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*CORRESPONDENCE
Nicolas Ruth,
nicolas.ruth@hmtm.de

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Decentralized discourse: analyzing Web3's impact and business implications in the German music press

Nicolas Ruth* and Kristin Marie Zickler

Institute for Cultural Management and Media, University of Music and Theatre Munich, München, Germany

This study examines the representation and evaluation of Web3 technology in the German music media from 2016 to 2022, focusing on its prevalence, framing, and acceptance in the context of the music sector. Utilizing framing theory and the Technology Acceptance Model, a quantitative content analysis was conducted on articles from various music magazines. The findings indicate a generally positive portrayal of Web3, with significant discussion peaks in 2019, 2021, and 2022. Notably, no coverage was found in music education magazines, suggesting a gap in Web3 engagement in pedagogy. Much of the coverage was in Musikwoche, highlighting Web3's impact on business aspects like ticketing, copyright, and licensing. The overall positive depiction, juxtaposed with limited critical evaluation, points to the need for a more nuanced discourse. The study underscores implications for balanced media coverage, informed musician engagement with Web3, and the potential for incorporating this technology in music education. It highlights the importance for the music industry of capitalizing on Web3's positive aspects while practising critical awareness, and it calls for further research to explore the depth of Web3's influence in music.

KEYWORDS

Web3, blockchain, media coverage, music business innovation, content analysis

Introduction

The dawn of the digital era ushered in revolutionary changes for industries worldwide, and music has been no exception. At the forefront of this evolution is the advent of Web3 and blockchain technology. In its simplest terms, Web3 is the next phase of internet development, focusing on decentralized platforms and user control. Complementing this, blockchain, a distributed ledger technology, enables transactions and data management in a transparent and immutable manner.

Why is this significant for the music industry? Blockchain technology holds the promise of streamlining royalty payments, fortifying copyright protection, and introducing novel ways for artists to monetize their work, such as through Non-

Fungible Tokens (NFTs). It introduces a paradigm where middlemen could become obsolete, and artists could reclaim control and profits from their creations.

Prominent media outlets like the BBC (Taylor, 2021) and Forbes (Tangblad, 2022) have recently published comprehensive articles diving into the potential ramifications of Web3 for the music industry. These pieces highlight the transformative potential of these technologies and underline the need for a deeper understanding within the industry itself.

This paper aims to investigate how the German music media is navigating this new frontier, specifically in its discourse on the importance and implications of Web3 for the business and artistic sides of music.

Theoretical background

Within the domains of art, technology, and media coverage, there exists a multifaceted interaction that influences the perception and adoption of technological innovations. This research is situated at this juncture and seeks to analyze the relationships and interactions among these areas, particularly in the context of Web3 and blockchain technologies in the music industry.

The adoption of emergent technologies such as blockchain within creative industries presents various challenges and considerations. Within the music sector, these considerations encompass technical aspects, like the potential of blockchain for streamlining royalty distributions and ensuring accurate intellectual property tracking. They also cover artistic dimensions, examining how Web3 could alter music consumption patterns, creative processes, and the dynamics between artists and listeners. To fully grasp these potential transformations, it is essential to study not just the technical facets of the technology but also its representation and discourse within media channels.

The media plays a pivotal role in shaping the narrative around new technologies, thus influencing their adoption trajectory. Reporting can highlight benefits, sound alarms on pitfalls, or simply educate the masses on the technology's nuances. Established theoretical frameworks such as framing provide an insight into how the media constructs, presents, and potentially biases these technological narratives. Meanwhile, the Technology Acceptance Model (TAM) offers a lens through which one can understand the factors influencing the adoption and acceptance of such innovations in real-world contexts. As we delve deeper into these areas, we will untangle how the threads of art, technology, and media converge to weave the narrative of Web3 in the music industry.

Web3 and blockchain technology

Web 3.0, often simply referred to as "Web3," represents the next evolutionary phase of the internet, promising a more decentralized and equitable digital landscape. At its core, Web3 leverages blockchain technology, a decentralized public database. Rather than depending on centralized entities for validation and control, blockchain employs a distributed network of computers to securely and immutably record information. This technological shift underpins many of the advancements attributed to Web3, providing a foundation for innovations in digital value exchange, ownership, and governance.

A quintessential document introducing blockchain's potential was the Bitcoin whitepaper (Nakamoto, 2008), setting the stage for the concept of cryptocurrencies, or fungible tokens. These digital assets, like Bitcoin, allow for peer-to-peer financial transactions without the need for intermediaries. The reach of blockchain, however, extends beyond just cryptocurrencies. NFTs have garnered considerable attention, representing unique digital assets on the blockchain. Famous examples, such as the Bored Apes Yacht Club, demonstrate the power of NFTs in creating digital scarcity and value, not just for digital art but for a wide range of potential applications in the arts, entertainment, and beyond.

Central to the unfolding narrative of Web3 are its blockchain-enabled applications, as outlined by Murray et al. (2023). Beyond cryptocurrencies and NFTs, the emergence of decentralized autonomous organizations (DAOs) heralds a new form of online governance and decision-making, further reducing the need for centralized control. Additionally, metaverses, digital universes where individuals can interact in immersive environments, represent both a natural progression from Web 2.0 and a leap into novel ways of online interaction. The interconnectedness between metaverses and Web3 cannot be understated, as blockchain provides the underpinning infrastructure for defining digital ownership, governance, and economic systems within these virtual worlds.

The defining characteristics of Web3 — from increased peer-to-peer interactions to decreased centralization of information and services — mark not only an evolution of the web but also a broader paradigm shift. This change promises to reshape online interfaces, organizational structures, and business conduct. As we navigate this new landscape, understanding the intricate nuances of Web3 becomes essential, not just for innovators but also for established entities that seek to thrive in an increasingly decentralized digital realm.

Web3 and the music industry

Web3 technology is rapidly emerging as a seminal force that is redefining the foundational fabric of the music industry. As elucidated by the wealth of research on the subject, it becomes clear that Web3 is not just a passing trend, but a potential paradigm shift that offers transformative possibilities to both artists and audiences.

Rogers et al. (2022a) astutely captured the dynamic experiments marking 2021's musical landscape, a period that saw an influx of musical initiatives keen on using Web3 for music releases. Historically, discussions around music and technology have oscillated between visions of liberation and concerns of capitalist overreach. Yet, the onset of blockchain technology has imbued these conversations with deeper dimensions, not least concerning the entangled web of intellectual property rights. While there is undeniable apprehension around the environmental and financial implications of blockchain, the technology's inherent potential to architect more equitable payment systems for musicians stands out. Drawing parallels with historical musical innovations like jukeboxes and radio, Web3, particularly music NFTs, could either solidify its position as the next big leap or, as some critics declare, fade away as a momentary spark (Rogers et al., 2022b).

The study by Rennie et al. (2022) offers a panoramic view of Web3's application within the creative realms, highlighting its transformative potential. At its core, Web3, with blockchain as its backbone, decentralizes knowledge and lessens dependency on established institutions, facilitating smoother coordination and innovation tailored to individual needs. For creative practitioners, innovations like NFTs present unprecedented opportunities, allowing them to retain and transfer ownership with ease. Moreover, Decentralized Autonomous Organisations (DAOs) and smart contracts stand out as potent tools, revolutionizing artist collectives' formations, setting up participatory governance models, and even streamlining royalty distributions. Furthermore, as Web3 applications penetrate the cultural sector, they promise to magnify the visibility of artists, potentially elevating smaller galleries and facilitating the dynamic interplay between artists and institutions.

Potts and Rennie (2019) further emphasize the seismic societal implications when technologies challenge the creative industry's core institutional layers. Beyond being a mere digital novelty, blockchains introduce a transformative institutional technology, laying the groundwork for novel economic systems. This includes an avant-garde creative economy, ripe with possibilities to "tokenize" arts, culture, and creative industries. As tools like cryptocurrencies, smart contracts, and Dapps emerge, we are on the precipice of a shift that could reshape power structures, reinforce intellectual property rights, and herald the rise of self-sovereign identity-driven data markets.

Delving into the innovative "listen-to-earn" model, Behal (2022) offers a vision where users are remunerated for their active engagement with music. Such a paradigm, while financially empowering artists, also beckons mainstream audiences into the Web3 fold. Augmented by Web3's groundbreaking technologies like DAOs and NFTs, artists stand to gain deeper community engagement, heralding a new age where they are rewarded more substantially than their Web2 counterparts. This democratization and decentralization promised by Web3 shatter prevailing misconceptions about its implications for content creators and sketch a more equitable and sustainable trajectory for the music industry (Behal, 2022).

Summarizing these findings, it is clear that Web3 lies at the node of a transformative journey for the music industry. By democratizing access, fostering deeper community engagement, and ensuring equitable remuneration, it offers a vision of a more inclusive and sustainable musical future.

Media discourse on Web3

As Web3 and blockchain technology continue to permeate various sectors, understanding their portrayal in the media offers valuable insights into public perception and potential societal impacts. Media narratives play a critical role in shaping discourse, and examining these narratives helps discern broader dialogues around these technologies.

Sun et al. (2020) analyzed the evolving portrayal of emerging technologies in newspapers, highlighting changes in narrative and prominence over time. Their study builds on earlier research by Cacciatore et al. (2012), which compared media coverage of new technologies across different platforms. This research underscores the importance of media in shaping public understanding, often through a dichotomy of positive and negative framing. In particular, media coverage has tended to highlight both the potential benefits and risks of emerging technologies. While positive coverage often emphasizes economic and pragmatic gains, negative coverage can sensationalize risks, such as threats to privacy or social disruption.

Bao et al. (2022) for example, conducted a survey to explore public perceptions of another technology, namely artificial intelligence (AI) in the U.S., identifying five distinct segments based on their views. While no segment was entirely optimistic, a significant portion of the population expressed concerns over potential risks, such as increasing inequality, concentrating power, threatening personal liberties, and displacing jobs through automation.

On the other hand, Pavlik's (2023) study on the use of AI in journalism, co-authored with an AI tool, showcases the potential benefits of these technologies. Blockchain can also help writers and journalists to streamline tasks such as content verification and royalty distribution, enabling journalists to focus on creative processes. It could, therefore, be viewed in a positive light in this area.

Choi's (2023) research underscores the significant influence of media framing on public attitudes toward technologies such as AI, virtual reality and Web3. As in their study on AI, the portrayal of these technologies in the media can sway public perception, either fostering optimism about their potential or amplifying concerns about their risks.

This study aims to explore how music media experts frame the integration of blockchain into the music industry. Do they view blockchain as a force for innovation and fairness, or do they emphasize the potential ethical and practical challenges? Understanding these narratives is crucial for grasping how music professionals shape public opinions in an industry increasingly intersecting with Web3 and blockchain technology. Thus, the central question guiding this study is: How do music media experts report and frame blockchain's impact on the music industry?

Framing and Technology Acceptance Model

The intricate connection between framing and understanding sets the stage for a deep dive into the complex interaction between Framing and Technology Acceptance as it pertains to Web3. By employing framing theory, we gain an insightful perspective on how the media articulates subjects, notably those bearing profound societal consequences such as Web3. Entman (1993) elucidates framing as the process of emphasizing particular elements of perceived reality in a communicated message, doing so in a manner that encourages a specific understanding, causative interpretation, moral judgment, and potential avenues for action. Within the realm of music and Web3, the media's narrative structuring can profoundly affect the public's orientation and embrace of such groundbreaking integrations. The potential of framing to represent Web3 as either a revolutionary asset or a contentious disruption is underscored by the evolving media landscape.

While framing sheds light on the narrative nuances and emotive undercurrents, we invoke the TAM introduced by Davis (1985); Davis (1993) to explore the evaluative facet of Web3's presence in music. Anchored in Fishbein and Ajzen's (1975) and Ajzen and Fishbein (1980) Theory of Reasoned Action, TAM postulates that an individual's perception of a technology's practicality and intuitiveness is pivotal in determining its acceptance. According to Davis (1989), perceived ease of use and perceived usefulness are central factors for technology acceptance. Van der Heijden's (2004) subsequent insights bring forth the notion that the perceived enjoyment of an innovation, especially in areas deeply enmeshed with creativity like music, also plays a role in influencing acceptance. Collectively, framing theory and TAM offer a comprehensive lens for deciphering the nuanced ways music journalists address the fusion of music with Web3 technologies.

Aims

Drawing from our theoretical background, which emphasizes the importance of media framing in shaping public perceptions and the key factors influencing technology acceptance, it is crucial to investigate the depth and nature of Web3 technology coverage in the music media. The German music media provides a compelling case for this exploration because of the country's significance in the global music industry landscape, its rich history of both technological and musical innovation, and its influential role in shaping European music trends and discourses.

With this context in mind, our study poses the following research inquiries:

1. To what extent has Web3 technology been featured in German music print media since 2016?
2. In what manner is Web3 technology portrayed and assessed in the German music media landscape?

Methods

To trace the discourse trajectory surrounding Web3 in the music media, it was essential to gather data from diverse outlets and systematically analyze their content. For this purpose, a quantitative content analysis was selected as the preferred research approach. This method allows for a structured, objective, and replicable examination of media coverage, making it particularly valuable for identifying trends, framing patterns, and thematic emphases over time.

Beyond its methodological rigor, quantitative content analysis also offers significant added value for cultural policy and management research. By systematically assessing press materials, this approach provides insights into how emerging technologies are framed within industry discourse, revealing dominant narratives, stakeholder positions, and potential biases. These insights are crucial for cultural policymakers and industry professionals, as media representations can shape public perceptions,

influence strategic decision-making, and guide the adaptation of regulatory frameworks. Given the relative scarcity of press content analyses in cultural management research, this study highlights the potential of media analysis as a tool for understanding industry transformations and informing evidence-based policy discussions.

The choice of this method in our research was also informed by its plethora of benefits, especially aligning with our research goals. A primary advantage of quantitative content analysis lies in its emphasis on objectivity. The methodology hinges on a predetermined codebook, and by establishing solid intercoder reliability, it ensures that other researchers can replicate the study's results given the identical data set and coding guidelines. This level of precision is crucial when investigating media narratives, where readings can often lean towards subjectivity.

Further, the method paves the way for recognizing prominent trends, recurrent patterns, and overarching themes in media depictions. Such an ability is quintessential for our research, which seeks to understand discourse nuances and transitions over time. The intrinsically quantitative aspect of this approach also paves the way for comparative evaluations, permitting media content to be juxtaposed across various time frames, publication genres, and other possible classifications. This comparative perspective is indispensable for mapping out the progression of Web3 discourse in music media across time.

In alignment with a storied research lineage, the quantitative content analysis technique has been widely employed in exploring media portrayals, as showcased by studies analogous to Ruth and Zickler (2024) or Sun et al. (2020). Thus, the decision to employ this method is not purely methodological but also contextual, mirroring larger academic endeavours to decipher media terrains. Ultimately, the insights unearthed from quantitative content analysis could act as groundwork for subsequent in-depth qualitative explorations.

Data

The cornerstone of our analysis lies in issues of music magazines from 2016 to 2022. This period was earmarked to capture the most recent evolutions and directions in the discourse on Web3 within the music sphere. The choice of 2016 as a starting point was motivated by the marked surge in attention experienced by Ethereum in that year. By consulting a diverse array of publications, we aimed for a comprehensive grasp of discussions spanning different niches and readerships within the music sector.

Our primary resources comprised distinguished German magazines, including Neue Musikzeitung. This magazine offers insights into contemporary music, covering a spectrum from classical to jazz and pop, while also engaging in dialogues on cultural politics and the music business landscape. We also analyzed Rondo, known for its reviews and interviews, predominantly focusing on classical music and jazz. For perspectives on music education, Musik & Bildung was chosen as the most prominent German magazine in this field. Insights into the multifaceted music industry were gleaned from Musikwoche, and Sound & Recording provided a vantage point into the intricacies of music production. To gain a more rounded picture, we also factored in insights from Groove, a magazine dedicated to electronic dance music, and Backspin, with its emphasis on hip-hop culture. Combined, these magazines from the said period showcased a vast repository of 10,344 articles.

Our analytical precision was honed by scrutinizing the titles and subtitles of articles contained within these magazines. Their pertinence to our study was gauged by scouting for specific keywords indicative of discussions about Web3 and its affiliated technologies. The primary terminologies scoured for included "Web3/web 3.0," "blockchain," "cryptocurrencies," "smart contracts," "metaverse," "NFT/Non-Fungible Token" and "decentralized applications." Additionally, search terms included the names of prominent cryptocurrencies like Bitcoin, Ethereum, and Solana. Where feasible, we bolstered this keyword-centric strategy by leveraging online search features provided by some of these magazines, ensuring comprehensive content capture.

In framing our analysis, the primary focus revolved around the specific content of each pertinent article. However, the broader context of the respective magazine was also factored in to guarantee a more profound and textured understanding. Such a methodology was pivotal in order to nest each article within the overarching editorial vision and thematic orientation of the magazine. This approach enriched our comprehension of how Web3 was situated and elaborated upon in the musical domain.[1]

Pilot study

Before embarking on the primary analysis, we undertook a pilot study with three coders to hone and adjust our coding procedure. This foundational step involved reviewing 20 articles specifically related to music and emerging technologies obtained from two German news magazines and a German weekly newspaper: Spiegel, Focus, and Die

1 All analysis scripts and data will be accessible through the Github repository of the first author. https://github.com/NicolasRuth/analysis_web3

Zeit. This phase was instrumental in ensuring a uniform interpretation and deployment of our codebook among different coders. During the pilot study, we conducted reliability tests, prompting iterative refinements to the codebook. These revisions were crucial in ensuring accuracy and consistency in our subsequent comprehensive content analysis.

Variables

To guarantee a thorough and systematic examination of the articles, we crafted a comprehensive codebook, drawing inspiration from prior research and grounded in the frameworks of our primary theories: framing theory and the TAM. The codebook specified distinct variables capturing the structural, content-related, and evaluative dimensions of the articles. These variables were crucial for unpicking the intricate portrayals and assessments of Web3 within the media narratives. The r_H values represent Holsti's reliability coefficient for each category, demonstrating the uniformity of the coding procedure during the pilot phase among different coders. An elaboration of each variable follows:

Decision Category

- *Relevance for Web3 topic*: Determines if the content is pertinent to the theme of artificial intelligence.

Formal Categories

- *Date*: The publication date of the article.
- *Magazine*: The specific magazine in which the article was published.
- *Section*: The section or category under which the article was categorized in the magazine.
- *Article title*: The headline of the article.
- *Authors*: The names of individuals who authored the article.
- *Type of article*: The specific format or style of the article (e.g., interview, feature, review).

Content Categories

- *Web3 theme* (r_H = 0.97): The specific topic or angle of Web3 being discussed or addressed in the article.
- *General reference theme*: The broader context or subject that the article relates to, beyond just Web3.
- *Actors*: Key persons or figures highlighted or mentioned in the article.
- *Involved companies*: Companies or businesses that are a focus or are mentioned in the article.

Evaluative Categories

- *Orientation (Framing,* r_H = 0.87): The positive or negative lens through which Web3 is presented or discussed.
- *Perceived ease of use (TAM,* r_H = 0.87): Assesses the perceived ease of use or accessibility of Web3 technology, based on the TAM.
- *Perceived usability (TAM,* r_H = 0.87): The perceived value or advantage of using Web3, as discussed in the article, based on the TAM.
- *Perceived enjoyment (TAM,* r_H = 0.93): The extent to which Web3 is portrayed as engaging or entertaining, based on the TAM.

Average Reliability ~ 0.9: This indicates that the reliability of the categories, on average, is high, which means the variables are consistently and accurately measured.

Procedure

After the enhancements implemented during the pilot phase, our team initiated the primary coding process. Every article pinpointed as pertinent to the research was independently examined and coded by a proficient coder. Coders were equipped with the updated codebook, encompassing in-depth definitions for each variable, illustrative examples, and coding directives. This guaranteed a uniform comprehension of each segment and ensured coder consistency.

To minimize the potential for subjectivity and predisposition, coders were directed to stringently follow the codebook, avoiding any assumptions or interpretations not explicitly present in the article. In situations where the content was equivocal or vague, coders were encouraged to liaise with the broader team, promoting a group consensus for uniformity.

Periodic team consultations were convened to address any coding discrepancies or challenges as they surfaced. These consultations played a pivotal role in upholding an optimal inter-coder reliability standard. After finalizing the coding, the gathered data was organized and set up for the ensuing evaluation.

Results

The quantitative content analysis conducted on selected German music publications between 2016 and 2022 has produced a dataset that illuminates the coverage of Web3 technology within the music sphere. Throughout the 6-year period, we identified a total of 47 articles (0.45% of all articles) that explicitly addressed Web3 technology in relation to music. Out of these, 17 articles (37%) were predominantly focused on the impact and incorporation of Web3 in music, while the remaining 63% incorporated mentions of Web3 more peripherally, generally in the context of wider subjects such as digital transformation and discussions at music conferences.

Frequency of reporting

The frequency of discussions around Web3 in the realm of music varied over the years. A discernible upward trend in Web3 discussions was observed from 2016 to 2017, reaching a notable peak of publications in 2019 after a drop in 2018. This was followed by a decline in 2020, with another subsequent minor surge in 2021 and 2022 (see Figure 1). Overall, the data does not appear to reveal a consistent trajectory in the discourse surrounding Web3 technology.

Significantly, distinct editorial focuses became apparent when comparing the various magazines (see Figure 2). Three magazines representing music recording, classical and jazz music reviews and music education did not contain any articles on Web3, whereas Musikwoche, the magazine with a focus on the music business, featured the most articles related to Web3 technology.

General topics related to Web3

When examining the broader contexts where Web3 was mentioned, a variety of themes emerged. Web3's role was showcased in its versatility, appearing in discussions about music conferences and festivals, digital transformation, and album releases (see Table 1). Note that topics with only one occurrence were omitted in the table.

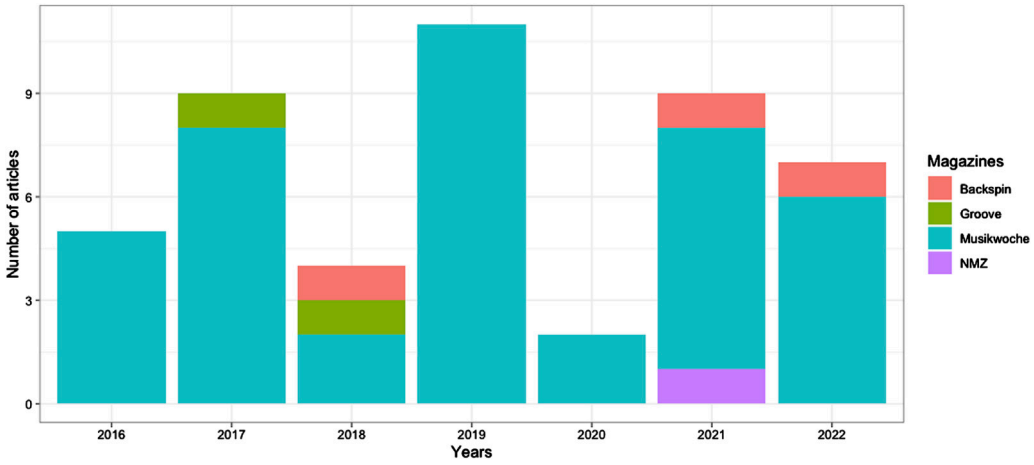

FIGURE 1
Frequency of articles on Web3 technology over the years, *N* = 47.

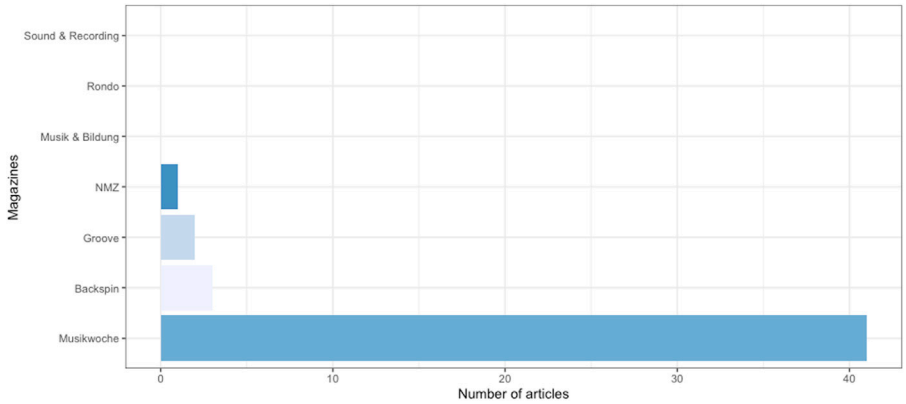

FIGURE 2
Frequency of articles on Web3 technology per magazine.

TABLE 1 Frequency of general topics related to Web3, N = 47.

General topic of the article	Number of articles
Conferences	9
Digital transformation	6
Music festivals	6
Album releases	4
Music business	4
Ticketing	3
Copyright	2
Education	2
Licensing	2

Note Topics with only one occurrence have been excluded from the table.

Article framing

The framing of Web3 technology in the articles was a central focus of this study. The articles exhibited a spectrum of framing, with one article presenting Web3 in a slightly negative light, others maintaining a neutral stance on Web3's role in music, and some articles expressing optimism or unambiguous support for Web3's potential. The average framing leaned towards positive (M = 0.68, SD = 0.86), as illustrated in Figure 3.

Table 2 underscores the contrast in framing between magazines, showcasing those with the most positive outlook on Web3 and music (Backspin) in comparison to those manifesting the least but still positive framing (Musikwoche).

TAM assessments

Finally, we examined insights based on the TAM. We used the categories outlined in the TAM—perceived ease of use, perceived usability, and perceived enjoyment—to understand how the media evaluates Web3 technology. However, during the coding process, it was clear that only a few articles discussed Web3 technology with enough detail to allow coding based on these TAM categories. The results from the remaining relevant articles show that usability received the most positive discussions (see Figure 4).

Discussion

The findings of this study offer several pertinent insights into the coverage and perception of Web3 technology in the German music media between 2016 and 2022. When considering the fluctuating frequency of discussions related to Web3, it is interesting to note the peaks and troughs that occurred, potentially mirroring the broader societal and industry developments and sentiments around the technology during these times. The absence of a consistent trajectory in discussions around Web3 technology in the examined period aligns with the dynamic and evolving nature of the technology, reflecting the ongoing development and dialogue in the field. The lack of media coverage in 2020, although an exciting year for the Web3 and NFT community, could be explained by the impact of the COVID-19 pandemic on the media workforce and the selection of topics.

While the differences observed among various magazines underscore the distinct editorial focuses and potentially the diverse reader demographics, the overall positive framing of

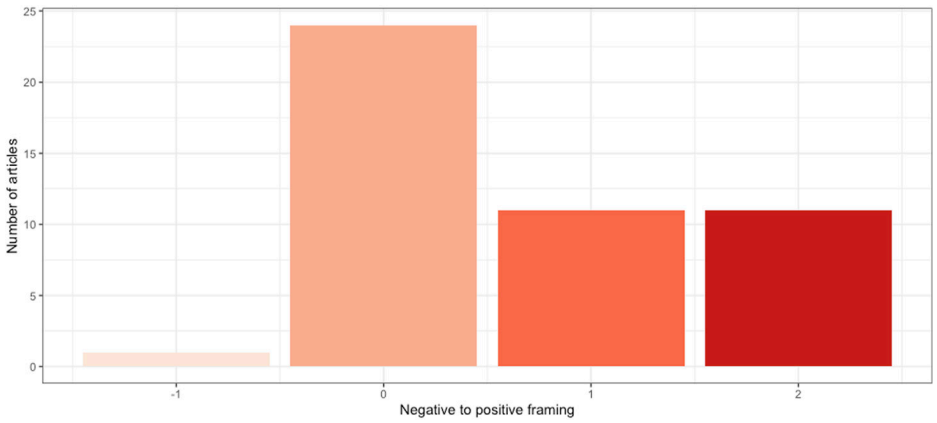

FIGURE 3
Distribution of framing of Web3 technology in the music media articles between 2016 and 2022.

TABLE 2 Framing of Web3 technology in the various music magazines.

Magazine	*M*	*SD*	*n*
Backspin	1.33	1.15	3
Groove	1	1.41	2
NMZ	1	-	1
Musikwoche	0.61	0.83	41

Web3 technology is notable. This generally optimistic framing could impact the public's acceptance and adoption of this technology in the music realm, as per Entman's propositions on framing theory, influencing problem definition, causal interpretation, moral evaluation, and treatment recommendation within the context of media communications about Web3.

It is particularly interesting to note that Musikwoche, a magazine with a primary focus on the music industry, featured the most articles related to Web3 technology and that these articles predominantly portrayed the technology in a positive light. This high frequency of positively framed discussions in a publication dedicated to the music business underscores the perceived significance and potential of Web3 within the industry. However, this positive framing may not only reflect enthusiasm for the technology but could also result from superficial coverage and a lack of critical engagement. Future research should explore whether this optimistic portrayal stems from a deeper industry interest or from an absence of thorough scrutiny. The subjects discussed in conjunction with Web3, such as ticketing, copyright, and licensing, further substantiate this indication, pointing towards a growing acknowledgment of the utility and transformative potential of this technology in addressing some of the longstanding challenges and operational aspects of the music business. These findings suggest a broad and deepening integration of Web3 technology in the music industry, reflecting a profound alignment with industry needs and a realization of the benefits it could usher in, leading to positive framing and widespread discussions in media outlets focusing on music business and industry trends. The convergence of positive framing and practical application topics underscores the pivotal role of Web3 in shaping the future landscape of the music industry.

In our analysis, a striking observation was the complete absence of Web3-related articles in the music education magazine. This lack of coverage could be indicative of several underlying factors in the field of music pedagogy. Firstly, it may reflect a lag in the adoption of cutting-edge technologies like Web3 within educational spheres. Educational content and curricula often take time to incorporate the latest technological advancements, owing to the need for comprehensive understanding, pedagogical restructuring, and sometimes due to bureaucratic inertia. Secondly, this absence could be attributed to a perceived disconnect between the technological nuances of Web3 and the primary objectives of music education. Educators and pedagogical content creators might not yet see the direct relevance or application of Web3 technologies in teaching music theory, history, or performance. Finally, the rapidly evolving nature of

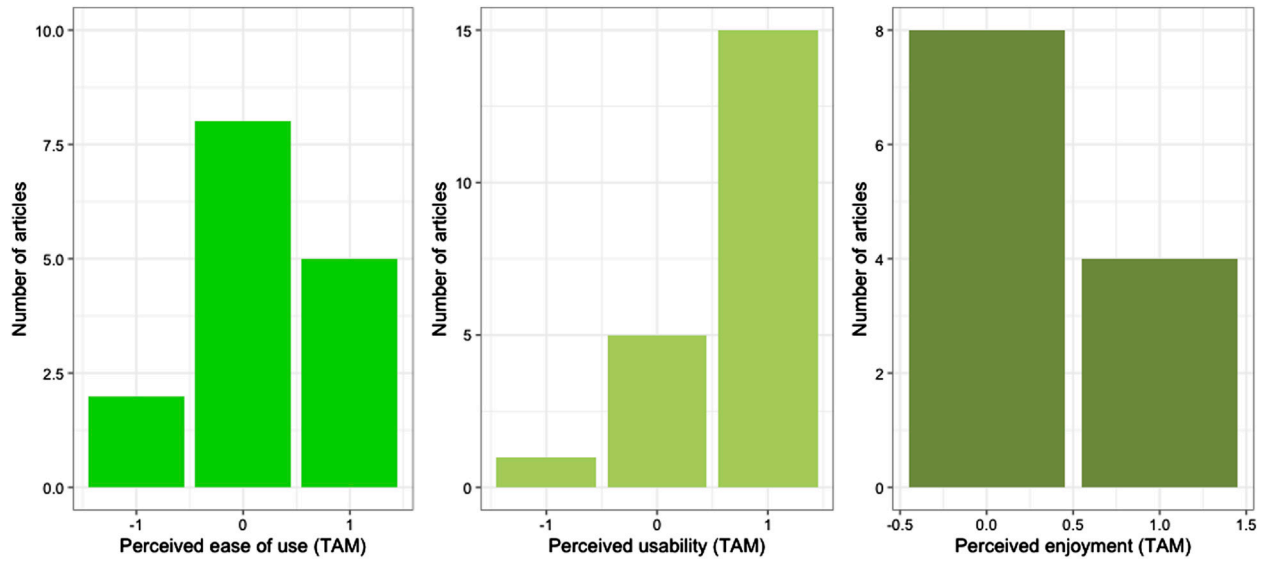

FIGURE 4
Distribution of perceived ease of use (*n* = 15), perceived usability (*n* = 21), and perceived enjoyment (*n* = 12) in all AI-related articles.

Web3 might present challenges in effectively integrating such content into educational materials. The fluidity and complexity of Web3, along with its relatively recent emergence, could pose difficulties in developing well-rounded, informative content that aligns with educational standards and goals.

Incorporating the TAM into the analysis allowed for a structured examination of the media's evaluation of Web3 technology in terms of perceived ease of use, usability, and enjoyment. However, the application of TAM categories proved challenging due to the lack of depth in many articles. This limitation suggests that media coverage often approaches Web3 technology in a broad and generalized manner rather than engaging in detailed discussions of its specific attributes and implications. As a result, the insights gained from the TAM framework were limited, highlighting the need for future research to apply qualitative methods or focus on more in-depth media discussions to better assess the technology's perceived adoption and utility. Despite this, usability emerged as a prominently positive aspect in the discussions, hinting at a general consensus on the practical benefits and applicability of Web3 technology in the music domain.

Limitations

Some crucial limitations merit acknowledgment, not to diminish the study's contributions but to appropriately situate its findings and inform future research. A key limitation of this study is its exclusive focus on German music publications. While this selection was in line with he study's aim to provide a nuanced and context-specific insight into the discourse on Web3 in German music media—a previously underexplored domain—it inevitably restricts the generalizability of the results. Therefore, the interpretation of our results must be approached with caution. It is highly likely that the representation of Web3 varies across different countries and cultural contexts, influenced by distinct industry structures, regulatory frameworks, and technological adoption rates. Future research should address this limitation by incorporating music publications from diverse linguistic and cultural backgrounds. A comparative analysis of international media discourses could offer a more comprehensive understanding of how Web3 is framed and perceived in the global music industry.

Second, the study's temporal frame, spanning from 2016 to 2022, while substantial, may not capture the entirety of the evolving discourse on Web3 technology in music. It was necessary to define a specific time frame to manage the scope of the research and ensure a detailed and thorough analysis of the selected articles. However, discourse on Web3 is continuously evolving, and developments post-2022 are not captured within this study. Subsequent research could address this by performing longitudinal studies, continually updating the dataset to include more recent publications, and potentially identifying new trends, shifts, and developments in the discourse over time.

Lastly, the study predominantly employed a quantitative content analysis, focusing on the frequency, framing, and broad thematic trends in the coverage of Web3 technology. While this approach allows for the objective and systematic exploration of manifest content, it may not delve deeply into the latent content and the nuanced, qualitative aspects of the discourse. This limitation was inherent due to the methodological choice, aiming to provide a broad overview of the prevailing themes and trends. However, future studies could complement this approach by incorporating qualitative content analysis or discourse analysis methods to explore the underlying meanings, interpretations, and contextual implications of the discourse on Web3 in the music industry, providing a richer and more holistic understanding of the subject.

Implications

The findings of this study illustrate several implications. First, for creators of media content, particularly those operating within the realms of music education or contemporary music magazines, the incorporation of more coverage on such a pivotal topic is crucial. The rapidly evolving landscape of Web3 technology demands attention, and these outlets can play an instrumental role in disseminating knowledge and fostering informed discourse on the subject, thereby enriching the overall content and providing value to their readership.

Second, for musicians and those within the music industry, leveraging the positive media coverage of Web3 technology is important. The industry stakeholders should explore and adapt to the innovations this technology brings, especially regarding digital ownership and novel community interactions. By doing so, musicians can capitalize on the potential of Web3 technology, including gaining a competitive edge, contributing to reshaping the music industry's paradigms, and fostering a more equitable and interactive musical ecosystem.

Third, the findings of this study hold some implications for cultural policy and cultural management, particularly in understanding how emerging technologies like Web3 shape the music industry. The predominantly positive framing of Web3 in music business publications suggests that industry stakeholders view these technologies as opportunities for innovation, digital ownership, and new revenue streams. However, the lack of critical engagement and limited discussion in broader cultural and educational contexts highlight the need for a more balanced discourse. For

cultural policymakers, this study underscores the importance of actively shaping frameworks that ensure Web3 technologies serve the interests of artists, rights holders, and audiences, rather than merely reinforcing existing power structures. Issues such as digital rights management, fair compensation, and accessibility must be considered when developing policies that regulate blockchain-based solutions in music. From a cultural management perspective, the findings suggest that industry professionals need to critically assess both the promises and challenges of Web3 adoption. Music organizations, festivals, and cultural institutions could benefit from strategic implementation of blockchain technologies, but they must also navigate ethical concerns, sustainability issues, and evolving regulatory landscapes. Future cultural management studies should further explore how Web3 intersects with cultural funding models, intellectual property management, and audience engagement strategies, providing a deeper foundation for informed decision-making in cultural policy and management.

Fourth, the findings of this study highlight the need for further research. One notable limitation is the relatively small number of relevant articles found within the selected music publications, which constrains the depth of analysis. Additionally, while the quantitative content analysis provided valuable insights into overarching trends, a more in-depth qualitative analysis of the existing sample could further illuminate the ways in which Web3 is framed and discussed. Future research could complement this approach with qualitative methodologies, such as expert interviews or user surveys, to gain deeper insights into industry perspectives and audience reception. Expanding the scope to include other media channels, such as blogs, social media, or audiovisual platforms like YouTube, could also offer valuable perspectives on how Web3 is discussed beyond traditional music print journalism. Addressing these aspects in future studies would contribute to a more detailed and multidimensional understanding of the evolving relationship between Web3 technology and the music sector.

Lastly, it is also paramount for musicians and media makers to view Web3 technology through a critical and discerning lens. The relatively few instances of negative evaluation of this technology as revealed by the study could hint at a somewhat superficial engagement with the subject. It is vital that discussions around Web3 in music do not solely orbit around its merits but also rigorously address its potential pitfalls, limitations, and the challenges it may pose. This balanced approach will not only contribute to a more nuanced and holistic understanding of the technology but will also guide stakeholders in making informed and judicious decisions regarding the adoption and implementation of Web3 technology in musical realms. This critical perspective is pivotal in navigating the evolving landscapes of both music and technology, ensuring sustained relevance and resilience in the face of rapid technological advancements.

Conclusion

In conclusion, this study has shown the presence and portrayal of Web3 technology within the German music media, reflecting a nuanced spectrum of perspectives and implications. The analyzed articles, albeit in varying frequencies across different publications, predominantly showcased a positive framing of Web3 technology, underscoring its perceived significance and potential in reshaping the music industry. The findings hint at the growing importance of this technology, particularly in music business-focused publications, where topics like ticketing, copyright, and licensing are integral.

However, the prevalent positive framing and the scarcity of critical viewpoints emphasize the need for a balanced discourse, where the merits of Web3 technology are weighed against its potential challenges and limitations. This balanced exploration is crucial for musicians, media makers, and the music industry at large, fostering informed decision-making and encouraging critical engagement with emerging technologies. Future research should delve deeper into these dynamics, examining the multifaceted interactions between Web3 technology and the diverse domains of the music industry, and exploring the technology's implications from different vantage points.

The journey embarked upon in this study sets the stage for a myriad of explorations and discussions at the intersection of music and Web3 technology, paving the way for deeper understanding and visionary developments in the musical tapestry of tomorrow. To use the Web3 jargon: "DYOR!!!."[2]

Data availability statement

The datasets presented in this study can be found in online repositories. The names of the repository/repositories and accession number(s) can be found below: https://github.com/NicolasRuth/analysis_web3/tree/main/data.

Author contributions

NR conceptualized the study, co-worked on data collection and analysis, and wrote the paper. KMZ added ideas to the study

2 In the Web3 community, "DYOR" stands for "Do Your Own Research." This term is often used to encourage individuals to independently investigate and validate information before making decisions, particularly in the context of investing in cryptocurrencies, blockchain projects, or other Web3 technologies.

design, co-worked on data collection and coding and proofread the paper.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

References

Ajzen, I., and Fishbein, M. (1980). *Understanding attitudes and predicting social behaviour*. Englewood Cliffs, NJ: Prentice-Hall.

Bao, L., Krause, N. M., Calice, M. N., Scheufele, D. A., Wirz, C. D., Brossard, D., et al. (2022). Whose AI? How different publics think about AI and its social impacts. *Comput. Hum. Behav.* 130, 107182. doi:10.1016/j.chb.2022.107182

Behal, P. (2022). Listen-to-earn: how Web3 can change the music industry. *SSRN Electron. J.* doi:10.2139/ssrn.4150998

Cacciatore, M. A., Anderson, A. A., Choi, D. H., Brossard, D., Scheufele, D. A., Liang, X., et al. (2012). Coverage of emerging technologies: a comparison between print and online media. *New Media and Soc.* 14 (6), 1039–1059. doi:10.1177/1461444812439061

Choi, S. (2023). Temporal framing in balanced news coverage of artificial intelligence and public attitudes. *Mass Commun. Soc.* 27, 384–405. doi:10.1080/15205436.2023.2248974

Davis, F. (1985). *A technology acceptance model for empirically testing new end-user information systems: theory and results (Dissertation)*. Massachusetts, USA: Massachusetts Institute of Technology.

Davis, F. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Q.* 13, 319–340. doi:10.2307/249008

Davis, F. (1993). User acceptance of information technology: system characteristics, user perceptions and behavioral impacts. *Int. J. Man-Machine Stud.* 38, 475–487. doi:10.1006/imms.1993.1022

Entman, R. M. (1993). Framing: toward clarification of a fractured paradigm. *J. Commun.* 43 (4), 51–58. doi:10.1111/j.1460-2466.1993.tb01304.x

Fishbein, M., and Ajzen, I. (1975). Belief, attitude, intention and behavior: an introduction to theory and research. *J. Bus. Ventur.* 5, 177–I89. Available online at: https://www.jstor.org/stable/40237022.

Murray, A., Kim, D., and Combs, J. (2023). The promise of a decentralized internet: what is Web3 and how can firms prepare? *Bus. Horizons* 66 (2), 191–202. doi:10.1016/j.bushor.2022.06.002

Nakamoto, S. (2008). Bitcoin whitepaper. Available online at: https://bitcoin.org/bitcoin.pdf.

Pavlik, J. V. (2023). Collaborating with ChatGPT: considering the implications of generative artificial intelligence for journalism and media education. *Journalism and Mass Commun. Educ.* 78 (1), 84–93. doi:10.1177/10776958221149577

Potts, J., and Rennie, E. (2019). "Web3 and the creative industries: how blockchains are reshaping business models," in *Research agenda for creative industries*. Editors S. Cunningham and T. Flew (Cheltenham, UK: Elgar press), 93–111. doi:10.4337/9781788118583.00013

Rennie, E., Holcombe-James, I., Kushnir, A., Webster, T., and Morgan, B. (2022). Developments in Web3 for the creative industries. Available online at: https://apo.org.au/node/319849.

Rogers, I., Carter, D., Morgan, B., and Edgington, A. (2022a). Diminishing dreams: the scoping down of the music nft. *M/C J.* 25 (2). doi:10.5204/mcj.2884

Rogers, I., Morgan, B., and Carter, D. (2022b). *Between two webs: Australian music and NFTs, Australia council for the arts/APRA AMCOS*. Canberra, Australia. Available online at: https://research.monash.edu/en/publications/between-two-webs-australian-music-and-nfts.

Ruth, N., and Zickler, K. M. (2024). Harmonizing with machines: a quantitative exploration of AI coverage in german music magazines. *Yearbook of Music Psychology* 32, e177. doi:10.5964/jbdgm.177

Sun, S., Zhai, Y., Shen, B., and Chen, Y. (2020). Newspaper coverage of artificial intelligence: a perspective of emerging technologies. *Telematics Inf.* 53, 1–15. doi:10.1016/j.tele.2020.101433

Tangblad, M. (2022). How blockchain could transform the music industry. *Forbes*. Available online at: https://www.forbes.com/sites/forbesbusinesscouncil/2022/09/07/how-blockchain-could-transform-the-music-industry/.

Taylor, A. (2021). NFTs: are they the future of the music industry? *BBC News*. Available online at: https://www.bbc.com/news/entertainment-arts-57164487.

Van der Heijden, H. (2004). User acceptance of hedonic information systems. *MIS Q.* 28, 695–704. doi:10.2307/25148660