélie Pankowiak, Chief Investigator Professor Hans Westerbeek, and Associate Investigators Dr Camilla Brockett and Professor Veerle De Bosscher.

I certify that the objectives of the study, together with any risks and safeguards associated with the procedures listed hereunder to be carried out in the research, have been fully explained to me by Aurélie Pankowiak, and that I freely consent to participation involving the below mentioned procedures: **Interview**

I certify that I have had the opportunity to have any questions answered and that I understand that I can withdraw from this study at any time and that this withdrawal will not jeopardise me in any way.

I have been informed that the information I provide will be kept confidential.

Signed:

Date:

Any queries about your participation in this project may be directed to the researcher
Professor Hans Westerbeek,
Email: Hans.Westerbeek@vu.edu.au
Phone: +613 9919 9473

If you have any queries or complaints about the way you have been treated, you may contact the Ethics Secretary, Victoria University Human Research Ethics Committee, Office for Research, Victoria University, PO Box 14428, Melbourne, VIC, 8001, email Researchethics@vu.edu.au or phone (03) 9919 4781 or 4461.

APPENDIX E – Semi-structured interview guide

Interview Guide

Interview information

Code: _____

Date: _____

Location: _____

Length: _____

Interview participant

Country: _____

Organisation: _____

Initials: _____

Interviewee background:

Introduction

- Personal introduction

- Reminder of what the study entails:
  - Research purpose, phases:
    - Primary aim of my research is to develop an evaluation tool, which can allow us to look at the effectiveness of **national** elite sport systems, in how they influence the success of a country in the Paralympic Games.
    - For this we are doing a number of consultations with national parasport managers to identify the key elements and practices of **national** elite sport systems that are critical for Paralympic success.
  - To make sure we are on the same page, I'd like you to remember, and I will assist you in this,
    - that the questions I will ask are not targeting one specific parasport but the **national elite sport system** as a whole.
    - All my questions will be in **relation to International Paralympic Success** – by Paralympic success we mean the medals outcomes that countries achieve at international Paralympic sport competitions.

  - If at any time you don't understand the question, just ask and I can repeat it or provide you with further explanation.

- The interview will take approximately 60 min.

- Reminder about ethical rights:
  - Confidentiality: **the information that you provide is strickly confidential** and what we will include in our report will not identified as a participant.
  - You also have the right to withdraw from the study at any time. The information will not be kept and there will be no prejudice against you.

Do you have any questions about what I've just explained? Are you still willing to participate in this interview?

Do you accept that I record the interview so that I can go back to our discussion afterwards?

Ice Breaker - Background question

Can you tell me more about it or more broadly about your involvement with the Paralympic Movement?

Part 1 – Key 'elements' and practices of a 'national sporting system' to achieve Paralympic success, i.e. medal outcomes

1 – The three most important elite sport system components

I'd like to start with an easy / generic question.

If you think of a <u>generic national sporting system</u>, or in other words a national sport system for country X: what would you say are the 3 most important components that the system must have to ensure that the country achieves international Paralympic success?

<u>GOING BEYOND</u> (Top 5):

So far you said that … are key elements of national elite sport systems, what else would you say it takes for any nation to support the greatest number of medal-winning Paralympic athletes?

<u>EXPLORING WHY</u>

Why did you choose these elements?

2 – Critical processes and practices in the sport system

Transition: to summarise you've said that …,…,… are some generic elements of national elite sport system that are fundamental for Paralympic success. I would now like to focus on the sport system in your country.

Could you please tell me about the *current national practices* that you think have played a major role in the success of your country in the Paralympic Games?

Clarification:

- So for example you talked about "talent identification":
  - Can you elaborate on how it works in your country at the national level?
  - What does "talent identification" look like?

<u>WHY ARE THEY IMPORTANT?</u>

<u>HOW THEY WORK?</u> "I'd like to know how these work in your country at the national level and under what circumstances"?

- Are any of the leading national bodies giving guidelines with regards to how you support athletes?
- How do you develop coaches in your country? How do you attract them, retain and develop them? How is that facilitated nationally?

WHAT WORKS WELL?

- Why is that?
- Under what circumstances these practices/processes work well?
- What do you think are some key things in the environment that enable "coach development"

WHAT ARE THE CHALLENGES?

- "You have told me a few interesting things that have been useful for success – can you tell me about things that have been more challenging.
- What are the challenging circumstances?
- What are things you had to overcome?

Summary:

To finalise this section, **can you think of anything else that needs to be accounted for in terms of national practices and processes to develop your country's Paralympic success?**

Part 2 – Contrasting components, practice and process for Paralympic vs Olympic successes: similarities and/or differences?

In this section of the discussion, I would like now to better understand whether or not there are things that would need to be considered by policy makers when planning for Paralympic success as opposed to Olympic success.

3 – Could you please compare and contrast the major differences and similarities between the systems that deliver Olympic success and Paralympic success?

SIMILARITIES:

- How is it similar?
- What impact do you think this have on national sporting systems delivering for both Olympic / Paralympic success.

DIFFERENCES:

- How is it different?
- Is your country addressing these differences for Paralympic success? How?

Further exploration: Is there anything else you think needs to be accounted for in the parasport environment that is not necessarily as critical in the mainstream/Olympic sport environment?

Part 3 – Consideration of the diversity of Paralympic athletes by country's system in working towards medals

The pool of AwD is very diverse – both in terms of type of impairment and severity of impairment. In your opinion, ***how has this been addressed by your national sport system in working towards earning Paralympic medals****?*

Probes:

- Are there priority strategies?
- How have you grown to think more broadly in terms of the different type of disabilities?

5 – Contextual issues (Optional question if not addressed earlier)

So far we have explored a number of elements and practices that make up competitive national sport systems for Paralympic success.

4 - For this last section of the interview, I would like to further explore some issues in the parasport environment that enable or disabled these practices that you have mentioned. So now reflecting on the parasport environment within your own country, could you please tell me whether there things that impact the good functioning of your sporting system when working for Paralympic medals?

If clarification needed:

- To help frame the discussion, let's go back to the cake image. When baking a delicious cake, having the right ingredients and method is not enough. Other things can have a significant impact on the end result, such as the temperature of the room, the quality of the oven, the bakers involved in the process and so on.

- Either use an example already brought up, or "It can be contextual things at the level of the society as a whole, at the institutional level between stakeholders organisation, or even at the level of the individuals' environment"

Probes:

- Exploration of key points: ask for their explanations about how these impact the different areas mentioned previously

6 – Closing questions

- Is there anything you would like to add anything on the topic that I missed?