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Rights to Digital Databases

Anna Ubaydullaeva
Webster, American University
annapolin@gmail.com

Abstract

This paper examines the legal rights governing digital databases. With the growth of big data, questions have arisen regarding copyright, ownership, access and control of large collections of data. Databases pose a unique challenge because they contain factual information not subject to copyright, yet represent a substantial investment in skills, labor and finances. Through analysis of relevant legislation and case law, this paper explores the protections afforded to digital database creators under copyright law, database rights, misappropriation doctrine, and trade secrecy. Issues analyzed include substantial taking of a database's contents, permissible extraction of insubstantial parts, rights to derivative works, and circumvention of digital rights management. The paper concludes with recommendations for balancing public interest in data access with providing incentives for continued database development.

Keywords: Database Rights, Copyright, Ownership, Digital Rights Management, Factual Data, Sui Generis Rights, Data Misappropriation, Trade Secrecy

I. Introduction

Copyright law generally protects original selections and arrangements of data in a database as a literary work, but does not extend to the underlying data itself [1]. The EU Database Directive of 1996 introduced a sui generis database right protecting the investment behind compiling a database, even if it lacks originality, for 15 years from publication [2]. This gives stronger protection against wholesale copying of database contents beyond what copyright affords. However, the Directive only applies within the EU, leading to inconsistent protections globally [3]. The US in particular only recognizes limited copyrightability absent an equivalent database right. This creates complex cross-border issues regarding scope of protection.

In practice, companies like Bloomberg leverage technical controls alongside database rights to prevent unauthorized usage of their proprietary data collections [4]. But open access advocates critique overly restrictive regimes that limit public

interest access and use. The appropriate scope remains contested between enabling returns on database investments versus facilitating knowledge exchange. More purpose-limited and compulsory licensing has been proposed to balance these interests [5]. But database rights holders continue lobbying for strengthened controls against perceived threats of cheap copying.

The uncertain and inconsistent protections globally demonstrate the challenges in reconciling proprietary interests in monetizing data compilation efforts with countervailing public interests in accessing, sharing and building upon factual information. Absent harmonization, companies must pursue complex multi-jurisdictional legal strategies while critics push for unified open data access frameworks. Copyright requires original selection, coordination or arrangement of contents to protect a database [6]. However, the threshold of creativity is low basic alphabetical organization was deemed sufficiently original. The key is that indifferent effort creating a mechanical listing does not qualify for protection.

This narrow scope leaves many factual databases like phone directories without copyright safeguards against wholesale duplication. By contrast, sui generis database rights do not necessitate originality industrious collection granting commercial value is enough. But substantial investment must be demonstrated, with guidelines noting required finances, time, effort etc. On the other hand, in Feist, even significant labor compiling phone records was inadequate for copyright as the arrangement lacked sufficient creativity [7]. Thus database copyright and sui generis rights have divergent eligibility criteria targeting either originality of selection/arrangement or investment/sweat of the brow, respectively [8].

Database copyright ownership vests with the author – the person or entity making original selection and arrangement decisions [9]. Ownership does not flow from compiling the underlying data. For sui generis database rights, the Directive grants ownership to the maker, the person or firm taking initiative and risk for investment [10]. Rights can also be transferred by licensing contracts. Complex issues arise regarding: joint authorship by multiple database creators; works made for hire conferring rights to employers; government ownership of public sector databases; and commissioned databases where rights were not specified contractually [11]. Another challenge is that copyright only protects additions not the preexisting data leading to split ownership.

II. Methodology

In practice, collaboratively constructed databases with contributions from

multiple authors create uncertainties in rights ownership. Platform aggregations of user content also raise unsettled questions, though expansive terms of service often claim broad reuses. Clarifying underlying rights and obtaining express transfers is advisable to preserve the ability to fully commercialize collaboratively generated databases. Otherwise, ambiguities create risks of litigation. Copyright protects the structure and arrangement of a database as a literary work, but does not cover the data itself absent original selection or coordination [12].

Sui generis rights protect against appropriating substantial contents, even absent original structure or arrangement [13]. In practice, phone directories were copied wholesale despite sweat-of-the-brow effort compiling the data. This demonstrated copyright's limitations in protecting data or factual compilations, as only minimal originality in the selection/coordination is required. The EU Database Directive aimed to strengthen protections against duplication of database contents, rather than just the selection and arrangement. However, tensions remain between securing commercial database investments and allowing access to data and facts contained within. Additional protections beyond traditional copyright are still contested by critics warning of anti-competitive effects.

The appropriate scope of rights thus remains unsettled. The layers of potential protection via copyright and sui generis rights remain difficult to reconcile with countervailing policy priorities of enabling access to factual information. Further complications arise regarding permissible extractions of insubstantial contents. The complex interplay of protections and limitations creates uncertainties for database builders and users alike. Clearer guidance could help balance interests, but differences in national laws persist. Examine the rationale and controversy surrounding sui generis database rights. Sui generis database rights were introduced in the EU to protect commercial investments even absent copyrightable originality in selection/arrangement of contents.

The goal was preventing cheap duplication undermining the compilation effort. But critics argue this creates overbroad exclusive rights in data hindering scientific access and competitive market efficiencies [14]. Minimal effort databases may also qualify for overextended protection terms. There are calls to require truly substantial investments for eligibility to better balance public interests in utilizing data. But database producers argue sui generis rights are needed to recoup costs and fund continual updating that benefits users. Alternatives like compulsory licensing have been proposed to facilitate specific public interest uses. But the appropriate scope remains contested between securing commercial incentives and enabling access to facts and information in database form.

Sui generis regimes remain controversial as many question granting private ownership rights over compiled data. Sui generis database rights attempted to strengthen protections by departing from traditional copyright principles. But the risks of anti-competitive impacts and undue restrictions on information access sparked ongoing debates over the proper calibration and constraints on these emerging rights. Absent consensus on appropriateness, inconsistent national regimes persist.

III. Results

The study reveals an evident consensus around the need of a combination of technical, contractual and IP protections that can provide strong safeguards for proprietary databases. Access controls, encryption, watermarking, API keys and user sign-ons help control usage. Terms of service establish allowed access parameters and limitations. Copyright provides backups against unauthorized reproduction of original selection and arrangements. Sui generis database rights add further protections for duplicated contents. Clickwrap and browse wrap agreements can augment protections through binding users to additional terms, ideally giving notice [15]. Monitoring and enforcement leveraging scraping detection complements legal remedies against unauthorized extraction.

Multilayered strategies combining technical barriers, contractual provisions, database IP rights, and enforcement actions provide robust shields for commercially valuable data compilations. But critics argue overly stringent controls also hamper public access and fair use rights, necessitating a balanced approach. In practice, leading database vendors utilize coordinated technical and legal constraints to limit unauthorized uses, while resisting calls for more access oriented frameworks. This demonstrates how alignments of proprietary interests often prevail over countervailing priorities of expanding data access and reuses. However, high profile disputes also show the risks of overly restrictive controls becoming subject to external scrutiny and challenges.

User contributions create challenges regarding database IP ownership and required permissions [16]. Platform terms of service often claim broad rights to utilize posted materials, including aggregating into proprietary databases. But users likely retain copyrights in original content like commentary and reviews. There are open questions around whether implied licenses permit inclusion absent express transfers of rights. Crowdsourced collections also have multiple coauthors complicating rights. And users likely have reasonable expectations against wholesale duplication of entire collections of posts. Technical controls prevent bulk downloads, supporting database rights claims. The crowd sourced databases

should ensure contributor awareness and consent for reuse.

Express licenses by users help authorize aggregation while providing attribution assurances. Otherwise, unrestricted assertions of sui generis or joint authorship rights in collective user content are legally and ethically problematic. In practice, platforms freely mine user contributions while resisting calls for greater transparency and sharing of benefits. This demonstrates imbalances in bargains purportedly granting expansive rights to commercialize crowdsourced materials. Calls for heightened ethics and sharing the value created suggest alternative frameworks are needed.

IV. Conclusion

The EU grants robust sui generis database rights, while the US only recognizes the more limited copyright protections [17]. This creates complex conflicts on cross-border database usage. Developing countries often lack any specified database rights, leaving compilations exposed to duplication. Even regimes like Australia's narrowly cover government data collections, but not broader privately-produced databases [18]. Significant investments remain ineligible for protection absent original selection/arrangement conferring copyright ownership. The uneven protections globally lead some to call for unified minimum standards through an international treaty. But controversies persist around appropriate scope of rights balancing commercial interests and public access.

Attempts to export expansive EU-style regimes spark resistance over anti-competitive effects. Achieving global harmonization of database IP protections remains challenging given differing priorities. In practice, major database producers like LexisNexis pursue myriad technical controls and contract provisions to create protective regimes despite the limits of formal IP rights in many jurisdictions. However, critics argue this signal the excessively restrictive defaults of current laws. Recent years have seen growing assertions of database copyrights and sui generis rights to control professional data scraping and aggregations of user content [19]. Licensing is increasingly employed to limit public access and derivative uses of proprietary compilations.

Simultaneously, open data licensing models have emerged enabling enhanced access like Creative Commons 0 waivers and Open Database Licenses mandating public attribution. However, these approaches coexist uneasily with expanding IP protections against perceived threats from cheap digital duplication. While compulsory licensing proposals aim to enable specified public interest uses, database producers continue pushing for strengthening rights frameworks against

unauthorized extraction. Overall, maximalist IP protections are prevailing over frameworks facilitating access, though open data licensing governs narrow spheres like government public sector information.

Conflicts between proprietary licensing models and open data sharing frameworks reflect unresolved debates over appropriate rights to control valuable datasets. Absent clearer limits and balance, default norms continue trending toward stringent protections rather than permissive access. Calls for enhancing public access to data compilations must be weighed against legitimate commercial interests in recovering database investments [20]. But appropriate safeguards should not create unduly exclusionary rights that impede scientific progress and economic competition. Targeted IP protections could be coupled with compulsory licensing for certain public interest uses like research.

Temporary protections may sufficiently incentivize initially compiling databases without permanent monopolies. Open data requirements for public sector databases expand access while funding updates via taxes. Technical controls like API keys can also enable tiered access models. Overall, balanced and proportionate IP regimes avoid anti-competitive effects while securing reasonable returns for database builders. But achieving this balance remains contested given differing perspectives on appropriateness of private ownership over compiled data. Open access advocates have struggled to overcome proprietary interests shaping most database rights frameworks.

But narrowly tailored sui generis models coupled with compulsory licensing represent potential compromises to enable specified public interest reuses. Constructive dialogue and shared understandings could yield balanced solutions, albeit gradually. Copyright law recognizes certain exceptions to database rights that enable legal access and uses, especially for research and educational purposes. In the US, fair use principles may support limited copying of protected selection and arrangement, though not wholesale duplication [21]. The EU Database Directive also mandates that member states allow users to extract insubstantial contents for illustration, teaching, scientific research, etc. without rights holder authorization [22]. Such exceptions aim to facilitate access and use for socially beneficial purposes like scholarship. However, the scope of fair and allowable usage remains context-specific [23].

Database contracts also often override exceptions, so reviewing terms of use is critical. Researchers rely extensively on database searching, indexing, text mining, and analytics to study trends, generate insights, and test hypotheses [24]. Publishers and platforms aim to enable access for scholarship while preventing

abuses. For example, many adopt tiered pricing models charging commercial users more than academics to allow reasonable access. However, when paywalls or strict terms of use limit text mining and downloads, the utility of data collections is reduced. Courts continue weighing permitted exceptions against rights holder interests in monetizing access.

Achieving balance remains challenging between safeguarding commercial database-building incentives and promoting follow-on socially valuable uses. Open access initiatives for publicly-funded research highlight paths to expand access while covering costs. But for proprietary collections, permissible exceptions coexist uneasily with contractual restrictions. Discuss database licenses, terms of use, and access limitations imposed by vendors. Database producers utilize license agreements to establish permitted access parameters, acceptable uses like browsing and downloads, and prohibited activities considered infringing [25]. Terms may restrict text mining, commercial uses, derivative works, and more.

Clickwrap and browse wrap e-contracts require user consent to gain access, overriding exceptions in copyright law. Enabling technology like APIs also lets vendors monitor usage and deny access for violations [26]. However, European courts have scrutinized unduly restrictive contractual terms that shrink users' existing rights under database exceptions [27]. Reviewing rights granted versus reserved is essential in assessing license equitability. Major proprietary database vendors like LexisNexis and Thomson Reuters impose strict license terms against unauthorized copying and redistribution of contents [28]. However, text mining licenses are also emerging to enable algorithmic analysis and machine learning within specified parameters.

Case law continues to evolve regarding enforceability of terms overriding exceptions like fair use. But currently rights holders maintain extensive abilities to constrain access contractually. Balancing vendor interests in monetizing database access with user rights remains difficult, especially for data collections deemed integral infrastructure for research and innovation. Proposals for "data liberation" clauses in licenses that align with existing statutory exceptions could enable compromised approaches. Fair use is a flexible standard weighing four factors to assess if unlicensed uses of copyrighted works may be permissible, including: the purpose and character of use; nature of the work; amount used; and market effect [29].

Non-commercial research and educational uses are more likely fair, such as database searches that do not appropriate protected selection/arrangement or duplicate significant substantive contents [30]. However, excessive downloading

of records could outweigh fair use, particularly for commercial purposes. Such fact-intensive determinations remain uncertain. The EU Database Directive mandates exceptions for insubstantial extractions but allows override by contracts, complicating analysis [31]. In practice, text mining research often reproduces entire datasets to enable computer analysis [32]. Publishers allege such uses regularly appropriate protected contents. Some courts have deemed text mining fair absent purposefully exposing contents [33]. But contract terms frequently restrict text and data mining, necessitating reliance on exceptions or explicit licenses.

Database usages in scholarship occupy a gray area between supporting follow-on innovation versus appropriating proprietary contents and economic value. Clarifying principles to enable mining of data collections for public interest purposes like research could support compromise frameworks. However, prevailing rights holder interests have largely forestalled attempts at establishing expanded fair use jurisprudence governing digital databases. Technical controls embedded in database architecture enable monitoring usage and preventing unauthorized activities [34]. Application programming interfaces (APIs) allow regulated access to contents through assigned keys without exposing entire datasets. Keys can be revoked for contractual violations to limit abuse.

Terms of use enforce permissible parameters for API access and analysis, contractually restricting exceptions. Other rights management technologies include limiting download speeds, blocking bulk downloads, or watermarking records [35]. However, European database rights still mandate exceptions enabling some uses, complicating enforcement. Overall, technological measures effectively reinforce contractual terms for managing commercial database access. In practice, Bloomberg Professional Services restricts data harvesting via extensive API key architecture tied to customer agreements [36]. However, platforms aggregating user content wrestle with appropriately balancing API access and data protection.

Further, integration challenges arise around interfacing diverse legacy database systems with modern API infrastructures. Technical controls enable differentiated database access tiers, distinguishing commercial and non-commercial users. However, criticisms persist around appropriateness of overriding exceptions for socially valuable unauthorized uses. Bulk downloads that systematically collect entire databases can undermine incentives for commercial compiling efforts by enabling cheap reproduction [37]. Technical protections aim to prevent aggregating significant contents. Restricting download speeds, implementing CAPTCHAs, blocking automated scraping bots, and requiring user sign-ons help limit systematic downloads [38].

Terms of use also prohibit such activities, relying on monitoring and enforcement against violations. However, measures must be weighed against legal exceptions permitting certain uses and cumulative extractions [39]. A supportive legal framework strengthens technical protections. In practice, commercial database vendors prohibit bulk downloads such as systemically compiling local court records into national collections [40]. Data is increasingly monetized at granular levels. But researchers argue impediments to aggregating data collections restrict follow-on innovations and comport with fair use exceptions. Appropriately distinguishing bad faith expropriation from socially beneficial aggregation remains contested, though dominant rights holder interests generally prioritize preventing bulk access.

However, carve outs could enable bulk access for non-commercial research based on fair use rationales. Evaluate controversies surrounding database scraping without permission. Scraping generally entails systematically extracting data from websites through automated bots, rather than via intended access means like subscriptions. It can appropriate substantial database contents rapidly, undermining licensed access models [41]. However, contractual trespass and database rights may not cover all scraping situations, particularly non-commercial public interest usages.

Factors like transmission barriers and usage restrictions help assess if scraping exceeds access rights or qualifies as fair use [42]. But scraping often occupies legal gray areas that rights holders aim to dispel through strengthening laws and technological barriers. In practice, platforms like LinkedIn, Facebook and Craigslist regularly battle unauthorized data scraping through both technical defenses and lawsuits [43]. But open government data initiatives contend proactive scraping and aggregation of public sector information comports with intended policy aims. Anti-circumvention norms tend to prevail over countering arguments for enabling scraping innovations.

Conclusion

Resolving tensions requires better delineating acceptable parameters for scraping data collections depending on purpose, usage, effects on rights holders, and applicability of exceptions. But agreements remain elusive given clashing priorities between proprietary and open access advocates. Clearer frameworks distinguishing positive and negative practices could support ethical data cultures alongside formal legal responsibilities. But shaping consensus on acceptable uses remains challenging given diverse data monetization models and access philosophies. Segments like legal publishing have faced calls for facilitating

comprehensive analytics through bulk data access and mandatory text mining licensing, particularly given the public role of law.

Some progress occurs through partnerships enabling subset access. However, proposals mandating sharing or weakened rights generally face legislative challenges. Overall, merits arguments around social value have largely struggled against countervailing influences of proprietary database interests. Creating compromise frameworks accommodating reasonable commercial interests while expanding access remains challenging but constructively balancing stakeholder priorities could positively resolve current tensions. Constructing principled governance frameworks constitutes an ongoing challenge amidst rapid technological and commercial data innovations. But carefully bridging perspectives through multistakeholder participation could yield positive solutions.

Even imperfect compromises may productively advance data policy aims. This extensive analysis reveals the complex challenges in constructing equitable governance frameworks to balance database rights, access, and protections in the digital age. Tensions persist between proprietary controls and openness aims across intersecting legal, economic, technological and ethical dimensions. On database rights, traditional IP regimes like copyright afford limited protections largely tied to original selection and arrangement, rather than underlying compiled data itself. Sui generis models like the EU Database Directive furnish broader rights against appropriating substantial contents, but remain contested given constraints on data access.

Ownership questions also multiply with collaboratively constructed databases and user-generated content platforms. Determining applicable rights requires nuanced analysis attuned to specific contexts and usages. Significant open questions and disputes certainly endure given complex tradeoffs and power differentials. However, the vast potentials across proprietary, public and distributed databases necessitate continuing exploration and measured experimentation to expand access while adequately protecting rights and investments. With conscientious multi-perspective engagement, promising pathways may open toward negotiating equitable compromises and constructing ethical data cultures enabling cumulative knowledge exchange. The tasks ahead demand thoughtfulness and wisdom. But the possibilities justify undertaking challenges in the long-term hope of maximizing mutual benefit and the common good.

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