



**Sports and Society
Accelerator**



The role of technology in advancing the inclusion of women and girls in sport and physical activity in India

Report

November 2023

Foreword and Acknowledgments

This report is intended to serve as a foundational work on using technology for greater inclusiveness in sport and physical activity (PA), especially from a gender perspective.

As the first joint report between the Sports and Society Accelerator (SSA) and the Women Entrepreneurship Platform (WEP), the report explores the importance of technology-augmented interventions in sport and PA that help better physical and mental health for women, in turn promoting leadership and entrepreneurship by women.

As a foundational work, it is meant to provide existing knowledge, engage in dialogue, and promote research and policy-to-action.

I would like to acknowledge the support and contributions to this report from Kanishka Bhattacharya, Abhinav Shrivastava, Mridul Kataria, Lokesh Kaza, Harsh Malpani, Chandni Pallikal and Tanya Kini. I would also like to acknowledge the initiative and contributions of Nandan Kamath and Desh Gaurav Sekhri – Co-Founders of SSA – in bringing this report to life.

I hope this report contributes positively to the growing discourse on sports and PA and the role technology can play in universalizing and enabling access to PA in India by 2047. Ensuring every child is playing and every adult is active will undoubtedly require a priority focus on women and girls.

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Introduction

Sport and physical activity (PA) have the power to transform individuals, communities, and countries. Global evidence has clearly shown that sport and PA programs and initiatives, beyond improving the performance and success of athletes, can address numerous broader socio-economic needs and help build healthier, fitter, more inclusive, and empowered societies.

PA is defined as “any bodily movement produced by skeletal muscle that requires energy expenditure.”¹ According to the World Health Organization (WHO), PA can be undertaken in many ways: walking, cycling, sports, and active forms of recreation (such as dance, yoga, and tai chi). While PA is generally associated with recreation, it can also be undertaken as part of work (e.g., lifting, carrying, pushing, or other active tasks), as part of domestic tasks (e.g., cleaning, carrying, and care duties), and as part of daily travel and commuting (e.g., walking and bicycling). Regular PA has been shown to reduce the risk of several non-communicable diseases (NCDs), including coronary heart disease, diabetes, certain cancers, obesity; to delay the onset of Alzheimer’s disease and dementia; to increase lifespan; enhance a sense of wellbeing and community; increase educational performance, and improve productivity. It has also been shown to be particularly effective for attaining gender-related outcomes (equality, confidence, agency, economic empowerment, etc.) through increased participation by girls and women.

Women have historically been excluded from accessing and participating in sports and PA, and, as a result, from realizing the significant sporting, social, cultural, and economic returns that this engenders. Women and young girls are unfortunately unable to optimally access and participate in sport and PA due to a set of complex, interconnected, and mutually reinforcing challenges. Overcoming these requires interventions at multiple levels, including substantive ecosystem-level improvements and coordination across many stakeholders, including communities, district, state, and national policy actors, companies and social enterprises, civil society actors, researchers, funders, and the media. It is therefore important to ensure that increased participation for girls and women in sport and PA is prioritized in India so that the benefits accrue to them at optimal levels.

Accounting for these benefits, sport for development (S4D) – referring to the intentional and strategic use of sport and PA to achieve positive social, economic, and health outcomes for individuals and communities – encompasses a range of programs, initiatives, and interventions that harness this unique potential of sport and PA to address social issues, promote human rights, and foster inclusive and sustainable development. S4D programs typically incorporate elements such as skill development, teamwork, leadership, health education, gender equality, conflict resolution, and community engagement.

Global institutions have launched specific PA and S4D-oriented initiatives aimed at driving consensus across countries and tangibly enhancing PA levels and sports participation of populations. In 2018, the WHO launched a

¹ World Health Organization. (2018). More Active People for a Healthier World: Global Action Plan on Physical Activity (2018-30). Retrieved from <https://apps.who.int/iris/bitstream/handle/10665/272722/9789241514187-eng.pdf>.

new Global Action Plan on Physical Activity 2018-2030, with the ambition to reduce physical inactivity by 10% by 2025 and by 15% by 2030 relative to today's levels. The plan outlines four policy action areas – active societies, environments, people, and systems and twenty specific policy recommendations for its member states and international partners.²

The United Nations Educational, Scientific and Cultural Organization (UNESCO) adopted a revised International Charter of Physical Education, Physical Activity and Sport in 2015, which introduces universal principles such as gender equality, non-discrimination, and social inclusion in and through sport. Later, UNESCO introduced the Kazan Action Plan in 2017,³ which marked governmental recognition and commitment toward linking sport policy development to the 2030 Agenda of the United Nations. The Kazan Action Plan has clearly identified SDGs that sport and PA can directly contribute to: health, education, gender, inclusive cities, peace, economic growth and employment, sustainable consumption and production, and effective, accountable, and inclusive institutions.

Especially as it relates to gender, the United Nations (UN) Entity for Gender Equality and the Empowerment of Women, UN Women, has emphasized the power of sport to address gender-based inequalities in and through sport, guided by the Sport for Generation Equality Framework.⁴ Building on these global

agendas, UNESCO's Fit for Life initiative seeks to address the compounding crises of physical inactivity, mental health issues, social inequalities, and COVID-19 impacts among women and girls, with a key focus on multilevel efforts and inclusive sport policies to reduce physical inactivity and NCDs.⁵

Many countries are also shifting gears in their sport and health policy. The UK, Australia, and Canada are increasingly adopting S4D and population-scale PA approaches in sport and health policy based on the recognition that sport is not just an end but an effective instrument to achieve larger development goals, especially health and productivity. These are seen as supportive of – and additive to – sports excellence as societal goals.

However, in India today, this recognition is nascent, and many are excluded from reaping the lifelong benefits of engaging in sport and PA. Chief amongst these groups in India are women and girls, persons with disabilities (PwDs), and social and economic minorities. In fact, nearly 60% of the Indian adult population demonstrates inadequate levels of PA, with women showing higher levels of physical inactivity compared to men.⁶ Access and participation are curtailed by complex, interconnected, and mutually reinforcing challenges. Addressing these challenges will require interventions at multiple levels, including substantive ecosystem-level improvements in sectors and arenas beyond

² Ibid.

³ <https://en.unesco.org/mineps6/kazan-action-plan>

⁴ Sport for Generation Equality: Advancing Gender Equality in and through Sport. United Nations. United Nations 2020. [(accessed on 14 February 2022)]. Available online:

<https://www.unwomen.org/sites/default/files/Headquarters/Attachments/Sections/News%20and%20events/Stories/2020/Sport-GenerationEquality.pdf>

⁵ UNESCO Fit for Life UNESCO 2022. Available online: <https://www.unesco.org/en/sport-and-anti-doping/fit4life>

⁶ Podder et al., 'Physical Activity Patterns in India Stratified by Zones, Age, Region, BMI and Implications for COVID-19: A Nationwide Study', 2020;

sport and coordination across many stakeholders, as outlined earlier in the section.

Technology is a mechanism that unlocks potential by enabling wider access, dissemination, and ease of use of products and services. In sport, technology has helped athletes perform better and has addressed critical structural barriers preventing access and participation, especially for excluded groups such as women and girls. Technology-led interventions have shown (as will be highlighted in this report) the potential to effectively address several barriers and expedite and enhance access and participation in sport and PA for historically excluded groups, like women, persons with disabilities, and socio-economic minorities (see Figure 3).

From relatively simple applications of technology, such as short activity video clips for fitness assessment and technique training, to artificial intelligence-enabled training techniques – the opportunities are endless.

Technology can provide access and opportunities to under-represented individuals by reducing access barriers and accelerating opportunities for sampling, adoption, training, and competition through the lifecycle of individuals and societies. At its best, therefore, technology for inclusion in sport and PA works as an intervention to ensure that no one is excluded from playing sport and being physically active.

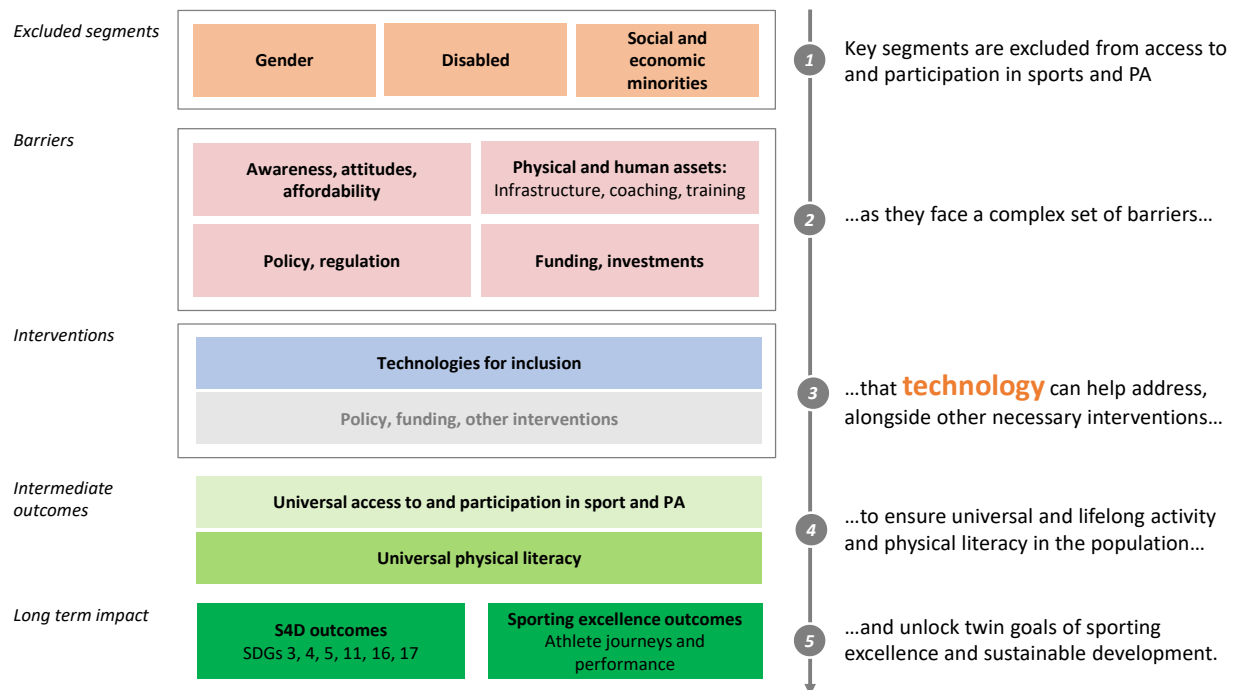


Figure 1: Technology’s role in sport, PA and S4D – a high-level framework

India as a country is well placed to adapt its inclusion programs to use technology as the primary driver. According to the Telecom Regulatory Authority of India (TRAI), India had about 1.145 billion mobile-phone users in 2022, implying that nearly 85% of the population had access. Tech for financial inclusion programs through the offer of mobile-based financial services have already effectively leveraged the scale of mobile penetration to offer access to a broad range of financial activities for consumers through their mobile phones, where network airtime or e-currencies are used over a mobile phone platform for a deposit, transfer of funds or credits, and payment of services, thereby offering a pathway and best practices for tech for sports applications.⁷

At the same time, technology is not a silver bullet. In particular, the digital divide, which is clearly seen in India, poses a challenge to utilizing technology for universal sport and PA. Access to devices and data remains unequal and often population segments that have limited access to sport and PA opportunities – e.g., rural women and girls – also suffer from limited access to technology. Digital literacy and skills play a crucial role as a lack of familiarity and exposure to technology can limit their efficacy in increasing access and usage. Thus, care must be taken to ensure that technology-led interventions are inclusively designed and that non-technological solutions are layered in parallel.

In India, both the understanding and recognition of PA and S4D approaches and the adoption of technology in driving inclusive and equitable sporting opportunities is

nascent. Historically, Indian decision-makers have viewed sports primarily as an outcome, measuring success by the achievements of athletes and teams at marquee events. Even today, our emergence as a ‘top sporting nation’ is a key pillar of the government’s vision of India at 100 in 2047.

Sport policy and practice at national and state levels mostly continues to prioritize sports excellence and does not envelop S4D and PA approaches. Promisingly, there are signs of change. States like Haryana and Odisha have pioneered and adopted a S4D approach, which is based on inclusion, equity, access, and participation alongside sporting success. While there is some traction in technology adoption for elite athletes, use of technology to promote access and participation is at a very early stage. Increasing awareness of approaches, models, and best practices will be crucial.

Our report is an initial step aimed toward bridging important information gaps and spreading awareness among sector stakeholders on the potential of technology to address barriers to sport and PA, with a primary focus on gender equality, along with other key intervention areas. First, it seeks to identify the role of and opportunities for technology-based solutions and approaches in driving inclusion in sports and PA – especially for excluded segments like women and girls, PwDs, and socio-economic minorities – and amplifying the power of S4D. Second, it seeks to develop high-level recommendations for a range of sector stakeholders – with the recognition that much more research and dialog is needed.

⁷ ‘Technology Application For Financial Inclusion’, Draft (India Brand Equity Foundation), accessed 17 June 2022, <https://www.ibef.org/download/Technology-Application-For-Financial-Inclusion-060212.pdf>. pg. 15

The key questions that this report explores are:

- What is the potential of PA and S4D-based approaches in India, and why are they needed?
- Who is excluded in India from access and participation in sport and PA? (In particular, the report will aim to shed light on three critical excluded segments – women and girls, PwDs, and socio-economic minorities.)
- What is the role of technology, and how can technological solutions help address barriers to inclusion in sport and PA? What else is needed beyond technology?
- What are some high-level actions that stakeholders can take for India to be a global leader in using technology to ensure a physically active and inclusive society?

The rest of the report is organized in the following way:

- *Chapter 2* | Sport for Development and Physical Activity landscape and challenges in India
- *Chapter 3* | Technology-based solutions, approaches, and opportunities
- *Chapter 4* | High-level recommendations



The Sports for Development and Physical Activity landscape in India

Introduction

In this chapter we aim to take stock of the status of S4D and PA in India. We first discuss the S4D stakeholder landscape and highlight major initiatives. It will then focus on PA trends, and review the current levels of access and participation, with a focus on excluded groups. The last part of this chapter articulates and assesses the main challenges and barriers that excluded groups face in accessing and fully participating in sports and PA.

S4D landscape

Although India has taken some time to recognize and utilize the potential of S4D-based approaches as an entry point and a tool for large-scale social development and change, it has shown much promise. For example, the implementation of sports and PA in school curriculum as a curriculum has led to good health in children and youth, higher grades in academics, and decreased psychological and mental ailments.⁸ Moreover, S4D initiatives have provided a platform to combine long term skill development like

communication, respect for the opposite gender and responsible decision making.

In recent years, as recognition has grown, there has been a rise in the number of organizations using S4D in their programs. These range from grassroots community-based organizations, international NGOs, public-sector actors, and companies. Public sector initiatives, such as the Khelo India program, are focused on infrastructure development and talent identification. Private sector actors, such as the Reliance Foundation, are involved in the development of sports infrastructure, talent identification, and the provision of financial support to athletes. NGOs such as Naandi Foundation and Magic Bus are focused on using sports as a tool for social development, imparting life skills, and promoting gender equity.

Two studies have comprehensively mapped the S4D landscape and trends in India. In 2014, Dasra, a strategic philanthropy foundation released a report titled 'Power of Play'. The report was an evaluation of 70 S4D organizations across India and highlighted the transformative impact of the S4D sector. More recently, a study conducted by UNESCO New Delhi and Pro Sport Development was carried out with an intent to understand the S4D sector in India in further detail. The relevant findings and main observations from these reports have been referred to in this chapter.

⁸ Piñeiro-Cossio J, Fernández-Martínez A, Nuviala A, Pérez-Ordás R. Psychological Wellbeing in Physical Education and School Sports: A Systematic Review. *Int J Environ Res Public Health*. 2021 Jan 20;18(3):864. doi: 10.3390/ijerph18030864. PMID: 33498317; P MCID: PMC7908239.

Stakeholders

Table 1: The S4D sector in India involves a diverse range of stakeholders, including international agencies, government bodies, private organizations, non-profits, and individuals.⁹

S4D Stakeholders	Role in S4D Ecosystem	Examples
International Organizations	<p>Such agencies provide technical expertise and assistance, capacity building, and resources to local organizations, government agencies, and communities to design and implement effective S4D programs.</p> <p>They also provide guidance on monitoring and evaluation to measure the impact of S4D interventions.</p>	<p>Organizations like UNICEF, UNESCO, IOC and WHO have worked towards achieving different S4D objectives such as increasing physical activity levels, promoting gender equality, enhancing social inclusion etc.</p>
Government	<p>The government, primarily, has a strong beaconing and agenda-setting role to play, which can set the stage and enable the engagement of other key stakeholders (e.g., engaging private companies to spend their CSR budgets on S4D outcomes).</p> <p>The government has also brought in legislation to ensure that additional funding is secured for sport through CSR. Section 135 of the Companies Act makes it mandatory for companies having net worth of rupees five hundred crore or more, or turnover of rupees one thousand crore or more or a net profit of rupees five crore or more during any financial year to formulate a CSR policy. Additionally, Schedule VII of the Indian Companies Act 2013 includes “training to promote rural sports, nationally recognised sports, Paralympic sports and Olympic sports” as activities that can be included by companies in their CSR policies.¹⁰</p> <p>Central and state governments have started promoting sport to achieve development goals, including improving health and well-being, promoting gender equality, and providing access to education and training opportunities.</p>	<p>S4D schemes and initiatives have been launched by the Ministry of Youth Affairs (MYAS), Sports Authority of India (SAI) and State governments.</p> <p>States like Haryana and Odisha have pioneered and adopted a S4D approach, which is based on inclusion, equity, access, and participation alongside sporting success.</p> <p>In 2016, the government also expanded the obligations under CSR for sports to include “<i>construction, renovation, maintenance of stadiums, gymnasiums and sports science support including rehabilitation centres</i>” as permissible CSR activities. A Committee</p>

⁹ Pawan Mathur, Corporate Social Responsibility and Sports in India: The State of Play, New Delhi Times (January 18, 2021), <https://www.newdelhitimes.com/corporate-social-responsibility-and-sports-in-india-the-state-of-play/>

S4D Stakeholders	Role in S4D Ecosystem	Examples
	<p>The government has also started to promote sports for social inclusion, with initiatives that seek to make physical activity accessible.</p>	<p>set up by the government a few years ago also recommended that Schedule VII of the Companies Act be mapped and aligned largely with the SDGs.¹¹</p>
Corporations	<p>S4D approaches offer companies innovative ways to interact and engage communities of interest and enhance brand and reputation at both national and hyper-local levels.</p> <p>Firms have been involved in promoting S4D, especially through their CSR initiatives. Investing in sports through CSR can be a competitive brand differentiator and enhances brand visibility. It generates good will for the brand generates and builds deeper consumer and community engagement.</p> <p>By formulating and executing S4D initiatives, some companies may also tap into the research and data gained from such initiatives to develop new business lines (like wearable technologies, home fitness products, and meal and calories tracking apps) and expand their customer base.</p>	<p>Prominent public and private companies have been investing in or executing various S4D and PA-focused initiatives such as building community sports infrastructure, promoting sport among the youth, promoting local and tribal sports, and training, and talent development, through CSR activities.</p>
Non-Governmental Organizations (NGOs)	<p>NGOs are often well placed to ensure effective implementation of sports-based initiatives at the grassroots level. They act as the primary delivery agents of the initiatives on the ground and act as intermediaries between various stakeholders.</p> <p>In India, many NGOs have come up over the last decade and have been working on-ground with a focus on promoting sports for: education, health, gender equality, youth empowerment, community development, inclusion, etc.</p>	<p>Some prominent NGOs in the S4D space in India are: Magic Bus, Slum Soccer, Naandi Foundation, Shreeja India, School of Football Excellence (SoFE), Monkey Sports, Pro Sport Development (PSD) – all of which use sport and PA activity-based approaches to impart key life skills and development outcomes.</p>
Academic Institutions and Think Tanks	<p>Academic institutions and think tanks are essential for conducting research, creating awareness, and informing policy decisions related to S4D initiatives.</p>	<p>The National Sports University is the first Central University to be set up in India to focus on</p>

¹¹ Company Law Committee Report on CSR, Ministry of Corporate Affairs (Aug. 2019), https://www.mca.gov.in/Ministry/pdf/CSRHLC_31082019.pdf.

S4D Stakeholders	Role in S4D Ecosystem	Examples
	<p>Such organizations provide evidence-based research, analysis, and recommendations to inform policy and programming related to S4D. They also conduct necessary research surveys to evaluate the effectiveness of S4D interventions, identify best practices and develop innovative approaches to promote S4D.</p> <p>They also bring together researchers, practitioners, policymakers, and other stakeholders to share knowledge, build capacity and develop collaborative initiatives to promote S4D.</p>	<p>sports education. It also has a School of Interdisciplinary Studies which focuses on S4D, among other things.</p>
<p>Philanthropy and Individuals</p>	<p>Individuals and philanthropists provide support to S4D initiatives in India, either by donating directly to an organization or by supporting the development of specific projects or programs.</p> <p>They can use their influence and networks to help build support for S4D initiatives among key stakeholders.</p> <p>Many individuals and philanthropists with a background in sports also serve as mentors and coaches for young athletes, and design S4D programs and initiatives.</p>	<p>An individual-led example is Run with Roshi - an initiative to promote running and physical fitness among girls and women in the Northeast.</p>

Geographies

S4D programs are implemented among diverse geographies within the States in which they operate. Research in S4D in India is primarily driven either by those organizations implementing programs on the ground, or funders who are based outside the country. In the UNESCO-Pro Sport Development study, out of a total of 48 S4D organizations that responded to a survey, 50% reported running programs based in New Delhi. Other states with high levels of S4D programming and activities were Maharashtra, Rajasthan, Karnataka, and Uttar Pradesh.

Programs were evenly distributed across urban, semi-urban, and rural locations. Thirty-seven percent of respondent organizations from the same study stated that they worked in rural regions, 34% stated they operate in semi-urban areas, while 29% said that they work in urban areas. Further, it was observed that football was by far the most popular sport for S4D programs in India, with more than half of the respondent organizations using it within their programs.

Themes and target groups

S4D programming in India has become increasingly cognizant of aligning with the SDGs, along with complementing several government initiatives and policies. S4D initiatives come in various forms – from those that seek to build personal and social programs around sport, to those that include sport as one of the many approaches to achieving social and developmental goals. The UNESCO-Pro Sport Development study revealed the major focus areas of S4D organizations in the country, with the most prominent themes being meaningful youth empowerment and promoting gender equality, followed by enabling education and promoting good health and well-being. The SDGs targeted by S4D organizations have also been reflective of the thematic focus, with most utilizing sport to enable outcomes pertaining to SDG 3: Good health and well-being, SDG 4: Quality education and SDG 5: Gender equality.

Funding sources and challenges

S4D initiatives in India are usually funded by a combination of government, NGO, private sector, and international sources.

- The government offers a source of funding for some S4D schemes and initiatives in India. However, the main objective behind government funding towards sport is with an intent towards elite performance and quantifiable success. For instance, in 2023, the total allocation for the Department of Sports in India stands at INR 2,462 crore. Khelo India, the flagship sports development program received a major portion of this budget with INR 1045 crore.

Figure 2: SDGs commonly linked to sport and PA



It is important to note that the increased allocation towards Khelo India may have to do with the preparation of elite athletes for the upcoming Asian Games and the 2024 Paris Olympic Games. The Sports Authority of India received an amount of INR 785 crore towards its activities which include conducting national preparatory camps, providing sports infrastructure, equipment, and appointing coaches. INR 325 crore was set aside for the functioning of the various National Sports Federations, with anti-doping agencies getting a budget of a few crores.¹²

The share of the budget towards National Sports Federations has increased in the last decade. While sports budgets have kept increasing over the years, the allocated funds are still used primarily to prepare elite athletes for competitions abroad and for holding national and international sports competitions. There are no specific budget heads for S4D initiatives that are necessary for furthering developmental goals in addition to instilling a sports culture that promotes healthy living and an active lifestyle.¹³

- Schedule VII of the Indian Companies Act, 2013 recognizes contribution to sports as a permitted CSR activity. While some companies contribute to sports CSR activities, sports as a CSR category routinely ranks lowest in terms of received funds. Initial estimates from a study by Pacta and the Sports and Society Accelerator indicated that sports CSR (INR 1,520 crore) comprised about 1% of cumulative CSR spend between 2014-15 and 2020-21. This is in line with the

historical framing of sports in India where sports CSR continues to be viewed as an outcome, related primarily to elite performance.

- NGOs in India working on S4D projects receive funding from sources including private sector companies, international development agencies, philanthropic foundations, and trusts. There are also some foundations which support S4D initiatives in India. For instance, the Michael and Susan Dell Foundation provides funding to Magic Bus India to implement its sports-based mentoring program for underprivileged children. Similarly, the Azim Premji Foundation supports S4D initiatives in education and health through sports.

Regulatory factors can also play an important role when it comes to funding sources – as an enabler. For instance, as noted above, the inclusion of sports as a legitimate CSR activity opened the door to corporate funding in sports infrastructure (albeit through the prism of elite performance).

¹² Rakesh Rao, Sports Budget 2023: Massive boost for Khelo India takes allocation to a new high, The Hindu (Feb. 1, 2023), <https://www.thehindu.com/sport/sports-budget-2023-massive-boost-for-khelo-india-takes-allocation-to-a-new-high/article38243341.ece>.

¹³ Aman Dhall, Decoding Budget 2023: India must progress with purpose to khelo by design, Times of India (Mar. 28, 2023), <https://timesofindia.indiatimes.com/blogs/pull-and-hook/decoding-budget-2023-for-india-to-khelo-by-design/>.

Prominent S4D initiatives in India (Fig 3):

International organizations

The International Olympic Committee (IOC), through its Olympic Solidarity program supports National Olympic Committees (NOCs) in developing countries, including India, by providing financial and technical assistance for sports development. In 2019, UNICEF launched the first global literature review on S4D – Getting into the Game – which found that sport can be a positive factor in key areas of children’s lives. UNICEF has also partnered with state governments, NGOs, and sports organizations to implement S4D initiatives in India. In 2022, for World Children’s Day - UNICEF’s annual day of action for children, the main theme centered around using sports as a powerful means to promote inclusion, and events were organized in India to promote the same.

Government

Any serious attempt to address the population-scale inadequacies in fitness, physical aptitude, and activity levels, let alone sporting achievement, must find space primarily in education systems and institutions. To this end, the National Education Policy (2020) launched by the Government of India notes the pedagogical power that sport can possess and recommends the use of sport as a larger developmental tool for children and youth. The MYAS also launched the Khelo India initiative which aims to improve the health and well-being of young people and create opportunities for them to receive quality education and training. In fact, the Khelo India

scheme consists of twelve verticals out of which one is focused on S4D.¹⁴ The government has also launched other initiatives to promote sports and physical activity such as the Fit India Movement, which aims to encourage people to make physical activity a part of their daily lives.¹⁵

At the state level, the Government of Odisha has set-up several high-performance centers in hockey, football, athletics, etc. in partnership with corporates under a public-private partnership (PPP) model. Odisha also has some of the best sporting infrastructure in the country, right from the grassroots level - creating an all-inclusive and accessible sports ecosystem. Haryana launched the Play 4 India initiative for schools that made it mandatory for all ongoing school children to participate in at least one sporting activity. Haryana has also invested deeply in developing decentralized sporting infrastructure by building and maintaining 171 block-level stadiums to encourage communities to participate and prioritize sport and PA in their lives and increase sporting opportunities for children and athletes.

Private sector

The demand to be socially responsible has become important for private sector organizations in the business world. Sport, being a universal language, plays the role of a catalyst at the community level, thus fueling the growth of corporate interaction in sport. Globally, CSR programs related to sport have provided global brands an opportunity to be an agent for change, in addition to furthering the growth and legacy of the brand itself. Indian private sector entities have also started

¹⁴ Government of India. (2021). Khelo India Scheme. Retrieved from <https://kheloindia.gov.in/>

¹⁵ Government of India. (2021). Fit India Movement. Retrieved from <https://www.fitindia.gov.in/>

to reinforce their “community” associations and focus on societal initiatives through sport. In India, the Tata Group has adopted S4D approaches focused on increasing access and participation at the individual and community level. They have sought to promote a culture of health and fitness with initiatives like the Tata Mumbai Marathon and the World 10K Bengaluru. JSW Sports has allowed athletes to access high-class training, equipment, and gives regular exposure to international tournaments. They also focus on traditional sports with the conducting of coaching camps and brings together corporate donors who collectively fund the operations of the India’s first privately funded High Performance Centre.

Non-Profits

Magic Bus’s sports-based curriculum covers various aspects such as education, health, and life skills, and is designed to engage children and youth in activities that promote holistic development. The organization has also developed a “Mentoring Through Sport” program that uses trained mentors to guide children through various life stages and help them develop critical thinking and leadership skills.¹⁶ Another organization, Slum Soccer, uses football to promote community development and social inclusion in urban slums. The organization has trained over 16,000 young people in football and life skills and has helped many of them secure jobs and scholarships. Slum Soccer’s programs focus on education, health, and community development, and are designed to create positive social change in the communities it serves.¹⁷

Academic and research institutions

Two academic institutions, one each in the field of sports coaching and physical education, are functioning under the Sports Authority of India, namely the Netaji Subhas National Institute of Sports (NSNIS), Patiala, and the Lakshmbai National College of Physical Education (LNCPE), Thiruvananthapuram. Universities like Jadavpur University have courses and ongoing research on the history and culture of sports as well as focusing specifically on gender perspectives in sports. The National Institute of Sports has a ‘Come and Play’ scheme which seeks to impart coaching to beginners to encourage mass participation in sports and for optimum utilization of available sports infrastructure.

Physical activity landscape

As noted, universal access to sport and PA is fundamental to sporting excellence and S4D outcomes. Historically, sport in India has been seen through a narrow lens with an objective of attaining medals, endorsements, government jobs and social status. In the last several years however, while elite sport remains a key focus, sport and physical activity as a mainstream intervention is gaining traction, even though it’s preliminary and needs to be built upon.¹⁸

Profile

Inadequate PA is a global problem. According to the WHO’s latest global report, 81% of adolescents and 27.5% of adults

¹⁶ Magic Bus. (2021). Our Impact. Retrieved from <https://magicbus.org/our-impact/>

¹⁷ Slum Soccer. (n.d.). Our work. Retrieved from <http://www.slumsoccer.org/our-work/>

¹⁸ Tandon, Suheil F. "Acknowledging the Flipside of Sport: Strengthening the S4D Sector's Impact in India." sportanddev.org, February 25, 2020, <https://www.sportanddev.org/en/article/news/acknowledging-flipside-sport-strengthening-s4d-sectors-impact-india>

currently do not meet its recommended levels of physical activity. It is also universally acknowledged that participation rates in sports and active recreational activities are lower for women than for men.

Indians are more sedentary and less physically active than they should be. According to a 2021 study, 20% and 37% of the adult population in India were estimated to be inactive or mildly active, respectively, implying that 57% of the surveyed population did not meet the PA regimen recommended by the WHO (150 minutes of moderate-vigorous PA per week). Physical inactivity was found to be significantly more common in urban areas of the country as compared to rural areas (by 8.2 percentage points) – likely driven by divergent lifestyle patterns, e.g., rural adults' work is often active, at least relative to the largely sedentary jobs in urban settings.¹⁹

Rapid urbanization, economic development, and inactive lifestyles have contributed to an increasing number of non-communicable diseases (NCDs). Many NCDs, such as coronary artery disease, hypertension, diabetes, breast, and colon cancer, can be prevented and treated by regular PA.²⁰

An earlier study by WHO conducted in 2016 (see chart below) showed comparatively lower levels of inactivity in adults (44% for men and 25% for women). While this may point to methodological differences in data collection, it may also imply that PA levels decreased among Indian adults. More concerning, the WHO study also showed that about three-quarters of our adolescents (76% of females and 72% of males) were inadequately active, underscoring the intergenerational aspects of the challenge and the need for rapid systemic changes.²¹

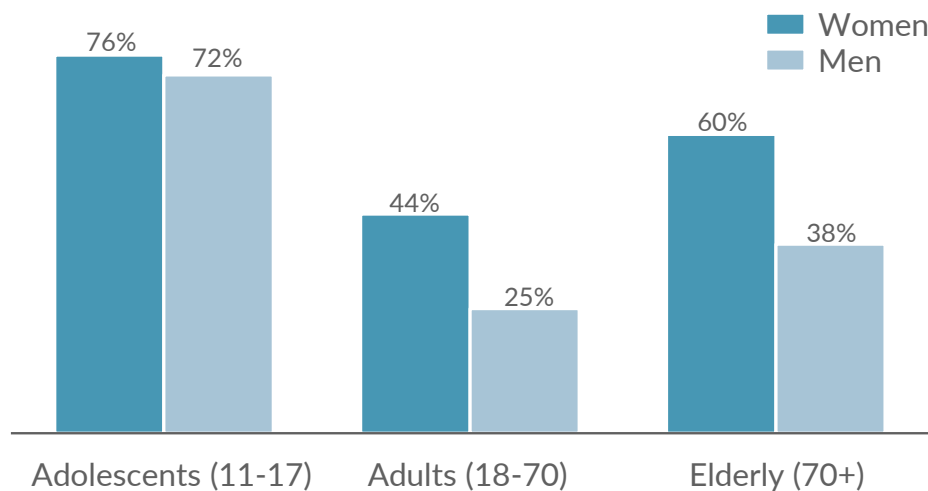


Figure 4: WHO 's PA profile for India (% , 2022)

¹⁹ Podder V, Nagarathna R, Anand A, Patil SS, Singh AK, Nagendra HR. Physical Activity Patterns in India Stratified by Zones, Age, Region, BMI and Implications for COVID-19: A Nationwide Study. *Annals of Neurosciences*. 2020;27(3-4):193-203. doi:10.1177/0972753121998507

²⁰ Ibid.

²¹ World Health Organization, '[Physical Activity Profile 2022: India](#)', 2022

It is likely that the situation has worsened because of COVID-19. First, the pandemic reduced access to physical activity avenues and sporting opportunities across the board. During the worst phase of the pandemic, several lockdowns were imposed, and public health orders curtailed movement outside the home. Secondly, strict directives were also implemented which led to the closure of, or limited access to, gymnasiums, swimming pools, public parks, and other infrastructure required for sport and PA. Thirdly, people had to deal with additional responsibilities at home with respect to taking care of children, parents, sick patients, etc. which meant that there was less time for physical activity even if there was access. Fourthly, low-income groups had to grapple with the loss of work and livelihoods, and many of them returned to their homes, thereby meaning less time and resources for PA, during and after the pandemic. While numbers are hard to come by, especially for India, a global meta study of the literature on the impacts of COVID-19 on people's outdoor PA and sedentary behavior that was published in the *Journal of Global Health* showed that the pandemic was linked with significant decreases in mobility, walking, and physical activity, and increases in sedentary behavior like TV watching.²²

Specific groups, especially women and girls, have been historically excluded and are even more disadvantaged than the general population:

Women and girls: In the Indian context specifically, trends depict a mixed bag of progress and challenges. On one hand, we

witness an enhanced interest in sports, health, and fitness among urban women and girls. There is a growing cultural acceptance and enthusiasm towards women's participation in various sports such as cricket, boxing, and wrestling, driven in part by the success stories of sportswomen across multiple sports and at domestic and international arenas. Yoga and aerobics classes have become increasingly popular, with women constituting a significant percentage of the attendees, in particular new participants. On the other hand, the data that exists, and it should be noted that there is a lack of robust gender-disaggregated data in this sector in India, gives us a clear picture of the disparities.

According to a 2017 survey conducted by the India Yoga Association, a greater share of women (61%) did not meet the WHO standard than men (53%).²³ Moreover, studies have shown that the disparities start at a young age and only get exacerbated over time. A study by EduSports, an initiative of the sports organization Sportz Village, indicated that over 75% of school children in the country stop participating in any organized sport or PA by the time they enter middle-school or adolescent years, with higher attrition for pre-teen and adolescent girls, even though global participation of young women in sports is increasing.

A study conducted among 15–17-year-olds in 27 states found that 25% did not meet moderate-to-vigorous PA guidelines – with a higher proportion of girls (~30%)

²² Park AH, Zhong S, Yang H, Jeong J, Lee C. Impact of COVID-19 on physical activity: A rapid review. *J Glob Health*. 2022 Apr 30;12:05003. doi: 10.7189/jogh.12.05003. PMID: 35493780; PMCID: PMC8979477.

²³ Physical Activity Patterns in India Stratified by Zones, Age, Region, BMI and Implications for COVID-19: A Nationwide Study, Vivek Podder, Raghuram Nagarathna, Akshay Anand, Suchitra S. Patil, Amit Kumar Singh, and Hongasandra Ramarao Nagendra, *Annals of Neurosciences* 2021 27:3-4, 193-203

insufficiently active.²⁴ Furthermore, data collection for the 2022 India Report Card on Physical Activity for Children and Adolescents found significant gender differences with 35.6% of females meeting moderate to vigorous physical activity guidelines compared to 45.8% of males.²⁵ The 2022 Report Card specifically notes: "...consistent evidence of inequitable physical activity access for girls in comparison with boys in India." In general, older women are less active than younger women and the gap in activity levels between men and women increases with age.

PwDs: According to the 2011 Census of India, about 2.2% of the total population is affected by disabilities – which means that today there are about 30 million PwDs in the country. It is very likely that this figure is a conservative estimate given ‘disability’ can be interpreted in many ways and can cover a wide range of impairments (many of which are hard to measure) and because data collection in this area has historically been challenging.

Women with disabilities account for about 44% of the total population of PwDs. About 17% percent of PwDs fall in the 10-19 age group, accounting for the highest number and share of PwDs relative to other age segments. Sixty-seven percent of PwDs live in rural areas, typically facing greater barriers to access of products and services, including those related to sport and PA.²⁶

There is currently a dearth of publicly available all-India data that tracks and provides a clear view of the PA status and level of access and participation of PwDs in sports and PA. Even in its absence we can reliably posit that access is low, extrapolating from data on other socioeconomic indicators:

- The 2011 census showed that 39% of adolescent PwDs were not attending schools at the time. Fifty-four percent of the disabled children with multiple disabilities never attended educational institutions. Given children often depend upon their schools to get access to PA facilities, training, and opportunities, it can be surmised that a significant share of children with disabilities that do not attend schools also suffer from low levels of PA and access to PA facilities.
- The 2018 National Statistical Office (NSO) survey showed a labor force participation rate of 24% for PwDs over the age of 15. It is likely that without access to sustainable livelihoods many of these PwDs may lack the means and income to access and participate in PA.
- PwDs in India are limited in their access of public buildings, spaces, and transport – again suggesting that their access to sport and PA facilities is likely to be even lower. As part of the Accessible India Campaign, more than two years after the launch of the campaign in 2018, only 3% of public buildings were accessible, according to

²⁴ Mathur P, Kulothungan V, Leburu S, et al. Baseline risk factor prevalence among adolescents aged 15e17 years old: findings from National Non-communicable Disease Monitoring Survey (NNMS) of India. *BMJ Open*. 2021;11(6), e044066. <https://doi.org/10.1136/bmjopen-2020-044066>.

²⁵ Jasmin Bhawra, Anuradha Khadilkar, Ghattu V. Krishnaveni, Kalyanaraman Kumaran, Tarun R. Katapally, The 2022 India Report Card on physical activity for children and adolescents, *Journal of Exercise Science & Fitness*, Volume 21, Issue 1, 2023, Pages 74-82, ISSN 1728-869X, <https://doi.org/10.1016/j.jesf.2022.10.013>.

²⁶ 'Persons with Disabilities (Divyangjan) in India – A Statistical Profile', Ministry of Statistics Programme Implementation, National Statistical Office (2021). https://www.nhfdc.nic.in/upload/nhfdc/Persons_Disabilities_31mar21.pdf

the Department of Empowerment of Persons with Disabilities (DEPwD).²⁷ According to the 76th round of National Sample Survey (NSS) conducted in 2018, among PwDs who were surveyed and had used public transport in the 365 days preceding the survey, 67.1% of them had faced difficulties in accessing or using public transport.²⁸

Socio-economic minorities: Global evidence has generally shown that non-work PA is significantly lower in ethnic minorities relative to the dominant ethnic group (e.g., blacks versus non-Hispanic whites in the United States of America).²⁹ In India, there is limited available data that provides specific insights into the PA status of socioeconomic minorities such as Scheduled Castes (SCs) and Scheduled Tribes (STs). In general, the large disparities that many from these communities suffer relative to other segments in terms of access to resources, opportunities, and infrastructure, are only likely to be magnified when it comes to sports and physical activity.

Overarching challenges

There are several overarching challenges and barriers that prevent universal access to and participation in sports and PA in India. Various factors contribute to this trend, including lack of awareness, access, and infrastructure, as well as cultural norms and values that do not prioritize physical activity. There are obstacles in the urban home, with sedentary lifestyles and gadgets occupying huge amounts of time, crowded living environments providing little space to play, and cultural attitudes to PA and sport also causing friction. The unstructured growth of sport in India has also meant that access to physical activity and sporting opportunities remains grossly unequal for marginalized groups, low-income (often rural) families and communities, minorities, SCs, and STs.

We highlight cross-cutting and common challenges in the following table. It is important to note that these factors are interrelated and often reinforce each other, creating significant additional hurdles for these groups.

²⁷ 'With just 3% of India's buildings accessible, our disabled are at a huge disadvantage', Hindustan Times (2018). <https://www.hindustantimes.com/editorials/with-just-3-of-india-s-buildings-accessible-our-disabled-are-at-a-huge-disadvantage/story-Rh2rd4QzNzw9kHpmaTPV1H.html>

²⁸ <https://www.moneycontrol.com/news/trends/lifestyle-trends/opinion-in-india-there-are-too-many-barriers-for-persons-with-disabilities-9683101.html>

²⁹ Saffer H, Dave D, Grossman M, Leung LA. Racial, Ethnic, and Gender Differences in Physical Activity. *J Hum Cap.* 2013 Winter;7 (4):378-410. doi: 10.1086/671200. PMID: 25632311; PMCID: PMC4306423.

Table 2: Cross-cutting challenges for PA and sports in India

Challenge	Description
Awareness and mindsets	<p>In general, there is inadequate awareness, recognition, and education about the importance of PA for overall physical and mental health and wellbeing. It is prevalent across individuals and communities, public and private institutions, and the media. Even if recognition is there, many people in India may not know how to easily access and participate in sports activities and programs. Critically, parents in India may often prioritize academic achievement over physical activity for their children, driven partly by a perceived lack of future livelihood and employment opportunities from sport.</p> <p>Constraining social attitudes and practices make it especially difficult for marginalized groups to access physical activity avenues. Girls and women are often prevented from participating in a sport if the sporting environment is perceived to be unsafe. This reinforces the existing inequality and patriarchy which is deeply ingrained in Indian society. In some communities, women are expected to prioritize household duties over sports, while persons with disabilities may face physical barriers or stigma that prevent them from participating in certain activities.</p> <p>S4D initiatives and the sports sector in general needs to increase focus on safeguarding and protecting young people, particularly women so that they can freely pursue a sport.</p>
Affordability	<p>With many sport facilities located in rich urban areas, rural and low-income populations, especially children, who want to pursue sports or access PA avenues are at a disadvantage. A significant share of Indians is unable to afford the costs that are often associated with participating in sports and fitness activities, e.g., memberships, equipment, coaching, travel, and enrolment in sports competitions.</p>
Physical infrastructure (access, accessibility, availability, quality)	<p>While there has been promising growth in the development of sporting facilities and infrastructure for athletes in recent years, there is a strong need and opportunity in developing infrastructure and facilities in schools and within communities to enable citizens to play and be active throughout their lives, especially in rural areas. Moreover, adequate resources and planning will be critical to ensure that facilities, once developed, are maintained, and upgraded periodically. At the same time, there needs to be a parallel focus on broader enabling infrastructure such as road networks, safe and affordable transportation (especially for women and girls) to enhance and improve access and promote greater usage.</p>
Training, coaching, capacity building (access, availability, quality)	<p>Coaches and trainers play a vital role in generating beneficial outcomes for children as they can instil positive behavior and act as role models. They are especially critical for lifelong engagement and improvement in sports and physical activities. Currently there is a lack of high-quality coaching talent, approaches, and facilities other than in specific sports like cricket and for high-income segments living in urban areas.</p>

Challenge	Description
	<p>Moreover, stakeholders involved in creating and implementing S4D initiatives need to understand how sport can best be used as a tool for positive outcomes, for which careful planning and meticulous program design is needed. To achieve such positive outcomes, the programs and implementation plans of S4D initiatives must be designed in line with specific objectives, such as education or empowerment. The S4D sector in India needs to come together and work together to share best practices, tackle common issues, and ensure a better flow of information and resources.</p>
<p>Policy and governance</p>	<p>Most policies also focus on promoting performance and elite sport over mass participation for health and physical activity. There needs to be smooth collaboration between the various stakeholders of S4D including governments, researchers, and practitioners, among others.</p> <p>While strengthening CSR policies is a necessary step towards boosting S4D initiatives, other innovative policies must be explored. For instance, the government can provide grants to private sector organizations that invest in sports infrastructure development. The grants can cover a portion of the cost of construction or renovation of sports facilities and can be tied to performance metrics like the level of community engagement. Tax exemptions could be explored for S4D investments, which can make such projects more financially attractive. For sports education and training purposes, attractive subsidies can cover a portion of the cost of hiring trainers, coaches, or instructors, which can be tied to performance metrics. PPP models for investing in S4D initiatives may also be considered, which can provide private sector organizations with access to government resources, expertise, and networks, which assist them with their business.</p> <p>Priorities for what S4D can and should achieve, along with appropriate methods to carry out these steps, need to be mutually agreed upon.</p>
<p>Funding</p>	<p>Although the Indian Companies Act 2013 saw fit to inject a boost of private sector funding into CSR for sports, coupled with other priorities for most government organisations and the ever-present voluntary nature of most S4D organisations, the funding required to keep these programmes operational and to expand these programmes remains challenging. Currently, 8% of S4D programs receive funding from the government.</p> <p>A rise in investment in inclusion for sport has been noticed mostly in the urban areas where schools and other educational facilities are located, thus putting children in rural areas at a disadvantage due to the inability to access these facilities with ease.³⁰ In a report that observes overcoming barriers to increase inclusion of rural children in sports education in India, one coach points out that despite financial assistance to support transport and food requirements of players, the</p>

³⁰ Anjali F. Agarwal, 'Inclusion of Rural Children Through Sports Education-A Case Study', accessed 17 June 2022, https://www.academia.edu/21098722/Inclusion_of_Rural_Children_Through_Sports_Education_A_Case_Study

Challenge	Description
	programme is still lacking funding to be able to secure participation in various state and national-level competitions. ³¹
Data collection, research, and reporting	<p>In general, awareness about the positive outcomes of sport and its power in effecting social change is at a nascent stage in India. This impacts the research being undertaken in the sports industry, with the same being restricted to commercial data primarily relating to elite sport and the consumption of elite sport by consumers.</p> <p>One of the main challenges is the lack of accurate data and research on the specific barriers faced by excluded groups. Few studies have been done in this regard and in many cases, data is not collected or reported in a way that captures the experiences of excluded groups, making it difficult to develop targeted interventions or policies to address their needs. Another issue is the lack of representation and participation of these groups in decision-making processes related to sport and PA. There is a need to develop more robust and comprehensive quantitative methods and effective evaluations that contribute to this body of knowledge.</p> <p>One upcoming initiative, <i>The State of Play in India</i>, by the Sports and Society Accelerator and Dalberg Advisors aims to work on fundamental data gaps in the ecosystem to spur and catalyse action among key stakeholders. The report, which is expected to release in February 2023, will conduct a multi-state mapping of physical activity levels among adolescents and adults and highlight the main barriers and motivators for physical activity. It will also undertake a comprehensive economic evaluation of the benefits of increased physical activity through drivers such as health and productivity. Initial findings suggest material benefits to the tune of at least US\$ 50 billion per year if every Indian was adequately physically active.</p>

Challenges for excluded groups

***Women and girls:* In the Indian context, being a girl or woman leads to exclusion in terms of access to opportunities and resources to advance in sports.** Studies have shown that, in India among other countries, the female gender is perceived by adolescent boys and girls to be associated with lower interest and/or engagement in physical activity. Even though India has seen a rise in

the number of elite female athletes at the international level, sport at the grassroots remains highly inaccessible to girls. Several other barriers limit participation in sport at the grassroots and school level, including availability of appropriate sanitation, funding for education and employment opportunities, etc.

Women face significant safety concerns when attempting to participate in PA or sport. This is attributable to various factors such as lack of

³¹ Agarwal, 'Inclusion of Rural Children Through Sports Education-A Case Study' pg. 8

safe transportation, risk of harassment or assault, or a lack of female-only sports facilities or female-only sports teams. Due to social pressures and gender stereotypes, more than half of the girls who begin to practice a sport quit as they reach puberty, a rate six times higher than the number of boys who quit. This is due to the fact many girls lose their self-esteem as they reach adolescence.

The relationship between sport and gender carries with it the transformative potential of sport to challenge or alter gender norms – the privileges and roles assigned to men and women by social convention. Traditional and conventional barriers to social participation have translated into similar experiences being observed in the S4D sector where despite the focus on women and girls, structural barriers are not being addressed appropriately.³²

PwDs: The Indian government has committed to improving access and availability of PA opportunities for its PwDs. It is a signatory to the UN Convention on the Rights of Persons with Disabilities, which includes the obligation to take appropriate measures to incentivize and improve sports-based social inclusion initiatives and approaches. The Convention specifically requires enabling PwDs to participate on an equal basis with others in recreational, leisure and sporting activities. In addition, the draft National Policy for Persons with Disabilities recognizes their right to participate in sports and PA on an equal basis with others and calls for the targeted development of PA infrastructure and facilities for PwDs, including accessible playgrounds, parks, and arenas.³³

However, Indian PwDs face numerous barriers rooted in social, economic, and environmental factors that shape their lives, locking many into a cycle of inactivity. One of the primary challenges faced by PwDs in India is a lack of accessibility. Inaccessible environments, such as buildings, parks, and public transportation, make it difficult for PwDs to engage in physical activity. The lack of accessibility not only limits their participation in physical activity but also their overall social inclusion and quality of life.

In addition to the lack of accessibility, societal stigma, and discrimination towards PwDs also pose significant challenges. Many people in India hold negative attitudes and beliefs towards PwDs, leading to social exclusion and marginalization. This exclusionary attitude also affects PwDs' access to physical activity, as they may face ridicule and harassment while trying to participate in sports or other physical activities. For example, PwDs are likely to face significant challenges in participating in sports due to negative societal attitudes and limited opportunities for adapted sports.

Another significant challenge faced by PwDs in India is the lack of information and knowledge about physical activity and its benefits. Many PwDs are unaware of the importance of physical activity and the different ways in which they can engage in it. Additionally, healthcare providers and fitness professionals often lack knowledge and training to provide guidance and support to PwDs.

One drawback in existing S4D programs targeting this section of society is the people designing these programs are able-bodied

³² Kay, 'Gender, Sport and Social Exclusion' pg. 93

³³ 'Public Notice Inviting Comments on the Draft National Policy for Persons with Disabilities' (Government of India, 2021), <https://disabilityaffairs.gov.in/upload/uploadfiles/files/Draft%20Copy%20New%20National%20Policy%20May%202022%20.pdf>.

individuals who perhaps may not fully comprehend the challenges associated that PwDs face daily.³⁴ The level of resources needed to sufficiently accommodate PwDs goes beyond simple inclusion measures because they also need to consider accessibility issues that may not be faced by able-bodied individuals. Unlike the general benefits of sports for inclusion, there exist certain negative beliefs regarding sports' health benefits that might also be impacted by lack of social support and pre-existing physical limitations.³⁵

In one study that recorded lived experiences of PwDs participating in sport, the researchers highlight the following: "As disabled people, we need financial incentives to participate more, and we do not have adequate assistive devices and suitable sports equipment. In addition, the grounds are poor and not user friendly for disabled people at all as they were never made with us in mind."³⁶ Therefore, a major challenge for PwDs with regards to inclusion in sports concerns not just limited access to participation, but also participation in sports as fans and general audience.

The power of sports as a transformative tool is of particular importance for women with disabilities who often experience discrimination based on gender and disability. It is estimated that only 7% of women with

disabilities are involved in sports, globally. Therefore, by improving the inclusion of PwDs, sports can help advance the SDGs. Women with disabilities face additional challenges due to attitudinal and social barriers faced by PwDs that also do not allow for early-age participation, even at grassroots levels.³⁷

Apart from certain negative perceptions associated with the participation of PwDs in sports, these women were also observed to have faced gender stereotypes as barriers to participation in sports.³⁸ One common barrier across programs targeting gender empowerment and PwDs is the lack of role models to emulate in most contexts because of a lack of media coverage, which is acutely noticeable in the case of persons with disabilities in sports.³⁹

The lack of adequate facilities or transportation methods to support those who may be lacking financial support is amplified for PwDs who need additional facilities to support their disabilities.⁴⁰ This stems from ignorance surrounding what is required to provide adequate facilities for PwDs along with environmental barriers that prevent the focus being shifted from 'simply being active' to competitive sports participation.⁴¹

³⁴ Kiuppis, 'Inclusion in Sport: Disability and Participation' pg. 11 and 12

³⁵ Tayo Moss, Trenton Joe Landon, and Allison Fleming, 'Sports and Disability: Enhanced Health, Self-Efficacy, and Social Inclusion Through Athletic Participation', *Review of Disability Studies: An International Journal* 13, no. 3 (September 2017), <https://www.rdsjournal.org>. pg. 2 and 6

³⁶ Kiuppis, 'Inclusion in Sport'.

³⁷ CDC, 'Disability and Health Disability Barriers | CDC', Centers for Disease Control and Prevention, September 2019, <https://www.cdc.gov/ncbddd/disabilityandhealth/disability-barriers.html>.

³⁸ 'Harnessing the Power of Sport for Development and Peace: Recommendations to Governments' (Sport for Development & Peace International Working Group, 2008), <https://www.sport-for-development.com/imglib/downloads/sdpiwg2008-harnessing-the-power-of-sport-for-development-and-peace-summary.pdf>. pg. 178

³⁹ 'Disability, Barriers and Encouraging Inclusion in Sports - Social Groupings and Participation in Sport - OCR - GCSE Physical Education Revision - OCR', BBC Bitesize, accessed 28 July 2022, <https://www.bbc.co.uk/bitesize/guides/zy62hv4/revision/4>.

⁴⁰ European Commission. Directorate General for Education, Youth, Sport and Culture. and ECORYS. pg. 14

⁴¹ European Commission. Directorate General for Education, Youth, Sport and Culture. and ECORYS. pg. 15

Socio-economic minorities: Discrimination based on caste and religion is a major issue in India. Considering the country's demographics and socio-political cultural make-up, its society faces extreme inequality and income disparity. This means that every citizen does not have an equal opportunity to participate in sport, avail themselves of sporting amenities, compete at a professional level, or acquire a sustainable future as a professional sports person.⁴²

Socio-economic minorities including SC/ST groups face discrimination and marginalization in society, which would also extend to the sports industry. For example, they may be subject to racial or caste-based discrimination by coaches, administrators, and other athletes, or they may have limited opportunities to compete at a high level due to such barriers. In India, rural children and schools in poorer neighborhoods largely have children from religious minorities and lower castes, whereas schools in elite localities mostly have children from upper castes.

The challenges when it comes to access to sport and physical activity in India are often intersectional, meaning they are compounded by multiple factors such as gender, economic status, religion, and caste. For example, women from SC/ST and minority communities may face additional barriers due to gender discrimination, cultural norms, and lack of access to safe and appropriate facilities. Additionally, individuals from these communities who also belong to lower socio-economic backgrounds may face additional financial barriers.

A few years ago, it was highlighted in a study that in the 85+ years since India attained Test status in Cricket, 290 different men had played Test cricket for India. However, only four belonged to SC/ST groups at that time. The study also highlighted that the spread of cricket to smaller towns had coincided with a significant increase in the number of Muslims playing for India, which was not the case before.⁴³ SC/ST groups and socio-economic minorities are often underrepresented in sports, both as athletes and as decision-makers in the sports industry. This lack of representation can contribute to a sense of exclusion and disengagement from sports, as well as limit the visibility and recognition of talented athletes from these communities.

Summary

S4D programs aim to enforce a social change that benefits all sections of society and leads to the betterment of society. However, there is a clear barrier when S4D programs are at the design phase of their execution that correlates to the requirement of a clear and coherent theoretical conception of these programs, an understanding of how and why such programs might be expected to work (and how they should be implemented accordingly).⁴⁴ To be able to link PA, competitive or casual, to benefits accrued through other social inclusion practices, means to understand what it means to achieve broader social inclusion while also working on specific consequences of social exclusion. At the heart of the foundation of sport for inclusion is a key element associated with

⁴² 'The Case for Industrialising Sports in India', The Wire, accessed 28 July 2022, <https://thewire.in/sport/sport-khelo-india-olympics>.

⁴³ Gaurav Bhawnani and Shubham Jain, "Does India Need a Caste-Based Quota in Cricket?" The Wire, 26 July 2018, <https://thewire.in/caste/does-india-need-a-caste-based-quota-in-cricket>

⁴⁴ Douglas Hartmann, 'Theorizing Sport as Social Intervention: A View From the Grassroots', *Quest* 55, no. 2 (May 2003): 118–140, doi:10.1080/00336297.2003.10491795. pg. 119

sport - participation. Barriers to participation in sport are often consequences of social exclusion - poverty, discrimination, lack of equal resources, etc., and thus the first step for inclusion is directed at encouraging participation and engagement in sport.⁴⁵

Another value of sport for inclusion is the element of camaraderie and its beneficial impact on health - both physical and mental. In the United Kingdom, sport is often used in youth-based programs to tackle crime by using sport as a means of channeling energy into something more productive and to engage with young people who may be hesitant to adopt other approaches.⁴⁶ Gaps that are relevant to S4D practices include low integration of sport in school curriculums and promotion of physical literacy⁴⁷; lack of professionally trained and qualified coaches that impacts future training for aspiring athletes; and limited research in sports sciences (like nutrition, psychology, medicine, and sports education).⁴⁸

While PA can empower women, it is essential to recognize that girls and women come from diverse backgrounds and face different challenges based on their intersecting identities. Therefore, efforts to promote sports for girls and PA for women must be inclusive and mindful of their contexts and work towards promoting diversity and inclusion. Families, communities, and policymakers must be educated about the benefits of PA for

women's physical and mental health, as well as their impact on leadership and empowerment. The need of the hour is to increase girls' confidence and empower them to become women leaders so that they can inspire other girls in their quest for independence and a brighter future. Sports and PA initiatives in general need to increase focus on safeguarding and protecting women so that they can freely pursue a sport.

Addressing the challenges and barriers raised above requires a multi-pronged approach that includes addressing discrimination, increasing representation, providing financial support, improving infrastructure, and addressing cultural barriers. There is a lot more that sport and PA can achieve for society and individuals, if suitably assisted with access and dissemination tools.

⁴⁵ Shawn H.E. Harmon, 'Gender Inclusivity in Sport? From Value, to Values, to Actions, to Equality for Canadian Athletes', *International Journal of Sport Policy and Politics* 12, no. 2 (April 2020): 255–268, doi:10.1080/19406940.2019.1680415. Pg 1

⁴⁶ Laura Kelly, "'Social Inclusion" through Sports-Based Interventions?', *Critical Social Policy* 31, no. 1 (February 2011): 126–150, doi:10.1177/0261018310385442.

⁴⁷ Nandan Kamath, Desh Gaurav Sekhri, and Shubham Jain, 'From Stasis to Movement: Actualising a Fundamental Right to Physical Literacy in India' (The Sports Law and Policy Centre, February 2022), [https://firebasestorage.googleapis.com/v0/b/slpc-website.appspot.com/o/Documents%2FPhysical%20Literacy%20Report%20\(final\).pdf?alt=media&token=880995fe-e370-4161-8a6d-d6dbb7f079a2](https://firebasestorage.googleapis.com/v0/b/slpc-website.appspot.com/o/Documents%2FPhysical%20Literacy%20Report%20(final).pdf?alt=media&token=880995fe-e370-4161-8a6d-d6dbb7f079a2).

⁴⁸ 'Chapter 11. Sport Sector - An India Economic Strategy To 2035 - Department of Foreign Affairs and Trade', 11. pg. 267

Technology-based solutions, approaches, and opportunities

Introduction

Technology has the potential to break down the barriers and materially increase participation in sport and PA. The use of technology influences how sport and activity is carried out, where it is played or experienced, the equipment used, how athletes, participants, and fans travel to and from activities and sports, and how it is covered by the media and enjoyed by sports fans from afar. Digital technology is increasingly playing a central role in facilitating the use of sport to advance development outcomes. For example, technology allows organizations across the globe to connect and exchange best practices in networks such as Common Goal or Laureus Sport for Good.

It contributes to the creation of affordable and durable sport equipment, such as the One World Futbol. It can increase access to sport for all, including through the development of assistive technologies, such as those, promoted utilized and provided by Motivation in the UK and Jumping Kids in South Africa.⁴⁹

In this chapter, we will explore how technology can be utilized to increase participation in sport and PA, particularly among underrepresented groups. We will examine a range of technological solutions that have been developed to overcome barriers to participation, such as virtual training programs, wearable devices, mobile applications, and online portals. Through this discussion, we aim to highlight the potential of technology to democratize access to sports and physical activity, improve health, and unlock other socio-economic outcomes for all.

Addressing key barriers

Technological solutions can be linked to specific challenges and barriers associated with sports and physical activity. These challenges cover a socio-economic spectrum, and therefore it becomes important to investigate through a two-fold framework. This includes linking types of technologies to different challenge areas and barriers; and their dimensions, i.e., (i) level of intervention, (ii) maturity of the technology (e.g., current, horizon, future).

The first level of this framework will look at connecting current barriers (identified through the course of the study) to different use-cases of technology and how they can be applied to address the barriers. The second level of this framework will further examine technology based on what level of intervention do they function at (e.g., individual, community, eco-system/national), and its stage of maturity (e.g., current, horizon, future).

⁴⁹ "Multistakeholder dialogue on the role of technology in advancing sport for development and peace," United Nations Department of Economic and Social Affairs (December 2020). <https://www.un.org/development/desa/dspd/wp-content/uploads/sites/22/2021/03/DraftSummary-SPORTMSD25Feb.pdf>

Table 3: Technology solutions to PA and S4D barriers - a framework

Challenge	Technology use-cases	Level of intervention	Maturity	Example
Awareness and mindsets	Social media	Individual at population scale	High	Social Media Platforms – Facebook, Twitter, Instagram, YouTube
Accessibility (infrastructure and facilities)	Remote Education; Non-Equipment Physical Activity; Technology for accessing facilities and infrastructure	Population scale	Medium	Mobile Applications: Khelo India, Playo, Fit India; Conventional technologies to access facilities
Affordability	Online classes; free-of-cost instructional videos	Individual at population scale	High	Training/Video websites like YouTube
Training, coaching, capacity building	Wearables, Tracking-based mobile applications	Individual	Low	Wearable watches; Mobile phone trackers; Compression vests, heart rate sensors
Policy and governance		Population scale	Low	-
Funding	Use of data for planning, monitoring, measurement	Population	Low	-
Data collection, research, and reporting	Self-reporting measures: Mobile applications, wearables	Individual	Low	Fitbit, Smart watches, Mobile phone applications

Awareness and encouragement

The first step is building up a level of collective awareness of the benefits of playing sport and partaking in physical activity. The primary barrier here is a lack of information – be it about the benefits of activity and fitness, where to locate and access facilities, playing areas, and communities, or how to play a sport. This, at a basic level, relates to attitudes and preferences.⁵⁰ Using pre-existing technologies like social media services, digital technologies have already shown that they can influence behaviors and actions and empower users to make informed decisions and expand the horizon of opportunities available to them.

Social media has become a huge driving force in establishing public opinion and reshaping the attitudes and beliefs of those that regularly use it.⁵¹ Along with creating awareness and changing minds, the COVID-19 pandemic has showcased the ease with which social media, and the internet in general, can help spread information. As a result, “in development contexts, digital technologies are used to create and share better information, including to raise awareness with regard to public health challenges in a participatory manner”.⁵²

At scale, the permeation of social media and internet technologies has the potential to drive population-level change. These technologies do function already at a relatively mature stage, with close to 600 million smartphone users in India, according to the latest numbers.⁵³ According to the Ministry of Information and Broadcasting, “along with very low data rates, this penetration of smart phones has resulted in users consuming high amount of information and entertainment via mobile devices.”⁵⁴

The Government of India has initiated several projects that rely on the use of Information and Communication Technology (ICT) to make relevant information accessible to all stakeholders in the process of playing and accessing sport. A lot of them rely on the large-scale use of mobile phones and their applications. These include the National Sports Repository System, Khelo India Mobile Application, Khelo India Fitness Application, Annual Calendar for Training and Competitions (ACTC) Portal and Fit India Mobile Application and Website/Portal.⁵⁵ These applications and portals have been crucial in accessing sports and PA at multiple levels – from the grassroots to elite athletes.

Similarly, outside the realm of sport, the Accessible India Campaign is also promoting

⁵⁰ ⁵⁰ Yen Sin Koh and others, ‘A Cross-Sectional Study on the Perceived Barriers to Physical Activity and Their Associations with Domain-Specific Physical Activity and Sedentary Behaviour’, *BMC Public Health*, 22/1 (2022), 1 <<https://doi.org/10.1186/s12889-022-13431-2>>.

⁵¹ Hirblinger, ‘Digital Inclusion in Peacemaking: A Strategic Perspective’. pg. 25

⁵² Hirblinger, ‘Digital Inclusion in Peacemaking: A Strategic Perspective’.

⁵³ Saurav Anand, ‘India Has over 1.2 Bn Mobile Phone Users: I&B Ministry’, *Mint*, 2022

<<https://www.livemint.com/technology/gadgets/india-has-over-1-2-bn-mobile-phone-users-i-b-ministry-11668610623295.html>> [accessed 12 March 2023].

⁵⁴ Anand, ‘India Has over 1.2 Bn Mobile Phone Users’.

⁵⁵ Government Recognises Role of Digital Technology Platforms in Promotion of Sports Culture: Anurag Thakur’, *ThePrint* (blog), March 2022, <https://theprint.in/sport/government-recognises-role-of-digital-technology-platforms-in-promotion-of-sports-culture-anurag-thakur/897258/>.

accessibility in websites, public documents and media content on TV while also working towards training of sign language interpreters.⁵⁶ Through this campaign, two different platforms were launched - the MIS portal in September 2019 and the Sugama Bharat App, a Crowdsourcing Mobile Application in March 2021. Through these two platforms, PwDs and those working and supporting them will be able to convey any grievances regarding accessibility issues and contribute to the overall crowdsourcing efforts that will allow for increased collaboration between agencies to address these issues faced by PwDs.

Research also suggests that virtual reality (VR) can prove to be an effective enabler to increase empathy, and engender greater appreciation for diversity in society, even at the subconscious level through immersive, and richly featured experiences. VR, as a mode of engagement, can introduce experiences remotely to imbibe a sense of empathy and responsibility, which can reduce implicit bias against genders and service to advance gender equality.⁵⁷ Applications of VR through applications, combined with other community-based experiences have not only been brought together experiences, but also people as such – connecting them through interactive communities globally, keeping users engaged, and encouraging people to stay connected through sport and PA.

Interventions at this scale, while remaining cognizant of community and individual-level

problems, do focus on population-level issues. For example, the Fit India Movement promotes fitness, spreads awareness about physical activity, and encourages indigenous sports.⁵⁸ The movement can only be furthered by technological interventions that have that existing reach. Additionally, efforts of awareness and encouragement begin on a national scale – to get everyone playing and active.

Access (Accessibility and Affordability)

The issue of access is two-fold in terms of accessibility and affordability. It views spaces and places to play as first and foremost being physically and socially accessible for everyone, as well as economically viable, in case they do require monetary resources. Technological interventions for this function at three levels.

The primary level relates to the barrier of information, but at an advanced stage of helping individuals make an informed decision and providing accurate information about places to play. Again, this can be seen through widely used mobile applications that have been developed by different stakeholders. At a Governmental level, the Khelo India mobile application serves this purpose. It is built for three main functions: an information hub about various sports, available sporting facilities and a way to assess

⁵⁶ 'Public Notice Inviting Comments on the Draft National Policy for Persons with Disabilities' (Government of India, 2021), <https://disabilityaffairs.gov.in/upload/uploadfiles/files/Draft%20Copy%20New%20National%20Policy%20May%202022%20.pdf>

⁵⁷ Gergana Mileva, 'How Virtual Reality Promotes Gender Equality,' *ARPost*, 2018 <<https://arpost.co/2018/09/07/how-virtual-reality-promotes-gender-equality/>> [accessed 12 March 2023].

⁵⁸ Government of India, 'Fit India - Be Fit', 2023 <<https://fitindia.gov.in/>> [accessed 13 March 2023]

individual fitness.⁵⁹ The application acts as a portal for access to local sporting facilities and playgrounds, thereby giving the opportunity to both learn how to play and know where to play. This is replicated at various individual levels as well – through mobile-based applications. For example, one application, available both online and in the form of a mobile application, helps individuals track and book local facilities to play, while simultaneously encouraging community-building through connecting people via its portal.⁶⁰ Both models act as portals towards a common end, but with different target users in mind.

On the second level, the discussion moves to the quality of access – both in terms of safe places to play, and accessible places to play. To cater to this, for PwDs, existing knowledge on integrating technology in sport is present in the development and application of assistive technology. This includes targeted interventions ranging from ensuring that sports facilities are inclusive of PwDs through to the construction of elevators and ramps, disabled-friendly bathrooms, and setting out clear-to-understand signage that indicates the layout of the facility.⁶¹ For example, “besides the wheelchair used to play power-football, the assistive technology-user on the field may also use ramps to access the venue, incontinence products to feel comfortable while playing and a pressure relief mattress to

recover properly for the next match. Similarly, a person who might use a prosthesis to access the sporting facility, might not need it during the sport’s performance itself but may need it again afterwards to celebrate their hard work and achievements with friends.”⁶²

Having accessible facilities in parks, grounds, and other venues where sports activities are conducted showcases a recognition of the gaps in social inclusion for PwDs and allows for perceptions and attitudes towards PwDs to change with an understanding and appreciation of these disadvantages accordingly.⁶³ Further, artificial intelligence (AI) can promote the inclusion of PwDs in sports by improving accessibility, autonomy, and mobility for PwDs through remote application of creative solutions. AI can be deployed in sports facilities to map data and information concerning the accessibility level of the facilities, identify infrastructural inadequacies which inhibit access, and generate remedies to efficiently and address the deficiency, and thereby help PwDs easily navigate inside the facilities. Such use of AI has seen application with navigation apps such as Google Maps, Wheelmap, Evelity and BillionAbles, which have features to help persons with disabilities navigate in public venues by, among other things, providing data and information regarding the accessibility level of public places; public places that accommodate the special needs of persons

⁵⁹ Government of India, ‘Khelo India’, 2023 <<https://kheloindia.gov.in/>> [accessed 13 March 2023].

⁶⁰ ‘Playo – Connect. Play. Track.’, 2023 <<https://playo.co>> [accessed 13 March 2023].

⁶¹ Tayo Moss, Trenton Joe Landon, and Allison Fleming, ‘Sports and Disability: Enhanced Health, Self-Efficacy, and Social Inclusion Through Athletic Participation’, *Review of Disability Studies: An International Journal* 13, no. 3 (September 2017), <https://www.rdsjournal.org>. pg. 7

⁶² Anastasia Campbell, ‘Promoting Engagement in Sport for Persons with Disabilities Through Assistive Technology’, *Ideas in ALL* (blog), August 2021, <https://www.ideasinall.com/promoting-engagement-in-sport-for-persons-with-disabilities-through-assistive-technology/>. pg. 3

⁶³ Harnessing the Power of Sport for Development and Peace: Recommendations to Governments’ (Sport for Development & Peace International Working Group, 2008), <https://www.sport-for-development.com/imglib/downloads/sdpiwg2008-harnessing-the-power-of-sport-for-development-and-peace-summary.pdf>.

with disabilities; and the layout and route maps of public venues to identify entrance, exit, parking spots, accessibility ramps and restrooms.⁶⁴

Other steps include adding assistive features on technological tools like computers and other digital devices/media that enable people with physical disabilities to continue to engage with the device/media without being inhibited by a limitation on any one of their senses.⁶⁵ Within this layer, technology that enables access to sporting infrastructure like elevators, ramps, and other conventionally inclusive technology functions at a systemic level, and is not exclusive to spaces of sport and physical activity.

Their application is far-reaching; however, improvements still can be made – both in terms of awareness and implementation. On a sporting level, technology also plays a fundamental role at the highest level, including the Paralympics. The technological advances include release braces that are used in archery as well as badminton/basketball wheelchairs, cycling track racing bikes, and tapping devices in swimming or running blades.⁶⁶ All these not only enable athletes to perform better, but they also encourage more people with disabilities to participate in sport, simultaneously fueling innovation. However, in terms of population-scale implementation, technology used at the Paralympics is limited in terms of access to well-funded countries.

Expanding our understanding of the quality of access is equally important. Especially when discussing affordability, technology has been a crucial vehicle in providing access through the effective use of remote education, drastically reducing the costs associated with accessing sports and physical activity, as well as expanding what we consider the playground. The online video-sharing platform YouTube is host to numerous free-of-cost instructional videos that focus on teaching the ways to play any sport out there, in addition to being easy reference points if the user wants to keep track of their physical activity journey. Furthermore, platforms like this are also useful in promoting adaptive sports, where people, especially with disabilities, are able to practice sport and physical activity in spaces that are comfortable.

This is only possible through enablers like the reduced cost of data and accessing the internet. The utility of technologies like the internet reduces the entry barrier to sport and physical activity, both in the way of affordability and accessibility.

Training, coaching, and data collection

There is an inherent divide not only in terms of access to infrastructure, but also the quality of access to sport and PA. There is a growing use-case for devices like

⁶⁴ Carole Martinez, 'Artificial Intelligence Enhances Accessibility for People with Disabilities', Inclusive City Maker, 2021 <<https://www.inclusivecitymaker.com/artificial-intelligence-accessibility-examples-technology-serves-people-disabilities/>> [accessed 13 March 2023]

⁶⁵ 'Discrimination in Sports: 5 Types, 25 Solutions | i-Sight', accessed 28 July 2022, <https://www.i-sight.com/resources/discrimination-in-sports-5-types-25-solutions/>.

⁶⁶ Jan De Bruyne, 'Technology at the 2020 Olympics and Paralympics – The Need for a Thorough Societal, Ethical and Legal Impact Assessment - CITIP Blog', 2023 <<https://www.law.kuleuven.be/citip/blog/technology-at-the-2020-olympics-and-paralympics/>> [accessed 13 March 2023].

wearables and other tracking devices such as compression vests, heart rate sensors, wireless electromyography (EMG) devices and metabolic-meters that are employed in professional sports to collect real-time player performance data for training and player development, fatigue and injury management and fan-engagement.⁶⁷ In addition, AI can not only be used for recruitment but also in a variety of other instances such as player performance, training and diet plans, coaching, healthcare, and injury management.

However, when drawing it down to an individual level, recent research suggests that activity trackers and smartphone-based tracking apps for movement, fitness, and health also have been permeating people's lives. It is understood that tracking applications also have become a novel way to resume movement for those who have felt alienated or turned off by high-intensity fitness classes or feel that they have failed at traditional exercise.⁶⁸ A prominent technological example that fits into this category is the Fit India mobile application. The application enables users to assess their fitness parameters through a series of simple tests and further get ways for the improvement of fitness on regular basis. Additionally, it consists of features like setting daily activity and fitness goals, activity

trackers, water intake, calorie intake and sleep tracker etc.⁶⁹ Insights from such application of the Internet of Things (IoT) devices and applications can further be leveraged to address the “data divide” for persons with disabilities participating in sports.

The data derived from PwDs' use of IoT devices and services can identify the physical stresses faced by persons with disabilities in the course of participation and enable the preparation of training methodologies and solutions specific to such challenges and impact policymaking.⁷⁰ Wearables and other tracking devices can help monitor the physiological effects of exercise for certain disorders and encourage physical activities while also forestalling overexertion and injury. For example, researchers employed wearable sensors to evaluate participants with cerebral palsy and discovered greater fatigue resistance in athletes with cerebral palsy due to their active participation in physical activity. These findings could be applied in the context of using sports as a rehabilitation tool for persons with cerebral palsy.⁷¹

⁶⁷ Deloitte LLP, *Internet of Things (IoT) in Sports* (2018) <<https://www2.deloitte.com/content/dam/Deloitte/us/Documents/consumer-business/us-cb-internet-of-things-sports.pdf>> [accessed 14 March 2023].

⁶⁸ Michelle L. Segar, 'ACTIVITY TRACKING + MOTIVATION SCIENCE: Allies to Keep People Moving for a Lifetime', *ACSM's Health & Fitness Journal*, 21/4 (2017), 8 <https://journals.lww.com/acsm-healthfitness/Fulltext/2017/07000/ACTIVITY_TRACKING___MOTIVATION_SCIENCE__Allies_to.6.aspx>.

⁶⁹ Government of India, 'Fit India - Be Fit'.

⁷⁰ Future of Privacy Forum, 'The Internet of Things (IoT) and Persons with Disabilities: Exploring Benefits, Challenges, and Privacy Tensions' (2018) <<https://fpf.org/wp-content/uploads/2018/05/Privacy-and-Accessible-Iot-Outline-with-Case-Studies-FINAL.pdf>> [accessed 14 March 2023].

⁷¹ Ashley N. Smith, 'A Review of the Physical, Societal and Economic Effects of Wearable Devices in Sports', *The Sport Journal*, 2021 <<https://thesportjournal.org/article/a-review-of-the-physical-societal-and-economic-effects-of-wearable-devices-in-sports/>> [accessed 14 March 2023].

Emerging themes and approaches

Within the S4D sector in India and beyond, there are a host of ways in which organizations are utilizing and expanding the uses of technology (including the ones mentioned in the preceding sections) to include more people in sport. At the same time, there are countless examples where sport is being used as a vehicle to draw more people to technology – decreasing the digital divide and expanding the base of physical activity.

A survey by UNESCO and Pro Sport Development in 2019 examined the impact of the pandemic on the sport for development sector.⁷² A key finding from the survey was that the pandemic forced the respondent organizations to rethink their short, medium, and long-term strategies. In the short term specifically, it encouraged organizations to explore and shift program delivery to include greater online learning.⁷³ It highlighted a trend of increasing exploration of technology within the sector and outside (especially amongst policymakers), both as a means of program delivery and as a project.

Within this sector, the survey noted that certain trends and themes are emerging where technology is being used for the achievement of sport for development goals. The three themes will be explained briefly and then

explored using case studies in the rest of the chapter:

- *Technology for remote education:* Organizations like Pro Sport Development (PSD) and Umoya Sports shifted to online communication and learning during the pandemic. They used a Universal Design for Learning (UDL) curriculum, which is a framework intended to support the development of curricula focused on learner diversity.⁷⁴ This methodology requires designing programs within the sector for users with different proficiencies with the technological tool while engaging with pedagogical issues. The use of pre-recorded content and reliance on mobile devices, like laptops and phones, allowed students to complete programs at their own pace and overcome the distance barrier in imparting education.
- *Technology for inclusive skill development:* The second theme of emerging trends functions as a descriptive category to capture the innovative ways in which sport for development organizations are using technology to encourage inclusion. This theme, used by Yuwa India, Zinc Football, and European Grassroots Sports (to borrow from international organizations), embeds the use of technology within such projects. The organizations are at either end of the

⁷² 'More than a Game: A Review of the Sport for Development Landscape in India - UNESCO Digital Library', accessed 17 June 2022, <https://unesdoc.unesco.org/ark:/48223/pf0000380571>.

⁷³ 'More than a Game: A Review of the Sport for Development Landscape in India - UNESCO Digital Library'. pg. 13

⁷⁴ 'Technology for Inclusion - UNESCO Digital Library', accessed 20 July 2022, <https://unesdoc.unesco.org/ark:/48223/pf0000373655>. Pg 4

spectrum and highlight the range of purposes that can be served.

- *Digital Technology for digital inclusion:* A third theme that has emerged within this sector over the past few years has been the use of curricula aimed at encouraging digital literacy and thereby overcoming the digital divide. This divide is characterized by differences in access, availability, proficiency, and digital literacy.

The divide has been illustrated by several surveys, such as the International Telecommunication Union's (ITU) World Telecommunication Database which indicates that only 43% of Indians use the internet, and the National Family Health Survey 2019-21 indicating a significantly large gender gap in access to the internet as well.⁷⁵ Organizations like OSCAR Foundation, Dream a Dream and Slum Soccer, work on this through projects that will be highlighted later in the chapter.



⁷⁵ Basu Chandola, 'Exploring India's Digital Divide', ORF., <https://www.orfonline.org/expert-speak/exploring-indias-digital-divide/>. [Accessed 15 March 2023]

Case studies

The following section of the chapter will expand on these themes and emerging trends, highlighting practices that have been developed and documented within the sector.

Pro Sport Development

Pro Sport Development (PSD) is a social enterprise operating in the sport for development space since 2013 which develops and implements sports-based programs for young people. In inclusion, it does work “in designing and implementing programs that focus on the inclusion of marginalized and underprivileged youth groups, with a primary focus on girls and young women.”⁷⁶

Their Community Sports Program (CSP) has been operational in Bhubaneswar, Odisha since 2015. In the years 2020-21, the program reached approximately 800 young people through a pivot towards online and digital methods to be able to continue the program and its outreach efforts.⁷⁷ PSD then pivoted to using completely remote methods, innovating with both live and pre-recorded sessions to deliver the programs and reach a larger target group across distances. The online sessions were designed to keep the base of the program

intact, with videos on instructional physical activity, which were supplemented by online training workshops. The use of technology is also visible in their Kadam Badhate Chalo (KBC) program, focused on using sport to promote gender equality by facilitating interaction between girls and boys and encouraging them to challenge stereotypes and common misconceptions.⁷⁸ The entirety of the program is now online, with trainers delivering sessions online and facilitating engagement between participants through online tools.

Umoya Sports

Umoya Sports works on providing people with disabilities equal sports opportunities towards leading fulfilling lives. Their Ability Spark program is designed for children between the ages of 3 to 8 years old. It uses “purposeful play,” to be an engaging program, especially for neuro-diverse children.⁷⁹ Other programs include adapted football, modelled around wheelchair football, and a skill development program that teaches life-skills and sports skills, with a focus on the overall well-being of young people with intellectual and developmental disabilities within this age group.

Due to the pandemic, Umoya conceptualized and adapted Ability Spark to harness the

⁷⁶ Pro Sport Development', <https://prosportdev.in/>. [accessed 15 March 2023]

⁷⁷ PSD Annual Report 2019-2020', https://drive.google.com/file/d/1ggvsg7teoiH6H8uuNdvGLLIUu-Ex-yY-/view?usp=sharing&usp=embed_facebook. Pg 4 [Accessed 15 March 2023]

⁷⁸ 'PSD Annual Report 2020-21',

https://drive.google.com/file/d/14WkNxbW3Pit_XIJ9IMTXxy8I2_OyzjXi/view?usp=sharing&usp=embed_facebook. Pg 7 [Accessed 15 March 2023]

⁷⁹ 'UMOYA Sports Foundation | www.sportanddev.org', <https://www.sportanddev.org/en/organisation/umoya-sports-foundation>. [Accessed 15 March 2023]

positive use of digital methods of learning.⁸⁰ The digital education pillar includes online fitness sessions that can be accessed by not just the learners, but their parents, caregivers, and family members – all free of cost.⁸¹ The vast array of users broadens the outreach and target audience of this program.

The videos in the course consist of *Spark*, an animated character who stands in for a coach, who takes the viewer through various concepts. These concepts and activities are then combined to focus on improving movement, hand-eye coordination, and other key skills for children with disabilities.⁸² The program was designed keeping in mind a low threshold for technology, with a mobile phone with access to data being sufficient to participate in the program. Many of the recipients accessed the sessions via video calls on WhatsApp, and despite such remote engagement, displayed a significant improvement in confidence, communication, and fundamental development skills.⁸³

The common factor between PSD and Umoya is the structural consideration in design – ensuring that the online program has a low technological threshold to widen participation and maximize inclusion. In the case of Umoya Sports, this design was made for purpose as it assisted them in reaching out to traditionally underserved groups in sports programs. Using

technology, the organization has been able to reach out to key stakeholders - parents and teachers - and equip them with the requisite skills to further the curriculum of physical education.⁸⁴ The use of technology to facilitate inclusion, therefore, works at two levels: to provide access to physical education as well as further provide it to groups of young people who have been previously overlooked.

Zinc Football

Based in Zawar, near Udaipur, Rajasthan, the country's "first-ever 'technologically hinged football training'" program exists.

An initiative of Hindustan Zinc, Zinc Football, has opened a football academy, and 12 training centers in and around the region. The focus lies solely on promoting football on the grassroots level, with a distinct focus on the use of technology.⁸⁵

The goal of the program is two-fold: promote elite football training and make the academy a center for education.⁸⁶ On the pitch, the training is guided by the F-Cube software. As described by them, "F-Cube is a technology-driven holistic sports, health and fitness platform which was built to analyze the six basic skills required in football — dribbling, passing, heading, shooting, trapping and

⁸⁰ Shai Venkatraman, 'Umoya Sports Launches Online Physical Education Programme for Kids with & without Disabilities', Newz Hook | Disability News - Changing Attitudes towards Disability, July 2020, <https://newzhook.com/story/coronavirus-lockdown-activities-umoya-sports-online-physical-education-disabled-kids-inclusive-ability-spark/>. [Accessed 15 March 2023]

⁸¹ 'Empowering Specially-Abled Kids through Sports Academy Can Be Such a Boost to Their Confidence.', BookOfAchievers, <https://bookofachievers.com/articles/sports-is-a-special-way-to-boost-confidence-of-specially-abled-kids>. [Accessed 15 March 2023]

⁸² Venkatraman, "Umoya Sports Launches Online Physical Education Programme For Kids With & Without Disabilities"

⁸³ Venkatraman, "Umoya Sports Launches Online Physical Education Programme For Kids With & Without Disabilities"

⁸⁴ UNESCO, "More Than A Game: A Review Of The Sport For Development Landscape In India". pg. 12

⁸⁵ 'ZincFootball', <http://zincfootball.com/> [Accessed 15 March 2023]

⁸⁶ Zinc Football, 2023

tackling.”⁸⁷ The platform is used extensively within the training program, generating accurate qualitative and quantitative data which can subsequently be used to improve performance. The F-Cube provides a significant step forward in terms of the use of technology in football academies.

On a second level, within the education spaces at the Academy and the training centers, the aim is to promote a level of digital literacy, wherein they are reportedly equipped with the technologies made for classrooms.⁸⁸ The initiative positions itself as a football-for-all program, which can then provide opportunities for talented athletes to excel both academically and in the sporting arena.

Zinc Football, while steering away from the traditional use of sport for social change, does fall under the umbrella of organizations providing access to sport, for a variety of purposes. Its use of technology, while resource-intensive, is subject to being highlighted given how and where it is being used.

Naandi Foundation

Naandi Foundation is working to eradicate poverty across India. Founded in 1998, they have expanded their footprint across the country and made sport a key part of their programs – especially Project Nanhi Kali.⁸⁹

The Project is a girl child support and sponsorship program where they work to ensure that girls get at least ten years of schooling in addition to being empowered and enjoying equal rights with boys. With around 190,000 girls currently enrolled in the Project across 20 different States, Naandi ensures that the girls get ample opportunity and access to sports.⁹⁰ These opportunities culminate in the Toofan Games, an annual event organized by the Foundation that brings the girls together in stages and features four different events: a 50-meter sprint, a shuttle run, a standing long jump, and an endurance run.⁹¹

A select few reach the final stage – which represents a key opportunity for many as they venture beyond their villages for the first time. The event is entirely led by women – from leadership roles to results management on the ground.

In terms of technological innovation, Naandi is leading the way in connecting via the use of mobile applications through their own application called SportStar.⁹² For every community and school that is part of the Project, there is one woman “sports ally” being the interlocutor between the Foundation and the young girls. The allies are the ones leading the sports programs locally, primarily operating through the use of the application. Every week, the sports allies receive new sports drills on the application, and use the platform to also upload photos and videos of the girls learning the same – making it an

⁸⁷ Zinc Football, 2023

⁸⁸ Zinc Football, 2023

⁸⁹ Nanhi Kali, <https://www.nanhikali.org/>, 2023

⁹⁰ Naandi Foundation, <https://www.naandi.org/supporting-the-girl-child-project-nanhi-kal/>, 2023

⁹¹ Naandi Foundation, 2023

⁹² SportStar, https://play.google.com/store/apps/details?id=com.nuveda.naandi_sports_star&hl=en&gl=US&pli=1, 2023

important platform for learning and collaboration.

The application has videos and drills – developed natively – on many different sports and related skills, improving access to sport and physical activity. The use of technology here widens the scope of the far-reaching effects, and points to how organizations are addressing both a skill and access gap, especially when it comes to sports and physical activity for young girls across the country.

The following three case studies cover the range of organizations that have been bringing the world of sports and technology together, utilizing both at the same time.

OSCAR Foundation

Within the third category of organizations, the definition of inclusion expands to organizations where the emphasis is on digital education and technological inclusion for beneficial social impact.

OSCAR is a youth-led organization operating in marginalized areas in Mumbai. They use sport, especially football as a catalyst for social change.⁹³ The primary focus is on using football as a tool to provide education and life-skills sessions to young people, to make them young leaders within their communities.

Since beginning the program in 2010, they have engaged with over 12,000 children, training 700 young leaders, and having opened 6 Digital Learning Centres (DLCs).⁹⁴ The football sessions form the key component of their model, which has been devised as an “in-house curriculum that imparts socio-emotional learning, value education and physical activity.” The DLCs, another key component, are then borne out of the commitment of “bridging the digital divide by offering several courses across age groups.”⁹⁵

Certified by the National Institute of Information Technology (NIIT), the DLCs promote digital literacy and provide access to computers for children in low-income communities.⁹⁶ The DLCs have been set up with the idea of increasing proficiency in technology by increasing access, as well as using it to empower young people with basic skills that can enhance employability. The DLCs supplement the core sports-based program for the organization, ensuring a dual focus on soft and hard skills within the programs.

The Learning Centres have modules on two levels: “OSCAR conducts basic and advanced courses across 6 DLCs which introduce [the] beneficiaries to computers and the internet and teach them to operate essential software including MS Office. [Their] advanced courses are supported by NIIT, a company that specializes in digital learning management.”⁹⁷

⁹³ OSCAR Foundation - Education with a Kick!, OSCAR Foundation, <https://www.oscar-foundation.org/> [Accessed 15 March 2023]

⁹⁴ OSCAR Foundation, 2023

⁹⁵ Ibid.

⁹⁶ Ibid.

⁹⁷ Ibid.

The bifurcation of courses allows for the design of age and level-appropriate modules, ensuring that the DLCs are impactful. The Centers subsequently form a key part of the Foundation's programs, as they seek to broaden the base of the education they provide - both on and off field.

Dream a Dream

Dream a Dream's theme involves the belief that "sport has the power to challenge social norms, bring young people from diverse backgrounds together and provide an opportunity for them to participate in a positive learning environment."⁹⁸ Since 1999, they have reached out to 1.5 million children in Delhi, Jharkhand, Telangana and Karnataka.⁹⁹ The outreach has been through strategic partnerships with state governments, local stakeholders, and experienced educators and word-of-mouth dissemination of the outcomes and achievements of their programs.

There are two separate but interrelated components in their programs - After School Life Skills Programme and the Career Connect Programme. Both these components are designed to fit a "systems approach" that puts children at the center while empowering the ecosystem around them as well. This entails change at various levels:

- ***Society:*** Creating framework changes in society and influencing changes in the paradigms of education.

- ***Ecosystem:*** Consisting of the supportive community of practitioners and key stakeholders, they believe in creating a powerful ecosystem that can impart the desired education, research, and impact.
- ***Environment:*** Enabling teachers, educators, and youth workers to empower young people.
- ***Child:*** Working directly with young people through the programs, while constantly striving to improve the effectiveness of the larger framework.¹⁰⁰

With support from across the globe, they have developed these components over time. The Career Connect Programme has been created to reduce drop-out rates in schools and bridge the gap in the learning and technology space in the 14-23-year-old age category. Launched in 2010, it uses the Personal Computer (PC) as a "medium to help students develop essential life skills and set a strong foundation that will enable them to tap competitive opportunities."¹⁰¹

Furthermore, the Center "conducts career awareness workshops, run[s] short-term modules in Computers, English, Communication Skills, Career Guidance and provide[s] access to internships, scholarships, vocational training, and jobs. The programs are delivered with a high impact life skills approach that develops the resilience, confidence, and adaptability of young people

⁹⁸ Dream a Dream - Homepage', Dream a Dream, <https://dreamadream.org/> [Accessed 15 March 2023]

⁹⁹ Dream a Dream, 2023

¹⁰⁰ Dream a Dream, 2023

¹⁰¹ Pavithra KL, Sheetal Lydia, and Sreehari Ravindranath, 'Thriving: Stories of Success Redefined' (Dream a Dream, 2017). Pg 2 [Accessed 15 March 2023]

to respond to the fast change of pace in the world around them.”¹⁰²

Through the Career Connect Programme Centers, they are bridging a digital divide within low-income communities. Dream a Dream is the second highlighted organization within this category. An organization that began by using sport for good has extended its reach beyond just using sport, like OSCAR Foundation. The aim has been to innovate around education and the system at large, creating a space within this sector wherein there is a focus on technological inclusion, education, and entrepreneurship.

The focus on technologically heavy programs allows the organizations to continue the use of sport, while simultaneously addressing other recognized gaps in the learning space and the education system.

Slum Soccer

Based in Nagpur, Maharashtra, Slum Soccer works towards combating homelessness and improving lives - all through football. They use football to teach life skills that include teamwork, discipline, and acceptance, among others.¹⁰³

Working in both rural and urban areas, they primarily work with children from marginalized and disadvantaged backgrounds, tackling complex issues through tailored programs across Maharashtra, Delhi and Tamil Nadu.¹⁰⁴

Their programs tackle a wide array of issues. For example, in low-income communities in urban areas, they are a part of the “Model City Delhi” program, where they use programs to promote gender equality and create awareness around health and sanitation. Another example is the DeafKidz Goal! program, where they work to train D/deaf people to become coaches to deliver life skills programs to marginalized D/deaf children through football.¹⁰⁵ The two examples provide a glimpse into the functioning of the organization, where they believe in a broad approach to development, thereby targeting various Sustainable Development Goals.

The Shakti Girls project, similar in ways to OSCAR Foundation and Dream a Dream’s initiatives, works to provide access to advanced digital learning tools. But the focus, in this case, lies in rural areas and is specifically aimed toward girls aged 12 to 18 years. The project provides young girls from rural and underserved areas a platform to participate in physical activities, especially football, to generate a safe space for them to play sports.

While sport is used to impart basic life skills, the girls are also provided access to computers and basic computer literacy, “empowering them to face the uncertain and harsh post-pandemic future with hope, resilience, and confidence. The project envisages providing these girls with a well-proportioned mix of constructive outdoor physical activities and meaningful learning pathways for their physical and mental wellbeing.”¹⁰⁶

¹⁰² KL et al., *Thriving: Stories of Success Redefined*. Pg 3

¹⁰³ Welcome to Slum Soccer’, <https://www.slumsoccer.org/aboutUs.php>. [Accessed 15 March 2023]

¹⁰⁴ Slum Soccer, 2023

¹⁰⁵ Ibid.

¹⁰⁶ Slum Soccer, 2023

The focus lies on the following identified skills:

- **Life skills:** Interpersonal communication; teamwork, resilience.
- **Digital skills:** using the internet, cyber security, and using video conferencing platforms, among others.¹⁰⁷

To challenge stereotypes, “the ultimate goal of the project is to increase girls’ confidence and empower them to become women leaders so that they can inspire other girls in their quest for independence and a brighter future.”¹⁰⁸ Unlike the previous two organizations, however, the Shakti Project falls in a unique space where there is a distinct combination of sports and technology being used as part of one single project. In this case, the eventual goal is both digital and social inclusion, and provides for a promising practice wherein technology is being successfully utilized for inclusion within the sector.

Limitations of technology and corresponding opportunities

While there are important developments taking place, they are being developed in a context that has some limitations. As is reflected in the case studies, there are still gaps that remain.

The implementation of technology does not come without some considerations. The use of technology is limited. As cited earlier in the chapter, there is a growing “digital divide.” The

divide has been illustrated by several surveys, such as the International Telecommunication Union’s World Telecommunication Database which indicates that only 43% of Indians use the internet, and the National Family Health Survey (NFHS) 2019-21 indicating a significantly large gender gap in access to the internet as well.¹⁰⁹

It has been observed that the usage of internet and mobile phones is further decided based on gender and area of residence, among other factors. The surveys have shown that men have a greater access to these resources, thereby furthering the digital divide, and limiting the reach of enablers to especially include women in sports and physical activity. However, there is promising data to suggest a gradual bridging of this divide. The Mobile Gender Gap Report 2021 suggests that there is a general trend of increased ownership of mobile phones amongst women in India, a figure that is further backed by the latest statistics by the NFHS.¹¹⁰ This is further emphasized in areas like Ladakh, Andaman & Nicobar, Kerala, and Delhi, where especially rural women have seen an exponential increase in phone ownership. The mobile phone is a central enabler of access to sport and physical activity, given its utility in a multitude of far-reaching technologies. However, it remains important to be cognizant of this digital divide.

In addition to this, there are other concerns related to data privacy and security. Consider the vast amount of data accessible in this process. The concerns with data storage and

¹⁰⁷ Ibid.

¹⁰⁸ Ibid.

¹⁰⁹ Chandola, ‘Exploring India’s Digital Divide’

¹¹⁰ Caroline Butler, ‘The Mobile Gender Gap Report 2021’, GSMA Intelligence <<https://data.gsmaintelligence.com/research/research-2021/the-mobile-gender-gap-report-2021>> [Accessed 15 March 2023]

online privacy are well documented, with vulnerable groups being even more susceptible to these threats.¹¹¹ As a result, its regulation becomes essential to ensure that it is used ethically and not misused to steal private information. Additionally, products based on AI are heavily reliant on the quality of the programming and underlying data, carrying the risk of unintended bias from the nature of base data employed to create analytical models and algorithmic bias from their programmatic structure.

It is thus necessary to ensure a broad scope of data for modelling to limit the incidence of exclusion due to systemic bias, in addition to the storage and security concerns. While these concerns do present a real challenge, there are ways to overcome them. There is parallel research taking place on the safety of these technologies, with many safeguards – both on a policy and non-policy level – in place across a few jurisdictions.



¹¹¹ Jain, P., Gyanchandani, M. & Khare, N. 'Big data privacy: a technological perspective and review.' *Journal of Big Data* 3, 25 (2016). <https://doi.org/10.1186/s40537-016-0059-y>

High-level recommendations

Introduction

The power of sport and PA in transforming individuals, communities, and society is evident. The true opportunity for India however lies in ensuring universal access to and participation in PA which today is not the case due to a range of complex and interconnected factors, as noted previously. While technology has the potential to resolve many of these barriers, it must be encouraged and promoted thoughtfully.

Achieving full inclusion in sport and PA – where every Indian has access and opportunity to be physically literate and active for life – requires a population-scale behavior shift, increased awareness, dedicated infrastructure, increased funding, and other enablers, all of which require concerted action from public, private, and civil society stakeholders.

The government has a vital role to play, given its critical agenda-setting power and the opportunity to position India as a leader in a global movement for enhanced PA. By amplifying India’s advantages through yoga, classical dance, in addition to the effort towards sport and PA, the government – both central and in the States – could set policy objectives, build and/or incentivize essential eco-system assets and infrastructure, and maintain transparency and accountability at all levels. Specifically, we see action needed on three related fronts.

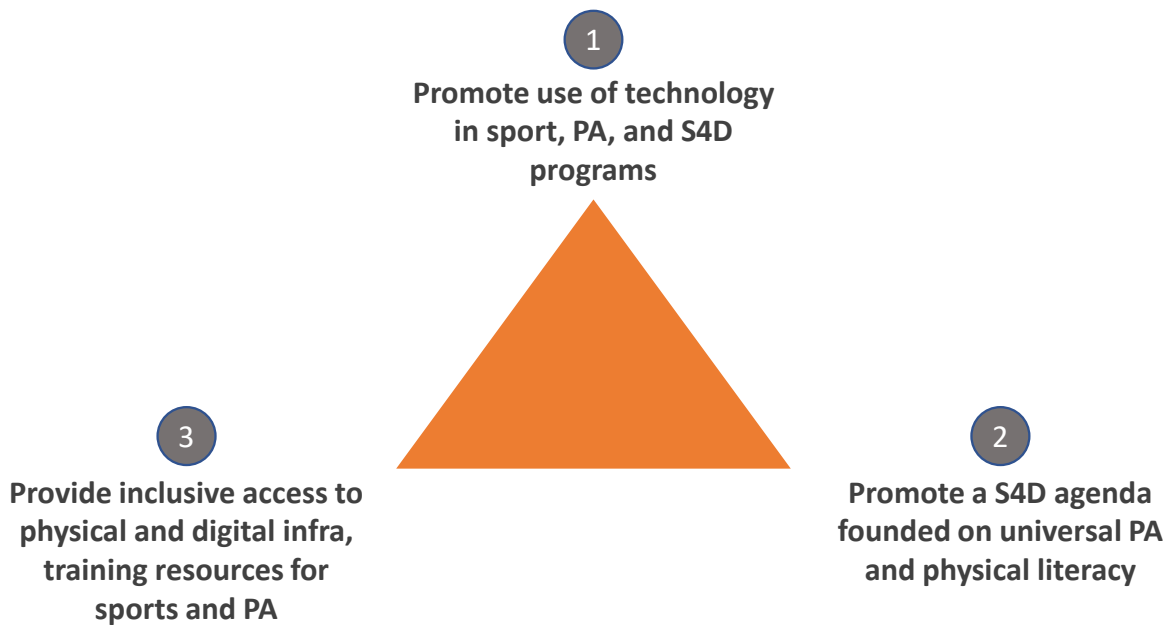


Figure 5: Priority action areas

- Promoting the use of technology in sport, PA, and S4D programs and initiatives to increase access and participation for all. The central government has increasingly recognized the role of digital technology platforms and solutions in the promotion of a sporting culture and the holistic development of sports in India. It has initiated several projects focused on e-Governance and digitization in sports to leverage the best and latest in ICT toward sporting and PA outcomes.

Examples include the National Sports Repository System, Khelo India mobile application, Khelo India Fitness application, Annual Calendar for training and competitions (ACTC) Portal, and Fit India mobile application and website.¹¹² Going forward, the government must continue to lead the charge and take specific actions to fill gaps in the nascent sports technology ecosystem.

Promisingly, there is a growing set of technology for S4D initiatives and interventions undertaken by several countries that India can learn from. The table below provides selected examples.

Table 4: Selected examples from countries using technology for S4D

Organization Name/Country	Description	Subsection of society	Tools	Application for India (Y/N)
Gymnastics Australia¹¹³	Club finder – an online program to find and register for a club close to your location	Females + persons with disabilities	ICT (website management) + disability-friendly instructions for online registration	Y
VIWAS¹¹⁴, Greece, Italy, Croatia, and Slovenia	Creating a comprehensive guide for fans with visual disabilities to enjoy water sports	People with visual disabilities	Audio commentary program submitted to all associated with water polo events	Y (could be adapted for other sports)
Para Sport against	Tackle discrimination	People with disabilities	Through a 4-pillar approach (education,	Y

¹¹² ThePrint. (2022, November 21). Government recognises role of digital technology platforms in promotion of sports culture: Anurag Thakur. Retrieved April 12, 2023, from <https://theprint.in/sport/government-recognises-role-of-digital-technology-platforms-in-promotion-of-sports-culture-anurag-thakur/897258/>

¹¹³ Hirblinger, 'Digital Inclusion in Peacemaking: A Strategic Perspective'. 2020

¹¹⁴ VIWAS - Visually Impaired Water polo Spectators', accessed 14 July 2022, <https://www.viwaserasmusplus.eu/about.html>.

Organization Name/Country	Description	Subsection of society	Tools	Application for India (Y/N)
Stigma¹¹⁵, Africa	and stigma against the use of Assistive Technology	in low-income and middle-income countries	athlete development, Paralympic broadcast, and research)	
YES-Africa Sports Exchange¹¹⁶	Delivering recreational sports programs to youth, including those with disabilities	Youth across Africa	Developing computer and technological skills while honing an aptitude for basketball through classes	Y
Ibero-American Sports Council¹¹⁷ (in partnership with UNESCO)	Measures are taken to overcome the consequences of the COVID-19 pandemic faced by vulnerable people	The population of countries under the Council, especially women, children, and people with disabilities	Online physical activity and training programs that can be accessed from home	Y

2. Promoting a broader S4D agenda that embeds PA and physical literacy as fundamental precursors to economic, development, and sporting outcomes. This agenda would firmly prioritize and build from universal access and participation and use sports and PA as a strategic vehicle for broader social and economic outcomes, especially the health, well-being, gender equality,

and productivity of the nation as well as sporting outcomes related to elite-level performance in domestic and international events and competitions. This could include awareness campaigns, ensuring usable and well-maintained common public goods like playgrounds and sports facilities in schools, community facilities, and parks, investing in PwDs-specific

¹¹⁵ 'Sports Against Stigma | AT2030 Programme', accessed 28 July 2022, <https://at2030.org/sports-against-stigma>.

¹¹⁶ 'YES with Africa and the UMass Boston-African Partnership', UMass Boston, accessed 15 July 2022, <https://beaconsathletics.com/sports/2020/5/28/special-projects-YES-UMB.aspx>.

¹¹⁷ 'Sport in the Time of Pandemic: An Ibero-American Perspective - UNESCO Digital Library', accessed 15 July 2022, https://unesdoc.unesco.org/ark:/48223/pf0000374467_eng.

infrastructure, etc., prioritizing sports and physical literacy into public school curricula, developing sports teaching and training skills, investing in sports-based livelihoods, incentivizing funding for S4D through subsidies, grants, tax breaks, and CSR allocations, among several other things.

3. In parallel, investing in key enabling physical and digital infrastructure to complement and contribute to (1) and (2). There is a need for a broader push on improving transportation and mobility infrastructure to ensure everybody can easily access all sporting and physical facilities. In addition, as it relates to digital infrastructure, there is a need to address the growing digital divide in terms of both quantity and quality of usage among the Indian population so that the technological solutions that are promoted are available to all.

Recommendations

While noting that parallel and coordinated action is needed on all three fronts, for the purposes of this report, we focus our specific recommendations on (1). The actions we highlight encompass the government's main roles as a *regulator, implementor, funder, and champion*. They are meant to be thought starters for government actors and officials to consider and then prioritize and act upon through a consultative

and participatory process. They are at this stage not tagged to specific stakeholders, ministries, or departments.

At the same time, given the set of issues we believe the following line ministries would be critical to any effort on increasing the use and scale of technology in sports and PA: Ministry of Electronics and Information Technology, Ministry of Youth Affairs and Sports, Department of Empowerment for People with Disabilities, Ministry of Women and Child Development, Ministry of Health and Family Welfare, Ministry of AYUSH, and NITI Aayog.

Regulate

Establish a comprehensive institutional framework for coordinated action and develop institutional capacity for technology and sports. As a first step, the Centre should consider establishing a government-led steering committee and authorized mission to explore and develop a comprehensive framework for actualizing population-scale efforts for participation, good mental and physical health, well-being, and access using technology enablers. The WHO's GAPP framework – adjusted and customized to India's context – is a clear starting point to overlay technology-based approaches and solutions.

Table 5: WHO's Global Action Plan for Physical Activity (GAPPA)¹¹⁸

Component	Description	Selected actions
Active societies – social norms and attitudes	Create a paradigm shift in all of society by enhancing knowledge and understanding of, and appreciation for, the multiple benefits of regular physical activity, according to ability and at all ages.	<ul style="list-style-type: none"> • National and community level communication campaigns • Tech-based mass participation initiatives • Awareness and training of health and sport professionals using digital technologies
Active environments – spaces and places	Create supportive spaces and places that promote and safeguard the rights of all people, of all ages and abilities, to have equitable access to safe places and spaces in their cities and communities in which they can engage in regular physical activity.	<ul style="list-style-type: none"> • Integrated urban and transport planning • Walking and cycling infrastructure • Road networks and safety • Access to green, open spaces
Active people – programmes and opportunities	Create and promote access to opportunities and programs, across multiple settings, to help people of all ages and abilities to engage in regular physical activity as individuals, families, and communities.	<ul style="list-style-type: none"> • High quality physical education include remote education and training opportunities • Digital counselling and training on PA • Opportunities for PA programs in public environments, community spaces • Targeted opportunities for elderly and excluded segments (women, girls, PwDs)
Active systems – governance and policy enablers	Create and strengthen leadership, governance, multisectoral partnerships, workforce capabilities, advocacy, and information systems across sectors, to achieve excellence in resource mobilization and implementation of coordinated international, national, and subnational action to increase physical activity and reduce sedentary behaviour.	<ul style="list-style-type: none"> • Policy frameworks, leadership, and governance systems • Data systems • Research and evaluation • Advocacy • Tailored finance

¹¹⁸ World Health Organization. (2018). More Active People for a Healthier World: Global Action Plan on Physical Activity (2018-30). Retrieved from <https://apps.who.int/iris/bitstream/handle/10665/272722/9789241514187-eng.pdf>.

This steering committee could take an inclusive and collaborative approach to create an enabling framework, operating as a sandbox, to enhance awareness and inclusion-focused initiatives towards universal participation. For example, it is important for Indian policy actors to promote physical education using technology to advance the use of sport by children in every context. This requires creating adapted content for women, girls, PwDs, and other social groups and could be encapsulated at the policy level through the education system.¹¹⁹

The steering committee could also oversee wider policy initiatives, including urban and rural planning and design, workplace requirements, public and private employment qualification requirements, medical and health insurance mandates, and other demand-led measures to increase the value of universal participation that is enabled by technology.

Explore, design, and develop relevant new laws and policies related to technology and sports. Partner with law schools and institutions to scan, design, test, and develop policies and regulations on the use of technology in sports and physical activity. Important topics include fiscal incentives for the sports tech industry, data protection and privacy laws to safeguard user/athlete data, safety and quality standards for sports technology products and services, and accessibility standards focused on PwDs to promote inclusivity.

Do

Drive knowledge in the eco-system about the role of technology in sports and PA and the importance of sport and PA. Potential actions could include launching mass awareness campaigns to educate citizens about the benefits of technology in increasing access and participation in sports using a variety of media channels, including social media, television, radio, and print media; establish knowledge platforms and fora that bring together companies, public officials, NGOs, and research institutions to learn and build capacity, and offering grants and prizes focused on cutting edge research and innovation.

Launch and execute mass awareness campaigns and population-scale initiatives to increase PA and encourage healthy behaviors, building on the success of Fit India. These could utilize multiple channels such as television, radio, social media, and community engagement to reach a wide audience and inspire behavior change. They can provide information, resources, and motivational messages to promote increased physical activity, encourage healthier lifestyles, and ultimately contribute to improving the overall well-being of the population in India.

Integrate the use of technology in monitoring, tracking progress, and planning. This could include: the use of wearables, fitness applications, and other technologies to collect and track physical activity at a granular level, the development of an Information Management System (MIS) dashboard to

¹¹⁹ "Multistakeholder dialogue on the role of technology in advancing sport for development and peace," United Nations Department of Economic and Social Affairs (December 2020). <https://www.un.org/development/desa/dspd/wp-content/uploads/sites/22/2021/03/DraftSummary-SPORTMSD25Feb.pdf>

increase transparency in reporting, the use of social media to share information directly with citizens and track engagement and participation, and Geographic Information System (GIS) mapping to identify districts with low physical activity and poor health indicators (especially related to NCDs) and target interventions in those areas.

Fund

Invest in building fundamental digital infrastructure and solutions in public sport and PA initiatives and programming. This could include using digital teaching tools and creating a digital toolkit to support and increase the quality of physical education teachers in public schools, promoting remote e-learning models in locations where teachers and coaches are not readily available, investing in developing assistive technologies and solutions focused on PwDs' access to public sport and PA infrastructure, and investing in virtual reality sports and gaming programs that provide citizens with the opportunity to experience sports in a virtual environment, promoting greater engagement and increased PA levels, among other desirable outcomes.

Catalyze and incentivize innovation and digital solutions. The government can encourage innovation by providing grants to support research and development of sports technology solutions and technology startups that are working on developing cutting-edge sports technologies. It can implement incentives, such as tax credits or grants, for schools, community groups, and sports organizations that adopt technology solutions to increase access and participation in sports. It can also establish an innovation lab using a PPP approach to ideate, incubate, and scale technology solutions that can increase access and participation.

Celebrate

Promote and champion a culture of sports and PA at the community level. This could encompass activities like awards and prizes for active and healthy citizens and communities and organizations working in the sector through innovative solutions (technology enabled), school-level fitness competitions and data building around it, healthy competition among states, aspirational districts program, and positive messaging on PA through traditional and social media channels.

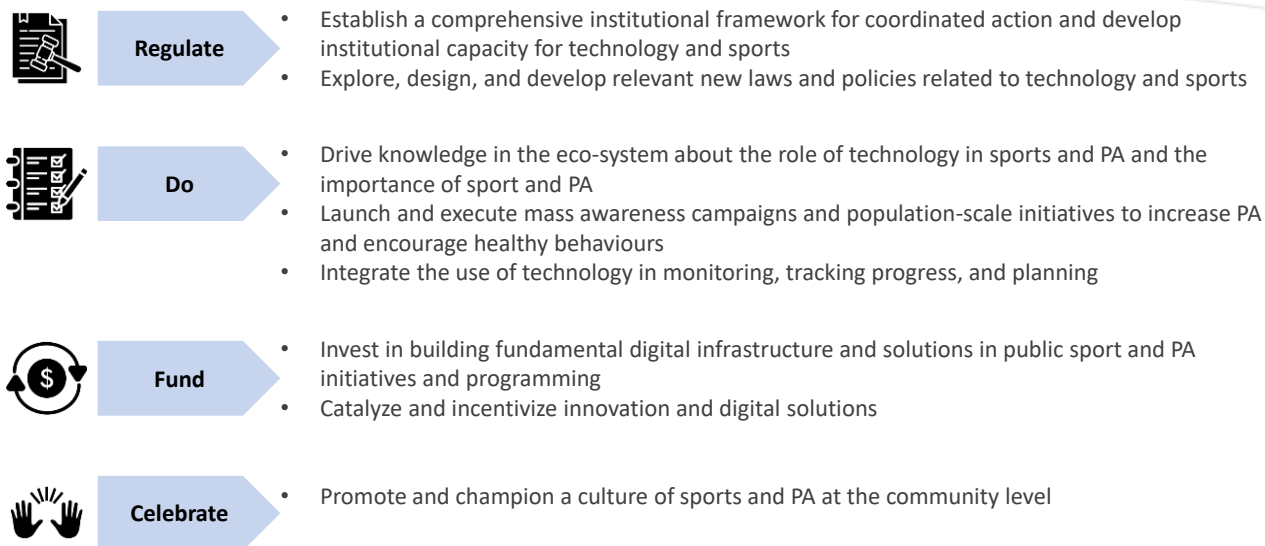


Figure 6: Summary recommendations (not exhaustive)

Women, technology, and sports and PA

Technology will play a critical role in the transformation of women in sports. It can do so by providing targeted channels of safe access to women and girls, by changing mindsets of decision makers at various levels and orient them toward women and girls, by providing new and improved avenues of training, coaching, and improving performance, opening revenue streams, and engaging untapped audiences.

However, both technology and sports remain male dominated environments in most countries including India. Addressing this gender disparity requires concerted efforts to challenge cultural norms and stereotypes related to women and sports and PA, bridge the digital gender divide, and build the necessary infrastructure, curricula, and training capacity to support women and girls. As above, the government will play a central role in bridging the gap. The following table highlights some of the key gender-focused actions that the government could consider in addition to the general recommendations above.

Table 6: Specific government actions for women and girls (not exhaustive)

Area	Potential actions
Regulate	<ul style="list-style-type: none"> • Ensure women and girls are a priority segment of focus in S4D policy and institutional frameworks with specific targets, milestones, and budgets. Again, the GAPPA framework can be adapted to the needs of women and girls that can be best served using technology. • Develop online women and girl protection policies and tracking mechanisms to ensure that they can strengthen skills, access training and curricula, engage with communities, etc. in a safe and secure way.
Do	<ul style="list-style-type: none"> • Integrate the use of sports technology (e.g., wearables) in government programmes on sports, S4D, education, and health to track and improve gender-related outcomes related to sports, physical fitness, etc. • Launch and execute national campaigns focused on increasing PA levels in women and girls – like ‘<i>Beti bachao, beti padhao</i>’ – aimed at reducing NCDs, increasing productivity, schooling outcomes, sporting performance, etc. • Establish skill development programs that provide innovative online and offline training and coaching for women and girls in various sports disciplines. These programs can be designed to identify and nurture talent from a young age and offer specialized training to enhance skills and capabilities.
Fund	<ul style="list-style-type: none"> • Promote digital inclusion programmes and activities targeting women with the objective of reducing the digital gender divide. • Dedicated funding for research and innovation on technology-based products and services that improve women’s access and participation in sports and PA and their quality of play. E.g., funding for women-centric sports equipment, apparel, machines, etc. • Funding for women and girl-focused sport online and physical infrastructure in urban and rural settings, at home, in communities, in schools and colleges, workplaces, etc.
Celebrate	<ul style="list-style-type: none"> • Through online access, skills education, digital tools training, and showcasing women as role models, equip girls and young women with the necessary skills, opportunities, and tools to empower them in their future careers and lives, both within and beyond the world of sport. • Improve and enhance coverage, awards, media attention (especially in social media) focusing on women in sports.

Areas for further study, analysis, and intervention

This is an area with immense potential. Universal participation in PA and sport would not only make India a global leader in a low-cost, barrier free, high impact preventive health care intervention, but would also have significant benefit for the population that transcends physical health and better sporting achievements. To effectively deploy a shift in mindsets and instill behavior change at scale, there are some areas of further analysis and study that may be considered by the multiple stakeholders.

These include but are not limited to:

The promise of yoga as an instrument: The benefit of yoga and its long-term positive impact on every individual's life-course and health is well known and globally relevant. To make yoga an integral part of every child's life, basic technological interventions such as immersive and interactive digital tools or games can be conceptualized and widely disseminated as educational, engaging, and behavior change interventions, with the goal of enabling every child to be able to effectively and enthusiastically be an active yoga participant. This is a toolkit that would serve every Indian in good stead, and should be assessed and analyzed further, both at the inter-ministerial level, and by engaging diverse stakeholder representatives to ensure well-defined and scalable solutions conducive to impacting children are enabled.

Physical Activity PPP Innovation Lab: A private-public intervention could be at the institutional level where an expert led innovation and data lab can be established for

effective policy and proof of concepts. The lab would assess and roll out adaptable technology enhancements that can positively impact inclusive PA and sport participation in India, through evidence led frameworks. It would also act as a technology sandbox, to optimize effective use at scale of enabling tools.

Grand Challenge: A grand challenge that identifies families across India as PA leaders - through a collaborative central and state government engagement plan - could be considered. Using basic technology either with health and step tracking applications on mobile phones, basic wearables, or even through integration with the Fit India mobile application, there should be a repository of healthy practices done by families in terms of basic PA.

To popularize the notion and instill a mindset shift, certain milestone achievements in terms of steps either through PA or sport across the selected families could lead to a direct benefit transfer (DBT) annually through collective funds from possibly the governments and/or private sector participation. Over time, these could be offset through better health parameters and the associated reduction in healthcare costs and would have also triggered a major movement towards PA being the primary intervention point for better life-course health.

PA Dashboards: Real-time dashboards that assess and share the PA levels across the country may be considered, perhaps initially through the Aspirational Districts Program, and using the collective data to track better physical and mental health, better sports outcomes, and better social impact indicators over time.

Principles

As with any technology-forward strategic and policy roadmap, it will be important to ensure that there is a responsible use and deployment framework that addresses the core principles needed to establish guardrails for population-scale reform. The following is a preliminary layout that may be considered when integrating technology into the broad PA and sport ecosystem roadmap.

Technology can be game-changing for physical literacy and activity levels in India, but as we have noted earlier, technology does not come without underlying challenges related to its reach and penetration among and within excluded segments. Smartphone ownership and access to internet are fast growing across India, but it will take some time before there is universal penetration of each in society. We therefore need to be aware of the initial limitations of internet-based solutions and initiatives (e.g., remote learning initiatives) and use the opportunity to dovetail such solutions with increased penetration. With the opportunity to shape the deployment at scale, it is important to ensure that the use of technology is incentivized and promoted in a way that is always inclusive and sensitive to underlying social and economic contexts, so as not to increase the digital divide further. In India, any imagination of the role of technology in sports and PA delivery should therefore be rooted in rights and principles of equity.

By using technology in sport and PA delivery systems and in enabling ease of access to PA, it becomes incumbent upon the governance frameworks to evaluate and oversee checks and balances, based on the applicable category

of technology use and users. This is equally essential to ensure that technology operates within the identified guardrails and frameworks that integrate values of equality, inclusion, and participation. Technology can reflect these principles in architecture and protocols. Governance can support these through processes. Consultative approaches to technology adoption can also ensure that the system remains responsive to public needs and feedback. This will enhance the trust, respect, and confidence in technology's role in providing access and increasing participation in sport and PA. These technological interventions should also explore carrying forward the principles of neutrality, adaptability and evolvability.

All the above areas are beyond the scope of this report. However, they are significant implementation and research subjects individually that will and should be carried out as early next steps to helping India attain universal participation in sport and PA by 2047, with a key and primary focus on gender equality.

A new India will be an active and fit India.



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