Reimagining (Sports) Parks

A case study of Amsterdam, the Netherlands

Master of Science Thesis

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As an avid athlete and sports enthusiast, I could not think of a better topic to conclude my university studies with. I thoroughly enjoyed the process of delving into the theme of sport, its history, changes, policy, and much more. At times, it proved challenging to combine writing this thesis with playing rugby at the highest level whilst taking a few extra courses, but I am glad that I was able to find a good balance.

I want to thank my thesis supervisors, Yawei and Eveline, for their support and guidance throughout this process. They were able to steer me back on track when necessary and assist me when I encountered difficulties. Thank you very much for this. I would also like to thank everyone who helped with this research: the experts who contributed through interviews, the survey respondents, and the people with whom I was able to brainstorm during the process. I would also like to thank my family and friends for their support.

The process of writing this thesis has now come to an end. I hope you enjoy reading this report and that it provides interesting and actionable insights into the future of Urban Sports Planning.

Abstract

Everybody engages in sports and physical activity, but the mechanisms underlying these activities are extremely complex. This study examines the systemic imbalance that exists in Amsterdam's sports landscape, where current, static, supply interacts with dynamic, changing user demand. It specifically looks into how programming (Software), governance structures (Orgware), and physical infrastructure (Hardware) interact to create bottlenecks.

By using a mixed-methods case-study approach that triangulates literature and policy review, expert interviews, and user surveys, the study evaluates the interrelationship between demand and supply within the metropolitan context. Key findings include that demand is shifting toward more flexible, informal, and individually organized sports. This shift leads to bottlenecks within the traditional, club-based organized sports landscape that is unique to the Netherlands. The analysis revealed several mismatches that lead to bottlenecks, most notably aging, monofunctional infrastructure, fragmented municipal governance, missing statutory foundations, and inadequate legal frameworks for sports.

To address these bottlenecks, eight design principles are suggested that prioritize multifunctionality, professionalize public space management, and strategically collaborate with commercial providers. This study contributes to the academic field by suggesting a strategic framework for policymakers, practitioners, and urban planners to align sports infrastructure with contemporary needs. The thesis concludes that there is no universal solution. Instead, it advocates for 'maatwerk' (context-specific customization) and the structural legal embedding of sport in spatial planning to guarantee its future place in the ever-densifying metropolitan city.

Keywords: *Urban Sports Planning, Urban Densification, H-O-S Framework, Amsterdam, Sports Infrastructure, Public Space, Changing Sports Demand*

AI Statement

Generative AI tools were used in a supporting role during the planning and composition of this thesis. Due to the bilingual nature of the study, in which the majority of literature and interview data were in Dutch, AI assisted in translating the author's texts for use in the empirical findings and discussion chapters. AI also acted as a sparring partner during the research phase, helping in ideation and problem-solving during data analysis and GIS workflows.

With respect to the qualitative research, AI tools facilitated the transcription of interviews to support data processing. Grammarly software was used for general spelling and grammatical corrections. All AI-assisted outputs were reviewed, amended, and approved by the author, who retains full responsibility for the accuracy and interpretation of the material presented.

Glossary

Sport(s) – Defined in this research as a dynamic, evolving social construct fundamentally involving physical activity or skill. It is typically rule-based and involves competition against others, oneself, or established standards.

Physical activity (PA) – Any bodily movement produced by skeletal muscles that requires energy expenditure (WHO, 2024). This includes all forms of bodily movement, including leisure, transport (active commuting), work, and domestic activities.

Organized sports – Sports activities that occur within a formal, membership-based structure, primarily the traditional voluntary sports club (*vereniging*). This model is characterized by democratic decision-making, volunteerism, and participation in official competitions or leagues.

Differently organized sports – An umbrella term used to describe all forms of sports organization outside of the traditional voluntary club system. This includes commercial sports (e.g., gyms) and unorganized/informal activities (e.g., running, urban sports).

Traditional sportspark – A designated, often closed-off, clustered, mono-functional sports facilities consisting of fields, courts, clubhouses, etc. designed primarily for organized club use.

Maatwerk – A Dutch word to describe a customization or tailor-made approach to design and planning. A term that was evident from interviews and chosen to be used in its original form throughout the report to emphasize context-specific solutions over standard blueprints.

Hardware – The physical component of the sports infrastructure ecosystem. This includes fields, buildings, public spaces, and urban design elements.

Orgware – The governance and management component of the sports ecosystem. This includes the policy structures, ownership models, funding mechanisms, and organizational capacity that support the hardware and software.

Software – The programmatic component of the sports ecosystem. This refers to the activities, usage patterns, and social networks that take place within the hardware.

Sportification – The process by which public spaces, such as parks and squares, are increasingly designed or appropriated for sports and physical activity.

Sportnorm – A specific municipal policy tool in Amsterdam that quantifies the required amount of space for sports per capita, used to reserve space for sports functions in urban development.

Amsterdammers – A Dutch word used to refer to the people from or living in Amsterdam.

Abbreviations

GIS – Geographic Information System

H-O-S – Hardware, Orgware, Software

*NOC*NSF – Nederlands Olympisch Comité * Nederlandse Sport Federatie* (Dutch Olympic Committee * Dutch Sports Federation)

PA – Physical Activity

VWS – Ministerie van Volksgezondheid, Welzijn en Sport (Ministry of Health, Welfare and Sport)

WHO – World Health Organization

Reading Guide

This thesis begins by setting the scene, providing background on the topic, and framing the problem and research aim in the introduction. Chapter 2 examines the evolution of sports participation and reviews relevant literature, and frameworks used in this research. The conceptual framework presents the key concepts and their interconnections. Chapter 3 outlines the research design and methodology to inform readers about the procedures used in the thesis. Chapter 4 situates the evolving sports landscape at the national and Amsterdam levels. Chapter 5 then presents the supply-side constraints. This is followed by a discussion chapter that synthesizes the findings and places them in a broader context. Chapter 7, the conclusion, provides the final answers to the central research questions.

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Introduction

Sports and physical activity play a significant role in our daily lives, influencing us both directly and indirectly through various social and spatial dimensions. Whether it is a casual jog in the park, a friendly game of soccer, going to an elite level event or participating in competitive leagues at club level, these activities contribute to our communities' mental and physical health, social fabric and cultural identity.

The physical and mental health benefits of sports and physical activity are getting increasingly evident. They contribute to enhanced moods, boosted energy, weight management, and reduce the chance of chronic illnesses. These effects are greatest particularly when sedentary people start exercising and are most effective when started at a young age (Marques et al., 2018; Warburton et al., 2006; Warden et al., 2007). Besides physical health benefits, physical activity also contributes positively to mental health (Saxena et al., 2005). Engaging in sports and physical activities can also help alleviate feelings of loneliness (Moustakas & Wagner, 2023). Recent research found that higher levels of sports participation correlate directly with lower healthcare costs in Amsterdam (de Boer et al., 2025). Recreational sports leagues offer opportunities for social interaction, helping individuals build relationships and reduce social isolation (Moustakas & Robrade, 2023). Beyond personal health, sports serves as a powerful tool for building social health, maintaining community spirit and improve psychological health of children and adolescents (Eime et al., 2013b, 2013b). Participating in team sports encourages a sense of belonging and mutual support among individuals. Research indicates that community sports initiatives can significantly enhance social cohesion, provide a platform for cultural exchange and understanding and may help alleviate feelings of loneliness (Moustakas & Robrade, 2023; Moustakas & Wagner, 2023; Taylor et al., 2015).

At the same time, sports infrastructure plays a crucial role in the urban fabric of the built environment, requiring substantial land and public funding. As cities become more densely populated (Ritchie et al., 2024), the demand for accessible sports facilities increases, necessitating strategic urban planning to integrate these spaces effectively. In Amsterdam alone, the organized outdoor sports infrastructure, comprising 47 traditional Sportsparks, 713 fields and a total 814 public sports facilities, occupies a substantial area of over 672 hectares (Gemeente Amsterdam, 2024). Yet, a "systemic imbalance" is emerging. While the city densifies and demands flexibility, the physical sports landscape, the hardware, remains largely static. Simultaneously, the social dynamics are shifting towards individual, on-demand participation, clashing with the traditional, club-centric management structures, the orgware, that dominate the current supply. Current research debates these concepts and will be explored more in-depth in a later chapter.

On top of these spatial challenges, the landscape of sports participation is evolving. There is a noticeable shift towards individual, on-demand, and informal sports activities. This trend poses challenges for traditional sports clubs, which have historically played a dominant role in community sports. Many of these clubs are struggling with issues such as declining volunteerism, financial constraints and long waitlists.

Governments at both national (Ministerie VWS, 2022) and local levels (Gemeente Amsterdam, 2024) have recognized the value of this more integrated and multifunctional approach, incorporating it into their strategic plans and urban visions (Schots & Schadenberg, 2020). Sports are used more and more by the government as an instrument to reach societal objectives and targets. However, despite growing interest and promising initiatives, many existing sports parks remain rooted in outdated models. They lack the flexibility and innovative thinking needed to meet the demands of modern urban life, including a broader view of what "sports" entails and the space needs of a growing, diverse population.

Sports parks have the unique potential to serve as central hubs for a wide range of activities, bringing together diverse forms of interaction through formal and informal, individual and team sports. When thoughtfully designed, these parks can not only facilitate recreational and competitive sports but also cultural, educational, and other recreational experiences that are inclusive, accessible, and affordable for all.

Problem Statement

Sports and physical activity are fundamental to a social and healthy society. It is extremely important to understand this dynamic demand in order to address Amsterdam’s inherent, structural incompatibility between static sports infrastructure and contemporary urban demand. Demand has partly shifted toward individualized, flexible, and commercial alternatives, yet supply remains largely constrained by an aging, monofunctional, and club-centric model. Failing to rethink these spaces and its organization results in inefficient use of scarce urban land, failure to capitalize on sports as a valuable instrument to achieving social and public health goals and neglect of crucial and vulnerable groups.

These shifts raise important questions. The new demand for sport and physical activity is not yet well understood, nor is it sufficiently researched how supply can best follow and anticipate this demand and what mismatches arise that lead to a systemic imbalance. This mismatch represents a critical metropolitan challenge: how to accommodate fluid social behaviors within the static, space-scarce infrastructure of a densifying metropolis.

This makes it crucial to reshape the function, service and physical features of sports facilities, in particular sports parks, and explore the new roles they can fulfil in modern,

more flexible, and multifunctional urban environments. Policy decisions often lack a robust, triangulated grounding but rather rely on segregated departmental views or anecdotal evidence. There is a need for thorough scientific research to provide accountability and justification for future municipal investment in and planning of sports and physical activity in Amsterdam. This research must specifically address the Hardware, Software, and Orgware domains (further explained in section 2.3) This research argues that the current mismatch is not merely a shortage of space, but a structural misalignment between three core domains:

- Hardware: The physical infrastructure, including fields, clubhouses, and public spaces, which are often outdated and monofunctional and enclosed.
- Software: The programming, activities, and social networks, which are shifting from organized sports to flexible, informal usage.
- Orgware: The governance, policy, and management structures, currently mostly based in traditional systems, which struggle to accommodate changing demands.

Failing to align these three domains results in the inefficient use of scarce urban land and lack of adaptation to modern demand and systems. There is a lack of scientific research that triangulates these three elements to justify future municipal investment and planning.

Research Aim and Questions

This research aims to analyze the systemic imbalance within Amsterdam's sports landscape, where evolving user demand interacts with the current supply. Specifically, it investigates how mismatches arise from the interplay between the physical infrastructure (Hardware), programming (Software), and governance structures (Orgware). By using a mixed-methods approach that triangulates literature and expert interviews with user surveys, the study develops evidence-based recommendations and programmatic guidelines. These findings serve as a validated foundation for future municipal policy and design interventions in the Amsterdam metropolitan context.

How should the urban sports facilities in Amsterdam be adapted or redesigned, in terms of hardware, software, and orgware, to accommodate the changing demands for sports and physical activity?

Sub-Questions:

- SQ1 (Demand): What core societal trends and resultant changes in participation behavior are defining the evolving demand for sports and physical activity in Amsterdam?
- SQ2 (Supply & Mismatch): What are the constrains of current urban sport facilities to adapt and accommodate the changing demand, in terms of hardware, software and orgware?
- SQ3 (Solutions & Principles): How can these identified constraints be addressed to establish principles for the future of sports facilities in Amsterdam?

Scope

The study will focus on the Dutch context and more specifically the Amsterdam metropolitan area, which was selected as a case study. Due to the nature of the sports landscape being too vast, this thesis will only focus on outdoor activities and facilities, with special attention to sports parks of varying scales. Although sports facilities will be the primary focus, the study will also consider activities that don't fit conventional sport categories but nonetheless promote physical exercise and community life. The scope of this study does not include indoor sports facilities or solely individual indoor fitness activities. We use Amsterdam, with its wide variety of facilities and a diverse population, as a case-study. The great availability of data and information enables in-depth examination within a specific urban setting while offering findings that can be applicable to other Dutch cities of a similar nature.

Societal and Scientific Relevance

When it comes to the future of urban sports facilities, this research helps the Amsterdam municipality and its stakeholders make evidence-based decisions. This thesis offers an empirical basis for upcoming policy interventions by going beyond anecdotal evidence. With the potential to improve their role as social hubs that promote public health and foster cohesion in a densifying city, it provides insights into how static sports parks might be modified to better suit modern needs.

Academically, this research bridges the gap between urban design and sports sociology. While the concepts of Hardware, Software, and Orgware are established in management and systems engineering literature (Dobrov, 1979) and recently also applied to sports (Hoekman et al., 2011). They are rarely applied as a triangulated framework to analyze the specific context of urban sports infrastructure. This study contributes to the academic debate by demonstrating how Orgware acts as a critical mediator between Hardware and social behavior Software, offering a novel, integrated lens for analyzing systemic mismatches in urban sports planning.

2. Literature Review & Conceptual Framework

In order to fully grasp the place of sports within society, it is important to start at the very beginning to understand how sports evolved over time to the point where it currently holds an extremely important spot in the backbone of modern society. The concept of sport has gone through various pivotal transitions and gained various societal responsibilities. The structure of how sports is organized today, finds its most important roots in the so-called sports club culture which to date, still is the most common organizational form in which sports is exercised in Europe, and especially the Netherlands. This chapter will review the concept of sports, sports clubs, their societal relevance, their function in contemporary society, and the influence of governmental policy.

2.1 The Evolution of Sports Participation: From Clubs to Individualization

2.1.1 Sports & Physical Activity

It is important to first establish an understanding of what 'sports' entails and how best it can be defined going forward. In literature, the terms *sport* and *sports* are used interchangeably depending on UK or US English: UK English typically uses the singular to refer to the concept, and the plural for multiple activities, while US English uses *sports* for both (*Cambridge Dictionary*, 2025). For this thesis, *sports* will be used for both meanings.

Definitions vary, but common elements emerge. Cambridge Dictionary defines sports as '*a game, competition, or activity needing physical effort and skill that is played or done according to rules, for enjoyment and/or as a job*' (*Cambridge Dictionary*, 2025), and Oxford as *'activity that you do for pleasure and that needs physical effort or skill, usually done in a special area and according to fixed rules'* (*Oxford Dictionary*, 2025).

Across definitions, three core characteristics stand out:

- Physicality
- Competition
- Rules and structure

For this research, sport is defined as *a dynamic, evolving social construct, fundamentally involving physical activity or skill, typically rule-based and involving competition against others, oneself, or established standards*.

Physical activity, by contrast, encompasses all bodily movement. The WHO defines it as *'any bodily movement produced by skeletal muscles that requires energy expenditure'* including leisure, transport, work, and domestic activities (WHO, 2024). A related term, Health-Enhancing Physical Activity (HEPA), refers to any activity that contributes

positively to physical, mental, and social well-being without harm (WHO, 2024). HEPA is central to public health literature and policy.

2.1.2 The Origins of Sports

The origins of sports date back to ancient times where it existed in various forms and disciplines of society. Although difficult to directly to the contemporary notion of sport as we see it today, there are long histories of games which can be linked back to warfare and rural work. These activities include the likes of archery, wrestling, log throwing, horseback-riding, etcetera. The first recorded evidence of sport that started to look like we know it now is from the Olympic games in 776 BC (Light & Georgakis, 2023). This era is generally suggested to be the beginning of sports. In ancient Rome the main function of sports was entertainment and spectacle, most notably the gladiatorial battles and chariot racing. This was complemented by niche forms of the first ball games, wrestling and swimming. More and more sports got invented throughout medieval times. These games were often informal, unorganized and without rules (Light & Georgakis, 2023).

The turn of the 17th-18th century marked a notable turn in the origins of sports. At this stage leisure and sports began to formalize in Europe. The first rules and laws began to be developed for various activities such as rowing, boxing and athletics. The most influential societal catalyst was undoubtedly the mark of the industrialization and urbanization in the 18th and 19th century (Nagel et al., 2020). The first country where this started to unfold was England and later other European countries. The industrialization meant a shift away from manual labor to less labor-intensive work resulting in an increase of leisure time for the working class. The rise of urbanization, industrialization, and more leisure time in the 18th–19th centuries paved the way for organized clubs and codified rules. Examples include The Marylebone Cricket Club (MCC, founded 1787) set rules for cricket and the Football Club (1863) codified modern soccer rules.

2.1.3 The Traditional Model: Organized Sports

In Europe, the United Kingdom was among the first to experience this pivotal historical moment in which organized sports, through education, emerged (Nagel et al., 2015). It eventually made its way from primary education into higher education and universities toward clubs and national federations. At this time, sports clubs emerged, providing a physical location where these organized, rule-based sports could be practiced alongside like-minded enthusiasts. In the mid to late 19th century, sports clubs spread across Europe and beyond. Sports clubs became voluntary clubs, often with membership fees, uniforms, and clubhouses. By providing a stable social environment, regulating competition, and building identity, the sports club emerged as the primary institution by the middle of the 19th century, laying the foundation for contemporary sports culture (Nagel et al., 2015, 2020).

Traditionally, sport clubs possess several important characteristics that make them unique and different from other organization structures in society (Nagel et al., 2015) describes 7 key characteristics of a traditional sports club:

1. Voluntary membership: members are free to enter or exit whenever they want without any constraints.
2. Orientation towards the interest of members: the club retains its members through a common interest and direct interest, not through monetary means for instance.
3. Democratic decision-making structure: members can influence the club's goals and decisions through a democratic structure including a right to vote during a general member assembly.
4. Voluntary work: the backbone of the running of the club and its services relies on the effort of volunteers. It is not uncommon to have minor roles be exercised by paid jobs, however, in contrast to the volunteering work these are only minor.
5. Autonomy: the clubs are independent of other and fund their expenses through internal sources, potentially supplemented by public funding and subsidies.
6. Not-for-profit orientation: the club does not pursue profit target but rather reinvests any financial surplus back into the club.
7. Solidarity: no rates or charges, only a flat membership fee can be asked for as a contribution to the club.

These characteristics are key to the structure behind the concept of organized sports through so-called sports clubs (Roest, 2015). The majority of sports at amateur level has and still is organized through such structures.

For most of the 19th and 20th, the main structure in place for exercising sports in Europe and by extension the Netherlands, has been through sports clubs (Roest, 2015). In the late 20th century, post-WWII, another crucial shift in organized sports occurred. The government started to see (Houlihan & White, 2002) the potential of sports clubs as a means to promote public health and social inclusion (Collins & Kay, 2003). Sports clubs opened up to a more diverse public, which let to a rise of mass participation. As a result, sports clubs had to scale up, expand their facilities, coaches, and offer new programs, with increased expectations and societal responsibilities.

Not much later another crucial shift occurred in the 1980s with the professionalization and commercialization of sports. Elite clubs turned into for-profit businesses with huge money in media and broadcasting rights as well as sponsorships and advertising. At the amateur level, which is considerable the majority of people and clubs, struggled with a decline in volunteerism and financial pressure (van der Roest et al., 2020).

All in all, the structural dominance of this system can well be conceptualized by the "Pyramid Model" of sport (Scheerder et al., 2011), see Figure 1. In this model, the base

consists of mass participation in clubs, which feeds into regional and national competitions, narrowing upward to elite performance. This hierarchical structure implies that the primary logic of sport is competition and that the sports club is the only facilitator of participation.

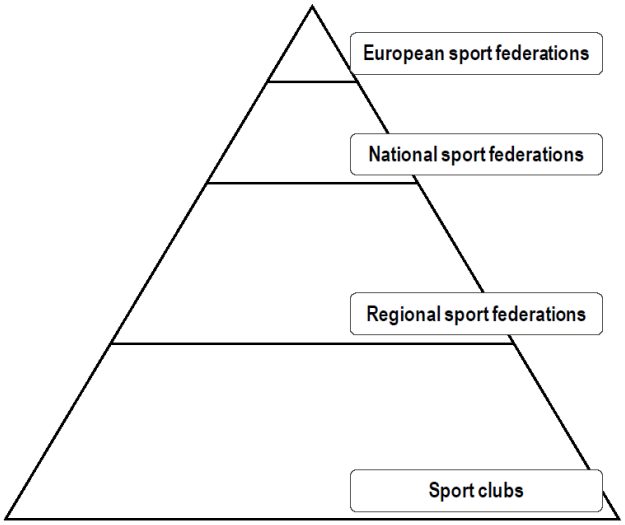

Figure 1 - The Pyramid Model (Scheerder et al (2011), European Commission (1999))

2.1.4 The Shift Towards 'Differently Organized' Sports

Individualization and Digitalization as Driving Forces

Individualization is a societal construct which has been introduced and developed within Western society in the last couple of decades and is one of the most prominent developments (Schnabel, 2004). Central in this concept is that the individual is a result of societal processes and forces. The person is the primary driver of human behavior and the ultimate goal of government (Howard, 2007). It is said that modern "individualization" procedures dismantle and eliminate historical restrictions that forced individuals to lead particular lifestyles and allow for greater personal choice in many facets of life (Howard, 2007). Individualization is therefore the societal process in which the role of traditional group characteristics decrease and the emphasis shifts to individual identity (van der Poel, 2024b). At the same time other societal developments such as democratization, industrialization and digitalization all affect and influence one another by accelerating, decelerating one another constantly (van der Poel, 2024b).

This societal development has been accelerated by digitalization in recent decades, which has lowered the threshold for social engagement in nearly every aspect of life. Digital communication tools such as messaging and email have reduced the need for face-to-face interaction. Remote work has created an alternative to collaborating with colleagues in person and socializing during breaks. Online platforms and social media have transformed how people meet and interact socially. As a result, individualization can be understood as the social process through which people are given the space to

develop and ultimately present themselves as distinct individuals, while simultaneously avoiding the pressures of traditional social groups (van der Poel, 2024a).

Informalization of Sports

Societal developments such as individualization, digitalization, and increasingly also consumerism have had a significant impact on sports culture and the way we engage in physical activity (Roest, 2015). Where organized sports used to be the main form of participation, today the options are far more diverse. One important difference between the two is the lack of clear, universal rules and the element of competition. Informal options such as urban running, cycling, skateboarding, and fitness have gained huge popularity over recent decades (Zhao et al., 2024). This often results in the use of public space as a sports facility rather than relying on a dedicated venue like a field or sports park. Streets, sidewalks, and parks have become a significant part of sports infrastructure and are now a serious alternative for people compared to conventional organized sports facilities. This has led to a diversification of the urban sports infrastructure.

At the same time, due to digitalization, new platforms have emerged where people can find knowledge, information, motivation, and new partners to exercise with (van den Dool, 2016; van der Poel, 2024a). Online fitness classes provide an alternative to in-person classes, while running clubs have created an environment to casually run together with others with little commitment. Platforms that help people connect to play sports in public spaces, such as a park, make it easy to casually engage in activities with others (van den Dool, 2016). In the sense of social connection, these newer forms of organization are quite similar to traditional organization in that they also form as a platform of facilitation for social interaction (van den Berg & Tiessen-Raaphorst, 2010).

Commercialization and Social Media

In the last couple of decades, societal developments such as commercialization have led to yet another pivotal transition in the sports landscape we see today (Roest, 2015). Traditional voluntary sports clubs face competition from commercial sports suppliers such as fitness centers, gyms, studios, courts, fitness groups, etc. The role of social media is also an important factor in this shift (van der Poel, 2024a). Social media influence people's sports behavior in highly significant ways. Online role models have gained massive followings and are increasingly responsible for shaping consumer behavior. These platforms provide opportunities for trends to strongly impact the sports landscape. Social media have spurred a huge increase in fitness participation; arguably, this has turned exercise and physical activity into a status symbol rather than being solely about leisure, competition and social engagement (van der Poel, 2024a). This has opened the door to various forms of physical exercise not necessarily aimed at competing or belonging to a social group, as in traditional sports clubs, but rather at being part of a trend. New sports that have recently gained traction in larger cities

include padel, bouldering, Beachvolleyball, Freerunning, Hyrox, and footie, all of which share the characteristics of being commercial, informal, and on demand. There is a visible trend toward new sports that provide ‘instant fun’, flexibility, a social environment and are healthy and good for the body (Hoeijmakers & Steenbergen, 2024). Other success factors for new sports to gain traction include: generic sport characteristics, a distinct sport identity, institutionalization, sufficient facilities and the legitimacy of the sport (Hoeijmakers & Steenbergen, 2024).

There are various reasons one would choose to engage in informally organized sports as opposed to organized sports. Key drivers behind such choices lie in the previously discussed societal needs for flexibility, individuality and freedom in choice. This results in a significant share of people to opt for an informal group because they want to exercise at a time and place of their choosing and with fellow exercisers of their choosing (van den Berg & Tiessen-Raaphorst, 2010). This is in contrast to the more formal, regulated conditions in organized (club) sports. Although these are the most common reasons, there are other factors influencing this behavior, these include the wish to play with friends, lower costs and less commitment (van den Berg & Tiessen-Raaphorst, 2010).

These societal changes have weakened the dominance of the traditional sports club. (Scheerder et al., 2011) argue that the old "Pyramid Model" of sport no longer works. In the Pyramid Model, the system assumed that every player wanted to climb the ladder to become an elite athlete. Instead, they propose the "Church Model." See Figure 2 - The Church Model (Scheerder et al, 2011).

In this comparison, competitive sport is the tall tower and recreational sport is the large main hall (the nave) sitting independently next to it. Most modern people simply want to stay in the "main hall", playing for fun, health, or lifestyle, without any desire to climb the tower to professional levels. This separation has created a new type of user: the ‘sport-hopping patchwork player’ (Scheerder et al., 2011). Unlike the past, where someone was a loyal member of one club for life, this modern player acts like a consumer. They mix and match different activities to fit their life, perhaps a gym class on Tuesday, a solo run in the park on Thursday, and a game at a club on the weekend. This shift from fixed memberships to flexible choices fundamentally changes what these users need from the built environment.

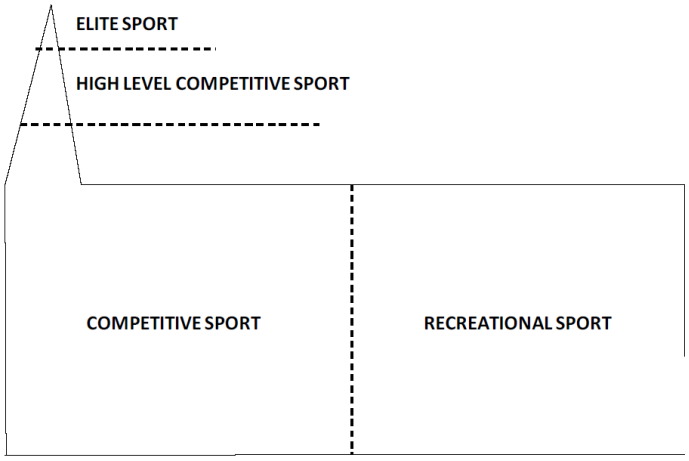

Figure 2 - The Church Model (Scheerder et al, 2011)

2.2 The Built Environment for Sports

We have seen what societal drivers are shaping contemporary demand for sports from a social and political perspective. One crucial realm that plays and extremely vital role is that of the built environment. Ultimately there is correlation between physical urban spaces and the way people make decisions when it comes to be physically active and/ or engage in sports. The physical characteristics of urban environments influence how residents engage in physical activity (Handy et al., 2002). This becomes even more significant when taking into account the effects of rapid urbanization, public health challenges and an ever-increasing need for sustainable urban planning (Giles-Corti et al., 2016; Zhao et al., 2024). This section delves into the built environment's role in sport participation and introduces an important framework which is used extensively in this research.

To understand the spatial implication of sports, we must first define the scope of the physical assets being analyzed. In the context of this research, the "built environment" for sport" is not a monolith, but rather a collection of distinct typologies.

2.2.1 Categorizing Spaces for Sport

Sports activities nowadays exist in various different spatial contexts, ranging from highly regulated facilities to open, informal infrastructure. Based on the literature regarding urban sports facilities (Hoekman et al., 2011; Zhao et al., 2024), this thesis categorizes the physical spaces for sport as follows:

Spatial Category	Definition & Scientific Context	Examples
Traditional Sports Parks	**Standardized, Mono-functional:** Designated areas enclosed and designed specifically for organized, rule-based competition. Historically located on city	Football fields, hockey pitches, tennis clubs, clubhouses.

	peripheries due to land intensity (Hoekman et al., 2016).	
Green Spaces (Parks)	Public green areas where sport is a secondary function co-existing with leisure. Identified by (Zhao et al., 2024) as critical "informal settings" that lower barriers to entry.	Vondelpark, Oosterpark, neighborhood greens.
Public Squares (Plazas)	Central urban spaces described by (Lefebvre et al., 2013) as sites of social encounter. Increasingly appropriated for urban sports (skating, dance) due to their open, paved nature.	Skate parks, Museumplein, basketball courts.
Neighborhood Spaces	Small-scale, integrated facilities designed for immediate local access. Literature highlights "proximity" as the strongest predictor of youth participation.	Playgrounds, , calisthenics areas, cage football.
Linear Infrastructure	Routes designed for transport but repurposed for "flow activities" like running and cycling. Often referred to in planning as "active transport infrastructure" (Sallis et al., 2016).	Bicycle paths, running routes, wide sidewalks, canals (rowing).

Table 1 - Typology of Urban Sports Spaces (based on classifications by Zhao et al. (2024) and Hoekman et al. (2016))

This categorization is essential as different forms of sports participation rely on different spatial configurations and designs. Traditional Sports Parks support the Club Model, discussed in Section 2.1.3, offering the standardization required for competition and formal leagues (Nagel et al., 2015). In contrast, green spaces and linear infrastructure support the informalization trend which is discussed in section 2.1.4, offering the flexibility and autonomy required by individualistic sporters (Hoekman et al., 2011).

2.2.2 Public Space as Sport Infrastructure

Among these categories, public space has become increasingly central. Public space is a well-used and often complex system. In order to talk about public space in the context of sports and physical activity, it is important to understand the theory behind it. Public space is a multifaceted concept that is viewed from various theoretical angles (Neal, 2010). The most well-known framework is the spatial production theory of Henri Lefebvre, which views public space as the result of governmental regulation and social practices (Lefebvre et al., 2013). In this view, a street becomes a "sports facility" only when a runner appropriates it for that purpose. While socio-spatial and political frameworks describe public space as a place for social interactions, urban cohesiveness, and democratic engagement (Staeheli & Mitchell, 2007), legal-economic approaches analyze public space via the lens of ownership, funding, and management (Németh, 2009). The literature continuously emphasizes how power relations, management techniques, and daily social interactions combine to create public

spaces, which serve as both locations of institutional control and venues for citizen participation (Low & Smith, 2013).

A public square or park is simultaneously a place for transit, leisure, commerce, and ecology. This creates a complex dynamic where sports participation relies on the successful coexistence of all these functions. Therefore, the movement patterns of the modern sports exerciser differ fundamentally from traditional club members. Their activity is not destination-based anymore, e.g. driving to a remote facility, but integrated into the flow of the city built environment. Running routes and paths that connect neighborhood parks, calisthenics training as street furniture, or cycling routes used for competitive biking all rely on the public spaces of the city.

2.2.3 Factors Influencing Sport Participation

Regardless of the type of space, specific built environment factors determine whether these spaces are actually used for sport**.** (Zhao et al., 2024) introduces a framework that links sports participation to the urban built environment. It argues that a well-planned metropolitan area may greatly encourage sports participation by emphasizing the accessibility, availability, safety, and design of sports facilities (Zhao et al., 2024).

Five primary factors were identified by Zhao et al and are used to analyze the built environment. The first factor is availability which is defined as the presence of resources and facilities for physical activity such as parks, sports parks, streets, clubs, etc. Not only the presence is essential but also its adequacy and variety. Ultimately, if no facilities exist or are unavailable, participation is unlikely.

The second factor is accessibility which Zhao et al defines as how easy it is to get to and from available facilities. This is determined by elements like pedestrian networks, streets, bike lanes, distance, transport options, etc.

Design is the third factor which encompasses the aesthetics and functionality of how spaces are designed. Aesthetic features include the quality of spaces such as attractiveness, greenery, cleanliness, etc. Functional elements include streetscape design, presence of amenities and lighting. Pleasant, well-maintained, and functional environments encourage use.

The fourth factor is safety which represents the perception of safety both in terms of traffic, e,g volume, safe crossing, as well as personal safety like social safety, lighting, crime, etc. the feeling of being unsafe acts as a significant barrier for participation both in formal spaces like sports parks and public spaces such as urban parks. Extra attention must go to vulnerable groups with regard to this aspect.

Zhao et al identified one more crucial factor that functions as a moderator which is affordability. Socioeconomics factors can moderate the relationship between the built environment and participation. For example, a well-designed, accessible space might still be underutilized by certain groups if associated costs (e.g., membership fees,

equipment) are too high, or if lower socioeconomic status neighborhoods have environments that feel less safe or pleasant despite physical proximity. This highlights a crucial link to social equity where the built environment must benefit all residents regardless of socioeconomic status (Zhao et al., 2024).

Factor	Definition	Physical Features (Hardware)	Non-Physical / Perceptual Features
1. Availability	The presence and quantity of resources for physical activity.	Park Density (Sallis et al., 2016); Quantity of facilities; Variety of amenities.	Perceived adequacy, Opening hours, Crowding levels.
2. Accessibility	The ease of reaching facilities from one's residence.	Intersection Density (Connectivity); Public transport density; Bike lane network.	Perceived distance, Walkability score
3. Design	The aesthetic and functional quality of the space.	Greenery/Vegetation; Lighting infrastructure; Cleanliness; Street furniture.	Attractiveness, Action possibilities, Maintenance levels.
4. Safety	The protection from physical harm and crime.	Traffic calming measures; Open sightlines; Lighting quality.	Social Safety ("Eyes on the street"), Fear of crime, Traffic perception.
5. Affordability	The economic barrier to entry (Moderator).	*N/A (Socio-economic context)*	Membership costs, Equipment costs, Inclusivity of access.

Table 2 - Determinants of Sports Participation in the Built Environment (Adapted from (Sallis et al., 2016; Zhao et al., 2024)

2.3 Aligning Demand and Supply: The Sports Infrastructure Ecosystem

The previous sections have discussed two different phenomena: the shifting *demand* driven by societal trends (Section 2.1) and the physical *supply* of the built environment (Section 2.2). The core challenge of contemporary urban planning lies in the alignment between these two forces. As users move toward flexible, individual, and on-demand sports, the static nature of the built environment often struggles to adapt.

To analyze this relationship effectively, we cannot look at the physical infrastructure in alone. One must view the sports landscape as a system composed of physical, organizational, and programmatic layers. This research utilizes the Hardware, Orgware, and Software (H-O-S) framework to structure this analysis.

2.3.1 The Hardware, Orgware, Software (H-O-S) Framework

To understand the relationships with the elements of sports infrastructure, the so-called H-O-S (Hardware, Orgware, Software) model is used (Hoekman et al., 2011), see Figure 3. This practical analytical framework can be used to understand sports infrastructure and facilities in the built environment.

The Hardware is about the physical side of sports infrastructure, it represents the fields, courts, clubhouses, but also the streets, parks, etcetera within the built environment. Besides the physical spaces, there are other mechanisms at work such as the Software, or the activities and programming taking place in the Hardware. Physical spaces may be used for different activities for example. The last concept is that of the Orgware, which represents the organization and governance behind these activities taking place in physical spaces. This element is about who is organizing what, who is responsible for maintenance or management and what funding structures are in place. These three elements are interdependent.

A successful sports environment requires not only well-designed facilities (Hardware) and engaging activities (Software) but also a robust and adaptive organizational structure (Orgware) to sustain them.

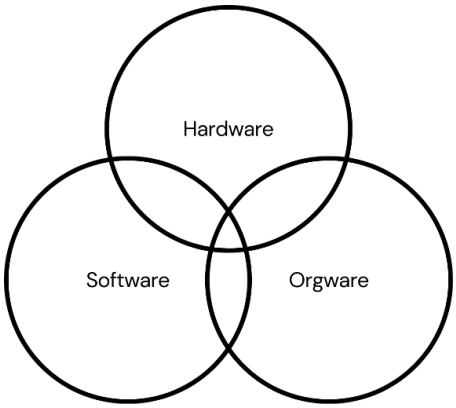

Figure 3 - Hardware, Orgware, Software Framework (Hoekman et al, 2011)

While valuable, the H-O-S framework has limitations in urban studies. Originating in Systems Engineering (Dobrov, 1979), it implies that a system can be optimized simply by adjusting "levers." However, cities are not closed machines; they are "Wicked Problems" deeply influenced by unpredictable political and social factors (Rittel & Webber, 1973). Despite these simplifications, the framework remains a useful tool to identify mismatches between the domains, the city and its users, provided it is applied with awareness of this complexity.

2.4 Conceptual Framework

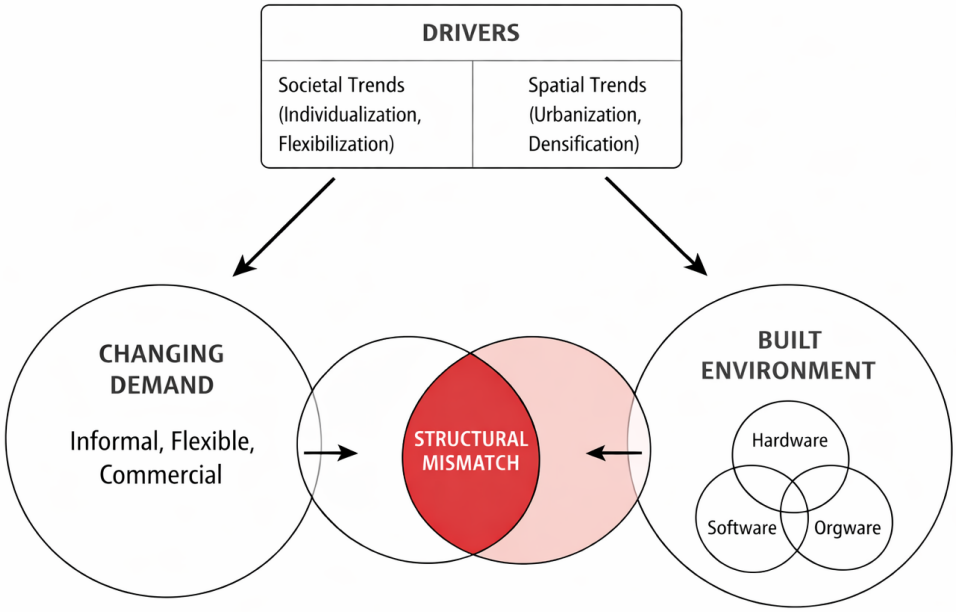

Figure 4 - Conceptual Framework

The conceptual framework, illustrated in Figure 4 above, visualizes the main concepts and their relations following the findings from chapter 2. This framework describes the dynamic tension between the evolution of sports behavior and the urban built environment.

The drivers represent the macro level changes discussed in 2.1, which influence both the societal changing demand and the built environment. The built environment system is represented by the H-O-S framework, which was introduced in chapter 2.3, whereas the changing demand is represented by the discussed contemporary desires for more flexible, informal, and commercial demand.

The central overlap represents a Structural Mismatch: a zone of friction where the static, often rigid infrastructure of the traditional city fails to accommodate the fluid, on-demand needs of the modern society. This forms the academic core of this thesis.

Chapter Summary

This chapter provided the theoretical foundation for the study by looking at the historical and conceptual evolution of the sports landscape. It described the transition from the traditional, club-dominated "Pyramid Model" to a more fragmented and flexible "Church Model,". This transition is driven by societal trends such as individualization, digitalization, and commercialization.

The review categorized the urban built environment into distinct typologies, highlighting the increasing importance of the public space as a location for unorganized sport. It

identified key spatial and social determinants, such as availability, accessibility, design, safety and affordability, that influence whether these environments successfully facilitate physical activity.

To analyze these spatial and social dynamics, the Hardware, Software, and Orgware (H-O-S) framework was introduced as the primary analytical lens. Finally, the chapter concluded with a conceptual framework that visualizes the central concepts and their relationship.

3. Research Methodology

This chapter outlines the research design and methodology that were chosen for this thesis to address the central research question and its associated sub-questions. It explains the overall methodological approach, the philosophical positioning of the study, and the specific methods used for data collection and analysis.

3.1 Case Study Selection

This study is designed as a theoretically informed single-case study with mixed methods. A case study approach allows for in-depth, contextualized research of complex phenomena and therefore is very beneficial to the study (Bryman, 2016).

There are several reasons and characteristics that have weighted in in the selection of a suitable case study. Amsterdam's metropolitan character, clear and transparent policies, the availability of spatial and survey data, approachability of the municipality, experts and other potential interviewees, make it an ideal candidate for a case to study. In this research, the case study is used to contextualize findings, to gather data, to provide concrete examples and to test conceptual finding. Amsterdam serves as a model from which more general design concepts can be drawn, even though the conclusions drawn from this case cannot be applied directly other Dutch cases.

Amsterdam is a unique and complex city in the Dutch context as it is highly urban, offers many options for sports and physical activity, has clear and progressive sports policy and is a place where new trends often emerge. At the same time, Amsterdam offers substantial and accessible data, contrary to other cities. This makes it an ideal case to study in the context of this research.

3.2 Research Design

To answer the central research question of this study, a qualitative, interpretivist paradigm, and exploratory mixed methods research design was chosen. More specifically the chosen design is classified as a qualitative dominant, sequential 'QUAL + quan' design where the qualitative component is the priority and the quantitative component plays a subsidiary role (Bryman, 2016). This design allows for triangulation and completeness by combining expert insights with user data and experiences.

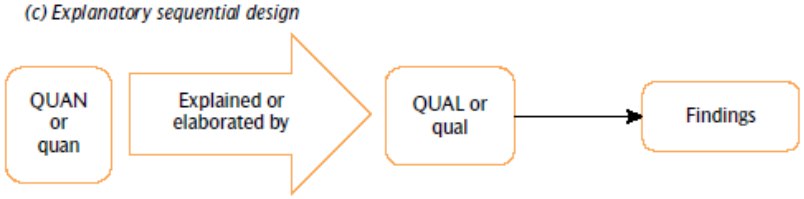

Figure 5 - Employed Research Design (Bryman, 2016)

Being interpretivist in nature, this approach allows for a real-world, personal understanding of how people give meaning to sports, why they make choices and what influences them while making choices when it comes to sports and physical activity (Bryman, 2016). As this topic is not yet well understood, this approach allows for exploration on various levels in order to map out the landscape, aiming to identify patterns, emerging practices, and potential directions rather than to test fixed hypotheses. An inductive logic guides the research, where themes and findings emerge from collected qualitative and quantitative data. Table 3 provides an overview of which methods were used at what stage in the research.

	Type	Method	Goal	Outcome	Sources
SQ1	Qualitative / Quantitative	Literature Review, Survey, Expert Interviews, Policy Document Review, Mapping (GIS)	To understand changes in sports participation and physical activity behaviors shaping demand in Amsterdam. Focus on societal trends, individualization, informal vs. formal practices, and lifestyle shifts.	Comprehensive understanding of demand-side dynamics in sports participation.	Scientific databases, research institutes, survey participants, policy/government documents, mapping data (GIS), expert interviews
SQ2	Qualitative / Quantitative	Literature Review, Expert Interviews, Survey	To understand how current urban sports facilities meet or fail to meet changing demands. Focus on typologies, scales, accessibility, and integration with public and green space.	Identification of supply-side strengths, weaknesses, and mismatches.	Scientific databases, research institutes, municipality, expert interviews
SQ3	Qualitative	Literature Review synthesis, Survey, Expert Interviews, Case Studies	To develop spatial, programmatic and/or governance suggestions/interventions to address mismatches between changing demands and current sports facilities.	Actionable spatial and programmatic design principles; framework for stakeholder collaboration.	Scientific databases, case studies, survey participants, expert interviews

Table 3 – Operationalization of Methods

3.3 Data Collection

Several methods were used to answer the sub questions and, by extension, the main research question. Predominantly qualitative methods were used such as literature review and expert interviews. Data collection involved a literature review, semi-structured expert interviews, and an online survey.

3.3.1 Literature Review

The literature study forms the backbone of the background information, theory, and concepts central to this thesis. It provides the theoretical and conceptual grounding for the research and informs the development of the conceptual framework. The review addresses societal changes discussed in the literature as well as the spatial and governance context of sports and physical activity. Academic databases, research institutes, policy reports, and surveys at the global, European, and Dutch levels were consulted in this process.

3.3.2 Policy Document Review

A policy analysis was performed using several policy documents issued by the Dutch national government as well as the municipality of Amsterdam that address sport, physical activity, spatial planning, and urban development. An overview of these documents is to be found in Table 4 - Policy Documents Overview. These were used to contextualize the empirical findings and support the analysis in Chapter 4.

Level	Issuing Authority	Document Title	Year	Policy Domain	Relevance to Study
National	Ministry of Health, Welfare and Sport	Sportakkoord II: Sport Versterkt	2022	Sport & Physical Activity	Provides national policy framework for sport participation
National	Ministry of Health, Welfare and Sport	Nationaal Preventieakkoord	2018	Health & Society	Links sport to urban development and land use
Municipal	Municipality of Amsterdam	Visie sportparken - beweging richting 2035	2023	Sport Policy	Outlines local sport ambitions and facility strategy
Municipal	Municipality of Amsterdam	Sportvisie 2025	2016	Urban Development	Addresses spatial constraints affecting sport facilities
Municipal	Municipality of Amsterdam	Strategisch huisvestingsplan Sporten en bewegen	2023	Health & Inclusion	Frames sport as a policy instrument for social goals and infrastructure planning
Municipal	Municipality of Amsterdam	Bevolkingsprognose 2025–2055 (OIS	2025	Population	Forecast by 2055

		Amsterdam, March 2025)			

Table 4 - Policy Documents Overview

3.3.3 Semi-structured Interviews

A fundamental method of data gathering in this thesis was done through semi-structured expert interviews. The interviewees were purposefully sampled and included industry experts selected for their relevance of the research aim. Experts were identified through literature, policy and document analysis and included representatives from the municipality and knowledge institutes. While purposeful sampling ensured rich, relevant data, it may limit the generalizability of the findings.

Six interviews were conducted for the qualitative portion of the research to gather various perspectives on spatial planning, sports participation, national research and municipal policy. The sample includes experts from the municipality of Amsterdam across several fields, functions and expertise providing insight into strategic policy, planning, and operational management. This is complemented by experts from national research institutes such as the Mulier Instituut and Kenniscentrum Sport & Bewegen. These experts provide a broader, research-based context on sports accommodations and activity-friendly environments.

Participants were approached and invited through email invitations. Interviews were conducted both in-person as well as by video call between April and October 2025, with each lasting approximately 60 minutes. All interviews were recorded and transcribed verbatim with written consent, the experts were anonymized to ensure confidentiality.

The semi-structured format allowed for consistency across interviews while also providing flexibility to explore issues in greater depth, aligning well with the exploratory nature of this research.

Table 5 shows which organizations the experts worked for with their function and specialization.

	Function / Field / Expertise	**Organization**
Interviewee 1	Strategic Policy Advisor	Municipality of Amsterdam, Sports & Forest
Interviewee 2	Specialist Active Living Environments and Sports Infrastructure	Knowledge Centre for Sport & Physical Activity
Interviewee 3	Senior researcher, theme sports accommodations	Mulier Institute
Interviewee 4	Advisor Sports Facilities	Municipality of Amsterdam, Sports & Forest

Interviewee 5	Account Manager Sports Providers	Municipality of Amsterdam, Sports & Forest
Interviewee 6	Sports Park Manager (Coordinator)	Municipality of Amsterdam, Sports & Forest

Table 5 - Interviewee Overview

3.3.4 Survey

An online survey was chosen to provide data on sport and physical activity habits, changes in participation, and to gather qualitative data on the problems, wishes, and demands of end-users.

The survey (n = 100) was distributed using convenience sampling through the author's personal networks. The sample consisted of respondants from diverse age groups and varying spatial and socio-economic backgrounds. Participants generally engaged in sports at both competitive and local levels. Efforts were made to include a broad range of respondents to capture diverse perspectives, though the sampling method may limit the generalizability of the findings. This sampling method was chosen due to time constraints and the exploratory nature of the study. This introduces potential bias, however, due to the setup of this thesis, this is deemed acceptable.

The sample (see Table 6) consists of a majority of male respondents, with the largest age category being 18-30, followed by 31-44. The majority were either students or employed and reside in an inner-city or urban environment. This demographic profile indicates that the findings primarily reflect the perspectives of a young, urban, student, and young-professional population.

The survey was distributed online through a web-based Qualtrics surveying platform, in both English and Dutch. The participants consented to participation under the conditions that it is voluntary, completely anonymous and that no personally identifiable information is collected. The survey questions are to be found in Appendix B: Survey Questionnaire.

	Category	**N**	**Percentage (%)**
Gender	Male	62	61.4%
	Female	36	35.6%
	Prefer not to say	2	2.0%
Age Group	18–30	78	77.2%
	31–44	20	19.8%
	45–64	1	1.0%

	65+	1	1.0%
Living Situation	Dense urban center / Inner city	54	53.5%
	Suburban area within city	28	27.7%
	Small town	18	17.8%
Work Situation	Student	47	46.5%
	Employed	45	44.6%
	Self-employed	5	5.0%
	Other (please specify)	2	2.0%
	Retired	1	1.0%

Table 6 - Survey Demographics

3.3.5 Procedures

The data collection process consisted of several steps starting with the literature review. This review acted to gain insights into the topic, context and specificity which helped to draft a survey at an early stage of the research process. This survey was then distributed via digital channels within the author's personal network. Participant all agreed in writing for their data to be used for research purposes under the condition that the data is anonymous, and that no personally identifiable information was collected. Initially 141 responses were collected of which 41 were marked as incomplete as they had only been partially filled in. this resulted in a total of 100 complete responses that were used as data for the project. The data was cleaned by removing unusable or irrelevant open-question answers, e.g., '.', 'nvt', '-', before analysis.

In total, 7 relevant experts were identified and reached out and invited to partake in the research, through an email. Six experts were willing to be interviewed for the study, these interviews were conducted either in-person or by video call between April and October 2025. The interviewees agreed for their data to be used in writing through a detailed consent form which is available upon request. The experts were anonymized to ensure confidentiality.

3.4 Data Analysis

3.4.1 Qualitative Analysis

For the thematic analysis, Atlas.ti was used to analyze the interview and open answer parts of the survey data using a codebook. This codebook was put together based on themes that arose from literature and policy document review, as well as inductively during the coding process by the author. The codebook consists of several code groups that corresponds to the themes and sub questions. These code groups consist of

numerous unique codes that were used to represent themes in data across several sources. This codebook can be found in Appendix C: Codebook.

The first step of the coding process included open coding, in which interview transcripts were read line-by-line and segments relevant to the research questions were assigned an initial simple code. For instance, statements describing limitations in the availability of space for sport were coded as *"Space claim / Pressure on space"*, while references to safety concerns on sport parks were coded as *"Safety"*. In total, 87 codes with 318 quotations were developed and assigned during this phase.

After the initial coding, the codes were reviewed and refined to avoid overlap and redundancy. Similar codes were merged, and definitions were clarified to ensure consistency across interviews. The transcripts were then reviewed once again to check and verify that all relevant fragments were coded. This resulted in a final total of 68 codes.

Lastly, these codes where then grouped into higher order groups which represent 5 themes corresponding to the main analytical themes and sub-questions, such as *Changing Demand and Societal Drivers, Supply, Infrastructure, and Spatial Constraints (Hardware), Mismatches and Systemic Challenges, Solutions, Principles, and Future Design and Governance, Management, and Policy (Orgware)*. These code groups formed the basis for the thematic structure of the results chapter.

In the results chapter, direct quotes from experts are shown in quotation marks. Paraphrases and analytical interpretations are formulated by the researcher and are not placed in quotation marks. Quotes used in the results chapter were translated from Dutch to English by the researcher, aiming to preserve the original meaning as closely as possible.

3.4.2 Quantitative Analysis

The cleaned survey data is used descriptively in addition to claims that arise from the qualitative analysis. The data was analyzed using similar themes as the qualitative data. Demographic questions and fixed-choice questions were analyzed to provide descriptive insights into trends, behaviors, and societal developments. Note that most questions were categorical/multiple answer, and some utilized a matrix format.

Open-ended survey responses were coded using the same thematic approach as the interviews, allowing for comparison and triangulation between data sources. This enabled the use of survey findings as illustrative evidence to contextualize and reinforce insights derived from the expert interviews.

Given the non-random and relatively small sample size, the survey results are treated as indicative rather than representative of the broader Amsterdam population.

3.4.3 Spatial analysis and GIS methods

Additional to the qualitative and quantitative methods, the research performed spatial analysis to examine the geographical distribution of sports facilities and related urban characteristics. The analysis was based on secondary data derived from open-access spatial datasets provided by Amsterdam Datadiensten and processed using arcGIS Pro software. The spatial analysis was primarily descriptive and was used to visualize and contextualize.

Ethical Considerations and Data Management

This research followed standard ethical principles in line with social science and built environment research. All interview participants were informed about the purpose of the study and participated voluntarily, with informed written consent obtained in advance. Interviewees were anonymized throughout the report, and survey responses were collected anonymously with written agreement to these terms. Within the survey software employed, settings were chosen to ensure no personal information is collected.

All data was stored securely on university issued cloud storage services. All the data were exclusively accessible to the researcher. The data were used only for the purpose of this thesis. Given the non-sensitive nature of the research, no significant ethical risks were identified.

Chapter Summary

This chapter outlined and justified the methodological framework of the study. An interpretivist, qualitative-dominant mixed methods design (QUAL + quan) was adopted to explore changing sports participation and urban sports infrastructure from both expert and user perspectives, enabling triangulation and inductive pattern identification.

The research design combined a literature and policy document review, semi-structured expert interviews (n=6), an online survey (n=100), and a single-case study of Amsterdam. The literature review provided the theoretical foundation, while interviews and survey data offered insights into policy, practice, and user experiences. Qualitative data were analyzed thematically using Atlas.ti, supported by descriptive analysis of survey data and spatial analysis (GIS) to visualize the distribution of sports facilities.

4. The Dutch Sports Landscape: A System Under Pressure

Building on the broader trends discussed in Chapter 2, this chapter focuses on the Dutch sports landscape. Many developments, such as changing participation patterns, increasing flexibility, and growing pressure on space, are common across Europe. However, the Netherlands has a unique, club-based sports system and a decentralized governance structure.

This chapter examines how this distinct landscape is currently facing challenges. It starts by outlining the national organization of sport and the governance dynamics that shape the system. It then combines findings from literature, expert interviews, and user surveys, along with a review of key policy documents, to show how demand is drifting away from this traditional structure. Finally, the chapter presents a typology of urban outdoor sports facilities and concludes with a case study of Amsterdam, demonstrating how these tensions arise in a densely populated urban area. Through this detailed analysis, this chapter answers the first research sub-question.

4.1 The Traditional Dutch Model: Organization and Governance

4.1.1 Sports Organization in the Netherlands

Although the trends and development mentioned in chapter 2 are roughly similar for the European context, each country has its own specificities when it comes to the sports landscape, governance and policy. The Netherlands has a unique sports landscape characterized by a relatively large, organized sports aspect compared to other European countries. 22% of the Dutch population is part of a sports club compared to an EU average of 12% (European Commission, 2022). Sports clubs form the backbone of the Dutch sports landscape. A third, or 38% of the Dutch prefer to sport with a sports clubs, a set group and with some sort of supervision (van der Heijden & van den Dool, 2025).

Organization of sports in the current system is not organized by the government in any way but only by the private sector through sports clubs and commercial suppliers (NLsportraad, 2022). The government only takes a supporting and advising role in this through (co)-financing of sports facilities and programs. As mentioned before, most of the income for sports clubs come from memberships and sponsorship. Public funding is rarely directly invested in clubs but almost always finds its way to clubs through its facilities. A high percentage of sports clubs own their facilities, 53%, and those that do not often pay a usage fee for public facilities (van der Roest et al., 2020). The Netherlands is characterized by a decentralized approach to sports funding through municipalities. In practice it is very common, for 55% of sports clubs, that municipalities invest and own sports infrastructure and then lent this to sports clubs for heavily reduced fees (van der Roest et al., 2020). Because this is done at municipal

level, this means that every municipality does things differently, might prioritize different things or might not allocate the same amount of funding to sports. The responsibilities of governments and the sports sector are not defined in any way. This means that citizens have no certainty about the accessibility, quality, or safety of sports and exercise programs (NLsportraad, 2022).

Currently, the government has no statutory duty regarding sport, making it a non-mandatory policy area that is often vulnerable to political prioritization and budget cuts. To address this structural insecurity, the Dutch Sports Council explicitly advises the implementation of a national 'Sports Act' to legally anchor the responsibilities, funding, and accessibility of sport, thereby guaranteeing it as a basic public service (NLsportraad, 2022).

Most sports clubs fall under national sports federations, most of which in turn fall under the NOC NSF. The role of the federations and NOC NSF is to facilitate national, international and local sports competitions at various levels, from local grassroots levels to elite levels (van der Werff et al., 2015). At the same time, they provide training for coaches, staff, management, referees and volunteers. Sport clubs are frequently included in national sports policy, which are overseen by the Ministry of Health, Welfare, and Sports. Sport and health, universal sport participation, and talent development are the main goals of this ministry. School sports regulations are set by the Ministry of Education, Culture, and Science (van der Werff et al., 2015). A very important characteristic is that sports clubs are run by volunteers. In recent years it has become more and more difficult for clubs to recruit enough volunteers, especially for more demanding management and coaching roles that require certain skills and knowledge. This has led to a development of professionalization in certain aspects of sports clubs. It is not uncommon to have a few paid positions at key roles within clubs to make sure that the club is ran successfully. About 51% of clubs employ paid staff, this includes mostly positions in coaching and about 6% for managerial roles (van der Roest et al., 2020).

Organized sports only accounts for a part of the sports setup in the Netherlands. Since organized sports is seen as the 'traditional' way of organizing sports, in literature and by extension in this thesis, other forms of sports organization often are put under the umbrella term 'differently organized sports' (van den Dool, 2016). Differently organized sports include all forms of organization outside of voluntary based sports clubs like described before. This may in include commercial sports such as gyms, fitness studios, etc but also unorganized sports, in a group or individual. This includes playing sports with friends, colleagues, or running by yourself. We see that, in the Netherlands 38% of the population prefers to exercise individually, without rules in a fitness center or in public space (European Commission, 2022). Furthermore, 24% prefer to exercise

together with friends in the public space where social engagement is the main driver (van der Heijden & van den Dool, 2025) .

4.1.2 The Governance Context (Orgware)

The national government has recognized sports to be an essential part of national policy. Sports are supported by the national government mainly because they uphold societal values and support important government goals in the areas of youth policy, education, integration, safety, communities, prevention and health, and international policy (van der Roest et al., 2020). In today's sports landscape, sports clubs are expected and persuaded to fulfill a wider community role which has resulted in a widening of its responsibilities over time. Clubs are expected to not only benefits its members but also the wider community.

Sport in the Netherlands has developed from an independent, citizen-led industry to a key tool for national policy. Sports clubs historically organized sports from the ground up with little help from the national government (Waardenburg & Nagel, 2019; Waardenburg & van Bottenburg, 2013). But since the 1990s, a strong "sport lobby" and a change in political perspective have resulted in the establishment of a close policy network between the national sport umbrella organization, NOC*NSF, and the government, especially the Ministry of Health, Welfare, and Sport (VWS) (Waardenburg & van Bottenburg, 2013).

Today, sports are funded by the government not merely for their inherent worth but for their perceived capacity to achieve broader societal goals in areas like public health, social integration, and safety (van der Roest et al., 2020). As a result, project-based grants have replaced general subsidies as the funding structure, and sport groups are now under pressure to show how they support non-sport goals. As a result, sports clubs, which are mostly staffed by volunteers and supported by their members, are being asked to take on a larger role in the community. The capacity of these volunteer groups is limited and strained, and they run the risk of becoming instrumentalized, which could undermine the very autonomy and volunteer-driven nature that make them useful (Waardenburg & van Bottenburg, 2013).

The Dutch national government has set a clear goal in which it wants 75% (Ministerie VWS, 2018) of the population to fall within the guidelines set for physical activity by 2040. This ambition is operationalized using two major national level interconnected policy frameworks: the National Prevention Agreement (*Nationaal Preventieakkoord*) and the National Sport Agreement (*Sportakkoord II*).

With a focus on obesity, smoking, and problematic alcohol consumption, the National Prevention Agreement (2018) views sport as a key public health tool. The government established the "Sportakkoord II: Sport Versterkt" (2022), a cooperative agreement between the Ministry (VWS), municipalities (VSG), organized sport (NOC*NSF), and

most importantly, commercial providers (POS) in order to achieve these health goals. With immediate implementation now and a sustainable sports culture by 2040, this agreement signifies a change toward a "three waves" approach.

Despite this robust policy framework and initial progress, there is still a long way to go to meet the national ambitions for health through physical activity as outlined in the Preventieakkoord. While the percentage of people aged 12 and older meeting the physical activity guidelines increased from 40% in 2000 to a peak of 52% in 2020, it dropped again to 43% in 2022 and 45% in 2023 (van der Poel & Pulles, 2024). Projections suggest that even with continued growth at past rates, only 64% will meet the guidelines by 2040, far short of the 75% goal. The situation is even more concerning for people with disabilities, of whom only 21.6% met the guidelines in 2022. Without significant change, achieving the 2040 targets remains highly unlikely (van der Poel & Pulles, 2024)

4.1.3 Professionalization of Sports Clubs and Parks

The aforementioned strain on sports clubs has led to the professionalization of sports clubs in order to fulfill its socio-political roles besides the day-to-day tasks of running a sports club. More and more clubs are struggling to perform using only volunteers when they have a shortage or lacking knowledge on specific fields. Clubs have turned to hiring people to take on certain tasks (Bronkhorst & van Suijlekom, 2025). Increased demands on the volunteer base as a result of societal shifts and heightened government expectations about the instrumentalization of sports groups are the cause of this trend. The government and sports organizations increasingly acknowledge that in order to make organized sports future-proof, more professionalization is required (Bronkhorst & van Suijlekom, 2025).
Over the past 40 years, the national government has supported this professionalization through a number of policies. The Sporttechnisch Kaderbeleid (STK-beleid), which sought to establish jobs for coaches and trainers, was an early initiative in the 1980s. The PRinS-project, which was implemented in the 1990s, strengthened clubs' organizational structure by introducing positions such as club managers. Roles like "buurtsportcoach" (neighborhood sports coach) and, more recently, "clubontwikkelaar" (club developer), which covers duties like club manager and sports park manager, have been introduced under more recent legislation (Bronkhorst & van Suijlekom, 2025).

These tensions are especially visible in highly urban areas. As the country’s densest city, Amsterdam faces the most acute competition for space, the most diverse population demands, and the most complex administrative challenges. For this reason, we will now delve deeper into the Amsterdam context which acts as a case study in this research.

4.2 Evolving Demand and Societal Drivers

While the institutional structure remains rooted in the traditional club model, the actual demand for sports is shifting rapidly. This section maps the transition from club-based sport to differently organized forms of activity that are popular in the contemporary landscape, by triangulating literature with survey data and expert interviews

4.2.1 From Club-Based Sport to Differently Organized Sports

The Netherlands has a unique club structure that was central for many decades, with few alternative forms of sport and movement organization. This image is gradually changing and is supported by the survey where 79% indicate that they have noticed some or significant change in sports participation. As illustrated in Figure 6, when asked which changes they found most striking, the most frequently mentioned were: the rise of new sports and activities and more people exercising individually. This was followed by an increase in online activities, greater attention to health aspects, and more intensive use of public space. Those who provided a textual answer mentioned public sports facilities, commercial activities in public space, and an increase in the number of gyms.

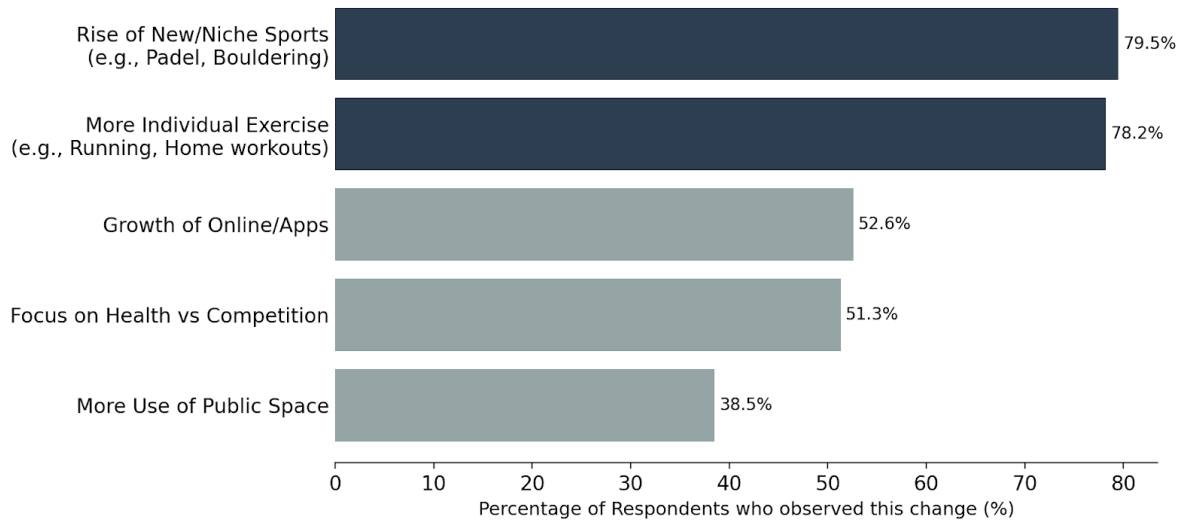

Figure 6 – Most Noticeable Shifts in sports landscape (Survey Data)

Interviewee 3 mentions that this change in demand that one sees is very gradual; they are not abrupt changes. Broader societal shifts *"the whole of society has generally become a bit more individualistic."* (Interviewee 2) manifests strongly in changing sports needs. We have started engaging in sports and physical activity more individually, no longer necessarily at club accommodations but also especially in the open air, at home, or in our own environment.

This is supported by the survey Figure 7 (A), which shows that the most chosen option was primarily exercising alone, closely followed by participation in larger groups or

teams. A quarter of the respondents indicated having no preference regarding the social context of their physical activity, while a smaller portion preferred small groups or one-on-one activities. These results point to significant variability in social preferences, with a slight general tendency toward activities in solitude or in large groups.

The respondents engaged in a wide range of physical activities Figure 7 (B). The majority indicated participating in individual, unorganized activities, while a large share had participated in activities via commercial memberships, such as fitness or fitness classes. Additionally, sports clubs or organized team sports remain a significant part of the landscape, and a notable portion were involved in informal group activities. This confirms that participation is no longer limited to a single domain but spans across various forms of organization.

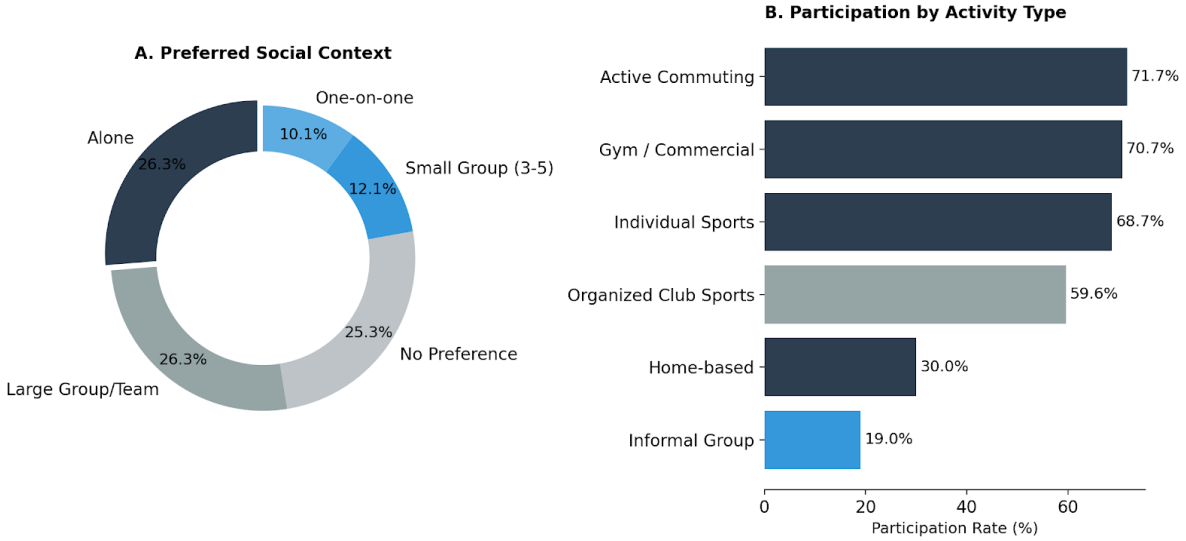

Figure 7 - Social and Activity type Preferences (Survey Data)

Furthermore, society has started behaving differently in various aspects, resulting in *"more households, smaller households, single-person households, we are also all getting older, we have also started finding other things more important. Leisure time that we can/want to spend on sport has become increasingly limited"* (Interviewee 3). This has led to an increasing demand for place- and time-independent forms of sport. This allows everyone to decide for themselves when they exercise and not be tied to fixed times and days as is the case in organized sport. *"Where we previously might have been okay to train between 22:00 and 23:00... now we want to go home at 22:00, because we all work the next day, men and women"* (Interviewee 3).

An increasing group has a need for these more flexible forms of sport; this is also reflected in the survey. As shown in Figure 8, the main difficulties in practicing physical exercise are overwhelmingly time-related and psychological in nature. Lack of time and lack of motivation/energy were the two most frequently cited barriers. This strong convergence emphasizes the challenge of fitting physical exercise into busy schedules

and overcoming the inertia needed to start and maintain physical exercise. Costs and expenses emerged as the third most important barrier, indicating that economic factors play a significant role, though less so than internal and time constraints.

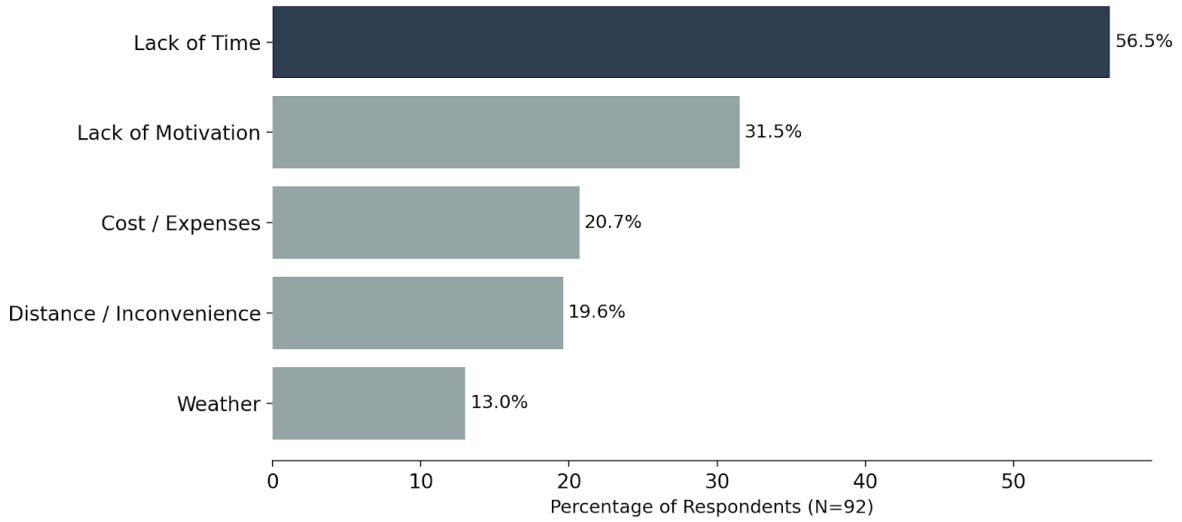

Figure 8 - Barriers to Physical Activity (Survey Data)

Additionally, Amsterdammers are exercising more broadly *"what we have seen in recent years is that Amsterdammers are exercising increasingly broadly, I believe the average number of sports they practice is now around 4, or just above that... and also no longer necessarily always affiliated with a club"* (Interviewee 4). As a result, people are often active at clubs as well as at commercial providers and/or in an unorganized context.

There is, however, a difference in need within different groups; young people and the elderly are often active at clubs, while young adults increasingly want to be active outside of the club context in, for example, fitness, Urban Sports, and other new sports like Padel, bootcamps, etc. Around puberty, club memberships decrease and memberships at commercial providers increase. Commercial sports providers respond cleverly to the change in need because they can act much more flexibly and quickly. We see that exercising at such providers has risen enormously. In contrast to static club systems, commercial parties can quickly respond to trends and gaps in the market *"the enterprising sports providers, the bouldering halls, the padel halls, the freerunning gyms, they all respond to the need that has changed, of [especially] young adults, or whomever."* (Interviewee 3). Additionally, they can afford for a sport to perhaps be short-lived, something clubs or municipalities simply cannot do. Experts also note that municipality always lags years behind social development. Furthermore, exercising in an unorganized context is becoming increasingly popular, alone or in a group. Digitalization makes independent and informal exercise much easier because people can easily buy the right equipment online and also come into contact with others to sport with via certain platforms.

4.2.2 Increasing use of Public Space for Sports

The shift toward individual and flexible sports has a direct spatial consequence: the repurposing of the city itself. Engaging in sports no longer needs to take place in a club context at traditional sports accommodations but happens increasingly often in public space. As illustrated in Figure 9 (A), the survey confirms that the outdoor environment has become the dominant setting for physical activity: nearly half of respondents indicated they are mainly active outdoors, in environments such as parks, streets, or outdoor courts. Only 20% reported being mainly active indoors, with the remainder utilizing a mix of both.

This spatial shift is driven by specific advantages inherent to the public realm. As shown in Figure 9 (B), when asked about the benefits of using public space, the vast majority cited that it is free to use, flexible, and accessible.

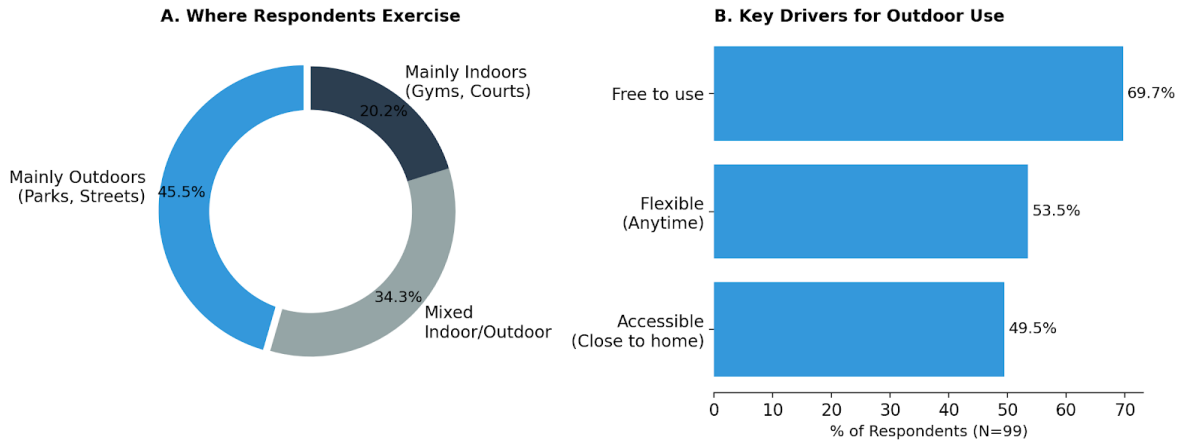

Figure 9 - Use of Outdoor Public Space (Survey Data)

Runners, fitness groups, etc., are now a permanent fixture in the streetscape. Experts speak of the 'sportification' of parks by adding sport-specific elements such as equipment, paths, and small fields. The Municipality of Amsterdam increasingly views the city as one large sports park where exercising in public space and sports parks supplement and complement each other *"the city is one big sports park, people are increasingly using public space."* (Interviewee 1). This has led to different groups using public space and having to share it. *"You also see that that causes quite a bit of pressure on the public space we have in Amsterdam. Public space is for everyone and public space belongs to no one."* (Interviewee 4). In some cases, this leads to friction where certain behaviors do not go hand in hand with each other which may lead to conflicts. Users view crowding (24.2%) and conflicts with other users (23.2%) as a disadvantage of using public space for sports. Lack of specific facilities (44.4%) and lack of changing rooms and toilets are seen as the biggest disadvantages.

4.2.3 Social Value of Sport: Sport as a Means

Underlying these shifts in participation is a changing perception of the value of sport. The social value of sport, as discussed in the introduction (Eime et al., 2013a; Moustakas & Robrade, 2023; Moustakas & Wagner, 2023; Taylor et al., 2015) , is becoming increasingly clear. This concerns the, often positive, side effects of sport on society in different domains. There is much social benefit to sport, *"we have all come to realize that sport can simply have very large, positive side effects. Certainly in an club context because you are pulled out of your home situation, you meet other people, perhaps even people from a different socio-economic backgrounds. It is an environment in which children can learn things. Bottom line, it is seen as a very good way of spending leisure time."* (Interviewee 3). Interviewee 2 emphasizes this by describing sports parks as a social meeting place.

At the policy level, people nowadays often speak of *"no longer sport as a goal, but sport as a means"* (Interviewee 3); where it was previously often seen as solely the goal to offer sport, it is increasingly seen as a means to achieve all kinds of societal goals. As illustrated in Figure 10, the survey results strongly support this perspective. Physical health and mental well-being were overwhelmingly the two most cited drivers for physical exercise, far outstripping traditional drivers like competition. The fact that intrinsic enjoyment ranks third underscores that for the modern user, the value of sport lies in personal health and enjoyment rather than performance, confirming that users themselves predominantly view sport as a means to maintain their physical and mental vitality.

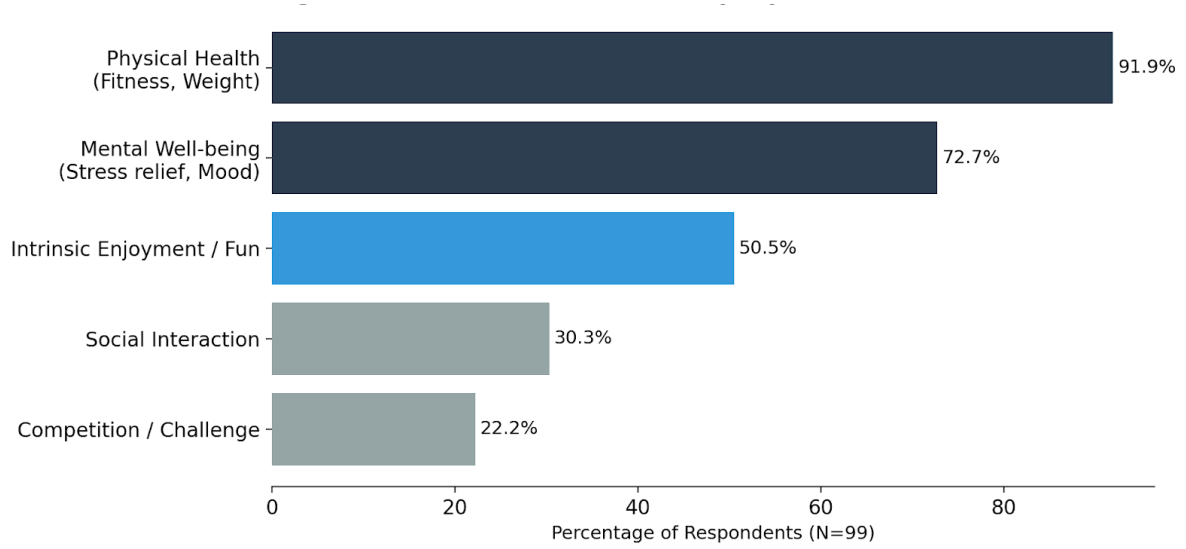

Figure 10 - Motivations for Physical Activity (Survey Data)

The municipality of Amsterdam is very occupied with making an impact by getting certain target groups moving. *"We now have, for example, an approach within the municipality that is very much about making an impact, and making an impact is then*

[specifically] for specific target groups that do not yet sport and move, such as girls, seniors, and people with a disability" (Interviewee 5). Where sport was once only accessible to the elite, now everyone can play sports and enjoy the positive effects. It is interesting to see that there is now finally scientific proof (de Boer et al., 2025) that healthcare costs are also lower when one moves and sports, this is extra important for vulnerable target groups. *"A study has just been released by the University of Groningen … where it has now finally really been proven that in poorer neighborhoods healthcare costs are higher because people do not move enough"* (Interviewee 6).

4.3 Typology of Urban Outdoor Sports Facilities (Hardware & Software)

The shifting demand described above requires a physical landscape that can accommodate it. To better understand the hardware side of sports facilities in the Netherlands and how they relate to the trends of informalization, a typology was created. This typology identifies the 4 main types of outdoor sports facilities. Below follows a detailed overview of these four identified types.

Type 1: Traditional Sportsparks

As explained prior, the Netherlands has a unique organized sports dominant culture. With this comes a vast network of organized sports facilities, of which the traditional Sportspark is the prime example. These parks often consist of a clubhouse with a few fields, pitches, tracks etc. based on the size of the club. Often, several clubs are clustered together and may share facilities of the same type. In larger urban areas it is common to have many sports clubs of different types, sizes and sports all together in a designated area, also called a sports park. Traditionally this is a semi-private, closed off area only accessible for club members at specific hours of the day. These sports parks are generally located on the outskirts or in the suburbs of urban areas. Since they require substantial land while generating little income, they have historically been pushed to the city's periphery where land is cheaper. The majority of these facilities date back to the 1960s and 70s. Today, this has resulted in a need to be renovated or replaced to keep up with modern demands and sustainability requirements. The municipality is responsible for the maintenance of the fields whereas the clubhouses and general areas are generally the responsibility of the clubs. Software primarily consists of scheduled club activities like training and competitions, with limited informal public use unless explicitly permitted during off-peak hours

Type 2: Appropriated Public Spaces (Informal Use)

This includes existing public such as the streets, bike paths, sidewalks and parks that were not specifically designed for sports but are used for this purpose. The use of these type of infrastructure for exercise is correlated with the rise of informal, unorganized sports as discussed earlier. Parks often are an ideal area for people to run, bike or play ball sports. Their hardware is designed for general recreation, circulation, or green space, meaning sports use is secondary. The accessibility and location are often very

favorable, but it may lack specific sports and physical activity amenities. The municipality is responsible for their maintenance. The Software is predominantly informal use specific to the facility, such as skating, pick-up basketball games, or fitness training, often self-organized by users.

Using public space for sports and physical activity is getting more and more popular, yet it also comes with certain obstacles and concerns. Over half (59%) encounter challenges while attempting to do so (Rauws et al., 2025). The most frequent challenges are thosein their own surroundings, including a lack of time or ill health (47%). Social difficulties, such as not having a workout partner (12%) and not wanting to be noticed by others while exercising (13%) are experienced by one-third of respondents. Physical barriers, such as inadequate lighting (12%) and the absence of parks or walking trails in the area (9%), are also experienced by about one-third (Rauws et al., 2025).

Type 3: Dedicated Public Sports Facilities (Open & Formal)

This type encompasses public facilities that are designed for a specific function or functions, accessible and free to all. They are usually well integrated into neighborhoods and parks, examples include calisthenics stations, basketball/tennis/padel courts, pump tracks, etc. Their hardware usually consists of single-function or small clusters designed for specific, often urban or informal, sports, with open boundaries and minimal amenities. The municipality is responsible for their maintenance. Their Software includes a wide range of informal activities like running, bootcamps, yoga classes, or casual games, which often coexist (and sometimes conflict) with non-sport recreational uses.

Type 4: Hybrid Model (e.g Open Sportpark)

This type is rather new, and more and more municipalities are adapting old or designing new Sportsparks with this model in mind. These facilities blend the traditional Sportsparks with public space, creating multifunctional accessible public parks with some parts remaining club-based and fenced off. Their hardware a mix of informal and formal accessible public space and club facilities. Boundaries are often blurred or permeable to encourage wider access, and amenities aim to serve both club members and the general public. Maintenance responsibility is shared among the municipality and the clubs. The Software is designed as a mix, accommodating both scheduled club activities and open access for informal, individual, or community use, potentially including programming by park managers or schools.

Increasingly, sports parks are opening up to alternative sports, welcoming public recreation, and offering flexible spaces for leisure, education, and community events. Concepts like the open sports park (*Open sportpark*, 2022) are becoming more and more common and municipalities are increasingly adopting this concept into their

plans. In 2022, 69% of municipalities had at least one freely accessible sports park in their municipality (Schots & Schadenberg, 2020), up from 48% in 2019.

Facility Type	Hardware (Physical Attributes)	Software (Usage & Activity)	Key Dynamic / Challenge
Type 1: Traditional Sportsparks	**Monofunctional & Enclosed.** Clusters of fields/courts located on city outskirts. Fenced off with controlled access. Often dated infrastructure (60s-70s).	**Organized & Rigid.** Strictly scheduled club training and league matches. Very limited informal use.	**Inefficiency:** High spatial consumption but severe underutilization during daytime/weekdays.
Type 2: Appropriated Public Spaces	**General & Open.** Streets, squares, and parks designed for circulation or leisure, not sport. Centrally located and highly accessible.	**Spontaneous & Mixed.** Running, bootcamps, yoga. Sport is secondary and coexists with other users.	**Conflict:** Absorbs high demand due to flexibility, but often creates friction with non-sporting users.
Type 3: Dedicated Public Facilities	**Specific & Open.** Purpose-built urban amenities (skate parks, Cruyff courts, calisthenics). Integrated into neighborhoods. Free access.	**Self-Organized Specifics.** Specific informal sports (3x3 basketball, skating). Occasional programming by external groups.	**Maintenance:** Fills specific gaps for informal youth/adults, but quality relies heavily on municipal maintenance.
Type 4: Hybrid Model	**Multifunctional & Permeable** Blends club facilities with public park elements. Blurred boundaries to encourage entry.	**Integrated.** Simultaneous use: scheduled club sports alongside open public recreation and school use.	**The Future Solution:** Aims for maximum social value and spatial efficiency, but requires complex management (*maatwerk*).

Table 7 - Typology Overview

Table 7 provides an overview of the typology, a more detailed version is to be found in Appendix D: Typology. Figure 11 visualizes this typology as a matrix of accessibility and function. The horizontal axis represents the software transition from the rigid, closed nature of traditional clubs to the flexible, open access of the public realm. The vertical axis maps the hardware, moving from specific, mono-functional designs to integrated, multi-functional spaces. This framework highlights the strategic position of the Hybrid Model (Type 4), which aims to combine the quality of dedicated infrastructure with the

accessibility of public space, effectively bridging the gap between the traditional and the modern sports landscape.

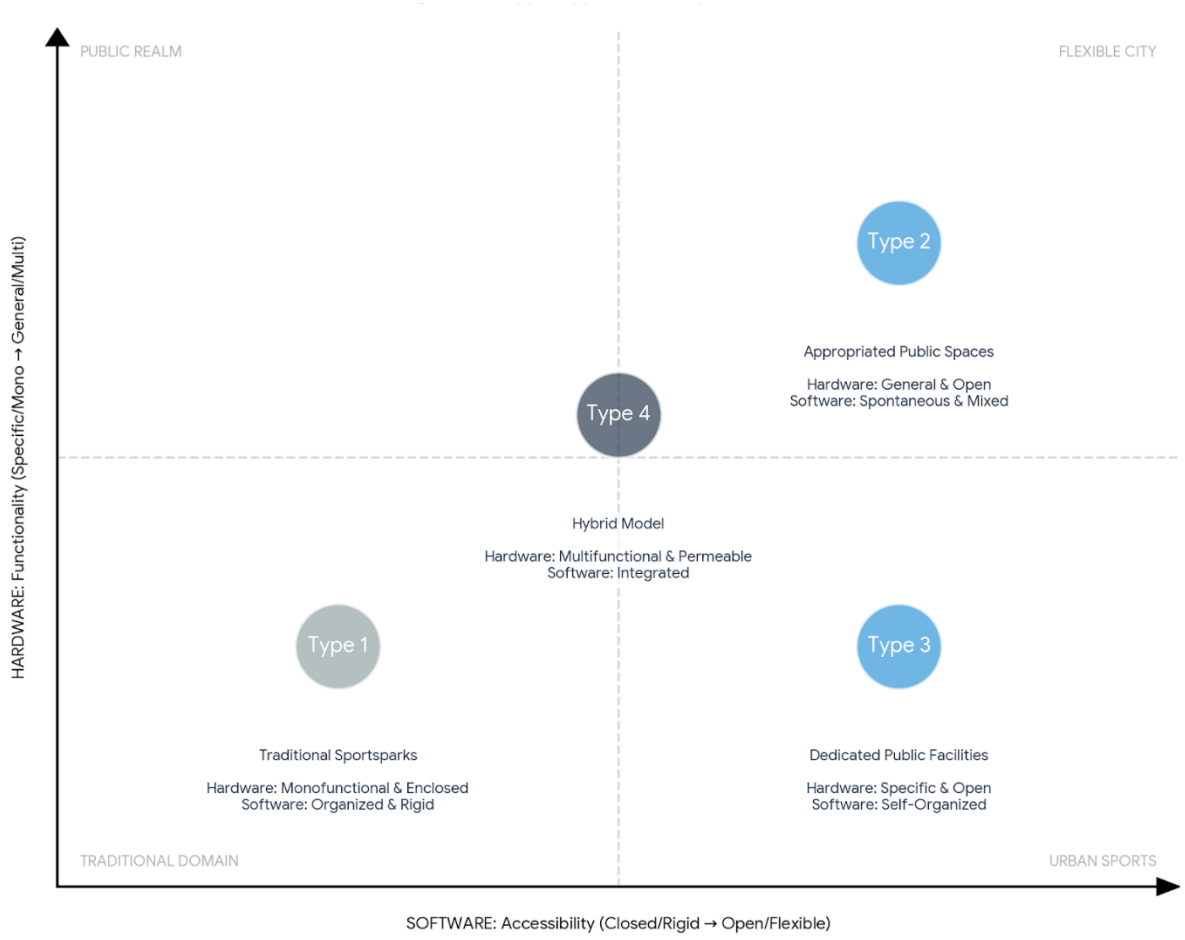

Figure 11 - Typology of Urban Sports Facilities

4.4 The Amsterdam Context: A Case Study in Urban Pressure

Nowhere are these national tensions more visible than in Amsterdam. As the country's densest city, it faces the most acute competition for space (Hardware), the most diverse population demands (Software), and the most complex administrative challenges (Orgware). For this reason, we will now delve deeper into the Amsterdam context which acts as a case study in this research.

As this study is designed as a theoretically informed case study of Amsterdam, it is important to first understand the context of the Amsterdam sport & Physical Activity landscape. This paragraph sets out explore sports participation in Amsterdam, its spatial sporting context and an overview of Amsterdam's sports policy. This with the aim to provide context to the reader in subsequent chapters.

4.4.1 Sports Participation and Growing Demand

The Netherlands is a real sports nation which translates to a relatively high degree of sports participation as outlined earlier. Amsterdam, being the capital of the Netherlands, is no acceptation to this and is in many aspects ahead of other Dutch cities. The NOC*NSF periodically undertakes a large-scale survey aimed at measuring sports participation at both national as well as city level. When looking at the percentage of Amsterdam's inhabitants partaking in sports & physical activity once a week, its is significantly higher at 74% (NOC*NSF, 2025a) compared to the national average of 62% (NOC*NSF, 2025b). Sport participation in Amsterdam has been on the rise over the past decade, as shown in Figure 12, the percentage of residents participating in sports at least once a week has grown from 68% in 2016 to 74% in 2025. This upward trend is even more pronounced in the primary data collected for this research. 80% of the survey respondents indicated they are moderately to very active (exercising 3+ times a week). This places our sample above the general city average, confirming that the qualitative insights in this thesis reflect the experiences of a highly engaged demographic.

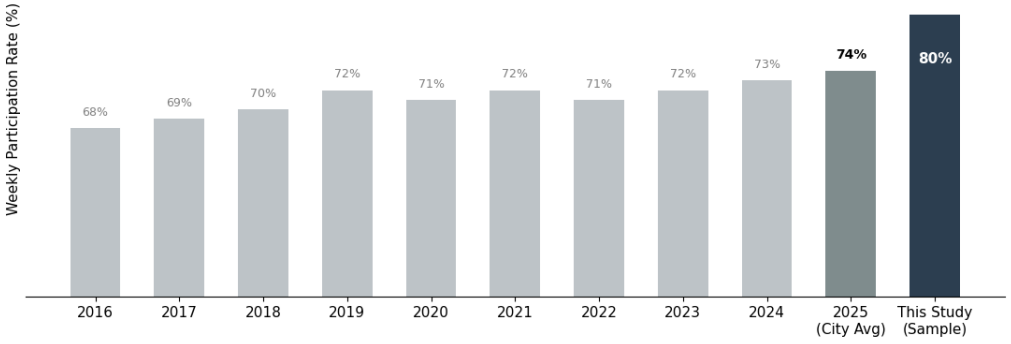

Figure 12 - Sports Participation Amsterdam over time (NOC*NSF, 2025a)

Education also seems to be a factor in sports participation, where the higher the education of the person, the higher the participation is. This is a national noticeable trend as well, see Figure 13.

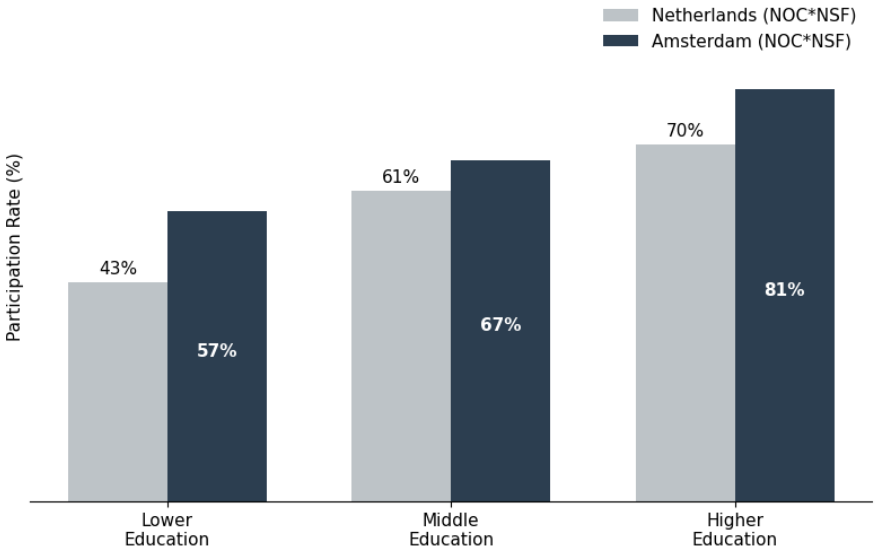

Figure 13 - Sports Participation by Education Level (NOC*NSF, 2025b, 2025a)

When it comes to the way Amsterdam inhabitants sport, it is interesting to see that people in Amsterdam have become broader in how they sports, meaning that they might sport in various forms at the same time, on average people in Amsterdam are involved in 4 different forms of sport and physical activity, more often outside of traditional organized sports context (interview Interviewee 4). Figure 14 shows the methods of sports participation in Amsterdam versus the Netherlands. This shows that individual and unorganized forms of participation are the most common nowadays in both national and local contexts. This is in line with the results discussed in section 4.2 based on primary survey data.

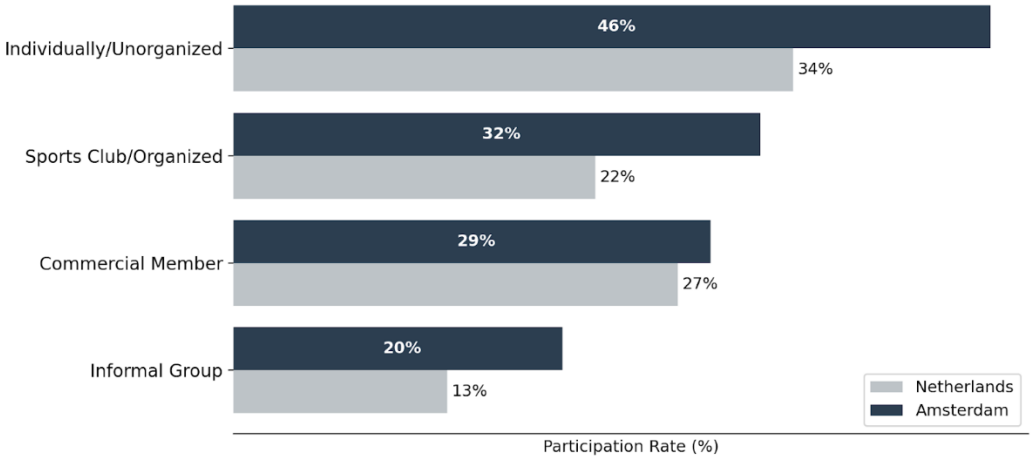

Figure 14 - Sports Participation Context (NOC*NSF, 2025a, 2025b)

This high level of participation is occurring in a rapidly densifying city, creating a dual pressure of more users and less space. Amsterdam is one of the fastest-growing cities in the Netherlands, where about 7,500 homes will be added annually in the coming years. “Amsterdam is changing like crazy. The coalition aims to build 7,500 homes every year. Then you are quickly talking about a city like Haarlem that you add every so many years, so then it’s not about occasionally having to build an artificial grass pitch, but that you simply have to start building entire sports parks.” (Interviewee 4). This means that sports facilities must be added for all these new residents, causing the demand for sport to only increase further. Not only is the population growing, but the demographics will also change, where not everyone has the same needs. This demand differs strongly per district, meaning demand and need will have to be looked at regionally. It can also be stated that the high activity level of (future) urban residents will cause more demand.

4.4.2 Spatial Analysis

Amsterdam has a vast organized outdoor sports infrastructure with a total of 47 traditional sports parks, 713 fields and pitches good for more than an area of 672 hectares. The majority of these facilities are grouped together in sports parks with the exception of some individual sports clubs with their own facilities. The sports parks are generally located in the suburban outskirts of the city, especially the large ones, see Figure 15.

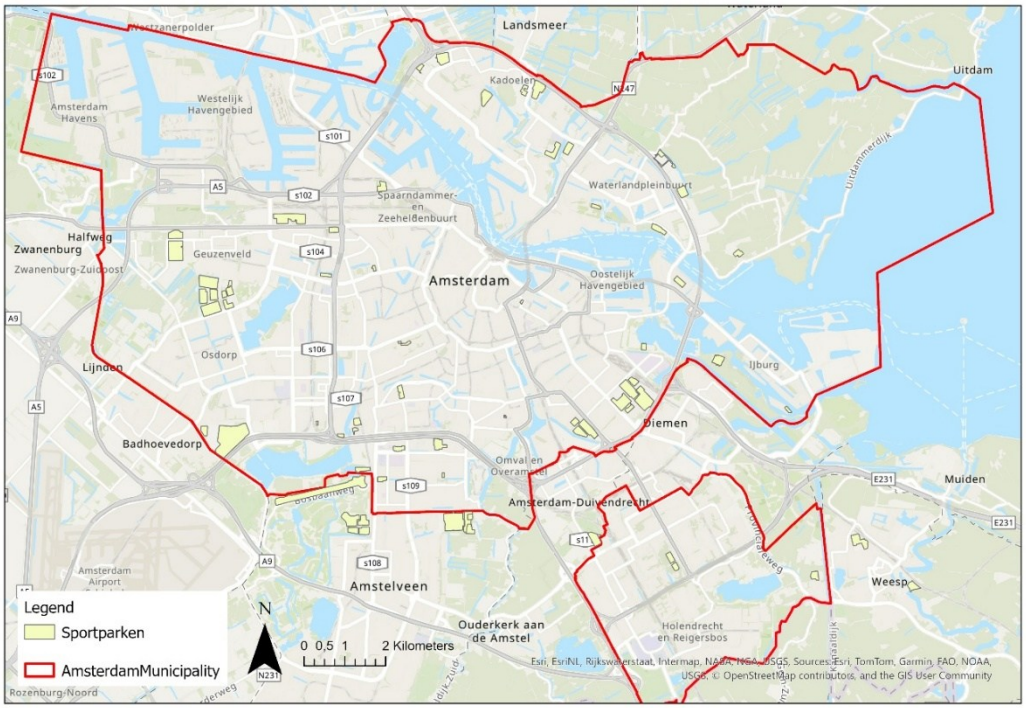

Figure 15 - Map of Sports Parks in Amsterdam (Gemeente Amsterdam, 2025)

This is a natural effect of an expanding city over the past decades. Where the parks used to be centrally located, when the city expanded, many sports parks where moved more outward to accommodate other functions such as living, see Figure 16. Space is scarce in Amsterdam. As emphasized by Interviewee 4 there is always a fight over space, as sports in not regulated by law but other functions like living are, often sports function have been sacrificed.

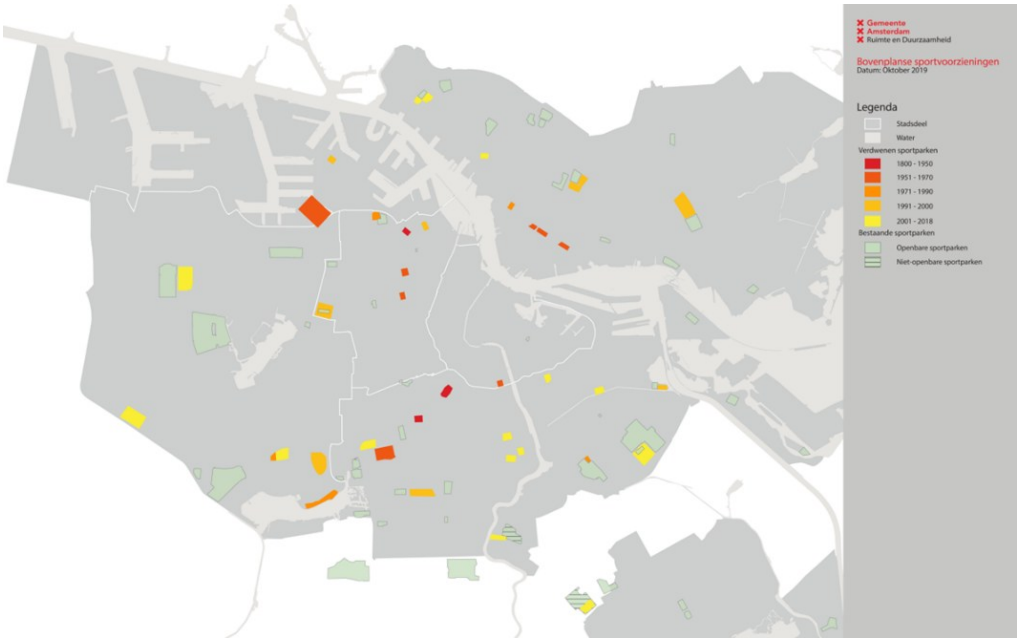

Figure 16 - Map of Sports Parks over time (Gemeente Amsterdam, 2019)

Amsterdam's public realm, its parks, squares, and streets, is increasingly being repurposed as an informal sports venue. This is driven by a desire for flexibility that fits into busy modern lifestyles (Interviewee 1, 4 and 5). Urban parks especially are often used for various functions such as recreation but increasingly more for sports. Urban parks are more centrally located that sports parks as seen in Figure 17, which is convenient for people that live in the center.

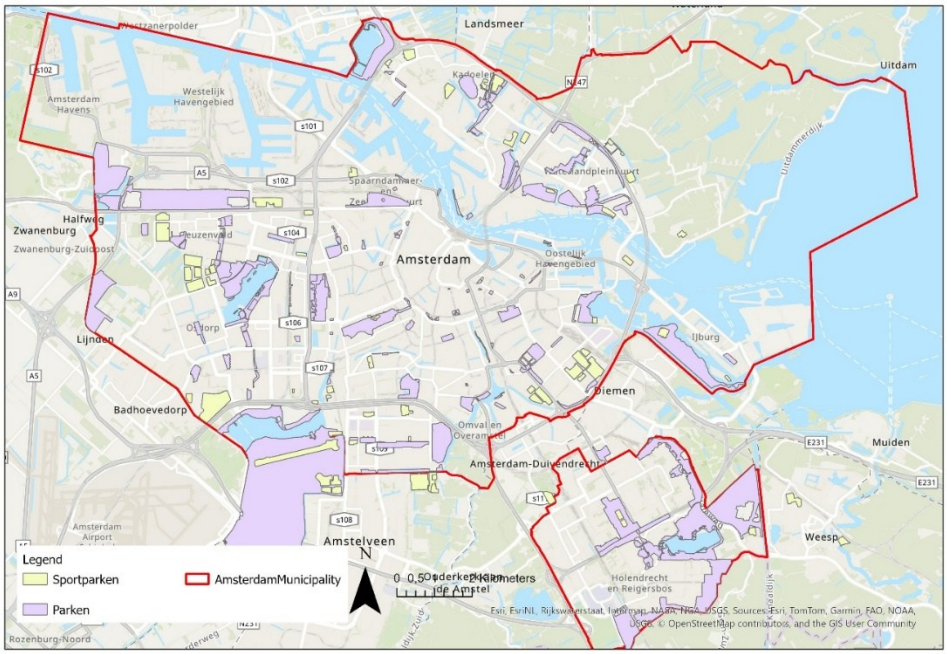

Figure 17 - Map of Sports Parks and Urban Parks (Gemeente Amsterdam, 2025)

Running stands out as one of the most dominant forms of individual physical activity, supported by a network of designated routes that frequently weave through or anchor themselves to the city's parks. However, as visualized in Figure 18, the infrastructure for unorganized sport extends well beyond these green corridors. The map reveals a dense coverage of public sports facilities, ranging from basketball and tennis courts to calisthenics stations and bootcamp zones, spread out throughout the urban fabric.

These designated spots form the "hardware" of the public sports landscape and are extended by the public space in the form of urban parks.

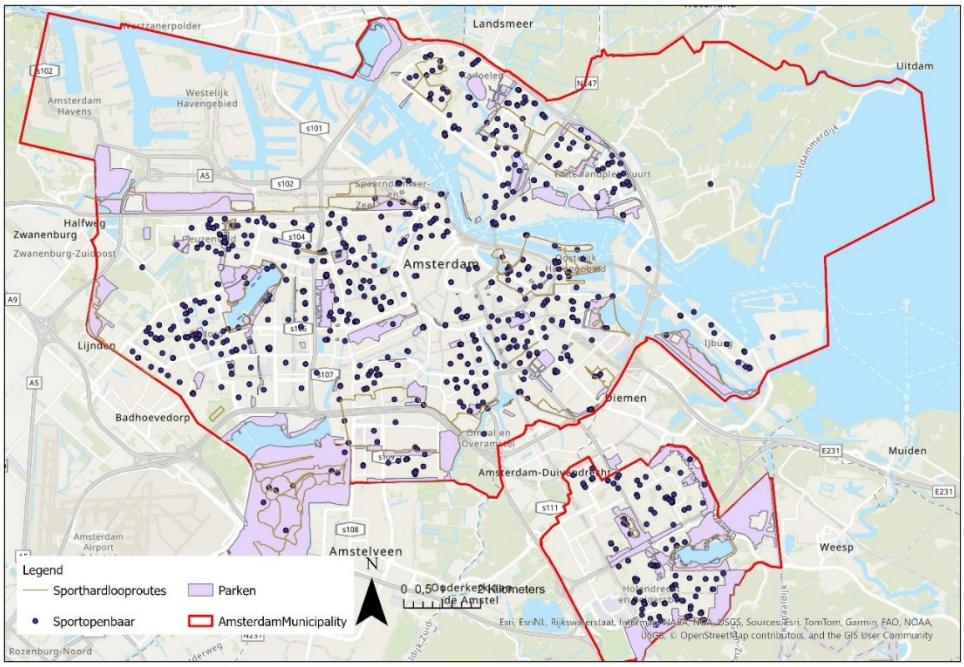

Figure 18 - Map of Public Urban Parks, Public Sports facilities and Running Routes (Gemeente Amsterdam, 2025)

4.4.3 Policy Analysis

Current forecasts indicate that Amsterdam's population will grow by 171,000 residents to over 1.1 million by 2055 (Bevolkingsprognose 2025–2055). This rapid demographic growth, combined with and increased planned construction of homes, creates an significant even more pressure on space which requires adequate planning to make sure sports still gets a place in the future.

Amsterdam has a proactive and unique take on sports policy to address this density. One of its most central policy tools is the sports standard (sportnorm) which indicates and quantifies a standard based on areas that need to be dedicated to sports per capita. As sports is not regulated by law, this is not always done in every municipality. Amsterdam has introduced this norm to ensure that space for sports is reserved amidst urban growth. This norm is area specific based on the area's demographics needs (Interviewee 1, 4 and 5).

Beyond designed spaces, the municipality sees the "city as a large sport park" where also public space is used for sports. They envision organized and unorganized sports facilities to be connected and welcoming and function as "living rooms for the neighborhood". Sportsparks are no longer fenced-off, but open to all for various uses. At the same time the municipality, acknowledges the commercial sector and its role in

contemporary sports supply. They aim to encourage accessibility by introducing affordable memberships to lower income households through the so-called “stadspas”. The municipality actively invests in public urban sports facilities and they are responsible for its maintenance. These two tasks are currently split between the department of Traffic and Public Space (V&OR), which acts as the asset owner responsible for strategic planning, while 'Stadswerken' manages daily operations, cleaning, and safety inspections. Important to note is that due to structural funding deficits in the past years, the maintenance is currently performed at a low "sober" level whilst prioritizing safety standards over aesthetics.

To increase community connection, the municipality of Amsterdam introduced the new Sportparkregisseur role in January 2024 from Sportheldenbuurt to parks in Zuidoost, Nieuw-West, and Noord. These persons serve as the face of these facilities, to ensure optimal usage by realizing a diverse sports offer, supporting local providers, and fostering safe, welcoming meeting places. Moreover, they act as key liaisons for stakeholders, proactively advising on sustainability, process improvements, and redevelopment plans to ensure the parks remain future-proof and accessible (Visie sportparken - beweging richting 2035).

The municipality is increasingly mindful of climate goals. The Strategisch Huisvestingsplan aligns sports facilities with the city's 'Nieuw Amsterdams Klimaat' ambitions, mandating that renovations make sports parks 'Paris Proof' (energy neutral) and natural gas-free (*Strategisch Huisvestingsplan)*.

Chapter Summary

This chapter contextualized the research by analyzing the Dutch sports landscape, a unique system historically built on a robust, volunteer-driven club culture. The analysis showed that while this traditional model remains the backbone of the Dutch sports landscape, it is increasingly under strain due to professionalization pressures and a decentralized governance structure that relies heavily on municipal support.

The chapter demonstrated a significant shift in demand toward flexible, individual, and unorganized activities. Moreover, a typology of urban sports facilities was established, ranging from mono-functional, enclosed Traditional Sports Parks (Type 1) to integrated, accessible Hybrid Models (Type 4).

Finally, the chapter zoomed in on the Amsterdam case study. It concluded that the city faces an acute "double pressure": a rapidly growing, highly active population competing for space in an increasingly densifying urban environment. This specific context sets the stage for the structural bottlenecks identified in the following chapter.

5. Constraints in the Built Environment

This chapter showcases insight gathered from the empirical data from interviews and the survey. Building on the changing demand profile outlined in Chapter 4, which highlighted a shift toward flexible, individual, and unorganized sport, this chapter focuses on the supply side.

It analyzes how the current built environment and sports system struggle to accommodate this demand. Specifically, it identifies the bottlenecks and constraints within the Hardware (physical space), Orgware (governance and management), and Software (programming and use). These findings reveal the structural mismatches that the design principles in the following chapter aim to resolve.

The results from the survey are used in this chapter to support and illustrate the insights from the expert interviews. The survey thus offers additional insight into how the outlined trends in sports participation and movement behavior are experienced by users in Amsterdam. However, the composition of the respondents is characterized by a relatively young, urban, and predominantly active profile. As a result, the outcomes are not representative of the entire Amsterdam population, but they do provide an indicative picture of patterns and preferences within an active urban target group. In this study, the survey results are therefore not presented as generalizable conclusions, but as empirical support for the developments signaled by experts.

5.1 Hardware Bottlenecks

The first barrier to adapting to new sports demands is the physical reality of the city. The infrastructure is often fixed, scarce, and physically disconnected from the safety needs of modern users.

5.1.1 Pressure on Urban Space

Space demand is, according to all interviewees, one of the most important and largest problems in Amsterdam. Due to a scarcity of space, many domains are dealing with enormous spatial pressure and sport is one of them. This is supported by research, indicating that in urban regions, the pressure on sports accommodations is projected to increase by more than 10% based on demographics alone. When accounting for participation trends and policy ambitions, usage is expected to rise by up to 17%, further intensifying the competition for scarce square meters (Remco Hoekman et al., 2024). Experts confirm that Amsterdam literally *“runs up against space”* in new developments and that *“space demand is the biggest problem”* (Interviewee 6). The expected population growth will only reinforce this, placing even more pressure on space for sport. This is a complex problem, meaning that even within the municipality of Amsterdam, different departments compete for the same space *“There are so many parties vying for the same space.”* (Interviewee 6). Because sport is not a legal

framework (as discussed in 4.1.1), *“it often gets the short end of the stick”* (Interviewee 2), meaning the sports sector is often not at the table during spatial developments *“sport and exercise is not properly at the table when it comes to spatial development, so if plans are made for the layout of new residential areas or restructuring, then sport is not at the table or sits at the table too late.”* (Interviewee 3). In practice, sport is often the first item to be cut, which is a worrying precisely because of all the positive side effects of sport.

The municipality of Amsterdam is unique in that they apply a so-called sports norm where an attempt is made to quantitatively reserve space for sport in new construction projects *“that actually guards that if we build homes, we also ensure that we secure square meters for sport and exercise.”* (Interviewee 1). This is the most important instrument for the municipality to realize space for sport but is not always strictly enforced in practice. The growing population and increasing diversity increase the demand for sport, while the space does not grow along with it. This creates a structural imbalance between supply and demand.

5.1.2 Aging Infrastructure and Physical Safety Barriers

The vast majority of the sports infrastructure was laid out a very long time ago when the urban sports landscape looked very different *“much of what stands now was built in the sixties and seventies”* (Interviewee 3). These are designed for the sports practice of that time, which largely took place exclusively in the club context. Many of these facilities no longer meet modern requirements such as comfort, design, and sustainability. This forms a challenge to replace and modernize this hardware. Experts also see *“overdue maintenance in the physical domain”* (Interviewee 6). Making the physical domain more sustainable and replacing it constitutes a major task. Additionally, interviewee 6 mentions that there is also a lot of dilapidation around the parks, which leads to an uninviting character and forms a barrier to sports participation. Interviewee 3 mentions that within the physical, demand always follows with considerable delay and the hardware is by far the most difficult to change

Furthermore, the physical location and design of these parks contribute to feelings of unsafety. Sports parks are often located remotely with dark access roads (Interviewee 5). This physical isolation creates environments with little natural visibility, which can facilitate nuisance and vandalism. This is described by Interviewee 5 *“we see an increasing degree of safety incidents on and around the sports parks. That really ranges from very many different incidents, it’s about sports park employees or managers who are treated improperly, young people with fatbikes who [ride] over the fields, drug dumps. It really goes in all directions actually.”* (Interviewee 5). The remote, enclosed nature of the traditional hardware design unintentionally supports these negative side effects.

5.2 Orgware Bottlenecks

While physical space is a hard constraint, the empirical data suggests that the way sport is organized and managed (Orgware) creates even more significant bottlenecks, particularly regarding supervision and the capacity to change.

5.2.1 Fragmentation and Management Mismatches

To have a well-functioning sports landscape, it is important to have the balance between hardware, orgware, and software, in practice this is often missing. Solutions are often thought of in terms of hardware and software, but precisely the orgware is very important. Within the Municipality of Amsterdam, there are often different interests at different departments, which causes friction *"from the municipality, the interests are not always the same … interests clash"* (Interviewee 1). For example, it is not clear who is responsible for what regarding construction and who for maintenance. Interviewee 4 gives as an example that when it comes to dedicated sports facilities in public space *"when we finally have a few years of extra money to build new fun sports facilities in public space … [at the same time] less and less money is going to the management of public space and that is actually quite contradictory, because we get more facilities that require more maintenance, but the maintenance is declining."*. Within the municipality, there might be resources to build, but not always to maintain. This indicates that at a higher municipal level, reasoning is not always integral. Due to this fragmented organization, there is often unclarity regarding responsibilities in practice, which significantly hinders processes. This is reinforced by many legal rules and obstacles that limit flexibility. According to interviewee 4, it is necessary to better coordinate use and management.

5.2.2 Club Capacity and Defensive Attitudes

This has contributed to an attitude from the clubs that is very defensive toward change and innovation because they feel neglected. Experts also mention that clubs often do not have enough knowledge in-house to take certain steps, such as applying for subsidies, and miss out on help and income because of this (Interviewee 6). There are large differences between clubs of different sports; interviewee 6 mentions as an example *"we have seen that investment subsidies were mainly applied for by tennis and hockey. Why is that? Because that is somewhat more of an elite sport, where there are more highly educated people and thus expertise is in-house. The moment you look at a football club, then you are talking about practically educated people in the board. Who do it with their hearts, but have no clue about subsidy applications."* Clubs struggle structurally with organizational problems and a decline in volunteers (Interviewee 2), meaning they do not have the capacity to respond to trends and change (Interviewee 2). The club system we know here in the Netherlands is extremely special *"because again, club life in the Netherlands is unique. It is a unique way of offering sport, the supply, it is*

low-threshold and cheap, thereby you make exercising much more accessible for everyone" (Interviewee 6).

5.2.3 Social Safety and Supervision Deficits

A direct consequence of this strained capacity is a lack of effective supervision, which worsens safety issues. The lack of 'eyes' on the park is one of the main problems when we look at sports parks (Interviewee 6). Currently, someone from the municipality who keeps the overview, maintains control, and connects parties within the sports park is missing. Due to this lack, the clubs now take on too many tasks, meaning clubs are often busy with enforcement and not with their core task of organizing sport. This leads to *"the sports clubs having a harder time getting everything arranged"* (Interviewee 2). In general, it applies that *"people are willing to do a bit less for the club, so that more paid staff have to stand behind the canteen bar or give the training sessions on the field"* (Interviewee 3).

Interviewee 6 also indicates that in practice it is often difficult to enforce on safety and vandalism because the sports grounds are private and enforcement and police may not simply enter the grounds. This feeling of unsafety often creates a threshold in practice (Interviewee 5/Interviewee 6) to participate in sports *"that naturally ultimately also hinders sports participation"* (Interviewee 5). This is especially the case for vulnerable target groups like children, girls/women, and the elderly. This is often also used by clubs as reasons to take a defensive stance toward opening up accommodations *"what you do hear back from people who are reticent about this is that they are afraid of nuisance and vandalism. Like yeah, what if I throw my gate open, then all kinds of, well, shady types or hanging youth or people who leave trash behind will come. Well, you name it. That is a frequently heard fear and also a reason to be a bit, yes, reticent in this"* (Interviewee 2). Multiple interviewees indicate that it is necessary to realize more supervision on and around the parks (Interviewee 3 and Interviewee 6).

5.2.4 Commercial Dynamics and Accessibility Barriers

A further organizational bottleneck lies in the friction between public accessibility and commercial innovation. The municipality of Amsterdam invests mainly in clubs, but must also support commercial providers, administratively (Interviewee 3). *"Commercial parties must certainly get a place on sports parks … that combination between a sports club, somewhat more social, and between commercial party."* (Interviewee 2) important from the municipality's perspective is that that they may not compete with clubs on the other hand. Collaborating with the commercial sector is, according to Interviewee 6, a good idea and can support the club system. The municipality aims to offer an alternative for new sports that are popular in the commercial sector. Interviewee 4 mentions as an example *"we also try to commit to ensuring that the new forms of sport, which are offered quite a bit by the market, but are not affordable for everyone, that we also offer a cheap or perhaps even a public alternative for that."* (Interviewee 4). This

implies that the market plays a very important role in filling demand and innovating. Opposite this is that this is accompanied by higher costs and is therefore not accessible to everyone. A significant portion of survey participants (20.4%) view membership costs as a barrier to sports participation. The Municipality views it as a task to offer sport in a low-threshold way for everyone but also wants to keep up with the times and look at new trends, sports, and also new forms of organization.

5.2.5 The Implementation Challenges of the 'Open Sports Park'

Opening up sports parks is a frequently discussed concept in recent years and is often seen as an answer to space shortages and demand for flexible sports. Interviewee 2 speaks of an open sports park, but vital sports park is also used to describe a space where sports facilities and public space flow fluidly into one another. A sports park is seen here as a park with sports facilities which is part of the public space (Interviewee 2); the park is therefore also accessible outside of organized sport. Interviewee 2 describes it as follows:

"a sports park that is truly part of the public space, that it is actually just more of a park where sports infrastructure is also truly present than truly a closed sports park, as it is traditionally now. That it is simply more interwoven with the public space, that walking paths also run through it, cycling paths, that it is simply truly a place to be and meet each other … it is actually mainly about the sports park being opened up for more than just the sports clubs, so that other parties or other activities can also take place and then also somewhat more spread out during the day so that it is better utilized." (Interviewee 2)

Here, the public space is truly for one's own interpretation (Interviewee 3), whether that is sport, recreation, or for transport. Commercial providers also have a place here (Interviewee 2), provided it does not compete with clubs. This comes with major organizational challenges: management, maintenance, responsibility, exploitation. The municipality considers sports parks as a 'living room' of the neighborhood (Interviewee 4) wherein integration with the district is central (Interviewee 1). It is also important to involve low-threshold neighborhood organizations (Interviewee 6). A recurring theme throughout the interviews is that it is very important that there is support from the neighborhood and that participation with all parties, including users and residents, is essential (Interviewee 2, Interviewee 6). Not every sports park lends itself to opening up; 'maatwerk' (tailor-made) is a precondition for this *"It is truly tailor-made per sports park"* (Interviewee 5, Interviewee 1). It is important to make a good environmental scan at an early stage and to collaborate with users; also *"participation is an essential part of creating such an open sports park."* (Interviewee 2). Every district and every neighborhood has different characteristics, needs, and demand (Interviewee 4, Interviewee 6).

5.3 Software Bottlenecks

Finally, the rigid way facilities are programmed (Software) creates a paradox: facilities are overcrowded at peak times, yet sit empty for large parts of the day.

In the area of programming, much gain can be achieved (Interviewee 3) in diversifying and especially intensifying the activities that take place on sports parks and in public space *"We also want to specifically stimulate that [sports parks] are used more than just by the club, so that it is utilized more intensively"* (Interviewee 5). Many sports facilities, particularly the sports parks, are minimally used outside peak hours: *"programming is always a challenge because you want sports parks to also be used a lot during the day, and that is now just mainly, of course, the peak hours from about 4-5 to 10 o'clock they are almost all full, but during the day the fields, not everywhere, but in some places they are empty"* (Interviewee 5). This is, according to interviewee 3, only a logical consequence of the current setup *"yes, the sports fields certainly stand empty, mostly Monday to Friday during the day, but I actually find that no more than logical due to the choices we make... clubs also need to look critically at themselves in that regard."* (Interviewee 3). Because people work during the day and children go to school, everyone wants to use the facilities at the same moments, in the evenings and on weekends, and then especially on Saturdays.

According to interviewee 2, focusing on the hardware is not sufficient and it is precisely the activities (software) that determine use *"Only the layout is not sufficient to get people moving, so you also need activities, organized activities"* (Interviewee 2). There is still great gain to be achieved in intensification. This is an important focus point from the municipality but does not yet succeed consistently. Multiple experts do indicate that there are certain target groups and domains that lend themselves well to using the facilities during the day; this mainly concerns schools and seniors who are flexible in this regard.

5.4 Conclusion: Summary of Bottlenecks

This chapter has identified the core constraints preventing Amsterdam's sports facilities from adapting to the changing demand described in Chapter 4. The analysis reveals a structural imbalance across three interconnected domains:

- **Hardware -** The city faces acute space scarcity, yet relies heavily on aging infrastructure from the 1960s and 70s. These facilities are often mono-functional and not suitable for dynamic activities. They are often located in isolated areas, creating physical barriers to safety and limiting their potential for multi-use integration.
- **Orgware -** Governance challenges prove to be the most significant hurdle. At the municipal level, responsibility is fragmented between departments (e.g., development vs. maintenance), leading to conflicting interests. At the local level,

sports clubs are overburdened by volunteer shortages , forcing them into a defensive posture where they are reluctant to open their facilities due to safety concerns and a lack of supervision capacity.

- **Software -** As a result of the above, facilities are structurally underutilized during the day while being overcrowded during peak evening hours. The current rigid programming fails to accommodate the flexible, individual demand.

These findings highlight that simply building more fields is not a viable solution. Instead, the friction between the static built environment and the flexible user stems from organizational and programmatic rigidities as much as physical ones. The following chapter addresses these specific mismatches by proposing eight design principles to align these domains.

6. Discussion

This chapter reviews the results, interpreting them and situating them within a broader theoretical and policy context. Results from various sources, such as literature, policy documents, interviews, and the survey, are compared to gain insight into the extent to which they confirm, nuance, or complement each other. It also reflects on the process, methods, frameworks, and tensions between different perspectives. Furthermore, it reflects on the limitations of this research, the data, and the methods used.

6.1 Core Findings and Consensus

There is a strong consensus that demand for sport and sport-related needs are changing. This shift from a largely traditional approach to more flexible, individualized, and less time- and place-bound forms of sport is unanimously mentioned in both the literature and the interviews. The results of the survey are also in line with these findings. While Chapter 4 demonstrated this shift toward flexible sports, the analysis reveals a systemic lag: the current urban environment has not evolved at the same pace. This is consistent with previous research in which major social changes, such as individualization and commercialization, have led to the growth of new and different forms of sport and the organization of sport in an urban context. The findings from Amsterdam are consistent with this. An important caveat here, which was mentioned several times in the interviews, is that this change is not abrupt but has developed and manifested itself gradually over the long term. The club model is still one of the most important and most commonly used forms of sports participation, but it is no longer the most dominant.

A second bottleneck that is unanimously mentioned in the interviews is the lack of space and pressure on space, which is a particularly important problem in busy urban areas such as Amsterdam. Sport is a vulnerable function without a legal framework, which means it often receives less attention and priority and must compete strongly with other urban functions. This is counterintuitive, as the literature shows that the government uses sport as a means to achieve broader goals, particularly health goals. The fact that it is not incorporated in law, either at national or municipal level, as a structural legal framework in the form of a law, is therefore a social shortcoming. The finding that sport regularly loses ground as a result emphasizes the importance of early and structural anchoring of sport in spatial planning, as reflected in the formulated design principles in a later section.

There is also consensus that contemporary sports parks do not always function well and efficiently. This reveals a mismatch between the Software and the Hardware. With increasing space scarcity, it is unacceptable that they often remain unused during the day and are overloaded at peak times. The hardware faces a major renovation challenge due to outdated infrastructure that does not properly serve flexible and more intensive

programming. This confirms literature that points to inefficient use of space within traditional sports facilities, but this study adds that this inefficiency also stems from organizational and programmatic limitations, and not solely from physical shortcomings. This research sheds light on the integral interrelations between the three domains, something that has not been done in this way in prior research.

All interviewees agreed that public space is already and will be a crucial part of future urban sports infrastructure. Rather than separated islands of sports facilities, public space can be a connector and supplementary medium for sports exercise. Designated public facilities are becoming increasingly important, it is key to maintain and build them professionally and sufficiently. No one-size-fits-all model exists for urban sports facilities, experts agree that it is key to properly look at the local conditions, stakeholders and needs, ‘maatwerk’ is paramount.

6.2 Interpretation of Key Tensions and Trade-offs

The previous section presented areas of broad consensus among the various interviewees. This section will discuss several structural tensions and trade-offs that shape the future development of sports facilities in Amsterdam. These potential areas of conflict were identified and are addressed in this section. This section interprets the findings by examining where ambitions conflict with practical constraints, and how different stakeholders prioritize competing values such as openness, safety, flexibility and social cohesion. The goal is to identify and clarify the underlying dilemmas that future policy and design interventions must address.

Openness versus Safety

The notion of openness and open sport parks is a well discussed topic in literature, policy documents and interviews. Removing barriers and integrating sports parks and facilities with public space has many benefits and values. On the other hand, it comes with various affiliated concerns, such as perceived safety and nuisance. This might lead to tension between stakeholders like clubs, the municipality and end-users. Dark, isolated sports parks and unclear responsibility structures raise concerns, particularly for vulnerable groups. This complicates the idealized notion of open sports parks often found in policy visions and ambitions.

The findings suggest that when considering opening up sportsparks, attention must be paid to make sure it works for everyone. Maatwerk is key here, not all locations will lend themselves to be opened up for instance. It is evident that open sportsparks are part of future urban sports infrastructure, but it is key to pay attention to this dilemma. Therefore, simply 'opening the gates' is insufficient. The strengthening of supervision and management as outlined in Principle 5 is required to do this successfully.

The Commercial Paradox

The results suggest that commercial providers play an important part in today's sports landscape. Because of their commercially driven nature they have resources to quickly act on changing societal demand and are therefore very flexible and demand driven. According to the academic interviewees, they can be seen as a functional extension of the contemporary sports ecosystem, addressing gaps that traditional club-based structures struggle to fill. This aligns with existing literature that highlights the growing relevance of market-oriented sports provision in increasingly individualized urban societies.

On the other hand, the municipal interviewees were a bit more cautious. They acknowledge the innovative, flexible capacity but also mention that they might compete with clubs and undermine the volunteer-based foundations of the Dutch club system. From a municipal perspective, sports clubs are not merely service providers but key social institutions that contribute to social cohesion, inclusion and community development. The municipality does see opportunities to work more closely with commercial providers, especially in offering supplementary services, and sees potential for synergy between them and the clubs. Rather than constituting a direct contradiction, this divergence reflects a deeper normative tension between efficiency and inclusivity. Commercial providers tend to optimize for flexibility, scalability and consumer responsiveness, whereas clubs prioritize accessibility, long-term engagement and social embeddedness. This tension highlights that commercial parties cannot simply replace or compete with clubs, but must be integrated strategically, leading to Principle 6.

6.3 Design/Policy Principles

This section aims to address the previously identified bottlenecks by formulating design principles that can be used in the (re)development of Amsterdam's sports landscape. These principles are derived by triangulating the user needs identified in the survey with the structural constraints identified in the expert interviews. These principles function as guiding points of departure, providing direction for the (re)development, layout, and organization of sports facilities in a complex urban context. They make it possible to assess what is needed at each specific location. The principles are again presented using the H-O-S framework. Solutions do not lie within a single domain but require an integrated approach in which the balance between hardware, orgware, and software is central.

Table 8 provides an overview of the main bottlenecks, their relationship with the H-O-S framework, and the corresponding design principles that guide the development of future-proof sports facilities in Amsterdam. The design principles presented here form the framework for the further elaboration of solution directions. In the following sections, each principle is explained and elaborated in more detail.

Design Principle	Dominant H-O-S Domain	Relation to Identified Problem / Bottleneck (SQ1 & SQ2)
1. Future-proof and multifunctional sports infrastructure	Hardware	Many sports parks and club facilities are outdated (construction wave of the 1960s–70s), do not meet contemporary standards (comfort, sustainability, safety), and offer limited flexibility or multifunctional use.
2. Professional and accessible sports facilities in the public space	Hardware	Increasing use of public space for sport calls for durable, well-maintained, and professionally designed facilities. A lack of basic amenities (toilets, water points, changing rooms) forms a barrier to use.
3. Structurally and early embedding sport in spatial planning	Orgware	Sport loses space to other urban functions due to the lack of a legal framework and late involvement in area development. Population growth increases pressure, while sport does not automatically grow along.
4. Integrated municipal governance and clear responsibilities	Orgware	Fragmentation within the municipality leads to conflicting interests, unclear responsibility for development, management, and maintenance, and delayed decision-making. This hampers effective development and operation of sports facilities.
5. Strengthening orgware through professionalization and coordination	Orgware	Clubs face shortages of volunteers and capacity and carry excessive organizational burdens. A lack of “eyes” on sports parks leads to safety problems and limited capacity for innovation.
6. Strategic cooperation with commercial sports providers	Orgware	Commercial providers play an increasingly important role in meeting new, flexible, and individual sports demands, yet currently operate largely alongside or in competition with clubs. This leads to missed opportunities for complementarity, innovation, and more efficient use of facilities.
7. Smart and intensive programming for optimal use	Software	Sports facilities are heavily underused outside peak hours, while capacity problems arise at other times. A lack of flexible programming and spreading hinders efficient use of space.
8. Context-specific customization and structural participation	Overarching (H-O-S)	Sports needs differ strongly by neighborhood, target group, and location. Standard solutions (such as one type of open sports park) lead to resistance and mismatches. A lack of early participation reinforces defensive attitudes among clubs and residents.

Table 8 – Overview of Design Principles

Principle 1: Future-Proof and Multifunctional Sports Infrastructure

Earlier analysis showed that a key bottleneck is the outdated nature of much of the hardware, which no longer meets modern standards of quality, comfort, sustainability, and safety. This infrastructure is increasingly unsuited to contemporary demands for flexibility and multifunctionality. In the coming years and decades, a major replacement task lies ahead, as a large share of existing sports parks will need renewal. Many buildings are fit only for their original purpose, limiting innovation, multi-use and hindering more intensive programming.

The analysis indicates that current hardware is too static, while sports demand is becoming more dynamic and diverse, resulting in a mismatch. In redevelopment and new construction, facilities must therefore always be designed as future-proof and multifunctional, accommodating different target groups, sports, organizational structures, and ancillary functions. Clubhouses and fields should be flexibly designed, essentially as adaptable shells, to enable intensive and adaptable programming. Special attention should be paid to aesthetics and safety, as these strongly influence sports participation.

Hardware is the most difficult, time-consuming, and costly domain to adapt. It can only be successful if accompanied by appropriate programming and organization. Not only is more sports infrastructure needed, but above all, differently designed infrastructure that focuses on transformation rather than just renovation.

Principle 2: Professional and Accessible Sports Facilities in the Public Space

Public space is increasingly and more intensively used for sport, both in designated places such as basketball courts, fitness equipment, and public tennis courts, and in generally designed spaces such as streets, paths, parks, and open fields. Interviews reveal that while such facilities are often provided, they are frequently not of professional quality and maintenance is lacking in practice. This creates tension between growing use, facility quality, appearance, and social safety.

Looking to the future, where public space will play a key role in the urban sports landscape, such facilities must be designed in a durable, professional, and robust way within the hardware domain. In addition, orgware must be well organized, with clear agreements on maintenance, operation, and ownership. When something is built, sufficient budgets must be reserved to maintain it properly over time. Maintenance and appearance are crucial to ensure actual use.

Survey analysis shows that users express a need for additional public amenities to make exercise in public space more attractive. In response to the question which features would make sports parks or public recreational spaces more attractive and useful, the most frequent choice (42.9%) was more amenities such as toilets, benches, shade, possibly changing rooms, and water points. Smart locker could also be added

with materials like balls, games, etc. lockers in parks to facilitate casual, ad hoc, informal play For example, users who arrive at a park without equipment could borrow materials via a smart locker system. These are relatively simple measures to better adapt public space for sport and recreation. By treating public space as a full-fledged part of the sports landscape, rather than as an informal residual category, it can better contribute to low-threshold participation, spread of use, and an inclusive urban sports infrastructure.

Principle 3: Structural and Early Embedding Sport in Spatial Planning

Pressure on space has proven to be one of the greatest bottlenecks facing Amsterdam today and a determining factor for the future of sports facilities. The city's rapid growth poses a major challenge: both redeveloping existing facilities and constructing new ones to accommodate population growth and evolving demand. Population growth increases pressure, while sport does not automatically grow along. Several experts note that sport is structurally not at the table when spatial plans are made. As a result, sport often loses out to other functions, partly because it lacks a legal framework and therefore has low priority in trade-offs, despite its many positive side effects.

"Sport is not a municipal task. The municipality doesn't have to do anything with sport. So, in that sense it's an easy item to shift around or let disappear in plans when financial trade-offs have to be made. Even though sport has many advantages and can certainly contribute financially, that's harder to make concrete." (Interviewee 3)

This principle states that sport must be structurally integrated early into spatial development processes. Only then can sufficient space be secured. This requires strengthening existing instruments such as the sports norm, as well as additional legal or policy tools to ensure sport is structurally included in area development and given higher priority. Currently, sport relies heavily on goodwill, therefore, a statutory foothold similar to housing, education or greenery targets is necessary. Only by treating sport as a full-fledged spatial function can supply grow along with population development and a future-proof sports infrastructure be ensured in an increasingly dense city.

Principle 4: Integrated Municipal Governance and Clear Responsibilities

A frequently mentioned organizational bottleneck arises from fragmented governance and unclear responsibilities within the municipal organization. Because sport intersects with multiple policy domains, integrated coordination is essential. In practice, domains often operate alongside each other, leading to friction in development, management, and maintenance due to conflicting interests. This hampers effective development and operation.

An overarching organizational structure could provide a solution, clearly assigning responsibilities for development, management, and operation, and better aligning them. By reducing fragmentation and positioning sport as a connecting theme, the

municipality can respond more effectively to changing needs and make better use of investments in sports infrastructure.

Principle 5: Strengthening Orgware through Professionalization and Coordination

Earlier analysis shows bottlenecks caused by insufficient organizational capacity at sports parks. Clubs face volunteer shortages while simultaneously dealing with broader tasks, administrative burdens, and growing responsibilities for management, safety, enforcement, and programming. With ambitions for more open sports parks, these responsibilities will only increase. A recurring issue is the lack of sufficient presence on sports parks, which undermines safety and leads to nuisance.

Structural strengthening of orgware is therefore needed. This can be achieved by appointing municipal coordinators who oversee, connect parties, and enhance social control and safety. Amsterdam has already taken steps with roles such as 'sports park directors' (sportparkregisseurs), but more is needed. Ideally, each sports park would have a host or manager regularly present on site. This also requires broader municipal support for both clubs and commercial providers to adapt to changing needs without undermining the club model. The club system is unique, effective, and low-threshold and should be always safeguarded, but there is room for innovation, smart combinations, and new organizational forms as complements. Through professionalization and clear support, pressure on volunteers can be reduced and more room created for cooperation, flexibility, and quality use.

Principle 6: Strategic Cooperation with Commercial Sports Providers

Earlier analysis shows that commercial providers play an increasingly important role in today's sports landscape, particularly in serving new, flexible, and individual sports' needs. Currently, clubs and commercial providers often operate alongside each other, sometimes even competitively, leading to missed opportunities for cooperation.

The future sports landscape requires a balanced and strategic collaboration between public, club-based, and commercial actors. Commercial initiatives can fill gaps in programming or provide income for clubs: *"I do think certain commercial initiatives can support and underpin our club system, even if only through revenues, for example by renting out space to commercial parties."* (Interviewee 6). They also serve as drivers of innovation and the development of new sports and organizational forms. When these prove sustainable, clubs can adopt them in a low-threshold way, padel is a good example.

This requires an more active municipal role in facilitating cooperation, helping navigate legal aspects, and creating space for hybrid forms of use within sports parks and public space. By treating these actors not as opposites but as complements, sports supply can better match diverse and changing urban demand.

Principle 7: Smart and Intensive Programming for Optimal Use

Facilities are heavily underused outside peak hours, while capacity problems arise at peak times. Experts see this as a logical consequence of the dominant club structure focused on fixed times and locations, mostly evenings and Saturdays. Existing space should be used more efficiently. A lack of flexible programming hinders this, indicating a mismatch between software and actual use.

Smart and more intensive programming is essential to better utilize existing facilities without necessarily building more. This can be realized in a shorter timeframe than hardware interventions. By spreading activities more evenly, experimenting with flexible formats, engaging new target groups, and offering incentives, peak pressure can be reduced.

Examples mentioned include offering flexible variants of existing sports alongside traditional formats, such as footy alongside football or padel alongside tennis. Rental systems could enable daytime use, which is currently not easily accessible: *"You'd also have to do something with your rental system, because right now you can't easily rent a field."* (Interviewee 5)

Incentives could also encourage off-peak use, such as reduced membership fees for playing on Sundays instead of Saturdays: *"For example, a club in Utrecht where if you play on Sunday you pay half the membership fee compared to Saturday. That really actively steers towards better spreading."* (Interviewee 3)

At the same time, intensive programming requires supportive hardware and strong orgware, so facilities are suitable for multifunctional use and management can handle the complexity. In this way, software can act as a lever to mitigate space shortages without immediate expansion.

Principle 8: Context-specific 'Maatwerk' and Structural Participation

Spatial conditions, sports needs, and social contexts differ strongly by district, neighborhood, and even by sports park. Therefore, no generic policy solutions or development concepts can suffice; planning must take place at the local scale. *"I don't think there is one type of sports park of the future but rather looking at what is needed where and in which context."* (Interviewee 3)

Maatwerk is thus a precondition for planning sports facilities in Amsterdam. Context-oriented design requires structural participation of users, clubs, residents, and other local stakeholders at an early stage. This bottom-up approach builds support and ensures that local needs and concerns are included, leading to better alignment with the environment and higher participation. In a complex and diverse city like Amsterdam, letting go of standard models and embracing area-specific solutions is essential for a sustainable sports landscape.

Summary

These eight design principles form an integrated approach to making sports facilities in Amsterdam future-proof. The bottlenecks identified earlier are interconnected and stem from an imbalance between hardware, orgware, and software. The proposed principles address multiple domains simultaneously and must be aligned. By investing in future-proof infrastructure, embedding sport early in spatial planning, strengthening governance, and focusing on professional organization, smart programming, and context-specific maatwerk, an adaptive framework emerges that allows for local tailoring. This is not a blueprint, but a set of guiding principles for policy development, redevelopment, and further professionalization of sports facilities. The next chapter reflects on these principles in relation to existing theory, policy frameworks, and the limitations of this study.

6.4 Implications for Policy and Practice

The output of this research offers insights for various parties such as policymakers, practitioners, clubs and researchers. For policymakers the results imply the importance om structurally embedding sports more firmly within broader urban development and spatial planning processes. This is of utmost importance to ensure adequate space reserved for sports and physical activity in increasingly space scarce urban environments.

In the short term this implies that the municipality must prioritize sports more when competing spatial claims arise. At the same time, one must involve actors in the spatial planning process more structurally. In the long term, institutional arrangements and policy must reflect this prioritization at both local and eventually national level. Ideally sports must be adopted into law in similar fashion as education now is arranged for instance. It is evident that sports bring many societal benefits with it besides is leisure and health functions. Its true potential can only be unlocked when structurally and financially embedded into decision making and spatial planning practices.

Based on these conclusions, practitioners should consider adopting more integrated approaches to facility and sports parks use and organization. This may include efforts to open facilities to wider user groups, introduce new ways to intensify use, or new innovations in terms of programming and organization. This requires corresponding investments in management capacity, safety measures and user coordination. Hybrid models such as the open sportspark concept, could help support clubs to cope with increasing complexity and responsibilities, without undermining their social and community-oriented role by combining voluntary engagement with professional support.

Findings regarding the relationship between the hardware, orgware and software can help urban planners and designers understand the sports landscape better. Sports

infrastructure should be conceived not only as a set of physical assets, but as adaptable environments that can accommodate changing activities, user groups and temporal patterns.

Lastly, and most importantly, the research offers insights into cross-sectoral collaboration between sport, health, education, and social policy domains. Sports must be recognized as a larger contributor to society than it currently is. This way, municipalities can better align investments with broader societal goals such as health promotion, social inclusion, and neighborhood cohesion. It is important to note that a municipality acts as both a policymaker and a practitioner. Results suggest that within the organization, interests are not always well aligned. It is paramount that this is the case in order for the municipality to properly and efficiently invest in sports and physical activity. All this must be done whilst embracing the very unique club-based system that has always been a major part of the Dutch culture.

6.5 Theoretical reflection: the H-O-S framework

The H-O-S framework played a central role in this study and proved to be a valuable analytical lens for structuring both the empirical analysis and the interpretation of the findings. The framework enables one to look at the sports system by distinguishing between physical infrastructure, organizational and governance arrangements, and programming and activities. This integral approach is a key strength and demonstrates that these three domains are interconnected, as supported by empirical findings.

However, a critical limitation of the framework is that it primarily functions as a tool for internal alignment, while largely ignoring the external forces that shape it. It does not fully capture external structural forces that shape sports infrastructure outcomes, such as legal constraints, land market dynamics, real estate pressures, and broader urban development priorities. It is great to be used in a more local setting, like a city such as Amsterdam, but might not work on a larger scale. As such, the H-O-S framework risks underestimating the influence of macro-level governance contexts when applied in isolation. A sports park may have perfect internal alignment between hardware, software, and orgware, but without a statutory foothold or protection from market forces, the framework cannot ensure its survival.

Despite these limitations, the framework remains a very useful tool. Its value lies in making visible where misalignments occur and in preventing overly technocratic solutions that focus exclusively on building more facilities. Overall, this study demonstrates that the H-O-S framework is most effective when used as a relational and context-sensitive analytical device, rather than as a checklist of domains to be optimized independently. This theoretical reflection reinforces the need for adaptive, integrated approaches to sports infrastructure development that respond not only to changing demand but also to the institutional and spatial conditions of the contemporary city.

6.6 Methodological Reflection

The mixed methods research design employed both qualitative and quantitative data from various sources such as literature, policy documents, expert interviews and user surveys. This mixed approach allowed for triangulation between policy-oriented perspectives, academic insights and user experiences, strengthening the internal validity of the findings.

One major strength lies in the sample of interviewees where the composition of both academic researchers, municipal policy makers and municipal practitioners allowed for various nuanced perspectives. This research captures perspectives from both people directly involved in policy creation and implementation, as well as those engaged in conceptual and theoretical research. This combination made it possible to identify not only shared description of current challenges, but also differences in normative assumptions and priorities, which proved central to the analysis of tensions and trade-offs. The addition of supplementary survey data, which captures end-user perspectives, provided an additional viewpoint. The choice to focus on Amsterdam as a case study proved to be very useful, as the city represents an extreme, yet illustrative context characterized by rapid population growth, high spatial pressure and an advanced and significant sports policy agenda. This made it an extremely suitable setting for exploring this topic and to gather practical real-world data.

Limitations of the research must also be acknowledged. The number of interviews (n=6) was relatively small and limited to specific experts, several of whom were focused on the Amsterdam context. Interviews with other stakeholders, such as clubs themselves, commercial providers, etc., were not part of the data, although they could be of significant value. This provided a sufficient amount of data for the purpose and timespan of this study, however, it limits the extent to which the findings can be generalized beyond the Amsterdam context. The results should therefore be understood as analytically transferable rather than statistically representative.

The same holds for the survey data which included a selection bias and mostly represented a relatively young, urban and already physically active sample. The perspectives of older and less active residents were thus only indirectly captured. This bias likely influenced the results towards higher-intensity use and more flexible programming. This potentially underrepresents the need for low-threshold, slower-paced environments suitable for elderly or inactive groups. Future policy using these principles should therefore be tested for inclusivity across all age demographics. As a result, the survey findings were used primarily to support the interview data and put them in a practical context rather than provide definitive claims by itself.

All in all, these limitations do not negatively influence the validity of the results but do define the scope of this research. The results should be interpreted as context-specific insights that contribute to ongoing debates on urban sports infrastructure, rather than

as universally applicable. To better understand the implications of these results, future research could build on this study by looking at and using data of broader user groups, comparative case studies across cities, or longitudinal analyses of policy interventions and spatial transformations.

7. Conclusion

7.1 Answering the Research Questions

This research aimed to analyze Amsterdam's sports landscape, where evolving user demand clashes with a rigid supply. Specifically, it investigates how mismatches arise from the interplay between static hardware, shifting software, and orgware. This research addressed the following main research question:

How should the urban sports facilities in Amsterdam be adapted or redesigned, in terms of hardware, software, and orgware, to accommodate the changing demands for sports and physical activity?

Based on empirical findings from qualitative and quantitative data, this thesis concludes that adaptation requires an integrated approach that simultaneously addresses physical infrastructure (hardware), governance (orgware), and programming (software). Rather than expanding capacity through additional facilities alone, future sports infrastructure must be designed to remain flexible and context-sensitive over time. In the short term, intensive programming and implementation of innovative and new organizational structures can mitigate contemporary challenges. The orgware is a very important component that special attention must be paid to. Across all domains, maatwerk is found to be the common overarching principle that must be employed in future urban sports planning in Amsterdam. To answer this question in more detail, the study addressed three sub-questions:

Sub-question 1: What core societal trends and resultant changes in participation behavior are defining the evolving demand for sports and physical activity in Amsterdam?

The findings show a clear demand shift from predominantly club based towards more multivariate landscape with an increasing demand toward more individual, flexible, informal and place/time independent activities and organizational forms. This changing demand is influenced by several societal shifts and phenomena such as individualization, commercialization, time constraints, changing lifestyles, and demographic shifts, resulting in increased pressure on both formal sports facilities and public space. The survey data confirms that end users increasingly view the city itself as a sports environment, yet still value the quality and social benefits that come with organized sports.

Sub-question 2: What are the constrains of current urban sport facilities to adapt and accommodate the changing demand, in terms of hardware, software and orgware?
The results identified several constraints that are visible due to the current alignment

between supply and demand. Hardware is constrained by pressure on urban space and aging facilities designed, which are not designed with flexibility, multifunctionality, and modern needs with regard to comfort and sustainability. At the same time the orgware is constraint by fragmented municipal governance and overburdened volunteer clubs who struggle to take on increasing responsibilities. The software suffers from inefficiency, characterized by facilities that are underutilized during the day yet unavailable to the broader public due to safety concerns and defensive management. Currently, the supply is too rigid to accommodate the flexible, modern user besides the traditional user.

Sub-question 3: How can these identified constraints be addressed to establish principles for the future of sports facilities in Amsterdam?
According to the study, moving toward adaptive systems that can change in response to shifting demand is necessary to overcome these bottlenecks. This study developed eight design principles that aim to alleviate these constraints, ranging from strategic commercial cooperation to multifunctional infrastructure. While allowing for local variation and input rather than universal solutions, these principles place an emphasis on aligning programming strategies, management structures, and spatial design.

7.2 Overarching Conclusions

Considering the findings in this thesis, we can draw three general conclusions:

- There is no universal model for future sports facilities. This is because local conditions and user groups vary. The success of an "open" sports park in one neighborhood does not guarantee it will succeed in another. Local context must determine the H-O-S balance.
- Sport supply and demand gaps arise not simply from a lack of sport infrastructure, but from gaps between hardware, orgware, and software. Expanding facilities alone is insufficient to address current challenges. The answer lies in how we manage and connect the existing resources.
- Future sports policy and planning should focus on flexibility rather than fixed solutions. In crowded urban areas like Amsterdam, the ability of facilities and organizations to adapt over time is more important than optimizing them for a single use, as was done in the 60s and 70s.

7.3 Final Reflection

This thesis contributes to debates on urban sports infrastructure by empirically grounding the H-O-S framework within a dense metropolitan context. By applying this framework to the case of Amsterdam, the study demonstrates that infrastructural challenges are shaped by interactions among spatial, organizational, and programmatic dimensions rather than by physical constraints alone.

While this study provides in-depth insights into the Amsterdam context, it also raises questions for future research. Comparative studies across cities with differing spatial pressures could help distinguish context-specific findings from broader structural trends. Longitudinal research could examine how adaptive strategies perform over time, particularly in relation to governance reforms and facility transformation. Additionally, future research could more directly engage with the perspectives of unorganized or less active residents to deepen understanding of inclusivity and access in urban sports environments.

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Appendices

This section contains supplementary material that is essential for transparency but would clutter the main text. This includes blank copies of questionnaires, interview guides, codebooks and a more detailed overview of the typologies.

Appendix C: Interview Protocol

Research Title: Rethinking (Sports) Parks in Amsterdam

Format: Semi-structured interviews (approx. 60 min)

Language: Dutch

Target Groups:

1. **Strategic/Policy:** Municipal advisors (Sport & Forest, Space & Sustainability), Urban Planners.
2. **Operational/Management:** Sport park managers, facility maintainers, "Hoofd Beheer".
3. **General Experts:** Designers, researchers, community representatives.

Part 1: Introduction & Context

- **Opening:** Introduction of researcher (MSc MADE) and research scope (transition of traditional sports parks vs. urban public spaces).
- **Role Description:**
    - *General:* "Could you describe your role and how it relates to sport and public space?"
    - *Policy Makers:* Focus on departmental alignment (Sport vs. Spatial Planning) and specific portfolios.
    - *Managers:* Focus on daily responsibilities, specific parks managed, and relation to clubs/maintenance.

Part 2: Changing Demand (Theme 1)

- **General Trends:** How has sport and physical activity behavior changed in the city over the last 5–10 years? (e.g., shift from organized to informal, individualization).
- **Drivers:** What is driving these changes? (e.g., COVID-19, commercialization/Apps, density).

- **User Groups:** Which demographics or sports are growing vs. declining?
- **Conceptual Framework:** How do you interpret the balance of **Hardware** (infrastructure), **Software** (programming/activity), and **Orgware** (management/policy) in this context? [1111]
- ***Specific for Park Managers:***
    - How do these shifts manifest in daily operations? (e.g., peak loads on Tuesday nights vs. weekends).
    - Is there a shift from club dominance to informal/commercial use (e.g., bootcamps)?

Part 3: Current Supply & Functionality (Theme 2)

- **Typology:** How do you define a "sports park" today vs. a public park? Are they competing or complementary spaces?
- **Assessment:** How well does the current supply meet the changing demand? Where are the mismatches?
- **Facilities:** Which facilities are currently in short supply or oversupplied?
- ***Specific for Policy Makers:***
    - How is "sport in public space" embedded in city strategy (e.g., Omgevingsvisie 2050)?
    - How do different departments (Sport vs. Public Space) cooperate?
- ***Specific for Park Managers:***
    - **Operational Bottlenecks:** What are the top 3 daily challenges? (e.g., reservations, conflicts between groups, maintenance budgets).
    - **Accessibility:** How do you balance "open access" for the neighborhood with social safety and club privileges?
    - **Maintenance:** Are there mismatches between the desire for multifunctionality and the available maintenance capacity?

Part 4: Future Solutions & Innovation (Theme 3)

- **Addressing Mismatches:** What spatial, programmatic, or administrative measures are needed to align supply and demand?
- **Innovation:** Are there inspiring examples (e.g., SPOT ON project, specific pilots) or "success principles" we can learn from?
- **Vision 2040:** What does the ideal future sports park look like?

- ***Specific for Park Managers:***
    - **Quick Wins:** Can you name a concrete, small-scale intervention that improved usage?
    - **Future Role:** Should the park manager evolve into a "community manager" or programmer rather than just a technical caretaker?

Part 5: Closing

- **Missed Topics:** "Is there anything relevant we haven't discussed?"
- **Resources:** Recommendations for documents, data (GIS/booking logs), or further contacts.
- **Metadata:** Confirmation of consent for recording, quoting, and anonymization preferences.

Appendix B: Survey Questionnaire

Title: Understanding Changing Needs for Sports and Physical Activity in Our Cities

Part 1: Demographics & General Activity

- **Q4: Age Group** (18–30, 31–44, 45–64, 65+)
- **Q5: Gender** (Male, Female, Prefer not to say)
- **Q6: Occupation** (Student, Employed, Self-employed, Retired, Not Applicable, Other)
- **Q7: Area of Residence** (Dense urban center, Suburban area, Small town)

Part 2: Perceptions of General Trends

- **Q8:** Belief regarding changes in how people participate in sports/physical activity over the last 5–10 years
- **Q9:** *(If change observed)* Identification of specific changes (e.g., individual exercise, informal activities, digital technology, new niche sports)
- **Q10:** Agreement level (Strongly Disagree to Strongly Agree) with statements regarding:
    - Health consciousness.
    - Preference for flexible timing.
    - Role of digital technology.
    - Social connection as a driver.

    - Struggles of traditional clubs.
    - Perception of sports parks as closed-off/monofunctional

Part 3: Personal Habits & Preferences

- **Q11:** Self-assessment of physical activity level (Very active to Not active at all)
- **Q12:** Types of activities participated in during the past 6 months (e.g., organized team sports, gym, outdoor recreation, active commuting)
- **Q13:** Primary location of activity (Indoors, Outdoors, or Mix)
- **Q14:** Primary motivations (e.g., Physical health, Mental well-being, Social interaction, Competition)
- **Q15:** Importance of specific factors when choosing an activity (Scale: Not at all to Extremely Important):
    - Factors include: Cost, Location, Accessibility, Flexibility, Equipment, Social interaction, Structure, Competition, and Safety
- **Q16:** Preference for group size (Alone, pairs, small groups, large teams)

Part 4: Use & Perception of Urban Spaces

- **Q17:** Typical locations for sports (e.g., dedicated sports parks, public parks, streets/plazas, natural environments)
- **Q18:** Usage of traditional sports parks (e.g., for club sports, informal games, individual training, or socializing)
- **Q19:** Main **advantages** of using general public spaces (e.g., free access, proximity, flexibility, nature)
- **Q20:** Main **disadvantages** of using general public spaces (e.g., lack of facilities, safety concerns, crowding, lack of amenities)

Part 5: Needs & Desires for Sports Parks

- **Q21:** Agreement level regarding whether current traditional sports parks meet population needs
- **Q22:** Desired features to increase appeal (e.g., activity variety, accessibility, green integration, amenities, inclusive design, safety features)
- **Q23:** Importance of "multifunctionality" in sports parks
- **Q24:** Interest in incorporating leisure/cultural activities (e.g., art, music, gardening) into sports spaces

- **Q25:** *(Open-ended)* Suggestions for non-sport facilities that work well alongside sports

Part 6: Barriers & Closing

- **Q26:** Main reasons for not being as physically active as desired (e.g., time, cost, motivation, distance, lack of company, safety)
- **Q27:** Awareness of local government initiatives regarding sports facilities/public space
- **Q28:** *(Open-ended)* "If you could change one thing about how your city supports sports…
- **Q29:** *(Open-ended)* Additional comments or suggestion

Appendix C: Codebook

Theme	Code (English)	Description
Theme 1: Changing Demand and Societal Drivers	Differently organized sport	Sports activities organized outside traditional club structures (e.g., bootcamps).
	Physical activity participation	Levels of engagement in sports and exercise within the population.
	Commercial/Entrepreneurial providers	For-profit entities offering sports services (gyms, yoga studios).
	Digitalization	The impact of apps, data tracking, and online platforms on sports behavior.
	Target groups	Specific demographics identified for policy focus.
	Motivations	The internal and external drivers for people to exercise.
	Individualization	The societal shift from team sports to individual activities.
	Youth target group	Focus on children and teenagers.
	Vulnerable groups	Focus on disadvantaged or low-income populations.
	New forms / Trend sports	Emerging sports (e.g., padel, urban sports) gaining popularity.
	Unbound/Unorganized sports	Sports performed individually without club membership (running, cycling).

	Sport to physical activity	The broadening definition from competitive sport to general movement/health.
	City pass / Affordability	Financial tools to make sports accessible for lower incomes.
	Changing needs	Evolving preferences and requirements of modern athletes.
	Association context	Traditional sports clubs and membership structures.
	Via app	Organizing or tracking sports activities through mobile applications.
Theme 2: Supply, Infrastructure, and Spatial Constraints (Hardware)	Use of public space	Utilizing streets, squares, and parks for sports activities.
	Vacancy	Repurposing empty buildings or unused land for sports.
	Public sport spots	Designated outdoor facilities (e.g., skateparks, Cruyff courts).
	Space claim / Pressure on space	Competition for scarce urban land between sports, housing, and other functions.
	Sport infrastructure	Physical facilities and hardware required for sports.
	Sports park	Traditional clustered zones dedicated to sports fields.
	City as sports park	Viewing the entire urban environment as a playground for movement.
	City park	Green recreational areas used for informal sports.
	Urban growth	The impact of increasing population density on available sports space.
	Urban heat island	Climate challenges affecting outdoor sports in paved city areas.
	Sustainability	Making sports infrastructure energy-efficient and eco-friendly.
Theme 3: Mismatches and Systemic Challenges	Supply-demand match	The alignment (or lack thereof) between facilities and user needs.

	Conflict of interest	Clashing goals between stakeholders (e.g., noise vs. activity).
	Clubs in trouble	Financial or organizational struggles faced by traditional clubs.
	Legal aspects	Laws, zoning plans, and regulations affecting sports.
	Mismatch	Gaps between the sports offered and what the community wants.
	Nuisance / Vandalism	Negative behavior or damage associated with public sports facilities.
	Professionalization	The shift from volunteers to paid staff within organizations.
	Sport not statutory	The lack of legal obligation for municipalities to provide sports facilities.
	Safety	Social and physical safety concerns in sports environments.
	Volunteers	Issues regarding the shortage or management of unpaid help.
Theme 4: Solutions, Principles, and Future Design	Attractiveness	The visual appeal and quality of sports environments.
	Better utilization	Optimizing the usage rates of existing fields and halls.
	Activity-friendly environment	Urban design that naturally encourages movement (e.g., walkable streets).
	Broader use	Using sports facilities for multiple purposes (education, childcare).
	Container	Usage of modular or temporary units for sports facilities.
	Mixed use	Combining sports functions with other functions like commercial spaces.
	Inclusion	Ensuring facilities are usable by people of all abilities/backgrounds.
	Innovative ideas	New concepts for organizing space or activities.

	Intensive programming	Scheduling diverse activities tightly to maximize facility use.
	Customization	Tailoring solutions to specific neighborhood needs.
	Open character	Designing facilities that are visually open and accessible to the public.
	Open sports park	Transforming gated club grounds into publicly accessible parks.
	Social function	The role of sport as a meeting place and community builder.
	Accessibility	Physical and logistic ease of access to facilities.
	Inviting character	Design elements that welcome people to enter and participate.
Theme 5: Governance, Management, and Policy (Orgware)	H-O-S	Interaction between Hardware (space), Orgware (management), and Software (programs).
	Municipal support	Assistance and subsidies provided by the local government.
	Organizational improvements	Enhancing the management structures of clubs and facilities.
	User participation	Involving athletes and residents in decision-making processes.
	Collaboration	Partnerships between municipality, clubs, schools, and commercial parties.
	Sport as policy tool	Using sport to achieve broader goals (e.g., health, integration).
	Sport as a means	Viewing sport as a vehicle for social impact rather than an end in itself.
	Sport standard / Norm	Guidelines determining the required amount of sports space per inhabitant.
	Sports park manager	A professional role dedicated to managing shared sports facilities.

Appendix D: Typology

Facility Type	Description	Key Characteristics	Software	Location	Access/Boundaries	Amenities	Key Link to Themes
Type 1: Traditional Sportsparks	Distinct, often enclosed areas primarily for organized club sports.	Monofunctional clusters of fields/courts Often dated infrastructure (1960s-70s).	Primarily organized club activities: scheduled training, competitions, league matches. Limited informal use during off-peak hours unless explicitly opened.	Typically peripheral, on city edges.	Usually fenced with controlled access and opening hours.	Primarily club-oriented (clubhouse, specific changing rooms).	Underutilization (daytime vacancy); spatial inefficiency; poor accessibility.
Type 2: Appropriated Public Spaces (Informal Use)	Existing public spaces (parks, squares, streets) not designed for sport but actively used informally.	Designed for general recreation/circulation; sports use is secondary/emergent.	Wide range of informal activities: running, walking, cycling, bootcamps, yoga classes, casual games (football, frisbee). Often coexists (and sometimes conflicts) with non-sport uses.	Often centrally located, highly accessible.	Open public access.	Lacks specific sports facilities; often short on basic amenities (toilets, water).	Absorbs significant demand due to flexibility & low cost; highlights gaps in formal provision; potential for user conflicts.
Type 3: Dedicated Public Sports Facilities (Open & Formal)	Purpose-built, freely accessible facilities outside traditional parks (e.g., skate parks, calisthenics).	Single-function or small clusters for specific (often urban/informal) sports.	Informal use specific to the facility: skating, 3x3 basketball, calisthenics training, often self-organized or casual pick-up games. Sometimes programmed by external groups (e.g., 3x3 Unites).	Integrated within neighborhoods, parks.	Open and publicly accessible by design.	Usually minimal; relies on surrounding public infra.	Caters to flexible, informal demand; highly dependent on maintenance (*beheer*).
Type 4: Hybrid Model	Facilities intentionally blending traditional sportspark features with accessible public space elements.	Mix of dedicated club areas & public zones (paths, amenities) Focus on integration & multifunctionality.	Mix of scheduled club activities and open access for informal, individual, or community use. May include programming by park managers, schools, or community groups.	Can be adapted existing parks or new developments.	Permeable boundaries; encourages wider access.	Aims to serve both club members & general public (e.g., public cafe, diverse options)	Represents potential future direction; aims for increased utilization & social value; success depends on context (*maatwerk*) & managing safety/nuisance.