Making Copyright Management Agile: Challenges and Opportunities in Audiovisual Translation and Media Accessibility for a New Digital Era

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Abstract Digital interactive accessibility services must enable human interaction with the media content beyond consumption, ensuring that people can perceive, understand, navigate, and interact with the content and contribute to it. All these new types of interactions are also a field of study in audiovisual translation (AVT) and media accessibility (MA), as translation is a form of human–computer interaction (HCI) (O'Brien, Translation Spaces 1:101–122, 2012). Therefore, the role of technology in AVT/MA is a key aspect not only in the process of creation, but also for distribution, delivery, and consumption. This tendency is expected to grow in the coming years as "technology is also the basis of tools to translate or adapt content and tools to consume content" (Matamala in Accessibilitat i traducció audiovisual, 2019). The progressive transition from Web 2.0 to Web 3.0, with the irruption of recent technologies such as blockchain and artificial intelligence (AI), is opening up innovative forms of communication and interaction for users in the digital world. Yet, challenges in relation to intellectual property rights (IPR) management in AVT/MA remain a major concern (Orero et al., 2023; Serrat-Roozen & Oncins, 2023). The following chapter presents the results of a series of focus groups held with professionals and researchers from the different fields of the AVT and MA in the frame of the European project MediaVerse. This three-year project was aimed at designing and testing a framework to allow professionals and laymen to publish multimedia content that may be easily shared. Results presented highlight user's needs and expectations from AVT/MA professionals in relation to copyright management, through the use of blockchain technology to protect and recognise IPR for professionals in these fields.

Keywords Audiovisual translation · Media accessibility · Copyright management · Blockchain technology · Artificial intelligence

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1   Introduction

The incessant penetration of technological tools and solutions opens the doors to new user interactions in the areas of audiovisual translation (AVT) and media accessibility (MA). Technological solutions and products are increasingly being used in our daily activities and even determine our social communication. The role of technology in the fields of AVT and MA is a key aspect not only in the process of creation, but also for the distribution, delivery, and consumption of content.

There is an increasing number of technologies which are being incorporated in all fields of the translation and digital/media accessibility industry. In this regard, various researchers in the AVT and MA fields have described the so-called audiovisual translation workstation as a workstation that changes continuously and is moving towards cloud-based solutions (Díaz Cintas and Massidda 2019; Oziemblewska & Szarkowska, 2022). In the case of subtitlers, this convergence to the cloud allows both language service providers (LSPs) and subtitlers to centrally manage multiple subtitle files, track changes, introduce quality assurance (QA) processes, and integrate other tools (Oncins, 2022). In most cloud-based subtitling tools, technology central, enhancing work efficiency and reducing costs. However, this often compromises output quality and creates ambiguity around data ownership in AVT and MA works. Yet, technology can also offer solutions. By integrating blockchain, AI, and smart contracts, professionals in AVT and MA can move towards a fairer system, especially in managing the copyrights of their works.

1.1   AVT and MA Modalities: Not Shaken but Stirred

It should be noted that the technological acceleration in the audiovisual and multimedia sector has also increased the risk of people being excluded from enjoying media products and services, or the risk of providing *fake accessibility* (Serrat-Roozen, 2023), as it is crucial to ensure that digital content not only includes the essential features for accessibility, but also implements them accurately and effectively. This issue has been recognized through the concept of media accessibility (Matamala, 2019). Although research and practice in MA was initially framed as a domain within AVT studies, AVT and MA studies are guided by different questions. While AVT focuses mainly on the process of translation, and research in this field is framed in issues related to linguistic aspects, MA analyses the world in terms of access (Greco, 2016). Thus, making a distinction between AVT and MA does not mean excluding one or the other, since some accessibility issues may be related to translation and vice versa. Similarly, AVT and localisation are two convergent fields which share more similarities than differences (Mejías-Climent, 2021). In this regard, one of the required competences for professionals in this field is to be familiar with specific features of screen translation, such as subtitling and dubbing, for the localisation of audio and cinematic assets (Mangiron, 2007). Finally, accessibility in the

video game field has mainly received the attention of the industry, especially in the design phases of the product, with the production of a number of game accessibility guidelines (Game accessibility guidelines, n.d.). Yet, accessibility in relation to video games "remains an overlooked area in translation studies" (Mangiron, 2018).

Given this context, MA and AVT professionals would greatly benefit from a dynamic copyright management system, leveraging the opportunities presented by recent developments. Copyright issues in these fields are at a critical juncture. The integration of emerging technologies like blockchain within the new Web 3.0 environment can empower content creators to enhance the visibility of their work. The earlier version of the web, known as Web 1.0, was primarily a read-only medium, while Web 2.0 allowed for greater interactivity with read/write capabilities. Now, the emerging version of the web, Web 3.0, is considered to be a technologically advanced medium that not only facilitates read/write capabilities but also enables a machine to carry out some of the thinking that was previously expected only of humans. This progress in technology also brings with it new challenges and opportunities for generating digital content that should be born accessible (Orero, 2020), and enhance accessibility in the digital world to its fullest extent. In particular, blockchain technology allows for the minting of digital assets by creating a digital representation typically in the form of a digital file or a link to a digital file. This file is then associated with a unique token on the blockchain, which serves as proof of ownership (see Fig. 1). This creates the opportunity to bring translators and content creators out of anonymity, making their work visible and ensuring they bear the associated responsibilities (Orero et al., 2023). The integration of blockchain technology in translation workflows could substantially contribute to improving translation and media accessibility quality, in particular for the corresponding professional and economic recognition of professionals in these fields.

2 Copyrights Management in AVT and MA

There is no international-unified legal framework in terms of copyright management in the translation field. Even if there is an international legal framework on copyright management, each EU country has its own copyright laws, and an agency to manage the rights. The different EU countries have substantially modified their intellectual property rights (IPR) laws in order to transpose the different European Directives in this subject as a step to harmonise copyright (Margoni, 2016; Orero et al., 2023; Serrat-Roozen & Oncins, 2023). In the case of Spain, the last reform took place in 2021 in order to transpose the European Directives 2019/789[1] and 2019/790.[2] Yet, the current copyright regime remains outdated and unworkable in the digital era, especially with the increasing widespread use of machine translation (MT) across all translation sectors (Morkens & Lewis, 2019). For instance, in Spain there is the

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[1] See: https://eur-lex.europa.eu/legal-content/ES/TXT/?uri=CELEX%3A32019L0789.

[2] See: https://eur-lex.europa.eu/legal-content/ES/TXT/?uri=CELEX%3A32019L0790.

DAMA organisation (Derechos de Autor de Medios Audiovisuales), which is in charge of managing the copyright of the different agents in the audiovisual field, including professionals in the AVT field. Still, professionals in video game localisation are bound with strict non-disclosure agreements, particularly in the case of major video game companies. At the same time, most work delivered by MA professionals does not fall under copyright protection (Orero et al., 2023).

Generally, there are two different types of copyright: moral rights and economic rights (Serrat-Roozen & Oncins, 2023). Moral rights are personal, indisputable, and inalienable. Some of these rights exist in perpetuity; for example, the right of the author to be acknowledged and the right to the integrity of works. Recognition of the authorship and integrity of works are the most important moral rights, together with the right to share this work. Economic rights and rights of exploitation are transferable rights and do have time limits. Their duration depends on the legislation in each country (i.e. in Spain, they last for the lifespan of the author and following the death of the author they belong to the inheritors for a further 70 years). This means that they can be sold, ceded, or shared with third parties, whether this is for economic purposes or not. Hence, the ownership of rights of exploitation does not always belong to the author, since the latter may have ceded or sold these to a third party or organisation, such as an editor or compiler.

2.1 Copyright and the Question of Originality/Creativity

The translator's profession is undergoing significant changes, and AI is demanding a rethink of what translating entails today. In this regard, it is advisable to take into account central issues such as the creativity and originality of a work, an issue which most organisations in the different translation fields are already demanding. In the near future, translations will likely be labelled based on whether and to what degree AI has been used, a practice already implemented in localisation processes. Currently, in the case of machine aided translations, "the question of copyright is particularly challenging and complex, and it is mostly overlooked by many national legislations" (Debussche & Troussel, 2014: 103).

Additional challenges linked to the increasing use of technologies in AVT and MA include the quality of the final output, the high level of post-editing, as well as the degree of creativity that certain content requires. Thus, according to Debussche and Troussel (2014: 100), "the protection of translations will indeed depend on the nature of the original text". In this regard, the more creative, complex or original the source, the more likely it is that its translation will be original as well.

Translators may have grounds to claim copyright of a translated text to which they have made an original contribution as a derivative or adapted work, depending on the contract (Tong King, 2020) and the perceived degree of originality (Debussche & Troussel, 2014). This is subject to the rights of the original author as recognised by the Berne Convention (World Intellectual Property Organisation 1979). While this principle might apply to different fields of translation, in the case of AVT and

MA copyrights related to creativity and originality are missing mainly due to strict signed contracts. Furthermore, in many occasions, when AVT professionals send their work to language service providers, these professionals find that they do not own the copyright, a fact that many consider a violation of these rights (Nikolic & Bywood, 2021). According to Moorkens and Lewis (2019: 481), "at present, benefits are rarely passed to the translator, meaning that, while an initial translation may be costly, secondary uses are very inexpensive". Thus, it is necessary to open a debate in relation to AVT and MA assets, data ownership, and the copyrights that derive from it.

2.2   *Copyrights and Data Ownership in AVT and MA*

Ensuring data ownership and security is essential for maintaining the trust of users with their working systems and tools. The key lies in how to make data sharing trusted and secure. Blockchain technologies can help to achieve this goal via consensus mechanisms through the network to guarantee data sharing in a tamperproof way embedded with smart contracts. Blockchain technology can provide tools to make users owners of their data, through authentication and controlled data access. In addition, as in the case of educational settings the blockchain uses encryption and hashes techniques to secure the stored data and facilitates a secure way to access data from various locations.

Therefore, the use of blockchain technology could be a possible solution for translators in the fields of AVT and MA, as this technology allows including metadata to track the authors' copyrights. Metadata is important for the definition of preferences defined by authors on how their works should be repurposed (Moorkens & Lewis, 2019) and at the same time which copyrights should be respected. Blockchain constitutes one of the technologies underpinning the MediaVerse platform and its IPR management system.

3   **MediaVerse**

The MediaVerse project was aimed at designing and testing a framework to allow professionals and laymen to publish multimedia content that could be easily shared and licenced following a user-centred copyright management model. The appeal of blockchain to AVT and MA works can be seen in the possibility to ensure data ownership and security, thus maintaining the trust of users with their working systems and tools without the need for a central governing body (Qureshi & Megías Jiménez, 2021). Any professional working in these fields should be able to create and mint their own works (Orero et al., 2023).

The MediaVerse copyright management tool provides a machine-readable format for content creators to handle the legal aspects of copyright. The platform also

provides a legal framework to allow storage and registration of assets and smart negotiation of (multimedia) content to manage revenues.

To this aim, the MediaVerse project identified the following seven blockchain-based solutions that could help content creators to address the main challenges related to copyright management in the audiovisual sector:

1. Decentralised digital content ecosystem: power and ownership return to creators.
2. New pricing options: new options for creators to earn by selling content.
3. Monetisation of content: content creators can establish direct relationships with customers.
4. Distribution of royalty payments: near real-time payments based on smart contracts.
5. From digital rights management (DRM) to smart contract: transparent and "self-execute" right management underlying smart contracts.
6. Attribution: blockchain increases the visibility and availability of the information regarding copyright ownership.
7. Copyright management: blockchain enables content owners to directly manage their works.

3.1   Methodology

Since the development of the blockchain technology within the MediaVerse platform remained at a proof of concept level, the testing sessions held were of a theoretical evaluative nature. To this aim, a set of small-scale focus groups with experts in the different AVT and MA modalities were favoured to allow for a higher interaction among participants. Three focus groups involving active professionals in the different modalities of AVT and MA were organised between January and April 2023.[3]

The evaluation procedure was designed following social science qualitative research methods (Bryman, 2021). The structure of the sessions was the same for all groups and lasted a maximum of 90 min. First, an introduction on the MediaVerse project and its aims was provided. Second, a short introduction about the methodological approach for the use of blockchain technology as part of the MediaVerse platform to manage moral and economic copyrights was explained (see Fig. 1). Finally, a set of questions were posed to participants for discussion.

At the end of the session, an online questionnaire was sent to participants. It included an open question related to the possible use of the MediaVerse platform in their working context, and a list of the possible MediaVerse blockchain-based solutions that could apply to the fields of AVT and MA. The main objectives of these focus groups were to first gather and analyse data from users to understand the existing workflow for production, distribution, and monetisation of digital assets in their fields. And second, to gain information about professionals' needs and expectations

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[3] Ethical clearance was previously obtained by the UAB Ethical Committee and ethical procedures were strictly followed to ensure compliance with EU existing regulations and codes of conduct.
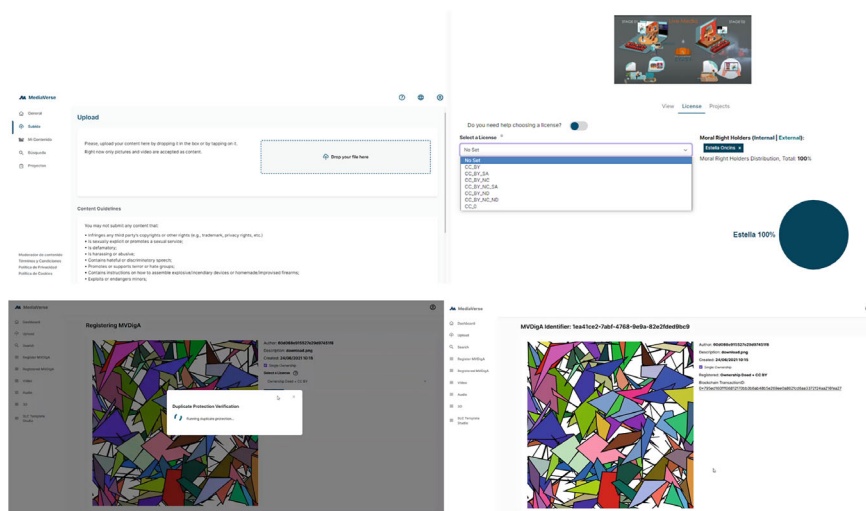
Fig. 1 MediaVerse blockchain-based registration of digital assets

of the blockchain technology to manage copyrights of digital assets in their working contexts.

3.1.1 Demographics

In terms of demographics, there were three groups. The first group consisted of five audiovisual translation professionals in the subtitling field. The second group consisted of five media accessibility professionals working in different modalities (AD, SDH, live subtitling, and subtitling for the scenic arts). Finally, the third group consisted of four professionals in video game localisation and accessibility. All participants reported to be active professionals in their corresponding field. They were all based in Spain, with Spanish/Catalan as their main target languages.

The mean reported technological skills were "advanced". The mean reported level of knowledge about copyright management and IP was "medium", and the mean reported level of knowledge about blockchain was "low".

3.1.2 Extracted Conclusions

Question 1: *[Do you think that the MediaVerse platform could be used in the professional world of translation and/or audiovisual translation? Does it have any advantage over the current way of managing the different modalities of AVT and accessibility in the media?]*

In the case of professionals in the AVT field, most participants reported managing their copyrights through the Spanish organisation DAMA. Still, participants, agreed that the MediaVerse platform would be especially relevant in the case of film festivals, as they mainly do not know the origin of the reference works that they receive for translation (i.e. subtitling templates). In addition, once they deliver their work, they do not know where their delivered work will be used (i.e. country/context), which is in line with the results reported by a study conducted by Nikolic and Bywood (2021), reported in Sect. 2.1.

Professionals in the MA field questioned the viability to use the MediaVerse platform, as the use might depend on the type of content to be uploaded. For instance, live subtitling professionals usually work in the abstract, as various people are part of the live subtitling process. Therefore, it might be difficult to assign copyrights. The same applies to subtitling and audio description in semi-live events, i.e. the performing arts. In both cases it might be due to the "ephemeral nature" (Oncins, 2015) of these works, as there is a need to modify them for each performance. When the author or translator has worked as part of a crowdsourced effort, their input and therefore degree of ownership is less clear (Moorkens & Lewis, 2019). In the case of audio description (AD), copyrights are in a grey area and copyright management might differ depending on the country. For instance, while AD in Spain is not eligible for copyright, in other European countries such as France and Germany authors can claim copyrights in AD.

Finally, professionals working in the video game localisation and accessibility field reported that it might be difficult to use this platform in the environment of large video game developers (Triple A). This fact is mainly due to the existence of non-disclosure agreements (NDAs) or "observance of copyright laws" (Bernal-Merino, 2007: 2). At the same time, then according to participants, the platform could be used in the context of "indie" games that usually work with smaller budgets and with decentralised workflows, as no central platform is used to manage the assets.

> **Question 2**: *[Within the framework of accessibility and audiovisual translation files (i.e. media accessibility assets) rights management, authors have the moral right over the assets they create. This can never be sold. Thus, assets should be somehow "watermarked" for moral ownership. Do you agree?]*

According to professionals in the AVT field, authors should have the moral right over the asset they create. This is something that has been achieved in the last years mainly thanks to the work conducted by professional associations in the AVT sector, such as ATRAE and DAMA in the case of Spain.

In contrast, professionals in the field of MA working on accessibility services such as AD and SDH do not receive the corresponding recognition of the moral rights over the assets they create, as these are not considered literary creations. Therefore, they do not have the right to claim the authorship of such assets. Even if participants in the MA field reported an improvement in recent years on the recognition of the works that they create, they also reported that most times users do not even consider that there is a professional person behind the generation of the corresponding accessibility services. This might be due to the increasing use of speech recognition technologies

along with automation processes, especially in the different types of subtitling (live, semi-live, and pre-recorded), a fact that poses a major challenge in terms of copyright recognition. As such, the ownership of subtitles created through an automatic speech recognition technology remains unclear. There is no specific legal framework considering such issues; "it is necessary to apply the general principles related to authorship and transfer of rights" (Debussche & Troussel, 2014: 103).

Finally, all participants working in video game localisation and accessibility reported that moral rights of their works should always be recognised. This is a claim that has been around in the sector for years, especially through social media campaigns like #TranslatorsInTheCredits.[4] Some agencies do not allow professionals to even mention the titles of the video games they work on. In addition, there is also a lack of recognition of other agents involved in the localisation process, such as reviewers and "testers".

Question 3: *[Should authors be able to establish the economic rights and rights of exploitation?]*

Most participants in AVT reported to be sceptical in relation with establishing both economic and exploitation rights. The reason behind this might be related to the problem of monetising the works they deliver. This seems to be unattainable for participants due to the contracts they have to sign with the agencies/clients in relation with the economical exploitation of the assets they create, which is in line with research reported by Moorkens and Lewis (2019). However, participants agreed that authors should be involved in the negotiations to establish the exploitation rights of their works, also depending on the foreseen reuse. In the case of MA participants, it was reported that economic and exploitation rights might have a short term.

This may be due to the fact that productions, especially in the performing arts, are limited and subject to modifications. Therefore, most professionals in this modality do not register their works. In the case of participants in video game localisation, it was reported that economic and exploitation rights should be agreed at a joint level among all agents involved in the localisation process, which, contrary to other more traditional AVT modalities, is more iterative (Bernal-Merino, 2007; Mangiron, 2018). An additional problem reported in this field was that the localisation of videogames is considered a work derived from the "computer industry" and does not generate exploitation rights.

Finally, an important question raised by participants in the field of video games localisation was also the creative nature of their works. According to participants, the creativity in videogames localisation can be often greater than in the subtitling or dubbing of audiovisual products.

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[4] https://slator.com/online-movement-pushes-that-translators-be-named-in-game-credits/.

3.2 Satisfaction Questionnaire

At the end of the session, an online questionnaire was sent to participants. The first question was related to the possible use of the MediaVerse platform in their professional contexts. In this regard, 75% of participants replied positively and 25% replied "maybe". It needs to be stressed that participants reporting "maybe" could be due to their superficial knowledge of the project, as the aim of the focus group remained at a theoretical level. The reported common advantages of the MediaVerse platform in relation with copyright management across the different groups were mainly the benefit of easy-to-share content, not depending on large companies, as well as decentralisation and easy access for everyone, ensuring that the generated content is always available and authorship can always be recognised. This could also allow giving control back to creators over their own content. Therefore, copyright management could be structured in a more systematic way, as the platform allows you to monitor your own work (and trace it: who acquires it, who modifies it, etc.).

Conversely, reported common disadvantages of the MediaVerse platform in relation to copyright management across the different groups were the challenge to "recruit" a broad group of users. In most cases, clients require a more traditional way to handle copyrights. Copyright management conflicts with the commercial interests of many companies. Questions related to bureaucracy and excessive commodification of intellectual authorship were also reported as downsides.

At the end of the questionnaire, a final question was included with the different blockchain-based solutions for copyright management envisaged within the MediaVerse project. Participants were asked to rate their relevance in relation with their working contexts. Aggregated data from all focus groups are presented in Table 1.

According to reported results, the most relevant blockchain-based solutions were copyright management, attribution, and decentralisation. In terms of copyright management and attribution through blockchain, this technology is considered relevant as it enables content owners to directly attribute copyrights and manage their works. Thus, it might increase the visibility and availability of their works. Finally, the importance of working in a decentralised digital content ecosystem allows for returning power and ownership to creators.

4 Conclusion

The trend in the use of technologies in AVT is expected to increase in the coming years, and will clearly have an impact on AVT, as it is a sector that has so far been eminently artisanal (Oncins, 2022). As highlighted by Kenny (2022: 33), "audio-visual content is thus becoming just the latest in a long line of commercial products whose markets can be expanded through machine translation". In this regard, the question of copyright management is considered a common problem across the

Table 1 Summary of reported replies on the relevance of blockchain-based solutions in AVT and MA

	1	2	3	4	5	I don't know	Mean	Standard deviation	Median
Decentralised digital content ecosystem: power and ownership return to creators									
Number of replies	0	0	0	5	7	2	4.58	0.51	5.00
New pricing options: new options for creators to earn by selling content									
Number of replies	0	1	1	6	5	1	4.15	0.90	4.00
Monetisation of content: content creators can establish direct relationships with customers									
Number of replies	0	2	2	3	7	0	4.07	1.14	4.50
Distribution of royalty payments: near real-time payments based on smart contracts									
Number of replies	0	1	4	5	4	0	3.86	0.95	4.00
From digital rights management (DRM) to smart contracts: transparent and "self-execute" right management underlying smart contracts									
Number of replies	0	0	4	6	4	0	4.00	0.78	4.00
Attribution: blockchain increases the visibility and availability of the information regarding copyright ownership									
Number of replies	0	0	1	4	8	1	4.54	0.66	5.00
Copyright management: blockchain enables content owners to directly manage their works									
Number of replies	0	0	1	3	9	1	4.62	0.65	5.00

different AVT and MA modalities. Both fields are moving towards a cloud-based environment with an increasing number of technologies involved in the process to reach a faster and more cost-effective work. Still, the question of copyright recognition and effective management remains unsolved.

According to gathered results from the study, while the mean reported level of "technological skills" was advanced, the mean reported level of knowledge about blockchain technology was "low". This means that the potential of blockchain technology remains unknown to most professionals. It is important to highlight that blockchain technology is expected to be crucial in the new decentralised Web 3.0 environment, and it could also prove to be an effective tool for fair and collaborative copyright management. This is especially relevant because, while workflows in all modalities are moving towards the cloud, the creativity and reuse of existing works are neither traced nor always protected with copyrights, at least in the Spanish context.

This fact is directly related to copyright management, as the reported level of knowledge about copyrights was medium. It seems that professionals do not to always have a clear idea of the rights they generate, especially in MA. The recognition of moral rights might have a direct impact on the reputation of all professionals in these fields. In this regard, the role of associations to promote the recognition of copyrights is crucial, particularly in the case of MA and video game localisation.

The MediaVerse platform is considered particularly relevant for the copyright management of small and medium-sized enterprises (SMEs) and freelancers. While

technologies are available, there are no existing platforms that allow for an easy-to-use management of the copyrights. In Web 3.0, decentralisation is one of the key aspects, along with authorship. The way new emerged technologies are increasingly being used, and the way in which they are merging in the different AVT and MA fields, should ensure a fairer ecosystem for professionals in these fields.

It should be stressed that copyright management in the digital media value chain differs across countries. The results gathered from this series of focus groups are limited to the Spanish context, as most participants were active professionals and/or academics in this country. Further research needs to be conducted not only in other countries but should include other sectors/industries involved in content production, media preparation, content distribution, monetisation, and consumption of digital media assets, in relation with the use of blockchain for the copyright management of digital media assets.

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