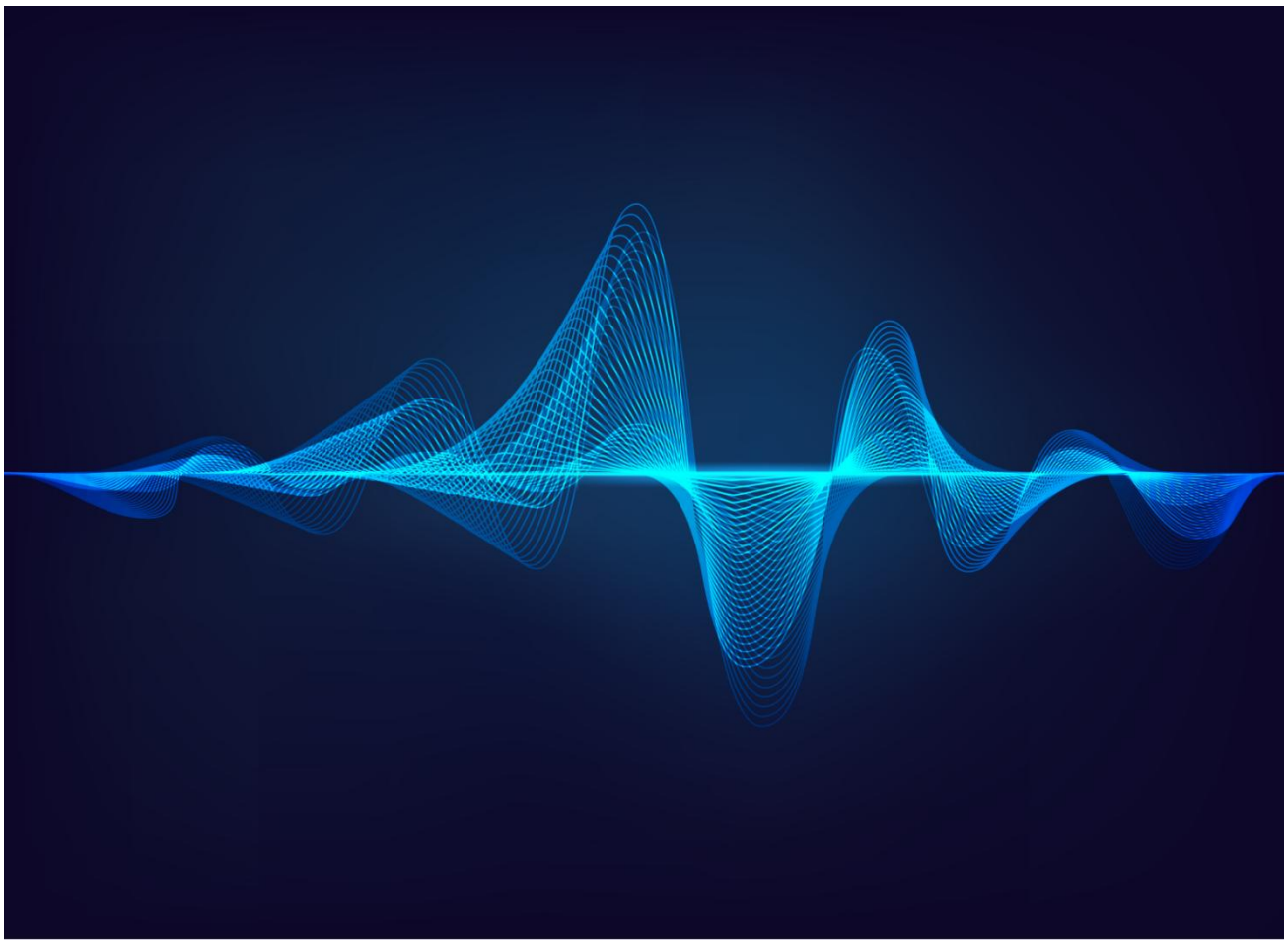

D1.3 – Report on Music Data Improvement Initiatives

OpenMusE

An open, scalable data to-policy pipeline for European music ecosystems

Funded by the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Research Executive Agency. Neither the European Union nor the granting authority can be held responsible for them.

Project Factsheet

Acronym:	**OpenMusE**
Title:	**An open, scalable data to-policy pipeline for European music ecosystems**
Coordinator:	SINUS Markt- und Sozialforschung GmbH
Reference:	101095295
Type:	Research and Innovation Action
Program:	Horizon Europe
Start:	1st January 2023
Duration:	36 months
Website:	https://www.openmuse.eu/
Consortium:	**SINUS Markt- und Sozialforschung GmbH,** Germany (SINUS), Coordinator **TURUN YLIOPISTO,** Finland (UTU) **UNIVERSITEIT VAN AMSTERDAM,** Netherlands (UVA) **Scuola Superiore di Studi Universitari e di Perfezionament,** Italy (SSSA) **EKONOMICKA UNIVERZITA V BRATISLAVE,** Slovakia (EUBA) **Reprex B.V.,** Netherlands (REPREX) **SYNYO GmbH,** Austria (SYNYO) **MUSIC INNOVATION HUB SPA IMPRESA SOCIALE,** Italy (MIH) **Slovenský ochranný zväz autorský pre práva k hudobným,** Slovakia (SOZA) **Aloaded AB,** Sweden (ALOADED) **Music Export Ukraine,** Ukraine (MEU) **Muzikos Eksporto Fondas,** Lithuania (MXF) **ARTISJUS MAGYAR SZERZOI JOGVEDO IRODA EGYESULET,** Hungary (ARTISJUS) **MUSICAUTOR SDRUZHENIE,** Bulgaria (MUSICAUTOR) **HEARDIS! GMBH,** Germany (HEARDIS)

© 2025 OpenMusE | HORIZON-CL2-2022-HERITAGE-01-05 | Grant Agreement No. 101095295

Deliverable Factsheet

Number:	**D1.3**
Title:	**Report on Music Data Improvement Initiatives**
Lead beneficiary:	UNIVERSITEIT VAN AMSTERDAM
Work package:	**1**
Task:	**1.5**
Dissemination level:	**Public**
Submission date:	**31.12.2025**
Main author(s):	**(in alphabetical order)**
	Elena Izyumenko, Universiteit van Amsterdam
	Thomas Margoni, KU Leuven / Universiteit van Amsterdam
	Joost Poort, Universiteit van Amsterdam
	Martin Senftleben, Universiteit van Amsterdam
	Kacper Szkalej, Universiteit van Amsterdam
	Etienne Valk, Universiteit van Amsterdam
Quality check:	Caterina Sganga, SSSA
	James Rhys Edwards, SINUS

Document history:

Revision	Date	Main modification	Author
0.8	28/12/2025	Document submitted for review	See above
0.9	30/12/2025	Reviews tendered	See above
1.0	30/12/2025	Submitted to EC	See above

© 2025 OpenMusE | HORIZON-CL2-2022-HERITAGE-01-05 | Grant Agreement No. 101095295

Disclaimer of Warranties

This project has received funding from the European Union's Horizon Europe, research and innovation programme, under Grant Agreement No. 101095295.

This document has been prepared by OpenMusE project partners as an account of work carried out within the framework of the EC-GA contract no 101095295.

Any dissemination of results must indicate that it reflects only the author's view and that the Commission Agency is not responsible for any use that may be made of the information it contains.

Neither Project Coordinator, nor any signatory party of OpenMusE Project Consortium Agreement, nor any person acting on behalf of any of them:

(a) makes any warranty or representation whatsoever, express or implied,
   (i). with respect to the use of any information, apparatus, method, process, or similar item disclosed in this document, including merchantability and fitness for a particular purpose, or
   (ii). that such use does not infringe on or interfere with privately owned rights, including any party's intellectual property, or
   (iii). that this document is suitable to any particular user's circumstance; or

(b) assumes responsibility for any damages or other liability whatsoever (including any consequential damages, even if Project Coordinator or any representative of a signatory party of the OpenMusE Project Consortium Agreement, has been advised of the possibility of such damages) resulting from your selection or use of this document or any information, apparatus, method, process, or similar item disclosed in this document.

Glossary

AI Act Artificial Intelligence Act

ASCAP American Society of Composers, Authors and Publishers

AVMSD Audiovisual Media Services Directive

CDSMD Directive on Copyright in the Digital Single Market

CEDS Common European Data Spaces

CFR EU Charter of Fundamental Rights

CIAGP International Council of Creators of Graphic, Plastic and Photographic Arts

CIS Common Information System

CISAC International Confederation of Societies of Authors and Composers

CMO Collective Management Organisation

DA Data Act

DDEX Digital Data Exchange

DDL Data and Digital Legislation

DGA Data Governance Act

DIS Data Intermediation Services

DNN Deep neural networks

DOI Digital Object Identifier

DSA Digital Services Act

EIDR Entertainment Identifier Registry

GRD Global repertoire database

IFPI International Federation of the Phonographic Industry

IMR International Music Registry

IPI Interested Party Information Number

ISAN International Standard Audiovisual Number

ISBN International Standard Book Number

ISCC International Standard Content Code

ISMN International Standard Music Number

ISNI	International Standard Name Identifier
ISRC	International Standard Recording Code
ISSN	International Standard Serial Number
ISO	International Organization for Standardization
ISWC	International Standard Work Code
ML	Machine learning
MLC	Mechanical Licensing Collective
MMA	Music Modernisation Act
NLP	Natural language processing
ODD	Open Data Directive
OCSSP	Online Content-sharing service providers
RMI	Rights Management Information
TDM	Text and data mining
TOWGE	Technical Online Working Group Europe
WIPO	World Intellectual Property Organisation

Executive Summary

In order to enable European composers, performers and the European music industry to benefit more from recommender systems and from licensing opportunities in the field of new technologies, such as AI training, it would be beneficial to establish a comprehensive music metadata infrastructure that improves the visibility and accessibility of the entire European music repertoire in digital and algorithmic environments.

This deliverable reports the main outcomes of the interdisciplinary legal research into avenues for music metadata improvement under Task 1.5. The focus is to analyse how EU law can contribute to improving music metadata for Europe so as to improve the visibility and availability of European repertoire to further the European music economy in general, as well as to further repertoire from composers and performers from a marginalized or underrepresented background in terms of language, ethnicity of gender. To this end, it draws from various areas of law such as copyright law, fundamental rights, data and digital legislation, while incorporating relevant insights from economics.

The recommendations given in this report complement data reported and recommendations given in D2.2, D2.3, and D3.2, among other project outputs; these will be harmonised in a revised submission of D5.7.

Table of Contents

1 Introduction 10
1.1 Background 10
1.2 Outline 11
2 Inadequate Metadata Infrastructure 13
2.1 Data Infrastructures and Standardization Initiatives 14
2.2 Metadata Design – Technical Challenges 18
2.3 Metadata Availability – Economic Challenges 20
3 Music Metadata Minefield: Prior Initiatives, Interoperability and How to Let GenAI's Copyright Traces Transpire 21
3.1 Introduction 21
3.2 Centralisation Initiatives 21
3.3 Interoperability in Decentralised Solutions 23
3.4 Increased Metadata Challenges Through GenAI 24
3.5 Conclusions 27
4 Music Metadata as a Fundamental-Rights Question, or EU's Positive Obligations to Secure Cultural Visibility and Equality Online 29
4.1 Introduction: Music Metadata and the Constitutional Turn 29
4.2 Cultural and Linguistic Diversity, Artistic Freedom, and Intellectual Property in the EU's Constitutional Order 32
4.3 Structural Metadata Harms: Linguistic Invisibility, Territorial Marginalisation, Field Recordings, and Gendered Dynamics 36
4.4 Positive Obligations, Indirect Discrimination, and Fundamental-Rights Constraints on Metadata Governance 41
4.5 Conclusion: From Technical Detail to Constitutional Design 46
5 Music Recommender Systems And the Copyright Blind Spot: Conceptualising the Right to Be Heard 49
5.1 Introduction 49
5.2 Representation Without Audibility: The Copyright Blind Spot in Algorithmic Cultural Markets 50
5.3 Recommender Systems and Structural Asymmetries in Digital Markets 52
5.3.1 Algorithmic Discovery as Cultural Infrastructure 52
5.3.2 Being Represented But Not Heard 54
5.4 Cultural Participation and the Right to Be Heard in Algorithmic Music Markets 55
5.4.1 From Access to Audibility and Constitutional Anchors for a Right of Cultural Participation 55
5.4.2 The Relational and Infrastructural Right to be Heard 58

5.5 Governing attention and the freedom to conduct a business 59
5.5.1 Recommender Systems as an Existing Object of EU Regulation 60
5.5.2 Governing Attention in Algorithmic Music Discovery 61
5.6 Conclusion 62
6 Improving Music Metadata: Towards a Central Repository of Creative Industry, Online Platform and AI Data Resources 64
6.1 Introduction 64
6.2 Copyright and data hegemony 65
6.2.1 Work notifications for content blocking 66
6.2.2 Rights reservation with regard to text and data mining 67
6.2.3 Metadata hegemony of big tech companies 68
6.3 Metadata bundling as a counterbalance 69
6.3.1 Voluntary initiatives to add descriptive metadata 70
6.3.2 Standardised open access metadata 71
6.3.3 International ban on formalities 72
6.3.4 Data contributions of OCSSPs and AI trainers 75
6.4 Conclusion 76
7 Music metadata governance: a legal perspective 78
7.1 Introduction 78
7.2 The regulatory framework 79
7.2.1 Data as a regulatory narrative 80
7.2.2 Data taxonomies 80
7.2.2.1 High-Value Datasets 81
7.2.2.2 Research Data 81
7.2.2.3 IoT Data 82
7.2.3 Other data relevant provisions 83
7.2.3.1 Data Contracts 84
7.2.3.2 Data Governance 85
7.2.3.3 Data Interoperability 87
7.3 Concluding remarks 88
8 Conclusions 89

1 Introduction

1.1 Background

In order to enable European composers, performers and the European music industry to benefit more from recommender systems and from licensing opportunities in the field of new technologies, such as AI training, it would be beneficial to establish a comprehensive music metadata infrastructure that improves the visibility and accessibility of the entire European music repertoire in digital and algorithmic environments.

This deliverable reports the main outcomes of the interdisciplinary legal research into avenues for music metadata improvement under Task 1.5. The focus is to analyse how EU law can contribute to improving music metadata for Europe so as to improve the visibility and availability of European repertoire to further the European music economy in general, as well as to further repertoire from composers and performers from a marginalized or underrepresented background in terms of language, ethnicity of gender. To this end, it draws from various areas of law such as copyright law, fundamental rights, data and digital legislation, while incorporating relevant insights from economics.

This report builds on work done within the Institute for Information Law (IViR), at the Amsterdam Law School, University of Amsterdam. A first output was reported as a policy brief from the OpenMuse project, under deliverable 5.6 in March 2024.[1] The work in this report benefits from valuable insights that have been gathered during a hybrid workshop entitled “Metadata mainstreaming in the music industries. Data spaces and beyond”, in Amsterdam on 14 March 2024, involving academics, policy makers and stakeholders and a workshop entitled “The economics of data sharing: a legal workshop”, organized by the Centre for IT and IP Law (CiTiP) together with IViR, held at KU Leuven on 26 May 2025. We would like to express our gratitude to all presenters and participants of both workshops for their active contributions.

T1.5 and this report complement several other OpenMusE tasks and outputs:

- A parallel analysis of diversity-related policy objectives was conducted in T2.1/2.2 and reported in D2.1 *Music diversity and circulation: Novel data collection methods and indicators* and D2.2 *Music diversity and circulation: Policy recommendations*. As argued throughout D2.2, metadata standardisation would be a crucial step in the operationalisation of legally established definitions of “diversity” as it applies to both natural persons active in music ecosystems and musical works themselves.
- A legally informed technical analysis of existing music metadata structures was conducted in T2.3 and reported in D2.3 *Report on the pilot study on music diversity and circulation* and the *Green Paper on AI, Data Governance, and Metadata Policies for Europe’s Music Ecosystem*. The pilot study demonstrates how improved metadata schemas – once established and acknowledged, as recommended in this report – could be implemented technically and operationalised in local legal contexts.
- Empirical data on music discovery patterns in Germany, Spain, France, Hungary, Italy, Poland, and Slovakia were collected in T3.2 and reported in D3.2 *Report on Music, Society, and Citizenship in Europe*; the data confirm that streaming platforms are the primary vector for

[1] Senftleben, M. Margoni, T., Poort, J., Szkalej, K., Valk, E., *Music Metadata Mainstreaming and EU Law (D5.6)*, Universiteit van Amsterdam.

music discovery among younger audiences. Data were also collected on the extraordinary sociocultural value of music and positive public attitudes toward a "right to music", substantiating the argument that music and music metadata are (quasi-)public goods and music distribution infrastructures should be subject to positive obligations to secure diverse musical visibility and equality. Finally, data were collected on public attitudes toward cultural policy that confirm high tolerance for assertive, even redistributive measures (i.e., subjecting the platform economy to democratic governance rather than taking a laissez-faire approach).

The recommendations given in this report and in D2.2, D2.3, and D3.2 will be harmonised in the revised submission of D5.7 *Policy Brief 2*.

1.2 Outline

Chapter 2 sets the scene by exploring individual dynamics and problems in music data improvement and harmonisation, and stumbling blocks which have thwarted data improvement projects in the recent past. Based on document study (occasionally followed up by interviews) it discusses data improvement projects from the past decades, analyses the economic rationale behind such initiatives, as well as the challenges they faced.

The subsequent Chapters 3 through 7 are *Capita Selecta* about this subject matter from the perspective of various areas of law. These deep dives into music metadata issues have been published as working papers on SSRN and will be developed into peer reviewed academic papers in a special issue of the *Journal of Intellectual Property Law & Practice*[2] in early 2026.

Chapter 3, written by Etienne Valk[3] further outlines the reasons for failure of previous initiatives aimed at (international) centralisation of music copyright databases, before highlighting the challenges in current more decentralised solutions. The interaction between technical and legal challenges for complete music metadata takes centre stage and are applied to GenAI music, exposing the heightened need for well-functioning music metadata infrastructures. In this regard, relevant legal provisions relating to transparency and metadata in the AI Act will be discussed, with an emphasis on the Explanatory Notice and Template for the Public Summary of Training Content for general-purpose AI models required by Article 53 (1)(d), as well as the first draft of the Code of Practice on Transparency of AI-generated Content under the AI Act.

Chapter 4, written by Elena Izyumenko[4], reframes music metadata – credits, identifiers, language labels, territorial tags, and genre descriptors – as more than a technical backbone of streaming. It shows how metadata operates as the infrastructure through which music becomes searchable, recommendable, charted, and remunerated. In doing so, it argues that metadata governance has constitutional significance: when metadata is incomplete, mis-specified, or standardised around dominant markets, it can generate predictable "structural metadata harms" that translate into lower visibility and weaker remuneration for particular repertoires and creators. The chapter places these harms squarely within the EU's fundamental-rights framework. Reading Article 22 of the EU Charter of Fundamental Rights (CFR) (respect for cultural and linguistic diversity) alongside Articles 13 (artistic freedom), 17(2) (intellectual property), 21 (non-discrimination), and 23 (gender equality), it develops a rights-based account of why metadata design and standard-setting choices matter for equality online. Drawing on Court of Justice of the European Union rights-balancing and European Court of

[2] https://academic.oup.com/jiplp.
[3] Published as a working paper as: https://ssrn.com/abstract=5978356.
[4] Published as a working paper as: https://ssrn.com/abstract=5962574.

Human Rights doctrines of positive obligations and indirect discrimination (via Article 52(3) CFR), the chapter argues that EU regulatory and standardisation choices should secure the practical and effective enjoyment of cultural visibility and equal rights-realisation in music-streaming environments.

Chapter 5, written by Kacper Szkalej[5], examines how algorithmic recommender systems have become a central, yet largely ungoverned, mechanism shaping cultural visibility in contemporary music markets. While EU copyright law secures lawful availability and remuneration, it remains structurally indifferent to how attention is allocated within digital catalogues. This leads to a blind spot where significant economic activity is taking place. As musical discovery increasingly occurs through personalised, data-driven systems, visibility is no longer a by-product of access but the result of infrastructural design choices. The Chapter therefore explores the consequences of this shift for cultural participation and diversity in the internal market, situating recommender systems at the intersection of copyright law, cultural policy, and fundamental rights, and asking whether existing legal frameworks are equipped to address the emerging governance of attention.

Chapter 6, written by Martin Senftleben[6] analyses the role of copyright norms towards establishing a comprehensive music metadata infrastructure that ensures the visibility and accessibility of European work repertoires. It observes that the current copyright norms in the area of online platforms and AI development allow online platforms and AI developers to benefit from investment in accurate metadata in the creative industries without contributing to the creation and maintenance of the metadata infrastructure themselves. To remedy these imbalances of the current copyright system, the chapter explores establishing an overarching, EU-wide music metadata repository. By pooling and recording all metadata flows to online platforms and AI trainers, this repository could lead to a central metadata reservoir that counterbalances the data hegemony of large technology companies.

Chapter 7, written by Thomas Margoni[7], delves into the legal framework applicable to music (meta)data, with a particular emphasis on European data law. It argues that the barriers to music metadata sharing are not primarily sector-specific disorders, but manifestations of the same structural asymmetries, namely control over infrastructures, metadata opacity, contractual imbalance, that have motivated the EU's data strategy.

Chapter 8 summarizes the main conclusions and recommendations from the preceding chapters.

[5] Published as a working paper as: https://ssrn.com/abstract=5967014.
[6] Published as a working paper as: https://ssrn.com/abstract=5982415.
[7] Published as a working paper as: https://ssrn.com/abstract=5979055.

2 Inadequate Metadata Infrastructure

The problem of insufficient metadata quality in the field of music – and literary and artistic works more broadly – is not new. Missing, inaccurate or non-interoperable metadata can lead to a lack of adequate information on protected contributions, current rightholders, and work- or production-related characteristics such as title, genre, content, language, year of creation, etc. As the current discussion on disruptive effects of generative AI systems and the plea for equitable remuneration for the use of human musical works in AI training processes shows,[8] new technological developments further enhance the need for adequate data solutions in the area of licensing.[9]

In economic terms, inadequate metadata causes welfare losses for rightholders, potential users of musical works, and for the wider public. First, some potentially welfare-enhancing transactions – be it the sale or licencing of a work, or the listening to a work on a streaming service which triggers a payment – will not take place due to metadata imperfections. The reasons for such foregone transactions is that works with inadequate metadata are less likely to be found when actively searched for, less likely to appear serendipitously in search results, and less likely to be recommended by algorithms. Alternatively, the work may be found but the rightsholders not. Second, inadequate metadata can increase search costs, which entail economic losses as well, and costs associated with data cleaning and correction. The more databases in which music metadata is stored, the more such search costs and data cleaning costs may proliferate. In addition to these welfare losses, inadequate metadata will also generate undesirable outcomes in terms of the distribution of welfare. It can lead to instances in which musical works are used while rightholders do not receive the remuneration that is due for the reason that they cannot be identified.

If an overall music database would be capable of serving as a one-stop shop for acquiring rights and paying royalties, it could potentially boost the exploitation of protected material in unexpected ways and bring increased revenue to authors, performers and the creative industry, while improving the adequacy of renumeration. This does not have to mean that the overarching one-stop shop will erode smaller infrastructures, such as data collections of individual labels, CMOs etc. Instead, an approach that allows appropriate and efficient interaction between the different levels of data management and licensing could be conceivable. A request for licensing arriving at the overarching one-stop shop, for instance, could be passed on to relevant smaller data infrastructures to finally conclude the licensing agreement. However, the concept of an overarching, pan-European music database in one central place does in practice pose challenges that in the past have prevented its feasibility, as evidenced by previous

[8] European Composer and Songwriter Alliance/European Writers' Council et al. (2023), *Joint Statement from Authors' and Performers' Organisations on Artificial Intelligence and the AI Act – True Culture Needs Originals: Transparency and Consent are Key to the Ethical Use of AI*, available at: https://screendirectors.eu/joint-statement-from-authors-and-performers-organisations-on-artificial-intelligence-and-the-ai-act/; Initiative Urheberrecht (2023), *Joint Statement: Authors and Performers Call for Safeguards Around Generative AI in the European AI Act*, 19 April 2023, available at: https://urheber.info/diskurs/call-for-safeguards-around-generative-ai; European Guild for Artificial Intelligence Regulation (2023), *Manifesto for AI Companies Regulation in Europe*, available at: https://www.egair.eu/#manifesto (last visited on 29 March 2024).

[9] Cf. M.R.F. Senftleben, 'Generative AI and Author Remuneration', *International Review of Intellectual Property and Competition Law* 54 (2023), 1535-1560; Geiger C, Iaia V (2023), 'The forgotten creator: towards a statutory remuneration right for machine learning of generative AI', *Computer Law and Security Review* (forthcoming). https://ssrn.com/abstract=4594873 (last visited on 29 March 2024); Frosio G (2024), 'Should we ban generative AI, incentivise it or make it a medium for inclusive creativity?', In: Bonadio E, Sganga C (eds.) *A research agenda for EU copyright law*. Edward Elgar: Cheltenham 2025. https://ssrn.com/abstract=4527461 (last visited on 29 March 2024).

similar initiatives discussed below. Subsequent chapters therefore explore (legal) interventions that can promote interoperability between data collections and promote metadata sharing, helping to enhance the chances of licensing and of revenues reaching the rightholders.

Missing and inaccurate metadata can also have more indirect effects that can be both economic and cultural in nature. It can for instance cause biases in recommender systems for music streaming platforms, and can favour repertoires from larger markets or language areas over those of smaller ones, as a consequence of economies of scale associated with larger repertoires. A lack of interoperability of metadata systems can also favour large repertoires or platforms over smaller ones.[10]

2.1 Data Infrastructures and Standardization Initiatives

In the music segment of the creative industries, there are several well-known examples of existing data infrastructures, such as the Common Information System (CIS) of the International Confederation of Societies of Authors and Composers (CISAC). With its various nodes in several regions of the world, the CIS-Net system and its associated standards represent a global tool to facilitate music licensing and revenue distribution.[11] In terms of music data standardisation, the music industry's *International Standard Work Code* (ISWC),[12] the recording industry's *International Standard Recording Code* (ISRC), the *Interested Party Information Number* (IPI) and the *International Standard Name Identifier* (ISNI) continue to be prime examples of existing infrastructures aimed at enabling the exchange of accurate data to identify repertoire or reduce transaction costs associated with the processing of licensing agreements.

At the same time, these examples highlight data deficiencies and interoperability problems resulting from different metadata sets and different approaches to identifying and verifying data. To date, initiatives to harmonise ISWC and ISRC metadata and integrate them into an overarching, comprehensive database have failed. In the EU, former Commissioner Neelie Kroes set up a working group in 2008 to explore the possibilities of establishing a global repertoire database (GRD). The participants of the working group, which included producers, collecting societies and distribution platforms, did come up with recommendations on how to proceed.[13] Ultimately, however, the project was buried in 2014.[14]

[10] See for a more detailed discussion of these perspectives Senftleben/Margoni/Antal et al. (2022). See also: European Commission, Directorate-General for Communications Networks, Content and Technology, (2022). *Study on copyright and new technologies : copyright data management and artificial intelligence*, Publications Office of the European Union. https://data.europa.eu/doi/10.2759/570559, Section 2.3.
[11] See https://www.cisac.org/services/information-services/cis-net.
[12] The ISWC was developed by CISAC in collaboration with the International Organisation for Standardisation (ISO) as "a unique, permanent, and internally recognised reference number for the identification of musical works". Another example of an identification system is the GRiD (Global Release Identifier) developed by IFPI. See Katz, Journal of Competition Law and Economics 1 (2005), 276.
[13] Cf. Isherwood, Global Repertoire Database, presentation at the WIPO Meeting wipo_cr_doc_ge_11, 13-14 October 2011, Geneva: WIPO 2011, available at: https://www.wipo.int/meetings/en/2011/wipo_cr_doc_ge_11/prov_program.html.
[14] See Resnikoff, Digital Music News, 10 July 2014, available at: https://www.digitalmusicnews.com/2014/07/10/global-repertoire-database-declared-global-failure/; Schwemer, Licensing and Access to Content in the European Union. In Licensing and Access to Content in the European Union: Regulation between Copyright and Competition Law, 2019, 68-73.

This has in part been attributed to collecting societies withdrawing from the GRD project and discontinuing its funding, with the American ASCAP supposedly being the first.[15] The GRD had to disband because of the caused loss of both significant funding and information. There were sources at the time suggesting that the collecting societies feared a more efficient GRD system would result in them losing too much income from operational costs. It has also been raised that the project's failure could have been caused more fundamentally by a dispute over control of the global database. After all, had the project been realised, the actor(s) with control over the data and in charge of administering the catalogue would have been in a coveted position.[16] Lastly, technical challenges have also been suggested to create barriers within the project for creating consistent information, with data coming from many different sources that follow different data standards.

Other unsuccessful attempts were the *International Music Joint Venture* from 2000, which was founded by several collecting societies in Europe and North America, and a project initiated by the World Intellectual Property Organisation (WIPO) in 2011, which aimed to establish a joint rights database but also did not produce any concrete results.[17] The WIPO project was called the International Music Registry (IMR), and was supposed to be financed by the proceeds from taxes on financial transfers between collective societies.[18] The WIPO project was stalled a few years after its conception.[19] Later, in 2020, the WIPO PROOF service was launched. The digital business service was meant to provide a date- and time-stamped digital fingerprint of any file, proving its existence at a specific point in time.[20] However, the service was formally discontinued on February 1, 2022. The WIPO Secretariat has explained to member states that "since the initial feasibility studies, the market has evolved quickly, driven by the accelerated digitalization".[21] More concretely, some have come to understand that, while there was a strong backend, the initiative "*suffered from competition, miscalibration, and a lack of international legal harmonisation".*[22] WIPO's Director General Daren Tang has publicly stated that WIPO should not be offering services that compete with the private sector.[23]

These attempts already show that – despite existing metadata infrastructures such as the CIS-Net system and the ISWC/ISRC standards – there is a need in the European music industry to combine work- and rights-based databases to a much greater extent in order to ultimately create overarching licensing

[15] See Milosic, K. (2015). GRD's Failure. Music Business Journal Berklee College of Music, https://www.thembj.org/2015/08/grds-failure/.
[16] See Rethink Music. (2015). Fair Music: Transparency and Payment Flows in the Music Industry, Berklee College of Music.https://novojurislegal.wordpress.com/wp-content/uploads/2018/12/9f5c6-rethink_music_fairness_transparency_final.pdf; Milosic, K. (2015). GRD's Failure. Music Business Journal Berklee College of Music, https://www.thembj.org/2015/08/grds-failure/.
[17] Schwemer, id., 69-70.
[18] See Nuttall, F. X. (2011). Private Copyright Documentation Systems And Practices: Collective Management Organizations' Databases (Preliminary Version), International Confederation of Societies of Authors and Composers (CISAC) https://www.wipo.int/export/sites/www/meetings/en/2011/wipo_cr_doc_ge_11/pdf/collective.pdf.
[19] See Rethink Music. (2015). Fair Music: Transparency and Payment Flows in the Music Industry, Berklee College of Music.https://novojurislegal.wordpress.com/wp-content/uploads/2018/12/9f5c6-rethink_music_fairness_transparency_final.pdf.
[20] See https://www.wipo.int/wipoproof/en.
[21] See https://www.wipo.int/wipoproof/en/news/2021/news_0003.html.
[22] See https://www.iam-media.com/trade-secrets/article/wipo-digital-timestamping-service-discontinued-after-failing-gain-traction.
[23] See https://www.managingip.com/article/2a5bqtj8ume32iwlaoxz7/wipo-proof-to-end-in-2022-after-poor-demand.

platforms.[24] Recent initiatives point in the same direction. The *Technical Online Working Group Europe* (TOWGE), for example, brings together a large group of European collecting societies, music publishers and rights agencies to develop a digital royalty processing system.[25]

An initiative with similar goals was taken by the Finnish collecting society Teosto. The collaboration between Teosto and the start-up *Mind Your Rights* has resulted in the platform "Concertify", which aims to provide an efficient and transparent system for cross-border copyright licensing in addition to existing industry structures. Concertify enables artists, rightholders, including collecting societies, music publishers and event organisers, to collaborate and transmit information directly using specific modules, such as a module for the transmission of setlists.

With the support of the Slovak Arts Council, a collaboration between the Slovak collecting society SOZA and various stakeholders from the music industry has led to the creation of a prototype for a comprehensive database and meta-database of the Slovak music repertoire. On this basis, the consortium created the prototype of the "Listen Local" recommendation system, which meets the requirements of the recommendations on the topic of trustworthy artificial intelligence (AI) of the European *High-Level Expert Group on Artificial Intelligence.*[26] The accompanying feasibility study showed and quantified the problems arising from incomplete copyright data in existing databases and commercial AI solutions. It estimates that at least 15% of Slovak, Estonian, Hungarian and Dutch works are difficult to exploit due to data problems.[27]

Another recent initiative is the DDEX project, ran by standards-setting organisation Digital Data Exchange LLC. The purpose of DDEX is, in short, to develop standards relating to metadata creation and management in the overall digital music supply chain. One of the DDEX standards, DDEX RDR, describes in detail the required metadata for managing international performance rights. RDx, which stands for Repertoire Data Exchange, puts the DDEX RDR standard into practice since its full operationality in 2020. RDx is a data exchange hub where participating entities can send and receive DDEX RDR data.[28] Somewhat similarly, copyright platform Cube aims to deliver a highly automated copyright system. The platform was commissioned by ICE Services, a joint venture between German, Swedish and UK Performing Rights Organisations.[29]

Other sectors of the creative industries face similar data issues and have also taken initiatives to improve, harmonise and merge data. In the field of book publishing, industry initiatives looking at the establishment of various e-book platforms and catalogues play an important role. Another example is the *Entertainment Identifier Registry* (EIDR): a universal labelling system for film and television data

[24] See Gronau/Schaefer, EIPR 2021, 488-494; Schaefer, Kluwer Copyright Blog, 27 November 2020, available at: http://copyrightblog.kluweriplaw.com/2020/11/27/why-metadata-matter-for-the-future-of-copyright/ for a further discussion of the importance of data integration and harmonisation initiatives in the EU. See also Lyons/Sun/Collopy et al, Music 2025 - The Music Data Dilemma: issues facing the music industry in improving data management, 2019, available at: https://www.gov.uk/government/publications/music-2025-the-music-data-dilemma, 34.

[25] See https://www.digitalmusicnews.com/2019/07/26/towge-digital-royalty-group/.

[26] See https://digital-strategy.ec.europa.eu/en/policies/expert-group-ai and https://ec.europa.eu/digital-single-market/en/news/ethics-guidelines-trustworthy-ai.

[27] Antal, Feasibility Study On Promoting Slovak Music In Slovakia & Abroad, 2020, available at: https://reprex.nl/publication/listen_local_2020/.

[28] See https://www.ifpi.org/rdx-recording-industrys-new-data-exchange-service-now-fully-operational/ and https://www.rdx-portal.org/.

[29] See: https://www.iceservices.com/innovation/cube/ and https://www.iceservices.com/about/?_gl=1*xyff4r*_up*MQ..*_ga*MTU5ODY1ODAyLjE3MTEzNjY4NDg.*_ga_QSZEMWD5QD*MTcxMTM3MDMzMS4yLjAuMTcxMTM3MDMzMS4wLjAuMA.

based on DOI technology.[30] Examples of data standardisation initiatives include the *International Standard Book Number* (ISBN), the *International Standard Serial Number* (ISSN) for periodicals, the *International Standard Music Number* (ISMN) for notated music and the *International Standard Audiovisual Number* (ISAN) for audiovisual works. Furthermore, in the field of books, e-books and serial volumes, the standardisation work of the international EDItEUR group is noteworthy.[31] This initiative has led to the ONIX family of standards.[32] With regard to the digital environment, the International DOI Foundation offers the *Digital Object Identifier* (DOI) services and related registration facilities already mentioned: a technical and social infrastructure for the registration and use of persistent interoperable identifiers for use on digital networks, including identifiers for literary and artistic works.[33] Furthermore, relevant within the digital environment is the cross-sectoral initiative for the *International Standard Content Code* (ISCC), which was published in 2024 the *International Organization for Standardization* (ISO).[34] It is an identification system for digital assets (such as encodings of text, images, audio, video or other content across all media-sectors). The ISCC should serve as a similarity-preserving fingerprint designed to identify digital content in decentralized and networked environments spanning the creative industries.[35]

In the field of visual arts, the *Visual Arts Council* of CISAC has expanded its original work on resale rights and established an online licensing platform under the umbrella of the *International Council of Creators of Graphic, Plastic and Photographic Arts* (CIAGP).[3637] OnLineArt (OLA) is a one-stop shop for acquiring licences for the online use of works of visual art worldwide, which currently includes works by 60,000 artists.[38] While existing initiatives in the field of visual arts – particularly digitisation initiatives by museums and other cultural heritage institutions – have significantly expanded data collection of visual art works, the situation in the field of photography and illustration is far less transparent.[39] Commercial owners of large fine art libraries, such as Getty Images, can consistently point to existing data management tools. However, the cost of documenting a large number of individual works can quickly become prohibitive for smaller providers of photographic works and illustrations, given the low average value of individual works from the overall collection.[40] Specifically in the field of photo metadata documentation, the IPTC Photo Metadata Standard is widely used and recognized.[41] Despite its prominence, however, it still poses challenges for reliably distinguishing authentic media assets.[42] Compared to the status quo already achieved in the music sector, the process of harmonising, linking and bundling work- and rights-related data in the visual arts sector still seems to be in its infancy.

[30] See https://www.eidr.org/.
[31] See https://www.editeur.org/2/About/#Intro.
[32] See https://www.editeur.org/8/ONIX/.
[33] See https://www.doi.org/.
[34] See https://www.iso.org/standard/77899.html.
[35] See https://core.iscc.codes/.
[36] See https://www.cisac.org/services/creator-relations/ciagp-technical-operations.
[37] See http://www.ciagp.org/.
[38] See https://onlineart.info/.
[39] For a more detailed analysis of the specific situation and dynamics in the field of visual arts, see the study by Azzi/El Hage, Les métadonnées liées aux images fixes, 2021.
[40] On this investment dilemma, see Posner, John Marshall Review of Intellectual Property Law 4 (2005), 325.
[41] See study by Mo/Kang et al, Towards Trustworthy Digital Media In The Aigc Era: An Introduction To The Upcoming IsoJpegTrust Standard, 2023 and https://iptc.org/standards/photo-metadata/quick-guide-to-iptc-photo-metadata-and-google-images/.
[42] See Mo/Kang et al and Dang-Nguyen/Sjøen et al, Practical Analyses of How Common Social Media Platforms and Photo Storage Services Handle Uploaded Images, 2023.

Matters of music metadata in audiovisual content can also become relevant to the research work based on this report, as it is important to note that it is a rapidly changing field of growing prominence.[43]

Something that clearly emerges when outlining a few of the metadata issues in other sectors of the creative industries, is the compartmentalisation of metadata standards and approaches between those sectors. This can be explained mainly by historical reasons. Long before the internet pushed for convergence, different creative sectors built their own metadata ecosystems because each had different institutions, business needs, and legacy technologies (e.g. card catalogues for libraries and archives, record distribution for record companies, conservation practices for museums).[44] This produced multiple standards that persisted into the digital age, shaping compartmentalised digital metadata practices in separate sectors. However, many works from different sectors share the same or sufficiently similar main metadata to justify more harmonised standards, such as the ISCC already discussed above. For example, songs, books, and films generally all have one or more authors, genres, rightholders, languages, etc. A separation of standards is increasingly less evident especially within audiovisual media, social media content, and AI generated content based on audio, visual and text sources. For the purposes of this study, the focus will remain on interoperability of metadata for musical works, however.

2.2 Metadata Design – Technical Challenges

There are numerous challenges to music metadata design in relation to interoperability. Interoperability requires designing a music metadata model across different genres and historical periods in such a way as to accommodate various use cases over heterogeneous data sources. With that, it requires an approach harmonising all requirements from different stakeholders in order to design a model that can be adapted to different data sources, as opposed to a single type of dataset.[45]

De Berardinis et al. point to domain specificity as one of the main barriers to music metadata interoperability. When models are for example bound by musical concepts and jargon specific to a musical genre, stakeholder, and/or dataset type, it may be difficult to reuse and extend these models to other domains. They propose that instead of trying to achieve consensus on musical concepts and jargon, interoperability calls for "*an abstraction layer for music metadata ("zoom-out") that can then be specialised, extended, and adapted to address domain-specific requirements ("zoom-in").*"[46]

Another challenge in achieving interoperability relates to metadata granularity, i.e. the level of detail metadata provides. De Berardinis et al. explain that while one data source may have very detailed

[43] See: Yang, Datafication of audiovisual archives: from practice mapping to a thinking model. *Journal of Documentation*, 2024.

[44] See: Lim, S./Li Liew, C. (2011). Metadata quality and interoperability of GLAM digital images. In Aslib Proceedings (Vol. 63, No. 5, pp. 484-498). Emerald Group Publishing Limited. https://www.emerald.com/ajim/article/63/5/484/63437/Metadata-quality-and-interoperability-of-GLAM; Seikel, M./Steele, T. (2011). How MARC has changed: The history of the format and its forthcoming relationship to RDA. Technical Services Quarterly, 28(3), 322-334. https://www.researchgate.net/publication/235272729_Metadata_quality_and_interoperability_of_GLAM_digital_images.

[45] See: de Berardinis/Carriero/Meroño-Peñuela/Poltronieri/Presutti (2023). The Music Meta Ontology: a flexible semantic model for the interoperability of music metadata. *arXiv preprint arXiv:2311.03942*. https://archives.ismir.net/ismir2023/paper/000102.pdf; Lyons/Sun/Collopy et al, Music 2025 - The Music Data Dilemma: issues facing the music industry in improving data management, 2019, available at: https://www.gov.uk/government/publications/music-2025-the-music-data-dilemma.

[46] See: de Berardinis et al. (2023). The Music Meta Ontology: a flexible semantic model for the interoperability of music metadata. *arXiv preprint arXiv:2311.03942*. https://archives.ismir.net/ismir2023/paper/000102.pdf.

information, e.g. on different periods, places, and involved artists of a composition process, other data sources may only have basic information, e.g. only the artist's name, or even undetermined information, e.g. tentative attribution of a composition to an artist.

A specific category of data that can be expressed in terms of granularity is provenance metadata, which detail the origin, history, and lineage of data. Issues surrounding provenance metadata have been identified in the literature, more recently especially in relation to time-based media.[47] These are contemporary artworks that incorporate video, slide, audio, or computer technologies.[48] Media conservators struggled with preservation of different physical and digital formats, as there was a lack of standardised metadata to describe the digitisation or migration history of these items.[49] Therefore, the importance of provenance metadata emerged, which sometimes provides the only reliable means to track the process history of time-based media.[50]

For music metadata, discrepancies in metadata granularity and provenance are, in part, caused by the disparate processes of releasing recordings in the music industry. Smaller, independent labels and artists commonly release music online through music distributors, which generally means any entity that gets recorded music to consumers, but in this context refers to companies specialised (mainly) in offering distribution services.[51] In a 2019 research commissioned by the UK IPO, it was already noted that when smaller labels or artists move their work from one distributor to another, the new distributor is often free in its decision to assign new ISRCs instead of adopting all ISRCs assigned by their predecessor.[52] Moreover, some assignors do not assign the code in accordance with the standard and guidelines of the International Federation of the Phonographic Industry (IFPI). Recent empirical findings confirm these problematic phenomena currently still persist.[53] That these issues persist around ISRCs, one of the most central data points in music metadata, raises the question how much is still lacking for

[47] See: Gracy, K.F. (2018), "Enriching and enhancing moving images with Linked Data: An exploration in the alignment of metadata models", *Journal of Documentation*, Vol. 74 No. 2, pp. 354-371. https://doi.org/10.1108/JD-07-2017-0106; Griesinger, P. (2016). Process history metadata for time-based media artworks at the Museum of Modern Art, New York. Journal of Digital Media Management, 4(4), 331-342; Ensom, T. (2019). *Technical narratives: analysis, description and representation in the conservation of software-based art* (Doctoral dissertation, King's College London). https://kclpure.kcl.ac.uk/ws/portalfiles/portal/119342199/2019_Ensom_Thomas_1458102_ethesis_PURE_redacted_version.pdf; Padget, J. A. (2008, January). Maintaining and using Provenance Data in Computer Music. In *ICMC*. https://purehost.bath.ac.uk/ws/portalfiles/portal/415523/cr1494.pdf.

[48] See: Gracy, K.F. (2018), "Enriching and enhancing moving images with Linked Data: An exploration in the alignment of metadata models", *Journal of Documentation*, Vol. 74 No. 2, pp. 354-371. https://doi.org/10.1108/JD-07-2017-0106; Griesinger, P. (2016). Process history metadata for time-based media artworks at the Museum of Modern Art, New York. Journal of Digital Media Management, 4(4), 331-342.

[49] See: Gracy, K.F. (2018), "Enriching and enhancing moving images with Linked Data: An exploration in the alignment of metadata models", *Journal of Documentation*, Vol. 74 No. 2, pp. 354-371. https://doi.org/10.1108/JD-07-2017-0106.

[50] See: Griesinger, P. (2016). Process history metadata for time-based media artworks at the Museum of Modern Art, New York. Journal of Digital Media Management, 4(4), 331-342.

[51] See: Hesmondhalgh, D./Osborne, R./Sun, H./& Barr, K. (2021). Music creators' earnings in the digital era. *Intellectual property office research paper forthcoming*. https://assets.publishing.service.gov.uk/media/614c760fd3bf7f719095b5ad/music-creators-earnings-report.pdf

[52] See: Lyons/Sun/Collopy et al, Music 2025 - The Music Data Dilemma: issues facing the music industry in improving data management, 2019, available at: https://www.gov.uk/government/publications/music-2025-the-music-data-dilemma

[53] See: Vieira. (2025). Cracking the International Standard Recording Code, *Open Music Europe*, 2025, accessed via https://www.openmuse.eu/cracking-the-international-standard-recording-code/.

the availability and interoperability of other relevant music metadata that are (even) less consistently adopted.

2.3 Metadata Availability – Economic Challenges

Small labels and artists can only do so much in solving insufficient metadata. As could be inferred from the above, music metadata are created and held by many different actors, such as collecting societies, music labels, publishers and distributors, online content-sharing service providers (OCSSPs), and artists themselves. This makes for a fragmented landscape full of “data silos”. Interoperability between those silos is not just hampered by metadata design issues, but perhaps mostly by a shortage of incentives to share for the most influential actors. Having a wealth of (music) metadata gives OCSSPs, music labels and conceivably collecting societies an advantage vis-à-vis their competitors. Smaller players, on the other hand, may lose their relevance once databases are interoperable or harmonized, while in comparison to larger players, they can to a lesser extent achieve economies of scale when processing, improving or correcting metadata. Uncertainty regarding the outcome of further integration or interoperability of metadata systems can give both larger and smaller players in the music ecosystem incentives for being reluctant.

It begs the question what breakthrough could make the metadata flow. Fund one or more public organizations that function as metadata hubs? Stimulate commercial incentives to nudge big data owners to share? Or encourage them through legislative measures? Likely, a plethora of repertoires, actors and metadata requires a plethora of solutions. This report will elaborate on several solutions, with an emphasis on those that have a legislative component.

3 Music Metadata Minefield: Prior Initiatives, Interoperability and How to Let GenAI's Copyright Traces Transpire

3.1 Introduction

Music industry and EU Initiatives at the start of the online era for music consumption between the early 2000s and the early 2010s aimed for centralisation of music copyright databases, where fixed data deficiencies should have improved royalty collection and distribution. After it became apparent that these initiatives did not yield sufficient results, focus has shifted towards more decentralised solutions, relying for example on (open source) protocols for identifying metadata.[54] The earlier initiatives also set out to create international databases, mostly with a trans-Atlantic focus, hoping to bridge US and European music copyright structures. Challenges that proved insurmountable in the earlier initiatives, caused by disparate legal, technical, and economic realities, for a few years also made that objective fade more into the background. However, developments in recent years surrounding AI training on EU content by (big) tech companies that are based primarily in the US, followed by China, put the importance to the fore once again, arguably making at least trans-Atlantic interoperability ever more critical.

This chapter will first outline the reasons for failure of previous initiatives aimed at (international) centralisation of music copyright databases, before highlighting the challenges in current more decentralised solutions. The interaction between technical and legal challenges for complete music metadata takes centre stage and will be applied to GenAI music, exposing the heightened need for well-functioning music metadata infrastructures. In this regard, relevant legal provisions relating to transparency and metadata in the AI Act will be discussed, with an emphasis on the Explanatory Notice and Template for the Public Summary of Training Content for general-purpose AI models required by Article 53 (1)(d), as well as the first draft of the Code of Practice on Transparency of AI-generated Content under the AI Act.

3.2 Centralisation Initiatives

An early attempt to create a centralised music copyright database for the digital age was the *International Music Joint Venture* in 2000. It was founded by the collecting societies ASCAP (American), BumaStemra (Dutch), and what is currently known as PRS for Music (British).[55] Already in 2001, the project was discontinued. A spokesperson for BumaStemra at the time noted the decline of the US economy and the music industry specifically as reasons to halt the project. A WIPO report, apart from those financial challenges, in general terms also referred to technical and "cultural" problems as reasons for the discontinuation.[56] A 2011 project initiated by the World Intellectual Property

[54] Järvekülg, M., & Ibrus, I. (2025). Toward a decentralized copyright infrastructure as a 'public service': the case of Digiciti and Estonia. International Journal of Cultural Policy, 31(1), 67-81. https://www.tandfonline.com/doi/full/10.1080/10286632.2024.2318392#abstract; Rethink Music. (2015). Fair Music: Transparency and Payment Flows in the Music Industry, Berklee College of Music. https://novojurislegal.wordpress.com/wp-content/uploads/2018/12/9f5c6-rethink_music_fairness_transparency_final.pdf.

[55] Arenal, A., Armuna, C., Ramos, S., Feijoo, C., & Aguado, J. M. (2024). Digital transformation, blockchain, and the music industry: A review from the perspective of performers' collective management organizations. Telecommunications Policy, 48(8), 102817. https://www.sciencedirect.com/science/article/pii/S0308596124001149?via%3Dihub.

[56] Wallis, R., & Kozul-Wright, Z. (2001, May). Best practice cases in the music industry and their relevance for government policies in developing countries. In United Conference on Trade and Development, Brussels,

Organisation (WIPO) again aimed to establish an international, joint rights database but did not produce any concrete results either.[57] The WIPO project, called the *International Music Registry* (IMR), was supposed to be financed by the proceeds from taxes on financial transfers between collective societies.[58] However, the project was disbanded a few years after its conception.[59]

Another initiative with a clear aim for centralisation of music rights data management was the working group originating in 2008, working towards a *global repertoire database* (GRD). Although the working group was initiated and led by an EU Commissioner, its scope was international, involving not only European but also American collecting societies, record companies, and tech companies, as well as international music organisations such as the International Confederation of Societies of Composers and Authors (CISAC). Still relevant to this day, the key aims of the GRD were to improve transparency of royalty collection and distribution, and reducing administrative costs required for those processes.[60] In 2011, the members of the working group recommended the International Copyright Enterprise ("ICE") as the "technology solution provider" and consultancy firm Deloitte as project manager to support the delivery of the GRD.[61]

After a few years of stagnation, however, the project was discontinued in 2014.[62] Some have attributed this to collecting societies withdrawing from the GRD project and discontinuing its funding.[63] Supposedly, the American ASCAP was the first to withdraw.[64] The resulting loss of both significant funding and information impeded the possible functioning of the GRD. Relatedly, sources at the time suggested there was a fear among collecting societies that a more efficient GRD system would result in them losing too much income from operational costs. It has also been raised that the project's failure could have been caused more fundamentally by a dispute over control of the global database. After all, had the project been realised, the actor(s) with control over the data and in charge of administering the catalogue would have been in a coveted position, and needing sufficient trust from other actors.[65]

Belgium. https://www.wipo.int/export/sites/www/about-ip/en/docs/studies/study_r_wallis.pdf; Entertainment Business. (2002). Shared service center IMJV ontmanteld, https://www.entertainmentbusiness.nl/muziek/shared-service-center-imjv-ontmanteld/.

[57] Schwemer, Licensing and Access to Content in the European Union. In Licensing and Access to Content in the European Union: Regulation between Copyright and Competition Law, 2019, 68-73.

[58] Nuttall, F. X. (2011). Private Copyright Documentation Systems And Practices: Collective Management Organizations' Databases (Preliminary Version), International Confederation of Societies of Authors and Composers (CISAC) https://www.wipo.int/export/sites/www/meetings/en/2011/wipo_cr_doc_ge_11/pdf/collective.pdf.

[59] Rethink Music. (2015). Fair Music: Transparency and Payment Flows in the Music Industry, Berklee College of Music. https://novojurislegal.wordpress.com/wp-content/uploads/2018/12/9f5c6-rethink_music_fairness_transparency_final.pdf.

[60] WIPO. (2011). Online Music Licensing – A Way Out of the Maze https://www.wipo.int/en/web/wipo-magazine/articles/online-music-licensing-a-way-out-of-the-maze-37595.

[61] Cf. Isherwood, Global Repertoire Database, presentation at the WIPO Meeting wipo_cr_doc_ge_11, 13-14 October 2011, Geneva: WIPO 2011, available at: https://www.wipo.int/export/sites/www/meetings/en/2011/wipo_cr_doc_ge_11/pdf/isherwood_grd.pdf.

[62] Resnikoff, Digital Music News, 10 July 2014, available at: https://www.digitalmusicnews.com/2014/07/10/global-repertoire-database-declared-global-failure/; Schwemer. (2019).

[63] Milosic, K. (2015). GRD's Failure. Music Business Journal Berklee College of Music, https://www.thembj.org/2015/08/grds-failure/.

[64] Milosic, K. (2015).

[65] Rethink Music. (2015). Fair Music: Transparency and Payment Flows in the Music Industry, Berklee College of Music. https://novojurislegal.wordpress.com/wp-content/uploads/2018/12/9f5c6-rethink_music_fairness_transparency_final.pdf; Milosic, K. (2015); Finck, M., & Moscon, V. (2019). Copyright

The GRD uncovers an evident obstacle to centralisation in the music sector. With more control in one place, some players can expect a loss of control, defending their data and financial resources by retracting from a joint database. In light of such a possible mechanism also in the falling apart of the GRD, the prohibition on formalities in copyright has been brought forward in the literature. If registration of works could be required for gaining copyright protection internationally, it would create a legal requirement to participate in a database registry, preventing "offended" participants in a joint database initiative to be able to easily withdraw.[66] Lastly, technical challenges have also been suggested to create barriers within the GRD project for creating consistent information, with data coming from many different sources that followed different data standards.[67]

3.3 Interoperability in Decentralised Solutions

While previous initiatives that tried to create trans-Atlantic copyright infrastructures have been to no avail, the surge of AI tools online have reinstated the need for alignment between the EU and US more firmly. The dominant (big) tech companies that are in the business of AI training and deploying GenAI services are based primarily in the US, followed by China. There is a considerable representation of EU repertoire in prominent models.[68] While music copyright infrastructures do converge between the US and EU to a certain extent, there are also some dissimilarities. One challenge that emerged in the previous initiatives involving both European and American partners described above, is the different remuneration collecting system. Some consider the European system far more complex than the American. While the US market only counts a handful of performance rights organisations, Europe has dozens due to having at least one specialised collecting society in each of the 28 territories.[69] In the meantime, the European and US systems have converged slightly since the introduction of the Mechanical Licensing Collective (MLC) in the US through the Music Modernization Act (MMA) in 2018.[70] Before, in the US, there was no collecting society managing mechanical rights, opposed to the already common practice in Europe. While centralisation seems off the table, decentralised interoperability between the US and EU still deserves attention.

In the current music sector, metadata are created and held by many different actors, such as collecting societies, music labels, publishers and distributors, online content-sharing service providers (OCSSPs), and artists themselves. This makes for a fragmented landscape full of "data silos". Interoperability between those silos is not just hampered by metadata design issues, but perhaps mostly by a shortage of incentives to share for the most influential actors. Having a wealth of (music) metadata gives OCSSPs, music labels and conceivably collecting societies an advantage vis-à-vis their competitors. The Data Governance Act (DGA) was put in place in 2022 by the EU to promote data sharing. As a consequence, more recently, the DGA's data intermediation services have been explored as a possible way to

law on blockchains: between new forms of rights administration and digital rights management 2.0. IIC-International Review of Intellectual Property and Competition Law, 50(1), 77-108. https://link.springer.com/article/10.1007/s40319-018-00776-8#Fn184.

[66] Rethink Music. (2015).

[67] Milosic, K. (2015).

[68] Koebler. (2024). AI Music Generator Suno Admits It Was Trained on 'Essentially All Music Files on the Internet'. 404 Media. https://www.404media.co/ai-music-generator-suno-admits-it-was-trained-on-essentially-all-music-files-on-the-internet/.

[69] Milosic, K. (2015). GRD's Failure. Music Business Journal Berklee College of Music, https://www.thembj.org/2015/08/grds-failure/.

[70] See https://www.copyright.gov/music-modernization/.

stimulate data flows between music industry actors.[71] Data intermediation services should be registered and function as trusted and secure environments in which companies or individuals can still share data under specific conditions, without 'giving away' their data. One current question mark for data intermediation services within the context of copyright infrastructures is: would other jurisdictions, or more specifically the US, accept that these infrastructures are monitored by a European state?

Other actors that may have a role to play in the promotion of interoperability of music metadata, are GLAM organisations (referring to Galleries, Libraries, Archives and Museums). In recent years, such organisations have developed new ontologies to help ensure that copyright information in their digital collections is machine-readable.[72] Here, ontologies refer to representations and definitions of the categories, properties, and relations between (meta)data. Within this context, the World Wide Web Consortium has recommended "*reusing existing ontologies and vocabularies in order to foster interoperability*".[73] In light of accessibility for AI models, some GLAM organisations have increased their focus on metadata concerning copyright and access rights for their works and datasets.[74] Extension of the mandate of these cultural heritage institutions could enable further application of their ontologies and metadata standards to foster music metadata exchange.[75] After all, the compartmentalisation of metadata standards and approaches between different creative sectors stems in large part from long before the pre-internet age, when creative sectors built their own metadata ecosystems because each had different institutions, business needs, and legacy technologies.[76] However, many works from different sectors share the same or sufficiently similar main metadata to justify arguing for more harmonised standards. For example, songs, books, and films generally all have one or more authors, genres, rightholders, languages, etc. A separation of standards is increasingly less evident especially within audiovisual media, social media content, and AI generated content based on audio, visual and text sources.

3.4 Increased Metadata Challenges Through GenAI

Before the widespread usage of GenAI tools for music creation, there already were numerous challenges to designing music metadata models in such a way as to achieve more complete data and enable interoperability. Interoperability requires designing a metadata model that accommodates

[71] Järvekülg, M., & Ibrus, I. (2025). Toward a decentralized copyright infrastructure as a 'public service': the case of Digiciti and Estonia. International Journal of Cultural Policy, 31(1), 67-81. https://www.tandfonline.com/doi/full/10.1080/10286632.2024.2318392#abstract.

[72] Dişli, M., & Candela, G. (2025). Copyright and licencing for cultural heritage collections as data. https://openhumanitiesdata.metajnl.com/articles/10.5334/johd.263#B51; Candela, G. (2023). Towards a semantic approach in GLAM Labs: The case of the Data Foundry at the National Library of Scotland. Journal of Information Science, 01655515231174386. https://journals.sagepub.com/doi/10.1177/01655515231174386.

[73] World Wide Web Consortium. (2017). Data on the Web Best Practices, https://www.w3.org/TR/dwbp/#dataVocabularies; Dişli & Candela. (2025).

[74] Dişli & Candela. (2025).

[75] Senftleben et al. (2021). Webharvesting. Wetenschappelijk Onderzoek- en Documentatiecentrum, Ministerie van Justitie & Veiligheid, https://repository.wodc.nl/bitstream/handle/20.500.12832/3119/3142-webharvesting-summary.pdf?sequence=3&isAllowed=y.

[76] Lim, S./Li Liew, C. (2011). Metadata quality and interoperability of GLAM digital images. In Aslib Proceedings (Vol. 63, No. 5, pp. 484-498). Emerald Group Publishing Limited. https://www.emerald.com/ajim/article/63/5/484/63437/Metadata-quality-and-interoperability-of-GLAM; Seikel, M./Steele, T. (2011). How MARC has changed: The history of the format and its forthcoming relationship to RDA. Technical Services Quarterly, 28(3), 322-334. https://www.researchgate.net/publication/235272729_Metadata_quality_and_interoperability_of_GLAM_digital_images.

various use cases over dissimilar data sources. With that, it requires an approach harmonising all requirements from different stakeholders in order to design a model that can be adapted to different data sources, as opposed to a single type of dataset.[77] GenAI introduced new stakeholders, namely the developers of the AI models used in GenAI tools and services, and new data sources and datasets, namely those of the developers of the AI models. As a result, the already wide range of actors that each may have their own metadata requirements and desires, has become wider. Some convergence does already seem to take place with the litigation-to-partnership settlements between major labels and large GenAI music services, such as the one between Universal Music Group (UMG) and Udio as well as between Warner Music Group (WMG) and Suno.[78] The GenAI music services are now forced to retrain their AI models on licensed material from the rightholders, potentially enabling the rightholders to let them redesign the involved metadata to their standards.

A more precise barrier to music metadata interoperability can be domain specificity. When metadata models are for example bound by musical concepts and jargon specific to a musical genre, stakeholder, and/or dataset type, it may be difficult to reuse and extend these models to other domains.[79] There are several standards central to the music industry, such as the International Standard Work Code (ISWC) and International Standard Recording Code (ISRC). These standards aim to overcome domain specificity, and for conventional tracking of legally distributed music releases they are fairly effective, although other metadata challenges can come with the ISRC. For (slightly) changed music recordings common in social media content, and especially in GenAI output, a standardised identifier like the ISRC is said to not always be effective.[80] Proposed as a more appropriate identifier in such instances, is the International Standard Content Code (ISCC), a cross-sectoral identification system for digital assets more recently introduced in 2024.[81] The ISCC should serve as a similarity-preserving fingerprint designed to identify digital content, either with unambiguous identification of identical content or probabilistic matching of similar content.[82]

Metadata granularity, referring to the level of detail metadata provides, can also pose barriers to achieving interoperability. While one data source may have very detailed information, e.g. on different periods, places, and involved artists of a composition process, other data sources may only have basic information, e.g. only the artist's name, or even undetermined information, e.g. tentative attribution of a composition to an artist.[83] A specific category of data that can be expressed in terms of granularity is provenance metadata, which detail the origin, history, and lineage of data. With the advent of GenAI music tools, the provenance of metadata has only become more fundamental for the challenge of a

[77] de Berardinis/Carriero/Meroño-Peñuela/Poltronieri/Presutti (2023). The Music Meta Ontology: a flexible semantic model for the interoperability of music metadata. *arXiv preprint arXiv:2311.03942*. https://archives.ismir.net/ismir2023/paper/000102.pdf; Lyons/Sun/Collopy et al, Music 2025 - The Music Data Dilemma: issues facing the music industry in improving data management, 2019, available at: https://www.gov.uk/government/publications/music-2025-the-music-data-dilemma.

[78] Valk, E. (2025). Music streaming debates 2025 roundup: wrap-up for the streaming services as we know them? – Part 1. Kluwer Copyright Blog https://legalblogs.wolterskluwer.com/copyright-blog/music-streaming-debates-2025-roundup-wrap-up-for-the-streaming-services-as-we-know-them-part-1/.

[79] de Berardinis et al. (2023).

[80] EUIPO. (2025). THE DEVELOPMENT OF GENERATIVE ARTIFICIAL INTELLIGENCE FROM A COPYRIGHT PERSPECTIVE, 10.2814/3893780 https://www.europarl.europa.eu/meetdocs/2024_2029/plmrep/COMMITTEES/JURI/DV/2025/05-12/2025.05.12_item6_Study_GenAIfromacopyrightperspective_EN.pdf.

[81] See https://www.iso.org/standard/77899.html.

[82] See https://core.iscc.codes/; EUIPO. (2025).

[83] de Berardinis et al. (2023).

well-functioning process history. One reason why such process history is relevant, is attribution, meaning the linking of AI outputs back to the specific training inputs that influenced them.[84]

Since the streaming age, discrepancies in metadata granularity and provenance were already caused by more disparate processes of releasing recordings in the music industry. Streaming services contributed to a larger representation in the recorded music market of smaller, independent labels and artists, that often release music online through music distributors.[85] A 2019 research commissioned by the UK IPO already noted that when smaller labels or artists move their work from one distributor to another, the new distributor is often free in its decision to assign new ISRCs instead of adopting all ISRCs assigned by their predecessor.[86] Moreover, some assignors do not assign the code in accordance with the standard and guidelines of the International Federation of the Phonographic Industry (IFPI). Recent empirical findings confirm these problematic phenomena currently still persist.[87] That these issues persist around ISRCs, one of the most central data points in music metadata, raises the question how much is still lacking for the availability and interoperability of other relevant music metadata that are (even) less consistently adopted.

Back to the topic of attribution, one legal provision that gained much attention from the copyright world for tracing back use of copyrighted works from AI output, is Article 53 of the AI Act.[88] The Article 53(1)(d) obliges providers of general-purpose AI models to draw up and make publicly available a sufficiently detailed summary about the content used for training of the general-purpose AI model, according to a template provided by the AI Office. Copyright scholars and practitioners alike were much interested in the answer to the question how template would define “sufficiently detailed summary”, with one noting that, at least in theory, “such a summary could contain metadata on each item within a dataset”.[89] The Explanatory Notice and Template published by the Commission in July 2025 made clear what should be understood under a “sufficiently detailed summary”. Required is a disclosure of a summary of the list of top domain names crawled and scraped from online sources in a summarised narrative form.[90] More specifically, it should be the top 10% of all domain names "determined by the size of the content scraped”. To ensure proportionality, the Template requires SMEs to provide the top 5% of internet domain names, or the top 1000 domains. Disclosure of the details for the specific data

[84] Hu, C, Flores, A. & Spielburg, Y. (2025). How music AI attribution actually works. Water & Music. https://www.waterandmusic.com/music-ai-attribution/.

[85] Hesmondhalgh, D./Osborne, R./Sun, H./& Barr, K. (2021). Music creators’ earnings in the digital era. *Intellectual property office research paper forthcoming*. https://assets.publishing.service.gov.uk/media/614c760fd3bf7f719095b5ad/music-creators-earnings-report.pdf; Mulligan, M. (2024). State of the independent music economy: Fragmentation AND consolidation. MIDiA Research. https://www.midiaresearch.com/blog/state-of-the-independent-music-economy-fragmentation-and-consolidation.

[86] Lyons/Sun/Collopy et al. (2025).

[87] Vieira, Cracking the International Standard Recording Code, *Open Music Europe*, 2025, accessed via https://www.openmuse.eu/cracking-the-international-standard-recording-code/.

[88] Quintais, J. P. (2025). Copyright, the AI Act and extraterritoriality. Policy Brief The Lisbon Council. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=5316132; Nordemann, J. B., & Rasouli, A. (2024). The provisions of the AI Act relating to copyright–possibility of private enforcement? Example Germany. Example Germany (December 04, 2024). Slightly edited German version published in Zeitschrift für Urheber-und Medienrecht (ZUM), 780. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=5054519; Buick, A. (2025). Copyright and AI training data—transparency to the rescue?. Journal of Intellectual Property Law and Practice, 20(3), 182-192. https://academic.oup.com/jiplp/article/20/3/182/7922541?login=true.

[89] Buick, A. (2025).

[90] European Commission. (2025). Explanatory Notice and Template for the Public Summary of Training Content for general-purpose AI models. https://digital-strategy.ec.europa.eu/en/library/explanatory-notice-and-template-public-summary-training-content-general-purpose-ai-models.

and works used to train the model is explicitly not required. There is also no mention of the (sharing of) metadata that is gathered or created somewhere in the process of the model training.

With the transparency obligations under Article 53(1)(d) not shedding light on metadata, and leaving a lot of ground to cover before potentially reaching attribution, it is appropriate to look at other provisions that might contain some possibilities. The transparency obligations under Article 50 more directly link to the output of AI systems. It obliges, i.a., providers of AI systems that can generate synthetic content, including audio, to embed technical solutions that enable marking in a machine-readable format and detection that the output has been generated or manipulated by an AI system and not a human. It is also stated that the techniques and methods to be deployed should be "sufficiently reliable, interoperable, effective and robust as far as this is technically feasible". For deepfake content specifically, including audio deepfakes, paragraph 4 of Article 50 obliges providers to disclose the content has been artificially generated or manipulated.

Interesting for our context, the related Recital 133 of the AI Act elaborates that the providers should consider "available techniques or a combination of such techniques, such as watermarks, metadata identifications, cryptographic methods for proving provenance and authenticity of content, logging methods, fingerprints or other techniques, as may be appropriate". In the First Draft Code of Practice on Transparency of AI-Generated Content, it is made a bit more concrete what metadata practices are suggested.[91] The Draft Code poses that if content is generated or exported in a data format that supports adding information as part of the metadata (not explicitly mentioned but including audio files), "Signatories will add information about the provenance of the content and a signature of the generative AI system to the metadata". Then, it is explained that the metadata embedding will provide information about the type of operation performed by the AI system (e.g., prompting, editing, or generation). While these are perhaps useful ideas, specific metadata standards of identifiers are not proposed, leaving the already formally noncommittal Code rather open-ended practically, too, in this regard, although it is of course only a first draft.

3.5 Conclusions

This paper has shown that centralisation initiatives for copyright databases starting about a decade after the rise of online music consumption around the year 2000 failed in part due misaligned remuneration systems and economic priorities. Some challenges present since those early years have remained, while new ones have emerged with the advent of music streaming, and more recently also with GenAI music tools and services. Decentralised solutions also still have to grapple with metadata design challenges for attaining music metadata interoperability, generally with regard to domain specificity, granularity and provenance.

Major AI training on EU content by (big) tech companies that are based primarily in the US, followed by China, also reinforces the importance of at least trans-Atlantic interoperability of copyright (meta)data. The DGA's data intermediation services have been explored as a way to stimulate data flows between music industry actors. One question that arises is whether other jurisdictions, or more specifically the US, would accept that these infrastructures are monitored by a European state. Cultural heritage organisations are developing ontologies relating to copyright information that could help interoperability, in the future possibly also in the music sector.

[91] European Commission. (2025). First Draft Code of Practice on Transparency of AI-Generated Content. https://digital-strategy.ec.europa.eu/en/library/first-draft-code-practice-transparency-ai-generated-content.

The transparency obligations in Article 50 and 53(1)(d) as of yet do not provide sufficient practical, enforceable rules that can improve metadata interoperability for GenAI music, also not through the explanations and guidance given in the First Draft Code of Practice in relation to Article 50 or the Explanatory Notice and Template for Article 53.

4 Music Metadata as a Fundamental-Rights Question, or EU's Positive Obligations to Secure Cultural Visibility and Equality Online

4.1 Introduction: Music Metadata and the Constitutional Turn

Music metadata is often described in dry, functional terms: identifiers attached to tracks; codes associated with sound recordings and musical works; rights-holder fields; genre tags; language labels; and a range of auxiliary descriptors that together allow digital systems to "know" what a particular file is.[92] In policy documents and industry standards, metadata is usually cast as a neutral enabler of exploitation and as the linchpin of efficiency: the key to reducing transaction costs in licensing, to streamlining collective rights management, and to improving cross-border interoperability within the EU's Digital Single Market.[93] The language is familiar – interoperability, accuracy, standardisation, trustworthiness, reliability – and the implicit assumption is that metadata is a neutral technical resource that can be optimised without engaging questions of justice, equality, or constitutional principle.[94]

This assumption has become increasingly untenable. In a streaming-based music economy, metadata is not simply a catalogue tool; it is the infrastructure through which cultural participation, recognition, and remuneration are mediated. It is through metadata that digital platforms make sense of music: that recommendation systems group tracks into genres or moods; that language- and region-based discovery pathways are constructed; that rights are attached to repertoires and royalties are distributed; that charts are compiled and markets measured. If metadata is missing, inaccurate, or skewed, the associated repertoires become harder to find, harder to credit, and harder to monetise. When those deficits are not randomly distributed but systematically map onto smaller linguistic communities, regional traditions, or gendered patterns in creation and performance, metadata becomes a vehicle of structural inequality.

---

[92] Horus Music, *Breaking down metadata: Understanding UPCs, ISRCs and ISWCs* (23 January 2023), available at: https://www.horusmusic.global/news/breaking-down-metadata-understanding-upcs-isrcs-and-iswcs/ (accessed December 2025); SonoSuite, *Music metadata explained – The Ultimate Guide* (n.d.), available at: https://sonosuite.com/blog/music-metadata-explained---the-ultimate-guide#:~:text=Music%20metadata%20is%20the%20information,%2C%20duration%2C%20or%20release%20date (accessed December 2025); Other Record Labels, *The ultimate guide to music metadata* (n.d.), available at: https://www.otherrecordlabels.com/ultimate-guide-to-music-metadata (accessed December 2025).

[93] Council of the European Union, *Developing the copyright infrastructure – Stocktaking of work and progress under the Finnish Presidency* (Brussels, Doc. 15016/19, 20 December 2019), at 2, 6, 8, available at: https://data.consilium.europa.eu/doc/document/ST-15016-2019-INIT/en/pdf (accessed December 2025); UK Intellectual Property Office, *Music 2025: The music data dilemma: Issues facing the music industry in improving data management* (Newport: Intellectual Property Office, 2019), at 9-16, 59, 68, 71, 74, 76-86, available at: https://assets.publishing.service.gov.uk/media/5d07940ced915d0a8216b12b/Music-2025.pdf (accessed December 2025); OpenMusE, Music Diversity and Circulation: Novel Data Collection Methods and Indicators (Deliverable D2.1, 2024), at 33, available at: https://www.openmuse.eu/wp-content/uploads/2024/12/D2.1_Music-Diversity-and-Circulation-Novel-Data-Collection-Methods-and-Indicators.pdf (accessed December 2025).

[94] Council of the European Union, *Developing the copyright infrastructure* (supra note 2); Finnish Ministry of Education and Culture, *Copyright Infrastructure Task Force* (n.d.), available at: https://okm.fi/en/citf-en (accessed December 2025); Music Business Association, *Music metadata style guide (Version 2.0)* (2014), available at: https://musicbiz.org/wp-content/uploads/2016/04/MusicMetadataStyleGuide-MusicBiz-FINAL2.0.pdf (accessed December 2025).

Recent scholarship and industry research on algorithmic recommender systems has begun to document these effects. Work on the discoverability of cultural content in digital environments highlights how ranking and recommender systems, trained on historically skewed data and dependent on metadata quality, can reproduce and deepen cultural and geographic biases.[95] Studies focused on non-mainstream and minority users of music platforms show how popularity bias and feedback loops in algorithms make it difficult for users to find music that reflects their linguistic, cultural, or diasporic identities, even when such repertoires exist on the platform.[96] Empirical studies and audits suggest that recommender systems perform less reliably for minority languages and less mainstream repertoires, particularly when the underlying metadata is sparse or inconsistent.[97] At the same time, commentary from regulators and policy-oriented researchers has started to connect these phenomena with broader concerns of fairness and transparency in digital cultural markets.[98]

In parallel, a more constitutional conversation about cultural and linguistic diversity in EU law has matured. Article 22 of the Charter of Fundamental Rights of the European Union (CFR) enshrines the requirement that "the Union shall respect cultural, religious and linguistic diversity". The explanations to the Charter and subsequent legal commentary understand Article 22 as a structural principle, complementing Treaty provisions such as Article 3 TEU and Article 167 TFEU and reinforcing the conception of the Union as a project grounded in pluralism.[99] Charter commentators have explored whether Article 22 has direct justiciable force or functions primarily as a guiding norm,[100] but there is broad agreement that it is not merely decorative: it shapes how EU legislation and policy must be

[95] J Paquette, 'Algorithmic biases and the discoverability of digital cultural content' (2025) 11(2) Journal of Cultural Management and Cultural Policy 269.
[96] SN Khan, E Herder, and D Kaya, 'Experiences of Non-Mainstream and Minority Users With Music Recommendation Systems' (2024) Mensch und Computer 1, available at: https://dl.gi.de/server/api/core/bitstreams/cdd7cc6b-48db-4471-ba38-690baf8907ec/content (accessed December 2025).
[97] Id.; D Kowald, M Schedl, and E Lex, 'The Unfairness of Popularity Bias in Music Recommendation: A Reproducibility Study', in: *Advances in Information Retrieval* (Springer International Publishing, Cham, 2020) 35; D Antal, 'Recommendation Systems: What can Go Wrong with the Algorithm? Effects on equitable remuneration, fair value, cultural and media policy goals' (16 May 2021), *Open Music Observatory*, available at: https://music.dataobservatory.eu/post/2021-05-16-recommendation-outcomes/ (accessed December 2025).
[98] D Pastukhov, 'Fairness & Transparency in Music Recommender Systems: 2025 Review' (3 November 2025), *Music Tomorrow*, available at: https://www.music-tomorrow.com/blog/fairness-transparency-music-recommender-systems (accessed December 2025).
[99] Explanations relating to the Charter of Fundamental Rights, OJ C 303, 14 December 2007, p. 17, Explanation to Article 22.
[100] X Arzoz, 'The Protection of Linguistic Diversity through Article 22 of the Charter of Fundamental Rights' in X Arzoz (ed) Respecting Linguistic Diversity in the European Union (John Benjamins Amsterdam 2008) 145; GN Toggenburg, 'Diversity and the EU Charter of Fundamental Rights: Principles vs. practice' (2025), Eurac/MIDAS blog, available at: https://www.eurac.edu/en/blogs/midas/diversity-and-the-eu-charter-of-fundamental-rights-principles-vs-practice (accessed December 2025); Ł Bojarski, D Schindlauer, and K Wladasch, *The European Charter of Fundamental Rights as a Living Instrument: Manual* (Rome-Warsaw-Vienna, 2014), available at: https://gmr.lbg.ac.at/wp-content/uploads/sites/12/2021/09/cfreu_manual_0.pdf (accessed December 2025); P Jerónimo, 'Article 22 – Cultural, Religious and Linguistic Diversity' in: A Silveira et al. (eds), *The Charter of Fundamental Rights of the European Union: A Commentary* (JusGov/EDUM, 2024) 220; T Lock, 'Article 22 CFR' in: M Kellerbauer, M Klamert, and J Tomkin (eds), *The EU Treaties and the Charter of Fundamental Rights: A Commentary* (New York, 2019; online edn, Oxford Academic), available at: https://doi.org/10.1093/oso/9780198759393.003.543 (accessed December 2025).

interpreted, especially in domains that affect the visibility and viability of cultural and linguistic communities.[101]

This chapter situates music metadata squarely within that constitutional conversation. It argues that metadata should be understood as an infrastructural site where Article 22 CFR, read together with Articles 13 (freedom of the arts and sciences), 17(2) (intellectual property), 21 (non-discrimination), and 23 (equality between women and men), exerts normative force. Metadata is the mechanism by which the EU's commitment to cultural pluralism and equality is either realised or undermined in the digital music environment. Respect for cultural and linguistic diversity in an age of algorithmic distribution cannot be confined to rhetoric; it must extend to the design and regulation of the technical systems that determine which repertoires are visible, searchable, and recommended.

The argument unfolds against the background of two bodies of jurisprudence. First, the case-law of the Court of Justice of the European Union (CJEU) has long recognised linguistic diversity and cultural considerations as legitimate interests within the internal market, and has elaborated a sophisticated approach to balancing intellectual property, freedom of expression, and other rights in digital contexts. Cases such as *Groener* and *Las* show the Court explicitly acknowledging linguistic and cultural aims as legitimate grounds for regulatory intervention.[102] Meanwhile, *Promusicae*,[103] *Scarlet Extended*,[104] *UPC Telekabel Wien*,[105] *Deckmyn*,[106] and *Google Spain*[107] illustrate the Court's insistence that infrastructures of communication and information must be designed and interpreted in light of fundamental rights, including intellectual property, privacy, and expression.

Second, the case-law of the European Court of Human Rights (ECtHR), which informs the interpretation of the Charter via Article 52(3) CFR, has consolidated doctrines of positive obligations and indirect discrimination that are directly relevant to metadata. The ECtHR has consistently held that the effective enjoyment of rights under Articles 8, 10, and 14 ECHR may require states to act, not just to refrain from interference. It has recognised that cultural identity and participation belong to the protected spheres of private and family life, and that systemic patterns of inequality can amount to discrimination even without explicit intent. The Court's case-law on artistic expression under Article 10 stresses that those who create and disseminate art contribute to pluralist democratic discourse and warrant particular protection.[108] Its leading judgments on discrimination, as

[101] R Craufurd-Smith, 'Article 22 – Cultural, Religious and Linguistic Diversity' in: S Peers et al. (eds), *The EU Charter of Fundamental Rights: A Commentary* (Hart Publishing, 2021) 639; Arzoz (supra note 9); Toggenburg (supra note 9).

[102] CJEU, Judgment in *Groener v. Minister for Education and City of Dublin Vocational Education Committee*, C-379/87, 28 November 1989, EU:C:1989:599, para 18 (referring to the use of Irish as "a means of expressing national identity and culture"); CJEU, Judgment in *Las v. PSA Antwerp*, C-202/11, 16 April 2014, EU:C:2013:239, paras 25-27 (affirming that the promotion and protection of an official language may constitute a legitimate public-interest objective).

[103] CJEU, Judgment in *Promusicae*, C-275/06, 29 January 2008, EU:C:2008:54.

[104] CJEU, Judgment in *Scarlet Extended*, C-70/10, 24 November 2011, EU:C:2011:771.

[105] CJEU, Judgment in *UPC Telekabel*, C-314/12, 27 March 2014, EU:C:2013:781.

[106] CJEU, Judgment in *Deckmyn*, C-201/13, 3 September 2014, EU:C:2014:2132.

[107] CJEU, Judgment in *Google Spain and Google*, C-131/12, 13 May 2014, EU:C:2014:317.

[108] ECtHR Registry, *Guide on Article 10 of the Convention – Freedom of Expression* (Council of Europe, updated on 31 August 2025), available at: https://ks.echr.coe.int/documents/d/echr-ks/guide_art_10_eng (accessed November 2025), paras 200-201 (with further case-law references).

synthesised in the ECtHR's Guide on Article 14, show a clear willingness to address indirect and structural inequalities.[109]

Bringing these strands together, this chapter makes three core claims. First, music metadata is a site where the Union's duty to respect cultural and linguistic diversity acquires concrete operational content. The obligation cannot be met if the infrastructures that mediate culture systematically marginalise minority languages, smaller markets, or gendered repertoires. Second, metadata governance engages equality and discrimination law. Where metadata gaps or algorithmic classification practices have disproportionate impacts on protected groups – whether defined by language, nationality, gender, or minority status – they raise questions under Articles 21 and 23 CFR and the corresponding ECHR provisions. Third, metadata is indispensable to the enjoyment of intellectual property rights under Article 17(2) CFR: without accurate and inclusive metadata, the right to protection of creative outputs is illusory for those whose works fall through the gaps.

The remainder of this chapter proceeds in four further sections. Section 2 examines the constitutional architecture of cultural and linguistic diversity in the EU and its intersection with artistic freedom and intellectual property. Section 3 engages with empirical and doctrinal material illustrating how metadata infrastructures can produce structural invisibility harms for minority languages, regional traditions, and women and non-binary creators. Section 4 draws on the jurisprudence of the CJEU and the ECtHR to articulate positive obligations and anti-discrimination principles applicable to metadata governance. Section 5 concludes by outlining a rights-conscious framework for EU metadata policy, arguing that respect for diversity and equality must be embedded into the technical and regulatory design of music metadata systems.

4.2 Cultural and Linguistic Diversity, Artistic Freedom, and Intellectual Property in the EU's Constitutional Order

At first glance, the link between cultural and linguistic diversity, on the one hand, and a technical artefact like music metadata, on the other, may seem conceptually distant. Yet the EU's constitutional structure suggests otherwise. In primary law, the Union explicitly commits to respecting its rich cultural and linguistic mosaic. Article 3(3) TEU states that the Union "shall respect its rich cultural and linguistic diversity", while Article 167 TFEU requires the Union to contribute to the flowering of the cultures of the Member States and to respect national and regional diversity. These Treaty commitments are complemented by Article 22 CFR, which crystallises the obligation in the following statement: "The Union shall respect cultural, religious and linguistic diversity."

The legal nature of Article 22 is more complex than its brevity suggests. The Explanations to the Charter specify that Article 22 is rooted in Articles 3(3) TEU and 167 TFEU and must guide the interpretation of EU action in cultural and linguistic matters.[110] Academic commentary generally treats Article 22 as a "principle" rather than a directly enforceable subjective right under Article 52(5)

[109] ECtHR Registry, *Guide on Article 14 of the European Convention on Human Rights and on Article 1 of Protocol No. 12 to the Convention – Prohibition of discrimination* (Council of Europe, updated on 28 February 2025), available at: https://ks.echr.coe.int/documents/d/echr-ks/guide_art_14_art_1_protocol_12_eng (accessed November 2025), para 35 in particular.

[110] Explanations relating to the Charter of Fundamental Rights, OJ C 303, 14 December 2007, p. 17, Explanation to Article 22.

CFR,[111] meaning that it binds EU institutions and Member States when acting within the scope of EU law,[112] and operates primarily as a benchmark for legality and proportionality review rather than as a basis for individual claims. Several authors emphasise that the provision should nevertheless be understood as a constitutional principle of considerable weight, given its integration with the Treaties and its function in safeguarding cultural pluralism against market-driven homogenisation.[113]

The Charter's explanations, as well as doctrinal commentary, thus make clear that Article 22 is more than a symbolic affirmation.[114] It is intended to ensure that the Union's measures do not erode cultural and linguistic diversity, and to guide the interpretation of other provisions that bear on cultural life.[115] Article 22, thus, though brief, functions as an interpretative lens through which policies affecting media, language, and cultural participation must be seen.

This structural weight is reflected in evolving CJEU case-law. In *Groener*, the Court accepted that the Irish language requirement imposed on a Dutch art teacher seeking a permanent post could be justified by the Member State's legitimate aim of promoting Irish as the first national language and protecting its use.[116] It held that the promotion of the national language, as an expression of culture and identity, was a legitimate underpinning of such a measure, provided the requirement was proportionate.[117] Later, in *Las*, the Court considered Flemish language legislation requiring employment contracts to be drawn up in Dutch.[118] While ultimately finding the measure disproportionate in that case, the Court once again accepted that the objective of promoting a national language is legitimate and capable of justifying restrictions within the internal market, so long as they are not excessive.[119] These judgments show that the Court views linguistic policy as a matter of constitutional importance, closely tied to cultural identity and societal cohesion.

Academic work on EU language policy has emphasised that such case-law illustrates the pluralist commitments of EU integration: the internal market is not to be achieved at the cost of linguistic homogenisation.[120] Instead, the Court's task is to reconcile free movement and economic freedoms

[111] S Peers and S Prechal, 'Article 52 – Scope and Interpretation of Rights and Principles', in: S Peers et al. (eds), *The EU Charter of Fundamental Rights: A Commentary* (Hart 2014), 1498. See also T Lock, 'Rights and Principles in the EU Charter of Fundamental Rights' (2019) 56(5) Common Market Law Review 1201.
[112] Article 51(1) CFR.
[113] Arzoz (supra note 9); M Ferri, 'How to Strengthen Protection of (Religious) Minorities and Cultural Diversity under EU Law: Some Lessons from the Human Rights Protection System' (2021) 12(10) Religions 864; Craufurd-Smith (supra note 10); B de Witte, 'The Constitutional Resources for an EU Minority Protection Policy', in: GN Toggenburg (ed), *Protection and the Enlarged European Union: The Way Forward* (LGI 2004) 107.
[114] See also Craufurd-Smith (supra note 10); Toggenburg (supra note 9); Lock (supra note 9).
[115] Bojarski, Schindlauer and Wladasch (supra note 9); K Henrard, 'An Investigation into the Desirable, and Possible, Role of the Language Charter in Expanding on Article 22 of the EU's Charter of Fundamental Rights', Paper presented at the II Mercator International Symposium Europe 2004: A New Framework for All Languages?, Tarragona, 27-28 February 2004, available at: https://repub.eur.nl/pub/108954/18.-An-investigation-into-the-desirable-and-possible-role-of-the-Language-Charter-.pdf (accessed December 2025); Arzoz (supra note 9); D Kochenov, 'EU Minority Protection: A Modest Case for a Synergetic Approach' (2011) 3(4) Amsterdam Law Forum 31; Lock (supra note 9).
[116] CJEU, Judgment in *Groener v. Minister for Education and City of Dublin Vocational Education Committee*, C-379/87, 28 November 1989, EU:C:1989:599, paras 18, 19, and 24.
[117] Id., paras 19, 21, and 24.
[118] CJEU, Judgment in *Las v. PSA Antwerp*, C-202/11, 16 April 2014, EU:C:2013:239.
[119] Id., paras 25-28.
[120] H Van Eijken and E Meyermans Spelmans, 'Words Travel Worlds: Language in the EU Internal Market, Linguistic Diversity and the National Identity of the Member States' (2022) 2(2) Comparative Law and Language 87.

with national identity and cultural diversity. Seen in that light, Article 22 CFR is a natural extension of an existing trajectory. It takes what had been implicit in the case-law – respect for cultural and linguistic difference as a constitutional imperative – and gives it explicit rights-language status. At the same time, the doctrinal debate clarifies that this "rights-language" should not be mistaken for a directly actionable entitlement; rather, Article 22 operates as a constitutional interpretive principle that permeates EU regulatory design,[121] including in technically mediated environments such as digital cultural markets.

The significance of this for music metadata lies in the fact that metadata is, effectively, the language through which digital systems recognise linguistic diversity. Language codes, region tags, and contextual descriptors in metadata determine whether a track is recognised as Irish, Catalan, Sámi, Romani, or Basque, or whether it is shunted into vague categories like "world" or "other". The Charter's demand that the Union respect linguistic diversity becomes hollow if EU frameworks governing digital music markets tolerate infrastructural arrangements in which the languages of smaller or stigmatised communities are routinely erased or misclassified. Respect, in this sense, requires more than the absence of overt hostility: it requires ensuring that digital infrastructures are capable of registering and representing linguistic variety. From the vantage point of Article 22 as a binding constitutional principle, failures in metadata design can be conceptualised as structural forms of non-compliance with the Union's obligation to respect linguistic diversity.

Article 13 CFR, which protects freedom of the arts and sciences, reinforces this conclusion. While the CJEU has only occasionally engaged directly with Article 13, the ECtHR's case-law on Article 10 ECHR clearly recognises artistic expression as a core component of freedom of expression.[122] The Court has repeatedly held, in cases such as *Müller and Others v Switzerland*, that artistic freedom protects not only the content of artworks but the ability of artists to participate in public debate and contribute to the free flow of ideas.[123] It has stressed that artistic expression may offend, shock, or disturb, yet must be tolerated in the interest of pluralism.[124]

Although these cases concerned state interference with art exhibitions or performances, their underlying insight is broader: artists' capacity to reach audiences is integral to democratic discourse. In the digital environment, the route to audiences is increasingly mediated by recommendation algorithms and cataloguing systems. If metadata systematically fails to represent certain repertoires, or makes them effectively undiscoverable, this amounts to a structural interference with artists' ability to participate in cultural exchange. The interference is not the product of a censor's decision but of technical design choices and data infrastructures. Nevertheless, from the vantage point of Article 13 CFR and Article 10 ECHR, the effect is similar: an unjustified constriction of the public space available to certain artists and communities.

Intellectual property rights, protected as fundamental rights in Article 17(2) CFR, provide a further strand in this constitutional fabric. The CJEU has repeatedly acknowledged that intellectual property rights are not absolute and must be balanced against other rights and interests; yet their

[121] Craufurd-Smith (supra note 10); GN Toggenburg, 'The 22nd of all EU-r rights: diversity and how the Charter contributes', Eurac Research blog, 28 February 2023, available at: https://www.eurac.edu/en/blogs/eureka/the-22nd-of-all-eu-r-rights-diversity-and-how-the-charter-contributes (accessed December 2025); Toggenburg (supra note 9).
[122] ECtHR Registry, *Guide on Article 10 of the Convention* (supra note 17), paras 200-201 (with further case-law references).
[123] Council of Europe, 'Artistic expression', ECHR-KS (31 August 2025), available at: https://ks.echr.coe.int/documents/d/echr-ks/artistic-expression (accessed December 2025).
[124] Id.

fundamental-rights status requires that they be given effective protection. In *Promusicae*, the Court emphasised that Member States, when implementing EU directives, must strike a fair balance between copyright and fundamental rights including privacy and data protection.[125] In *Scarlet Extended* and *UPC Telekabel Wien*, it stressed that injunctions against intermediaries aimed at protecting IP cannot impose obligations that infringe the freedom to receive or impart information or undermine the essence of fundamental rights.[126] At the same time, it recognised the legitimacy of measures aimed at ensuring the effective protection of IP within the digital environment.[127]

Metadata is indispensable to IP enforcement and remuneration.[128] It is through metadata that authorship and neighbouring rights are attached to particular recordings;[129] that collecting societies track usage;[130] that royalty statements are generated;[131] that performers' contributions are identified.[132] Gaps or errors in metadata often lead to "black box" revenues – monies that cannot be accurately allocated to rightsholders[133] – and to systematic under-payment of those whose rights are poorly documented.[134] When such deficits track the fault lines of linguistic minority status, regional

[125] CJEU, Judgement in *Promusicae*, C-275/06, 29 January 2008, EU:C:2008:54, para 68.
[126] CJEU, Judgement in *Scarlet Extended*, C-70/10, 24 November 2011, EU:C:2011:771, paras 52-53; CJEU, Judgment in *UPC Telekabel*, C-314/12, 27 March 2014, EU:C:2013:781, paras 55-56.
[127] CJEU, Judgment in *UPC Telekabel*, C-314/12, 27 March 2014, EU:C:2013:781, para 62.
[128] M Davies and J Manders, 'Music Metadata Matters: How to Get Paid and Credited', Intellectual Property Office blog, 26 April 2025, available at: https://ipo.blog.gov.uk/2025/04/26/music-metadata-matters-how-to-get-paid-and-credited/ (accessed December 2025); Intellectual Property Office, *UK industry agreement on music streaming metadata*, GOV.UK, 31 May 2023, available at: https://www.gov.uk/government/publications/uk-industry-agreement-on-music-streaming-metadata (accessed December 2025); Spotify for Artists, 'Metadata: What It Is and Why It Matters', Spotify for Artists, 16 August 2018, available at: https://artists.spotify.com/en/blog/metadata-what-it-is-and-why-it-matters (accessed December 2025). See also E Elshan, C Engel, and P Ebel, 'Opening the Black Box of Music Royalties with the Help of Hybrid Intelligence', Proceedings of the 54th Hawaii International Conference on System Sciences (2021), available at: https://scholarspace.manoa.hawaii.edu/server/api/core/bitstreams/ee1d0238-9c28-47fc-9f9e-f129657a83eb/content (accessed December 2025).
[129] J Knibbe, 'Understanding Music Rights Data: The Challenges of Delivering Timely Royalty Payments to Artists', Water & Music, 12 April 2021, available at: https://www.waterandmusic.com/understanding-music-rights-data-the-challenges-of-delivering-timely-royalty-payments-to-artists/ (accessed December 2025); ANS Music, 'The Metadata Magic: How Accurate Data Unlocks Maximum Discoverability and Optimizes Your Music Royalties', ANS Music (2024), available at: https://ansmusiclimited.com/music-metadata-royalties-discoverability/ (accessed December 2025); PPL, 'Repertoire Data Exchange (RDx) explained: The technology revolutionising how music rights are managed', PPL, 16 January 2025, available at: https://www.ppluk.com/about-us/news/repertoire-data-exchange-rdx-explained-the-technology-revolutionising-how-music-rights-are-managed/ (accessed 10 December 2025); AJ Sharp and O Lobel, 'Smart Royalties: Tackling the Music Industry's Copyright Data Discrepancies through Blockchain Technology, Smart Contracts, and Non-Fungible Tokens' (2023) 63(3) IDEA: The Law Review of the Franklin Pierce Center for IP 518.
[130] EA Priest, 'The Future of Music Copyright Collectives in the Digital Streaming Age' (2021) 45 Columbia Journal of Law & the Arts; Elshan, Engel, and Ebel (supra note 37); Knibbe (supra note 38).
[131] AM Joseph, 'Why Metadata is the Backbone of Music Royalties', Noctil Blog, 30 September 2025, available at: https://blogs.noctil.com/why-metadata-is-the-backbone-of-music-royalties/ (accessed December 2025); S-L Probst, 'The Truth About Metadata in the Music Industry', BlackbirdPunk, 18 October 2019, available at: https://blackbirdpunk.com/2019/10/18/the-truth-about-metadata-in-the-music-industry (accessed December 2025); Sharp and Lobel (supra note 38).
[132] Elshan, Engel, and Ebel (supra note 37).
[133] Id.; D Sellin and T Seppälä, 'Digital Music Industry – Background Synthesis', ETLA Working Papers, No. 48, The Research Institute of the Finnish Economy (ETLA), Helsinki, 2017, available at: https://www.econstor.eu/bitstream/10419/201263/1/ETLA-Working-Papers-48.pdf (accessed December 2025); Sharp and Lobel (supra note 38).
[134] Davies and Manders (supra note 37); Sharp and Lobel (supra note 38).

marginalisation, or gender, they implicate both Article 17(2) and the equality and non-discrimination provisions of the Charter. A system in which some creators are structurally less likely to be recognised in metadata is a system in which their fundamental right to IP enjoys only a diminished protection.

Articles 21 and 23 CFR confront this directly. Article 21 prohibits discrimination based on sex, race, colour, ethnic or social origin, genetic features, language, religion or belief, membership of a national minority, and other grounds. Article 23 mandates equality between women and men in all areas, including employment and pay. The Court of Justice has developed a robust body of case-law on indirect discrimination, recognising that facially neutral measures or structures may breach equality guarantees when they disproportionately disadvantage protected groups without sufficient justification.[135] The ECtHR's Guide on Article 14 confirms a similar approach on the Convention plane, including in cases where the disadvantage is structural and systemic.[136]

When examined through this lens, metadata governance becomes a textbook example of a domain where indirect discrimination is likely. Technical standards, catalogue schemas, and algorithmic models may be drafted in neutral terms, but if they build on datasets that under-represent minority languages or women's contributions, and if they lack mechanisms to compensate for those historical inequalities, they will inevitably generate disproportionate adverse impacts. That these impacts occur in the context of cultural participation and IP enjoyment only heightens their constitutional salience.

Thus, the EU's constitutional architecture – anchored in Article 22 CFR but integrating Articles 13, 17(2), 21, and 23 CFR, and informed by ECtHR case-law – points towards a view of metadata as an object of constitutional concern. The protection of cultural and linguistic diversity, artistic freedom, equality, and IP cannot stop at the level of high-level declarations or legislation; it must extend to the infrastructures that shape who and what is visible in the digital cultural sphere. Metadata is not external to this logic; it is one of the principal vehicles through which the logic is operationalised – or frustrated.

4.3 Structural Metadata Harms: Linguistic Invisibility, Territorial Marginalisation, Field Recordings, and Gendered Dynamics

Having outlined the constitutional stakes, it is necessary to examine more concretely how music metadata systems, as they exist in practice, can generate structural harms. These harms are multi-layered, intersecting linguistic, territorial, historical, and gendered dimensions. They do not arise from a single act of discrimination but from the cumulative effects of long-standing practices, data deficits, and algorithmic design choices.

A first, and increasingly visible, category of harm concerns linguistic invisibility. Empirical studies on music recommendation systems have shown that users searching for music in minority or non-dominant languages often encounter poorer recommendation quality and reduced content relevance.[137] Such users report that platforms tend to offer them mainstream Anglo-American

[135] See, e.g., CJEU, Judgment in *CHEZ Razpredelenie Bulgaria* , C-83/14, 16 July 2015, EU:C:2015:480; CJEU, Judgment in *O'Flynn v. Adjudication Officer*, C-237/94, 23 May 1996, EU:C:1996:206; CJEU, Judgment in *Enderby v. Frenchay Health Authority and Secretary of State for Health*, C-127/92, 27 October 1993, EU:C:1993:859.
[136] ECtHR Registry, *Guide on Article 14* (supra note 18), paras 35-40.
[137] Khan, Herder, and Kaya (supra note 5). See also See also L Céspedes et al., 'Evaluating the linguistic coverage of OpenAlex: An assessment of metadata accuracy and completeness' (2025) 76(6) Journal of the Association for Information Science & Technology 884 (showing language metadata inaccuracies that overestimate English and underestimate non-English items – precisely the kind of catalogue error that reduces discoverability for smaller linguistic markets); M Agarwal, MM Ibn Alam, and A Anastasopoulos, 'LIMIT: Language Identification,

content or, at best, music in the major European languages, even when they have clearly signalled preferences for other languages.[138] Researchers attribute part of this phenomenon to "popularity bias": algorithms geared towards maximising engagement tend to favour tracks with high global streaming numbers, which are disproportionately in English and a few other dominant languages.[139] But another part is attributable to metadata weaknesses: where language tags are missing or generic, or where scripts and characters are processed poorly, algorithmic models may simply fail to incorporate such tracks into language-specific clusters.[140]

A growing body of scholarship on algorithmic biases in cultural recommendation systems has documented similar patterns. Studies mapping the diversity of recommendations on music platforms observe that language-specific and locally grounded content often struggles to appear in general discovery channels, even when present in the catalogue, because it lacks sufficient metadata and historical engagement data to be surfaced by popularity-weighted algorithms.[141] End-user auditing frameworks proposed in recent computer-science work aim to quantify these disparities by comparing recommendations for users with different linguistic or cultural profiles.[142] These frameworks highlight the need for explicit fairness and diversity metrics in algorithmic design, rather than assuming that neutral optimisation for engagement will promote a pluralist cultural landscape.[143]

Within the EU, where linguistic diversity is both a historical fact and a constitutional commitment, the systematic under-representation of minority and lesser-resourced languages in metadata is particularly troubling. Many regional and minority languages – Basque, Catalan, Galician, Welsh, Irish, Frisian, Sámi, Romani, and many others – may exist in platform catalogues but be poorly tagged or grouped.[144] Some are assigned incorrect language codes; others are grouped into broad "World" or "Ethnic" genres, which flatten their distinctiveness and make them harder to find for users who

---

Misidentification, and Translation using Hierarchical Models in 350+ Languages' (arXiv preprint arXiv:2305.14263, 2023), available at: https://arxiv.org/pdf/2305.14263 (accessed December 2025) (documenting how standard language-ID systems *systematically* misclassify low-resource languages and often collapse them into broad labels); HH Nigatu, AL Tonja, and J Kalita, 'The less the merrier? Investigating language representation in multilingual models', Findings of the Association for Computational Linguistics: EMNLP 2023, 12572, available at: https://aclanthology.org/2023.findings-emnlp.837 (accessed October 2025) (finding that even when included in multilingual models, low-resource languages underperform consistently – raising the risk of generic/incorrect category assignment).

[138] Khan, Herder, and Kaya (supra note 5).

[139] K Dinnissen and C Bauer, 'Fairness in Music Recommender Systems: A Stakeholder-Centered Mini Review' (2022) 5 Frontiers in Big Data; Kowald, Schedl, and Lex (supra note 6).

[140] Khan, Herder, and Kaya (supra note 5); L Porcaro, C Castillo, and E Gomez, 'Music Recommendation Diversity: A Tentative Framework and Preliminary Results', in: M Miron (ed), *Proceedings of the 1st Workshop on Designing Human-Centric Music Information Research Systems* (2019) 11.

[141] Paquette (supra note 4).

[142] M Haroon et al., 'YouTube, The Great Radicalizer? Auditing and Mitigating Ideological Biases in YouTube Recommendations' (2022), available at: https://arxiv.org/pdf/2203.10666 (accessed December 2025); RY Pang et al., 'Auditing Cross-Cultural Consistency of Human-Annotated Labels for Recommendation Systems' (2023), available at: https://arxiv.org/abs/2305.05917 (accessed December 2025).

[143] L Porcaro, E Gómez, and T Catarci, 'End-user Algorithmic Auditing for Music Discoverability: A Research Roadmap', CEUR Workshop Proceedings, Conference Paper 2024, available at: https://ceur-ws.org/Vol-3787/paper4.pdf (accessed December 2025).

[144] See Language Report chapters in G Rehm and A Way (eds), *European Language Equality: A Strategic Agenda for Digital Language Equality* (Springer, 2023) 75, 79; Antal (supra note 6); Kowald, Schedl, and Lex (supra note 6).

search using language or regional filters.[145] And for languages with non-Latin scripts or diacritics, technical limitations or legacy database structures may strip away crucial information, contributing to misclassification as "Unknown" or "Other".[146]

Such practices do not result from a conscious desire to suppress linguistic minorities. They are the by-product of standardisation processes that prioritise the needs of the largest markets,[147] combined with the inertia of existing catalogues and the perceived cost of improving metadata quality for less commercially significant repertoires.[148] Yet the cumulative effect is that certain linguistic communities find their cultural expressions rendered invisible or marginal in the digital sphere. For a Union that has enshrined respect for linguistic diversity as a fundamental commitment, this should be cause for constitutional concern.

Territorial marginalisation overlaps with linguistic invisibility but has its own contours. Empirical and policy analyses of music streaming have pointed out that the global market is highly concentrated, with a small number of countries generating the majority of streams and shaping global charts.[149] Repertoires from smaller Member States – particularly in Central, Eastern, and South-Eastern Europe – often face difficulties in breaking through on global or even EU-wide playlists, even where there is a domestic culture of music production.[150] When coupled with weaker domestic metadata

[145] Khan, Herder, and Kaya (supra note 5); Porcaro, Castillo, and Gomez (supra note 49).
[146] Khan, Herder, and Kaya (supra note 5); Dinnissen and Bauer (supra note 48).
[147] Kowald, Schedl, and Lex (supra note 6); Khan, Herder, and Kaya (supra note 5).
[148] L Aguiar and J Waldfogel, *Quality Predictability and the Welfare Benefits from New Products: Evidence from the Digitization of Recorded Music* (Institute for Prospective Technological Studies, Joint Research Centre, Digital Economy Working Paper 2015/02, European Commission, 2015), available at: https://joint-research-centre.ec.europa.eu/system/files/2015-05/JRC91981_Quality_predictability.pdf (accessed December 2025); N Helberger, K Karpinnen, and L D'Acunto, 'Exposure Diversity as a Design Principle for Recommender Systems' (2018) 21(2) Information, Communication & Society 191; Dinnissen and Bauer (supra note 48); Kowald, Schedl, and Lex (supra note 6).
[149] Analyses of global streaming and chart data by WIPO show that Anglo-American repertoire (primarily the United States and United Kingdom) continues to dominate Apple Music's global rankings and most national charts, with only a handful of additional countries (e.g. South Korea, Japan, France, Germany) emerging as major exporters of repertoire to global streaming charts. See A Cuntz, A Muscarnera, and M Sahli, 'International Music Trade: New Insights from Global Streaming Data', WIPO, available at: https://www.wipo.int/en/web/economics/w/blogs/international-music-trade (accessed December 2025). UNCTAD's *Creative Economy Outlook 2024* similarly flags high market concentration in several digital creative industries, including streaming, as a competition concern. See United Nations Conference on Trade and Development (UNCTAD), Creative Economy Outlook 2024, ch. IV, available at: https://unctad.org/system/files/official-document/ditctsce2024d2_en.pdf (accessed December 2025). IFPI's *Global Music Report 2025* confirms that a small group of top markets (e.g. USA, Japan, UK, Germany, France, China) account for the bulk of global recorded-music revenues and thus heavily influence global streaming charts. See IFPI, Global Music Report 2025: State of the Industry (IFPI, 2025), available at: https://www.ifpi.org/wp-content/uploads/2024/03/GMR2025_SOTI.pdf (accessed December 2025).
[150] Hroch and Szczepanik's study of Spotify's "geography" shows that East-Central European music is structurally peripheral in Spotify's playlist ecosystem, with local repertoires under-represented in editorial playlists and framed primarily as consumer markets rather than sources of globally circulated tracks. See M Hroch and P Szczepanik, 'Playlisting the Periphery: Platform Intermediaries and East-Central European Music Visibility in Spotify's Geography' (2025) New Media & Society, available at: https://journals.sagepub.com/doi/full/10.1177/14614448251346200 (accessed December 2025). The *Central and Eastern European Music Industry Report* notes that small repertoire sizes and resource constraints in the region create "an impossible challenge" for small local labels to gain visibility even at national level, let alone in international digital markets. See D Antal, *Central and Eastern Music Industry Report 2020* (Consolidated Independent, London, United Kingdom; CEEMID, the Hague, the Netherlands, 2020), available at: https://anpm.pl/wp-content/uploads/2020/06/CEE_Report.pdf (accessed December 2025). EU-level reporting

infrastructures, this can lead to a situation in which works from such territories are present in catalogues but virtually absent from meaningful discovery channels. Research on the experiences of "non-mainstream and minority users" confirms that users seeking to explore music from certain countries or diasporas struggle to find relevant content, even when they are highly motivated and technologically adept.[151]

Another dimension of metadata harm arises with field recordings, traditional and indigenous music, and archives of cultural expressions collected under earlier regimes. Many of these works entered archives without precise authorship information, and often with partial or ambiguous indications of community provenance. As such works are digitised and ingested into streaming catalogues, the associated metadata may be extremely thin: a vague geographic descriptor, a generic category like "Traditional", sometimes a collector's name but not that of the community or performers. This creates a fertile terrain for misappropriation. Recordings can be sampled, remixed, or used in new works without clear attribution or benefit-sharing with the communities whose traditions they represent. The problem is exacerbated when such tracks are treated in copyright systems as works in the public domain, or as having rights attributed to the collecting institution, rather than to the communities of origin.

From a fundamental-rights perspective, this raises questions not only under intellectual property but also under cultural identity. The ECtHR has recognised that the ability of minorities to preserve and express their culture is integral to their private and collective life. In *Chapman*, the Court accepted that the lifestyle of the Roma is part of their identity, and that interference with it engages Article 8.[152] In *Gorzelik*, the Court underscored that the freedom of minorities to form associations in order to express and promote their cultural or ethnic identity is protected under Article 11, highlighting the significance of such identity for their collective life.[153] When traditional musical expressions are divorced from their communities through impoverished metadata, the communities lose control over how their cultural identity is represented and monetised. While international debates on indigenous cultural heritage extend beyond the EU context,[154] the Union's own commitments to diversity in Article 22 CFR and to non-discrimination in Article 21 CFR demand that such issues be taken seriously within its jurisdiction.

Gendered dynamics intersect with all of these patterns. Studies of representation in the music industry consistently show that women and non-binary individuals are under-represented as composers, producers, and performers.[155] This under-representation is reflected in catalogue data:

---

on *Music in the EU 2025* similarly highlights that, despite vibrant domestic music cultures, Central and Eastern European markets remain relatively weak exporters of repertoire within the EU streaming space compared to larger Western Member States. See IFPI, *Music in the EU 2025*, available at: https://www.ifpi.org/wp-content/uploads/2025/09/MITE_2025.pdf (accessed December 2025).

[151] Khan, Herder, and Kaya (supra note 5); D Kowald et al., 'Support the Underground: Characteristics of Beyond-Mainstream Music Listeners' (2021) 10(1) EPJ Data Sci. 14.

[152] ECtHR, *Chapman v. the United Kingdom* [GC], no. 27238/95, 18 January 2001, CE:ECHR:2001:0118JUD002723895, paras 73-74.

[153] ECtHR, *Gorzelik and Others v. Poland* [GC], no. 44158/98, 17 February 2004, CE:ECHR:2004:0217JUD004415898, para 92.

[154] See e.g. K Sikora, 'The Right to Cultural Heritage in International Law, with Special Reference to Indigenous Peoples' Rights' (2021) 2(7) Santander Art and Culture Law Review 149; F Lenzerini, 'Indigenous cultural heritage and international law' in: D Newman (ed), *Research Handbook on the International Law of Indigenous Rights* (Edward Elgar, 2022), p. 332.

[155] See e.g. SL Smith et al., *Inclusion in the Recording Studio? Gender and Race/Ethnicity of Artists, Songwriters & Producers Across 600 Popular Songs from 2012–2017* (Annenberg Inclusion Initiative, 25 January 2018),

there are fewer records with women in key roles.[156] However, metadata practices can exacerbate the disparity. When women's contributions – as co-writers, producers, engineers – are omitted from credits, or when name disambiguation systems fail to link works across different naming conventions or marital name changes, the digital record of women's work is fragmentary.[157] This attenuated presence interacts with algorithmic systems that look to past popularity and network centrality to make recommendations.[158] If women's works are less often credited and less consistently linked, they are less likely to be recommended, reinforcing their marginal visibility and reducing streams and income.[159]

The ECtHR's discrimination case-law offers a useful conceptual framework here. In *D.H.*, the Court held that a system of special schooling that disproportionately placed Roma children in remedial schools was discriminatory, even absent explicit animus, because of its disproportionate impact and lack of objective justification.[160] In *Opuz*, it condemned Turkey's failure to protect women from domestic violence, emphasising that systemic patterns of inaction could amount to discrimination.[161] The Court's Guide on Article 14 stresses that indirect discrimination – where neutral arrangements have disproportionate impacts – falls within the prohibition of discrimination and requires strong

available at: https://assets.uscannenberg.org/docs/inclusion-in-the-recording-studio.pdf (accessed December 2025); Y Wang and E-A Horvat, 'Gender Differences in the Global Music Industry: Evidence from MusicBrainz and The Echo Nest' in: *Proceedings of the Thirteenth International AAAI Conference on Web and Social Media* (ICWSM 2019) 517.

[156] Smith et al. (supra note 64); V Bain, *Counting the Music Industry: The Gender Gap – A Study of Gender Inequality in the UK Music Industry* (London: UK Music, 2019), available at: https://www.ukmusic.org/wp-content/uploads/2020/09/Counting-the-Music-Industry-full-report-2019.pdf (accessed December 2025); Wang and Horvat (supra note 64).

[157] FR Drumond, 'Data Mining Based Approach for Authors Disambiguation in Large Citation Networks' (2015) ISI, available at: https://2015.isiproceedings.org/Files/STS019-P6-S.pdf (accessed December 2025); SB Xu and G Hu 'Rethinking the Author Name Ambiguity Problem and Beyond: The Case of the Chinese Context' (2025) 32(6) Accountability in Research 913; KJ Thompson, 'More Than a Name: A Content Analysis of Name Authority Records for Authors Who Self-Identify as Trans' (2016) 60(3) Library Resources & Technical Services, available at: https://journals.ala.org/index.php/lrts/article/view/6036/7732 (accessed December 2025).

[158] Dinnissen and Bauer (supra note 48); D Hesmondhalgh et al., *The Impact of Algorithmically Driven Recommendation Systems on Music Consumption and Production: A Literature Review* (Centre for Data Ethics and Innovation & Department for Digital, Culture, Media & Sport, UK Government report, 9 February 2023), available at: https://www.gov.uk/government/publications/research-into-the-impact-of-streaming-services-algorithms-on-music-consumption/the-impact-of-algorithmically-driven-recommendation-systems-on-music-consumption-and-production-a-literature-review (accessed December 2025). See also A Ferraro, X Serra, and C Bauer, 'Break the Loop: Gender Imbalance in Music Recommenders' in: *Proceedings of the 2021 Conference on Human Information Interaction and Retrieval* (New York, NY, USA: Association for Computing Machinery, 2021), available at: https://dl.acm.org/doi/10.1145/3406522.3446033 (accessed October 2025); L Aguiar, J Waldfogel, and S Waldfogel, 'Playlisting Favorites: Is Spotify Gender-Biased?' (2018) JRC Digital Economy Working Paper No. 2018-07, JRC Technical Report JRC113503, European Commission, Joint Research Centre, available at: https://www.econstor.eu/bitstream/10419/247404/1/jrc113503.pdf (accessed October 2025).

[159] C Bauer and A Ferraro, 'Strategies for Mitigating Artist Gender Bias in Music Recommendation: A Simulation Study' (2023), available at: https://christinebauer.eu/publications/bauer-2023-strategies-murs/bauer-2023-strategies-murs.pdf (accessed December 2025); A Ferraro, MD Ekstrand, and C Bauer, 'It's Not You, It's Me: The Impact of Choice Models and Ranking Strategies on Gender Imbalance in Music Recommendation' (2024), Proceedings of the 18th ACM Conference on Recommender Systems (RecSys '24), Bari, Italy, 884, available at: https://dl.acm.org/doi/10.1145/3640457.3688163 (accessed December 2025).

[160] ECtHR, *D.H. and Others v. the Czech Republic* [GC], no. 57325/00, 13 November 2007, CE:ECHR:2007:1113JUD005732500, paras 182, 184, 196-210.

[161] ECtHR, *Opuz v. Turkey*, no. 33401/02, 9 June 2009, CE:ECHR:2009:0609JUD003340102, in particular paras 129-130, 160, 191, 198, and 200.

justification.[162] In the metadata context, we can easily imagine analogous findings: a digital infrastructure that repeatedly results in lower visibility or weaker rights-realisation for women and minority artists because of incomplete metadata and popularity-based algorithms is structurally biased, even if no individual intended such an outcome.

The intersectional nature of these harms must also be underscored. Women from minority linguistic communities, artists from smaller territories, and creators engaged in traditional or field-recorded forms are likely to bear the brunt of multiple layers of invisibility. A female Romani singer whose performances were recorded in the 1970s and digitised without proper attribution, or a Sámi woman composing contemporary music in Sámi but released on a small local label, will face greater structural barriers to discoverability than a male artist from a dominant linguistic group signed to a major label with sophisticated metadata practices. These compounded disadvantages are not merely unfair; they undermine the substantive enjoyment of rights guaranteed by the Charter.

In sum, the empirical and conceptual material now available paints a consistent picture. Music metadata systems, as currently configured, embody structural biases that render certain repertoires and creators less visible and less remunerated. These biases are tied to language, territory, historical patterns of collection and documentation, and gender. The harms they produce are not rectified by formal neutrality; they can only be addressed by an active re-design of metadata infrastructures with pluralism and equality in mind. It is to the legal foundations of such an obligation that the article now turns.

4.4 Positive Obligations, Indirect Discrimination, and Fundamental-Rights Constraints on Metadata Governance

The structural harms generated by music metadata, described in Section 3 of this chapter, invite the question of what the EU is *legally* required to do about them. This section addresses that question by focusing on positive obligations and indirect discrimination within the EU's fundamental-rights framework, and on how these concepts constrain the governance of metadata. In doing so, it builds on the constitutional architecture traced in Section 2. The Treaty and Charter foundations of Article 22 CFR, and the CJEU's recognition of linguistic and cultural diversity in cases such as *Groener* and *Las*, have already been laid out there. The present section takes that framework as given, and asks what follows from it once metadata is understood as a key infrastructure of cultural participation.

Positive obligations, as developed in the case-law of the ECtHR and imported into the Charter via Article 52(3) CFR, capture the idea that public authorities – including, in the EU context, the Union itself when it legislates or otherwise structures a regulatory environment – must not only refrain from violating rights but must also take reasonable and appropriate measures to ensure that rights can be effectively enjoyed.[163] This doctrinal shift, articulated most famously by the ECtHR in *Airey v. Ireland*, insists that rights must be "practical and effective", not "theoretical and illusory".[164] The ECtHR developed this doctrine to address situations in which structural conditions – rather than explicit state interference – render rights ineffective. In cases such as *Özgür Gündem v. Turkey* and *Dink v. Turkey*, the Court held that states must secure conditions in which the exercise of expression is feasible, and that regulatory passivity in the face of structural impediments may itself breach Article

[162] ECtHR Registry, *Guide on Article 14* (supra note 18), paras 35-40.
[163] See, generally, J-F Akandji-Kombe, *Positive obligations under the European Convention on Human Rights* (Human Rights Handbooks No. 7, Council of Europe, 2007), available at: https://rm.coe.int/168007ff4d (accessed December 2025).
[164] ECtHR, *Airey v. Ireland*, no. 6289/73, 9 October 1979, CE:ECHR:1979:1009JUD000628973, para 24.

10 ECHR.[165] Positive obligations thus arise where the configuration of social, economic, or technological systems is such that mere abstention by public authorities would foreseeably undermine the effective enjoyment of protected rights.

Within the Charter of Fundamental Rights, positive obligations arise through two interpretive mechanisms. First, they follow from the teleology of particular Charter rights – notably Articles 11 and 13 CFR – which protect freedoms (expression and the arts) that, in a digital society, can only be effectively exercised through access to communicative and cultural infrastructures. Second, Article 52(3) CFR integrates the ECtHR's jurisprudence into the Charter framework by requiring that Charter rights corresponding to ECHR rights, such as Article 11 corresponding to Article 10 ECHR (and indirectly Article 13 CFR, which both the Charter Explanations and Strasbourg practice treat as an aspect of expressive freedom[166]), share the same meaning and scope. Since the ECtHR has long held that positive obligations are inherent in the right to freedom of expression, those obligations must also shape the interpretation of Articles 11 and 13 CFR.

Against this doctrinal backdrop, the question arises whether Article 22 CFR – which requires the Union to respect cultural, religious, and linguistic diversity – also gives rise to positive obligations. Although Article 22 is not framed as an individual right, structural principles can produce positive obligations when they interact with rights whose effective enjoyment depends on the shape of regulatory or technological architectures. If linguistic and cultural diversity can – as it did in the CJEU *Groener* and *Las* judgments – justify limitations on market freedoms,[167] then it necessarily follows a fortiori that the Union must also take affirmative steps to protect diversity when its own regulatory choices structure the conditions of cultural production, dissemination, and discovery. Metadata systems are precisely such conditions. As Section 2 of this chapter argued, freedom of expression and artistic freedom in the digital age are inextricably linked to the operation of communicative and cultural infrastructures. When those infrastructures are operated by private actors but are pervasively shaped by regulation – platforms, catalogues, recommendation engines – positive obligations do not vanish; they shift focus. The question is no longer whether the state censors content directly, but whether it structures and supervises the digital environment in ways that allow rights to be effectively exercised.

Overlaying this with the analysis of Article 22 CFR developed in Section 2 yields the central claim of the present chapter. If the Union has committed itself at constitutional level to respecting cultural and linguistic diversity, and if that principle informs the interpretation of other Charter rights, then the positive obligations arising under Articles 11 and 13 CFR must be understood as diversity-sensitive obligations. The Union is not simply asked to ensure an abstract environment for expression; it is required to ensure one in which diverse linguistic and cultural repertoires have meaningful

[165] ECtHR, *Özgür Gündem v. Turkey*, no. 23144/93, 16 March 2000, CE:ECHR:2000:0316JUD002314493, paras 43-46; ECtHR, *Dink v. Turkey*, nos. 2668/07, 6102/08, 30079/08, 7072/09 and 7124/09, 14 September 2010, CE:ECHR:2010:0914JUD000266807, paras 137-139.

[166] Explanations relating to the Charter of Fundamental Rights, OJ C 303, 14 December 2007, p. 17, Explanation to Article 13; ECtHR, *Müller v. Switzerland*, no. 10737/84, 24 May 1988, CE:ECHR:1988:0524JUD001073784, para 33. See also E Polymenopoulou, 'Does One Swallow Make a Spring? Artistic and Literary Freedom at the European Court of Human Rights' (2016) 16(3) Human Rights Law Review 511.

[167] See the discussion in Section 2 above.

opportunities to be visible, discoverable, and remunerated. In other words, positive obligations are not directionless; they are channelled by Article 22 CFR's pluralist orientation.[168]

This has direct consequences when we turn back to metadata. As the previous sections have shown, metadata is a precondition for the visibility and economic recognition of music in digital environments. If minority languages are systematically misclassified, if certain scripts are poorly supported, if regional repertoires lack the metadata necessary to be surfaced by discovery tools, and if women's and non-binary creators' contributions are under-credited, then these groups' ability to exercise expressive and artistic freedoms on equal terms is impaired. Crucially, these harms arise not from a single act of censorship or discrimination but from the cumulative design of metadata standards and algorithmic systems. They are structural in the precise sense that ECtHR positive-obligation case-law has in view: rights are formally guaranteed, yet practically truncated by the way infrastructures operate.[169] In such a setting, the Union's duty under Articles 11, 13 and 22 CFR cannot be discharged by non-interference. It must extend to the way the Union regulates the infrastructures that give effect – or fail to give effect – to those rights.

A parallel line of reasoning emerges from the law of indirect discrimination. Section 2 already situated Articles 21 and 23 CFR in relation to Article 14 ECHR and Protocol No. 12, and outlined how the ECtHR has moved beyond intent-based conceptions of discrimination to focus on structural patterns of disadvantage. Here, the emphasis is on the implications of that move for metadata governance. If a technical standard, catalogue schema, or recommendation model is formally neutral but in practice leads to systematically poorer outcomes for speakers of minority languages, for artists from smaller territories, or for women and non-binary creators, this engages the prohibition of discrimination. Under both Strasbourg and Luxembourg doctrine, the key questions become whether the disparate impact can be justified by legitimate aims pursued by proportionate means, and whether public authorities have taken reasonable steps to mitigate or correct unjustified disparities once they are known.[170]

In the context of metadata, the relevant "measures" are not primarily statutory provisions but design choices: which languages have fully supported codes; which fields are mandatory or optional; how historical catalogues are migrated into new systems; which data is used to train recommendation models; which fairness or diversity constraints, if any, are incorporated into algorithmic optimisation. These choices are typically made by private actors, but they unfold within a regulatory and economic framework that the Union shapes through copyright law, competition policy, platform regulation, cultural funding, and standardisation policy.[171] From the perspective of Articles 21 and 23 CFR read

[168] On pluralism as a structuring constitutional value, see e.g. M Poiares Maduro, 'Three Claims of Constitutional Pluralism' (2012) 67 Constitutional Pluralism in the European Union and Beyond 1; N Krisch, *Beyond Constitutionalism: The Pluralist Structure of Postnational Law* (OUP, 2010).

[169] K Yeung, 'Algorithmic Regulation: A Critical Interrogation' (2018) 12(4) Regulation & Governance 505; J van Dijck, T Poell, and M de Waal, *The Platform Society: Public Values in a Connective World* (New York: Oxford University Press, 2018).

[170] See ECtHR, *D.H. and Others v. the Czech Republic* [GC], no. 57325/00, 13 November 2007, CE:ECHR:2007:1113JUD005732500, paras 175-210; ECtHR, *Opuz v. Turkey*, no. 33401/02, 9 June 2009, CE:ECHR:2009:0609JUD003340102, paras 191-202.

[171] Senftleben et al., 'Ensuring the Visibility and Accessibility of European Creative Content on the World Market The Need for Copyright Data Improvement in the Light of New Technologies and the Opportunity Arising from Article 17 of the CDSM Directive' (2022) 13(1) Journal of Intellectual Property, Information Technology and E-Commerce Law 67; J Drexl, 'Designing Competitive Markets for Industrial Data – Between Propertisation and Access' (2017) 8(4) JIPITEC 257; J Hoffmann and BG Otero, 'Demystifying The Role Of Data Interoperability In The Access And Sharing Debate' (2020) 3 JIPITEC 252; L Naudts et al., 'A Right to Constructive Optimization: A

with Article 22, the Union cannot treat the distributive effects of these choices as a matter of private autonomy alone, especially when they align along suspect lines such as language, minority status, and gender. Once evidence accumulates that certain groups are structurally under-represented or under-remunerated because of metadata practices, the Charter's equality guarantees, as informed by Article 22, trigger a duty to respond.

The CJEU's case-law on digital infrastructures provides a doctrinal bridge to this conclusion. In its judgments on data retention and data transfers – most notably *Digital Rights Ireland* and *Schrems I* – the Court scrutinised the overall design of regulatory schemes when assessing their compatibility with fundamental rights.[172] Rather than evaluating only specific instances of application, the Court held that certain structural features, such as general and indiscriminate data retention or insufficiently circumscribed third-country access to EU personal data, could render a scheme disproportionate as a whole.[173] Scholarly commentary highlights how these rulings reveal the Court's attention to systemic implications of data-processing frameworks.[174]

A comparable logic is visible in the Court's jurisprudence concerning search engines and hosting providers. In *Google Spain*, the Court determined that search-engine operators qualify as data controllers for their indexing activities and are therefore required, in certain circumstances, to adjust their processing – such as by de-referencing links – to ensure respect for data-protection and privacy rights.[175] In *Glawischnig-Piesczek*, the Court confirmed that online intermediaries may be required to take measures to prevent the recurrence of unlawful content.[176] While these rulings do not mandate comprehensive redesigns of private technical systems, they show that the configuration of such systems may need to be modified to meet fundamental-rights obligations, a point developed further in academic analysis.[177]

If that is so for privacy and personality rights, there is no reason in principle why it should not also be so for cultural and linguistic diversity, artistic freedom, and equality. The Union has now legislated in

---

Public Interest Approach to Recommender Systems in the Digital Services Act' (2025) 48 Journal of Consumer Policy 269; JP Quintais et al., 'Copyright Content Moderation in the European Union: State of the Art, Ways Forward and Policy Recommendations' (2024) 55 IIC 157; M Burri, 'The European Union as a Digital Cultural Policy Actor' in: OM Hylland and J Primorac (eds) *Digital Transformation and Cultural Policies in Europe* (Routledge, 2023) 161; P Turan and C Sganga, 'Common European Data Space for Cultural Heritage: Is the EU Taking the "High Road" from "A Single Access Point" to "A Single Market for Data" for Digital Cultural Content?' (2025) 16(2) JIPITEC.

[172] CJEU, Judgment in *Digital Rights Ireland and Seitlinger and Others*, C-293/12, 8 April 2014, EU:C:2014:238; CJEU, Judgment in *Schrems I*, C-362/14, 6 October 2015, EU:C:2015:650.

[173] CJEU, Judgment in *Digital Rights Ireland and Seitlinger and Others*, C-293/12, 8 April 2014, EU:C:2014:238, paras 56-59 and 63-65, 69; CJEU, Judgment in *Schrems I*, C-362/14, 6 October 2015, EU:C:2015:650, paras 86-88, 90-93.

[174] C Kuner, 'Reality and Illusion in EU Data Transfer Regulation Post Schrems' (2017) 18(4) German Law Journal 881; O Lynskey, *The Foundations of EU Data Protection Law* (First edition. Oxford, United Kingdom: Oxford University Press, 2015).

[175] CJEU, Judgment in *Google Spain and Google*, C-131/12, 13 May 2014, EU:C:2014:317.

[176] CJEU, Judgment in *Glawischnig-Piesczek*, C-18/18, 3 October 2019, EU:C:2019:821.

[177] A Fomperosa Rivero, 'Right to Be Forgotten in the European Court of Justice Google Spain Case: The Right Balance of Privacy Rights, Procedure, and Extraterritoriality' (2017) Stanford-Vienna European Union Law Working Paper No. 19, available at SSRN: https://ssrn.com/abstract=2916608 or http://dx.doi.org/10.2139/ssrn.2916608 (accessed December 2025); Z Krokida 'Towards a Wider Scope for the Duty of Care of Host Internet Service Providers: The Case of Eva Glawischnig-Pies v Facebook' (2021) 43(5) European Intellectual Property Review 313; TH Oruç, 'The Prohibition of General Monitoring Obligation for Video-Sharing Platforms under Article 15 of the E-Commerce Directive in light of Recent Developments: Is It Still Necessary to Maintain It?' (2022) 13(3) JIPITEC.

ways that confirm this logic. The Digital Services Act (DSA) obliges Very Large Online Platforms ("VLOPs") to assess and mitigate systemic risks, including risks to fundamental rights.[178] The AI Act requires fundamental-rights impact assessments for certain high-risk AI systems (Article 27 AI Act).[179] It also recognises in the Recitals – notably those outlining the Act's purpose and value-alignment – the need to ensure that AI systems comply with EU Charter rights, such as equality and non-discrimination.[180]Meanwhile, EU cultural policy frameworks, notably the Commission's Recommendation on a European Data Space for Cultural Heritage, emphasise that metadata quality directly affects cultural visibility across borders and languages.[181]

Although these texts do not yet speak the language of metadata in any detail, they do provide a legal hook for treating structural biases in recommendation and cataloguing systems as constitutional problems rather than mere business issues. Where the Union endorses or relies upon metadata standards – such as DDEX specifications[182] or ISO 639 language codes[183] – it assumes responsibility for ensuring that these standards are capable of representing Europe's full linguistic and cultural mosaic. Empirical research indicates they often do not.[184]

From this vantage point, metadata governance appears as a paradigmatic case of what some scholars describe as digital constitutionalism – the extension of constitutional principles into the design and oversight of digital infrastructures.[185] The EU's commitment to cultural and linguistic diversity in

[178] Articles 34-35 of the Regulation (EU) 2022/2065 of the European Parliament and of the Council of 19 October 2022 on a Single Market For Digital Services and amending Directive 2000/31/EC (Digital Services Act) (Text with EEA relevance), OJ L 277, 27 October 2022, p. 1.
[179] Article 27 of the Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 laying down harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act) (Text with EEA relevance), OJ L, 2024/1689, 12 July 2024.
[180] See e.g. Recitals 27, 28, 31, 48, 56-58, 60, 67, 70, 110 of the Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 laying down harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act) (Text with EEA relevance), OJ L, 2024/1689, 12 July 2024.
[181] Commission Recommendation (EU) 2021/1970 of 10 November 2021 on a common European data space for cultural heritage, C/2021/7953, OJ L 401, 12 November 2021, p. 5.
[182] DDEX, 'Home' (n.d.), available at: https://ddex.net/ (accessed December 2025).
[183] ISO, 'ISO 639 – Language code' (n.d.), available at: https://www.iso.org/iso-639-language-code (accessed December 2025).
[184] See e.g. European Parliament, *Report on cultural diversity and the conditions for authors in the European music streaming market* (A9-0388/2023, 4 December 2023). See also M Tian et al., 'Towards the Representation of Chinese Traditional Music: A State of the Art Review of Music Metadata Standards' (2013), Proc. Int'l Conf. on Dublin Core and Metadata Applications, available at: https://dcpapers.dublincore.org/files/articles/952136113/dcmi-952136113.pdf (accessed December 2025); F Gillis-Webber and S Tittel, 'A Framework for Shared Agreement of Language Tags beyond ISO 639' in: N Calzolari et al. (eds), *Proceedings of the Twelfth Language Resources and Evaluation Conference* (Marseille, France. European Language Resources Association, 2020) 3333.
[185] D Redeker, L Gill, and U Gasser, 'Towards Digital Constitutionalism? Mapping Attempts to Craft an Internet Bill of Rights' (2018) 80(4) The International Communication Gazette 302; E Celeste, 'Digital Constitutionalism: A New Systematic Theorisation' (2019) 33(1) International Review of Law, Computers & Technology 76; G De Gregorio, *Digital Constitutionalism in Europe: Reframing Rights and Powers in the Algorithmic Society* (1st ed. Cambridge, United Kingdom; New York, NY: Cambridge University Press, 2022); I Spiecker Döhmann, L Schertel Mendes, and RR Campos (eds) *Digital Constitutionalism* (1st ed. Baden-Baden: Nomos Verlagsgesellschaft, 2025); IF Cengiz, 'Digital Constitutionalism in Creating a New Constitutional Equilibrium' (2025) 10(1) İstanbul Medeniyet Üniversitesi Hukuk Fakültesi Dergisi 69.

Article 22 CFR, its guarantees of expression and artistic freedom in Articles 11 and 13 CFR, and its equality and non-discrimination provisions in Articles 21 and 23 CFR together form a normative yardstick against which metadata systems must be measured. When those systems produce foreseeable patterns of invisibility and unequal recognition along lines that map onto protected grounds, positive obligations and indirect discrimination doctrine converge. The Union is required not merely to avoid making things worse, but to take reasonable steps – through standard-setting, regulatory guidance, funding priorities, transparency and auditing requirements, and, where appropriate, hard obligations – to ensure that the infrastructures it shapes do not hollow out the rights it proclaims.

In that sense, this chapter does not propose to add a new layer of rights to the Union's constitutional order. Rather, it suggests a different angle of attention: instead of focusing primarily on substantive content rules, we must look to the technical and organisational infrastructures through which cultural life is now mediated. Metadata is one such infrastructure. It is where the Union's pluralist commitments are either translated into practice or allowed to evaporate into rhetoric. By bringing positive obligations and indirect discrimination to bear on metadata governance, we can see more clearly both what is at stake and what is required of the Union if it is to take its own constitutional promises seriously.

4.5 Conclusion: From Technical Detail to Constitutional Design

This chapter has argued that music metadata, long treated as a dry technical detail of the digital music industry, is in fact a site where the EU's constitutional commitments to cultural and linguistic diversity, artistic freedom, intellectual property, and equality are either realised or frustrated. Once we recognise that metadata is the infrastructure through which digital platforms "see", sort, and remunerate music, it becomes clear that the configuration of metadata systems is not normatively neutral. The ways in which works are tagged, credited, and clustered shape which repertoires can be discovered at all, which creators are recognised as rights-holders, and which languages and traditions are audible in the digital cultural sphere. In a Union that has elevated respect for cultural and linguistic diversity to the level of a constitutional principle in Article 22 CFR, and that has bound itself to non-discrimination and gender equality in Articles 21 and 23 CFR, this is not a marginal observation. It reveals metadata governance as a terrain of constitutional responsibility.

Section 2 of this chapter located this responsibility within the broader architecture of EU primary law and the Charter. It showed that Article 22 CFR, read together with Articles 3(3) TEU and 167 TFEU, crystallises an existing trajectory in which linguistic and cultural plurality are treated as legitimate and weighty interests in Union law. Linguistic policy has already been recognised by the CJEU as a constitutionally relevant aim capable of justifying restrictions on free movement, and intellectual property has been recognised as a fundamental right that must nonetheless be balanced with other rights and interests. Once metadata is understood as the "language" through which digital systems register linguistic diversity and attach rights to works, the constitutional stakes become apparent: systems that systematically misclassify or ignore minority languages, regional repertoires, or women's contributions are systems in which the substantive protection afforded by Articles 13, 17(2), 21, 22, and 23 CFR is unevenly distributed.

Section 3 then turned to the empirical and structural dimensions of harm. It showed how linguistic invisibility, territorial marginalisation, the treatment of field recordings and traditional music, and gendered under-recognition are not isolated anomalies but recurring patterns. They arise from the cumulative interaction of legacy catalogues, standardisation processes oriented towards large

markets, incomplete crediting practices, and popularity-biased algorithms. These patterns disproportionately affect smaller linguistic communities, repertoires from less dominant territories, and women and non-binary creators, often in intersectional combinations. The crucial point is that these harms are not rectified by formal neutrality. A metadata schema that is neutral on its face may still systematically disadvantage protected groups if it was designed without their repertoires in mind and if no corrective mechanisms exist to mitigate inherited inequalities.

Section 4 translated this diagnosis into the language of constitutional obligation. Drawing on the ECtHR's doctrine of positive obligations and indirect discrimination as incorporated into EU law via Article 52(3) CFR, and on the CJEU's growing willingness to scrutinise digital infrastructures as such, it argued that Article 22 CFR must be understood as a source of positive obligations in the domain of metadata governance. Because the effective enjoyment of freedom of expression and artistic freedom in Articles 11 and 13 CFR depends on the design of digital infrastructures, and because equality guarantees in Articles 21 and 23 CFR extend to structural patterns of disadvantage, the Union cannot simply abstain from interfering and declare its duty fulfilled. When EU legislation, funding programmes, and standardisation choices shape the technical and economic environment in which metadata is produced and used, Article 22 CFR requires that those choices be calibrated in a way that supports, rather than erodes, cultural and linguistic pluralism.

What follows from this is not that the Union must prescribe aesthetic outcomes or centrally plan cultural tastes. The constitutional framework developed here is one of *enabling conditions*, not of mandated cultural content. A rights-conscious approach to metadata governance would focus on ensuring that the infrastructures of digital culture are capable of representing and circulating diverse repertoires on equal structural terms. In practical terms, this implies, at a minimum, that EU-endorsed or EU-incentivised metadata standards must be robust enough to accommodate regional and minority languages with appropriate codes and scripts; that crediting schemas must be designed and implemented so as to capture the full range of creative and production roles, including those in which women and non-binary creators are disproportionately active; that legacy field recordings and traditional repertoires be accompanied, where possible, by enriched metadata that reflects community provenance and avoids erasing cultural context; and that recommendation and search systems subject to Union regulation incorporate diversity-sensitive metrics and auditing practices rather than relying on ostensibly neutral engagement maximisation.

At the regulatory level, the positive obligations articulated in Section 4 suggest that existing and emerging instruments – the DSA, the AI Act, the copyright acquis, cultural-funding programmes, and data-space initiatives – should be interpreted and, where necessary, adjusted with metadata's constitutional role in mind. Systemic-risk assessments for very large platforms designated as VLOPs under the DSA that mediate cultural content should explicitly consider the impact of metadata practices on linguistic and territorial diversity and on gender equality. Fundamental-rights impact assessments for recommender systems should not treat cultural discoverability as an incidental externality but as central to the enjoyment of expression and arts-related rights. Standardisation and interoperability projects supported by the Union should be evaluated against criteria derived from Article 22 CFR and the Charter's equality clauses, and not simply in terms of transactional efficiency or industry uptake.

None of this means that the Union must solve every instance of structural under-representation through law. There will remain an irreducible role for industry practice, artistic initiative, and community-led projects in improving metadata and by doing so further diversity and findability of minority repertoire. However, the Union can no longer plausibly claim that metadata is outside the

purview of its constitutional responsibilities. When it chooses to regulate platforms, to shape data spaces, to endorse or fund standards, or to set conditions for cultural subsidies, it is already influencing metadata governance. The contribution of this article has been to show that these choices are constrained and guided by the Charter, and in particular by Article 22 CFR as read together with the freedoms and equality guarantees that surround it.

Conceptually, we might say that the EU's digital cultural order is now at a juncture analogous to the one it reached when fundamental rights were first taken seriously as constraints on internal-market integration. Just as the pursuit of economic freedoms had to be reconciled with rights to privacy, expression, and equality, so too must the pursuit of efficient digital markets be reconciled with the Union's commitment to cultural and linguistic pluralism. Music metadata is not the only place where this reconciliation must occur, but it is an emblematic one. Because metadata sits at the intersection of technical design, market structure, and cultural representation, it offers a particularly clear window onto how constitutional values are mediated by infrastructures.

For scholars, the analysis developed here suggests several avenues for further work: a closer engagement with the minutiae of metadata standards as quasi-constitutional artefacts; empirical research linking specific tagging practices to measurable differences in cultural visibility and remuneration across groups; and more fine-grained theorisation of how positive obligations operate in multi-level, polycentric regulatory environments like the EU's. For policymakers and industry actors, the message is simpler. If the Union is serious about respecting cultural and linguistic diversity, protecting artistic freedom, ensuring fair enjoyment of intellectual property, and combating indirect discrimination, it must treat metadata governance as part of its constitutional project. The grammar through which digital systems recognise music should not be allowed to speak fluently only in the languages and genres of the already dominant.

5 Music Recommender Systems And the Copyright Blind Spot: Conceptualising the Right to Be Heard

5.1 Introduction

Diversity in music seems to be a given. The plurality of genres, languages, and cultural expressions available on digital platforms suggests an unprecedented abundance and gives the impression of an open, borderless European music space. Yet, beneath this façade of choice, structural asymmetries persist. Algorithmic recommender systems, which mediate almost all musical discovery today, can amplify certain repertoires while silencing others.[186] Artists working in minority languages, smaller markets, or experimental genres may find that their works, though distributed through conventional electronic channels, are rarely recommended. With modern consumption patterns the effect is that they may be excluded from discoverability altogether. In this sense, the algorithmic turn risks transforming copyright and the right of cultural participation into a mere right to be *represented* but not necessarily to be *heard*.

From a copyright perspective this raises questions about the distributive and participatory functions of intellectual property in a platformed environment. Copyright has long been justified as a means to promote creativity, sustain authors, and foster diversity in cultural expression.[187] Yet, visibility in digital markets depends as much on the quality and interoperability of music metadata as on copyright ownership itself. Missing or inaccurate metadata can lead to systematic exclusion of certain repertoires from algorithmic recommendation, particularly in smaller linguistic and national markets. The European policy debate has therefore turned toward the need for comprehensive music metadata infrastructures aimed at improving visibility and accessibility of European repertoires across algorithmic environments.[188]

This contribution explores, on the one hand, the European right to cultural participation and how it can promote diversity in the music ecosystem, and, on the other hand, constitutional tensions that arise when algorithmic recommendation systems shape access to culture. It considers especially Articles 13 and 11 EU Charter of Fundamental Rights which guarantee the freedom of the arts and sciences, and freedom of expression and information respectively, as well as Article 16 recognising the freedom to conduct a business.

Section 2 succinctly charters existing rules in the copyright acquis that may operate as vehicles for improving discoverability and diversity and explains why they do not sufficiently address the challenges posed by recommender systems (the copyright blind spot). Section 3 then considers how recommender systems function and why they may cause structural asymmetries that have the effect of excluding certain repertoires. Section 4 explores the right to cultural participation and conceptualises the right to be heard. Then finally, in Section 5 a legislative intervention is proposed based on the AVMS Directive

[186] Cf. A. Anderson et. al., 'Algorithmic Effects on Diversity of Consumption on Spotify' (2020) in Y. Huang, I King, T-Y Liu, M. van Steen (eds), *WWW '20: Proceedings of The Web Conference 2020* (Association for Computing Machinery 2020) 2155-2165, 2164; also *https://research.atspotify.com/2020/12/algorithmic-effects-on-the-diversity-of-consumption-on-spotify*

[187] InfoSoc Directive, recitals 2, 4 and 9; Goldstein and Hugenholtz, *International Copyright. Principles, Law and Practice* (4th ed, OUP 2019), pp 5-6; See generally Sterling, Gibson, 'Basis of protection' in Cook (ed), *Sterling on World Copyright Law* (4th ed, Sweet & Maxwell 2015), pp 71-80.

[188] M. Senftleben, T. Margoni, J, Poort, K. Szkalej, E. Valk, *Music Metadata Mainstreaming in EU Law* 2024, 9-11; available at <https://www.ivir.nl/publicaties/download/D5.6_Policy-Brief-1_Music-Metadata-Mainstreaming-and-EU-Law.pdf>

and the compatibility of such an intervention with the freedom to conduct a business under Article 16 EU Charter is assessed.

5.2 Representation Without Audibility: The Copyright Blind Spot in Algorithmic Cultural Markets

EU copyright law has never been indifferent to cultural diversity. On the contrary, the copyright acquis is dense with provisions that seek to promote circulation of European creative works based on an architecture that extends well beyond exclusive rights. Alongside the exclusive rights, the acquis contains a set of auxiliary mechanisms that aim to ensure that creative works can be identified, licensed, and economically exploited in digital environments. These mechanisms are meant to operationalise exploitation. The legal protection of rights management information (RMI) under Article 7 InfoSoc Directive ensures that information about authorship, ownership, and licensing terms travels with the work in the digital environment. Articles 24-27 CRM Directive[189] create a harmonised approach to copyright metadata in a narrow but essential copyright sector of collective rights management by requiring the maintenance of accurate and interoperable repertoires, enabling rightholders to be located, matched with their work, and ultimately remunerated for the use. Although these mechanism do not occupy centre stage in the academic discourse,[190] they are not marginal but constitute the connective tissue of the copyright system that translates legal entitlements into market participation in the digital environment. In addition, but in the narrower field of copyright platform regulation, the obligations in Article 17 CDSM Directive imposed on so-called OCSSPs to either enter into agreements with rightholders or use content recognition technologies to prevent the unauthorised upload of protected material to their service generate another layer of structured copyright data, identification and matching.

Taken together, these mechanisms establish, or ought to establish, a dense informational environment in which works are legally visible to markets. They are essential to the functioning of cross-border licensing and to reducing transaction costs in the music sector. They also implicitly recognise that metadata is not merely descriptive or reduced to ensuring correct attribution but very much has operative relevance for digital distribution.

However, what these mechanisms do not do is engage with the allocation of cultural attention. RMI protection preserves the integrity of metadata but does not shape how metadata is weighted or interpreted by recommender systems. The CRM Directive ensures that repertoires are accurately documented, and even creates an interface between collective rights management organisations and service providers in Article 27, but does not influence whether those repertoires are surfaced to users. Enforcement under the CDSM Directive is designed to prevent unauthorised uses, not to promote

[189] Directive 2014/26/EU of the European Parliament and of the Council of 26 February 2014 on collective management of copyright and related rights and multi-territorial licensing of rights in musical works for online uses in the internal market.

[190] See however on RMI Perry, 'The Protection of Rights Management Information: modernization or cup half full?' in Geist (ed.), *From "Radical Extremism" to "Balanced Copyright": Canadian Copyright and the Digital Agenda* (Irwin Law, 2010), 304-326, and more recently Wilkinson, 'Is protection of data through data exclusivity, technological protection measures or rights management information actually intellectual property?' in Gervais (ed.), *The Future of Intellectual Property* (Edward Elgar 2021), 169-192; Cadavid, *The Origin and Purpose of Legal Protection for the Integrity of Copyright Metadata* (2023) IIC 54 1179-1202. Collective rights management is, on the other hand, a recurring theme in the copyright discourse even if the CRM Directive has received relatively less interest than the InfoSoc Directive or the CDSM Directive. See generally on collective rights management D. Gervais and J.P. Quintais (eds), *Collective Management of Copyright and Related Rights* (Kluwer Law International 2025).

lawful ones. Copyright law therefore merely ensures that works and their rightholders are present in the system but not that they are meaningfully encountered within it.

When cultural access is mediated primarily through recommender systems, this architecture reveals a structural limitation. The system is designed to ensure that artists are represented – that their works are identifiable, rights are traceable, and remuneration is possible – but not that they are heard. But this is not an oversight but a doctrinal blind spot rooted in copyright's regulatory focus on exploitation rather than exposure.

The exclusive rights themselves already reflect this orientation. In the digital environment copyright secures control over the reproduction and communication to the public of works under Articles 2 and 3 InfoSoc Directive and provides a legal basis for remuneration once those uses occur.[191] Whilst the rightholder is entitled to authorise or prohibit those uses, once rights have been cleared by a user (a service provider), it is normally up to them to decide within the limits and objectives of that authorisation how, when, and if to exploit those rights. The exclusive rights too do not of themselves guarantee that a work will be encountered, selected, or promoted. Historically this gap has been filled downstream by human intermediaries such as editors, broadcasters, or curators whose choices were shaped by professional norms and public-interest obligations.[192] But in digital music markets these functions are instead performed by recommender systems whose optimisation logics generally not only lie outside copyright law's field of vision, but may also let commercial interests prevail over such professional norms and public interest obligations.[193]

This internal coherence is important. The copyright acquis does not simply omit recommender systems but presumes that once works are lawfully made available and efficiently managed, exposure will follow through market dynamics. That presumption is untenable wherever visibility is not a by-product of availability but a function of ranking, filtering, and optimisation in algorithmically curated environments. In such environments even well-documented works that are fully adapted to copyright infrastructures may remain systematically marginalised.

The result is a copyright system that performs its distributive and incentive functions but remains agnostic about the conditions under which culture is discovered. Artists receive exclusive rights, they are legally recognised, their rights are managed, their works are available, and their metadata is protected. Yet none of these guarantees that their music will be recommended, listened to, or culturally meaningful. Copyright law thus secures representation without audibility.

This doctrinal configuration causes the use of recommender systems to expose a structural vulnerability of the copyright acquis. Such systems do not infringe copyright to the underlying works, nor do they undermine rights management. They simply operate in a normative space that copyright law has never really claimed, namely the governance of visibility.[194] Understanding this blind spot is a

[191] This may require some clarification. Ordinarily, the exclusive rights provide a proprietary interest over uses of works, which translates into an ability to bargain with interested parties. However, in the narrow subfield of neighbouring rights, particular categories may instead enjoy a right of remuneration as such. With the harmonisation of some aspects of copyright contract law through Articles 18-20 CDSM Directive, the right of remuneration has also gained more prominence in the copyright discourse.

[192] See generally on the different facets of curation J. Jansson and B.J. Hracs, 'Conceptualizing curation in the age of abundance: The case of recorded music' (2018) 50(8) 1602, 1610-1617.

[193] This is a business decision. After all, there is nothing to prevent a service provider to hire curators and DJs; for example <https://www.macrumors.com/2015/04/29/apple-bbc-radio-staff-music/>.

[194] A great comparative example from within IP law is the scope of trademark protection which, generally, is conditioned on how the consumer end perceives a mark. See for example Article 10(2) Directive (EU)

necessary precondition for any attempt to articulate cultural participation in the age of algorithmic mediation.

5.3 Recommender Systems and Structural Asymmetries in Digital Markets

Whilst copyright law secures the conditions under which creative works are exploited, recommender systems determine whether those conditions ever materialise in practice.

There is of course more nuance to this equation. The availability of a work on a legal service requires authorisation from the rightholder to reproduce copies of the work at least for the purpose of storage on the servers of the service as well as to make it available through the service. Even if no user eventually accesses the work, the right of communication to the public (making available) still needs to be cleared because the right targets the supply end, not reception or access at the consumer end.[195] But that initial permission is not the core of the economic value derived from availability on a service. As specific uses may now be granularly identified at the individual level of each and every user, in negotiations with rightholders there may be every reason for a service provider to move the royalty trigger downstream to the point when the user actually clicks (or taps) "play" and listens to say at least 30 seconds of any given song.[196] Whatever the contractually agreed arrangements, the real money is made downstream at the level where consumers discover and engage with content.

But in contemporary music markets discovery is no longer mediated primarily through editorial curation, broadcast schedules, or user-driven search or other deliberate exploration. It is an algorithmic process that ranks, filters, and personalises cultural exposure at scale. Faced with catalogues containing tens of millions of tracks, discoverability and listening is largely mediated through personalised playlists, automated suggestions, and continuous playback functions. This algorithmic discovery operates as a form of cultural infrastructure and as a result has important ramifications for the balance within the ecosystem.

5.3.1 Algorithmic Discovery as Cultural Infrastructure

From a broader socio-copyright perspective the shift in discovery of content is significant. The true economic relevance of rights conferred by copyright is triggered on a music platform once a work is communicated to the individual user or reproduced by them, but recommender systems operate prior to these acts and occupy the pre-exploitation space in-between upstream rights management and downstream consumption that copyright law largely "presumes away". Through metadata-driven architectures, recommender systems determine which works enter recommendation pathways and

2015/2436 of the European Parliament and of the Council of 16 December 2015 to approximate the laws of the Member States relating to trade marks and Article 9(2) Regulation (EU) 2017/1001 of the European Parliament and of the Council of 14 June 2017 on the European Union trade mark. Indeed, the very rationales for trademark protection go in the direction of governing visibility of a mark as the function of a trademark is to guarantee the origin and quality of goods and services, as well as communication, investment, and advertising; Case C-487/07 *L'Oréal v Bellure*, para 58. See further A. Kur and M. Senftleben, *European Trade Mark Law: A Commentary* (Oxford University Press 2014), 1-26 and A. Kur, 'Trademarks Function, Don't They?' IIC (2014) 45(4) 434.

[195] K. Szkalej, *Copyright in the Age of Access to Legal Digital Content: A study of EU copyright law in the context of consumptive use of protected content* (Uppsala universitet, 2021),105. See also C-263/18 *Nederlands Uitgeversverbond and Groep Algemene Uitgevers* v *Tom Kabinet*, para 64;
C-527/15 *Filmspeler,* para 36; C-466/12 *Svensson* v *Retriever*, para 19; C-306/05 *SGAE* v *Rafael Hoteles*, para 43; and Explanatory Memorandum COM(97) 628 final, 26.

[196] Such as in the case of Spotify; <https://support.spotify.com/us/artists/article/how-your-streams-are-counted/>.

shape the set of works that users are likely to encounter at all. This no longer makes them a neutral convenience feature but very much the primary interface between music and audiences, and an inevitable cultural gatekeeper.

Music recommender systems typically combine collaborative filtering, content-based analysis, and adaptive optimisation techniques.[197] Collaborative filtering infers preferences from aggregated user behaviour, recommending works that are popular among users with similar listening patterns. Content-based systems rely on metadata and audio features (such as genre tags, tempo, mood, or timbre) to match works with inferred user tastes. More recent systems integrate reinforcement learning, dynamically adjusting recommendations in response to engagement signals such as listening duration, skips, and repeat plays. While the precise architectures vary, the shared objective is to maximise relevance, retention, and engagement at scale.

Naturally, platforms face, at least initially, an information asymmetry problem when trying to make a recommendation.[198] At the same time, the operation of such systems can generate systematic asymmetries situated in the copyright blind spot that disadvantage particular categories of artists. Collaborative filtering is prone to what is known as *popularity bias*:[199] Works that already attract attention are more likely to be recommended, while less-known works struggle to gain visibility. Early performance is likely to be decisive as it creates feedback loops in which success breeds further exposure. Content-based filtering may mitigate this effect to the extent that reliable and granular metadata is available. However, algorithmic discovery operates through a continuous cycle of measurement and optimisation. Exposure generates interactions, interactions generate "training data", and training data reconfigures exposure. That cycle makes audibility a function of both technical design and the informational environment in which the system operates. Where metadata is sparse, inconsistent, or poorly aligned with platform taxonomies, works are less likely to be matched to user preferences and thus less likely to be recommended, ultimately leading to the same effect. Therefore, even if a platform's catalogue is formally diverse, its recommendation pathways may converge on a narrow subset of works that simply optimise (existing) engagement metrics.

Against these features, algorithmic discovery should perhaps not be treated as an external or purely technical layer that lies beyond the concern of cultural or copyright policy. By structuring access to audiences before any economically relevant act of exploitation occurs, recommender systems effectively mediate the conditions under which copyright can generate economic and cultural value at all. Their operation governs visibility in ways that are systematic rather than incidental, privileging repertoires that are legible to data-driven optimisation while marginalising those that are weakly represented in metadata or behavioural signals. This produces a form of "cultural ordering" that is

[197] Ò. Celma, *Music Recommendation and Discovery: The Long Tail, Long Fail, and Long Play in the Digital Music Space* (Springer Verlag 2010), pp. 69-78; B. Çataltepe, Z. Altinel, 'Music recommendation based on adaptive feature and user grouping' in Proceedings of the 22nd International International Symposium on Computer and Information Sciences, (Ankara, Turkey), 2007. More generally see C.C. Aggarwal, *Recommender Systems. The Textbook* (Springer Verlag 2016).

[198] J. Castellini, A. Feltcher, P. L. Ormosi,and R. Savani, 'Supplier competition on subscription-based platforms in the presence of recommender systems' (2023) available at <https://ssrn.com/abstract=4428125>.

[199] Ò. Celma, *Music Recommendation and Discovery: The Long Tail, Long Fail, and Long Play in the Digital Music Space* (Springer Verlag 2010), p. 27; D. Kowald and E. Lacic, 'Popularity Bias in Collaborative Filtering-Based Multimedia Recommender Systems' in L. Boratto et. al (eds), *Advances in Bias and Fairness in Information Retrieval*, Third International Workshop BIAS 2022, Communications in Computer and Information Science, Springer Verlag 2022, 11. See however D. Hesmondhalgh, et. al., *The Impact of Algorithmically Driven Recommendation Systems on Music Consumption and Production: A Literature Review*, UK Centre for Data Ethics and Innovation Reports 2023, 22-30; available at <https://ssrn.com/abstract=4365916>.

neither commanded by law nor necessarily neutral, but instead emerges from the interaction between platform design choices, data availability, and market scale.

Understanding algorithmic discovery as cultural infrastructure therefore reframes how we should perceive the issue. The issue is not whether platforms include diverse repertoires in their catalogues but whether the infrastructures governing discoverability allow those repertoires to become audible in practice. Absent a recognition that metadata quality, classification standards, and optimisation objectives systematically skew exposure, diversity risks being reduced to a quantitative attribute of mere representation in the catalogue that dismisses discovery of music as a lived cultural experience. This insight sets the stage for a broader inquiry into how norms concerned with culture, participation, and market fairness should respond to infrastructural forms of power that operate upstream of copyright exploitation but decisively shape its real-world effects.

5.3.2 Being Represented But Not Heard

The cumulative effect of these dynamics is increasingly visible at the market level. A relatively small share of available content accounts for a disproportionately large share of listening time and algorithmic exposure.[200] This concentration does not arise because other works are unavailable or unlawful, but, as explained above, because recommendation systems systematically favour content that aligns with existing engagement patterns, dense behavioural data, and well-optimised metadata.

For artists operating in smaller linguistic markets, minority repertoires, or experimental genres, this may produce a distinctive form of exclusion in the pre-exploitation space. Their works are present on platforms, rights are cleared, authorship data exists, and remuneration mechanisms are in place. Copyright has done its job. Yet, their music is rarely recommended and seldom encountered by listeners outside narrow niches. They are fully represented in a legal sense but they are not heard. This condition does not reflect a failure of copyright law but a change in market dynamics. The primary barrier is no longer upstream (such as copyright clearance issues, access to distribution contracts, or inclusion in platform catalogues) but mid-stream, at the level of allocation of visibility. Where user discoverability is mediated by recommender systems, visibility and cultural participation becomes contingent on being legible to algorithmic selection. That legibility, in turn, depends on the availability of granular behavioural signals, standardised genre descriptors, and other metadata that are frequently unevenly distributed across various stakeholders.[201]

From a doctrinal standpoint this deepens the copyright blind spot identified in Section 2. Copyright can ensure lawful availability and can regulate remuneration for uses that occur. It does not, however, regulate how attention is distributed within lawful catalogues, nor does it address the midstream conditions under which works become discoverable in the first place. Strengthening copyright protection or improving licensing efficiency alone is therefore unlikely to address algorithmic invisibility because the challenge is not infringement (or more generally exploitation), but the governance of attention.

---

[200] For example H. Datta, G. Knox, B.J. Bronnenberg, 'Chaing Their Tune: How Consumers' Adoption of Online Streaming Affects Music Consumption and Discover (2018) Marketing Science 37(1) 5, 7. This superstar effect is not new nor specific for recommender systems. See S. Rosen, 'The Economics of Superstars' (1981) The American Eco Rev 71(5) 845.

[201] Cf. T. Hardjono et. al., 'Towards an Open and Scalable Music Metadata Layer' (2019) available at <https://arxiv.org/abs/1911.08278>; N. Lefever, 'The Challenges of the Metadata Infrastructure for Digital Works and the Role of Cultural Policy' (2022) Cultural Policy Research Yearbook 6(1) 31, 31-33 <https://doi.org/10.17409/kpt.125633 >.

If recommender systems function as the primary interface through which Europeans encounter cultural works, they inevitably shape the practical conditions of cultural participation The implications of this shift extend beyond the confines of copyright doctrine and rightholders' proprietary interests into the constitutional domain that governs access to and use of information. Thus, the more immediate question is not how recommender systems can be made to fall within copyright law's reach but whether the use of such systems is compatible with the fundamental rights framework relating to cultural diversity, participation, and access.

5.4 Cultural Participation and the Right to Be Heard in Algorithmic Music Markets

Recommender systems have become the primary infrastructure through which music circulates in Europe. By ranking, filtering, and personalising exposure at scale, they shape which works are encountered, which repertoires circulate across borders, and which forms of cultural expression remain audible over time. These systems do not merely reflect existing patterns of listening but actively structure the conditions under which cultural works enter the shared space of attention that constitutes cultural life. In doing so they operate outside the doctrinal reach of exclusive rights and do not undermine copyright's internal coherence, yet have profound consequences for cultural participation.

These consequences raise constitutional concerns. Where algorithmic systems function as unavoidable gateways to cultural encounter, attention should no longer be directed towards whether works are available through legal means in the digital environment and are accessible as such to consumers,[202] but whether creators can take part in the shared cultural dialogue that defines European identity and pluralism. Cultural participation in algorithmic music markets cannot be reduced to the right of audiences to access content. It must also entail the right of creators to be accessed and to have a meaningful opportunity for their works to be encountered, engaged with, and integrated into the communicative space of European culture.

The central harm addressed in this section is therefore the condition of being represented but not heard, when creators are included in the cultural record but excluded from cultural circulation. This section develops the argument that such inaudibility engages a constitutional concern rooted in the right of cultural participation

5.4.1 From Access to Audibility and Constitutional Anchors for a Right of Cultural Participation

The right of cultural participation emerges as a constitutional response to conditions in which representation exists without audibility. Participation in culture is both consumptive and expressive. Listeners participate in culture by navigating, sharing, and forming communities around works. Creators participate in culture by contributing expression into a communicative environment in which it can be received, debated, and developed.[203] If a subset of repertoires is systematically deprioritised, the resulting asymmetry affects cultural pluralism and linguistic diversity. Participation becomes a matter

[202] An issue that has affected copyright discourse and policy throughout the last 25 years. See generally K. Szkalej, *Copyright in the Age of Access to Legal Digital Content* (Uppsala university 2021).

[203] See generally E. Weesjes and M. Worley (eds), *Music, Subcultures and Migration: Routes and Roots* (Routledge 2024); G. Emerson, *Audience Experience and Contemporary Classical Music. Negotiating the Experimental and the Accessible in a High Art Subculture* (Routledge 2023); C.T. Conner and D.R. Dickens, *Electronic Dance Music: From Deviant Subculture to Culture Industry* (Lexington Books 2023); J.I. Burns, *Mixtape Nostalgia: Culture, Memory, and Representation* (Lexington Books 2021).

of infrastructural justice and whether the socio-technical design of discovery affords comparable chances for different cultural expressions to become audible.

The EU's constitutional order contains multiple anchors for a right of cultural participation even if it is not named as such. The most immediate is Article 13 EU Charter, which protects the freedom of the arts and sciences. The genealogy of Article 13 reaches back to Article 10 ECHR concerning freedom of expression,[204] and resonates with Article 15(1)(a) Covenant on Economic, Social and Cultural Rights 1966 which recognises the right 'to take part in cultural life'. Both of these external instruments inform the development of national and EU law.[205]

The CJEU has not yet had the opportunity to thoroughly examine Article 13. However, in *Pelham* the Court made clear in the course of determining the scope of an exclusive right conferred by copyright that copyright must be balanced against artistic freedom of the user of the protected material.[206] This sensational approach of letting the scope of a property right be defined by other fundamental rights[207] shows an emerging sensitivity towards artistic autonomy as an interpretative value. Moreover, the freedom of expression genealogy of Article 13 was recently affirmed by Advocate General Emilou who determined that freedom of the arts comprises *for that reason* 'the rights for everyone to impart information and ideas in the form of art (that is to say, a right to imagine, create and share artworks) and to receive (that is to say, to have access to) them, in each case without interference by public authority'.[208] Although the Advocate General seems to suggest that Article 13 is subject to the same constraint that interferences cannot be carried out by a public authority (as opposed to others), the adopted wording of Article 13 is much broader as the arts simply 'shall be free from constraint'. This is perhaps one significant reason explaining why, as the Advocate General also observers, freedom of the arts is worthy of its own distinct status rather than being incorporated under Article 11 EU Charter (as in the case of the ECHR).

Article 13 is conceptually oriented toward the conditions of cultural and artistic flourishing. The provision does not specify a subject of protection (e.g. an artist, a scientist, or a user) but rather a sphere of activity (the arts and sciences) whose autonomy must be preserved. In a context where exposure is contingent on specific technological conditions, that autonomy cannot be understood solely as freedom from censorship but also whether the environment in which cultural expression circulates is compatible with artistic pluralism and the possibility of being received. Indeed, it seems to be an established view that Article 13 protects both the art itself and efforts at publicising it and making it accessible.[209] In digital environments this necessarily involves infrastructural considerations. Somewhat analogously, protection under Article 10 ECHR extends not only to the content of the

[204] Explanations Relating to the Charter of Fundamental Rights 2007/C OJ C303/17 , Explanation on Article 13.
[205] All Member States are party to the ECHR and the Covenant. The EU is part of neither, however pursuant to Article 6(3) Treaty on the European Union, fundamental rights guaranteed by the ECHR and 'as they result from the constitutional traditions common to the Member States' constitute general principles of EU law. Since the Covenant is enshrined in the legal systems of all Member States, the Covenant may inform the development of principles of EU law.
[206] Case C-467/17 *Pelham*, paras 31-35.
[207] See further K. Szkalej, *Copyright in the Age of Access to Legal Digital Content: A study of EU copyright law in the context of consumptive use of protected content* (Uppsala universitet, 2021), 172-181.
[208] Case C-590/23 *Pelham II*, Opinion of Advogate General Emilou, para 23.
[209] M. Kellerbauer, M. Klamert, and J. Tomkin (eds), *The EU Treaties and Charter of Fundamental Rights: A Commentary* (2nd ed, Oxford University Press 2024) 479

information but also to the means of transmission or reception of information, for example provision of a platform that allows the public to receive and impart information.[210]

This interpretative openness implies a positive dimension to Article 13 to not only refrain from censorship but to create enabling conditions for cultural creation and circulation. Where the digital infrastructure itself becomes a determinant of visibility, that infrastructure becomes integral to the freedom of the arts. If algorithmic curation silently filters out works from smaller linguistic or national repertoires, it may be perceived as a constraint on artistic freedom.

Unsurprisingly, the second anchor is Article 11 EU Charter (also evolving from Article 10 ECHR), which protects freedom of expression and information. Given the common fundamental rights core of Article 11 and 13, cultural participation may simply also be situated within freedom of expression. At the same time, it is worth observing that cultural participation is intimately connected to communication and music is not only entertainment but also a medium of identity, language, community, and political expression.

In both cases it is possible to frame algorithmic visibility on music platforms as a constitutional issue that simultaneously concerns artists' fundamental freedom to disseminate information using modern technologies that additionally involves exercising their right to intellectual property under Article 17 using now conventional means of exercising those rights, and, as a result, the public's fundamental freedom to receive information.

As a third anchor, the EU Charter contains explicit diversity commitments. As described in Chapter 3 of this report, Article 22 requires respect for cultural, religious, and linguistic diversity. Article 21 prohibits discrimination on the basis of several grounds, including ethnic or social origin, language or membership of a national minority, while Article 20, enshrining the principle of equal treatment, requires that comparable situations must not be treated differently and that different situations must not be treated in the same way unless such treatment is objectively justified.[211]

These constitutional anchors also imply the form that participation-oriented regulation can plausibly take. The Charter does not, as a matter of doctrine, impose a general duty on private platforms to optimise for diversity. But fundamental rights shape the interpretation of Union legislation and justify public intervention where private infrastructures produce systemic cultural exclusion. In that sense, cultural participation operates primarily as a legislative and regulatory benchmark that informs what counts as a public interest, how duties should be calibrated, and how conflicts between rights are to be balanced in the design of platform governance regimes.

Of course, absent concrete legislative frameworks either in the form of secondary Union legislation that govern the use of recommender systems on traditional business-to-consumer on-demand services, or that alternatively materialise artists' interests in the copyright blindspot, a constitutional assessment must necessarily revert to the national level. Only once the use of such systems or artist's interests are articulated through harmonised Union law, whether directly or indirectly, does the EU Charter become the relevant frame for analysis.

---

[210] *Neij and Kolmissoppi v Sweden* App no 40397/12. *Cf.* C-610/15 *Ziggo*. Strangely the CJEU did not make the same remarks but with reference to Article 11 EU Charter when assessing the operations of the same platform that the ECtHR considered several years earlier.

[211] Case C-260/22 *Seven.One Entertainment Group v Corint Media*, para 45; See further K. Szkalej, 'Private copying levies, broadcasters and the principle of equal treatment' (Kluwer Copyright Blog, 29 July 2024) <https://copyrightblog.kluweriplaw.com/2024/07/29/private-copying-levies-broadcasters-and-the-principle-of-equal-treatment-c-260-22-seven-one-entertainment-group-v-corint-media/>.

In this respect the fourth anchor might seem particularly useful. Article 167(1) TFEU, on which admittedly Article 22 EU Charter is based,[212] commits the Union to contribute to the flowering of the cultures of the Member States, to respect national and regional diversity, and to bring the common cultural heritage to the fore. Among other things, the mandate includes under Article 167(2) action to support and supplement Member States in their actions in artistic and literary creation. Moreover, under Article 167(4) the Union is required to take cultural aspects into account when intervening under other provisions of the Treaties in order to respect and promote diversity of its cultures. This provision aligns with the Convention on the Protection and Promotion of the Diversity of Cultural Expressions 2005 to which the EU and all Member States are parties.[213] The Convention seeks to create conditions enabling individuals and social groups to create, produce, disseminate, and enjoy diverse cultural expressions and recognises the special vulnerability of smaller markets and local languages.[214] Cultural diversity is therefore not an optional policy preference but an EU objective that can structure the justification of regulatory interventions. If the realisation of cultural diversity within the Union is hampered by the use of recommender systems, then Article 167 TFEU seems to open up for regulatory intervention in the sector.

5.4.2 The Relational and Infrastructural Right to be Heard

Taken together, the different constitutional anchors support an interpretative reconstruction of the right to be heard as a relational right within the Charter and the TFEU. It draws normative content from artistic freedom (Article 13), communicative freedom and pluralism (Article 11), diversity and equality commitments (Articles 20, 21 and 22), and the Union's cultural mandate (Article 167 TFEU) and extends over digital infrastructure, on which it is entirely dependent.

This relational understanding also helps to avoid a category error. The right is not directed at the inner workings of any single recommender model, nor does it demand that private actors serve as public cultural curators. It is directed at structural dependencies embedded in the infrastructure whereby a small number of intermediaries become unavoidable gateways on which the practical exercise of constitutional freedoms may be conditioned. This phenomenon is not new to digital constitutional lawyers. As result of continuous growth of markets there has occurred a shift of power from the state to private entities and individual freedoms can now also be constrained by market participants.[215] This has created the need for horizontal observance of fundamental rights protection exactly because misuses of power may not anymore exclusively come from the state.[216]

---

[212] Explanations Relating to the Charter of Fundamental Rights 2007/C OJ C303/17 , Explanation on Article 22.
[213] See especially regarding the EU Council Decision 2006/515/EC of 18 May 2006 on the conclusion of the Convention on the Protection and Promotion of the Diversity of Cultural Expressions. See generally regarding the Member States https://www.unesco.org/en/legal-affairs/convention-protection-and-promotion-diversity-cultural-expressions#item-1 .
[214] See especially Articles 1, 6, 7 and 14.Convention on the Protection and Promotion of the Diversity of Cultural Expressions.
[215] K. Szkalej, *Copyright in the Age of Access to Legal Digital Content: A study of EU copyright law in the context of consumptive use of protected content* (Uppsala universitet, 2021), 164. As Birnhack put it 'As western democracies turn more and more to market-oriented economies and cultures the source of the threat to the freedom of speech spills over to other players in the democratic field as well, namely the market'; M. Birnhack (2003), 'Acknowledging the Conflict Between Copyright Law and the Freedom of Expression Under the Human Rights Act' 14 Ent. L. Rev. 24, 30
[216] C. Geiger, 'Introduction' in C. Geiger (ed), *Research Handbook on Human Rights and Intellectual Property* (Edward Elgar), 2-3, noting also that this shift has led to a growing tendency for legislation to be shaped according to the claims of strong lobby groups and in order to secure private interests rather than the common good.

The right to be heard emphasises that participation in algorithmic markets depends on structures that connect creators and audiences. The relevant structures are neither purely public nor purely private. They are hybrid governance arrangements in which platforms, collective intermediaries, metadata providers, and even public institutions may jointly shape the conditions of cultural circulation. In such environments, fundamental rights operate less as direct commands to private actors and more as normative constraints on the legal and institutional frameworks that organise the market.

Viewed in this way, the right to be heard does not require equal outcomes in the form of equal streams, equal playlist placements, or symmetrical popularity. Instead it requires that systemic conditions do not predictably foreclose audibility for identifiable groups of creators or repertoires. The right is concerned with meaningful opportunity that it be realistically possible, over time, for works to become encountered beyond their immediate social bubble. Accordingly, the right points toward the governance of infrastructures rather than the micro-management of algorithmic outputs. The constitutional issue is the design space consisting of recommender system optimisation, the types of data such systems may rely on, or the interoperability of metadata that enables cross-platform visibility. Moreover, the right implies a positive dimension. Where the state permits or relies upon private infrastructures that function as quasi-public spaces for cultural exchange, the legal framework may need to include safeguards that make participation practically meaningful. In digital markets a "negative liberty" is insufficient because invisibility can occur without any direct suppression. After all, technology is an apathetic enforcer of security policy implemented to realise a business model.[217]

The positive dimension is particularly evident with metadata. Metadata is a precondition of discoverability, and discoverability is a precondition of participation. If the ecosystem lacks robust, interoperable identifiers and descriptive standards, smaller repertoires bear disproportionate burdens. They must invest more to become legible, they face higher risks of misclassification, and they are more likely to be filtered out by default optimisation. Recognising the right to be heard as an infrastructural right therefore places metadata governance (involving standards, provenance, interoperability, and access) at the centre of a constitutional analysis.

5.5 Governing attention and the freedom to conduct a business

The preceding two sections have argued that recommender systems function as cultural infrastructure. Where such systems systematically produce the condition of being represented but not heard, the resulting harm is economic, cultural and constitutional in nature. The question is therefore how the acquis can be recalibrated to address the copyright blind spot. As stated in section 4, strengthening copyright protection or improving licensing efficiency is unlikely to address algorithmic invisibility because the challenge is not infringement nor exploitation, but the governance of attention.[218]

This section addresses this question and proposes an approach based on the prominence requirement in the AVMS Directive. However, any legal intervention in algorithmically mediated music markets inevitably places it in tension with the freedom to conduct a business protected under Article 16 EU Charter. Recommender systems are central to the commercial autonomy of music platforms because they structure user engagement, shape competitive positioning, and embody complex technical and

[217] K. Szkalej, *Copyright in the Age of Access to Legal Digital Content: A study of EU copyright law in the context of consumptive use of protected content* (Uppsala universitet, 2021), 145.
[218] *Compare* Martin Senftleben, Thomas Margoni, Daniel Antal, Balázs Bodó, Stef van Gompel, Christian Handke, Martin Kretschmer, Joost Poort, João Quintais, and Sebastian Felix Schwemer, 'Ensuring the Visibility and Accessibility of European Creative Content on the World Market: The Need for Copyright Data Improvement in the Light of New Technologies' (2021). https://doi.org/10.2139/ssrn.3785272.

organisational choices. Any regulatory response to algorithmic invisibility must therefore confront the constitutional limits of restricting entrepreneurial freedom.

The analysis therefore proceeds in three steps. First it situates the envisaged intervention within the existing regulatory landscape of recommender systems. It then outlines the proposed approach and subsequently assesses whether it is admissible as a limitation on the freedom to conduct a business under EU constitutional law.

5.5.1 Recommender Systems as an Existing Object of EU Regulation

In putting forward a proposal for regulatory intervention in the area of music services, it is useful to begin from the premise that recommender systems are not, as such, an unregulated domain. EU law already recognises that algorithmic curation and ranking can produce systemic risks that justify public intervention.

The Digital Services Act[219] introduces in Article 27 transparency and choice obligations with respect to recommender systems operated by online platforms, particularly very large online platforms (VLOPs). These obligations include disclosure of the main parameters of recommendation, the possibility for users to opt out of profiling-based systems (Article 38), enhanced risk-mitigation duties where systemic risks to societal interests are identified (Articles 34 and 35), and external scrutiny obligations (Article 40(3)).[220] Although the DSA does not impose substantive constraints on ranking outcomes as such (except in the case of profiling), it establishes the principle that recommender systems are not merely internal product features but governance-relevant infrastructures capable of affecting fundamental rights.

Similarly, the AI Act[221] may be understood to treat certain recommender systems as high-risk or systemically relevant where they are deployed in contexts that affect access to information or participation in social life. Even if music recommender systems are likely to fall outside the strict high-risk categories,[222] the AI Act reinforces the constitutional insight that algorithmic optimisation is not value-neutral and that public oversight of design choices is legitimate where fundamental interests are at stake.

Given the infrastructural relevance of recommender systems for information retrieval and discovery, it is furthermore conceivable that their use may have to comply with certain requirements of the Digital Market Act,[223] whenever a service is designated as a so-called gatekeeper pursuant to Article 3 DMA.

[219] Regulation (EU) 2022/2065 of the European Parliament and of the Council of 19 October 2022 on a Single Market For Digital Services and amending Directive 2000/31/EC, OJ 2022 L 277, 1

[220] See also S.F. Schwemer, 'Recommender Systems in the EU: From Responsibility to Regulation?' in *Prroceedings of FAccTRec Workshop* 2021. ACM, available at https://ssrn.com/abstract=3923003 discussing recommender systems with reference to the DSA proposal and U. Reviglio and M. Fabbri, 'The Regulation of Recommender Systems Under the DSA: A Transition from Default to Multiple and Dynamic Controls?' (2024) DSA Observatory, available at < https://dsa-observatory.eu/2024/11/22/the-regulation-of-recommender-s> .

[221] Cf. S.F. Schwemer, 'Recommender Systems in the EU: From Responsibility to Regulation?' in *Prroceedings of FAccTRec Workshop* 2021, p. 3.

[222] Ibid.

[223] Regulation (EU) 2022/1925 of the European Parliament and of the Council of 14 September 2022 on contestable and fair markets in the digital sector and amending Directives (EU) 2019/1937 and (EU) 2020/1828 (DMA) OJ L 265.

For example, Article 6(5) requires the application of transparent, fair and non-discriminatory conditions for ranking and related indexing results as a mode to constrain self-promotion.[224]

Against this background, the legal novelty of the intervention envisaged here therefore does not lie in the fact of regulation of recommender systems as such but in the objective of safeguarding cultural participation and pluralism in algorithmic music markets.

5.5.2 Governing Attention in Algorithmic Music Discovery

The DSA in particular offers important points of reference for regulating recommender systems as it attempts to resolve a comparable problem caused. Yet its architecture is tailored to a specific regulatory object of online intermediary services, especially VLOPs, with user protection at the consumer end as its primary concern. Many music streaming services fall outside this framework because they are neither hosting platforms or designated as VLOPs. Rather than extending the DSA by analogy, the intervention envisaged in this paper is positioned towards coherence with existing approaches in the audiovisual sector.

The AVMS Directive[225] explicitly intervenes to addresses cultural visibility at the level of access by obliging in Article 13(1) of Member States to ensure that on-demand audiovisual services secure the prominence of European works. The provision does not dictate how prominence must be achieved, nor does it require quotas in recommendation outputs as such.[226] Admittedly, as the term is not defined in the Directive, it remains an open question what the minimum compliance criteria are. It might suffice to give the title of any relevant work a larger dimension or create a specific sub-category such as “European works” somewhere on the service. Nevertheless, it can be understood to establish a structural obligation to ensure that European works are not rendered invisible by interface design, catalog organisation, or recommendation logic. The precise implementation is left to platforms and national regulators, allowing for contextual adaptation.

Transposed to music streaming environments, it is conceivable that a prominence-style obligation would operate in a similar fashion. Its purpose would not be to guarantee exposure of individual artists, equalise popularity, or interfere with artistic evaluation. Moreover, it should equally not be understood to impose specific preferential outcomes when there is obvious demand for particular content, for example through independent user interactions such as deliberate search for content. In other words, it is not intended to become, as such, a free promotional tool for copyright industries. Rather, it would operate as a fail-safe mechanism where the design of recommender systems and poor metadata risks excluding particular categories of artists. Such an obligation could take the form of a requirement that recommender systems incorporate audibility-enhancing mechanisms for under-represented repertoires, or that platform interfaces and recommendation pathways do not systematically suppress such works. At the same time it is important to recognise that recommendation and prominence decisions may also be driven by commercial considerations than merely relevance or user interests, for example preferential treatment linked to any applicable contractual arrangements or other forms of platform-side incentivisation. In those cases algorithmic visibility reflects more market power and bargaining asymmetries rather than cultural demand or expressive diversity. It is therefore important

[224] Cf. N. Petit, ‘The Proposed Digital Markets Act (DMA): A Legal and Policy Review’ (2021) JECL&P 12(7) 529, 531.
[225] Directive (EU) 2018/1808 of the European Parliament and of the Council of 14 November 2018 amending Directive 2010/13/EU on the coordination of certain provisions laid down by law, regulation or administrative action in Member States concerning the provision of audiovisual media services OJ L 303.
[226] However, it does impose a minimum share quota of 30% of European works in the catalogue.

that platforms would retain discretion over technical implementation, provided that the objective of meaningful audibility is pursued in good faith. Such a functional approach could incentivise the pursuit of updated, correct metadata, and more generally the continuous oversight and development of recommender systems to mitigate the effects of popularity bias.

Such a construction of the intervention is likely to preserve the essence of the freedom to conduct a business as required by Article 52(1) EU Charter for a limitation to be admissible. Admittedly, a prominence requirement may be perceived as constraining relevant platform operators in a manner which restrict the free use of the resources at their disposal because it obliges them to take measures which may represent a significant cost for them, have a considerable impact on the organisation of their activities or require difficult and complex technical solutions. However, the proposed measure leaves it to platform operators to determine the specific measures to be taken in order to achieve the result sought, with the result that they can choose to put in place measures which are best adapted to the resources and abilities available to them and which are compatible with any other obligations and challenges which they will encounter in the exercise of their activities. Moreover, from the perspective of envisaged enforcement, platform operators may avoid liability by proving that they have taken all reasonable measures to comply with the requirement. That possibility of exoneration has the effect that platform operators will not be required to make unbearable sacrifices.[227]

5.6 Conclusion

The starting point of this contribution was an apparent paradox. Digital music platforms present themselves as spaces of unprecedented abundance, linguistic diversity, and cross-border circulation, yet the infrastructures that organise musical discovery may concentrate attention and marginalise large parts of the European repertoire. This tension is not the result of copyright failure in a narrow doctrinal sense. On the contrary, EU copyright law performs its core functions effectively: it secures lawful availability, enables rights management, and facilitates remuneration. What it does not do is govern visibility. In algorithmically curated markets, that omission produces a condition in which artists may be fully represented yet not meaningfully heard.

Recommender systems expose this blind spot. By operating in the pre-exploitation space between lawful availability and actual engagement, they structure the conditions under which copyright can generate cultural and economic value at all. Their optimisation logics shaped by metadata quality, engagement metrics, and commercial incentives systematically influence which works circulate and which remain peripheral. When discovery becomes infrastructural rather than incidental, cultural participation can no longer be assessed solely in terms of consumer access or platform availability. It must also account for artist audibility.

Against these intricacies the paper has argued that the condition of being represented but not heard engages constitutional concerns rooted in artistic freedom, freedom of expression, and the Union's commitments to cultural diversity. The right to cultural participation, reconstructed as a relational and infrastructural right to be heard, does not demand equal outcomes or algorithmic neutrality. Rather, it points to the need for norms that prevent systemic exclusion where private infrastructures function as unavoidable gateways to cultural encounter.

The proposed intervention, drawing inspiration from the prominence requirement in the AVMS Directive, should be understood in this light. It does not seek to transform music platforms into public broadcasters or to displace editorial and entrepreneurial discretion. Instead, it offers a structurally

[227] Cf. Case C-314/12 *UPC Telekabel Wien* v *Constantin Film*, paras 50-53.

modest response to a structurally significant problem: the governance of attention in markets where exposure is no longer a by-product of availability but a function of design. By focusing on objectives rather than outputs, and by leaving technical implementation to platforms, such an approach preserves the essence of the freedom to conduct a business while acknowledging that entrepreneurial autonomy cannot extend to the systematic foreclosure of cultural audibility.

More broadly, the analysis highlights a shift in the locus of cultural regulation. Where visibility is governed by algorithmic infrastructures rather than by law or curatorial craftsmanship, cultural policy can no longer rely solely on upstream instruments such as copyright, licensing, or catalogue inclusion. The challenge is not whether diverse cultural expression is produced, but whether its digital infrastructures allow that diversity to circulate and be encountered in practice in the internal market. To address this challenge we must move beyond representation toward audibility, and beyond access toward participation. In this sense governing attention is not an external correction to the copyright system but a necessary complement to it. If European cultural diversity is to remain a lived experience rather than a formal attribute of catalogues, the legal framework must begin to engage with the infrastructures that shape how culture is discovered, heard, and shared in algorithmic environments.

6 Improving Music Metadata: Towards a Central Repository of Creative Industry, Online Platform and AI Data Resources

6.1 Introduction

To enable European composers, performers (jointly: "artists"), record labels and music publishers (jointly: "music companies") to benefit from licensing opportunities in digital environments, in particular streaming[228] and AI training,[229] it is important to establish a comprehensive music metadata infrastructure that ensures the visibility and accessibility of European work repertoires, and facilitates rights clearance. Recognising the need for metadata improvement, various European initiatives aim to increase awareness among artists and rightholders, and build bridges between existing metadata collections and infrastructures.[230] However, one central factor in the equation has remained underexplored to this day: the role of copyright norms. As the following analysis will show, the current configuration of central provisions in the area of online platforms and AI development is doubtful. While these provisions seek to strengthen the position of artists and music companies vis-à-vis powerful big tech businesses,[231] they set in motion metadata streams from the music industry to online

[228] For an overview of the discussion surrounding remuneration for music streaming, see M.R.F. Senftleben/E. Izyumenko, 'Author Remuneration in the Streaming Age – Exploitation Rights and Fair Remuneration Rules in the EU', *Journal of Intellectual Property Law and Practice* 20 (2025), https://doi.org/10.1093/jiplp/jpaf071.

[229] For a discussion of the need for rights clearance and remuneration systems for AI training, see G. Westkamp, 'Borrowed Plumes: Taking Artists' Interests Seriously in Artificial Intelligence Regulation', 1 (19-26), forthcoming; K. de la Durantaye, 'Nutzung urheberrechtlich geschützter Inhalte zum Training generativer künstlicher Intelligenz – ein Lagebericht', *Archiv für Presserecht* 55 (2024), 9 (21-22); M.R.F. Senftleben, 'AI Act and Author Remuneration – A Model for Other Regions?', 1 (6-23), available at: https://ssrn.com/abstract=4740268; C. Geiger, 'Elaborating a Human Rights Friendly Copyright Framework for Generative AI', *International Review for Intellectual Property and Competition Law* 2024, forthcoming, 1 (29-33), available at: https://ssrn.com/abstract=4634992; D. Friedmann, 'Creation and Generation Copyright Standards', *NYU Journal of Intellectual Property and Entertainment Law* 14 (2024), forthcoming, 1 (7-8); C. Geiger, 'When the Robots (Try to) Take Over: Of Artificial Intelligence, Authors, Creativity and Copyright Protection', in: F. Thouvenin/A. Peukert et al. (eds.), *Innovation – Creation – Markets, Festschrift für Reto M. Hilty*, Berlin: Springer 2024, 67 (67-87); M.R.F. Senftleben, 'Generative AI and Author Remuneration', *International Review of Intellectual Property and Competition Law* 54 (2023), 1535 (1542-1556); G. Frosio, 'Should We Ban Generative AI, Incentivise It or Make It a Medium for Inclusive Creativity?', in: E. Bonadio, C. Sganga (eds.), *A Research Agenda for EU Copyright Law*, Cheltenham: Edward Elgar 2024, 1 (19-21), available at: https://ssrn.com/abstract=4527461; C. Geiger/V. Iaia, 'The Forgotten Creator: Towards a Statutory Remuneration Right for Machine Learning of Generative AI', *Computer Law and Security Review* 52 (2024), forthcoming, 1 (10-16), available at: https://ssrn.com/abstract=4594873.

[230] See https://www.euipo.europa.eu/en/copyright-knowledge-centre for a recent EU initiative in this area. As to the ongoing debate on copyright metadata, cf. P. Rixhon/A. Strowel et al., *Study on Copyright and New Technologies: Copyright Data Management and Artificial Intelligence – SMART 2019/0038*, Brussels: Publications Office of the European Union 2022, 53-55 and Annex 5.3, available at: https://data.europa.eu/doi/10.2759/570559, 53-55 and Annex 5.3; M.R.F. Senftleben/T. Margoni et al., 'Ensuring the Visibility and Accessibility of European Creative Content on the World Market: The Need for Copyright Data Improvement in the Light of New Technologies and the Opportunity Arising from Article 17 of the CDSM Directive', *Journal of Intellectual Property, Information Technology and Electronic Commerce Law* 13 (2022), 67 (74-77); N. Gronau/M. Schaefer, 'Why Metadata Matters for the Future of Copyright', *European Intellectual Property Review* 43 (2021), 488 (490-494).

[231] Cf. European Commission, Directorate-General for Communications Networks, Content and Technology, *Study on contractual practices affecting the transfer of copyright and related rights and the creators and producers' ability to exploit their rights*, No. 2023-031, under Framework Contract CNECT/2022/OP/0036, Brussels, Ares(2023), 19 October 2023, 12; Stéphanie Carre, Stéphanie Le Cam, and Franck Macrez, *Buyout contracts imposed by platforms in the cultural and creative sector*, Study Requested by the JURI Committee, European Parliament, November 2023, 11, 23, 53-55; M.R.F. Senftleben, 'Institutionalized Algorithmic Enforcement – The

platforms and AI developers. Ultimately, these metadata streams fortify the data hegemony of big tech companies. They may even increase the dependence of artists and music companies on platforms and AI systems for the distribution of content (section 2).

Moreover, the current copyright norms allow online platforms and AI developers to benefit from investment in accurate metadata in the creative industries without contributing to the creation and maintenance of the metadata infrastructure themselves. To remedy these imbalances of the current copyright system, it could be considered to establish an overarching, EU-wide music metadata repository. By pooling and recording all metadata flows to online platforms and AI trainers, this repository could lead to a central metadata reservoir that counterbalances the data hegemony of large technology companies. Further advantages arise from a regulatory intervention establishing a harmonised standard for interoperable ownership and descriptive metadata. If online platforms and AI trainers are obliged to accept, implement and process music metadata in the harmonised format, artists and music companies no longer have to grapple with divergent metadata templates and forms. Finally, the metadata in the central repository could be made available as open data. As a result, newcomers in platform and AI markets, including European start-up companies, could benefit from the accumulation of harmonised metadata and meet established big tech firms as equals in the metadata space (section 3). Considering these potential benefits, it seems worthwhile to explore avenues to an overarching EU music metadata repository (section 4).

6.2 Copyright and data hegemony

The issue of worldwide competition for data hegemony is not new. While European initiatives have not yet led to an overarching, comprehensive metadata infrastructure for the music sector,[232] the creation of a comprehensive database has succeeded in the US. The US initiative goes back to the Music Modernisation Act ("MMA") passed in 2018.[233] Title I of the MMA establishes the Mechanical Licensing Collective ("MLC") as a one-stop shop for music licensing. For the proper functioning of this new licensing body, the creation of a comprehensive database of music rights was indispensable. The MLC ultimately achieved this goal on the basis of close cooperation with major providers of music streaming services, in particular Apple and Spotify.[234] The new licensing hub managed to provide a US-wide platform for royalty administration, enforcement and processing as of 1 January 2021.[235] With regard to the strategic use of legislation to improve the copyright data infrastructure, it is of particular interest

Pros and Cons of the EU Approach to Online Platform Liability', *Florida International University Law Review* 14 (2020), 299 (301-312).

[232] Cf. P. Rixhon/A. Strowel et al., *Study on Copyright and New Technologies: Copyright Data Management and Artificial Intelligence – SMART 2019/0038*, Brussels: Publications Office of the European Union 2022, 53-55 and Annex 5.3, available at: https://data.europa.eu/doi/10.2759/570559, 53-55 and Annex 5.3; M.R.F. Senftleben/T. Margoni et al., 'Ensuring the Visibility and Accessibility of European Creative Content on the World Market: The Need for Copyright Data Improvement in the Light of New Technologies and the Opportunity Arising from Article 17 of the CDSM Directive', *Journal of Intellectual Property, Information Technology and Electronic Commerce Law* 13 (2022), 67 (74-77); N. Gronau/M. Schaefer, 'Why Metadata Matters for the Future of Copyright', *European Intellectual Property Review* 43 (2021), 488 (490-494).

[233] See House Report 1551, Public Law 115-264, dated 11 October 2018.

[234] See https://www.appleworld.today/blog/2019/11/18/apple-spotify-to-fund-new-music-royalties-collective.

[235] See https://www.themlc.com/press/mechanical-licensing-collective-begins-full-operations-envisioned-music-modernization-act. With respect to the underlying preparatory work, see further U.S. Copyright Office Library of Congress, *MLC Comments in Reply to the Designation Proposal of the American Music Licensing Collective, Inc*, Docket No. 2018-11, 21, available at: https://bw-98d8a23fd60826a2a474c5b4f5811707-bwcore.s3.amazonaws.com/photos/Proposed_MLC_-_Reply_Comments.pdf.

that this development in the US can be traced back to a legislative intervention, namely the adoption of the MMA in 2018.

The creation of this metadata repository on the other side of the Atlantic raises the question whether fresh European initiatives could also pave the way for large-scale bundling of music metadata in the EU. At present, it is conceivable that next to the MLC database that may be enriched with European data,[236] large online platforms and AI developers have a collection of European music metadata that overshadows several music industry and collecting society portfolios. The 2019 Directive on Copyright in the Digital Single Market ("CDSMD")[237] is likely to further strengthen the data hegemony of big tech companies. Both the platform regulation in Article 17 CDSMD (section 2.1) and the rules on text and data mining ("TDM") in Article 4 CDSMD (section 2.2) initiate a data flow from artists and music companies to platform providers and AI trainers. Ultimately, creative industry investment in music metadata may thus fortify the strong position which platforms and AI businesses already have in the metadata arena (section 2.3).

6.2.1 Work notifications for content blocking

Article 17(4)(b) CDSMD requires online content-sharing service providers ("OCSSPs")[238] to use their best endeavours to ensure the unavailability of works and other protected subject matter for which rightholders have provided them with "relevant and necessary" information. The notification of works opens up the possibility of ensuring the application of measures to block and remove infringing content.[239] In this context, it can be assumed that "relevant and necessary" information in the sense of Article 17(4)(b) goes beyond mere work-related data. A copyright owner submitting information must inform the online platform of his identity, address and other contact details, as well as the nature and (territorial) scope of the rights asserted. According to Article 17(8) CDSMD, OCSSPs must provide rightholders, at their request, with appropriate information on the operation of their procedures for cooperation under Article 17(4) CDSMD. Without contact information, this reporting obligation cannot be fulfilled. When it comes to complaint and redress procedures under Article 17(9) CDSMD, rightholders must also "duly justify" the reasons for their request to block content. Obviously, the exchange of information between rightholders and online platform providers is thus not only intended to ensure up-to-date information on music enjoying copyright protection, but also to bring about an accurate and constantly updated collection of rightholder data, including contact information. Otherwise, OCSSPs will hardly be able to report on their practice of blocking content and request rightholders to substantiate blocking requests in complaint procedures.

[236] The MLC system provides for a so-called "matching tool" that "allows Members to match sound recordings to compositions/musical works within their catalog. This ensures you'll collect the royalties you're owed for your work(s)." See https://help.themlc.com/en/support/what-is-the-matching-tool. This indicates that, to the extent to which European rightholders are or become MLC members, they will be able to add their copyright data to the overarching MLC database.

[237] Directive (EU) 2019/790 of the European Parliament and of the Council of 17 April 2019 on Copyright and Related Rights in the Digital Single Market and Amending Directives 96/9/EC and 2001/29/EC, *Official Journal of the European Communities* 2019 L 130, 92. For an overview of relevant copyright exceptions in EU copyright law, see M.R.F. Senftleben, *Study on EU Copyright and Related Rights and Access to and Reuse of Data*, European Commission, Directorate-General for Research and Innovation (DG RTD), Brussels: Publications Office of the European Union 2022, 27-28 (temporary copying) and 36-37 (provisions for (scientific) TDM), available at: https://data.europa.eu/doi/10.2777/78973.

[238] See the definition of relevant service providers in Article 2(6) CDSMD.

[239] Cf. CJEU, 26 April 2022, case C-401/19, Poland/Parliament and Council, para. 89.

With this configuration, the provision is an important building block in a more complex metadata puzzle. The regulatory framework of Article 17 CDSMD – as can be seen from the first two paragraphs of the provision – focuses on the right of communication to the public and making available to the public. Accordingly, the notification mechanism resulting from Article 17(4)(b) also concerns these exclusive rights. The right of communication to the public and the right of making available to the public are central to OCSSPs and various other forms of digital services. The second pillar of copyright exploitation – the right of reproduction[240] – remains under the radar unless rightholders go beyond the information that is strictly "relevant and necessary"[241] in the sense of Article 17(4)(b) and add metadata on the right of reproduction.

6.2.2 Rights reservation with regard to text and data mining

Considering the focus of Article 17(4)(b) on the right of communication to the public and the right of making available to the public, Article 4(3) CDSMD is of particular interest. The TDM rule in Article 4 CDSMD and, more specifically, the rights reservation mechanism in the third paragraph of the provision ("opt-out") have the potential to set a metadata stream in motion that covers the right of reproduction.

Under Article 4(1) CDSMD, anyone may make copies of works or databases for the purposes of TDM and retain them as long as necessary for the TDM process.[242] Article 4(3) CDSMD adds the opt-out mechanism by stipulating that rightholders can reserve their rights.[243] Referring to Article 4(3) CDSMD, the AI Act ("AIA")[244] confirms the intention to give rightholders the opportunity to exercise control over the use of their works for AI training.[245] As in other cases where copyright holders can refuse the permission for a given form of use, this veto right can pave the way for licensing negotiations.[246] It is conceivable that the rights reservation option leads to machine-readable rights reservation protocols that express different rightholder standpoints.[247] One standpoint could be a machine-readable rights reservation that signals an outright exclusion of any use of the literary and artistic work at issue for AI training purposes. Using this rights reservation option, rightholders can express their preference for an outright prohibition and prevent TDM of their literary and artistic repertoire altogether. An alternative standpoint, however, could be a machine-readable rights reservation that prohibits use for AI training purposes only if the AI trainer behind the crawler is reluctant to pay remuneration. Using this

[240] Article 2 ISD; Article 9(1) BC.
[241] Article 17(4)(b) CDSMD.
[242] Article 4(1) and (2) CDSMD. As to the relevance of Article 4 CDSMD to generative AI systems, see J.P. Quintais, 'Generative AI, Copyright and the AI Act', *Kluwer Copyright Blog*, 9 May 2023, available at: https://copyrightblog.kluweriplaw.com/2023/05/09/generative-ai-copyright-and-the-ai-act/.
[243] Article 4(3) CDSMD.
[244] Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 laying down harmonised rules on artificial intelligence (Artificial Intelligence Act), *Official Journal of the European Union* L 12.7.2024.
[245] Recital 105 AIA. Cf. Regional Court Munich, 11 November 2025, case 42 O 14139/24, GEMA/OpenAI; Senftleben (2025a), 26-27. However, see also the doubts expressed by Dornis/Lucchi (2025), 7 and 20-23; Schack (2024), 114–115; Dornis (2025), 75-76.
[246] Cf. the positive assessment of the situation by P. Keller, 'Protecting Creatives or Impeding Progress? Machine Learning and the EU Copyright Framework', *Kluwer Copyright Blog*, 20 February 2023, available at: https://copyrightblog.kluweriplaw.com/2023/02/20/protecting-creatives-or-impeding-progress-machine-learning-and-the-eu-copyright-framework/; Communia, "Using Copyrighted Works for Teaching the Machine", *Communia Policy Paper* 15, 26 April 2023, available at: https://communia-association.org/policy-paper/policy-paper-15-on-using-copyrighted-works-for-teaching-the-machine/.
[247] Cf. A. Engelfriet/D.J.G. Visser DJG, 'Werkt de mijnwerk opt-out voor mijn werk?', *Auteursrecht* 2024 (2024), 8 (13-14); M.R.F. Senftleben, 'Generative AI and Author Remuneration', *International Review of Intellectual Property and Competition Law* (IIC) 54 (2023), 1535 (1546).

alternative version, rightholders can express their willingness to permit the use against the payment of remuneration. In other words: the rights reservation option in Article 4(3) CDSMD can lead to generally agreed, machine-readable licensing protocols that trigger an automated process for the payment of remuneration.

For this overarching rights clearance mechanism to take shape, however, it is indispensable to enrich the opt-out declaration with relevant metadata. At first glance, Article 4(3) CDSMD does not seem to have much potential in this regard. A mere opt-out statement, for instance in the form of robots.txt embedded in a website, need not offer detailed information on protected works. The mere indication that the website content is not available for TDM is sufficient to ensure that the AI crawler looks for training material elsewhere.

The moment a rightholder seeks to use the opt-out mechanism as a vehicle to conclude licensing deals, however, a markedly different situation arises. As a minimum, the rightholder will have to enrich the machine-readable opt-out with basic ownership and contact information. Who is the rightholder? What is the (territorial) scope of the rights? How can the rightholder be contacted? The moment the opt out is seen as a vehicle to attract the attention of AI developers and facilitate licensing, it also seems advisable to add descriptive metadata. Which repertoire is available? Which genre, style, period of creation?

Finally, it must be considered that the website with the opt-out statement will not always contain the works covered by the rights reservation. If, for instance, a collective management organisation ("CMO"), such as the French SACEM,[248] exercises the opt-out right for its members, the opt-out statement and corresponding robots.txt become elements of the website of the collecting society. However, this website is unlikely to contain all musical works belonging to SACEM repertoire. If a crawler searching for AI training resources refrains from including the CMO website in the training dataset, the opt-out thus remains ineffective. SACEM repertoire on other websites may still find its way into the TDM dataset unless these other websites contain the same machine-readable opt-out information.

Hence, it can be of particular importance to enrich the opt-out statement with sufficiently detailed information on the works falling under the rights reservation. Opt-outs at CMO level provide an example. The enrichment of opt-outs with metadata also offers advantages for rights reservations declared by individual artists and music companies. A composer's works may be available on several websites and platforms. It can be burdensome, if not impossible, to ensure that the opt-out is declared at all places where the music can be found in the digital environment. Once an opt-out statement made on one website is enriched with metadata, the identification of copies on other websites becomes easier. Arguably, metadata offering information on the work, authors, performers and rightholders can substantially enhance the effectiveness of the opt-out statement.

6.2.3 Metadata hegemony of big tech companies

Evidently, both the content moderation rule in Article 17(4)(b) and the opt-out rule in Article 4(3) CDSMD are intended to strengthen the position of copyright holders, including artists and music

[248] See https://societe.sacem.fr/en/news/our-society/sacem-favour-virtuous-transparent-and-fair-ai-exercises-its-right-opt-out: "Against a backdrop of increasing development of artificial intelligence (AI) tools, Sacem is exercising its right to opt-out on behalf of its members. From now on, data mining of works in Sacem's repertoire by entities developing artificial intelligence tools will require prior authorisation from Sacem, in order to ensure fair remuneration for the authors, composers and music publishers it represents."

companies, vis-à-vis online platforms and AI developers.[249] From a metadata perspective, however, the regulatory path chosen to achieve this goal may backfire. Instead of strengthening the position of artists and music companies, Article 17(4)(b) and Article 4(3) CDSMD set metadata streams in motion which, in the end, further enrich the data portfolios of OCSSPs and AI trainers. Constantly updated work notifications under Article 17(4)(b) and opt-out statements with work-related metadata under Article 4(3) fortify the data hegemony which big tech companies behind online platforms and AI services already have. If these online service providers also obtain the chance of collecting personal data on consumers' music preferences and listening patterns, they can easily become key players in the music distribution chain. No one knows better what kind of music a particular platform or AI user wants to listen to at different times of the day. No one knows better what music a user might be interested in based on that user's recent searches and social media activities.

Article 17(4)(b) and Article 4(3) CDSMD are therefore Janus-faced provisions. On the one hand, they offer new copyright enforcement and licensing opportunities. Rightholders can initiate content blocking and impose AI training embargoes. These measures may prompt online platforms and AI developers to enter into licensing negotiations. On the other hand, Articles 17(4)(b) and 4(3) may further enhance the dependence of artists and music companies on big tech companies. Channelling music metadata to OCSSPs and AI trainers, they allow providers of online platforms and AI services to accumulate music metadata portfolios that can easily dwarf data collections of individual CMOs or music companies. The increasing data hegemony of big tech companies – further reinforced by work notifications under Article 17(4)(b) and metadata-supported opt-outs under Article 4(3) – gives rise to concerns about an increasing power and influence of large technology companies on music visibility, recommendations and distribution.

6.3 Metadata bundling as a counterbalance

The spectre of the music ecosystem losing its autonomy[250] and becoming more and more dependent on recommender and distribution functions of platform and AI services begs the question which measures could be taken to counteract the data hegemony of large technology companies. While it seems difficult to neutralise the magnetism of music platforms and AI tools, countermeasures in the metadata arena are conceivable.

More concretely, it seems possible to establish a central EU music metadata repository that offers a counterbalance to growing big tech data portfolios. Articles 17(4)(b) and 4(3) CDSMD offer promising avenues to an overarching music metadata infrastructure: if all work notifications and rights reservations declared under these provisions, including metadata, would be harmonised and bundled in a central EU music metadata collection, the accumulation of metadata could lead to a data reservoir that is capable of competing with the collections of big online platforms and AI trainers.[251] In order to

[249] Cf. P. Mezei, 'A Savior or a Dead End? Reservation of Rights in the Age of Generative AI', *European Intellectual Property Review* 46 (2024), 461 (465-468); M.R.F. Senftleben, 'Institutionalized Algorithmic Enforcement – The Pros and Cons of the EU Approach to Online Platform Liability', *Florida International University Law Review* 14 (2020), 299 (301-312).

[250] Cf. P. Bourdieu, *Die Regeln der Kunst. Genese und Struktur des literarischen Feldes*, Frankfurt/Main: Suhrkamp 1999 (French original: P. Bourdieu, *Les règles de l'art. Genèse et structure du champ littéraire*, Paris: Éditions du Seuil 1992), 103-105 and 530-533; A. Peukert (2019), 'Fictitious Commodities: A Theory of Intellectual Property Inspired by Karl Polanyi's Great Transformation', *Fordham Intellectual Property, Media and Entertainment Law Journal* 29, 1151 (1178-1179).

[251] In the legislative process leading to the adoption of Article 17 CDSMD, Germany had already proposed in this sense to introduce "public, transparent notification procedures" to counteract a de facto copyright register in the

launch a comprehensive EU music metadata repository, it would be necessary to bundle metadata flowing from work notifications and rights reservations under Articles 17(4)(b) and 4(3) CDSMD in a systematic way. Rightholders sending content moderation requests under Article 17(4)(b) or declaring opt-outs under Article 4(3) should be required to submit this information – and accompanying metadata – in parallel to a central body managing the EU metadata repository.

A template for legislation that would ensure the redirection of music metadata to a central data collection point can be found in Article 3(6) of the 2012 Orphan Works Directive[252] (in relation to information on the use of orphan works) and Article 10(1) CDSMD (in relation to information on out-of-print works). These provisions also mention the institution that could take care of the central EU music metadata repository: the European Union Intellectual Property Office ("EUIPO") which has recently become more active in the field of copyright with the launch of the EUIPO Copyright Knowledge Centre.[253]

Work notifications to ensure content moderation and opt-out statements imposing AI training embargoes require continuous updating of rights and ownership information. Against this background, a centralised EU music metadata repository fed by Article 17(4)(b) notifications and Article 4(3) opt-outs can be expected to achieve a high degree of data timeliness and accuracy. However, Article 17(4)(b) notifications and Article 4(3) opt-outs seem less promising in the area of descriptive metadata. Voluntary additions of information on the genre, style and content of notified music seem necessary to ensure a metadata spectrum that is rich enough to increase the visibility of European content in recommender systems and enhance licensing opportunities in AI contexts (section 3.1). Moreover, it should be considered to make the music metadata in a central EU repository available as standardised open access data resources. In this way, newcomers in the online platform and AI space, such as European start-up companies, need not start the collection of music metadata from scratch. Once they can use open access data resources of the central EU repository, they have, from the outset, metadata at their disposal that are comparable to the collections of major players in the platform and AI arena (section 3.2). International copyright law does not pose insuperable obstacles to new metadata rules that pave the way for a comprehensive EU repository. Article 5(2) of the Berne Convention for the Protection of Literary and Artistic Works ("BC") prohibits the introduction of formalities as to "[t]he enjoyment and the exercise"[254] of copyright. This international ban on formalities, however, does not affect the establishment of an EU data repository on the basis of Article 17(4)(b) notifications and Article 4(3) opt-out statements (section 3.3). However, it is an open question whether OCSSPs and AI developers – the beneficiaries of the metadata streams set in motion by Articles 17(4)(b) and 4(3) CDSMD – could also be obliged to contribute metadata to a central EU repository (section 3.4).

6.3.1 Voluntary initiatives to add descriptive metadata

The data provided in the framework of Article 17(4)(b) serve to identify the work and infringing copies. Descriptive metadata reflecting the genre, style and content of a given musical work need not be included to achieve the content moderation goals underlying the provision. In a central EU music metadata repository, however, descriptive metadata can be of particular importance. They offer information that allow recommender systems to identify music content that matches consumer

hands of dominant platforms. See Council of the European Union, Opinion of Germany, 5 April 2019, point 5, p. 4, available at: https://data.consilium.europa.eu/doc/document/ST-7986-2019-ADD-1-REV-2/en/pdf.

[252] Directive 2012/28/EU of the European Parliament and of the Council of 25 October 2012 on certain permitted uses of orphan works, *Official Journal of the European Communities* 2012 L 299, 5.

[253] See https://www.euipo.europa.eu/en/copyright-knowledge-centre.

[254] Article 5(2) BC.

demand. A data repository providing descriptive information is thus likely to enhance the visibility of European music in recommendation contexts. Descriptive metadata may also pave the way for licensing agreements. An AI developer searching for a specific category of music may find descriptive metadata particularly useful to identify relevant training resources.

An EU metadata initiative, thus, should ensure that Article 17(4)(b) notifications are enriched with descriptive metadata. These data resources are vehicles to enhance the visibility of the European music repertoire in recommender systems. They also broaden the chances of licensing agreements in digital and algorithmic contexts. Considering these benefits, rightholders may be willing to go beyond the minimum requirements for Article 17(4)(b) notifications and provide additional descriptive metadata for the central EU repository on their own initiative. Voluntary measures may thus be sufficient to arrive at a music metadata infrastructure that provides information on music genres, styles and content next to ownership, author and performer data.

Like content blocking notifications under Article 17(4)(b), Article 4(3) opt-out statements recorded at a central EU repository should go beyond the mere rights reservation declaration as such. Ideally, it includes a broader spectrum of music metadata. Ownership and creator data should be accompanied by descriptive metadata to provide information on the genre, style, and content of the music covered by an opt-out. Applying this enriched metadata formula, artists and music companies can transform the recording of opt-outs into a strategic instrument to promote content visibility and licensing opportunities. Once AI developers know the genre, style and content of music that is no longer available for AI training, they also know what they are missing – and what music might be worth acquiring through licensing to improve the AI model they are developing.

6.3.2 Standardised open access metadata

The music metadata collected at a central EU repository should be made available as an open access data resource to ensure general data accessibility and data transparency for all interested data users. In this way, the establishment of a central EU music metadata repository can support start-ups and ensure equal chances in the metadata arena – regardless of whether an OCSSP or AI trainer is a small, medium-sized or big company. If the metadata in the central repository are freely available, newcomers in the platform and AI space have immediate access to the full spectrum of information which the music metadata reflect: any work notifications for the purpose of content moderation (Article 17(4)(b)), any opt-out statements for the purpose of AI training embargoes (Article 4(3)), any additions of descriptive metadata that can improve music recommender systems and support the identification of repertoires for licensing initiatives.

An open access data repository is also an important countermeasure in the light of the current data hegemony of large technology companies. As explained, broad access to music metadata for all interested parties gives small and medium-sized OCSSPs and AI trainers the opportunity to work with a data reservoir that is comparable with the impressive portfolios of large companies in the platform and AI space. The competitive advantage that big data portfolios offer in the marketplace is reduced. With regard to music metadata, an open access repository can level the playing field and enhance the chances of – potentially European – newcomers to compete with established big tech companies. Arguably, an open access music metadata repository may lead to more competition and the diversification of platform and AI services. From the perspective of the music industry, this may have the positive side effect that the dependence on a handful big platform and AI providers is reduced. The moment more music outlets emerge, including platform and AI offers by small and medium-sized companies, artists and music companies can also benefit from a broader choice of potential partners to develop music distribution strategies. A small or medium-sized music record label need no longer

fight like David against big tech Goliath.[255] Instead, the record label can look for a small or medium-sized platform and AI provider.

An open data approach has additional advantages for artists and music companies if the open data collection includes work notifications for the purpose of content moderation and opt-out statements to impose an AI training embargo. An open access repository including these information items universalises Article 17(4)(b) notifications and Article 4(3) opt-out declarations. If a rightholder sends these statements and accompanying metadata to a central EU music metadata repository, the content moderation obligation and the AI training embargo become generally accessible information for all OCSSPs and AI developers using the data resources of the central repository. In this way, centrally accessible open access data can reduce the notification and opt-out burden which Articles 17(4)(b) and 4(3) impose on rightholders. The more the central open data resources are used, the less need for individual work notifications to each and every OCSSP and opt-out declarations on every website containing a rightholder's music. A regulatory intervention can maximise this effect and minimise work notification and opt-out burdens. If EU legislation makes use of the centrally recorded music metadata mandatory for OCSSPs and AI developers, artists and music companies can enjoy the advantages of a one-stop shop. Instead of sending individual work notifications to OCSSPs and posting individual opt-outs on various websites, they can simply make sure that their work notifications for content moderation and opt-out statements for AI training embargoes are recorded centrally at the EU music metadata repository.

As a final step, the transmission of music metadata to a central repository should take place in a specific standardised and interoperable format. The establishment of a comprehensive music metadata repository should be used as a vehicle to address the issue of data accuracy and timeliness, the need for descriptive data and open access for all players in the platform/AI space and, finally, the problem of data interoperability and data harmonisation. An obligation – or general agreement – requiring the submission of music metadata in harmonised and interoperable form to the central repository has the advantage for rightholders that it creates a generally accepted metadata submission standard. This generally accepted standard can lead to universal applicability of submitted metadata. If other addressees of metadata information, such as OCSSPs and AI trainers in the case of data transmissions under Articles 17(4)(b) and 4(3) CDSMD, would legally be bound to accept the information in this standardised format, artists and music companies would no longer have to deal with individual and fragmented data transmission standards, which may differ from one online platform to the other and require the submission of the same information in various metadata formats.

6.3.3 International ban on formalities

The international prohibition of formalities arising from Article 5(2) BC need not pose insurmountable obstacles when developing the outlined system of data transmissions in interoperable form. According to Article 5(2), "[t]he enjoyment and the exercise"[256] of the rights granted in Article 5(1) BC are not subject to any formal requirement. Article 5(1) includes the rights which the laws of the Berne Union countries "do now or may hereafter grant to their nationals, as well as the rights specially granted by

[255] Cf. European Commission, Directorate-General for Communications Networks, Content and Technology, *Study on contractual practices affecting the transfer of copyright and related rights and the creators and producers' ability to exploit their rights*, No. 2023-031, under Framework Contract CNECT/2022/OP/0036, Brussels, Ares(2023), 19 October 2023, 12; Stéphanie Carre, Stéphanie Le Cam, and Franck Macrez, *Buyout contracts imposed by platforms in the cultural and creative sector*, Study Requested by the JURI Committee, European Parliament, November 2023, 11, 23, 53-55.
[256] Article 5(2) BC.

this Convention."[257] As Stef van Gompel explains in his in-depth analysis of the scope of the prohibition in Article 5(2), the ban on formalities:

> includes formalities relating to the coming into existence, the maintenance and the enforcement of copyright. The Berne prohibition on formalities does not extend to formalities that regulate the extent of protection or the means of redress afforded to authors to protect their rights. This suggests that formalities are allowed if they establish the manner of exercising copyright, but not if their non-compliance renders the exercise of rights completely impossible.[258]

Within this matrix, the legal tools discussed above – the notification system following from Article 17(4)(b) CDSMD and the opt-out mechanism under Article 4(3) CDSMD – fall into the category of permissible formalities concerning the manner in which copyright is exercised and the regulation of the scope of protection.

This can hardly be denied in the case of the content moderation rules in Article 17 CDSMD: by providing that platform providers carry out an act of communication to the public or an act of making available to the public when they grant the public access to protected works uploaded by users, Article 17(1) CDSMD establishes direct, primary liability of online platforms[259] in an area that has traditionally been governed by the rules on secondary liability for the uploading of infringing content by users.[260] The specific design of liability rules in Article 17 CDSMD, including the possibility to avoid liability by purchasing licences and applying content filters (Article 17(4)(a) and (b) CDSMD), clearly regulate the scope of protection.[261] The fact that rightholders, as discussed above, are required to provide "relevant and necessary" information under Article 17(4)(b) CDSMD shows that the provision establishes a specific way of exercising copyright.[262]

Regardless of the specific liability system following from Article 17 CDSMD, rightholders can always enforce their rights against individual uploaders in situations where platform providers have not been granted a licence. Thus, rather than making the exercise of copyright dependent on formal

[257] Article 5(1) BC.

[258] Stef van Gompel, *Formalities in Copyright Law: An Analysis of Their History, Rationales and Possible Future*, Alphen aan den Rijn: Kluwer Law International 2011, 212.

[259] For a more detailed discussion of the legal nature of the right granted in Article 17 CDSMD, see M. Husovec/J.P. Quintais, 'How to License Article 17? Exploring the Implementation Options for the New EU Rules on Content-Sharing Platforms under the Copyright in the Digital Single Market Directive', *Gewerblicher Rechtsschutz und Urheberrecht International* 70 (2021), 325 (325-348).

[260] See M. Leistner, 'European Copyright Licensing and Infringement Liability Under Art. 17 DSM-Directive Compared to Secondary Liability of Content Platforms in the U.S. – Can We Make the New European System a Global Opportunity Instead of a Local Challenge?', *Zeitschrift für Geistiges Eigentum/Intellectual Property Journal* 26 (2020), 123 (123-214); M. Husovec, *Injunctions Against Intermediaries in the European Union – Accountable But Not Liable?*, Cambridge: Cambridge University Press 2017; C. Angelopoulos, *European Intermediary Liability in Copyright: A Tort-Based Analysis*, Alphen aan den Rijn: Kluwer Law International 2016; M.R.F. Senftleben, "Breathing Space for Cloud-Based Business Models – Exploring the Matrix of Copyright Limitations, Safe Harbours and Injunctions", *Journal of Intellectual Property, Information Technology and E-Commerce Law* 4 (2013), 87 (87-90 and 94-95); T. Hoeren/S. Yankova, 'The Liability of Internet Intermediaries – The German Perspective', *International Review of Intellectual Property and Competition Law* 43 (2012), 501; R. Matulionyte/S. Nérisson, 'The French Route to an ISP Safe Harbour, Compared to German and US Ways', *International Review of Intellectual Property and Competition Law* 42 (2011), 55; M. Peguera, 'The DMCA Safe Harbour and Their European Counterparts: A Comparative Analysis of Some Common Problems', *Columbia Journal of Law and the Arts* 32 (2009), 481.

[261] Cf. van Gompel, id. 212.

[262] Cf. van Gompel, id. 212.

requirements and "completely impossible",[263] Article 17(4)(b) provides rightholders with an additional means of ensuring the unavailability of their works on online platforms.

The same conclusion can be drawn with regard to the opt-out mechanism in Article 4(3) CDSMD. The rights reservation option in this provision offers copyright holders an additional, extended scope of protection and an additional means of redress in a situation that, from the perspective of international copyright law, falls outside the scope of the right of reproduction altogether.[264] Moreover, the Berne Convention itself contains a longstanding opt-out system that concerns the reproduction of press articles. Article 10bis(1) BC reads as follows:

> It shall be a matter for legislation in the countries of the Union to permit the reproduction by the press, the broadcasting or the communication to the public by wire of articles published in newspapers or periodicals on current economic, political or religious topics, and of broadcast works of the same character, in cases in which the reproduction, broadcasting or such communication thereof is not expressly reserved.

The reservation of rights reflected in this provision entered the Berne Convention as an element of the debate on the protection of publications in newspapers and periodicals, and the freedom to use news information and newspaper articles with the exception of serial stories and tales.[265] Article 10bis(1) evolved from industry practice more than a century ago. At the time, newspapers considered the reproduction of their articles in other newspapers as an advertisement and promotion of their activities.[266] In particular, local newspapers with limited financial resources could hardly have satisfied the news demand of their readers without reproductions of newspaper articles taken from bigger newspapers.[267]

The forms of exploitation covered by Article 10bis(1) BC – reproduction, broadcasting and communication to the public – are central modes of exploiting press articles and broadcasts. Moreover, the provision concerns the initial exploitation period. Article 10bis(1) BC explicitly refers to "current economic, political or religious topics." Hence, it exempts the use of articles that are still fresh and have news value. As the rightholder can opt out by reserving copyright, however, the risk of overbroad inroads into the market for original news products is minimised. Considering this prototype for opt-out rules in the Berne Convention itself, it can hardly be concluded that opt-out mechanisms, such as Article 4(3) CDSMD, impose impermissible copyright formalities in the sense of Article 5(2) BC.[268]

---

[263] Cf. van Gompel, id., 212.

[264] Cf. M.R.F. Senftleben, 'Compliance of National TDM Rules With International Copyright Law – An Overrated Nonissue?', *International Review of Intellectual Property and Competition Law* 53 (2022), 1477 (1502).

[265] As to the development of the provision in the Berne Convention, see S. Ricketson/J.C. Ginsburg, *International Copyright and Neighbouring Rights – The Berne Convention and Beyond*, 3rd ed., Oxford: Oxford University Press 2022, 796-800; L. Guibault, 'The Press Exception in the Dutch Copyright Act', in: P.B. Hugenholtz/A.A. Quaedvlieg/D.J.G. Visser (eds.), *A Century of Dutch copyright law – Auteurswet 1912–2012*, Amstelveen: deLex 2012, 443 (447-450).

[266] See L. Guibault, *Copyright Limitations and Contracts – An Analysis of the Contractual Overridability of Limitations on Copyright*, The Hague/London/New York: Kluwer Law International 2002, 58, as to the rationales underlying the newspaper exemption.

[267] Guibault, id., 444-445: "Hardly any newspaper in those days could survive without citing or borrowing articles from prestigious foreign publications."

[268] For a more detailed discussion of these opt-out mechanisms, see Higher Regional Court of Hamburg, 10 December 2025, case 5 U 104/24, Kneschke/LAION, insisting on machine-readable opt-out statements. Cf. M. Leistner/L. Antoine, 'TDM and AI Training in the European Union – from 'LAION' to Possible Ways Ahead?', available at: https://ssrn.com/abstract=5178237, 6-8; A. Engelfriet/D.J.G. Visser DJG, 'Werkt de mijnwerk opt-out

All in all, the notification system following from Article 17(4)(b) CDSMD and the rights reservation option provided by Article 4(3) CDSMD are permissible formalities that only increase the scope of protection and regulate the way copyright is exercised in specific contexts which, in the absence of the approach taken in the EU, would be a matter of secondary platform liability for infringement (Article 17(4)(b)) or an act of use falling outside the realm of copyright protection altogether (Article 4(3)). Against this background, the prohibition of formalities following from Article 5(2) BC does not pose obstacles when notifications under Article 17(4)(b) CDSMD and rights reservations under Article 4(3) CDSMD are combined with an obligation to create and submit metadata in a standardised format not only to OCSSPs and AI trainers but also to a central EU data collection point that could be established at the EUIPO.

6.3.4 Data contributions of OCSSPs and AI trainers

A final question with regard to an EU music metadata infrastructure concerns the potential contribution of platform and AI service providers receiving work notifications under Article 17(4)(b) and processing opt-outs declared under Article 4(3). From an investment perspective, it may be said that the current work notification and opt-out approach creates an imbalance in favour of large technology companies behind OCSSP platforms and AI tools. In line with Articles 17(4)(b) and 4(3), the creative industry – artists and music companies in the case of music productions – is bound to create the metadata necessary for effective work notifications and opt-out statements. Hence, the music industry must provide the financial resources for complete, accurate and constantly updated metadata. As a result of the notification and opt-out obligations arising from Article 17(4)(b) and 4(3), these metadata flow to OCSSPs and AI developers. Ultimately, the providers of platform and AI services, thus, are beneficiaries of the substantial investment in metadata made in the music industry. Viewed from this perspective, the question arises whether, in return, the platform and AI industry could be obliged to contribute to a comprehensive EU music metadata repository as well. In principle, it is conceivable that OCSSPs and AI developers make enriched and harmonised datasets available that they were able to put together on the basis of work notifications and metadata-supported opt-outs they received and collected with their crawlers.

From a legal viewpoint, however, it is difficult to impose an obligation on OCSSPs and AI trainers to share datasets that they prepared by processing and structuring Article 17(4)(b) notifications and Article 4(3) opt-outs, or by mingling metadata flowing from these notifications and opt-outs with other data sources they have available. First, it is not unusual that the party seeking to enforce a right in civil law – artists and music companies in the case of work notifications and opt-out statements under Articles 17(4)(b) and 4(3) – must carry the burden of furnishing proof and substantiating the claim. Quite clearly, the work notifications and opt-out statements must come from the rightholders in the music industry. This follows from the configuration of Articles 17(4)(b) and 4(3). If the legislator wanted to eliminate indirect data hegemony benefits for OCSSPs and AI trainers who receive or collect music metadata when processing work notifications or opt-out statements, it would be necessary to change the architecture of the content moderation and TDM rules. Second, the EU has created specific sui generis database rights that further strengthen the position of OCSSPs and AI developers in the debate. The Database Directive ("DBD")[269] affords sui generis database protection against unauthorised acts of

voor mijn werk?', *Auteursrecht* 2024 (2024), 8 (11-14); P. Mezei, 'A Savior or a Dead End? Reservation of Rights in the Age of Generative AI', *European Intellectual Property Review* 46 (2024), 461 (465-468); iby M.R.F. Senftleben, 'Generative AI and Author Remuneration', *International Review of Intellectual Property and Competition Law* 54 (2023), 1535 (1544-1546).

[269] Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996, on the Legal Protection of Databases, *OJ* 1996 L 77, 20.

data extraction and re-utilisation[270] once the database maker can demonstrate a substantial investment in either the obtaining, verification or presentation of database contents.[271] Article 1(2) DBD defines databases eligible for protection as collections "of independent works, data or other materials arranged in a systematic or methodical way and individually accessible by electronic or other means."[272] Metadata collections which OCSSPs and AI trainers compile with data derived from Article 17(4)(b) notifications and metadata-supported Article 4(3) opt-outs are likely to constitute databases within the meaning of this definition. Substantial investment in the obtaining of metadata is unlikely. OCSSPs and AI trainers obtain music-related metadata automatically in consequence of the legislative design of Articles 17(4)(b) and 4(3). However, it cannot be ruled out that they make a substantial investment in the sense of the DBD when verifying, harmonising, arranging and presenting obtained metadata. As EU law, thus, gives OCSSPs and AI trainers a sui generis database right as an incentive and reward for collecting music metadata stemming from Article 17(4)(b) notifications and Article 4(3) opt-outs, it would be inconsistent to assume that the same act of accumulating and structuring music metadata amounts to an act of unfair competition that justifies countermeasures, such as an obligation to share enriched and systematically arranged data collections with a central EU music metadata repository. The chances of including enriched platform and AI data collections in an EU music metadata infrastructure are thus slim – unless large technology firms behind online platforms and AI services would be willing to make metadata collections available voluntarily.

6.4 Conclusion

With the work notification mechanism in Article 17(4)(b) and the opt-out possibility under Article 4(3) CDSMD, EU copyright legislation seeks to strengthen the position of artists and music companies vis-à-vis online platforms and AI developers. From the perspective of copyright data governance, however, these provisions may have unintended side effects. Instead of strengthening the position of artists and music companies, they set in motion metadata streams from the music industry to OCSSPs and AI developers. Ultimately, these metadata streams fortify the data hegemony of large technology companies. They may even increase the dependence of artists and music companies on big tech platforms and AI systems for the distribution of content.

To counterbalance the data hegemony of platforms and AI providers, it is advisable to establish a comprehensive EU music metadata infrastructure – a central data repository that would bundle Article 17(4)(b) work notifications sent to OCSSPs and Article 4(3) opt-out statements that are accompanied by metadata. If these work notifications and opt-out declarations are in parallel collected and pooled in a central EU music metadata repository, the resulting accumulation of music data could lead to a promising data reservoir that can compete with the data collections held by OCSSPs and AI trainers. The music metadata collected at a central EU repository should be made available as an open access data resource to ensure general data accessibility and data transparency for all interested data users. In this way, the establishment of a central EU music metadata repository can support start-ups and ensure equal chances in the metadata arena – regardless of whether an OCSSP or AI trainer is a small, medium-sized or big company.

To arrive at an attractive metadata collection in a central EU repository, however, it is important to enrich work notifications under Article 17(4)(b) and opt-out statements under Article 4(3) with

[270] For a definition of these modes of use, see Article 7(2) DBD.
[271] The threshold for assuming a substantial investment need not be particularly high. For instance, see CJEU, 9 October 2008, case C-304/07, Directmedia/Universität Freiburg, para. 24, where an investment of 34.900€ had been deemed sufficient by the national judge.
[272] Article 1(2) DBD.

descriptive metadata reflecting the genre, style and content of the notified music in addition to information on authors, performers and rightholders. Arranging the metadata in a central collection, it is also important to devote sufficient attention to smaller and lesser-known (country) repertoires in order to make the full spectrum of cultural diversity in the EU visible. Finally, the issue of data harmonisation and interoperability must be addressed. To provide music metadata that are not only accurate but also harmonised and interoperable, the obligation to transmit metadata to a central EU repository should also be supplemented with an obligation to provide the data in a specific, standardised format. Hence, copyright law should be used as a tool to address not only the issue of data accuracy and timeliness, but also the need for descriptive information on the nature and characteristics of musical works, and the problem of data interoperability and data harmonisation. If OCSSPs and AI trainers are legally bound to accept music metadata in the standardised format established by the central EU repository, copyright holders, including artists and music companies, would no longer have to deal with potentially fragmented data transmission standards, which may differ from one data user to the other and require the submission of the same information in various formats.

7 Music metadata governance: a legal perspective

7.1 Introduction

The governance of music metadata, that is to say the mix of rules regulating access and transferability of data about musical works, as well as the institutional elements of such model, are important yet often underexplored aspects of the music metadata life cycle. They are important aspects as they look at some of the foundational legal mechanisms governing the circulation of certain assets, namely (meta) data. Yet, they are often underexplored since, at least within the scope of the present analysis, they relate to a recent mix of diverse legislative interventions, whose effects in practice are still largely untested and already under scrutiny for possible amendments.[273]

Within this recent and diverse legislative framework, which in this article is referred to as Data and Digital Legislation (DDL), the concept of Common European Data Spaces (CEDS) crystallizes the most recent policy efforts deployed on the EU level to regulate data transactions and stimulate value creation from data. In other words, the institutional regulatory action in the field has unfolded on various levels in parallel and the legislative level (DDL) has been complemented by a second policy and infrastructural level (CEDS), which, by building on the former, attempts to offer a tangible and complementary working model for incentivising data transactions in the EU.

The extent to which CEDS and DDL may play a role in favouring access and portability of music (meta)data is an interesting question given the documented need, particularly at the EU level, to enhance the visibility and findability of the culturally rich, but often difficult to find, European musical landscape.[274] Whereas DDL does not tackle directly the field of music (meta)data, the justifications underpinning the former can easily be transposed to the problems of the latter. A good example of this transitive property can be found in Rec. 2 of the DA where, setting out the needs for EU intervention, the Regulation states that barriers to data sharing prevent an optimal allocation of data for the benefit of society and that “Those barriers include ... the high level of fragmentation of information in data silos, poor metadata management, the absence of standards for semantic and technical interoperability, ... a lack of common data sharing practices and the abuse of contractual imbalances with regard to data access and use”. Whereas music metadata does not find an explicit recognition in this passage or more generally in DDL, it is difficult not to see a clear link between the (meta)data access and interoperability problems identified by the DA with regards to the data economy and the shortcoming in the music metadata sector. This chapter argues that the barriers to music metadata sharing are not primarily sector-specific disorders, but manifestations of the same structural asymmetries, namely control over infrastructures, metadata opacity, contractual imbalance, that have motivated the EU’s data strategy.

Nevertheless, due to the recency of the CEDS policy and regulatory environment, which is still largely in the making, it would be difficult to offer a conclusive roadmap of the interaction between music (meta)data and CEDS relevant legislation at this point in time. Accordingly, this chapter sets out to map

[273] See European Commission, Proposal for a Digital Ominbus, Brussels, 19.11.2025 COM(2025) 837 final 2025/0360 (COD).
[274] Martin Senftleben, Thomas Margoni et al., Ensuring the Visibility and Accessibility of European Creative Content on the World Market - The Need for Copyright Data Improvement in the Light of New Technologies and the Opportunity Arising from Article 17 of the CDSM Directive 13 (2022) JIPITEC 67.

and lay the groundwork for further explorations of the opportunities and potential challenges that CEDS may represent in the field of music (meta)data.

7.2 The regulatory framework

CEDS's regulatory framework is vast and could very well encompass any element of EU or domestic law actionable upon a transaction having data as an object, the governance of data, or data infrastructures. Despite this preliminary observation, it is nonetheless possible to identify a few selected statutory interventions in DDL that are particularly significant for EU's data strategy:[275] the Open Data Directive (ODD[276]), the Data Governance Act (DGA[277]), the Data Act (DA[278]), the AI Act (AIA[279]), as well as certain specific sectorial interventions such as the Health European Data Space Regulation (HDSR [280]). Additional instruments such as the Digital Services Act (DSA[281]) and the Digital Markets Act (DMA[282]) may also contain important rules affecting CEDS, even if they do not focus specifically on data. Finally, the *copyright acquis* as well as cognate areas such as trade secrets, while not constituting data or digital legislation, are certainly relevant areas which may overlap and interface with various provisions contained in DDL.

It should further be observed that these overlaps or interfaces with the *copyright acquis* are often preventively identified in the DDL. However, the way in which these overlaps are addressed is frequently entrusted to the pragmatic, but occasionally problematic, "without prejudice" approach. In other words, where DDL and the *copyright acquis* may be in tension, the solution is often summarised by a general clause in DDL clarifying that "this regulation is without prejudice to" followed by a list of EU law sources that should not be affected by the regulation containing the "without prejudice" provision. This list usually contains the main EU copyright directives.[283] Whereas there are many good reasons for such a provision, it is also clear, particularly from the perspective of the copyright scholar, that there will be, plausibly within CEDS dynamics, various situations where rules on data sharing usually contained in DDL

[275] Commission, 'A European strategy for data' COM(2020) 66 final, 12.
[276] Directive (EU) 2019/1024 of the European Parliament and of the Council of 20 June 2019 on open data and the re-use of public sector information (recast) (2019) OJ L 172/56.
[277] Regulation (EU) 2022/868 of the European Parliament and of the Council of 30 May 2022 on European data governance and amending Regulation (EU) 2018/1724 (Data Governance Act) (2022) OJ L 152/1.
[278] Regulation (EU) 2023/2854 of the European Parliament and of the Council of 13 December 2023 on harmonised rules on fair access to and use of data and amending Regulation (EU) 2017/2394 and Directive (EU) 2020/1828 (Data Act), (2023) OJ L, 22.12.2023 accessible at: https://eur-lex.europa.eu/eli/reg/2023/2854/oj.
[279] Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 laying down harmonised rules on artificial intelligence and amending Regulations (EC) No 300/2008, (EU) No 167/2013, (EU) No 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act), accessible at: https://eur-lex.europa.eu/eli/reg/2024/1689/oj/eng.
[280] Regulation (EU) 2025/327 of the European Parliament and of the Council of 11 February 2025 on the European Health Data Space and amending Directive 2011/24/EU and Regulation (EU) 2024/2847 (Text with EEA relevance), accessible at: https://eur-lex.europa.eu/eli/reg/2025/327/oj/eng.
[281] Regulation (EU) 2022/2065 of the European Parliament and of the Council of 19 October 2022 on a Single Market For Digital Services and amending Directive 2000/31/EC (Digital Services Act) (Text with EEA relevance), accessible at: https://eur-lex.europa.eu/eli/reg/2022/2065/oj/eng.
[282] Regulation (EU) 2022/1925 of the European Parliament and of the Council of 14 September 2022 on contestable and fair markets in the digital sector and amending Directives (EU) 2019/1937 and (EU) 2020/1828 (Digital Markets Act) (Text with EEA relevance), accessible at: https://eur-lex.europa.eu/eli/reg/2022/1925/oj/eng.
[283] See for instance Recital 3 DGA.

may contrast with rules protecting works or other subject matter (which could qualify as "data" under DDL) belonging to the copyright or trade secrets field.[284] In these cases, little guidance is offered. This situation, identified as the absence of legal "interlinkers" in the literature,[285] is subject to one evident exception in the DA. Art. 43 DA establishes an "interlinker" in its overlap with the *copyright acquis* and in particular with the *sui generis* database right (SGDR) established in Art. 7 of the Database Directive, clarifying that the SGDR does not apply when data is obtained from or generated by an IoT product or related service. Similar provisions, albeit with different tenor in scope, relating to the SGDR can be identified in other DDL sources.[286]

Within this broad DDL landscape, the following sections will identify selected provisions or chapters in light of their mandatory nature, likelihood of application, or by the fact that, while not directly applicable to the musical sector, they nonetheless represent a potentially relevant regulatory model, sharing similar policy concerns.

7.2.1 Data as a regulatory narrative

There are various possible starting points when approaching a regulatory reconstruction of the DDL and of its relevance for CEDS. This is due, on the one hand, to the broad scope of the DDL and, on the other hand, to the dynamic nature of CEDS. The perspective adopted here focuses on the concept of data as a direct object of regulation, i.e., as a concept that not only receives a specific definitory attention, but one that attracts a whole taxonomy of data types, which often enjoy, or are subjected to, specific rights and obligations.

DDL defines data as: "any digital representation of acts, facts or information and any compilation of such acts, facts or information, including in the form of sound, visual or audio-visual recording".[287] The DDL also offers definitions of personal data (as defined in the GDPR[288]) and of non-personal data (as any other data[289]). Interestingly, the DA includes a definition of metadata as: "a structured description of the contents or the use of data facilitating the discovery or use of that data".[290] Within this broad and horizontal definition(s) of "data", the DDL offers additional sector-specific definitions, which often include both personal, non-personal and meta-data. A brief overview of relevant sector-specific data categories provided for by various DDL instruments follows.

7.2.2 Data taxonomies

Proceeding in temporal order, the first act of secondary legislation creating specific data (sub-)categories is the ODD. Of particular relevance for present purposes are the concepts of High value datasets (HVD) and research data.

[284] Regarding the specific case of the Data Act and the Trade Secrets Directive see De Noyette, E., Stähler, L. & Margoni, T. Data Secrets: The Data Act's New Trade Secrets Framework. *IIC* **56**, 984–1014 (2025). https://doi.org/10.1007/s40319-025-01601-9.
[285] Margoni/Strowel, Contractual freedom and fairness in EU data sharing agreements, in de Werra & Calboli (Eds), Research Handbook on Intellectual Property Licensing; 2024, Edward Elgar, forthcoming.
[286] Art. 5(7) DGA: "Re-use of data shall be allowed only in compliance with intellectual property rights. The right of the maker of a database as provided for in Article 7(1) of Directive 96/9/EC shall not be exercised by public sector bodies in order to prevent the re-use of data or to restrict re-use beyond the limits set by this Regulation".
[287] Art. 2(1) DA.
[288] Art. 2(3) DA.
[289] Art. 2(4) DA.
[290] Art. 2(2) DA.

7.2.2.1 High-Value Datasets

The ODD defines High-Value Datasets (HVD) "as documents the re-use of which is associated with important benefits for society, the environment and the economy" (ODD, Art. 2(10)). The potential value of HDV have been grouped into six macro-categories that should serve as guiding categories for the specific identification of HDV: economic benefits; environmental benefits; generation of innovative services and innovation (innovation and artificial intelligence); reuse; and the improving, strengthening, as well as supporting of public authorities in carrying out their missions.[291] These six macro categories were split into 32 subcategories of value, which were supported by nothing less than a total of 126 quantitative and qualitative indicators contributing to the specific identification of each thematic category.[292] HVD must be made available free of charge, in machine-readable format, via APIs and where appropriate, as a bulk download. In January 2023, the Commission's Implementing Regulation laying down a list of specific high-value datasets and the arrangements for their publication and re-use[293] entered into force, giving Public Sector Bodies (PSBs) 16 months to make the relevant HVD available. HVD should be found in thematic categories such as postcodes, national and local maps (geospatial), energy consumption and satellite images (earth observation and environment), in situ data from instruments and weather forecasts (meteorological), demographic and economic indicators (statistics), business registers and registration identifiers (companies and company ownership), road signs and inland waterways (mobility). Music metadata are not present. However, it seems quite clear that the function played by the thematic datasets, particularly in the field of statistics and registration identifiers (e.g., company ownership), could offer an interesting *de lege ferenda* inspiration for a potential future inclusion of music metadata, particularly if they were collected or managed by a Public Sector Body. Alternatively, a similar effect could even be conceived outside the ODD, in a future intervention dedicated to the European music (meta)data sector.

7.2.2.2 Research Data

Research data are a second specific category identified in the ODD. They are defined as "documents in a digital form, other than scientific publications, which are collected or produced in the course of scientific research activities and are used as evidence in the research process or are commonly accepted in the research community as necessary to validate research findings and results" (ODD, Art. 2(9)). Art. 10 clarifies that research data must be re-usable for both commercial and non-commercial purposes when researchers have already made it publicly available through an institutional or subject-based repository.[294] It seems less clear whether research data could become a relevant category in the field of music metadata management. Nonetheless, the reuse requirements of this category remain an interesting model for how data access and reuse rules could be construed.

HVD and research data are two instances of specifically identified types of data subjected to specific access and reuse obligations. However, it should not be overlooked that the ODD regulates more broadly Public Sector Information, a category for which it has introduced a general framework of "reusability" by default. For those types of data (or better, following the ODD taxonomy, documents

[291] European Commission: Directorate-General for Communications Networks, Content and Technology, *Impact assessment study on the list of high value datasets to be made available by the Member States under the Open Data Directive*, Publications Office of the European Union, 2020, https://data.europa.eu/doi/10.2759/493091
[292] See "High-value datasets – an overview through visualization", https://data.europa.eu/en/publications/datastories/high-value-datasets-overview-through-visualisation.
[293] Commission Implementing Regulation (EU) 2023/138 of 21 December 2022 laying down a list of specific high-value datasets and the arrangements for their publication and re-use [2023] OJ L 345/12.
[294] Van Eechoud, 'FAIR, FRAND and open - The institutionalization of research data sharing under the EU data strategy,' in Susy Frankel and others (Eds), *Improving Intellectual Property* 2023, 320.

and information) that do not fit into the remit of the ODD, the DGA, among other goals, has advanced a set of conditions for the re-use of public sector data. Once again, there does not seem to be a clear link with music metadata in the reuse by default provisions of the ODD and DGA, unless the entity holding the music metadata qualifies as a PSB. Yet, the general approach rooted in the facilitation of reuse of data could represent a regulatory model for music metadata.

In any event, it is important to note that information containing third-party rights (including personal and IP) represent a barrier to the re-use by default rule of the ODD/DGA ecosystem. Music metadata could certainly qualify as information in which third parties hold personal or IP rights. Relevantly, Ch II of the DGA introduces a voluntary framework that enables public sector bodies to permit the re-use of protected data subject to defined safeguards. It requires Member States to set up single information points and standardized request procedures, and provides for controlled access conditions, including secure processing environments (Art. 5(3)(b) and (c)), as well as measures such as anonymization or aggregation and the provision of modified or redacted outputs (Art. 5(3)(a)).

Whereas the ODD and DGA set some interesting access and reuse rules, a common denominator of these two legislative interventions is that they refer generally to publicly held data. Music metadata may nevertheless be found more commonly within a private data exchange environment. From this perspective the DA embodies an element of novelty as it introduces some interesting access and reuse provisions with regard to (mainly) privately held data.

7.2.2.3 IoT Data

Accordingly, and following the proposed taxonomical ordering, a third specific type of data triggering new access rights involves the data generated by Internet of Things (IoT) devices. These devices, or more precisely *connected products and related services,*[295] are a broad category of products (and related services) that span from everyday home or consumer appliances (smart fridges, smart TVs, etc) to professional devices in ambits as varied as precision agriculture and industrial machinery. Chapter 2 of the DA, which regulates business-to-consumer (B2C) and business-to-business (B2B) data sharing, establishes that IoT products and related services must be designed in such a way that the generated data, including metadata necessary for their interpretation, are directly accessible to the users (Art. 3(1) DA). Art. 4, further establishes that, when IoT data cannot be directly accessed by users, data holders are under an obligation to make such data, including metadata, accessible to the user, without delay and free of charge in a comprehensive, structured and commonly used machine-readable format (Art. 4(1) DA). This provision, despite being variously limited,[296] creates a general data access provision for users of IoT data, which can include audio, visual or audiovisual recording and related metadata. What is more, Art. 5 DA establishes a "right of the user to share data with third parties". That said, it seems that the provisions on IoT devices will be of limited impact on music metadata, in the light of the fact that IoT products "obtain, generate or collect ... data concerning their performance, use or environment" and that "data that such sensor-equipped connected products generate when the user records, transmits, displays or plays content, as well as the content itself, which is often covered by

[295] They are defined respectively as "items that obtain, generate or collect data concerning their use or environment and that are able to communicate product data via an electronic communications service and whose primary function is not the storing, processing or transmission of data on behalf of any party other than the user" and as "digital services, other than an electronic communications service, including software, which are connected with the product at the time of the purchase, rent or lease in such a way that their absence would prevent the connected product from performing one or more of its functions" (Art. 2(5) and (6) DA).
[296] Limitations of users' access rights include the preservation of the security of the IoT products and of trade-secrets that may be part of the IoT data (Art. 4 DA).

intellectual property rights, inter alia for use by an online service, should not be covered by this Regulation" (Rec. 16 DA). Nevertheless, and despite these limitations, Arts. 4 and 5 afford users of IoT products not only a right of access to (meta)data but also a right of portability of eligible data vis-à-vis data holders, whereby they can ask the data holder to share those (meta) data with a designated third party, including for the development of additional services.

IoT data access and portability are interesting examples of how the DA intervenes in data transactions between private actors with very specific contractual and precontractual obligations. The declared objectives of this course of action are multifaceted. Particularly relevant for the present analysis, is the evident ambition to rebalance the asymmetries that characterise a market where the developer of a product or services (in this case IoT devices) has a *de facto* power to control co-generated data thanks to their ability to design the technology.[297] Additionally, the DA clarifies a broader set of objectives aimed at ensuring fairness in the allocation of data value among the actors in the data economy and at fostering fair access and use of data in order to contribute to establishing a genuine internal market for data.[298] In the specific case of IoT these data are potentially valuable to the user, to support innovation and to develop secondary markets.[299] While these provisions do not apply to music metadata, they nonetheless illustrate a regulatory logic that could inform future interventions in this field. For these reasons, an analogous mechanism, applied to the field of music metadata, could certainly be functional to the creation of third-party music metadata repositories. This approach would undoubtedly require a dedicated legislative intervention intended to create or adapt the described data portability mechanism to the field of music data, but the conceivable pro-competitive effects appear aligned to the goals of the DA.

In conclusion of this section, it can be reiterated how the selected three data types, which are all functional to the development of a working market for data through the establishment of relevant data infrastructures and governance frameworks[300] (also known as Common European Data Spaces), are not specifically devised, nor are arguably applicable in the case of IoT, to music (meta)data. Yet, many of the problems that DDL attempts to address via a semi-regulated data market seem *prima facie* to also characterise the field of music metadata. Furthermore, the dynamic nature of Common European Data Spaces allows for the development of sector-specific governance models, including those based on the specificities of music metadata.[301] Accordingly, while DDL finds limited direct applicability to the field of music metadata, the market distortions that have underpinned its adoption are not too dissimilar to those also found in the field of music metadata.

7.2.3 Other data relevant provisions

DDL is a rich and complex regulatory area for data. Numerous provisions enacted by this recent body of law may acquire relevance in certain specific data transaction and thus deserve closer scrutiny. This section identifies a few of these provisions which due to their general applicability have a higher likelihood to be triggered in the case of a hypothetical CDES for music (meta)data. It should be nonetheless noted that their actual relevance will depend on the specific legal qualification of the

[297] American Law Institute and European Law Institute, 'ALI-ELI principles for a data economy – Data transactions and data rights, 2017-2021' (2022) the American Law Institute and the European Law Institute.
[298] Rec. 119 DA; for a critical perspective see Kerber Wolfgang, 'Governance of IoT Data: Why the EU Data Act Will Not Fulfill Its Objectives' (2023) GRUR International 72(2), 120–135.
[299] Rec. 15 DA.
[300] Commission, 'Commission Staff Working Document on Common European Data Spaces' SWD (2024) 21 final, 4.
[301] Marina Micheli and others, 'Mapping the landscape of data intermediaries — Emerging models for more inclusive data governance' Publications Office of the European Union (2023), 13.

transactions relating to music metadata as well as on the final design that a music metadata repository or registry will adopt.

7.2.3.1 Data Contracts

Ch. 4 of the DA regulates unfair contractual terms related to data access and use between enterprises and applies "to any private sector data access and use on the basis of a contract between enterprises" (Art. 1(2)(c) DA). Therefore, differently from previous chapters of the DA that only apply to certain data (e.g., Ch. 2 is limited to IoT data) or to certain types of obligations (Ch. 3 is limited to situations where data holders are under an obligation to share data with a data recipient), Ch. 4 applies to any contract under EU law that has as its object data access or data uses between enterprises. Rec. 60 clarifies that not all aspects of data contracts are covered, but only those elements that "are related to making data available, that is contractual terms concerning access to and use of the data as well as liability or remedies for breach and termination of data related obligations". Even so delimited, this remains a potentially broad set of regulated situations.

In general terms, Ch. 4 establishes that unfair contractual terms, when unilaterally imposed by one enterprise on another, shall not be binding on the second enterprise. Accordingly, Ch. 4 possesses a remarkable width in scope, as it applies to any contract having as an object data, therefore including contracts about music (meta)data. Such remarkable generality in scope is matched by the ambition to regulate unfairness in data contracts: contractual terms which have been unilaterally imposed by an enterprise on another enterprise, shall not be binding on the latter if they are unfair.[302] Unfairness is defined as grossly deviating from good commercial practice in data access and use, contrary to good faith and fair dealing (Sec. 3). Such general statement is further elaborated by a list of cases of "mandatory unfairness" (Sec. 4) and a second list of "presumed unfairness" (Sec. 5). The former lists situations where the imposing party: (a) excludes or limits its liability for intentional acts or gross negligence; (b) excludes remedies in the case of non-performance of contractual obligations; or (c) gives the imposing party the exclusive right to determine whether the data supplied are in conformity with the contract or to interpret any contractual term.

Situations of presumed unfairness include, among other provisions, contractual terms that inappropriately limit the remedies in the case of non-performance for the imposing party or extend the liability of the imposed party; terms that allow the imposing party to access and use the data of the other contracting party in a manner that is significantly detrimental to the legitimate interests of the other contracting party, in particular when it contains data that is commercially sensitive or protected by trade secrets or by intellectual property rights; terms that prevent the imposed party from using the data provided or generated by that party during the period of the contract, or further limit the use of such data, including cases where that party is not entitled to use, capture, access or control the data.

Sec. 6 further clarifies when a contractual term is to be considered unilaterally imposed and indicates not only the logical element that it has been supplied by one contracting party to the other but also elucidates that the other contracting party has not been able to influence its content "despite an attempt to negotiate it". Moreover, in an apparent attempt to balance contractual freedom and contractual fairness, Sec. 6 adds that the contracting party that supplied the contractual term bears the burden of proving that that term has not been unilaterally imposed.

This is a fascinating effort to enhance fairness in data contracts, including in situations of business-to-business transactions. These rules find applicability in a generality of situations where the object of a

[302] Art. 13 DA.

contract is access to and the use of data or liability and remedies for the breach or the termination of data related obligations, therefore including music (meta)data. At the same time, most of the examples given in the Regulation of mandatory or presumed unfair data clauses refer either to remedies and liabilities or to the possibility of one party to unilaterally limit the type of uses of data by the other party. These provisions will not represent a seismic change in the practice of data contracts in the EU, but they will certainly affect those contractual transactions characterized by unfairness, likely originating in informational asymmetries.

Within music (meta)data CEDS, the DA's intervention on unfair contractual terms offers a potentially relevant corrective, not by dismantling existing contractual and data sharing practices, but by constraining the unilateral imposition of terms that significantly limit control over, or reuse of, music (meta)data in ways that depart from good commercial practice. In this sense, Ch. IV of the DA may acquire particular significance in music metadata markets where governance is shaped less by open standards than by platform-driven contractual ordering.

7.2.3.2 Data Governance

Ch. III of the DGA regulates Data Intermediation Services (DIS). Already the EU's 2020 Strategy for Data acknowledged the potential of data intermediaries as key enablers of data sharing.[303] In the DGA, DIS are defined as services which aim to "establish commercial relationships for the purposes of data sharing between an undetermined number of data subjects and data holders on the one hand and data users on the other, through technical, legal or other means". Providers of DIS may therefore in certain circumstances apply to "orchestrators of data sharing ecosystems" such as CEDS.[304] However, specifically excluded from DIS are "services that focus on the intermediation of copyright-protected content" (Art. 2(11) DGA). Rec. 29 further clarifies that "services that focus on the intermediation of copyright-protected content, such as online content-sharing service providers as defined in Article 2, point (6), of Directive (EU) 2019/790" should not be covered by the DGA. The precise meaning of "intermediation of copyright-protected content" is not fully clear,[305] however, given both the focus on the intermediation of (copyright-protected) content on the one hand, and the fact that the only offered example focuses on CDSM's online content-sharing service providers (OCSSPs), that is to say platforms whose "main or one of the main purposes is to store and give the public access to a large amount of copyright-protected works or other protected subject matter uploaded by its users", seem to suggest that platforms or other information society services whose purpose is not to store and give public access to works, but to (meta)data about works may be plausibly excluded from this category. Accordingly, music (meta)data spaces that do not directly store and give access to works, but facilitate contractual relationships, including on the basis of (meta)data, between parties may not qualify for this exclusionary category and therefore need to comply with the rules on Data Intermediation Services.

Another potentially important exclusionary category from data intermediation is enshrined in Art. 2(11)(a). It establishes that "services that obtain data from data holders and *aggregate, enrich or transform* the data for the purpose of adding substantial value to it *and license the use of the resulting*

[303] European Commission, *Commission Staff Working Document on Common European Data Spaces*, SWD(2022) 45 final, 23 February 2022; and European Commission, *Commission Staff Working Document on Common European Data Spaces*, SWD(2024) 21 final, 24 January 2024. See also *A European Strategy for Data*, COM(2020) 66 final, 19 February 2020, 27–34.
[304] Recital 28 DGA.
[305] Tervel Bobev, Vilté Kristina Dessers, Charlotte Ducuing, Michiel Fierens, Andrea Palumbo, Bert Peeters, Leander Stähler, 'White Paper on the Definition of Data Intermediation Services', (CiTiP White Paper, 2 October 2023) 18-20.

data to data users, without establishing a commercial relationship between data holders and data users" do not qualify as DIS. To the extent to which music CEDS and similar intermediaries fit into this category, which seems certainly plausible, particularly with regard to the requirement of data aggregation and subsequent licensing, they would not qualify as data intermediation services. An important aspect that would likely require a case-by-case verification relates to the contractual nature of the mandates between data/right holders on the one hand and users on the other hand. In order to benefit from the exclusion, the intermediary organization (a data space or similar) should most likely establish two different contractual relationships, one with right holders and one with users of those works, without creating or facilitating a direct commercial relationship between them. Under this point of view, it has been pointed out that the precise delineation of what constitutes an intermediation service and what is merely a value-adding service remains debated.[306] Whether music (meta)data space (or other music intermediaries) qualify as DIS or may benefit from the exclusionary provisions will arguably depend on the specific infrastructure and governance model of the service.

Establishing whether a data intermediation service qualifies as DIS is a rather important step. On the one hand, the DGA imagines DIS as a key intermediation service in the data economy thanks to their potential in supporting and promoting voluntary data sharing practices as well as in facilitating the mandatory exchange of data (Rec. 27). DIS are expected to develop facilitating roles in the emergence of "new data-driven ecosystems independent from any player with a significant degree of market power", while allowing non-discriminatory access to the data economy for SMEs and start-ups with limited financial, legal or administrative means, which is particularly important in the case of CEDS (Rec. 27). In other words, in order to create trust among data holders, data users and data subjects with the goal of fostering a competitive data sharing environment, DIS are imagined as neutral agents in data sharing contexts.

However, in order benefit from this certified and trust-bearing neutral status, the operations of DIS are highly regulated (Ch. 3 DGA). One of the key principles of DIS is the separation of data provision, intermediation and use in order to "offer a novel, 'European' way of data governance" in both B2B as well as in B2G data sharing dynamics. Among the most relevant obligations for DIS there are the provisions on mandatory notification to nationally identified competent authorities (Arts. 11, 13 DGA), and the conditions under which data intermediation services can be provided (Art. 12 DGA). Among the latter, of particular importance for the economic activity of DIS there are (a) prohibitions to use the data for which DIS provide intermediation for purposes other than to put them at the disposal of data users; (b) rules on regulated commercial terms including pricing; (c) a scope limitation in the collection of data; (d) limitations on the conversion of data in other formats than those in which it received them from data subjects or data holders; (e) the provision of additional data services; (f) FRAND-like requirements on the provision of their services; (i) obligations on ensuring interoperability of their services with those of other DIS; (m) an obligation to act in the interest of data subjects; and (o) logging and recording duties. Data altruism organizations and other not-for-profit entities operating for non-commercial purposes are exempted from these obligations (Art. 15 DGA). Also relevant in this context is the establishment of the European Data Innovation Board (EDIB), empowered to propose guidelines for CEDS.[307] Serving as an advisory body to the Commission, the EDIB addresses the DGA implementation,

[306] J Schweihoff et al. 'Stuck in the Middle with You: Conceptualizing Data Intermediaries and Data Intermediation Services' (2024) 34 *Electronic Markets* 48.
[307] Recital 54 and Artt. 29-30 DGA.

prioritizing cross-sectoral interoperability standards, and supporting the sharing of best practices across CEDS.[308]

To conclude this section, the centrality of neutral data intermediation services stands out as the chosen institutional regulatory mechanism to generate trust among data agents and consequently contribute to the development of a data economy in an "European" way. The policy objective is certainly, and correctly, ambitious, however the heavy regulatory burdens put on the shoulders of DIS, disjointed from any evident incentives of economic, legal or regulatory nature, have limited the practical success of this central category in the plan for a thriving data economy.[309]

Finally, recent policy developments further complicate this landscape. The Digital Omnibus Proposal suggests a significant recalibration of the DGA by moving several core requirements for data intermediation services from a mandatory to a voluntary, trust-enhancing regime.[310] Under this approach, DIS would become subject to fewer conditions and increasingly resemble optional certification or signaling mechanisms, rather than a robust regulatory anchor for trust.

7.2.3.3 Data Interoperability

The Data Act sees interoperability as an essential element of the EU data economy. This view emerges unquestionably in several parts of the DA preamble, for instance where the DA clarifies that interoperable (and high-quality) data from different domains "increase competitiveness and innovation and ensure sustainable economic growth" (Rec. 1 DA), or where it states that barriers to data sharing, such as semantic and technical interoperability, have negative impacts for society, economy and innovation (Rec. 2 DA).

Responding to those policy concerns, Ch. VIII of the DA stipulates an interesting set of interoperability requirements for participant in dataspaces. Notably, as a logical corollary to this stipulation, the chapter also provides a definition of common European data spaces (CEDS) as "purpose- or sector-specific or cross-sectoral interoperable frameworks for common standards and practices to share or jointly process data for, inter alia, the development of new products and services, scientific research or civil society initiatives". Ch. VIII is specific to data spaces, arguably to all data spaces – a *genus* to which the *species* Common European Data Spaces plausibly belongs – and sets forth a list of requirements that focus mainly on the interoperability and publicity of standards, formats, vocabularies, data structures and data processing services.

Art. 33, which applies to participants in data spaces that offer data or data services to other participants, establishes that they must comply with a series of essential requirements. These include (a) sufficient descriptions in machine readable formats of the content, use restrictions, licenses, qualities and methodology of datasets; (b) public descriptions of data structures, formats, classifications lists and taxonomies; (c) sufficient description functional to the automatic access and transmission of the technical means to access the data; as well as (d) mandatory provisions of the means to enable the interoperability of tools for automating the execution of data sharing agreements. Subsequent provisions of Art. 33 indicate the role of the EC and EDIB in proposing and adopting specific standards

[308] European Commission, 'Commission Staff Working Document on Common European Data Spaces' SWD (2024) 21 final, 6.
[309] Gabriele Carovano and Michèle Finck, 'Regulating data intermediaries: the impact of the Data Governance Act on the EU's data economy', 50 *Computer Law & Security Review* (2023), pp. 1-18, p. 2.
[310] See European Commission, Proposal for a Digital Ominbus, Brussels, 19.11.2025 COM(2025) 837 final 2025/0360 (COD).

intended to operationalize the aforementioned requirements and the evidentiary and procedural legal effects, i.e, presumptions of compliance, for data space participants in following adopted standards.

Adoption and compliance of standards intended for access, reuse and description of datasets and rules on their use is often a very technical matter and the legal obligations established in the DA offer only a high-level type of guidance. It can certainly be concluded, however, that CEDS including in the field of music (meta)data, must follow these rules and, when adopted, the implementing standards. As a general consideration, the rules on interoperability are intended to favor trust, access and reuse of data and to avoid anti-competitive situations such as vendor lock-ins or information asymmetries. It follows that CEDS which, even in the absence of specifically adopted implementing standards, embrace design choices reflecting the stated design principles, i.e., transparency, openness and public accountability, will most likely meet the legal requirements of the Chapter. In this direction, free and open source software and open content tools and licenses (GPL, MIT, Apache, Open Government licenses, Creative Commons licenses, etc) due to their public availability, machine readability and focus on access and reuse emerge as particularly valuable tools.

7.3 Concluding remarks

In conclusion, the regulatory framework created by DDL is a complex and multifaceted system of rules focusing on data access and portability, data governance models and data intermediaries. These rules and the connected specific areas of application vary, often in function of the precise goals of the relevant sector, discipline or type of data. Within this variegate situation, the analysis above focused on those provisions that do, or may, play an important role for a music (meta)data space. Rules on data contracts and on interoperability, while general in nature, will almost certainly be applicable to all data transactions and spaces. Specific rules on data access and portability, such as those contained in IoT, HVDs or research data provisions have probably limited effect on a music (meta)data space. However, as indicated, the economic and technological barriers that characterise the music (meta)data market in the EU, can be considered as functionally equivalent to those that the DA explicitly is set to address. From this point of view, the rules on data access and portability established for the three surveyed data types may very well offer a normative model on the basis of which to develop further regulatory interventions to open up the EU music meta data sector, should there of course be the willingness to intervene in this area.

Finally, with regard to the role of DIS, a role intended as “key” in the overall design of the EU data strategy, but which, for the reasons briefly discussed, has not (yet?) developed into a fully functional model, there is too much unclarity to be able to say whether a music (meta)data space will qualify or not. A lot will depend on the exact activities of this specific CEDS, in particular on whether it intermediates works or data (about works) and on the specific type of contractual relationships that it establishes between data holders and users. This uncertainty is further compounded by the fact that significant elements of the EU data and digital legislation, including the regime for DIS, are currently subject to potential revision under the Digital Omnibus Proposal. That said, these rules, either in their positive regulatory space (i.e., direct applicability) or in their negative one (i.e., governance and design choices made to avoid obligations to comply), must be studied carefully within music (meta)data spaces.

8 Conclusions

In order to enable European composers, performers and the European music industry to benefit more from recommender systems and from licensing opportunities in the field of new technologies, such as AI training, it would be beneficial to establish a comprehensive music metadata infrastructure that improves the visibility and accessibility of the entire European music repertoire in digital and algorithmic environments. This deliverable reports the main outcomes of the interdisciplinary legal research into avenues for music metadata improvement under Task 1.5. The focus is to analyse how EU law can contribute to improving music metadata for Europe so as to improve the visibility and availability of European repertoire to further the European music economy in general, as well as to further repertoire from composers and performers from a marginalized or underrepresented background in terms of language, ethnicity of gender.

Chapter 2 set the scene by exploring individual dynamics and problems in music data improvement and harmonisation, and stumbling blocks which have thwarted data improvement projects in the recent past. Based on document study (occasionally followed up by interviews) it discussed data improvement projects from the past decades, analysed the economic rationale behind such initiatives, as well as the challenges they faced.

Chapter 3 discusses how centralisation initiatives for copyright databases starting about a decade after the rise of online music consumption around the year 2000 failed in part due misaligned remuneration systems and economic priorities. Some challenges present since those early years have remained, while new ones have emerged with the advent of music streaming, and more recently also with GenAI music tools and services. Decentralised solutions also still have to grapple with metadata design challenges for attaining music metadata interoperability, generally with regard to domain specificity, granularity and provenance.

Major AI training on EU content by big tech companies that are based primarily in the US also reinforces the importance of at least trans-Atlantic interoperability of copyright (meta)data. The DGA's data intermediation services have been explored as a way to stimulate data flows between music industry actors. The transparency obligations in Article 50 and 53(1)(d) as of yet do not provide sufficient practical, enforceable rules that can improve metadata interoperability for GenAI music, also not through the explanations and guidance given in the First Draft Code of Practice in relation to Article 50 or the Explanatory Notice and Template for Article 53.

Chapter 4 concludes that music metadata is not a neutral technical layer but a key digital infrastructure through which the EU's constitutional commitments to cultural and linguistic diversity, artistic freedom, intellectual property, and equality are either realised or undermined. Because metadata determines how music is classified, discovered, and remunerated, its design can systematically disadvantage minority languages, less dominant territories, traditional repertoires, and women and non-binary creators, even when standards appear formally neutral. Drawing on EU primary law and the Charter, especially Article 22 CFR read alongside equality and expression guarantees, the chapter argues that the Union bears positive constitutional obligations in metadata governance whenever it regulates platforms, supports standards, or shapes digital cultural infrastructures. These obligations do not entail prescribing cultural content, but require enabling conditions that allow diverse repertoires to be represented and circulated on equal structural terms. Accordingly, EU-backed metadata standards and related regulatory instruments – across platform regulation, AI governance, copyright, cultural funding, and data policy – should explicitly assess and address the cultural, linguistic, and gender impacts of metadata practices. Understanding metadata

governance in these terms reframes it as a site where constitutional norms are translated into technical design choices, with implications not only for regulation but also for scholarship and practice.

For scholars, the analysis developed Chapter 3 suggests several avenues for further work: a closer engagement with the minutiae of metadata standards as quasi-constitutional artefacts; empirical research linking specific tagging practices to measurable differences in cultural visibility and remuneration across groups; and more fine-grained theorisation of how positive obligations operate in multi-level, polycentric regulatory environments like the EU's. For policymakers and industry actors, the message is simpler. If the Union is serious about respecting cultural and linguistic diversity, protecting artistic freedom, ensuring fair enjoyment of intellectual property, and combating indirect discrimination, it must treat metadata governance as part of its constitutional project. The grammar through which digital systems recognise music should not be allowed to speak fluently only in the languages and genres of the already dominant.

Chapter 5 argues that digital music platforms project abundance, linguistic diversity, and frictionless cross-border circulation, yet the infrastructures that organise musical discovery may systematically concentrate attention and marginalise large parts of the European repertoire. This tension does not stem from a failure of copyright in a narrow doctrinal sense. EU copyright law continues to perform its core functions: it secures lawful availability, enables rights management, and facilitates remuneration. What it does not do is govern visibility. In algorithmically curated markets, recommender systems occupy the pre-exploitation space between availability and engagement and thereby shape whether copyright can generate cultural and economic value at all. Their optimisation logics driven by metadata quality, engagement metrics, and commercial incentives structure cultural circulation in ways that may leave artists fully represented yet not meaningfully heard. Where discovery becomes infrastructural rather than incidental, cultural participation can no longer be assessed solely in terms of access or catalogue inclusion, but must also account for audibility.

Against such intricacies the Chapter argues that the condition of being represented but not heard raises constitutional concerns grounded in artistic freedom, freedom of expression, and the Union's commitment to cultural diversity. The right to cultural participation, reconstructed as a relational and infrastructural right to be heard, does not require equal outcomes or algorithmic neutrality, but points to the need for norms that prevent systemic exclusion where private platforms function as unavoidable gateways to cultural encounter. The proposed intervention, building on the prominence requirement in the AVMS Directive, responds to this challenge in a structurally modest way. It neither transforms music platforms into public broadcasters nor displaces entrepreneurial discretion but targets the governance of attention in markets where exposure is a function of design rather than availability. More broadly, the analysis suggests a shift in the locus of cultural regulation: where visibility is governed by algorithmic infrastructures, cultural policy can no longer rely solely on upstream instruments such as copyright and licensing. If European cultural diversity is to remain a lived experience rather than a formal attribute of catalogues, the legal framework must engage with the infrastructures that determine how culture is discovered, heard, and shared in practice.

Chapter 6 concludes that while the work notification mechanism in Article 17(4)(b) and the opt-out possibility under Article 4(3) CDSMD, seek to strengthen the position of artists and music companies vis-à-vis online platforms and AI developers, these provisions may have unintended side effects from the perspective of copyright data governance. Instead of strengthening the position of artists and music companies, they set in motion metadata streams from the music industry to OCSSPs and AI developers. Ultimately, these metadata streams fortify the data hegemony of large technology

companies. They may even increase the dependence of artists and music companies on big tech platforms and AI systems for the distribution of content.

To counterbalance the data hegemony of platforms and AI providers, the chapter concludes that it is advisable to establish a comprehensive EU music metadata infrastructure – a central data repository that would bundle Article 17(4)(b) work notifications sent to OCSSPs and Article 4(3) opt-out statements that are accompanied by metadata. The resulting accumulation of music data could lead to a promising data reservoir that can compete with the data collections held by OCSSPs and AI trainers and that should be made available as an open access data resource to ensure general data accessibility and data transparency for all interested data users. In this way, the establishment of a central EU music metadata repository can support start-ups and ensure equal chances in the metadata arena – regardless of whether an OCSSP or AI trainer is a small, medium-sized or big company.

To arrive at an attractive metadata collection in a central EU repository, it is important to enrich work notifications under Article 17(4)(b) and opt-out statements under Article 4(3) with descriptive metadata reflecting the genre, style and content of the notified music in addition to information on authors, performers and rightholders. Arranging the metadata in a central collection, it is also important to devote sufficient attention to smaller and lesser-known (country) repertoires in order to make the full spectrum of cultural diversity in the EU visible. To provide music metadata that are not only accurate but also harmonised and interoperable, the obligation to transmit metadata to a central EU repository should be supplemented with an obligation to provide the data in a specific, standardised format. Hence, copyright law should be used as a tool to address not only the issue of data accuracy and timeliness, but also the need for descriptive information on the nature and characteristics of musical works, and the problem of data interoperability and data harmonisation.

Chapter 7 observes that the regulatory framework created by Data and Digital Legislation (DDL) is a complex and multifaceted system of rules focusing on data access and portability, data governance models and data intermediaries. These rules and the connected specific areas of application vary, often in function of the precise goals of the relevant sector, discipline or type of data. Whereas there is little in the surveyed legal sources that deals specifically with music (meta)data, the analysis revealed three areas of attention.

The first refers to rules on data access and portability which, while not directly applicable to music (meta)data, could represent important sources of inspiration for future statutory or voluntary interventions. The second area refers to the novel rules on unfair contractual terms in data contracts. These rules are not specific to the music sector, but will certainly apply to any contract, including in the music sector, when the object of the contract is a qualifying data access or use provision. Music (meta)data contracts will need to adjust to these new rules. The third area refers to data intermediation services (DIS), a category that, while being at the core of the EU data strategy, has not yet performed as expected and may be soon revised. These rules may apply to orchestrators of music (meta)data services depending on the specific features of the service. Given the non-trivial requirements under which DIS are subjected to, it will be important to ascertain their applicability and arguably design the relevant services accordingly.