Opportunities of Blockchain Technology

The Film Industry: Cryptocurrencies, tokens and NFTs

Oportunidades de la tecnología *blockchain*

La industria cinematográfica: criptomonedas, tokens y NFTs

Oportunidades da tecnologia *blockchain*

A indústria cinematográfica: criptomoedas, tokens e NFTs

DOI: https://doi.org/10.18861/ic.2024.19.1.3457

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HOW TO CITE: Linares, R., Fernández Manzano, E. & González Vasco, M. I. (2024). Opportunities of Blockchain Technology. The Film Industry: Cryptocurrencies, tokens and NFTs. *InMediaciones de la Comunicación*, *19*(1), pp. 137-159. DOI: https://doi.org/10.18861/ic.2024.19.1.3457

Submission date: September 1, 2023
Acceptance date: December 3, 2023

ABSTRACT

The film industry has been generating new processes in the value chain thanks to the emergence of new

technologies such as blockchain. Blockchain technology comes from the IT field and is analysed in this article with the aim of identifying and reflecting on the new business models that this technology entails. In this sense, it analyses how NFTs (Non-Fungible Tokens), unique digital media regulated precisely through blockchain technology, are breaking into artistic and cinematographic creation formats, thereby reaching new audiences. This raises controversies regarding intellectual property and its subsequent management. As a result of the research carried out, with a positive assessment and an openness to new forms of production, it was discovered that the emergence of new processes requires some time for assimilation, while transparency in management, the degree of knowledge and handling of technology and mistrust are aspects observed among users.

KEYWORDS: *blockchain, criptocurrency, NFTs, crowdsourcing, films, film industry.*

RESUMEN

La industria cinematográfica ha comenzado a generar nuevos procesos en la cadena de valor gracias a la irrupción de nuevas tecnologías como el *blockchain*. La tecnología *blockchain* procede del ámbito informático y es analizada en este artículo con el objetivo de identificar y reflexionar sobre los nuevos modelos de negocio que conlleva. En este sentido, se analiza cómo los NFTs (*Non-Fungible Tokens*), soportes únicos digitales regulados precisamente a través de la tecnología *blockchain*, irrumpen en formatos de creación artística y cinematográfica, logrando así alcanzar nuevos públicos. Esto supone controversias respecto a la propiedad intelectual y su consiguiente gestión. Como resultado de la investigación realizada, con una valoración positiva y una apertura a las nuevas formas de producción, se descubre que la irrupción de nuevos procesos requiere de ciertos tiempos de asimilación, en tanto la transparencia en las gestiones, el grado de conocimiento y manejo de la tecnología y la desconfianza se presentan como aspectos observados entre los usuarios.

PALABRAS CLAVE: *blockchain, criptomoneda, NFTs, crowdsourcing, cine, industria del cine.*

RESUMO

A indústria cinematográfica começa a gerar novos processos na cadeia de valor graças ao surgimento de novas tecnologias como o *blockchain***.** O *blockchain* vem da área de informática e é analisado nesta pesquisa com o objetivo de identificar novas oportunidades, da mesma forma que são estudados os novos modelos de negócios que esta tecnologia acarreta. Nesse sentido, analisa-se como os NFTs **(***Non-Fungible Tokens***),** suportes digitais únicos regulados justamente pela tecnologia *blockchain***,** se rompem em formatos de criação artística e cinematográfica, conseguindo assim atingir novos públicos, além da obra. Isto envolve controvérsias relativas à propriedade intelectual e sua posterior gestão. Como resultado desta pesquisa, mostra-se que o surgimento de novos processos exige certos tempos de assimilação, enquanto a transparência na gestão, o grau de conhecimento e gestão da tecnologia e a desconfiança são aspectos observados entre os usuários. Da mesma forma, a miríade de oportunidades que o uso desta tecnologia acarreta também é considerada uma avaliação positiva.

PALAVRAS-CHAVE: *blockchain, criptomoneda, NFTs, crowdsourcing, cinema, indùstra cinematográfica.*

1. INTRODUCTION

The emergence of blockchain technology in the film industry has led to a reformulation of business and management models. Within this framework, Anderson (2006) establishes how the access possibilities offered by the Internet modify consumption mechanics, especially in the film sector, while massive data management –or big data– has reformulated the way of generating strategies that attract viewers or users. As indicated by Kotler, Kartajaya and Setiawan (2021), data-based actions are oriented around predictive models that enhance the performance of marketing investments: that is, hyper-segmentation is carried out to hyper-personalize content on streaming platforms (such as Netflix) and thus guarantee success in consumption. We can therefore consider that the traditional value chain has been altered, giving way to new concepts such as the aforementioned culture of access and the efficient distribution of content through business models based on platforms, management, analysis and visualization of big data. It is at this point where the application of disruptive technologies such as blockchain offers a range of possibilities for both businesses and users. In this article, we analyze in particular the use and effects of blockchain technology in a conventional medium such as the film industry. To do so, we will observe the main changes derived from the contributions of this new technology, which are reflected in the description of real cases. It should be noted that the examples collected are still scarce and most of them are more experimental in nature, rather than a consolidated model.

In this scenario, the general objective of the article is to identify the areas of application of blockchain technology in the film industry. To do so, the study of cryptocurrencies, tokens and Non-Fungible Tokens (NFTs) becomes fundamental. It is also worth mentioning that the film industry, as the context for this research, is expanding through digital channels such as streaming platforms and crowd phenomena that promote the creation of communities. In this specific context, and as research is at a critical point due to the proliferation of new actions that unite technology and content production, the paper seeks to provide new lines of research and discussion to the academic field of a complex issue.

In the first part of the article we describe blockchain technology and present the basic notions necessary to understand this type of infrastructure. The following section focuses on applications intended for the entertainment industry, focusing on the film sector. Next, we analyze the so-called NFTs, creations in digital format whose market is regulated through blockchain technology. For all these reasons, we propose a methodological framework that first establishes a technical research work on blockchain technology with the idea of being able to understand its scope and current impact in areas such as financing and promotion of audiovisual productions. Finally, we selected for analysis a series of cases from the film industry: the conventional value chain is identified and,

subsequently, we document the processes carried out in the different chain links focused on financing, promotion and management of legal processes related to the execution of contracts and the distribution of income. This analysis is approached from an international perspective and focused on a time period of 10 years, since technically this is the time frame in which the film industry can achieve the inclusion of blockchain technology in its processes.

THEORETICAL FRAMEWORK

2.1. Blockchain

Blockchain technology is one of the most strident technological innovations of the last ten years, having emerged from a very restricted computing environment and then spread to multiple areas in a short time. For many, it is a technological revolution that has come to free up highly regulated sectors such as banking, the energy industry and even the art market (Makridakis & Christodoulou, 2019; Patrickson, 2021). For others, it is a kind of global experiment whose consequences are yet to be revealed (Kugler, 2021).

Taking into account the aforementioned sectors, its appeal lies in the possibility of dispensing with a regulatory authority that controls and audits the processes. For example, in a digital auction, the trust that needs to be placed in the organizer is very great, since it is their responsibility that the development of the auction is subject to the rules accepted by all participants. Blockchain technology democratizes the role of these regulatory authorities, distributing their privileges and duties among all users of the system (Liu, Zhang & Han, 2021).

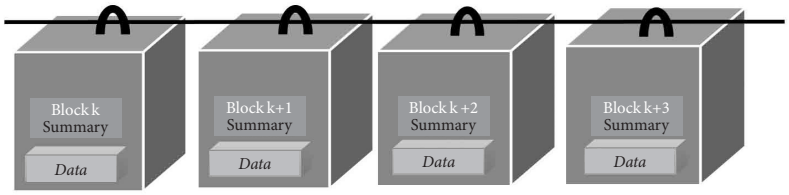
In terms of its basic structure, the blockchain is presented as a distributed data structure: a kind of ledger accessible to a group of users in which each entry must conform to the rules previously agreed upon by the group of users. In this sense, we can identify a series of elements that are part of every blockchain structure:

- The user group: it is the community, group of entities, people or actors who, subject to specific conditions and rules, verify and validate the actions carried out (annotations).
- The rules: these are the conditions and processes that must be carried out to proceed to validate the annotations.
- The blocks: these are the basic content units, the documents that are linked to form the data structure. Each block is related to the previous ones (typically, including a summary of the information contained in the preceding block).
- The annotations: these are the actions carried out in the blockchain. They cannot be deleted or edited; this is how the utility function is established.

If we start from the English term, blockchain, the concept offers an

appropriate definition, since this system can be described as a chain of information blocks (Graph 1) that are linked in the final structure as their validity is verified with respect to the established rules, being, in a certain sense, immutable once they are incorporated.

Graph 1. Schematic representation of a blockchain



Source: Own elaboration.

Without a doubt, one of the central points when approaching the design of a blockchain is establishing the set of rules that delimit the validity of the annotation. A typical scenario is one in which in order to declare a block (or a block fragment) correct, a vote is held among all users and it is required that the majority agree with it. When this occurs, the annotation is accepted because a consensus has been reached. The notion of consensus, in addition to its widely extended meaning, in this context, is inherited from the term applied in distributed computing: when we talk about consensus mechanisms we refer to methods to achieve agreement between several users and actors about the state of a shared file (for example, an accounting book). Of course, requesting the opinion of all users is not an easily scalable strategy if the blockchain is intended to be used on a massive scale. This is the case of blockchains associated with cryptocurrencies[1], for which it would be impractical to wait for the confirmation of a majority of users to validate each economic transaction. In this sense, a reasonable alternative is to designate one or several sets of users who will be in charge of confirming the annotations and, therefore, will be the only ones involved in each validation.

Based on this cooperative work scenario, the objectives of including blockchain validation in a business process are diverse and sometimes conflict with each other. In the case of cryptocurrencies, different users might have an interest in certain annotations not being executed –perhaps, for example, bank charges in their own accounts. In another field of application, such as using blockchain to implement electronic voting, voters who support a party may benefit if many votes are not counted –for example, if they believe that low participation benefits their party. Thus, in any of the previous scenarios, considering that users may have different objectives that could conflict, it is

1 Virtual currencies whose management is organized through blockchain technology; a prominent example is *Bitcoin*.

worth considering what happens if many users try –cooperatively– to include erroneous annotations in the blockchain. At this point, we can extract different approaches to the application of blockchain to society and the business world; approaches such as the motivation behind all validation and the possible creation of an ethical code that regulates good practices or actions.

However, the rules that define consensus must accept this type of behavior, as long as they are not the most common ones. This is achieved by solving a kind of optimization problem called the Byzantine generals problem (Lamport, Shostak & Pease, 1982). In many cases, the solution to this problem will assign a "leader" among the users who can decide which is the next block to be included in the chain. This selection is made through specific algorithms called Proofs of Work (PoW) or Proofs of Stake (PoS).

On the other hand, it is common to implement a smart contract associated with the blockchain. A smart contract is a program that runs automatically whenever certain predetermined conditions are verified by the code; in a certain way, it is used as an automatic manager of the agreed rules in which all users trust. Typically, these contracts are used to automate processes that are secure for all users and without the need to involve third parties. Later, we will see what role these types of contracts play in the film industry. Since the code describing the smart contract is public and immutable, all users trust that its execution will be correct and provide the expected results. In this way, the implementation of a smart contract simplifies consensus mechanisms, since most of the processes performed on the data are accepted, by default, as having been performed correctly.

2.2. Cryptocurrency and Token

In the cryptocurrency sphere, Bitcoin represents the paradigmatic example of blockchain use. Its design was proposed (Nakamoto, 2008) as a new type of electronic currency managed from a peer-to-peer network, allowing electronic transactions between users without the need for a financial institution to supervise them.

As explained in Tschorsch and Scheuermann (2016), the idea of Bitcoin is to obtain electronic money without a central authority that controls all transactions. Let us suppose that we have two users, Alice and Bob, following the usual terminology in cryptographic literature. If Alice wants to make a transfer to Bob in the digital world, this could be implemented through a content contract "I transfer the amount X to Bob" that Alice would approve using an electronic signature. This signed contract is what is usually called a transaction in the cryptocurrency world. Although this type of contract can be verified using Alice's public key, the method has a clear duplicity problem: nothing prevents Bob from making many copies of the contract signed by Alice to claim that she has transferred the amount X to him several times, since the digital signature

only guarantees that the contract was signed by Alice at some point. Hence the need for some kind of control (in traditional electronic banking, this would be guaranteed by the bank, which signs and assigns a unique code to each transaction to avoid duplicity). Thus, Alice would sign a contract of the type "I transfer the amount X to Bob, code A412G", and Bob could check it with the bank by giving the corresponding code, A412G, in this case, while the bank would note that the amount X disappears from Alice's account and appears in Bob's account, to later mark the code A412G as "spent". Bitcoin, however, seeks to "democratize" these processes, so that the role of the bank is implemented by all users of the system through a consensus protocol. In this way, the users of the electronic money would be the ones to decide whether a transaction is valid or not, the transaction is recorded in the "common ledger" –the blockchain– and the balances of the users involved are updated in a coherent manner, ultimately incorporating new blocks into the main chain.

Today, there are many other blockchain applications outside of cryptocurrencies, most of which are implemented through the development of smart contracts that make explicit the task of auditing and monitoring the correctness of the implementation of a process. We have already mentioned other examples such as electronic voting or auctions, but new and surprising applications appear every day. These include artistic production and the sale of products derived from the world of entertainment, among other areas. In fact, this is possible because within a blockchain the ownership and transfer of almost any type of product can be managed, in addition to the fact that

> as a facilitator of sustainable innovation, the blockchain could encourage aggregators to redefine or reinforce their place in the value chain. In many cases, the role of the aggregator cannot be fully automated and replaced by blockchain smart contracts. (Dutra, Tumasjan & Welpe, 2018, p. 44)[2]

The term token is usually used to refer to an asset (in principle, not tangible) whose commercialization is defined in this scenario. What interests us now is to see how the entertainment industry has been able to take advantage of the potential of this type of process.

2.3. NFTs

The development of the blockchain has accompanied the rise of cryptocurrencies and from them the so-called NFTs have been derived. The term designates almost any type of digital element that is not reproducible in an undetectable way, in the sense that there is a way to attribute ownership of it that is inseparable from its own content. Certainly, we can see NFTs as a special type of unique tokens that bear a kind of indelible watermark, thus being able

2 Translator's note: All quotes from authors that appear in Spanish in the original version of this text were translated into English by the translator.

InMediaciones de la Comunicación 2024 - VOL. 19 / Nº 1 - ISSN 1510-5091 - ISSN 1688-8626 (ONLINE) - MONTEVIDEO (URUGUAY)

to identify the authorship or ownership unequivocally despite their portability. In this sense, we will now talk about tokenization of content to refer to its fragmentation into NFTs of different sizes/durations –we will refer to these NFTs simply as tokens.

3. DISCUSSION OF RESULTS

3.1. Three Keys to the Application of Blockchain: Trust, Efficiency and Immediacy

From a first approximation, we can raise several appealing characteristics that this new technology is having in its origins and that represent an important challenge for the traditional film industry (Liu, Zhang & Han, 2021; Makridakis & Christodoulou, 2019). To do so, one of the first points we want to focus on is probably the most basic and obvious of blockchain technology: trust and efficiency. On the one hand, trust, since smart contracts inserted in a blockchain translate into effective, unalterable contracts that do not allow transgressions and are always available to all interested parties, so their loss or misplacement is not possible. From the private sector's point of view, the film industry is divided into three classic areas that communicate with each other: production (in charge of financing and executing the film), distribution (whose task is to acquire the rights of the films from the producers in order to distribute the films through third parties) and exhibition (the sector that acquires the film and ultimately is responsible for its public screening).

These three sectors coexist and their negotiations are constant with the transfer of film rights from one to another. But this structure becomes more complicated when we talk about an international market where sales agents and/or aggregators also intervene, mediators who are in charge of the international trade of films. Among these agents, the traditional way of working is through the signing of contracts that require mutual trust. Obviously, these contracts apply clauses requiring temporary reports (semi-annual or annual are usually the industry standard) detailing the sales made, the economic amounts generated and the distribution percentages. These figures are difficult to trace, for example, a producer who has given his film to a sales agent for distribution in international markets has to fully trust the information he receives, so naturally moments of disagreement and mistrust arise. With blockchain contracts all information remains accessible and immediate so that all parties have absolute control over their products in real time. Similarly, the distribution of money is also plausible to be traced. This can be especially useful in the case of the box office of cinemas, where we will dynamically have the gross data and the relevant distributions can be automatically applied, avoiding bad practices. These have happened in the past in Spain due to the alteration

of box office data figures[3]. "Technology will reduce the cost of infringement and improve the quality of illegally obtained products. At the same time, it will improve the difficulty of management and protection of copyright" (Liu, Zhang & Han, 2021, p. 3150)[4].

With this immediacy, another of the traditional elements of distrust in the industry is exhausted. That is, in the economic distribution, the sales agent calculates a series of expenses (advertising, attendance to markets, trips, etc.) on the sale of the film that impacts the distribution:

sale – applied expenses = amount to be distributed

These expenses are often difficult to prove and very variable, being a point of conflict. In contracts implemented on blockchain it is possible to stipulate these expenses from the beginning, avoiding variables that are difficult to justify. This same element leads us to efficiency. Sales agents, producers and other entities involved usually work with large volumes of films, negotiations and derived expenses. This means that sometimes accounting errors can occur or long periods of time may be required to have control over income and expenses. This inconvenience is neutralized with the real-time information offered by blockchain contracts, allowing for agile accounting and reducing processes associated with economic management.

It is also interesting to consider the benefits of trust from the point of view of the public sector. The film industry is a sector that is heavily controlled by the State in Spain through public aid and tax incentives. State programs such as those offered by the Instituto de la Cinematografía y las Artes Audiovisuales (ICAA), or international programs such as Ibermedia, are not non-repayable aid. Depending on the type of aid received, a return of part of the funds received is required depending on the earnings and amortization of the film. These controls are currently carried out through reports submitted by the producing companies regarding their own films. If these are erroneous or incomplete (as we have seen above), they translate into a critical source of mistrust and reputational damage. The use of blockchain technology allows for exhaustive control of all public money and its application, achieving an improvement in the transparency and monitoring of each contribution.

An appropriate example of the advantages we have analyzed can be found in the British startup Film Chain[5], which offers its clients the Filmchain platform as a solution where all contracts and economic flows for the management and

3 While the General Aids for Cinematography were based on an amortization model, alleged fraudulent behavior occurred. In this way, tickets were bought spuriously to ensure that films that had had little box office success reached the minimum limit required by the call. This problem ended when the general aids began to be awarded at the financing stage of the film instead of amortization. See: Hernández (2015).

4 Translated by the paper's translator.

5 See: https://filmchain.co/.

marketing of a film can be operated through smart contracts. Another success story is the company Breaker[6], which offers an advanced economic management system based on blockchain and cloud-based technologies.

Additionally, these smart contracts aim to put an end to one of the traditional problems of films: the complexity of rights tracking. It is common that over the years, rights pass from one distribution company, exhibitor, platform or television company to another. Even more so if we refer to independent films that are outside the umbrella of the major studios that may have tighter control of their assets. This loss or lack of knowledge of the ownership of rights is a problem for the management of revenue, and ends up affecting the distribution and production sectors and, therefore, the filmmakers themselves (Lee, Yang & Kim, 2021).

As we have mentioned, blockchain contracts are malleable. To point out a specific aspect, it can be ensured that in each transaction associated with a film (i.e. production, distribution and exhibition) a percentage of the income can go directly to the authors of the work. Traditionally, rights management entities, such as the Sociedad General de Autores y Editores (SGAE), the Artistas Intérpretes, Entidad de Gestión de Derechos de Propiedad Intelectual (AISGE) entity and the Derechos de Autor de Medios Audiovisuales (DAMA) entity, have been in charge of monitoring the commercialization and exhibition of works. These entities, through the identification of the economic transactions of cinematographic products, can obtain the percentage corresponding to the rights of their authors and thus proceed to the economic distribution. As we indicated previously, not all countries or all companies proceed with the transparency and efficiency offered by blockchain technology, thus it presents itself as a guarantor of rights management. Furthermore, this reality would question the need for the aforementioned management entities.

3.2. Advantages Applied to the Film Industry: Community Maintenance and Creation

One of the many changes that digitalization has brought to the film industry is the relationship that creators can maintain with their followers. From now on, we will use the terms community and fans, linking with the concept defined by Jenkins (2008) based on the term collective intelligence coined by the French cybernetic theorist Pierre Lèvy. This term finds its raison d'être when referring to the capacity of virtual communities to stimulate the combined expertise of their members. "None of us can know everything; each of us knows something; and we can put the pieces together if we share our resources and combine our skills," says Jenkins (2008, p. 15). It is precisely this sum of knowledge that encourages the participation of the fan phenomenon. Let us

6 See: https://breaker.io/.

think that this not only benefits the major productions –from big studios– and franchises such as those of Marvel and Disney.

There is also another type of cinema labeled as independent or auteur cinema, which includes films outside the circuit of the major studios and large media corporations. This type of cinematography has encouraged the creation and maintenance of the concept of community, thus fostering a collective movement called crowdsourcing where the knowledge and action of the multitude can benefit a greater objective, in this case a film. This term appears for the first time referenced by Howe (2006) and establishes the purpose of companies being able to use the potential resources that connect the Internet (users, servers, etc.) to solve a task. Furthermore, in Estellés-Arolas and González-Ladrón-De-Guevara (2009) different modalities are established based on the tasks to be carried out, highlighting in Reichwald & Piller (2006) missions related to cooperation and the improvement of operational processes. Other types of actions are those linked to creative tasks typical of collective intelligence or crowdwisdom (Howe, 2008) such as market prediction, competition and challenges, and brainstorming. We can also consider crowdproduction, which incorporates the community's contribution in aspects that will form part of the final production. These last definitions are especially applicable to the cultural and entertainment field. Based on this consideration, it is understandable that this action is highly popular among independent creators and their fan communities.

As these collective participation actions have become established, other highly interesting models for film financing have emerged, such as equity-based crowdfunding, which consists of the purchase of small shares of an asset. Thus, one of the key aspects of blockchain plays out: trust. In this way, the aforementioned collective participation processes may require special attention. The dynamics of crowd actions involve many steps to follow, so the transparency, efficiency and flexibility that blockchain provides are especially disruptive.

In the film industry, the collaborative project Mad Heidi (2021), by Swiss director Johannes Hartmann, stands out. The film narrates in a dystopian key a Switzerland invaded by the Nazis. In that scenario, a new revision of the character Heidi created by Johanna Spyri in 1880, becomes a fighter who fiercely seeks the freedom of her people. The production process of this film implements alternatives to generate not only a cooperative financing route (crowdfunding), but also a mode of collective creation (crowdsourcing). The community creation of Mad Heidi is strongly influenced by the Norwegian film Iron Sky (Vuoronsela, 2021), the first major European crowdsourcing and crowdfunding phenomenon, with which it shares a genre and a strong fan support. Specifically, Mad Heidi has built a community of more than 40,000 people in 46 countries, managing to reach an amount of € 1,325,398.87 euros

through investors[7]. The creators of the work propose an efficient, transparent and secure system through blockchain technology, in this case provided by the aforementioned company Film Chain.

3.3. NFTs: A New Space for Promotional Marketing and Collecting

NFTs exploded in February 2021 with the sale of the Nyan Cat meme created by artist Christopher Torres to commemorate the tenth anniversary of the creation of the iconic image. In this way, the unique image of a flying cat in space followed by a rainbow trail became the first digital image auctioned in an online auction on a platform specializing in crypto art, being valued at the time at around € 500,000 euros (300 ethers)[8]. Thus began the meme market.

This media action was a new avenue of experimentation for many creators and artists who considered this type of digital asset auction as a way to market their works of art. The film industry is beginning to look into this new window to find alternatives for financing and marketing. The main steps in this direction are aimed at satisfying the collecting desires of fans and communities around films. "Right now, owning an NFT of a drawing, video, coin or any other type, implies a speculative value, it's that simple. You either own it or you sell it. This describes the vast majority of NFTs right now" (Pennington, 2021)[9]. It is worth mentioning, in this case, the notion of an NFT as a traditional trading card collectible. In this way, the creator licenses content that brings them an economic benefit and the follower compiles an album with trading cards and photographs. These, in the form of NFTs, become unique collectible objects whose ownership can be traced. NFT sales are made through platforms specialized in this type of digital products and cryptocurrencies are used to make the payment. Ether, the currency of the Etherum blockchain platform, is mainly used due to the possibility (not offered by Bitcoin) of including appropriate smart contracts on said platform. Once the purchase is made, the owner of the token is free to sell it later at the price they consider.

As it happens in the art industry, the more peculiar NFTs that reach a higher market value will be more desired and valued. In this type of action we can find two very different examples that demonstrate the interest that the film industry can have by opening a new door to maximize economic income through merchandising. The first of them is found with the film Space Jam: New Legends (Lee, 2021), sequel to the popular Space Jam (Pytka, 1999). In the original movie, the animated characters from Warner Bros starred alongside Michael Jordan in a fun children's film where basketball was the key to the plot. In the 2021 version, Michael Jordan is replaced by the current basketball star

7 See: https://madheidi.com/.

8 *Ether* (ETH) is the cryptocurrency associated with the *ethereum* blockchain.

9 Translated by the paper's translator.

Lebron James. For the occasion, a collection of NFTs was created on the Nifty's[10] platform, a special edition with the same title as the Space Jam film. In this case, the collection is the digital version of a traditional album of stickers with the characters from the film. As an innovative NFT action, this project offers two very attractive features based on its characters. On the one hand, the traditional Warner protagonists (Bugs Bunny, Porky, Daffy Duck, etc.) are featured, characters that enjoy great acceptance among the public and have a long tradition of merchandising. On the other hand, in sports such as basketball, it is common to create products derived from the teams of the different leagues, which encourages the desire to collect different items such as shirts or jerseys, caps, socks, etc. In the referenced film, Space Jam, two very interesting communities who are inclined to collecting are intertwined: on the one hand, Looney Tunes fans, on the other, followers of the world of basketball. This first experience opens the door for many other franchises that can have an important development in the commercialization of NFTs. In this way, universes such as Marvel, Harry Potter or Star Wars, among many others, can benefit from this new form of commercial exploitation. Specifically, on the occasion of the premiere of the latest installment of The Batman (Reeves, 2022), the main exhibitor chain in the United States, AMC, has carried out a limited edition of NFTs that are given away with the online purchase of tickets[11].

Some Hollywood majors have opted to create NFTs. That is the case of one of the films most closely linked to the metaverse: Matrix 4: Resurrections (Wachowski, 2021). Regarding this work, NFTs based on hyper-realistic avatars were created and made available to the fan community days before its commercial release (again through the Nifty's platform). In this case, the expectation and subsequent demand was so high that the site collapsed, generating hours of waiting in a virtual queue as the only means of purchasing any of these images. The narrative relationship of the Matrix universe with the metaverse meant that NFTs holders could subsequently vary the options of their tokenized properties. As in the film, they would have the option of "taking" a blue pill to keep everything the same, or choosing a red pill and turning their NFTs into soldiers of Zion. This is, in short, an experience that combines a marketing action aimed at the community with an alternative business model with high commercial expectations: the buying and selling business within the metaverse.

In the wake of the commercial strategies of Space Jam or Matrix 4: Resurrections, other independent film initiatives appear. This is the case of filmmaker Kevin Smith, a popular director who became one of the leading exponents of the new independent cinema in Hollywood in the nineties with films such as Clerks (Smith, 1994) or Chasing Amy (Smith, 1997). In addition to being a director, Smith is also an actor, and as such, he popularized his character Silent

10 See: https://niftys.com/spacejam - Nifty's Plataform. *Spacejam.*

11 AMV Theatres. *The Batman limited edition*. See: https://www.amctheatres.com/giveaway/the-batman-nft.

Bob, who appeared in films such as Clerks or Mallrats (Smith, 1995), as well as being the protagonist of Jay and Silent Bob Strike Back (Smith, 2001), and now has a large legion of fans and admirers. The universe created from this character is completed with television series –Degrassi: The Next Generation (Schuyler & Stohn, 2001-2015)– and even in animated versions –Jay and Silent Bob's Super Groovy Cartoon Movie (Mewes & Monsanto, 2013)–. Furthermore, Kevin Smith has created his own platform to market NFTs of his popular character Silent Bob[12]. In this virtual space, a cryptocollection complements the traditional merchandising that already existed with this character (books, toys, etc.). Thus, the independent industry also sees in these collectibles a new way of generating money with very low production costs by not investing in physical production, thus obtaining wide profit margins. Again, from the point of view of the community that generates cinematographic products, an opportunity arises to offer new content, as well as to encourage participation in the universe of these franchises. Then, the popular actor and action hero Silvester Stallone announced his entry into the world of NFTs with the Planet SLY[13] collection, which includes up to 9,997 pieces of digital art that commemorate his life and artistic career.

In Spain, it is worth highlighting Planeta Junior's effort to create its own NFTs platform, for which it leverages the popular children's characters Maya the Bee, Marco and Vicky the Viking[14]. Planeta, like Kevin Smith, develops its own NFTs platform where it establishes its own rules in a Marketplace (virtual space for buying and selling) without having to depend on the regulations of a third party, as is the case with Space Jam.

Planeta Junior tokenizes images as collectible trading cards. This process leads to converting moments from the series into NFTs but also other elements, such as the original scripts. Collecting therefore takes a step forward by not being satisfied with image stamps, but rather turning to content from the series itself, turning the collector into an owner. This initiative represents a radical change in the way of understanding the rights generated by a work, since collecting evolves from owning an image designed on a product to owning the product itself. Given this, a controversial scenario is established in terms of rights management. Planeta manages this situation with specific limitations: the use of the NFTs is exclusively personal with a renewable validity period of five years, its commercial use being prohibited, except for the purchase and sale of the NFT at auction. In this case, an evident conservative approach can be seen, added to the fact that the use of cryptocurrencies is not essential in its marketplace. This means eliminating the most common entry barrier for a user who is not used to this type of transaction. This Planeta Junior experience

12 The platform referred to is Crypto Plataform. *Crypto Jay and silent bob.* See: https://crypto.jayandsilentbob.com/.

13 See: https://planetsly.com/.

14 Planeta Junior Digital Colletions. *Marketplace.* See: https://planetajuniordigitalcollections.com/es/marketplace.

is strongly influenced by the success of Cryptokitties[15], a platform for buying and selling digital cat avatars in NFT format. This virtual NFTs space follows the line of the well-known Pokemon, being a clear example of success.

Another notable case: in Spain, following the wake of the major Hollywood studios, the Campeonex[16] digital collection emerges, based on the success of the film Campeonex (Fresser, 2023) and which proposes a digital collection of exclusive characters accompanied by merchandising and exclusive pieces from the production.

On the other hand, it highlights how the film industry values the concept of community, especially after the COVID-19 crisis and its consequent reduction in income. This situation has generated the proliferation of platforms interested in co-watching, that is, watching films in groups. Sometimes this refers to the watching of films as events, even if it is done from each user's home, such as through Beem[17], a platform for organizing events and viewing content as a community that promotes the concept of unity. Additionally, the Beem platform incorporates NFTs among its merchandising actions, thereby seeking to promote the monetization of its products. Similarly, the Vuele[18] platform offers its users the purchase and collection of films as NFTs, implementing a new distribution option.

With this concept of community, the Olyverse[19] project also emerges from Spain, consisting of a metaverse that creates a club where members, through the acquisition of NFTs, can access advantages such as exclusive experiences and products. The development of this platform also included the creation of its own cryptocurrency ($oly), a metaverse and a collection of NFTs starring the actor Álvaro Morte, as well as another exclusive collection with works by the painter Van Gogh in collaboration with the Thyssen-Bornemisza National Museum.

3.4. New Sources of Financing

Initially, we have analyzed the use of NFTs as a promotional marketing tool aimed at the collectors' community with the intention of generating an economic return. But NFTs also offer a new possibility of financing cinematographic works. By way of explanation, we return to the filmmaker mentioned above, Kevin Smith, director of the horror film Killroy was here, based on a comic and announced for sale as a complete token (D'Alessandro, 2021). In this case, the film is tokenized to be sold on a blockchain platform that allows payments with cryptocurrencies. Specifically, it will be auctioned on the platform

15 See: https://www.cryptokitties.co/.

16 See: https://campeonexlapelicula.com.

17 See: https://watchbeem.com/.

18 See: https://vuele.io/.

19 See: https://olyverse.com/es.

that the filmmaker himself is developing and that we previously mentioned. In this case, the author will auction the complete rights to the film for its distribution and exploitation with the obligation that the person who acquires the complete token of the film agrees to market it. This action is a radical change in the way of understanding the business of the film industry, where the producer is always the owner of the rights to the film and negotiates with third parties (distributors, sales agents, televisions, platforms) its exploitation for certain periods of time. In this way, once the agreed exploitation time is over, the rights return to the producer so that he can negotiate with another third party. In this case Kevin Smith sells all the rights to the film without taking them back again. In exchange, he secures a percentage of future sales that can be made of his tokenized film, that is, it generates a kind of revolution in the distribution of content, as the management of intermediaries is not necessary. In this way, as van Haaften-Schick and Whitaker (2020) suggest:

> These technologies have been announced as possible solutions to registration problems in the art market, from tracking sales of art objects to the payment of various forms of fees. (p. 9)[20]

In the face of this disruptive action of financing and exploiting a film, there are other examples that are not as risky but that represent innovative financing. One of these is Bull Run (Ramón Rubio, 2022) and the case of Lotawana (Hawkins, 2022), the first film sold exclusively through NFTs. Here, the creators have tokenized different stills of the film, which are the ones they have offered for sale on the Open Sea[21] platform.

As a result of these crowdsourcing initiatives applied to film financing, the specialized film platform Mogul[22] emerged. This virtual space is presented with a global marketplace of NFTs and is a meeting point for film buffs and creators, who through the advantages of blockchain and smart contracts can not only participate in the financing of projects, but also buy derivative products that have been tokenized. Hence, "the core properties of blockchain, NFTs and smart contracts enable new sources of funding for artists by changing the contracting structure, i.e. the ability of smart contracts to automate transactional terms" (van Haaften-Schick & Whitaker, 2020, p. 19)[23].

Another example of an application in financing is related to the tokenization of content. We can see this through the case of the documentary project Bull Run (Ramón Rubio, 2022), the first Spanish film to reach the figure of $380,000 financed in 24 hours in September 2021 through the tokenization of

20 Translated by the paper's translator.

21 OpenSea. *Lotawana first movie to sell rights and world premieres as NFT.* See: https://opensea.io/collection/lotawanamovie.

22 See: https://my.mogulproductions.com/platform/dashboard.

23 Translated by the paper's translator.

the film. To do this, the project was divided into tokens (called Bulls) that each represented the value of $1. These shares were sold through crowdfunding using the so-called equity model (mentioned above). This is not common in the case of cultural products, which are more likely to use popular incentive models such as financial donations in exchange for rewards (among the most common are: DVDs, invitations, or other promotional items). These tokens, or shares, entitle their buyers to share all the income generated by the film (sales to television, sponsorships, exploitation in theaters, etc.) until the investment is recovered and, subsequently, to collect profits. Furthermore, the process allows its owner to sell the tokens at any time, thus being able to withdraw their corresponding cash flow. This is a big difference with respect to the traditional figure of the investor. Its exit in the conventional market is much more difficult given the slowness in the economic management of the income, among other reasons. In the opinion of the film producer José Moscardó, the three great advantages offered by this novel financing system are transparency, efficiency and flexibility[24]. On the one hand, it allows investors to be fully informed of the status of their money, in addition to knowing the real amount and other associated processes (transparency). Queries are made in a simple and fast way, allowing each investor to interact with the blockchain (speed) and thus being able to claim the tokens at any time (flexibility). As van Haaften-Schick & Whitaker (2020) emphasize, "blockchain has structural potential to radically reduce transaction costs and enable micropayments through new financial structures of tokenization and smart contracts" (p. 10)[25].

3.5. Generation of Media Impact

The vast majority of the actions discussed in this article involve media impact, under the banner of "being the first to" do something. Usually, these headlines entail greater recognition than conventional marketing. On the other hand, linking technology to industries such as the audiovisual or, more specifically, the film sector allows connecting with a more specialized audience that demands additional content.

An example of this media action can be found in the film El misterio de Pink Flamingo (Polo, 2020), when it was announced as the first Spanish film to use NFT technology[26]. Specifically, an auction of a special edition of the film poster created by the artist Anna Cornudella was held on the Open[27] Sea platform. As the film's producer, Gerard Rodríguez, indicates, his objective was to take advantage of the newsworthiness of his film's nomination to the

24 Personal communication with the authors of this article on February 10, 2022.

25 Translated by the paper's translator.

26 See: https://versusent.es/noticias-es/lanzamos-el-primer-nft-espanol-para-promocionar-una-pelicula/.

27 See: https://bit.ly/3tUspg2.

Gaudí Awards[28]. In this way, a greater media impact is achieved, especially at a time when all new technological bets are embraced with great enthusiasm, despite the immaturity of the market.

4. CONCLUSIONS

The use of blockchain, cryptocurrencies and NFTs has an obvious application in the entertainment industry, and especially in the film industry. Throughout this article, different actions have been analyzed that allow us to understand the current scenario and identify certain trends. As stated in Nadini et al. (2021), "the NFT market is less than four years old and has exploded in 2021" (p. 8), and thus the proliferation of proposals for its massive and often dizzying implementation poses a series of challenges and limitations that hinder its responsible and appropriate adoption in the short term. Specifically, we believe it is essential to analyze and thoughtfully address the migration to this type of technology, which leads to considering the following aspects:

A. *Rights management.* New challenges undoubtedly arise for intellectual property laws, often difficult to adapt to these new realities while maintaining the desirable guarantees for authors and consumers of film products.

B. *Transparency.* Although it is a positive value, it presents clear drawbacks in a very traditional industry with a high level of "secrecy" regarding the economic issues of production and distribution.

C. *Disappearance of traditional intermediaries.* Like all technological innovations, the disintermediation of some agents is a strong barrier to entry. The role of once fundamental actors (for example, rights management entities) would be very limited.

D. *Financial insecurity.* New economic transaction models are not free of risks. For example, the link between NFTs and cryptocurrencies, assets with high volatility, limits confidence in this type of products.

E. *Distrust.* The opening of the entertainment industry in general and the film industry in particular to new avenues of financing involves numerous actors, not always open to disruptive changes in economic management. The technological knowledge barrier and the need for transparency hinder the participation of the average public, leaving the use of blockchain and NFTs to expert users and/or fan communities.

Finally, in terms of recommendations, the analysis of the use of blockchain and its relevance invites the suggestion of proposals for technological implementation that provoke new scenarios and action mechanics. Within this

28 Personal communication with the authors of this article on July 15, 2021.

framework, the following final considerations can be made:

- The emergence of new business models suggests a special interest in those associated with the crowd concept: crowdfunding or crowdsourcing, which now include tokenized intellectual property. This community management – or co-creation – allows a wide range of actions that suggest designing entertainment projects aimed at including participation in any of its processes.
- Marketing of the work. The sale and commercialization of NFTs involves contacting specific audiences and fan communities interested both in the possession of the complementary collection of the work and in the ownership of the intellectual property. Given this, a line of promotional work is proposed focused on the exploitation of derivative products that promote ownership and collecting thanks to technological support. Thus, new avenues arise for product promotion.
- Regarding new forms of consumption, collecting is reactivated as a new form of individual consumption of mass products. Hyper-segmentation for the subsequent hyper-personalization of content suggests new ways of consuming cinematic entertainment tailored to the tastes of each viewer. At this point, monitoring of content consumption through Big Data is proposed as an effective way of getting to know the tastes of audiences.

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* Author contribution: The article was produced in equal percentages.
* Note: the Academic Committee of the journal approved the publication of the article.

* The dataset that supports the results of this study is not available for public use. The research data will be made available to reviewers, if required.

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