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New currencies and new values in professional sports: blockchain, NFT, and fintech through the stakeholder approach

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Abstract

Problem Statement: Blockchain technology and the emerging fintech culture have disruptive potential in many aspects of life, including professional sports. Cryptocurrencies, NFTs, and smart contracts begin to find multiple applications in the sports industry and have the potential to drastically impact the entire sports ecosystem. **Approach:** First, we define and describe important related constructs and explain the connections and relationships between them as part of the overall professional sports ecosystem. Second, we identify, describe, and classify the impact of emerging fintech and blockchain technologies on the sports ecosystem. Third, we discuss possible research directions and empirical, theoretical, and analytical perspectives for future Blockchain developments and applications in sports. **Purpose:** In this paper, we seek to identify and classify the impact of blockchain and fintech applications on the sports industry. In doing so, we refer to the stakeholder approach and the theory of technological determinism from a holistic perspective, trying to capture the whole picture. The paper also includes definitions and explanations of the main related concepts and their connections within the professional sports ecosystem. **Results:** To this end, this paper extends the literature on blockchain applications in professional sports on a global scale, by unpacking the full range of related constructs and insights in the form of a theoretical synthesis and describing the connections and interrelationships between them. It may be useful to a wide range of readers: sports managers, marketers, post-graduate students, and researchers. **Conclusions:** In summary, the use of blockchain, fintech, and NFTs has the potential to significantly impact the sports industry, and change the way stakeholders interact and do business within the sports ecosystem. These technologies have the potential to reshape values and change philosophies in the industry by opening new avenues for monetization and empowering athlete's rights and fan engagement.

Keywords: sport, blockchain, NFT, smart contract, fintech, fan engagement

Introduction

Finding new and innovative ways to enhance the experience for all fans has become increasingly important. Therefore improving the viewer experience is one of the most important roles of technology in sporting events. Nowadays sports coverage in the media is more extensive than ever before, due to the wide diffusion of technological advancements. Just a few decades ago fans could only watch the game through a few media videos, press, or audio channels (for example, radio and newspapers) and managers had only a few “standard” channels available for monetization and customer relations; Today, there are a variety of tools to choose from, including different types of broadcasting, social media, and other smart digital applications (Glebova et al., 2020).

Blockchain technology and evolving fintech culture have the disruptive potential for many areas of life, including professional sports (Naraine, 2019; Carlsson-Wall & Newland, 2020; Yu, 2021; Zhang et al., 2003). Cryptocurrencies, NFTs, and smart contracts are beginning to find numerous applications in the sports industry and have the potential to drastically impact the entire sports ecosystem (Lv et al., 2022). In this paper, we attempt to identify and classify the impact of blockchain and fintech applications on the sports industry. To do so, we refer to the stakeholder approach and the theory of technological determinism from a holistic perspective, trying to capture the whole picture (O'Dair, 2018). First, we incorporate definitions and descriptions of key related constructs and explain the connections and relationships between them as part of an overall professional sports ecosystem. Second, we identify, describe, and classify the impact of emerging fintech and blockchain technologies on the sports ecosystem (Carlsson-Wall & Newland, 2020). Third, we discuss the possible research directions and empirical, theoretical, and analytical perspectives of future fintech developments and applications in sports.

In general, technologies and blockchain in particular have the potential to greatly impact the sports industry. This paper aims to explore and classify the impact of these technologies on the overall sports ecosystem using a stakeholder approach and referring to the theory of technological determinism. The paper also

includes definitions and explanations of key related concepts and their connections within the professional sports ecosystem (Carlsson-Wall & Newland, 2020; Lv et al., 2022).

This conceptual paper would likely include identifying and describing the specific ways in which blockchain and fintech technologies are being used or have the potential to be used in the sports industry. These include examples such as the use of cryptocurrencies to facilitate fan engagement and transactions, the use of smart contracts to manage player contracts and rights, or the use of NFTs to create unique, collectible digital assets for fans (Mereu, 2023). The paper classifies these impacts into categories such as fan engagement, monetization, and player rights. It also outlines the potential challenges and constraints that need to be addressed for these technologies to be used effectively in the sports industry (Naraine, 2019).

The authors also discuss potential areas for future research in fintech and sports. In doing so, they identify gaps in current knowledge and understanding, suggest research topics, and discuss how different theoretical and analytical perspectives could be applied to the study of digital technologies in sport. In addition, the paper discusses the potential for empirical research to impact of emerging technologies on the sport ecosystem. It addresses the potential for future developments in blockchain technologies to impact the sport industry and the possible research perspectives that could be taken to understand this research and developments (Treiblmaier et al., 2021).

To this end, this article expands the literature on blockchain applications (particularly, NFT) in professional sports on a global scale, by unpacking the full range of related constructs and insights in the form of a theoretical synthesis and describing the connections and interrelationships among them. It can be useful for a wide range of readers: sports managers, marketing professionals, post-graduate students, and researchers.

Theoretical Background

Technological Determinism

The theory of technological determinism states that technology is the main driver of social change and that new technologies have the power to reshape the social, economic, and cultural aspects of society (Hsueh & Chin, 2022). In the context of the article on the impact of blockchain and fintech technologies on the sports industry, technological determinism is applied to understand the extent to which these technologies are shaping the future of the sports ecosystem.

This paper provides a theoretical synthesis of related constructs and the various ways in which blockchain and fintech technologies are being used or have the potential to be used in professional sports. By identifying and describing the full range of related constructs and demonstrating connections and interrelationships among them, the authors clarify how these technologies are impacting the sports industry. This is consistent with the theory of technological determinism, which states that technological advances drive changes in society. Furthermore, the article goes beyond simply identifying the impact of blockchain and fintech technologies on the sports industry (Laukyte, 2020). It also examines the various stakeholders involved in the sports ecosystem and how these technologies impact their interests and needs. This approach is also consistent with the theory of technological determinism, which states that technology is not just a neutral force, but rather has different impacts on different groups in society (Hsueh & Chin, 2022).

This paper demonstrates how the theory of technological determinism can be applied to the study of the impact of blockchain and fintech technologies on the sports industry. By identifying and describing the full range of related constructs and finding connections and interrelationships among them, the authors provide a comprehensive understanding of how these technologies are reshaping the sports ecosystem (Laukyte, 2020). By examining the impact of these technologies on the various stakeholders in the sports industry, the paper also highlights the different effects of technological advancements.

Stakeholder Approach

The stakeholder approach is incorporated into the research design by identifying the various stakeholders in the sports ecosystem and considering how blockchain and fintech technologies impact their interests and needs (Carlsson-Wall & Newland, 2020). The paper explicitly adopts a stakeholder approach by examining the impact of these technologies on fans, managers, athletes, and other participants in the sports industry and how they interact, collaborate, and create co-value (Buser et al., 2022).

The stakeholder approach is a useful framework for understanding the impact of blockchain and fintech technologies on the sports industry (O'Dair, 2018). By identifying the various stakeholders involved and considering how these technologies impact their interests and needs, the article provides a comprehensive understanding of the complex ways in which technological advances are reshaping the sports ecosystem.

Blockchain Technology

Blockchain technology is a distributed ledger technology that has attracted a lot of attention in recent years due to its potential applications in a variety of fields (Rejeb et al., 2020). Fundamentally, blockchain is a decentralized database that maintains an ongoing and continuously growing list of records, or "blocks," which are linked and secured using cryptographic techniques. Each block in the chain includes a cryptographic hash of the previous block, a timestamp, and transaction data. The decentralized and distributed nature of blockchain technology provides inherent resistance to tampering and hacking, as the data is replicated across multiple nodes within a network.

The origins of blockchain technology can be traced back to the development of Bitcoin, a digital currency that employs blockchain as its underlying technology. Since then, blockchain has advanced to become an autonomous technology with an extensive range of potential applications beyond cryptocurrency, including within the sports industry. Also, one more application is smart contracts, which are self-executing contracts with the terms of the agreement between buyer and seller being directly written into lines of code.

One of the primary benefits of blockchain technology is its capacity to provide a high level of transparency and security. Through the utilization of cryptographic algorithms, blockchain can ensure that transactions are secure and immutable, thereby making it challenging for fraud or manipulation to occur. This characteristic may have significant implications for the sports industry, where issues of transparency and fairness are often paramount (Lv et al., 2022; Treiblmaier et al., 2021).

However, it is important to recognize that there are also limitations to consider when examining the potential applications of blockchain technology. One such limitation is scalability, as the processing power necessary to maintain a distributed blockchain network can be substantial. Additionally, there may be challenges involved in implementing and managing blockchain-based systems, and regulatory issues (Faria, 2019), particularly within industries that are not yet accustomed to this technology (Treiblmaier et al., 2021).

Fintech and Sport

Fintech, short for "financial technology," refers to the employment of a range of technologies to improve financial services and transactions. Fintech encompasses a broad range of applications, including digital payments, peer-to-peer lending, and cryptocurrency. In recent years, the use of fintech within the sports industry has gained significant attention due to the potential benefits it offers for fan engagement, monetization, and player management (Khaund, 2020).

One of the benefits of fintech in sport is the potential to enhance fan engagement through improved access to sporting events, merchandise, and other experiences. For example, fintech applications can enable fans to purchase tickets and merchandise using digital payment methods (Glebova et al., 2020) and access exclusive content and rewards through loyalty programs. By facilitating these activities, fintech can help to deepen the relationship between fans and their favorite teams and players, however, it implies some security issues.

Another area in which fintech may have an impact on the sports industry is monetization. Fintech applications can enable sports organizations to develop new revenue streams through sponsorships, advertising, and other digital products and services. Additionally, fintech can enable athletes to better monetize their personal brands by providing new avenues for endorsement deals and fan engagement (Baker et al., 2022).

However, as with any emerging technology, there are also challenges and limitations to consider when examining the potential applications of fintech in sport. Namely, there may be concerns around data privacy and security, as well as issues related to regulatory compliance and adoption by industry stakeholders (Khaund, 2020).

NFT

NFTs, or non-fungible tokens, are a type of digital asset that can be used to create unique, collectible items such as artwork, music, or videos. In the context of sports, NFTs could be used to create collectible digital assets such as game-worn jerseys, limited-edition digital trading cards, or even digital versions of autographed memorabilia. NFTs have gained significant attention in recent years as a new way to create and trade digital assets. NFTs are unique, indivisible tokens that can represent anything from art to music to video game items (Husin et al., 2022). The rise of NFTs has sparked interest in their potential applications within the sports industry. In the context of sports, NFTs can be used to create unique, collectible digital assets that represent moments, achievements, and memorabilia related to sports. For example, a basketball player's record-breaking shot could be represented as an NFT, which fans could purchase and collect as a one-of-a-kind digital asset. NFTs could also be used to represent game-worn jerseys, autographs, and other memorabilia.

One of the primary benefits of NFTs in sports is their potential to deepen fan engagement and generate new revenue streams for sports organizations. By creating unique digital assets, NFTs can enable fans to own a piece of sports history and participate in the sports ecosystem in new and meaningful ways. Sports organizations, meanwhile, can generate revenue by selling NFTs and creating new sponsorship and advertising opportunities. However, as with any emerging technology, there are also challenges and limitations to consider when examining the potential applications of NFTs in sports. For example, there may be concerns about the environmental impact of NFTs and issues related to the authenticity and ownership of NFTs.

Sport Ecosystem and key stakeholders

The sports ecosystem is composed of various stakeholders who play direct or indirect roles in shaping and influencing the industry (Perdana, 2021). Here are some examples of key stakeholders in the sports ecosystem (but not limited to):

1. Professional athletes are a key stakeholder group in the sports ecosystem, as they are the primary performers and stars of the show. Athletes can shape fan engagement and generate revenue through their performance and personal brand.

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2. Sports teams and clubs are responsible for organizing and managing competitions, events, and leagues (Chadwick & Holt, 2012). They are also responsible for generating revenue through ticket sales, sponsorships, and merchandise.
 3. Sports fans and followers are a crucial stakeholder group in the sports ecosystem (Glebova et al., 2022), as they provide the demand for sports events and drive revenue through ticket sales, merchandise, and other forms of engagement, communication, consumption, and monetization.
 4. Broadcasters and media companies play an important role in the sports ecosystem, as they are responsible for broadcasting and distributing sports content to audiences around the world (Papanikos, 2023). They also generate revenue through advertising and sponsorship deals.
 5. Sponsors and advertisers provide financial support for sports events and competitions, and in exchange receive exposure to a large and engaged audience (Baker et al., 2022).
 6. Regulators and governing bodies oversee and regulate the sports industry, ensuring fairness and safety for athletes and promoting the integrity of competitions (Faria, 2019; Perić, 2018).

Other stakeholders may include agents, equipment manufacturers, and sports venues, among others (Rossi et al., 2023). Understanding the roles and relationships of these stakeholders is important for understanding the impact of fintech, blockchain (Perdana, 2021), and other emerging technologies on the sports industry. Involving the constructs of value co-creation, engagement platforms, and sport network approaches, Buser et al. (2022) introduce the “Sport Ecosystem Logic” as a general theory to promote innovative research, emphasizing the collaborative nature of sport.

Towards theoretical synthesis of NFT and sport ecosystem

In general, this paper seeks an exploration of the intersection between NFTs and the sports ecosystem, intending to develop a theoretical framework that explains the impact of NFTs on various stakeholders in the sports industry. NFTs have emerged as a new technology that allows for the creation and exchange of unique digital assets, which can include items such as sports collectibles, game highlights, and other sports-related content (Yu, 2021).

The theoretical synthesis of NFT and the sports ecosystem involves the integration of existing theories and frameworks from various disciplines to create a comprehensive understanding of the impact of NFTs on the sports industry. This could involve examining the motivations and behaviors of different stakeholders in the sports ecosystem, such as fans, athletes, teams, and sponsors, and analyzing how NFTs can change the way these stakeholders interact with each other. It involves identifying gaps in current knowledge and understanding of NFTs in the sports ecosystem, proposing new research directions, and discussing how different theoretical and analytical perspectives could be applied to the study of NFTs in sports. Additionally, the synthesis addresses potential challenges and limitations that need to be addressed for NFTs to be effectively implemented in the sports industry, such as ethical issues (Laukyte, 2020), authenticity, and security among others.

Methods

This conceptual paper represents a theoretical synthesis (Jaakkola, 2020) to bridge existing concepts and links towards new theories, reflecting the current context and circumstances, and broadening the ways of thinking. Furthermore, it lets us propose relevant and perspective research directions.

The literature iterative reflexive review let us conceptualize the key elements and develop our own arguments at the intersection of main constructs. This contextualization helps to move towards building a foundation for the subsequent discussion of blockchain's potential applications within the sports industry and lay the groundwork (Treiblmaier et al., 2021) for the ensuing analysis to achieve the article's aims. Namely, the article discusses how blockchain and fintech technologies can enhance fan engagement by providing new ways for fans to experience and engage with sports, such as through the use of NFTs to create unique, collectible digital assets for fans. This analysis recognizes the importance of fans as key stakeholders in the sports industry and considers how technological advancements can impact their interests and needs (Perdana, 2021).

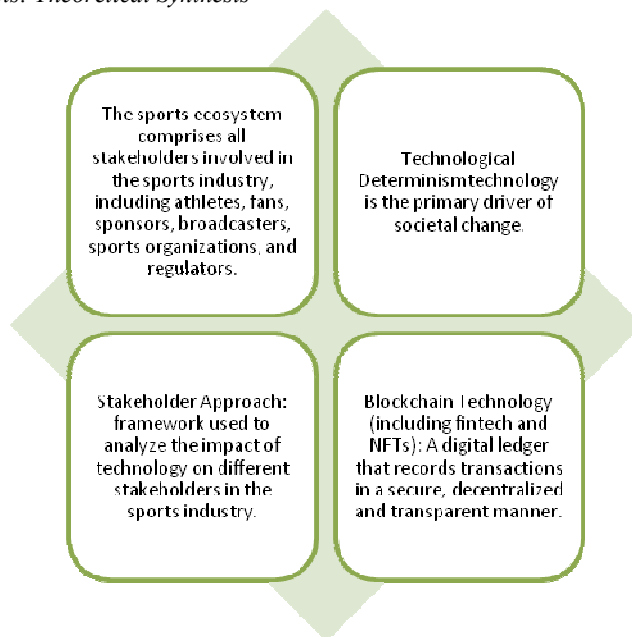
Also, the article discusses how blockchain and fintech technologies can impact athlete contracts and rights. By using smart contracts to manage player contracts and rights, these technologies can potentially provide greater transparency and fairness for athletes. This analysis recognizes the importance of athletes as one of the key stakeholders in the sports industry (Laukyte, 2020), and considers how technological advancements can impact their interests and needs in the form of theoretical synthesis through the prism of technological determinism (Hsueh & Chin, 2022).

Results and Discussion

Blockchain technology is a digital ledger that records transactions in a (1) secure, (2) decentralized, and (3) transparent manner. The potential of blockchain technology to revolutionize the way businesses operate has been recognized by many industries, including the sports industry (Lv et al., 2022), and bringing security, decentralization, and transparency. Thus, for example, blockchain technology can provide new ways for fans to experience and engage with the sport, as well as new monetization and customer relation channels for managers (Rejeb et al, 2020). This paper aims to explore and classify the impacts (Figure 1) of blockchain technology

(focusing on NFT) on the entire sports ecosystem by using a stakeholder approach (Carlsson-Wall & Newland, 2020) and referencing technological determinism theory (Hsueh & Chin, 2022).

Figure1: Key Concepts: Theoretical Synthesis



Key Impacts of Blockchain Technology on the Sports Ecosystem

Fans can benefit from the blockchain with new ways to experience and engage with the sport, which goes beyond professional sport consumption (Zhang et al., 2003). For example, blockchain technology can be used to create fan tokens that give fans voting rights on certain club decisions, such as player transfers and sponsorship deals. Fan tokens can also be used to provide fans with exclusive access to content and experiences, such as meet and greets with players and access to premium content.

Blockchain technology can be used to provide athletes with a more secure and transparent way to monetize their personal brand. For example, blockchain can be applied to create athlete tokens that represent a percentage of the athlete's earnings from various revenue streams. Athlete tokens can be traded on a decentralized exchange, allowing athletes to manage their personal branding and receive compensation for their value (Baker et al., 2022).

Sports organizations employ blockchain technology for new monetization and customer relation channels like loyalty programs that incentivize fans to engage with the club's digital platforms. Furthermore, blockchain technology helps to create smart contracts that let automatize sponsorship deals, ticket sales, and other revenue streams (Chadwick & Holt, 2012).

Blockchain provides broadcasters with smart monetization tools and their management. For instance, blockchain can be used as a base to create a tokenized advertising system that rewards viewers for watching ads. Spectators can earn tokens that can be redeemed for exclusive content, tickets, experiences, and merchandise. Considering all the above, the blockchain has the potential to greatly impact the sports industry by providing new ways for fans to experience and engage with the sport, as well as new monetization and customer relation channels for managers. As the sports industry continues to evolve, blockchain technology will play an increasingly important role in shaping the future of sports (Carlsson-Wall & Newland, 2020; Rossi et al., 2023). In recent years, there has been growing interest in the potential of blockchain and fintech technologies to transform the sports industry. While there have been several notable examples of successful implementations of these technologies, such as the use of cryptocurrency to facilitate transactions and fan engagement, there are also several challenges and limitations that need to be addressed to fully realize the potential of these technologies in the sports industry.

One key challenge is regulatory issues (Faria, 2019). The sports industry is regulated with numerous governing bodies and regulations in place to ensure fair play, safety for all stakeholders, and the integrity of the sport. Blockchain and fintech technologies are relatively new, and there is a lack of clear guidance (policy, legislation) on how these technologies can be effectively implemented within existing regulatory frameworks. This creates uncertainty for sports organizations and stakeholders, who may be hesitant to adopt these technologies until there is greater clarity on how they can be used within the current regulatory landscape. The next field of ambiguity is security concerns. Generally speaking, blockchain technology is designed to be secure, but it is not immune to hacking or other security threats. Given the high value of transactions and assets involved in the sports industry, security is a critical consideration when implementing blockchain and fintech

solutions (Perdana, 2021). Sports organizations and stakeholders must ensure that they have robust security measures in place to protect against potential threats and maintain the integrity of the sport (Laukyte, 2020).

One more challenge for technology development and adoption is potential resistance from traditional sports organizations and stakeholders. The sports industry is steeped in tradition and has a well-established ecosystem of stakeholders, including athletes, teams, leagues, and broadcasters (Peric, 2018). These stakeholders may be resistant to change or may reasonably view blockchain and fintech technologies as a threat to their existing business models (Rejeb et al., 2020). Sports organizations that are looking to implement these technologies must carefully navigate these existing power dynamics, taking into account regulatory and security issues, which require effective public and private sectors partnership and mutual support.

Sporting event broadcasting media outlets can now employ technology to transmit information rapidly, effectively, and efficiently (Glebova et al., 2023). The proliferation of digital technology has made it possible for sports content to be rapidly disseminated to personal devices as soon as it becomes available. NFTs, unique digital identifiers based on blockchain technology, have emerged as a means of recording ownership of sports memorabilia in the digital age. NFTs assign a specific, non-duplicable identifier to digital content, enabling ownership to be established, recorded on a distributed database (Lee et al., 2022).

Each NFT is associated with a smart contract that is executed with each trade, with terms that are applicable indefinitely and irrevocably. NFTs are analogous to physical prints in that each one is unique, though it may be identical to others in a limited run.

The evolving needs and values of sports fans, spurred by advances in technology, have compelled sports marketing and management professionals to explore blockchain technologies and related applications (Khaund, 2020). Live and full-replay coverage of sports events is now widely available, enabling spectators to react, comment, save, and even interact with peers (Glebova et al, 2020).

NFTs have been likened to physical sports trading cards but use digital stills or video and online trading platforms. The value of an NFT is influenced by a range of factors, including the reputation of the athlete or team, the significance of the event, and any additional content included. Each NFT is exclusive to a single edition of a major event (Su et al., 2020), such as a legendary winning goal or celebrity shot, and may include digital versions of physical objects. A limited number of certified, numbered copies of an NFT can be sold through an auction or marketplace, similar to art masterpieces.

NFTs offer potential revenue streams for sports brands, venues, leagues, teams, and athletes. The adoption of new technological applications is transforming the sports industry and creating new stakeholders, relationships, and values (Lee et al, 2022). Consequently, the written above let us suggest that NFTs may bring predefined scarcity to sports digital content and directly contradict principles of inclusivity and equal accessibility (Laukyte, 2020). This means that certain digital assets may only be available in limited quantities, making them valuable and sought-after by collectors (Husin et al., 2022). This could create a situation where only a small group of people (or organizations) are capable to access and collect these assets, potentially contradicting principles of inclusivity and equal accessibility in sports and enhancing the winner-takes-all effect (Glebova et al., 2023).

Additionally, the value of NFTs is based on their rarity, it could be manipulated by some malicious actors, it could result in an unfair distribution of access to these assets. Therefore, it would be important for stakeholders to consider these potential issues when implementing NFTs and other blockchain technologies in the sports industry, and to develop strategies to ensure that these technologies are used in a way that promotes inclusivity and equal access for all fans. However, despite all described challenges and limitations, there is significant potential for blockchain and fintech technologies to revolutionize the sports industry and build new innovative business models (Lv et al., 2022). By providing new ways for fans to engage with the sport, monetize their personal brands, and streamline transactions, these technologies have the potential to create a more open and transparent sports ecosystem, bringing new values and changing the philosophies of the whole industry. However, it will require careful consideration of the challenges and limitations involved to effectively implement these technologies and unlock their full potential in the sports industry.

Monetization and financial side

One way that these technologies can impact monetization in sports is through the use of cryptocurrency and it can create new channels and tools for teams and athletes to receive payments from fans and sponsors, without the need for intermediaries such as banks and agencies. This can help to reduce transaction fees and streamline the payment process, making it easier and more transparent for all users.

In addition to cryptocurrency, generally, the use of blockchain can also create revenue streams for sports teams and athletes (O'Dair, 2018). For instance, blockchain can be used to create unique digital assets such as fan tokens or collectibles, which can be sold to fans, investors, and collectors. This can shape a new market for sports-related content and merchandise, with the potential for increased revenue generation.

As for the NFTs in the sports industry, it has the potential to transform the way value is assigned to sports-related content and memorabilia (Lee et al, 2022). By creating unique and verifiable digital assets, NFTs can create a new market for collectors and fans, with the potential for increased value and revenue generation. This can also create new opportunities for athletes and teams to monetize their own content and brand, independent of traditional media and sponsorships.

Athletes' perspective

One way that these technologies can impact athletes' rights is through the use of smart contracts. It helps to create more transparent and secure player contracts, with the potential to better protect athletes' rights and ensure fair compensation. Additionally, it may facilitate the transfer of player rights. By using blockchain to create verifiable records of player transfers and ownership, the potential for fraud or exploitation can be technically reduced, further protecting athletes' rights as well. Also, the use of NFTs potentially impacts athletes' rights. By creating unique digital assets tied to athletes' content and brand, NFTs can give athletes greater control over their image and representation, independent of traditional media and sponsorships.

Fan Experiences and Fan Engagement

The use of new technologies such as blockchain, fintech, and NFTs in the sports industry can also impact fan engagement. Namely, cryptocurrency and blockchain-based transactions may create a more streamlined and secure way for fans to purchase tickets, merchandise, and fan experiences (Husin et al., 2022). The NFTs can provide fans with unique and collectible digital assets. This creates a new level of fan engagement and loyalty, adding new intangible values to the fans' customer journey, as fans can own a piece of their favorite team or player's history and brand (Rejab et al., 2020).

Also, smart contracts can enable fans to be involved in the decision-making processes of their favorite teams. For example, fan token offerings (FTOs) can allow fans to purchase tokens that give them voting rights on certain team decisions (Zarifis & Cheng, 2022), such as logo designs, branded merchandise styles, or charity donations. Thus, smart implementation technologies can enhance fan engagement in the sports industry, creating new and innovative ways and models (Lv et al., 2022) for fans to interact with their favorite teams and players (Zarifis & Cheng, 2022).

In terms of fan customer relationship management (CRM), blockchain can create a more personalized and rewarding experience for fans through the use of loyalty programs and fan tokens. These tokens can allow fans to participate in decision-making processes, vote, and access exclusive content and experiences, creating a sense of ownership, cottoned-on immersive social experiences, and community within the fan base (Glebova et al., 2020; Mastromartino et al., 2022).

The use of fintech can also transform the way revenue is generated and distributed in the sports industry as a whole (Khaund, 2020). The cryptocurrency diffusion potentially can lead to a more efficient and global way to process transactions and eliminate barriers to entry for fans in different parts of the world. Additionally, fintech can create new revenue streams for teams, athletes, and fan communities (Mastromartino et al., 2022) through the use of digital advertising, news, user-generated content, sponsorships, and endorsements. To this end, the NFTs in the sports industry can transform the way value is assigned to sports-related content and memorabilia (Husin, 2022). By creating unique and verifiable digital assets, NFTs can create a new market for collectors and fans, with the potential for increased value and revenue generation. This can also create new opportunities for athletes and teams to monetize their own content and brand, independent of traditional media and sponsorships. The introduction of these new technologies has the potential to transform the values that have traditionally governed the sports industry, promoting transparency, fairness, and new forms of value creation and distribution (Naraine, 2019).

Conclusion

In conclusion, the use of blockchain, fintech, and NFTs has the potential to significantly impact the sports industry, transforming the way stakeholders interact and conduct business within the sports ecosystem (Naraine, 2019; Carlsson-Wall & Newland, 2020; Buser et al., 2022). These technologies have the potential to reshape values and change philosophies in the industry by providing new avenues for monetization and enhancing athlete's rights and fan engagement.

The application of these technologies can enable more technically secure and efficient transactions, streamlining the ticketing and merchandise sales processes. The use of smart contracts can add transparency in the management of athlete's contracts and stakeholders' rights, leading to fairer and more equitable treatment of athletes and secure regulation of all stakeholders' interactions (O'Dair, 2018; Perdana, 2021). The creation and mass dissemination of NFTs can provide a new level of fan engagement, allowing fans to own unique digital assets tied to their favorite teams and players (Zarifis & Cheng, 2022). Also, it helps to reorganize monetization opportunities for sport brands, communities, organizations, teams, and leagues, as they can sell these assets to fans for a premium. Furthermore, these technologies have the potential to create a more democratized and inclusive sports industry, with the potential for greater fan participation in decision-making processes through blockchain-based voting systems.

To this end, the use of blockchain, fintech, and NFTs has the potential to transform the sports industry in numerous ways, leading to greater efficiency, transparency, and fan engagement. It is an exciting time for the sports industry, and the potential impact of these technologies will continue to be an area of significant interest for scholars, practitioners, and stakeholders alike.

Limitations

One of the limitations of this conceptual analysis is that it is based on existing literature and secondary sources. While the authors have attempted to provide a comprehensive overview of the current state of

knowledge, there may be gaps in the literature that have not been identified. Additionally, the analysis is limited to the current state of the industry and may not account for future developments or changes in the sports ecosystem.

Another limitation is that the analysis is largely theoretical and does not provide empirical evidence to support the claims made. While the authors have attempted to draw on existing research and case studies to support their arguments, further empirical research is needed to fully understand the impact of fintech and blockchain technologies on the sports industry (O'Dair, 2018).

Finally, the analysis is largely focused on professional sports and may not account for the unique challenges and opportunities that exist in amateur, women, and grassroots sports, among other niches. Further research is needed to understand how these technologies can be effectively implemented in these contexts.

Further Research ideas, perspectives, and directions

One important area of research would be to identify gaps in current knowledge and understanding and propose new research questions that could be explored in future studies. Further studies should examine how blockchain and fintech technologies could be used to promote social and environmental sustainability in the sports industry. Additionally, they could investigate the ethical implications of using these technologies in sports, such as the potential impact on privacy and data protection for athletes and fans.

Another potential avenue for future research would be to explore how different theoretical and analytical perspectives could be applied to the study of fintech in sports. Namely, the institutional theory to examine how regulatory frameworks and institutional pressures shape the adoption and implementation of these technologies in the sports industry (and beyond). Alternatively, they could use stakeholder theory to understand the various interests and needs of different stakeholders in the sports ecosystem, and how these stakeholders are impacted by the use of fintech technologies, referring to the case study approach. Alternatively, seems interesting to conduct a case study of a sports organization that has successfully implemented a blockchain-based platform for managing player contracts and rights.

Looking forward, future research can focus on exploring the implications of these technologies on the sports industry in greater depth, including the potential challenges and limitations that need to be addressed for effective implementation (Laukyte, 2020). Technology acceptance and technology readiness index matter in mass dissemination. Additionally, new and innovative uses of these technologies can be explored to further enhance the fan experience and create new opportunities for monetization and engagement in the sports industry. It requires quantitative and qualitative empirical studies, especially interdisciplinary ones (Treiblmaier et al., 2021).

There is significant potential for future research to further our understanding of the impacts of blockchain and fintech technologies on the sports industry. As these technologies continue to evolve and become more prevalent, it will be important for researchers to stay up-to-date with the latest developments and explore new research directions that can help to guide the future of the sports ecosystem (Laukyte, 2020; Rejeb et al., 2020).

References

- Baker, B. J., Kunkel, T., Doyle, J. P., Su, Y., Bredikhina, N., & Biscaia, R. (2022). Remapping the sport brandscape: A structured review and future direction for sport brand research. *Journal of Sport Management*, 36(3), 251-264.
- Buser, M., Woratschek, H., Dickson, G., & Schönberner, J. (2022). Toward a Sport Ecosystem Logic. *Journal of Sport Management*, 36(6), 534-547. Retrieved Mar 23, 2023, from <https://doi.org/10.1123/jsm.2021-0056>
- Carlsson-Wall, M., & Newland, B. (2020). Blockchain, sport, and navigating the sportstech dilemma. *21st Century Sports: How Technologies Will Change Sports in the Digital Age*, 205-218.
- Chadwick, S., & Holt, M. (2012). Building global sports brands: Key success factors in marketing the UEFA Champions League. In *Marketing and Football* (pp. 21-50). Routledge.
- Faria, I. (2019). Trust, reputation and ambiguous freedoms: financial institutions and subversive libertarians navigating blockchain, markets, and regulation. *Journal of Cultural Economy*, 12(2), 119-132.
- Glebova E., Desbordes M., Geczi G. (2020). Relocations of Sports Spectators' Customer Experiences. *Phys. Educ. Sport Sci.* 1 44-49. 10.21846/TST.2020.1-2.4
- Glebova, E., Desbordes, M., & Geczi, G. (2022). Mass Diffusion of Modern Digital Technologies as the Main Driver of Change in Sports-Spectating Audiences. *Frontiers in Psychology*, 13.
- Glebova, E., Terrien, M., Desbordes, M. (2023, under review). Does Digitalization Increase the Winner-Takes-All Effect in sport Industry? Under review.
- Hsueh, C. W., & Chin, C. T. (2022). Toward Blockchain Realization. *FinTech*, 1(1), 81-99.
- Husin, N., Budiyanto, A., Karjono, A., Christiningrum, M. F., Yurindera, N., Nuryanti, D., ... & Wicaksono, B. W. (2022, September). Analyzing the Non-Fungible Tokens (NFT) Implementation in Digital Music Industry: A Mix Method Study. In *2022 10th International Conference on Cyber and IT Service Management (CITSM)* (pp. 1-7). IEEE.

- Jaakkola, E. (2020). Designing conceptual articles: four approaches. *AMS Rev* 10, 18–26 (2020). <https://doi.org/10.1007/s13162-020-00161-0>
- Khaund, S. (2020). Blockchain: From Fintech to the future of sport. *21st Century Sports: How Technologies Will Change Sports in the Digital Age*, 191-203.
- Laukyte, M. (2020). Disruptive technologies and the sport ecosystem: A few ethical questions. *Philosophies*, 5(4), 24.
- Lee, P., Ajadi, T., Westcott, A., Crossan K. (2022). From trading cards to digital video: Sports NFTs kick sports memorabilia into the digital age. Deloitte's Technology, Media, and Telecommunications (TMT) group, *Deloitte Insights*, https://www2.deloitte.com/content/dam/insights/articles/GLOB164584_Sports-NFT/DI_SportsNFT.pdf [last access: 06/06/2022]
- Lv, C., Wang, Y., & Jin, C. (2022). The possibility of sports industry business model innovation based on blockchain technology: Evaluation of the innovation efficiency of listed sports companies. *Plos one*, 17(1), e0262035.
- Mastromartino, B., Wang, J. J., Suggs, D. W., Hollenbeck, C. R., & Zhang, J. J. (2022). Dimensions of sense of membership in a sport fan community: Factors, outcomes, and social capital implications. *Communication & Sport*, 10(6), 1229-1256.
- Mereu, S. (2023). NFT Sports Collectibles: Characteristics and Factors of Consumer Value. In A. Naim & V. Devi (Eds.), *Global Applications of the Internet of Things in Digital Marketing* (pp. 310-331). IGI Global. <https://doi.org/10.4018/978-1-6684-8166-0.ch016>
- Naraine, M. L. (2019). The blockchain phenomenon: Conceptualizing decentralized networks and the value proposition to the sport industry. *International Journal of Sport Communication*, 12(3), 313-335.
- O'Dair, M. (2018). Distributed creativity: How blockchain technology will transform the creative economy.
- Papanikos, G. T. (2023). The Global Media Coverage of the 2022 Qatar World Football Cup. *Athens Journal of Sports*.
- Perdana, A., Lee, W. E., & Robb, A. (2021). From enfant terrible to problem-solver? Tracing the competing discourse to explain blockchain-related technological diffusion. *Telematics and Informatics*, 63, 101662.
- Perić, M. (2018). Estimating the perceived socio-economic impacts of hosting large-scale sport tourism events. *Social Sciences*, 7(10), 176.
- Rejeb, A., Keogh, J. G., & Treiblmaier, H. (2020). How blockchain technology can benefit marketing: Six pending research areas. *Frontiers in Blockchain*, 3.
- Rossi, T., Raw, K., Friesen, A., Patrick, T., & George, E. (2023). COVID-19 and the Developmental Aspects and Attributes of Sport. In *Routledge Handbook of Sport and COVID-19* (pp. 252-263). Routledge.
- Su, Y., Baker, B., Doyle, J., Kunkel, T. (2020) The Rise of an Athlete Brand: Factors Influencing the Social Media Following of Athletes. *Sport Marketing Quarterly*. 29. 33-10.32731/SMQ.291.302020.03
- Treiblmaier, H., Swan, M., De Filippi, P., Lacity, M., Hardjono, T., & Kim, H. (2021). What's Next in Blockchain Research? -An Identification of Key Topics Using a Multidisciplinary Perspective. *ACM SIGMIS Database: the DATABASE for Advances in Information Systems*, 52(1), 27-52.
- Yu, S. (2021). Application of blockchain-based sports health data collection system in the development of sports industry. *Mobile Information Systems*, 2021, 1-6.
- Zarifis, A., & Cheng, X. (2022). The business models of NFTs and fan tokens and how they build trust. *Journal of Electronic Business & Digital Economics*.
- Zhang, J. J., Lam, E. T., & Connaughton, D. P. (2003). General market demand variables associated with professional sport consumption. *International Journal of Sports Marketing and Sponsorship*.