

DIGITAL TRANSFORMATION OF CHINA'S SPORTS INDUSTRY AND ITS ALIGNMENT WITH WTO E-COMMERCE NEGOTIATIONS: AN INSTITUTIONAL PERSPECTIVE

TRANSFORMAÇÃO DIGITAL DA INDÚSTRIA ESPORTIVA CHINESA E SEU ALINHAMENTO COM AS NEGOCIAÇÕES SOBRE COMÉRCIO ELETRÔNICO DA OMC: UMA PERSPECTIVA INSTITUCIONAL

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Abstract

This research critically analyzes the digital transformation of the Chinese sports industry within the institutional context of its conformity with the WTO e-commerce regulations. The study focuses on emerging innovations such as e-sports, digital media platforms and artificial intelligence which have contributed to the rapid growth and engagement of the digital economy. Through a systematic literature review of 34 peer-reviewed sources published in the period 2018-2024, this paper looks at the interactions of China's regulatory regime within the international trade regime. Findings show areas of convergence, such as digital intellectual property protection and the use of AI in sports services, and clear divergences around data localisation and digital sovereignty. In addition, some regulatory gaps may affect China's international expansion of digital sports platforms, even if the market is robust. The paper concludes with policy recommendations to improve cross-border data flow governance, harmonize national regulations with WTO principles, and enhance China's global competitiveness in digital sports. Overall, the study provides industry-specific insights into regulatory coherence and its impact on international digital trade participation.

Keywords: Digital Transformation. China. Sports Industry. WTO E-Commerce. E-Sports. Data Sovereignty. Regulatory Alignment. Digital Economy. International Trade. Policy Recommendations.

Resumo

Esta pesquisa analisa criticamente a transformação digital da indústria esportiva chinesa dentro do contexto institucional de sua conformidade com as regulamentações de comércio eletrônico da OMC. O estudo se concentra em inovações emergentes, como esportes eletrônicos, plataformas de mídia digital e inteligência artificial, que contribuíram para o rápido crescimento e engajamento da economia digital. Por meio de uma revisão sistemática da literatura de 34 fontes revisadas por pares publicadas no período de 2018 a 2024, este artigo analisa as interações do regime regulatório da China dentro do regime de comércio internacional. As conclusões mostram áreas de convergência, como a proteção da propriedade intelectual digital e o uso de IA em serviços esportivos, e divergências claras em torno da localização de dados e da soberania digital. Além disso, algumas lacunas regulatórias podem afetar a expansão internacional das plataformas esportivas digitais da China, mesmo que o mercado seja robusto. O artigo conclui com recomendações de políticas para melhorar a governança do fluxo de dados transfronteiriço, harmonizar as regulamentações nacionais com os princípios da OMC e aumentar a competitividade global da China nos esportes digitais. No geral, o estudo fornece insights específicos do setor sobre a coerência regulatória e seu impacto na participação no comércio digital internacional.

Palavras-chave: Transformação digital. China. Indústria esportiva. Comércio eletrônico da OMC. E-Sports. Soberania de dados. Alinhamento regulatório. Economia digital.



Comércio internacional. Recomendações de políticas.

1 CHAPTER 1: INTRODUCTION

1.1 Background of China's digital transformation in the sports industry

The modernisation of the Chinese sports industry, including its digitalization, is a critical component of the nation-level modernization and the aspiration to operate at the global level. As a part of the plan, China has increasingly resorted to the integration of digital technologies, including artificial intelligence (AI), big data and internet platforms into the national sports infrastructure. Along with that, the government has initiated some new projects, including Internet+ Sports, which seeks to apply technology to several parts of the sports sector, including sports media, e-sports and sports management (EqualOcean, 2021). As an example, China has become the largest sports market on the planet and a global digital economic leader - courtesy of a series of development initiatives on digital sports and e-sports services. Even the release of the 14th Five-Year Plan of Sport Development published by the General Administration of Sport of China demonstrated clearly that China was intent on digitalising the sports industry. This strategy will be underpinned by the use of digital technologies such as artificial intelligence (AI), big data and Internet of things (IoT) to enhance public engagement with sport, build sports infrastructure and promote innovation (EqualOcean, 2021). The government has astutely linked the development of the sports industry to China's broader digital economy development strategy, and e-sports and virtual sports are integral components of national and global development. Focusing on the sports industry is especially relevant for this study because it reflects a fast-growing, innovation-intensive sector within China's digital economy. As a hybrid of entertainment, technology, and consumer services, the digital sports industry serves as a critical testing ground for evaluating institutional alignment between national policies and international e-commerce frameworks.

1.2 WTO and e-commerce framework

To evaluate how China's digital policies interact with international norms, it is important to examine the global regulatory framework led by the WTO. The United States uses the World Trade Organization (WTO) as a key institution for regulation of digital trade through its e-commerce negotiations. Jurisdiction, interdependence, and practicalities of the world economy based on data exchange, cross-border data flow, data privacy and digital trade facilitation are amplified in a Joint Statement on E-Commerce by a number of members of WTO including China (World Trade Organization, 2019). The involvement of China in these negotiations is particularly significant as not only China is the most active in the development of the digital economy and one of the main actors in the formation of world regulations on the digital trade, but also because China is a non-member of the World Trade Organisation (WTO). The WTO framework offers a space for the alignment of China's domestic digital policies with global norms to facilitate the development of a coherent system of digital trade at the international level. The role of China in these deliberations is of the highest importance, particularly on its data localization policies and other regulations that illustrate national priorities. With the development of the digital economy in the world's largest country, national regulations become more and more urgently needed to be brought in line with the WTO framework on the world level, including the issues related to the sports industry: intellectual property rights and the digital services.

1.3 Research gap

There has been extensive research done on China's digital economy and its incorporations in global trade, there has been a lack of studies to fill the void to see the overlap between China's digital sports industry policies and WTO e-commerce regulations. Current research writing tends to examine China's digital economy overall or the greater gamut of the negotiations related to WTO e-commerce without specific digression to sectors, including sports and entertainment (Gao, 2023). This research attempt to close that gap by providing a comprehensive analysis of the institutional

coherence between China's domestic sports policy and the institutional framework of the global e-commerce system created by the WTO.

1.4 Research aim and objectives

The primary objectives of the research are:

1. To examine the key digital transformation policies within China's sports industry.
2. To evaluate China's stance in the WTO e-commerce negotiations and how it aligns with global trade rules.
3. To identify gaps and opportunities in the alignment of China's domestic policies with WTO regulations, specifically concerning digital sports services.

2 LITERATURE REVIEW

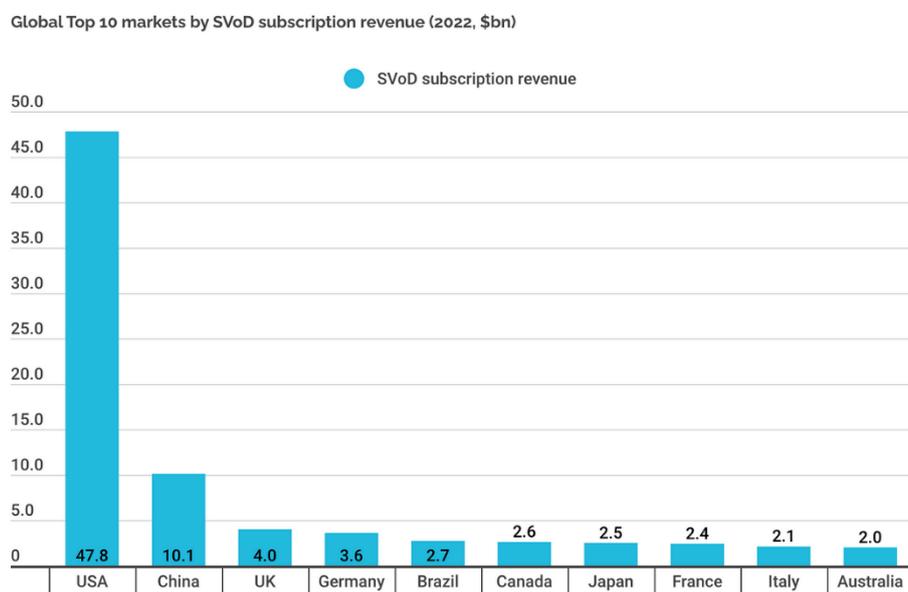
2.1 Digital transformation of China's sports industry

With the rapid development of the digital economy, the digitalization of the sports industry in China has now achieved the level of the annual digital layer. One of the major examples of such shifts has been the emergence of e-sports, which have been given strategic consideration by the Chinese government. The number of e-sports has been rapidly increasing and the emerging environment of e-sports are mainly influenced by government policy, technical innovation, and consumer preference change. According to Duan et al. (2023), the further development of China's digitalization infrastructure and the combination of AI, big data, and cloud computing into sports management system has been a huge driving force for the development of China's e-sports market. In addition to the level of the audience, e-sports also have the ability to influence China's economy from different perspectives, such as contributing to the country's GDP. Digital transformation, in addition to the flourishing market of e sports, has also generated exceptionally high economic returns to the sports sector at the national level in China. Empirical research proves that the effect of digitalization on the efficiency of the production process is very positive: the level of its functioning decreases, and the high quality of the development of the sports industry becomes easy. For instance, a panel-data study across 17 Chinese

provinces (2014-2020) finds that the digital economy not only directly and significantly propels the sports industry's growth, but also indirectly does so by fostering technological innovation thereby improving regional resource allocation and productivity (Wei et al., 2023). Similarly, cost-reduction effects enabled by digital infrastructure and services have been empirically shown to lift efficiency and expansion of sports and health businesses (Sun, Cheng and Jiang, 2025). Moreover, digital productivity initiatives such as digital content dissemination and online engagement platforms help sports enterprises more effectively adapt to dynamic markets, strengthening competitive positioning and sustaining economic growth. The Fig 1 reveals that in 2022, China generated \$10.1 billion in SVoD subscription revenue, making it the second-largest market globally, behind the USA with \$47.8 billion. This demonstrates China's significant presence in the digital sports and entertainment sectors, driven by digital transformation and government policies (Ampere Markets - Operators, 2022).

Figure 1

China Sports Industry



Source: Ampere Markets - Operators

Source: Ampere Markets - Operators, 2022

The digitalization of the sports has actually gone beyond e-sports and into traditional sports, with innovations in broadcasting, fan engagement and events

management changing how sports are consumed and experienced. For instance, the application of augmented reality (AR) and virtual reality (VR) has enabled fans to experience live events in new ways. In China, Tencent Sports has piloted VR coverage of NBA and Chinese Super League games, while the 2022 Beijing Winter Olympics showcased immersive 360° replay technologies. Similarly, iQiyi Sports has experimented with AR features during live football broadcasts, allowing brands to reach consumers in highly interactive and engaging formats (Vlada et al., 2023). The digitization of sports content has impacted how intellectual property in sports is managed, and how online streaming and digital platform have become the two main distribution channels for sports media in China. Furthermore, the digital economy penetration model of the traditional sports industry was explored through the models (grey relational analysis model and vector autoregression model) (Sun et al., 2024). These models show a high correlation between the digital economy in China and the development of the sports industry; it can be concluded that sporting enterprises have a promising future due to: the increased effectiveness of the ongoing digital transformation; the emergence of new sources of income.

2.2 The role of digital economy in China's sports industry

While e-sports is leading the way, other areas of the digital economy are quickly transforming traditional sport administration and the ways in which revenues can be generated by sports. The central part of the sports industry re-imagining is the digital economy designed to make the sports industry achievable to reach more individuals as well as make the sports industry more efficient and open up new markets. One example of this would be artificial intelligence technology in the sports domain, to optimize playing strategies, player performance analytics, and fan engagement. Game management is turning to artificial intelligence (AI) technology in order to enhance the predictive analysis, and to contribute to the overall fan experience (Wei et al. 2023). Another example of digitalization that has allowed the sports industry to record more sustainable development is presented by Wei et al. (2023). The capability to collect information to learn about player performance and fan behavior (how many games or matches or seasons a year) to help organizations make more informed decisions that will make their sports

industry more viable and financially sustainable. Across the digital economy, in broadcast, event and marketing industries, new synergies can and will be achieved through new trends in the sports sector, which favour cross-fertilisation between sport and other sectors such as entertainment and technology. Since the emergence of digital content distribution systems like live streaming, sports have become monetizable in part due to the fact it can be delivered to its audience directly instead of using those outdated forms of distribution. This caused market jitters and a digital platform has been created as the centre of the game in sports media.

2.3 Digital economy and e-commerce integration in sports

The e-commerce and marketing strategies continued to thrive online and brought the digital economy of China further upwards and incorporated it into the fraternity of sports. Sports services and products marketing and sale is not an exception to the disruption caused by e-commerce platforms. One of the most significant platforms that can assist sports enterprises in accessing a global consumer base, present online products, and market sports merchandise is e-commerce (Liu et al., 2024). As a result, sports businesses have continued to emerge as a result of digital transformation in an effort to stay at the top of the curve in a business environment that keeps evolving. However, as digital technologies seep into China, today we are able to offer a fully tailored online consumer experience along with individualized marketing and data-driven insights platforms and customer engagement tools. Beyond the financial benefit to the sporting teams, and their sponsors, the e-commerce sites allow the development of a superior experience to the fans based on the desired content and the offered offers (Shengwen et al., 2025). Digital economy impacts can be more readily viewed through the new online sports consumption with e-sports, virtual sports betting and live sports streaming, and through the promotion and representativeness of sport in China. Another example of the increased importance of e-commerce in sports is the introduction of platforms such as Douyin (Tik Tok in China) where sport content is used by influencers and brands to reach millions of users. This intersection of sports industry and e-commerce has reversed the proverbial cat and mouse and trail game between the fan and its electronic and interactive augmentation.

2.4 Globalization and its impact on China's digital sports industry

Globalization has also contributed to sport industry in China through globalisation of sports. Digitization of channels has been one of the defining aspects of internationalization of Chinese sports firms because they can now reach a wider audience which was hitherto unavailable in the traditional broadcast network. As China increasingly participates in inter-country transactions on digital commerce, such as the eCommerce negotiations at the WTO, the further globalisation of sport content has been accelerated. Globalization has brought a slew of challenges and opportunities to the Chinese sports industry. Conversely, it has created new markets, particularly in the developed world where more and more sport is being consumed digitally. Conversely, the sports industry has not only been subject to new regulatory models but also to the threat of intellectual property. According to Ziming and Kharchenko (2023), global digital trade policies do not allow China to participate in cross-border exchange of data, guard its sporting content, and exercise dominance over the management of digital rights. As the Republic of China engages in the digital trade talks at the World Trade Organization (WTO), it faces a challenge of balancing its digital sovereignty with the tendency of globalization of digital trade through liberalization. AI is another influential factor of sports in China, as it is being used as a management agent, and as an experience feature for the spectator. The development of AI has allowed the expansion of new sports technologies, from tracking systems to virtual reality sports experiences and beyond; and the popularity of these new technologies is growing across the world (Glebova et al., 2024).

2.5 Conclusion

The digital transformation of the Chinese sports industry is a complex process and is affected by the status of the digital economy in China, the level of government support to the digital transformation, the greater use of artificial intelligence and e-commerce platforms in sports management and consumption. The future development of China's digital sports sector will largely be determined by how the country can successfully negotiate the challenges that digital trade presents at the international level without losing

control of its digital assets. In order to achieve sustainable development of the sports business in China and internationally, as the domestic sports system gradually aligns with international systems including WTO e-commerce principles, there should be sufficient institutional consistency between national regulations and global trade rules.

3 METHODOLOGY

3.1 Research method

This study employs a qualitative approach through a Systematic Literature Review (SLR) to evaluate the extent to which China's digital sports industry policies align with WTO e-commerce regulations. The SLR approach allows an in-depth and objective synthesis of the literature available using a systematic identification, selection, and evaluation process. In line with PRISMA guidelines, the review was conducted across four stages: identification, screening, eligibility, and inclusion. Searches were performed in Google Scholar, JSTOR, SSRN, and WTO Publications, focusing on studies published between January 2018 and August 2025 to capture the most recent developments. At the identification stage, records were retrieved using Boolean keyword combinations related to China, digital transformation, sports industry, and WTO negotiations. These were then screened by title and abstract, followed by full-text assessment to confirm relevance. Only studies that met the inclusion criteria were retained, ensuring a transparent and reproducible review process.

3.2 Search strategy

The findings were gathered from four major academic archives by searching: Google Scholar, JSTOR, SSRN, and the official sites of WTO were used. These platforms allow researchers to be able to access vast peers-reviewed journal articles, working papers, official reports touching on such pillars such as e-commerce, digital trade and sports policies. Boolean operators and keyword combinations used in the searches are presented in Table 1.

Table 1*Boolean Operators and Keywords Utilised*

Boolean Search String	Keywords Covered
"China" AND "sports industry"	China, sports industry, digital transformation
"WTO" AND "e-commerce" AND China	WTO, e-commerce, China
"cross-border data" OR "data localization" AND China	cross-border data, data localization, sports, e-sports
"digital economy" AND "sports industry" AND China	digital economy, sports industry, China
"AR" OR "VR" AND China AND sports	augmented reality (AR), virtual reality (VR), sports
"platform regulation" OR "platform economy"	platform regulation, platform economy, sports, e-sports
"intellectual property" AND digital AND China	intellectual property, digital, sports, broadcasting
"fan engagement" OR "digital broadcasting"	fan engagement, digital broadcasting, sports

3.3 Source selection standards and quality criteria

To ensure the inclusion of high-quality sources in the analysis, a set of strict selection criteria was applied. Peer-reviewed academic articles were only considered if they were published between January 2018 and August 2025 in reputable journals indexed in scholarly databases such as Google Scholar, JSTOR, and SSRN. These studies had to demonstrate methodological transparency, analytical depth, and direct relevance to the research objectives specifically focusing on China's digital sports sector, WTO e-commerce regulations, and related trade and policy issues. For policy documents, only official publications issued by credible institutions such as the World Trade Organization (WTO) and relevant Chinese governmental bodies were included. These documents were required to present evidence-based insights, legal or regulatory grounding, and applicability to the research themes. All sources had to meet standards of credibility, relevance, and recency to be considered for final synthesis and thematic analysis.

3.4 Inclusion and exclusion criteria

Inclusion criteria were used to ensure only relevant and of high quality sources were incorporated. These criteria involved peer reviewed articles, policy reports, working papers as well as official WTO documentation directly relevant to the research topic. Exclusion criteria excluded works printed in non-English languages, works unrelated to

WTO agreements or China's digital policies, and works that failed to discuss the intersection between sports industry and digital trade regulations.

3.5 Data extraction and analysis

Data extraction was centered on critical findings related to the China's sports digitization policies and WTO e-commerce regulations. The derived data was classified according to the theme of data governance, digital trade policy and market access. This provided an opportunity to synthesize critical themes around the theme of institutional alignment and gaps within regulation, specifically toward cross-border data flows and digital sports content.

4 ANALYSIS AND FINDINGS

Table 2

Table of Sources

Source	Focus/Contribution	Methodology	Key Findings
Zhang, Y., Zhao, W., & Liu, H. (2024)	Examines the impact of digital transformation on green innovation in sports companies in China, specifically listed companies.	Empirical study with data analysis	Digital transformation leads to enhanced green innovation in sports companies, helping them achieve sustainability goals. The study highlights how digital tools and technologies are integrated into sports companies' operations to boost eco-friendly practices.
Wan, Y., Zhang, Y., Zhao, C., & Bu, T. (2025)	Analyzes the effect of digital development on the sports service industry, specifically through VAR (vector autoregression) and cross-elasticity models.	Quantitative analysis	Digital development in the sports service industry enhances consumer experience and market demand. The study also discusses the elasticity of sports services to digital advancements, showing their growing importance in the industry's expansion.
Khan, A., Jillani, M.A.H.S., Abdelrehim Hammad, A.A., & Soomro, N.E.H. (2021)	Reviews WTO e-commerce negotiations and their impact on the digital economy, with a focus on plurilateral negotiations.	Qualitative review	The study highlights recent issues and developments in WTO negotiations related to e-commerce and digital trade, particularly for countries like China, which are heavily involved in these discussions.
Gao, H. (2021)	Focuses on China's participation in the e-	Policy analysis	The paper emphasizes China's strategic role in shaping global

	commerce joint statement initiative and its implications for the country's digital economy.		e-commerce regulations, particularly in the digital economy and cross-border data flow areas.
Lin, S., & Khan, A. (2021)	Investigates the concept of e-sports in the digital era, particularly its rise in China and its relation to digital economic policies.	Case study analysis	E-sports in China has become a significant digital industry, with government policies supporting its growth, while it remains a key area for digital transformation in the sports industry.
Duan, P., Wang, X., Zhang, A.Y., & Ji, B. (2023)	Explores the development environment of China's e-sports industry, examining the economic, technological, and policy frameworks that support its growth.	Literature review and analysis	E-sports is a rapidly growing industry in China, driven by digital infrastructure, policy support, and a youthful consumer base. China's digital transformation is accelerating e-sports' development, with significant implications for global digital sports.

4.1 Common themes and analysis

4.1.1 Digital transformation and innovation in the sports industry

Across all reviewed studies, digital transformation is crucial as a critical driver of innovation within the sports industry in China. As Zhang et al. (2024) state, digital transformation-enabled green innovation is regarded as a compulsory feature for sustainable businesses. They concluded that digital technologies like artificial intelligence (AI) and big data have enabled sports firms in China to simplify their processes and have reduced their environmental footprint. These results indicate that to the growing efficacy of the operations, the digital technologies can also allow developing the green operations in the business. Wan et al. did not leave behind this trend of digitalisation either as it involved new perspectives of digital development impacts on the sports service industry (2025) and the significance of digital media as another channel to continue fuelling the needs of the sports services industry and consumer experience. The quantitative analysis based on their VAR models shows that the demand in sports as well as sports consumption is extremely sensitive to digital development, and consumer demand in digital services, such as live-streaming, e-sports, and experiences in virtual sports is also increasing. Based on the elasticity, the digital technologies within the sport industry are important in

fulfilling the expectation of the consumers and can help boost the industry. Furthermore, Duan et al. (2023) provides us with a concept of the e-sport industry, which is one of the most developed niches today and turned into a characteristic feature of the Chinese digital revolution. Digital infrastructure in China has been an important factor in the development of the Chinese e-sports industry - it is the main facilitator of gaming and streaming platform and distribution of digital content. Government policy models suggested by the Chinese Government have certainly contributed significantly to the conditions of the appearance of e-sports and, consequently, has become one of the most accelerated branches in the Chinese digital economy.

4.1.2 E-sports as a key component of china's digital sports strategy

The majority of e-sport research involves electronic sports (e-sports), for instance, Duan et al. (2023), Lin and Khan (2021), and Gao (2021) all on the topic of the role of e-sports in the Chinese digital sport ecosystem. Duan et al. (2023) state that e-sports is among the primary reasons the sports industry is undergoing a digital transformation. They elaborate that the government of China has supported the development of e-sports through the policies that help them in growing. Government support has facilitated the formation of e-sports into a legitimate industry, and a source of economic and young people involvement opportunities. Lin and Khan (2021) discuss intersection of digital economy policies and e-sports with an emphasis not only on how Chinese regulatory frameworks have benefited growth of digital platforms for playing games and competitive games but also how Latin America has adopted such regulatory frameworks. They claim that e-sports is becoming ever more established as a mainstream industry comprising a part of the digital economy, and that its growth has been integral to China's larger objective to become a world leader in digital media and entertainment. Gao (2021) addresses the role of China in the WTO e-commerce agreement and the position China plays in the creation of the rules of global digital trade and how China regulates e-sports content.

4.1.3 The role of digital economy in sports consumption

Digital economy holds a central position in sports consumption in China and manifests in different resources. According to Chen (2024), the impact of digital technologies on the Chinese purchase and viewing behavior related to sports has been enormous. With the emergence of online sports content platforms, such as Douyin and WeChat, the way Chinese consumers watch sports content has entirely transformed, and live streams along with emphasized sports content are providing them with more opportunities to participate. With increased consumption of digital media by the consumers, it has been observed that there has been a trend of shifting from the consumers looking at the live sports on television to the consumers relying more on the on-demand video services as well as sports content on social media platforms. According to Wei et al. (2023), the number of popular digital sports platforms that stream live sports events is going up at an alarming rate. Advances in the digital economy can help sports organisations connect with a broader and more diverse global audience, appealing to younger audiences who prefer to consume sports content digitally. It highlights the increasing digitization in China's economy, which allows sports businesses to soon monetize their content and reach out to fans via digital channels.

4.1.4 WTO E-commerce negotiations and china's digital sports policies

China's participation in the WTO e-commerce negotiations is a testament to its growing commitment to engaging in global digital trade arrangements. This is reflected in the government's support of digital platform development, promotion of online consumerism and investment into e-sporting infrastructure, all of which can be considered as part of a broader international effort to promote digital trade (Khan et al., 2021). First, the integration of AI, VR, and immersive technologies into China's sports industry represents a forward-looking strategy that aligns harmoniously with WTO's focus on innovation and the growth of digital trade. However, data governance policies can be very complex. Strict cross-border restrictions on the transfer of digital data in particular and strict localization and regulation of digital content in general are unacceptable in light of the principle that open, transparent and interoperable digital markets are desirable under

the WTO (Gao, 2021). The areas of regulatory caution are consistent with China's strategic priorities for digital sovereignty and help to tie into its goal of modernizing its economy via international cooperation.

4.1.5 Conclusion of the findings

Through the analysis of previous researches, it is revealed that the function of digitization on the sports industry in China is reflected in its development efforts in the field of e-sport, and in the system replication of digital consumption channel. Big data, artificial intelligence and e-commerce have shaken the sports world to such an extent that it has not only created new possibilities for conducting business, but also new opportunities for the fans. However, there are still a variety of challenges, in particular on cross-border data transfer and digital rights protection, two main concerns for China's participation in the e-commerce debate at the WTO. This research documents the need for policy convergence between China's digital industry policies and its rules of international trade to facilitate sustained growth in the digital sport business industry. The findings indicate that there appears to be an inherent contradiction between the domestic regulatory objectives of China and the WTO e-commerce rules. Conversely, China's image as a digital innovator, infrastructure builder, and globalizer of services is broadly in line with the objectives of WTO trade liberalisation. On the other hand, China's data localisation, strict cybersecurity and the absolute priority of digital sovereignty represent a fundamental departure from the open-data-flow agenda of the WTO.

5 DISCUSSION

5.1 Institutional alignment between China's digital sports policies and WTO e-commerce regulations

According to the research results, the digital transformation has played an important role in the development of China's sports industry, specifically in the advancement of digital sports innovation and improvement of digital sports media. However, the gap or incongruity between internal digital regulations in China and

external regulations such as the e-commerce rules under the World Trade Organization (WTO) leads to both opportunities and constraints. This section analyzes the implications of such results and China's regulatory framework's convergence with e-commerce regulations in other countries. With the launch of Internet Plus Sports program and the 14th Five-Year Plan for Sports Development, the Chinese government has successfully positioned itself as the pioneer in the global development of digital sports services. The use of AI, big data, and cloud computing has significantly enhanced operations of sports businesses, and e-sports, a very rapidly growing industry is a perfect example (Duan et al., 2023). All of these developments align with China's broader ambitions for the development of the digital economy, encompassing efforts to foster resilient digital infrastructure, drive innovations and facilitate sustainability across all sectors including sports. While welcome, China's digital sports industry development, despite careful consideration, will have to address its national ambitions in terms of data sovereignty, cybersecurity, and intellectual property within a backdrop of the global trading regime adopted by the WTO e-commerce negotiations. The study claims that being part of WTO negotiations on digital trade is crucial to China's interests for shaping international standards of e-commerce. Despite these efforts, however, continuous challenges arise, ranging from cross-border data flows and data localization issues (Khan et al., 2021). China's determination to keep data within its borders – China's Localization model in contrast to the WTO's goals in facilitating global data flow within the e-Commerce environment (Gao, 2021). Such regulations pose challenges to the growth of China's digital sports industry especially if it has to be scaled across borders to compete for a share of the global sports and e-sports content markets.

5.2 China's role in global digital sports trade and e-commerce regulations

The development of China's digital sports industry is becoming more determined by international trade rules, particularly by ones adopted at WTO e-commerce talks. As a result of accepting the Joint Statement on E-Commerce, more than 70 WTO members have jointly established fundamental principles for digital trade through a mutual agreement, highlighting the role of data cross-border facilitation and protection of digital services (WTO, 2019). With the world's largest digital economy, China plays an active

part in these discussions aligned to capitals that serve national goals, yet innovates the global digital trade. Research shows that China's e-commerce policies are intentionally crafted in order to serve its larger digital economy objectives, especially in areas such as e-sports and digital sports media. The booming world of e-sports which is one of the elements of China's digital sports market has received huge government support in form of policy and investment in digital infrastructure (Lin & Khan, 2021). To defend its digital sovereignty, as well as encourage cooperation with the international digital sports community, China should be actively involved in WTO discussions. However, even though China's participation has opened doors, the process of aligning the nation's domestic policy goals with commitment to a global digital trade has always proven to be challenging. Data localization, the cornerstone of China's digital sovereignty, is a central regulatory barrier to the achievement of consonance with e-commerce rules of the WTO under the frame of domestic sports policies. Although data localization preserves Chinese digital control and data security, it will limit the significantly global influence of China's digital sports enterprises, illustrated by research (Khan et al., 2021). The video streaming of sports coupled with the expansion of international e-sports competitions require unrestricted flows of data across borders, but China's data standards contain it. On the other hand, WTO aims at improving global data flow in a bid that initiates an open digital economy to facilitate cross border deals in form of digital services, which also include sports.

5.3 Opportunities for policy alignment and sustainable growth

Among these challenges, the research highlights several ways for China to align its digital sports policies with the WTO e-commerce rules. At first, China's e-sports environment may gain notoriety in the international arena as growing interest in digital sports content worldwide has become apparent. Using best practice across the globe regarding data governance can assist China boost its market on sports services even regarding e-sport and live stream sites. These efforts would facilitate the development of the sports industry in China and the further integration of China into the world digital economy. One more benefit is that the inclusion of the laws related to the sports of China in the system of international e-commerce will enable to create the more systematic

system of international online sports cooperation. In the meantime, with the digital economy in China expanding, the regulation in line with the international trade regulations will be realised, the Chinese digital sports services will be easily incorporated into the world digital market. It would also increase Chinese influence in the digital realm and particularly in sport in the specified scenario when Chinese companies are situated on an equal footing with global giants with Chinese characteristics in other digital sectors, such as e-sports, sporting media and digital sports solutions. China can make sure that more of its WTO obligations translate into a sustainable development of the Chinese digital sporting industry. As far as the Chinese sports market can assure regulatory harmony with the international standard of digital commerce, the Chinese sports market is in a strategic position to remain a growth market despite emerging rivalry in the international services market. As Sun et al. (2024) note, the application of digital innovation to the sports industry has been showcased to support the sustainability of the industry not only to improve China strengths and niche in the digital sports environment but also to the larger environment. According to Sun et al. (2024), digital innovation application in the sports industry contributes significantly to the sustainability of the industry not only to enhance China strengths and niche in the digital sports environment but also to the wider environment.

5.4 Implications for future research and policy development

This study suggests that scholars must conduct more studies on the impacts of digital sports policy in China on international trade requirements. Therefore, a cross-comparison of digital sports policies in other countries, such as the U.S. or European Union, can be employed to serve as useful reference points for an assessment of China's current digital trade governance. Researchers would also be able to assess the implications of China's digital policies concerning data privacy, cybersecurity and cross-border data flows in its digital sports competitive global performance. On the policy side, China's regulators may have to rethink certain elements of data localisation to allow for more effective international cooperation in digital sport. To ensure the industry's international success and compliance with WTO standards, the digitalization and internationalization

of sports policy in China should be in line with the national interests and international cooperation.

6 CONCLUSION

The analysis is focused on the digitization of the sports industry in China and the compliance with international e-commerce standards set by the WTO. According to the research, the digital sports policy, such as the Internet Plus Sports initiative and the 14th Five-Year Plan for Sports Development, has played an important role in promoting e-sports, sports consumption and the development of the digital media industry in China. The initiatives, therefore, have ensured that China dominates critical aspects of the global digital sports industry such as e-sports, streaming portals, as well as digital media production. The advent of digital technologies has opened up the possibility of exciting revenue generating strategies, better audience interaction, and emergence of new business opportunities for sporting groups. However, attaining harmonization of the national regulations of China with the WTO's international trade structure is a significant challenge. Even though China has joined WTO e-commerce negotiations on one hand and has been trying to enhance its Digital Sovereignty and other policies related to cross border data; regulatory inconsistency has continued to hinder the global expansion of Digital sports offerings by China. The information localization and cybersecurity issues are major challenges to cross-border sharing of information necessary for online circulation of sport contents and realization of e-sports matches beyond borders. China should seek to bolster its position in the digital sports market by aligning its regulatory regime with the needs of WTO e-commerce. Such harmonisation would facilitate China's effective entry into international digital markets and would develop the regulatory framework required to support the growth of the digital sports industry, while meeting international trade standards. As regards digital economy, China is invited to further study the effectiveness of its data management policy, the implications of the digital trade rules under the WTO on sports e-commerce and the regulatory adjustments to be undertaken to ensure further convergence of domestic digital regulations with international trade law. In the context of these challenges, the development mode and the international competitiveness of the new digital sports industry in China is of great significance.

6.1 Study limitations

The previous studies dependence is one of the limitations of the study because this study cannot represent the present situation of China's digital sport industry and recent negotiations related to WTO e-commerce. This implies that the information provided by secondary sources such as reports and papers serves as the data, thus the primary information is not derived from the first parties of the industry insiders or stakeholders. Another limitation is that, the study does not trace the rapidly evolving digital trade rules that are happening at a speed of light, which will influence the validity of China's domestic policies based on global standards for digital trade. Collection of the real data from the field can serve as an additional value at any further research.

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Authors' Contribution

All authors contributed equally to the development of this article.

Data availability

All datasets relevant to this study's findings are fully available within the article.

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