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Do artists perceive blockchain as a new revenue opportunity? A social representation study of the Korean music industry

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Although blockchain has often been perceived as a game-changer that can revolutionize the music industry, it also retains possible challenges regarding the practicality of such innovative adoption. This study seeks to construe the realistic thoughts raised by artists regarding the new revenue opportunities arising from the adoption of blockchain in the Korean music industry. This involves the disintermediation of the obsolete music royalty distribution system and a new revenue channel from the Non-fungible Token market. Based on social representation theory and interviews with Korean artists, this study found ambivalent perceptions towards the adoption of blockchain in the music industry - hoping for new possibilities while also perceiving the impracticality of such innovation. Indeed, it may be too good to be true for artists who have observed the local domain with little change regardless of their continuous cries for help. After thorough discussion, the study provides key implications to induce sound settlement of an innovative technology.

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Introduction

Exemplified by Apple's iPod and Spotify, the digitization of music in the early 2000s was deemed a new paradigm shift which presented a transitional phase from physical stores to digital services (Faria, 2011; Riemer and Johnston, 2019). For consumers, music became much more accessible and portable by downloading thousands of music from a Peer-to-Peer (P2P) website and listening on a MP3 player. For record labels, what used to be a physical transportation to channel an overseas distribution was capacitated by the introduction of an online marketplace, reaching the global audience at once. Accordingly, labels also encountered a major shift in revenue models from CDs to digital downloads and streaming.

Meanwhile, the distribution of royalty shares for consuming digital music has been opaque and unbalanced between two major stakeholders; the music artists and business actors (Hur 2017; Lee et al., 2020; Moreau, 2013). In South Korea (hereafter, Korea), the business actors garner 83.25% of the total revenue through digital streaming while the producers and performers are assigned <10% for the reward of music creation (KOMCA, 2018). Such a phenomenon has been viewed and criticized as the sacrifice of artists' rights and financial income over the dominance of business actors persisting over the local domain for years (Chae, 2021). Consequently, discussion to attain a fair or just distribution system of digital music has been an unsolved controversy and overlooked mission in Korea as well as around the globe.

While artists have been suffering from the current system for decades, scholars and practitioners have been paying attention to blockchain technology which can bring the next revolution in the music industry via disintermediation and NFT (Baym et al., 2019; Olsson, 2022; Taghdiri, 2019). It demonstrates a silver lining to either reconstruct the share allocation between business actors and artists or diminish the responsible roles of the former occupants, overcoming the decade-old problem of unfair distribution (Taghdiri, 2019). Furthermore, the Non-fungible token (NFT) also presents a new possibility arising in the music industry. Assuring ownership and rarity of digital products, blockchain convinces consumers to buy NFTs, allowing artists to seek a new revenue channel by utilizing their intellectual properties (Chang, 2022).

Although there is a logical understanding that the adoption of blockchain defines the next era of the music industry, experts also criticize such technology is a utopian and radical panacea (Baym et al., 2019). Previous scholars have raised concerns over industries' readiness to accept blockchain, possible resistance by incumbents, and mechanical issues of technology to provide transparency of data (Baym et al., 2019; Taghdiri, 2019; Tam, 2019). Despite the ambivalent potential, there exists lack of research revealing how the different stakeholders within the domain realistically perceive new possibilities through blockchain. Hence, there is a necessity to unveil the empirical views on such utopian scenarios. In response, this paper seeks to construe the introduction of blockchain technology in the local music industry in terms of artists' identities, perceptions, and understandings of new revenue opportunities this innovative disruption may propagate to the ecosystem. Based on social representation theory, the authors performed omnidirectional interviews with Korean artists. The paper intends to build an academic milestone for developing the sustainable adoption of blockchain technology in the music industry.

Literature review

Development of the digital music industry by telecommunication conglomerates. The core engine of developing

the digital music industry in Korea was the vertical integration enforced by telecommunication conglomerates. While Bugs Music, launched in 2000, represents the first local platform to provide digital music and opened the era of digital industry, it was telecommunication conglomerates that accelerated the market growth by entering the blue ocean in the digital music industry (Kim, 2018). As the market saturation emerged in the original industry, the conglomerates strategically performed a media convergence with network services by collecting music and movie to enhance competitiveness in customer value and expand value chain as well (Kim, 2009). Since 2004, local conglomerates—SKT, KT, and LG Telecom—not only launched MelOn, Genie Music, and Music On as a subsidiary music service but also established their own distribution channel, leading to an expedite digital market growth. Although LG Telecom withdrew from the battlefield in 2012, it is worth noting that the digital music industry was inevitably victimized by the fierce competition among telecommunication conglomerates.

The growth of the Korean digital music industry was significantly influenced by the telecommunication conglomerates' vertical integration which sought betterment in competitiveness and expansion of value chain. This is different from the historical chronicle of western music industry where the market transition was induced by parent-free, independent firms such as Napster or Spotify, with a primary purpose of promoting digital music itself rather than seeking an extended pipeline and prioritizing market performance. Participation by local conglomerates may have accelerated the development of digital music industry, however, it also endangered the balance between the economy and culture in the local music ecosystem, interfering with the freedom and creativity of music, and dominating the larger fraction of music copyright royalties with their power over the distribution system on the Internet platforms (Han, 2011; Kim, 2018).

Critical values of music streaming services. Accordingly, the influence of music streaming services on artists eventually grew due to the increasing dependency on the critical values the platforms provide - the user pool and brand value. First, when releasing albums, artists utilize music streaming services as their first window to reach large user pool and earn royalty income via streaming (Aguar and Waldfoegel, 2021). Furthermore, based on the utilization of user data and recommendation algorithms, personalized playlist services provided by platforms let users discover new songs which provides a vital opportunity for undiscovered artists to gain exposure and promote their music to a large audience (Meier and Manzerolle; 2018; Prey et al., 2020).

Moreover, the brand value of music streaming services has evolved to represent the national or global music charts and induced multiple partnerships with entertainment firms and music labels, signifying the significance of their existence in today's music industry (Aguar and Waldfoegel, 2021). As the era of digital music has been introduced, these critical values within the current platform service providers have been prevailing in the local music domain since the early years of vertical integration undergone by the telecommunication conglomerates (Kim, 2018; Kim and Choe, 2014).

In a nutshell, Korean artists have been witnessing the settlement of the digital music industry contributed by business actors, prioritizing their revenue over the protection of music copyright. However, regardless of realizing the dominance of business actors, artists had little chance to escape from the current system due to the critical values established by platform service providers. Essentially, artists in the local music industry have an inevitable dependency on platforms to continue their music

Table 1 The distribution ratio of the streaming income among stakeholders.

Stakeholders	Ratio of music royalty distribution
Production firms	38.6%
Music streaming service provider	35%
Distributor	9.65%
Producer	9.56%
Performer	5.56%
KOMCA	0.95%
FKMP	0.69%

Note: The authors revisited the distribution ratio proposed by KOMCA and developed this table.

careers regardless of the unfair royalty distribution system by music streaming services.

Royalty distribution among stakeholders. The distribution of royalty income yielded by online streaming is unjust and disproportionate, with the majority being focused on business actors (Chae, 2021; Hur, 2017). There are primarily three stakeholders when determining the share and distribution of streaming income. These three stakeholders include business actors, music artists, and institutes that protect the copyright (KOMCA, 2018). Business actors primarily refer to the music streaming service providers, entertainment firms, and distributors. Music artists refer to producers and performers who originally create music or partially participate in the production process. Producers—referring to composers, lyricists, and arrangers—are entitled to own the copyright of music as an original creator whereas performers—referring to vocalists or sessionists—are entitled to own the neighboring copyright. Both rights allow artists to claim moral rights and property rights to music where moral rights attribute authors of their work, protect their reputation, and prevent infringement. The property rights allow utilization of the copyrighted content to pursue economic profit, composed of rights of reproduction, performance, public transmission, derivative work, and many more. Despite the similarities between two concepts of copyright, the neighboring copyright has less inclusive terms for moral and property rights. Additionally, business actors who assisted in production or broadcast of music are also entitled to own neighboring copyright without the moral rights, giving them a chance to claim portion of streaming royalty share as well. Institutes refer to an official collective rights management organization which protects the copyright of artists such as the Korea Music Copyright Association (KOMCA), and the Federation of Korean Music Performers (FKMP), established in 1964 and 1988 respectively.

According to the royalty distribution system of a music streaming service proposed by the KOMCA, given that one streaming of music accounts for 7 won (USD \$0.0049), the artists (copyright holder and neighboring copyright holder) have the right to own 9.555% and 5.5625% share of total streaming income respectively—<0.7 won per streaming (USD \$0.00049) (KOMCA, 2018). Unfortunately, the ownership of copyright and neighboring copyright earned by the music creation is not the best attribute to appeal for a bigger sum of the distribution rate. In fact, the production firms, referring to entertainment firms in the Korean context, hold a 38.6% share of the total income, and the music streaming service providers hold a 35% share, followed by a 9.65% share owned by the distributor. Essentially, producers and performers, who are vital contributors to music creation, sacrifice a significant amount of income to business actors. Copyrights and neighboring copyrights of artists are not protected nor appreciated by the current royalty distribution system. Lastly, KOMCA

and FKMP earn 0.945% share and 0.6875% share, respectively. In a nutshell, artists are the vital contributors of music creation but paradoxically sacrifice a significant amount of income to business actors.

There is a clear bipolarity among the share percentages between business actors and artists. The contribution of original music is not appreciated, with artists receiving <10% of the total streaming income. Instead, the roles of music streaming service providers and production firms account for more than one-third of the total income for both stakeholders. In fact, there has been consistent controversy regarding the transparency and fairness of royalty distribution of digital music since the emergence of a new business model in the digital music industry (Lee et al., 2020). Table 1 depicts the distribution ratio of the streaming incomes among music streaming service providers, production firms, distributors, producers, performers, KOMCA, and FKMP (KOMCA, 2018).

Governmental revisions of royalty distribution system.

Throughout history, the governmental effort to amend the royalty share system since 2003 was primarily focused on the development of the industry and generosity to business actors. During the digitization of the music industry, the artists were exposed of a steep fall of unit price per track as the music consumption shifted to digital format, from 12,500 won (USD \$9.71) per physical album to 7 won (USD \$0.0049) per streaming (Baek, 2016). Despite prolonged hardship by artists, term revisions over decades less appreciated an ethical perspective to restore artists’ financial income and pursue a sustainable environment by balancing royalty distribution ratio among stakeholders (Chae, 2021). Instead, music artists were a passive passenger during the development phase of the digital market (Lee et al., 2020).

According to the recent consecutive revisions, the government passed the law to increase 5% royalty income to copyright holders in 2019. However, its purpose only affected increase of proportions for distributors and production firms, who also own neighboring copyrights, by 1% and 4% respectively (MCST, 2018). Although additional revisions were performed until 2021, it merely increased distribution proportions of producers and performers by roughly 0.70% and 0.76% respectively (MCST, 2021). The last revision in 2023 allowed an exemption of in-app purchase policy enacted by Google to protect the music streaming service providers and stabilize the local industry (KOSCAP, 2023). In a nutshell, with or without intent, the recent governmental revisions have increased proportion rate of business actors with neighboring copyrights total of 5% while the that of music artists increased by <1.5%. Furthermore, the Korean government approved bypass of 30% commission fee for all in-app purchases to Google for music streaming service providers to maintain a sustainable marketplace in terms of management. Hence, it can be inferred that recent revisions prosecuted by the government has been more in favor of business actors, overlooking the internal illness led by the unbalance of royalty distribution between business actors and music artists.

Adoption of blockchain in the music industry.

Despite an unfruitful path of regulatory actions to achieve fairness in royalty distribution, experts paid attention to blockchain for its potential to reshape the system. First introduced by Satoshi Nakamoto in 2008, Blockchain asserted values of transparency, security, and immutability of data (Nakamoto, 2008). Blocks refer to the saving unit of user data, and the connection of blocks through the chains of all participants not only allows for the openness of information but also the impossibility of data modification without the consent of associated stakeholders (Koh, 2018). It is a digital record-keeping system that removes the need for third-party

intermediaries who traditionally facilitate a range of essential transactions (Crosby et al., 2016). The essence of blockchain is that it decentralizes the management of transactions and uses cryptography to enable the distributed verification of information (Swan, 2015). It allows smart contracts among users, including the security and transparency of data and is expected to increase the efficiency of the current right management system by cutting out the intermediaries (Leja et al., 2017). Therefore, the adoption of blockchain has been visible in multiple industries, including finance, healthcare, and music. Specifically, there are two revenue opportunities utilizing the core values of blockchain; disintermediation of the music royalty distribution system and a new revenue channel via NFT.

Disintermediation of royalty distribution. While the music industry has been facing endemic inequality of the royalty distribution system, the introduction of blockchain has brought attention by practitioners due to its latent capability (Tapscott and Tapscott, 2018). The adoption of blockchain technology has been regarded as the answer to realize disintermediation of the distribution system via a direct trade of music between artists and consumers. Correspondingly, local and global start-ups have been endeavoring to diffuse new type of streaming service and music management via blockchain, such as Beat Someone, K-tune, Gala Music, and Audius.

Blockchain may be a groundbreaking technology in the future where the core nature of technology may be a noxious existence to business actors in the music industry. Regardless of governmental efforts to normalize the royalty distribution system, multiple revisions of the system have not yet justified nor restored the righteous amount of proportion to music artists (Hur, 2017; Kim, 2018). While artists are still trapped in the current system and unilateral contracts by music streaming service providers, the disintermediation signifies an escape from the obsolete system and diminishment of the intermediary value chains of music between artists and consumers (Lee et al., 2020). In other words, the elimination of sharing commission fees to firms related to production, distribution, and music streaming service providers may significantly enhance share proportions to the original IP holders, meaning music artists (Baym et al., 2019). The distribution system can be either simplified by skipping the intermediary process or developing an independent smart contract between artists and consumers, performing a direct interaction through blockchain-based music platforms (Chalmers et al., 2021; Lee, 2022; Taghdiri, 2019). In short, blockchain may enable a reconstruction of the current music distribution system.

A new revenue model in the NFT market. The NFT market may also develop a new possibility for those who are capable of creating original content. NFT, a non-fungible token, is a digital asset stored in a blockchain and contains a cryptographic identification that makes every unit original. It can be any kind of art form such as a piece of digital photos, videos, and music. Therefore, artists or production firms that own intellectual property (IP) can earn profits by selling their commodified IPs in the NFT market. In other words, the IP holders are able to open a new revenue channel through the utilization of their IP-based content. As the identification of digital content authenticity has become possible, the rarity and ownership of digital content released by one's favorite artists have increased the value of the content (Jung, 2022; Olsson, 2022).

Unfortunately, the global trend to sell NFT as a new form of music commodity has been facing downturn along with the speculations of NFT bubbles (Hawkins, 2023). Correlated with cryptocurrency, the price volatility is evident where the NFT sales peaked up to \$12.6 billion in January 2022 and suddenly dropped

by 60% in 6 months (Guo et al., 2023; Vandergast, 2022). Despite the rush dynamics of rise and fall of the NFT market, this research still holds validity due to its fundamental purpose to investigate the artists' realistic views towards seeking new opportunities via blockchain.

There is one key requirement that needs to be met for artists to expect a meaningful outcome in the NFT market: fandom. The NFT market is primarily based on the participation of a large fandom because they need herd of consumers who wants to buy their favorite artists' products and desire ownership of digital IPs (Olsson, 2022). Famous artists can deliver NFT content and induce higher participation by fans, creating an interconnectedness between themselves and their fans, leading to consistent interaction within the community and an increase in revenue. Therefore, the mechanism of the value chain may not include all artists in the music industry because only a few top-tier artists enjoy a fandom community while the remaining artists lack such values. It may be logically true for artists to seek new possibilities in creating their own NFT content and a new revenue model, despite the fact that most artists wish to have fans who would want their digital products.

Theoretical framework. To understand the artists' perspective towards the possibilities from disintermediation and the NFT market, this paper utilized the social representation theory (SRT) as a research framework. First proposed by Émile Durkheim in 1886, the theory was rescued by Serge Moscovici as his doctoral dissertation in 1961 (Moscovici, 1961). The main point of the theory is to investigate the common knowledge shared by similar individuals within a community (Moscovici, 1984). Durkheim emphasized collective consciousness which minimizes individual differences and creates a sense of unity, known as collective representation. Moscovici extracted the idea of collective knowledge to conceptualize social representation, meaning there is a shared understanding of concepts among individuals who encounter a similar experience in reality and share a psychological commonality, representing a socially commonsense form of knowledge (Moscovici, 1984; Augoustinos et al., 2006). Knowledge by a group of members is not a reflection of reality but rather the outcome of a reconstructed reality built via continuous interaction and communication among members within similar societal and historical environments. Therefore, the theory has been widely accepted by scholars as a lens to investigate a community's thoughts and attitudes toward a new phenomenon or objects related to emerging technologies (Choi et al., 2019; Joia and Vieira, 2021; Jung and Pawlowski, 2014; Na et al., 2023).

For instance, previous scholars have explored the common understanding of innovative financial technology called fintech (Choi et al., 2019). As much as it brings convenience and diverse services to customers in financial businesses, it also follows the complex understanding among different players in the industry. The study crawled online news articles published in Korea containing arguments expressed by major stakeholders such as financial authorities or Information Technology (IT) companies and conducted a content analysis with a core-periphery approach to social representations. Also, as the consumption of virtual goods in cyberspace has become an essential functionality and activity of users, the other study investigated the fundamental understanding of consumer behavior in the social virtual world with the SRT (Jung and Pawlowski, 2014).

Similar to how practitioners have been accepting SRT to comprehend emerging technology or social phenomenon, perceptions about blockchain by professionals were also explored through the SRT. According to Joia and Vieira (2021), security, bitcoin, and decentralization were perceived as the core values

while innovation, data, network, cryptocurrency, and technology remained as peripheral terms. Furthermore, bitcoin and dissonance were found among the professionals' perceptions of blockchain. Lastly, the research also realized that experts were not aware of the potential the technology could have if adopted in their country, nor the role of the government in such realization (Joia and Vieira, 2021). Accordingly, this study conducted a content analysis with a foundation of SRT and a core-periphery approach to understand the collective thoughts of music artists with graphical visualization towards the adoption of blockchain in the music industry. This study also conducted semi-structured interviews with artists in the local domain to collect data.

Previous research on blockchain in the music industry. Utilizing the SRT framework, this paper focused on discovering the realistic views on possible outcomes the blockchain can bring to music artists while previous research was constrained to elucidating expected scenarios within an explorative discourse. Chalmers et al. (2021) conducted case studies on ventures which base their business model on blockchains to elucidate the disintermediation of the global music industry. Sionio and Nucciarelli (2018) have explored the possible outcomes in the music industry if blockchain were to be adopted based on the literature review and secondary data. Baym et al. (2019) provided an in-depth debate of both positive views and potential challenges of the techno-utopian solution where the blockchain may introduce fairness and transparency to music attribution but also questioned the readiness of society to absorb such technology. Taghdiri (2019) anticipated resistance from current incumbents from major business actors such as labels and publishers. Meanwhile, Tam (2019) raised the question of the causal relationship between the direct trade between right holders and consumers and the increase in income, as well as the mechanical issues during the verification of data regarding information transparency. Regarding the NFT, there have been concerns raised regarding the verification of originality of digital art and lack of standardized system to detect counterfeits (Jung, 2022).

While there is various research that can be used to understand blockchain in the context of the music industry, the majority of findings are confined to predictions of possible scenarios pertaining to the double-sided coin of disruptive technology. This brings importance to filling in the academic gap by embracing real-life knowledge from major stakeholders in the music industry regarding the future. Hence, this study focuses on discovering how the major stakeholder within the music industry realistically perceive new possibilities derived from the introduction of blockchain. Specifically, the authors chose to understand two new revenue opportunities through the lens of Korean artists who have been suffering from the outdated and unfair royalty distribution system and also are the foremost beneficiary when the adoption of blockchain is actualized. This research will also observe the experiential views on the realization of the next era of disruptive innovation through the lens of their understandings, perceptions, and identities. Therefore, the research questions of the paper are presented as follows:

RQ1: How do artists perceive the reconstruction of the royalty distribution system via blockchain technology?

RQ2: How do artists perceive the new revenue channel through the entrance to the NFT market?

Methodology

Data collection. This study utilizes social representation theory (SRT) combined with a core-periphery analysis to explore and visualize the network of music artists' perspectives on new possibilities derived by adopting blockchain in the music industry.

The authors first defined the targeted group of artists who were to be interviewed in order to obtain first-hand data and consistency among the samples. In other words, the interview data needed to represent the majority of the artist population, and the group of interviewees needed to be in similar situations such as sharing or having shared a similar environment and thoughts. The National Tax Service's report shows the top 1% tier of music artists accounts for 53% of the total income of all artists (Cha, 2020). As such, it may be reasonable to presume that only a few artists are destined to become a celebrity and earn prosperity, whereas most producers and performers manage to make a living with extra-curricular earnings, such as lessons, sales or other music-irrelevant jobs. Therefore, we deliberately recruited interviewees who currently have part-time jobs as a supplementary income to make a living, regardless of one's original identity as music artists.

The recruitment of participants was conducted through a multi-method, utilizing the personal network of the author as well as posting an official announcement on a local online community, Mule, with its primary users being musicians who seek contract employment or second-hand trades of instruments. With consent by every interviewee, the interview was voice-recorded throughout the whole process to maintain legality and the private information of interviewees was kept strictly confidential to preserve anonymity. Consequently, a total of 16 interviewees with a diverse range of expertise and years in the profession were recruited for data collection. Majority of artists were independent singer-songwriter while there also existed composers who specifically produce instrumental music for K-pop. Years of profession were calculated by the years accumulated from the year the artist registered to KOMCA or FKMP. Table 2 illustrates a brief description of each interviewee's profession in music and their years of profession.

Semi-structured interviews were conducted to encourage interviewees with a moderate stimulus of thought development related to two specific revenue opportunities via blockchain adoption in the music industry: disintermediation of the royalty distribution system and a new opportunity from the NFT market.

Content analysis. After the data collection was completed, one of the researchers first developed a detailed coding of the transcribed interviews. Deciding on codes for each sample was not pre-determined but was rather an open coding process, meaning the procedure to define and determine the codes for each sample emerged from the continuous debate between coders through overall data. Throughout multiple discussions, a total of 13 codes were agreed upon between both coders and were identified to represent the derived thoughts of the artists. The inter-rater reliability test - the degree of consensus between coders - showed 92.2%, implying a high level of agreement during the coding process. Table 3 depicts the expected 13 topics which represent each code and includes empirical examples achieved from the interviewees.

Core-periphery analysis and visualization of social representation. A core-periphery analysis was conducted and a visualization of social representations with maximum tree design was developed. The core-periphery model was first proposed by Borgatti and Everett to identify the structure within the network (Borgatti and Everett, 2000). Borgatti and Everett (2000) have developed a statistical software UCINET to unveil a relative coreness among elements through algorithmic calculations, dividing them into either core or periphery, within data networks and indicating associations among themselves with the presentation of latent centers.

Table 2 Descriptive information of interviewees.

Interviewee	Class	Profession	Years of profession
1	Performer	Singer	8
2	Producer & performer	Composer & sessionist	10
3	Producer	Composer	5
4	Producer & performer	Singer-songwriter	6
5	Producer & performer	Singer-songwriter	5
6	Producer & performer	Singer-songwriter	4
7	Producer & performer	Singer-songwriter	4
8	Producer & performer	Singer-songwriter	4
9	Producer & performer	Composer & sessionist	10
10	Producer & performer	Composer & sessionist	16
11	Performer	Singer	8
12	Producer & performer	Singer-songwriter	3
13	Producer & performer	Singer-songwriter	12
14	Producer	Composer	9
15	Producer	Composer	6
16	Performer	Singer	4

Table 3 Topics in the social representation of blockchain adoption in the music industry.

Code	Topics	Examples
T1	Opportunity	“Adoption of blockchain is perceived as an opportunity for artists.”
T2	Solution for the current royalty distribution system	“Blockchain may provide minimization of intermediary actors.” “Blockchain may provide direct interaction between users and artists.” “Blockchain may provide transparency of the distribution system.”
T3	Infeasibility of disintermediation	“I believe disintermediation of the current distribution system is realistically not possible regardless of blockchain adoption.”
T4	Expected benefits	“Stability of music creation may be possible through blockchain.” “Increase of income is expected through disintermediation and the NFT market.” “Promotional effect via the NFT market may be helpful as an undiscovered artist.”
T5	Little expectations towards new possibilities	“Disintermediation will not lead to a significant increase in income.” “Entrance to the NFT market will only be helpful for celebrities because it is a fandom-based market.”
T6	Values of current platforms	“Artists cannot simply surrender brand values of the current platforms to transfer to the blockchain-based platforms and gain disintermediation.” “User pool and promotional effect by current platforms are significant for the artists.”
T7	Values for users	“Blockchain-based music services must be able to provide competitive values for all users, including consumers and artists, to compete with the prominent platforms.”
T8	Protection of copyright	“Adoption of blockchain should lead to protection of artists’ copyright, transparency of income distribution, and values of music to provide stability of music creation.”
T9	Unawareness & indifference	“Most of the artists, including the public, are not familiar with what exactly the blockchain is and how it can provide new opportunities in the music industry.” “The public is not that interested in understanding the issues regarding the royalty distribution in the music industry.”
T10	Movement by players	“Influential players such as music streaming service providers, government, institutes, or famous celebrities should show a first-mover movement and make it into a market trend to really change the music industry.”
T11	Prematurity of industry	“Despite the technological possibility through blockchain, the local industry is not ready realistically regarding a small user pool or under-developed infrastructure of blockchain-based platforms.”
T12	Ingrained sufferings	“The production cost and efforts the artists go through is hardly paid back by income” “The current royalty distribution system is unjust and lets down artists to continue music creation.”
T13	Intensification of polarization	“New possibilities the blockchain can bring to the music industry will intensify polarity between ordinary artists and celebrities.”

The authors furthered exploration by visualizing the networks of core and peripheral elements via mapping the associations among the 13 topics. An analysis of similarity was conducted to quantitatively identify relationships among the elements. This analysis approaches computation of the co-occurrence of textual data which reveals relationships between topics with similar semantics (Degenne and Verg’es, 1973). By locating the frequency of co-occurrence among similar elements, a maximum tree design was constructed to visually elucidate the social representation

(Degenne and Verg’es, 1973; Jung et al., 2009). The co-occurrence matrix, indicated by a Jaccard’s similarity coefficient, was then translated into the inter-attribute similarity (IAS) matrix to conduct a maximum tree visualization of social representation (Hammond, 1993). A maximum tree is constructed by connecting the highest salience value of associations between topics, and continuing the process by selecting the next highest salience value until all topics are connected, forming one network of social representation. The coefficients for all connections in terms of an

inter-attribute similarity (IAS) matrix can be found in shared files explained at Data Availability at the end of the article.

Results

The result of the content analysis indicated 13 topics that illustrate social representations of Korean artists regarding the new possibilities in the music industry through blockchain. Table 4 explicates a quantified coreness for each topic. Top three topics were classified as cores (concentration = 0.977) and the remaining eleven as periphery. The core topics are Opportunity (T1), Infeasibility of disintermediation (T3), and Expected benefits (T4). Figure 1 shows the social representation map illustrating the artists’ common understanding of the new possibilities derived by blockchain in the local music industry.

Discussion

As visualized on the maximum tree design (Fig. 1), the social representation map demonstrates a roadmap of perception by Korean artists towards the new revenue opportunities derived by adoption of blockchain in the music industry. Specifically, two distinctive perceptions were identified: expectations of new opportunities in the music industry and skepticism of a new future in reality. While artists perceived blockchain as an opportunity to discover new era in the music industry, they were also skeptical towards the near future due to the recognition of

the reality. In this section, the authors interpret two contradictory understandings with a comprehensive discussion throughout the journey of the social representation map.

Perceived expectations of new opportunities through blockchain. There are several positive recognitions towards the adoption of blockchain in the music industry. A similarity between core attributes, Opportunities (T1) and Expected benefits (T4), elucidates a solid belief in seeking new hope through this innovative technology. Interviewee 2 demonstrated how one’s identity as an ordinary music artist views new possibilities rising from the adoption of blockchain in the music industry.

“The distributors and music streaming platforms are taking too much share just by delivering music to consumers, while we are the ones who create music. I believe removal of intermediaries through disintermediation may not only increase financial income but also the value of music itself. Fundamentally, I wish a new era would come via blockchain where our creations are much more appreciated and rewarded properly based on its musical value.”

Correspondingly, the majority of artists sought a betterment in financial income through disintermediation of the current royalty distribution structure. Ultimately, they urged for a proper appreciation and return for musical values and a stable environment to maintain professional careers. Furthermore, artists perceived that selling their own NFT content would be a new way to gain exposure among a new user pool and increase opportunities to meet potential listeners. Throughout the interview, it was noticeable that artists were deeply motivated by witnessing the audience listening to and enjoying their music. Not only it would assist in overcoming the income hardship with more streaming, but as an entertainer, artists also felt alive when their creation is enjoyed by the public - something vital to the continuance of their careers.

Protection of copyright (T8) also showed a connection with Expected benefits (T4) and Solution for the current system (T2). In other words, artists not only expected revenue benefits but also felt the need to reinforce the fundamental rights to their creations through new possibilities emerging from blockchain. They raised opinions about the unfairness of the current royalty distribution system leading to the unbalanced royalty share between themselves and business actors. Interviewee 10 addressed the need of blockchain to restore artists’ copyrights within the

Table 4 Coreness of each topic.

Topics	Coreness
T1 Opportunity	0.774
T3 Infeasibility of disintermediation	0.466
T4 Expected benefits	0.345
T5 Little expectations towards new possibilities	0.217
T10 Movement by players	0.079
T12 Ingrained sufferings	0.061
T9 Unawareness & indifference	0.050
T8 Protection of copyright	0.041
T2 Solution for the current royalty distribution system	0.032
T7 Values for users	0.030
T6 Values of current platforms	0.024
T13 Intensification of polarization	0.011
T11 Prematurity of industry	0.008

Note: Core elements are shaded on the social representation map.

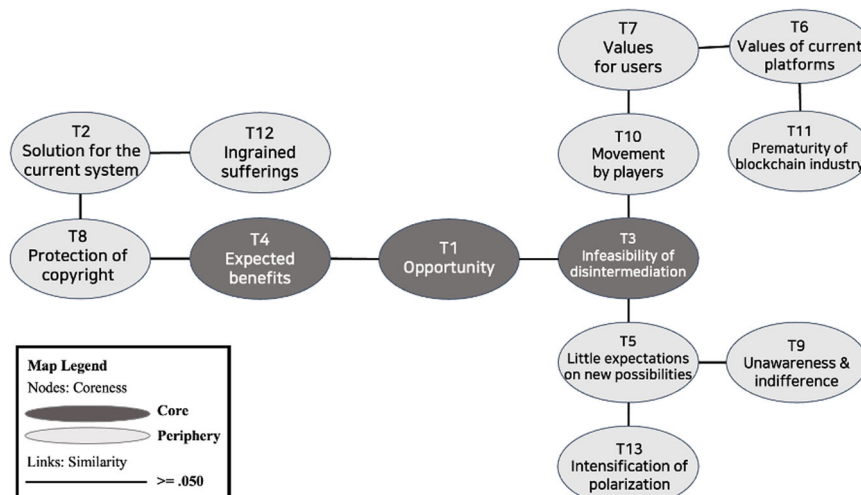


Fig. 1 Social representation map of Korean artists towards new possibilities through blockchain.

realistic perspective towards the persisting system in the Korean music industry.

“Despite 20 years of the fixated system by business actors within the Korean music industry, I believe this must be fixed for the next generation of musicians, and blockchain may be the way to go. It will be a long journey though, to convince transparency in streaming data provided by business actors. Also, I do not even trust KOMCA because they may be related with the term revisions which had little to do with the artists, but much favored the business actors.”

Interestingly, the artists connected the unfairness of the royalty distribution to discontent and distrust with the role of copyright institutes. Furthermore, music streaming service providers had hardly ever provided any transparent information detailing how often music is consumed by users nor how the streaming income is distributed with other stakeholders.

Overall, artists have been facing a degree of violation and no copyright protection as early as they started making music. Therefore, they believe blockchain can reconstruct the current system and restore their rights via the openness of information and direct interactions with consumers without an intermediary. A strong connection between the Solution for the current system (T2) and Ingrained sufferings (T12) reiterates the urgent desire to escape from the obsolete system pertaining to the local domain. Artists have persistently voiced that the platforms responsible for providing back-end streaming services to consumers garner an excessive share of royalties. The findings implicate that the significant role of music artists and their innocent sufferings are overlooked by the local industry raised by the unbalanced royalty share. Artists have been consistently fighting with a feeling of loss and lack of motivation to maintain their professions due to futile royalty income compared to their contribution in labor, time, and money to produce original music.

Perceived skepticisms towards new opportunities. Regardless of positive perspectives towards blockchain by Korean artists, Opportunity (T1) exhibited a peculiar connection to Infeasibility of disintermediation (T3), demonstrating a contradictory relationship between two perceptions. As much as the artists believed that the adoption of blockchain in the music industry could create potential ground for new opportunities, they also held a cynical view regarding the actualization of the next paradigm in a realistic context. A number of artists interviewed mentioned the unlikelihood of disintermediation related to the fixated system developed during the early age of digitization by business actors. Although there have been multiple revisions of distribution by the government, the fundamental issue regarding royalty distribution appreciating a considerable amount of income share to the music streaming service providers still exists. Therefore, most artists believed that disintermediation will be possible only when the influential players come forward to adopt blockchain technology (T10) and lead a transition to a sustainable ecosystem for both artists and business actors. Influential players include the music streaming service providers, celebrities, and the government who have the power to trigger and fortify the industrial movement and publicize the reconstruction of the music industry. Of all, the willingness of business actors to surrender some of their shares and cooperate with progressive stages of disintermediation is a critical factor in meeting new possibilities through blockchain. Interviewee 3 specifically illustrated the need for participation by business actors to realize disintermediation.

“Emergent blockchain-based start-ups may not hold enough values to fight original platforms. They have

weaknesses in multiple dimensions for both consumers and artists, such as lack of competitiveness in music library, usability of service, and the user pool to promote music. Disintermediation may be only realized through investment by sponsors and cooperation with leading business actors. Such movement shall also be supported by the government to convince reallocation of royalty shares.”

Figure 1 also stressed the significance of Values for users (T7) who would use blockchain-based services along with the active movement by players (T10). Artists believed that the current status of emerging start-ups lacks critical values dedicated to users, including both consumers and artists, compared to those provided by current music streaming services (T6). Specifically, from a consumer’s perspective, blockchain-based streaming service is inevitably short on competitiveness in delivering music libraries because only a limited number of artists have uploaded their music on the infant channel. The price value the consumers earn from the blockchain-based services is not aggressive enough to surpass that of leading players who provide unlimited streaming counts of the mature music library. Furthermore, from the artists’ perspective, they were concerned with losing the critical values current music streaming service providers can offer, such as the brand values of named charts, accessibility to a larger user pool, and promotional features. They believed that the chance to gain more exposure and a larger audience was crucial to achieving positive outcomes than betting on new opportunities via blockchain. In fact, artists considered this to be even more significant than the switching costs they will likely face during the transition to blockchain-based platforms. This all led to the fundamental problem of the blockchain-based music industry that mostly consisted of start-ups, it is still at an infant or premature level (T11) in terms of technology and the user pool, compared to mature infrastructure organized by the current music streaming industry.

Extending to the other perceptive path, little expectations of new possibilities (T5) acted as a bridge between Infeasibility of disintermediation (T3) and Unawareness and indifference (T9). Not only did the artists believe that these new opportunities were realistically unlikely, but they also did not expect meaningful outcomes or benefits through the realization of disintermediation or entrance to the NFT market. Little expectations on new possibilities (T5) were also linked with the Intensification of polarization (T13), following the belief that the NFT market will provide greater benefits to those who own fandom culture, exasperating the bipolarity between celebrities and ordinary artists. Paradoxically, artists were also desperate and willing to gain even the slightest chance to increase their financial income and achieve stability in music creation, regardless of the possibility that the prevailing polarity in the current system may intensify. Interviewee 2 explained honest feelings towards open possibilities via blockchain.

“I do figure the NFT market will definitely intensify the gap of income levels between us and the celebrities. But honestly, as long as I can earn just a little more, such a phenomenon is not my concern. Bipolarity has been pre-existing for decades anyway. It is perceived more as a relief to have an extra income channel considering my financial status.”

Furthermore, the artists believed in the existence of Unawareness and indifference (T9), acting as an obstacle to the new paradigm. According to years of experience, artists realized that there exists lack of public awareness regarding the hardship and instability most artists suffer. Artists believed that the public tends to perceive music artists with generalized identifications of

celebrities, leading to an apathy towards their wellbeing. Because famous artists are what the most public encounter on media, it is hard for the public to notice ingrained sufferings faced by the dominant group of artists who manage to make a living. Lack of public interest and sympathy for artists may be a critical burden to realize the need to reconstruct the music royalty distribution system. The public attention is imperative to bringing the unfairness of the decade-old system to light and thus alleviating artists' continuous hardship.

Additionally, artists shared a commonality in that they were not completely aware of what exactly blockchain is nor the potential it could have in the music industry. This reflects the fact that the definition of blockchain is complex and difficult to understand due to the lack of a publicized definition the general population can discern, hampering people's understanding of how it can lead to other opportunities for the industry. Moreover, artists tended to associate blockchain with cryptocurrency, which is one of the major derivatives among multiple possibilities. There is an overgeneralization of blockchain which alludes to instability and uncertainty pertaining to the technology itself. Additionally, the cryptocurrency market has been facing downhill since its highest peak in 2021, demonstrated by Bitcoin and other major virtual assets. This is in line with the crypto winter after the bubble burst in the NFT market which also may have affected artists' perceptions as well. Therefore, artists speculated the possibility of a co-relationship between the insecurity of the cryptocurrency market and an unconscious resistance to investing in the NFT.

Conclusion and implications

This paper sought to understand the new revenue opportunities blockchain can provide to the music industry through the lens of Korean artists. Prior studies have approached the discussion of blockchain within the digital music industry with either idealistic expectations or possible challenges, constrained to explorative discourse. This research contributes by recruiting major stakeholders as interviewees and utilizing empirical data to observe the realistic perspectives towards such possibilities. It employed the SRT as a theoretical framework to discover the collective understanding of Korean artists and discovered that the realistic recognition of the adoption of blockchain in the music industry is ambivalent - hoping for new opportunities while also perceiving the impracticality of such innovation. Indeed, it may be too good to be true for artists who have observed the local domain with little change regardless of their continuous voice for help. SRT's contribution to this paper may be summarized as follows. First, SRT could provide the theoretical framework and method for this exploratory study of the feelings and thoughts evoked by a particular technology among the general people who were previously unfamiliar with it (Na et al., 2023). Second, SRT was helpful to understand the knowledge of occupational communities from their perspectives (Pawlowski et al., 2007). Third, the structural model of SRT enabled the researchers to clarify the cognitive structures of social representations, which consist of core and peripheral elements (Rateau et al., 2011). Accordingly, SRT contributes to this paper by providing a (core-periphery) structure-based explanation, which enables a richer interpretation of the social representation map.

This paper provides academic contributions by unveiling realistic barriers the artists perceive regarding the feasibility of the next music industry with blockchain. The paper filled a vacancy by revealing empirical findings about how the related stakeholders within the ecosystem perceive disruptive technology according to their experiential perspective. Further, the research provides future guidance to study the adoption of blockchain in

the music industry from multiple perspectives. Expanding the boundaries of interviewees may be critical to understanding the different stakeholders within the music royalty distribution system such as business actors, including music streaming service providers, production firms, or distributors. Also, institutes managing the artists' copyright may elucidate different views regarding the transparency of information and unfairness of royalty shares within the system in respect of their identities.

This paper also provides practical implications for stakeholders in the local music industry, as well as for the government. First, the findings suggest that artists do not believe in the disintermediation without the participation of influential players. Regardless of multiple start-ups already emerging in the local scene, their growth and success inevitably encounter realistic constraints without the help of leading actors (Woo, 2022). Hence, it is critical for the start-ups to find the unmet needs which can be delivered to the current music streaming service providers via blockchain technology to induce their voluntary investment.

Secondly, the engagement of the government to develop a sustainable environment for both business actors and artists shall be supportive but also minimal. For instance, the growth of blockchain technology and its industry may be accomplished by deregulation. Regulatory barriers can be an unnecessary hurdle to encourage innovations to businesses. Therefore, regulatory sandboxes shall be offered to experiment services without a compliance to local laws. Freedom of conducting test beds without bureaucratic obstacles may attract investment of capitals and foster healthy competitions. Also, fundamental research on case studies from other countries with a developed music scene is advised prior to revisiting the music royalty distribution terms. A navigation to reform fixated legislations will not only require long term persistence but also extensive knowledges to undergo reconstruction all stakeholders can consent. Thus, the government can learn insight via research on the case from the United States where the Copyright Royalty Board has accepted to increase songwriter's royalty rates up to 15.35% by 2027 (Ingham, 2022). Also, Germany established the Music Modernization Act in 2016 to update copyright laws concerning transparency and royalty payments in music streaming services. It may be helpful to scrutinize the processes and results of external examples which revisited the music royalty distribution system to protect the artists and benchmark the critical findings into Korean context.

This paper is not without limitations. First, the research was limited to a Korean context. Regardless of the global recognition of unfairness in music royalty distribution, the research on the Korean digital music industry should be considered a unique case study with vertical integration by business actors. Therefore, the social representation of artists may vary according to countries with different cultures and different music industry histories. Furthermore, the research focused on the perspectives of one stakeholder. Business actors, such as music streaming service providers, production firms, or distributors may also perceive the adoption of blockchain from different perspectives. Managers from copyright institutes may be well aware of the history of revisions of the royalty distribution system, which may also bring new insights to attempt the radical transition through blockchain. The comparison of multiple social representations is a promising future research that can help figure out essential needs or disagreements pertaining to new possibilities. Such findings may contribute to a detailed development stage of a sustainable music industry with blockchain. Lastly, the paper did not conduct longitudinal analysis due to a limited data. As much as the blockchain has been radically rising as an innovative technology, the understanding towards such technology can also alter in short period of time affected by the change of environment or degree of technological adoption in certain industries. Thus, tracking

dynamics of social representations towards adoption of blockchain may be a necessary topic to better understand realistic status of next paradigm shift.

Data availability

The data from 16 interviews are summarized in the article and supplementary material, further inquiries into interview data can be directed to the corresponding author. The corresponding author will provide the data on request. Please understand that all data are in Korean-language.

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Author contributions

All authors participated in designing the research and were involved in subsequent revisions. The first author performed interviews with 16 interviewees, analyzed the data, and interpreted the results. The second author participated in determining the methodology, discussing significant findings, and extracting implications.

Competing interests

The authors declare no competing interests.

Ethical approval

The interviews conducted were determined exempt by the Institutional Review Board of Korea University.

Informed consent

The first author obtained informed consent from each of 16 interviewees before he performed interviews with them.

Additional information

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