

The Impact of Blockchain NFTs Technology on the Conservation and Preservation of Print Newspaper Content

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ABSTRACT

The emergence of Non-Fungible Tokens (NFTs) technology has led to a significant transformation in the creative industry and media content realm, introducing fundamental new opportunities for the media sector as well as for the conservation and preservation of newspaper content. This research aims to analyze the impact of implementing Blockchain NFTs technology on the conservation and preservation of print newspaper content. This is motivated by the fact that many print media outlets have not yet adopted NFT technology, despite its potential to secure and provide economic value to both old and new print news content. The adoption of Blockchain NFTs technology is considered a forward-looking technology that offers excellent opportunities for the preservation of print newspaper content. This research uses a qualitative method to explore the impact of Blockchain NFTs technology on the conservation and preservation of print newspaper content. The research methods include literature review, in-depth interviews, and secondary data analysis. The findings indicate that implementing Blockchain NFTs technology can provide benefits such as better data security, transparency, and the potential for new economic value through the creation and trading of NFTs from historically or

otherwise significant print newspaper content.

Keywords: Blockchain, Conservation, NFTs, Newspapers, Preservation

INTRODUCTION

The development of digital technology has brought significant changes to various aspects of life, including the media industry and content preservation. One of the latest innovations attracting attention is blockchain-based Non-Fungible Tokens (NFTs). NFTs have led to a fundamental transformation in the creative industry and media content, introducing a new paradigm regarding digital ownership and value. The print media industry, particularly newspapers, has long faced challenges in the digital era. A major issue is how to conserve and preserve print news content that holds historical and cultural value. Meanwhile, many print media outlets have yet to fully utilize the potential of new technologies like NFTs, despite these technologies offering opportunities to secure and provide new economic value to both old and new print news content.

The application of blockchain NFT technology is considered a potential solution to this issue. This technology not only promises better security and transparency but also opens up opportunities for content monetization through the creation and trading of NFTs from print news content

that is historically or significantly valuable. However, the impact and effectiveness of implementing this technology in the context of conserving and preserving print newspaper content still need further exploration. Several previous studies have explored the potential of blockchain technology and NFTs in the media industry. However, the specific focus on the conservation and preservation of print newspaper content remains limited. Research by Andreia Nogueira et al. (2023) proposed an NFT-based conceptual framework for protecting intellectual property but did not specifically address the preservation of newspaper content. A study conducted by Rafli (2022) discussed the potential of NFTs as a solution for copyright protection, but its focus was not specific to the print media industry. Meanwhile, Boyko (2023) research analyzed the legal aspects of NFTs in the context of digital art but did not address their implications for newspaper content preservation.

Although these studies provide important insights into the potential of NFTs in protecting intellectual property, there is still a gap in the in-depth understanding of the specific impact of blockchain NFT technology on the conservation and preservation of print newspaper content. This research aims to fill this gap by comprehensively analyzing the impact of implementing blockchain NFT technology in the context of print newspaper content preservation, including aspects of data security, content monetization, and revitalization of old news archives.

Based on this, the present study aims to analyze the impact of implementing Blockchain NFT technology on the conservation and preservation of print newspaper content. This is motivated by the fact that many print media outlets have not yet adopted NFT technology, despite its potential to secure and provide new economic value to print news content, both old and new. The adoption of Blockchain NFT technology is considered a forward-thinking approach that offers great

opportunities for the preservation of print newspaper content. The results of this study are expected to provide valuable insights for the print media industry regarding the potential use of NFTs for content preservation and monetization. Additionally, this research is also expected to serve as a reference for policymakers in formulating strategies for digital content preservation and blockchain-based creative economy development.

LITERATURE REVIEW

1. Blockchain NFTs

Blockchain is a technology that ensures transparent, secure, and tamper-proof transactions. This technology enables each individual to contribute to and benefit from the network, creating a decentralized economy without a central authority (Wu & Wu, 2023). Non-Fungible Tokens (NFTs) represent an innovation within blockchain technology, focusing on the creation and trading of unique digital assets. NFTs allow content creators to offer exclusive value and ownership of their digital works. Each NFT possesses a unique code recorded on the blockchain, ensuring that the digital asset cannot be forged or altered.

NFTs have a unique code recorded on the blockchain, ensuring that the digital asset cannot be forged or altered. NFTs are described as "a way for artists to embed a snippet of code into their works so that they can share them without fear of piracy and with the security that they will be paid directly by their supporters and fans in perpetuity" (Fortnow & Terry, 2021). The concept of exclusive ownership is a fundamental basis of NFTs, which stipulates that only one person legitimately owns the digital asset. Unlike other digital assets that can be easily copied or duplicated, Matt Fortnow and QuHarrison Terry describe NFTs as "unique digital collectibles." This unique ownership adds value to digital works and opens opportunities for creators to receive fair appreciation and compensation for their work.

2. Conservation and Preservation of Print Media Content

The print media industry has been crucial in disseminating information for centuries. As digital media transforms the landscape, conserving and preserving print media content, especially newspapers, has become increasingly important (Hutomo & Ritonga, 2022). Print media has historically shaped public opinion and recorded significant events, making its preservation essential for maintaining comprehensive historical archives and ensuring future access to authentic information sources (Suyasa & Sedana, 2020). The transition to digital media has raised concerns about potentially losing valuable print content. Efforts to conserve print media are crucial for maintaining its cultural and historical significance, as well as preserving diverse perspectives documented over the years.

Blockchain and NFTs offer solutions to challenges faced by the newspaper industry, such as content preservation, authenticity verification, and monetization in the digital era (Błażejewska, 2022). By leveraging blockchain's decentralized nature and NFTs' ability to create unique digital assets, the print news industry can revitalize its business model and enhance content value. Blockchain can serve as decentralized storage for archiving print news content more securely and efficiently. NFTs ensure the verification of article authenticity, creating an immutable record of authorship and publication date (Rafli, 2022). Blockchain also facilitates transparent tracking of changes, providing a comprehensive audit trail for updates or corrections (Nogueira et al., 2023). The use of blockchain for content conservation aligns with the concept of "data objects" proposed by the Law Commission of England and Wales, where digital assets like NFTs are considered a distinct category of property (Moreno, 2024). Thus, blockchain not only ensures the integrity and authenticity of news content but also provides solutions for preserving

journalistic heritage in a secure and durable digital format.

3. Monetization of Print News Content

NFTs open up significant new opportunities for the monetization of print news content. Through tokenization, newspapers can create limited digital editions as NFTs, potentially enhancing the value of their content (Boyko, 2023). Smart contracts within NFTs support the implementation of a sustainable royalty system, where authors or publishers can receive compensation each time the NFT is resold, creating a long-term revenue stream (Rafli, 2022). NFTs can also transform news articles into digital collectibles, which may increase in value over time and attract collectors and enthusiasts. Additionally, tokenizing news content as NFTs can create a secondary market for historical or high-value news content, opening new revenue streams for the print media industry (Asha et al., 2023). NFTs provide newspapers with the opportunity to offer exclusive access to premium or archival content to token holders, creating a new business model that combines digital ownership with content access (Mehr & Shahim, 2023).

4. Legal and Ethical Aspects of Using Blockchain NFT Technology

The legal aspects of using blockchain NFT technology for the conservation and preservation of print newspaper content represent a significant development in the digital world. By leveraging NFTs on the blockchain, ownership and authenticity of historical newspaper articles can be verified and preserved securely. The immutable nature of blockchain ensures that once print news content is tokenized as an NFT, it cannot be altered or damaged, providing a reliable method for preserving and safeguarding valuable information (Hayworth, 2021). On the ethical front, the use of blockchain NFT technology to preserve print newspaper content could be a crucial step in maintaining the integrity of historical records and ensuring their

accessibility for research and education. By digitizing and tokenizing newspapers as NFTs, their value and authenticity can be preserved in a decentralized and transparent manner (Altucher & Campbell, 2021). This innovative approach aligns with efforts to use blockchain technology to positively impact society by changing how information is stored, accessed, and shared. The implementation of Blockchain NFTs in Indonesia brings positive impacts from both legal and ethical perspectives. NFTs provide better protection for copyright holders by offering unique codes to track ownership and prevent copyright infringement. The use of smart contracts within NFTs also provides legal certainty regarding ownership transfer and economic rights (Gultom & Asril, 2023). Additionally, NFTs empower artists and stakeholders in the digital art industry, promoting innovation and creativity in the marketing and sale of art, which can have a positive overall impact on the digital art industry in Indonesia.

MATERIALS & METHODS

This study adopts a qualitative approach to explore in depth the impact of implementing Blockchain NFT technology on the conservation and preservation of print newspaper content. A qualitative method was chosen to gain a comprehensive understanding of this phenomenon by examining the perspectives and experiences of various stakeholders involved (Creswell & Poth, 2018). This approach aligns with the topic under investigation, considering that Blockchain NFT technology is still relatively new in the context of media content preservation.

Data collection is conducted through literature review, in-depth interviews, and secondary data analysis. The literature review involves a comprehensive examination of academic literature and scientific articles to establish a theoretical foundation related to Blockchain NFTs in the media industry. In-depth interviews are conducted with experts experienced in blockchain technology and NFTs, using a

semi-structured method to provide flexibility in exploring the topic while maintaining research focus (Bryman, 2016). In this research, an in-depth interview was conducted with Faisal Nisbah, an experienced practitioner in blockchain technology and NFTs with a broad background in the digital industry, particularly in business. Nisbah's experience encompasses roles as a technology mentor, application developer, crypto asset trading practitioner, and social media platform developer. His extensive involvement with blockchain, NFTs, and the digital economy makes him a highly relevant source for this research.

The interview guidelines were structured to gather comprehensive information on the impact of Blockchain NFT technology implementation in the conservation and preservation of print newspaper content. These guidelines focused on five main categories:

1. Understanding Blockchain NFT technology in the context of print media
 - a. Basic concepts and potential applications for the newspaper industry
2. Potential and challenges of implementation for print news content conservation
 - a. Benefits in preserving news archives
 - b. Technical and operational barriers to implementation
3. Implications for data security and content authenticity verification
 - a. Enhancement of news content integrity and traceability
 - b. Methods for verifying authenticity and ownership
4. Economic impact and new business models
 - a. Opportunities for monetizing print news content
 - b. Transformation of print media business models in the digital era
5. Legal, ethical, and social aspects of implementing this technology
 - a. Copyright and digital ownership issues
 - b. Implications for public information accessibility

The interview results were then qualitatively analyzed to identify key themes and important insights regarding the impact of implementing Blockchain NFT technology on the conservation and preservation of print newspaper content.

Secondary data analysis focuses on the collection and analysis of existing data, such as research reports, case studies, and media news specifically related to the implementation of Blockchain NFT technology in the conservation of print newspaper content. This multi-method approach strengthens data triangulation, enhances the validity of research findings, and provides a more comprehensive view of the potential and challenges of implementing Blockchain NFT technology in the conservation of print newspaper content (Yin, 2018).

RESULT

The research findings indicate that the implementation of Blockchain NFT technology has a significant impact on the conservation and preservation of print newspaper content. Key findings are as follows:

1. Impact of Blockchain NFT Technology on Print News Content Conservation

a. Enhanced Security and Data Integrity

The implementation of blockchain NFT technology has demonstrated a significant improvement in the security and integrity of print news content data. Faisal Nisbah, an entrepreneur experienced in the digital economy including blockchain and NFTs, emphasized in an in-depth interview, "Blockchain offers a very high level of security due to its decentralized and immutable nature. Every news article converted into an NFT will have a permanent record on the blockchain, protecting it from unauthorized manipulation or deletion." (Nisbah, 2024).

The immutable characteristics of blockchain ensure that once news content is tokenized as an NFT, it cannot be manipulated or damaged. This creates a reliable method for preserving valuable information from print newspapers. Below is a comparison of data security aspects before and after the implementation of NFTs:

Table 1. Comparison of Print News Content Conservation Before and After NFT Implementation

Aspect	Before NFT	After NFT
Data Security	Vulnerable to manipulation	Protected by blockchain
Authentication	Difficult to verify	Easily verified through blockchain
Monetization	Limited	New opportunities (NFT sales, royalties)
Accessibility	Limited to physical archives	Accessible digitally
Tracking	Manual and error-prone	Automated and transparent
Changes	Can be altered	Immutable

From this table, it can be seen that the implementation of NFTs has significantly improved the data security of print news content. Content that was previously vulnerable to manipulation is now protected by blockchain technology, ensuring data integrity over the long term.

b. Ease of Authenticity and Provenance Verification

Blockchain NFT technology also offers ease in verifying the authenticity and provenance of print news content. M. Helman Taofani,

Project Lead of Kompas NFT, explained in an interview on Kompas' official YouTube channel (Kompas.com, 2022) that the process of tokenizing news content involves a rigorous selection of historical articles. This ensures that only content with historical value and cultural significance is converted into NFTs, enhancing the value and authenticity of digital archives.

The transparency offered by blockchain ensures a clear record of ownership and transaction history for each digitized news content. This not only aids in verifying the

authenticity of the content but also facilitates the tracking of ownership changes over time.



Figure 1. Implementation Process for Kompas Print News Content

This process illustrates how Kompas ensures the authenticity and provenance of content through rigorous selection and a transparent tokenization process.

c. Secure Long-Term Storage

The implementation of blockchain NFT technology also offers a more secure solution for the long-term storage of print news content. Nisbah (2024) states, "In the long run, blockchain NFT technology could become a comprehensive solution for preserving artistic heritage, including journalism. It allows us to maintain the integrity of news archives, prove their authenticity, and ensure their accessibility for future generations."

M Helman Taofani adds that Kompas has selected 57 historical headline memories from Kompas newspapers covering topics such as politics, economics, science and technology, natural disasters, education, and sports (Kompas.com, 2022). This demonstrates how NFTs can be used to archive and preserve significant moments in journalistic history for the long term.

Table 2. Print News Content of Kompas Newspaper Tokenized as NFTs

Year	Event
1965	Peristiwa G30S
1967	ASEAN Dibentuk
1972	Implementasi EYD
1976	Peluncuran Satelit Palapa
1992	RI Rebut 2 Emas
2018	Asian Games 2018
2020	Pandemi Covid-19
2021	Musibah KRI Nanggala

This table shows eight out of the 57 Kompas headline NFTs. The selected headlines illustrate how NFT technology can be used to store various historical events, spanning from 1965 to 2021.

2. Potential for Monetizing Print News Content through NFTs

a. Creation of Limited Digital Editions

The implementation of NFT technology opens up new monetization opportunities for the print media industry through the creation of limited digital editions. Nisbah (2024) explains, "NFTs create new monetization opportunities for print news content. Historical or valuable articles can be sold as digital collectibles, creating a new revenue stream for the print media industry." Taofani reinforces this view by explaining that Kompas has successfully sold a majority of its NFT content during its launch, demonstrating the significant financial potential of implementing this technology (Kompas.com, 2022).

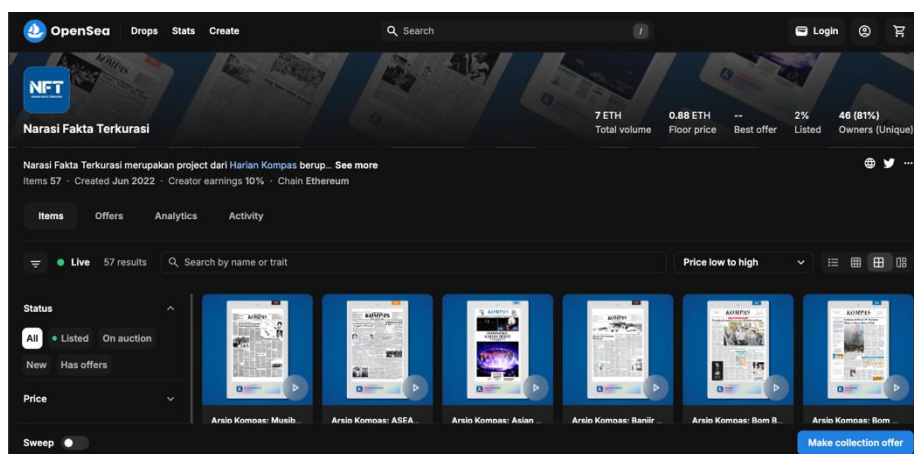


Figure 2. Kompas NFT Page on OpenSea (Kompas Team, 2022)

Kompas has successfully created limited digital editions of its print news content, offering them as unique and collectible NFTs.

b. Implementation of a Sustainable and Transparent Royalty System

Blockchain NFT technology also provides a sustainable royalty system for print news content. Each time an NFT changes hands in the secondary market, the original publisher can receive a percentage of the sale. This creates a new, sustainable revenue stream for print media.

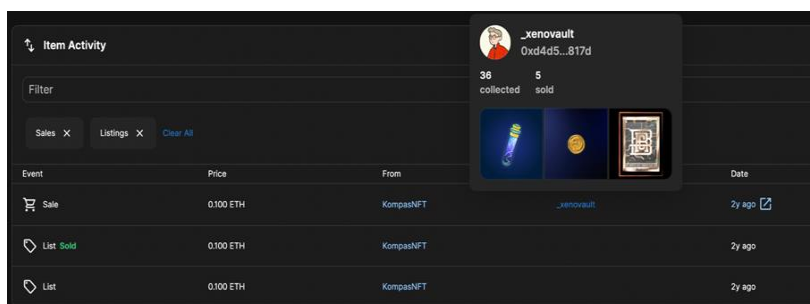


Figure 3. Transparency of Kompas NFT Transactions: Emas Pertama di Olimpiade

Figure 3 illustrates the process of recording each NFT transaction transparently and shows how the royalty system is applied fairly and sustainably.



Figure 4. Journey of NFTs (Castillo, 2023)

Figure 4 illustrates how a sustainable royalty system can be implemented in the context of preserving print newspaper content using blockchain NFT technology. This cycle begins with project initiation, where the newspaper publisher, as the copyright holder, collaborates with project creators to develop an NFT strategy. The next crucial stage is the creation or minting of the NFT, where the digitized news content is converted into a unique token on the blockchain, ensuring authenticity and permanently recording ownership. The most significant aspect of this figure in the context of a sustainable royalty system is the presence of both primary and secondary markets. The primary market handles the initial sale or allocation of the news content NFT, while the secondary market is key in creating a sustainable revenue stream for

print media adopting NFT technology. Each time a news content NFT changes hands in the secondary market, the smart contract attached to the NFT automatically allocates royalties to the original publisher. 5-20% of the secondary sale value can return to the IP owner, in this case, the newspaper publisher of the NFT.

c. Development of a Secondary Market for Historical News Content

The implementation of NFT technology also opens opportunities for the development of an active secondary market for historical news content. Secondary data analysis shows several cases where leading media outlets successfully sold historical articles as NFTs at significant prices. For instance, the New York Times managed to sell an opinion column as an NFT for over

\$560,000 at its initial purchase, and by 2024, it had rapidly increased to 350.00 ETH, equivalent to \$1,181,110.

Table 3. Adoption of NFTs by Leading Print Media Worldwide

Media	Country	Year of Adoption	Type of NFT Content
The New York Times	AS	2021	Opinion Column
Quartz	AS	2021	Specific Articles
South China Morning Post	Hong Kong	2021	Historical Moments
Kompas	Indonesia	2022	57 Historic Headlines

This table illustrates the diversity of regulatory approaches to NFTs across various countries, which may influence the adoption of this technology by print media.

3. Challenges and Considerations in the Implementation of NFT Technology

a. Legal and Regulatory Aspects

The implementation of blockchain NFT technology in the print media industry faces challenges related to legal and regulatory aspects. Nisbah (2024) identifies that "The main challenge lies in the adoption of this technology by the established print media industry. Initial investment in infrastructure and training is required."

Table 4. NFT Regulations for Print Media in Various Countries (2024)

Country	Regulation Status	Regulator	Regulation Focus
USA	In Development	SEC	Investor Protection
European Union	Implemented	European Commission	Data Transparency and Security
Singapore	Implemented	MAS	Anti-Money Laundering
Indonesia	In Development	OJK/BI	Consumer Protection
Japan	Implemented	FSA	Taxation

This table illustrates the diversity of regulatory approaches to NFTs across various countries, which may influence the adoption of this technology by print media.

b. Ethical Issues Related to Accessibility and Preservation of Cultural Heritage

The use of NFTs to preserve print news content has sparked ethical debates concerning accessibility and the preservation of cultural heritage. While NFTs offer attractive monetization opportunities, they also raise concerns about restricting public access to historical information. Efforts by Kompas to balance monetization with social responsibility, as described by Taofani, demonstrate an awareness of the importance of maintaining public access to journalistic heritage (Kompas.com, 2022). The selection of 57 historical headlines is a strategic move to ensure that vital information remains accessible to the general public. This aligns with the view that a balance between technological innovation and public interest

in digital information preservation is necessary (Nadini et al., 2021).

The challenge of long-term preservation of digital content converted into NFTs is also a major concern. Although blockchain offers solutions for authentication and ownership tracking, a comprehensive preservation strategy is still required. The application of NFTs in content preservation also raises questions about the democratization of information. NFTs can provide economic value to journalistic work but also have the potential to create access gaps. To address this dilemma, a holistic and ethical approach to applying NFT technology for news content preservation is needed. The development of hybrid models that combine the benefits of NFTs with open access principles could be a solution, such as creating exclusive NFT versions for collectors while still providing public access to the basic content.

c. Infrastructure and Technical Expertise Requirements

The implementation of NFT blockchain technology for the conservation and preservation of print newspaper content requires significant investment in infrastructure and the development of technical expertise. M Helman Taofani explains that Kompas must gradually build a web3 infrastructure and conduct thorough research before full implementation (Kompas.com, 2022). Building a web3 infrastructure requires not only advanced hardware and software but also a deep understanding of blockchain technology. According to Zheng, blockchain infrastructure requires a robust and secure system to ensure data integrity and overall system reliability (Zheng et al., 2017). The development of technical expertise is also a significant challenge. Many organizations need to train staff or recruit blockchain and NFT experts. Faisal Nisbah (2024) emphasizes the importance of intensive education and training to minimize risks and increase the effectiveness of implementing this technology. Thorough research before implementation is essential, including feasibility studies and risk analysis. Casino, Dasaklis, and Patsakis affirm that risk analysis and feasibility studies are crucial in the implementation of blockchain technology (Casino et al., 2019). Given that blockchain and NFT technology are still relatively new, organizations must be prepared to continuously learn and adapt. Kouhizadeh and Sarkis state that adaptability and innovation are key factors in the successful implementation of blockchain technology across various sectors (Kouhizadeh & Sarkis, 2018).

4. Implications for the Print Media Industry

a. Diversification of Revenue Sources

The adoption of blockchain NFTs presents opportunities for the print media industry to diversify their revenue sources. Blockchain NFTs offer print media the chance to create new revenue streams, reducing reliance on traditional revenue models such as advertising and subscriptions.

1) Before NFT Adoption

Before the adoption of NFTs, print media companies faced significant financial challenges. For example, The Los Angeles Times and San Diego Union-Tribune reported losses of \$50 million in 2020, primarily due to declines in print advertising, digital advertising, and print circulation (Tim Peterson, 2021). This trend was not limited to these two media outlets; many other traditional media organizations also struggled with decreased revenue from conventional income streams.

2) After NFT Adoption

The emergence of NFTs has led some media companies to experiment with this new technology as a potential revenue source. The NFT market surged to \$41 billion in 2021, and media companies such as The New York Times, CNN, and TIME magazine joined the trend, releasing NFTs with varying degrees of financial success (Wang, 2022). This move represents a smart strategy for revenue diversification, potentially increasing the lifetime value of existing readers and attracting new audiences from the collectible goods market.

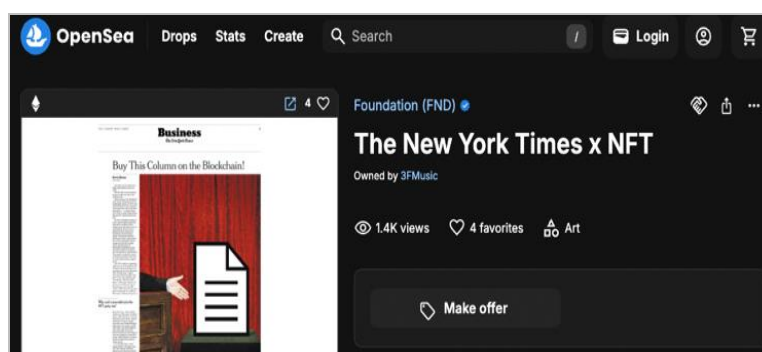


Figure 5. NFT of an Article by NYT Technology Columnist Kevin Roose (Foundation (FND), 2021).

3) Impact on Revenue

The adoption of NFTs provides a new revenue stream that helps offset some of the losses from declining traditional advertising and circulation. For instance, the rapid rise of NFTs is accompanied by media companies experimenting with blockchain and the metaverse, indicating a broader strategy to integrate new technologies for financial sustainability (Sutcliffe, 2022).

b. Opportunities for Revitalizing Old Content

NFT (Non-Fungible Token) technology provides opportunities to revitalize old content that has been forgotten or underutilized. This concept offers new possibilities for media companies and publishers to add new value to their content archives by transforming them into unique and tradable digital assets. By leveraging blockchain technology, content previously considered outdated or less relevant can gain new significance. This attracts collectors and enthusiasts who value the historical and authentic aspects of the content. Taofani provides a real-world example of this transformation by describing how Kompas successfully created added value for their newspaper content through NFTs (Kompas.com, 2022). By converting old and historic newspaper headlines into NFTs, Kompas not only opened a new revenue stream but also enhanced reader engagement. This strategy provides Kompas with an innovative way to monetize their archive content while also building stronger connections with the reading community.

5. Recommendations for Implementation

a. Phased Adoption Strategy

Based on research findings, it is recommended that print media gradually adopt blockchain NFT technology. Taofani explains that Kompas is building a web3 infrastructure incrementally and conducting thorough research before full implementation (Kompas.com, 2022). This

strategy allows media organizations to learn from their experiences, minimize risks, and adjust their approach based on market feedback. Steps in a gradual adoption strategy may include: in-depth research and development of blockchain and NFT technology; starting with small-scale pilot projects, such as tokenizing a limited number of historical articles or significant headlines; evaluating the results of pilot projects and making adjustments based on findings and feedback; gradually expanding NFT implementation to more content and features; and finally, comprehensively integrating blockchain NFT technology into business and operational strategies.

b. Collaboration with Blockchain Technology Experts

Given the complexities of blockchain and NFT technologies, collaboration with experts in these fields is crucial. Nisbah (2024) emphasizes the significance of technical expertise in the implementation of these technologies. Print media should consider several strategic steps. First, partnering with blockchain technology companies or NFT consultants to leverage their expertise and experience. Second, recruiting in-house blockchain and NFT experts to build organizational capabilities. Third, conducting training programs to enhance the existing employees' skills in blockchain and NFT technologies. Lastly, actively participating in blockchain and NFT-related industry conferences and forums to stay updated with the latest trends and best practices. By taking these steps, print media can ensure they possess the necessary knowledge and expertise to effectively implement blockchain and NFT technologies in their operations.

c. Development of Industry Standards for NFT Use in Media Content Preservation

To ensure consistent and ethical adoption of NFT technology within the print media industry, the development of industry standards is highly recommended. These standards should encompass several key aspects. First, a protocol for content

tokenization, providing guidelines for converting news content into NFTs. Second, standards for NFT content metadata and provenance, setting requirements for documenting the origin and details of NFT content. Third, ethical guidelines for monetizing news content through NFTs, establishing principles to ensure responsible monetization practices. Lastly, best practices for balancing monetization with public access to essential information, offering strategies to maintain public access while pursuing revenue opportunities. The development of these standards should involve a wide range of stakeholders, including print media organizations, regulators, technology experts, and representatives of the public. With comprehensive industry standards in place, the implementation of NFT technology in preserving media content can be carried out in a more structured and responsible manner.

CONCLUSION

This study aims to analyze the impact of implementing Blockchain NFT technology on the conservation and preservation of print newspaper content. The key findings indicate that this technology provides a significant enhancement in terms of security and data integrity of print news content. The immutable nature of blockchain ensures that once news content is tokenized as an NFT, it cannot be manipulated or tampered with. This creates a reliable method for preserving valuable newspaper information while also facilitating the verification of content authenticity and provenance. The implementation of Blockchain NFTs also opens new monetization opportunities for the print media industry. Creating limited digital editions and implementing ongoing royalty systems through NFTs have proven to be potential revenue sources. Cases such as the sale of New York Times opinion columns as NFTs highlight the significant financial potential of this technology. Additionally, NFTs offer opportunities for developing secondary markets for historical

news content, adding value to previously underutilized archives.

However, the adoption of this technology also faces several challenges. Legal and regulatory aspects are still developing in many countries, creating uncertainty in its implementation. Ethical issues related to accessibility and the preservation of cultural heritage also arise, raising questions about the balance between monetization and social responsibility in preserving important information. Furthermore, the need for adequate infrastructure and technical expertise presents additional challenges for many media organizations. These findings imply that Blockchain NFTs have substantial potential to transform how the print media industry conserves, monetizes, and distributes its content. However, its implementation requires a careful and strategic approach. Proposed recommendations include a phased adoption of this technology, collaboration with blockchain technology experts, and the development of industry standards for the use of NFTs in media content preservation. Such an approach can help media organizations maximize the benefits of the technology while minimizing risks and challenges.

The application of Blockchain NFTs in the conservation and preservation of print newspaper content offers innovative solutions to the challenges faced by the print media industry in the digital age. Although there are still challenges to address, the potential of this technology to enhance data security, open new revenue streams, and revitalize old content cannot be overlooked. Further research is needed to explore effective ways to address ethical and technical challenges and to develop best practices for implementing this technology in the print media industry.

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