Zen and the Art of Repair Manuals

Enabling a participatory Right to Repair through an autonomous concept of EU Copyright Law

by **Anthony D. Rosborough***

Abstract: Repair manuals are an essential resource for repairing today's modern and computerised devices. Though these manuals may contain purely utilitarian and uncopyrightable facts, they often receive copyright protection in their entirety as literary works. This protection can impede community-based efforts toward fostering a culture of participatory repair throughout the EU, including repair cafés and tool libraries. Participatory repair activities provide numerous environmental, social, and economic benefits. This article explores whether directive 2001/29/EC's exception for "uses in connection with the repair or demonstration of equipment" at Article 5(3)(l) (the "Repair Exception") may offer an avenue for enabling such non-profit activities. Following an examination of the shortcomings of recent EU-wide policy measures and industry-led commitments aimed at providing access to repair information, the article looks to the Repair Exception's origins, member state implementation, and its interpretive scope as an autonomous concept of EU law. Considering the strong public interest in participatory repair and dissemination of technical knowledge, the article calls for a robust autonomous interpretation of the Repair Exception in line with Article 11 TFEU. This interpretation should enable non-profit repair activities throughout the EU while accounting for and balancing the legitimate economic interests of rightsholders.

Keywords: copyright; right to repair; circular economy; directive 2001/29/EC; participatory repair; sustainable development

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A. Introduction

1 When one thinks of copyrightable subject matter, repair manuals are not the first thing to come to mind. A repair manual has never been a New York Times bestseller or adapted into an Oscar-winning film, yet there is an art to creating them. Robert Pirsig, author of the 1974 classic novel *Zen and the Art of Motorcycle Maintenance*[1], was also a technical writer. For years he wrote repair and maintenance manuals for various computerised machines and components. He remarked in *Zen* that many maintenance manuals were "full of errors, ambiguities, omissions and information so completely screwed up you had to read them six times to make any sense out of them".[2] And on this point, he was in a good position to judge. His philosophical writings sought to find a harmony between the technical and aesthetic schools of thought. Repair manuals are very much at this intersection. They require the careful use of illustrations, diagrams, photographs, and written explanations to be understood and useful. Authors must make careful choices about the order and im-

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1 Robert M Pirsig, *Zen and the Art of Motorcycle Maintenance: An Inquiry into Values* (Harper Torch, 2006).

2 *Ibid* 33.

portance of instructions and how they are understood by the reader. This involves substantial originality in the copyright sense.

2 It should be no surprise then that original equipment manufacturers ("OEMs") and third-party publishers have long sought copyright protection in repair manuals. The third-party production and publication of manuals is also a large industry[3], and rightsholders have discouraged their unauthorised distribution online.[4] Yet in some instances, the exclusive copyright protection afforded to authors of repair manuals has run contrary to the public interest in access and dissemination of crucial information. This exclusivity can shorten the effective lifespan of many products, with enormous social and environmental consequences.

3 This article seeks to explore this tension in the context of EU copyright law. Its primary contribution is its analysis of an exception and limitation to copyright in the Directive 2001/29/EC[5] (the "InfoSoc Directive") which may enable the reproduction and distribution of repair manuals online. Following a survey of the social, economic, and environmental costs of repair manual exclusivity, it highlights the public interest in fostering a culture of participatory repair. It then addresses the inadequacy of recent EU reforms which mandate "access" to repair information, and particularly their inability to support participatory non-profit repair organisations such as tool libraries and repair cafés.

4 This article is normatively connected to the broader Right to Repair movement. In response to the market power wielded by large technology manufacturers, the Right to Repair seeks to provide independent technicians and everyday people with the means and ability to repair and extend the lifespan of the devices and products they own. In practice, this may mean the ability to access specialised parts, tools, and information needed to conduct repairs to everything from laptop computers to cinema projectors to agricultural equipment. The Right to Repair has many normative pillars, including safeguarding consumer rights, promoting market competition, promoting environmental sustainability, and safeguarding the public interest from an overreach of intellectual property rights. Though the movement originated largely within the United States principally from the perspective of consumer protection, Europe's approach to the Right to Repair has adopted a decidedly environemental rationale, supported by the EU's Circular Economy Action Plan[6], the EcoDesign Directive[7], and the French Repairability Index.[8]

5 Looking to intellectual property laws within the EU, this article looks to the InfoSoc Directive and the interpretation of Article 5(3)(l), which permits 'uses in connection with the demonstration or repair of equipment' (the "Repair Exception").[9] In surveying the genesis of this provision along with the CJEU's decisions in *Deckmyn*[10] and *Spiegel Online*[11], the Repair Exception is analysed as an autonomous concept of EU law. In this vein, the central question posed by this analysis is: can the InfoSoc Directive's Repair Exception support participatory repair through wider access and dissemination of repair manuals throughout the EU?

6 Answering this question involves preliminary analysis of the extent to which repair manuals can be the subject of copyright protection to begin with. Accordingly, Part I examines common elements in repair manuals and their copyright originality, as well as the typical processes undertaken to produce them. Part II then addresses recent developments within the EU and elsewhere that evidence a high degree of public interest in access to repair manuals through a combination of legal mandates and market incentives for manufacturers. This involves a closer

3 Greg Whitaker, "Haynes Publishing Acquired by InfoPro Digital", (*Car Aftermarket Trader*, 13 February 2020) <https://www.catmag.co.uk/haynes-publishing-acquired-by-info-pro-digital>.

4 Mike Masnick, "Toshiba: You Can't Have Repair Manuals Because They're Copyrighted And You're Too Dumb To Fix A Computer" (*TechDirt*, 12 November 2012) <https://www.techdirt.com/articles/20121110/22403121007/toshiba-you-cant-have-repair-manuals-because-theyre-copyrighted-youre-too-dumb-to-fix-computer.shtml>.

5 Directive 2001/29/EC of 22 May 2001 on the harmonisation of certain aspects of copyright and related rights in the Information Society [*InfoSoc Directive*].

6 European Commission, "Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: A new Circular Economy Action Plan For a cleaner and more competitive Europe", COM/2020/98 <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1583933814386&uri=COM:2020:98:FIN>

7 Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products, OJ L 285 (EcoDesign Directive).

8 L'Indice de Repairabilite, *Repairability Index* <https://www.indicereparabilite.fr/> (Repairability Index).

9 *Ibid* 5(3)(l).

10 Case C-201/13 *Johan Deckmyn and Vrijheidsfonds VZW v Helena Vandersteen and Others*, ECLI:EU:C:2014:2132.

11 C-516/17 *Spiegel Online* ECLI:EU:C:2019:625.

look at the October 2019 implementing regulations pursuant to Directive 2009/125/EC (the "EcoDesign Directive") and Apple's recent voluntary commitment to provide access to device repair information. Part III then investigates the genesis of the InfoSoc Repair Exception, its implementation within a handful of member states, and its status as an autonomous concept of EU law. Part IV proposes an interpretation of the Repair Exception which can support participatory repair through the dissemination of repair manuals online while accounting for the legitimate interests of rightsholders. The article concludes by calling for a closer examination of the Repair Exception as a vehicle for enabling participatory repair activities and the diffusion of technical knowledge.

7 Before delving into this analysis, a few caveats should be noted at the outset. Firstly, this inquiry is limited to copyrightable subject matter as set out in the InfoSoc Directive. This necessarily excludes (for example) the reproduction of computer programs or circumvention of software technological protection measures (TPMs) in relation to repair. Though both computer programs and software TPMs can be implicated by repair activities[12], these matters are more squarely addressed by Directive 2009/24/EC[13] (the "Software Directive"), which does not contain an analogous repair exception. Secondly, this analysis does not address the potential anti-competitive uses of copyright in repair manuals and its impacts on secondary markets. Though it is plausible that denying access to repair and maintenance information could amount to an abuse of dominance under competition law[14], the principal focus of this article is situated within the boundaries of copyright protection, applicable exceptions, and their relationship to largely non-commercial repair activities throughout the EU.

B. Copyright's Subsistence in Repair Manuals

8 A key tenet of copyright law is that protection should only be afforded to works that are "original". In the European Union, this standard is determined by the extent to which a work can be considered the author's 'own intellectual creation'.[15] Though there is no shortage of scholarly discussion over whether this standard is more (or less) restrictive than in other jurisdictions[16], there is far less conceptual ambiguity regarding the things which are clearly *not* original. Often referred to as the 'idea/expression dichotomy', a cornerstone of ostensibly every copyright system[17], is that facts, ideas, processes, and purely utilitarian aspects of things are not original.[18] Whether these things are considered part of the public domain, excluded from protection on a purely doctrinal basis, or lacking in originality, the effect is the same: facts, ideas and utilitarian processes cannot form the basis for exclusive rights.

9 This places copyright protection for repair manuals in a rather peculiar position. On the one hand, repair manuals are a mere recitation of a mechanical process – no different from a recipe for beef wellington, or a simple mathematical equation. On the other hand, writing repair manuals is a creative exercise with many deliberate choices made by authors. Certainly, in most instances it is infused with artistic decision-making, conscious choices of the author in the way certain procedures are described, as well as the arrangement of accompanying illustrations and photographs.

10 Take for example Haynes Owner's Workshop Manuals. These manuals have long guided fixers through the maintenance and repair of cars and motorcycles, but they have since expanded to household appliances and computers. Haynes has even begun publishing so-called 'practical lifestyle' manu-

12 Anthony Rosborough, 'Unscrewing the Future: The Right to Repair and the Circumvention of Software TPMs in the EU' (2020) 11(1) JIPITEC 443.

13 Directive 91/250/EEC of 14 May 1991 on the legal protection of computer programs [*Software Directive*].

14 See e.g. Case C-527/18 *Gesamtverband Autoteile-Handel e.V. v KIA Motors Corporation,* ECLI:EU:C:2019:762.

15 Case C-5/08 *Infopaq International A/S v Danske Dagblades Forening* ECLI:EU:C:2009:465; see also Eleonora Rosati, *Originality in EU copyright: full harmonisation through case law* (Edward Elgar 2013) 4; and Ramon Casas Vallés, 'The requirement of originality', in Estelle Derclaye (ed) *Research Handbook on the Future of EU Copyright* (Edward Elgar 2009) 102-132.

16 See Eleonora Rosati, 'Towards an EU-wide Copyright? (Judicial) Pride and (Legislative) Prejudice?' (2013) 1 IPQ 47-68; and Andreas Rahmatian, 'Originality in UK Copyright Law: The Old "Skill and Labour" Doctrine Under Pressure', (2013) 44 IIC 4.

17 See, for example, the United States Copyright Act, 17 USC § 102(b) ("In no case does copyright protection for an original work of authorship extend to any idea, procedure, process, system, method of operation, concept, principle, or discovery, regardless of the form in which it is described, explained, illustrated, or embodied in such work").

18 Agreement on Trade-Related Aspects of Intellectual Property Rights (15 April 1994), Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, 1869 UNTS 299, 33 ILM 1197 (1994), Art 9(2).

als which address topics such as "Sleep", "Chickens" and "Menopause".[19] For the manuals in Haynes' more classic car and motorcycle repertoire, the intended audience is primarily home mechanics or DIY repairers. For these manuals, Haynes attests that production of a repair manuals takes about six months, involving a team of technical writers and mechanics to completely tear down and rebuild the vehicle followed by a drafting and proofing process.[20] This process involves the collection of photographs and consultation among writers and mechanics to develop accurate repair procedures.

11 Even under a very restrictive conceptualisation of copyright originality, there is little doubt that repair manuals like the ones produced by Haynes meet the requisite threshold. The exercise of human creative choices, arrangement of information, and selection of photographs can be sufficient to attract originality. The CJEU has agreed with this notion. In *SAS Institute Inc v World Programming,* the CJEU was asked (in part) to determine whether a user manual describing the functions of a computer program can be protected by copyright as a literary work. While the CJEU found that the "keywords, syntax, commands... options, defaults, and iterations" did not quality for copyright protection, it did find that "certain elements described in the manual...may constitute an infringement of the copyright if...the elements reproduced...are the expression of the author's own intellectual creation".[21]

12 Though the subsistence and exercise of copyright in repair manuals may find agreement with its broader purposes and objectives, there is a public interest trade-off here. The utility in repair manuals is not merely in these works as ends in and of themselves. They are also instrumental. They are in fact tools which enable a host of socially beneficial activities while documenting and distributing technical ability.[22] In aiding repair and maintenance, this diffusion of knowledge has tangible, real-world benefits. Yet, copyright's exclusive rights can act as an impediment.

13 This impediment is even more prominent where repair manuals are produced by original equipment manufacturers ("OEMs") rather than third parties like Haynes. For devices which have not been manufactured for quite some time, niche products, or specialised equipment where demand for repair manuals is not significant enough to attract third party publishers, often the OEM's documentation is the only thing that exists.[23] And in some cases, OEMs do not release or provide access to these manuals at all.[24] As a result, many independant repairers and community repair groups rely on a grey market of service and repair manuals which are leaked by authorised technicians working on the 'inside'.[25] In some instances, OEMs have used intimidation tactics to shut down websites which host these materials, significantly narrowing access to crucial information.[26]

14 In this way, the exclusive rights afforded by copyright are particularly potent in curtailing the decentralisation of knowledge, how-to, and the ability to conduct repairs. By holding a monopoly over the reproduction and distribution of repair manuals, copyright provides OEMs an additional layer of protection that transcends the economic rights manuals as *works* and amounts to a functional barrier to the repair of *things*.[27] Therefore, the public interest in access to repair manuals and information is particularly important across several dimensions.

I. The Costs of Repair Manual Exclusivity

1. Public Health

15 Copyright in repair manuals can also pose challenges to effective healthcare delivery. This became appar-

19 Haynes, *Practical lifestyle manuals* <https://haynes.com/en-gb/practical-lifestyle-manuals>.

20 Haynes, *FAQ* <https://haynes.com/en-us/faq>.

21 Case C-406/10, *SAS Institute Inc v World Programming Ltd,* ECLI:EU/C:2012:258, 122.

22 Cornelius Schubert, "Repair Work as Inquiry and Improvisation: The Curious Case of Medical Practice" in Ignaz Strevel (ed) *Repair Work Ethnographies: Revisiting Breakdown, Relocating Materiality* (Palgrave MacMillan 2019) 35.

23 Kyle Wiens, "Using copyright to keep repair manuals secret undermines circular economy" (*The Guardian,* 20 December 2013) <https://www.theguardian.com/sustainable-business/copyright-law-repair-manuals-circular-economy>.

24 US, Federal Trade Commission, *Nixing the Fix: An FTC Report to Congress on Repair Restrictions* (May 2021) <https://www.ftc.gov/system/files/documents/reports/nixing-fix-ftc-report-congress-repair-restrictions/nixing_the_fix_report_final_5521_630pm-508_002.pdf>.

25 Kyle Wiens, "The Shady World of Repair Manuals: Copyrighting for Planned Obsolescence" (*Wired*, 12 November 2012) <https://www.wired.com/2012/11/cease-and-desist-manuals-planned-obsolescence/>.

26 Masnick (n 4).

27 Wiens (n 23).

ent in early 2020 when iFixit, an online resource for device repair parts, tools, and information, began to construct a medical device library of repair manuals and guides in response to the COVID-19 pandemic.[28] The database contains over 13,000 manuals and guides for medical device repair, including hospital beds, surgical equipment, and laboratory equipment. The database includes both repair manuals published by OEMs as well as training manuals published by third parties.

16 Not long after launching the medical device library, some manufacturers and rightsholders showed resistance. One of which was Steris, a manufacturer of medical sterilisers and related surgical equipment.[29] In June of 2020, Steris sent a cease-and-desist letter[30] to iFixit, demanding that its repair manuals be taken down on the basis that it infringed copyright. In response, iFixit and the Electronic Frontier Foundation ("EFF") jointly issued a letter[31] in which they refused to comply with Steris' demand, citing the safe harbour for online platforms under the United States *Digital Millennium Copyright Act*[32] and the US doctrine of fair use. That appears to have concluded the matter, as several repair manuals for Steris' equipment remain in iFixit's digital library.[33]

17 The Steris example sheds light on the social costs of repair manual exclusivity in the context of public health. In the case of ventilators and other crucial medical devices, access to repair information for complex and computerised medical equipment can be a matter of life and death.[34] Copyright in repair manuals is one of many tools used by OEMs to curtail independent repair, including digital access keys, restrictions on spare parts, and training sessions and certifications for on-site staff.[35] Though greater access to repair manuals may not be a complete solution to the challenges faced by healthcare providers in relation to medical equipment, it undoubtedly forms a crucial part of one.

2. The Environment

18 In addition to the public health implications of repair manual exclusivity, restricted access can also result in shortened product lifecycles and environmental harm. Modern electronic devices are becoming more difficult to repair as the result of design choices and legal protections. The overall trend toward sleeker and thinner devices means that more of the internal components are glued or soldered together, making them increasingly difficult to open and repair without detailed information from their manufacturer.[36] The widespread proliferation of embedded computer systems within otherwise banal household objects makes repair manuals and information all the more important to the service and repair of these things.[37] With the present-day global microchip shortage looming large, seemingly every product – dish washers, hairbrushes, hot tubs, and cars - now has a computer embedded within it.[38] Without access to repair manuals and information, many of these devices are unrepairable and abandoned prematurely.

19 The manufacture and disposal of electronic devices takes a massive toll on our environment. Beginning with the extraction of raw materials from ecologically sensitive areas, use of lead soldering, shipping, and packaging, there are significant environmental

28 iFixit, 'Medical Device Repair' <https://www.ifixit.com/Device/Medical_Device>.

29 iFixit, 'Steris Sterilizer Repair' <https://www.ifixit.com/Device/Steris_Sterilizer>.

30 Kyle Wiens, 'I received a threatening letter from Steris, a medical device manufacturer unhappy that we are helping hospitals repair their equipment' (*Twitter,* 11 June 2020) <https://twitter.com/kwiens/status/1271134890872856577/photo/1>.

31 Electronic Frontier Foundation, 'Letter from EFF to Steris on behalf of iFixit 5-26-2020' (*EFF,* 26 May 2020) <https://www.eff.org/document/letter-eff-steris-behalf-ifixit-5-26-2020>.

32 *Digital Millennium Copyright Act*, 17 USC § 1002(c) (Supp. V 1993) (US) [*DMCA*].

33 iFixit (n 28).

34 Nathan Proctor, '"Life and death" – Medical equipment repairers push for Right to Repair during COVID-19 pandemic' *U.S. PIRG* (Washington, 19 May 2020) <https://uspirg.org/blogs/covid-19/usp/%E2%80%9Clife-and-death%E2%80%9D-medical-equipment-repairers-push-right-repair-during-covid-19>.

35 Anne Marie Green, Mark Morgenstein and Nathan Proctor, "Patient Procedures are Commonly Delayed While Manufacturers Block Others from Repairing Equipment" (*U.S. PIRG,* 15 October 2020) < https://uspirg.org/news/usp/patient-procedures-are-commonly-delayed-while-manufacturers-block-others-repairing>.

36 Maddie Stone, "How Apple Decides Which Products Are 'Vintage' and 'Obsolete'" (*OneZero,* 26 May 2020) <https://onezero.medium.com/how-apple-decides-which-products-are-vintage-and-obsolete-6055d0bda422>.

37 Wiens (n 23).

38 Chris Baraniuk, 'Why is there a chip shortage?' (*BBC News,* 27 August 2021) <https://www.bbc.com/news/business-58230388>.

costs in the manufacture of these products. Even more troubling are the end-of-life impacts, waste disposal, and difficulties in recovering rare earth elements.[39] Poorly planned disposal of electronics waste can also be harmful to human health and exacerbate social inequality, disproportionately impacting the global south.[40] Alarmingly, electronics is the fastest growing stream of global waste, growing 3 to 4 percent each year.[41]

3. Participatory Repair

20 To mitigate the public interest costs of un-repairability, recent years have borne a renaissance of the lost art of repair on a community and collective scale. With the goal of making repair activities within everyone's grasp, these efforts have resulted in the creation of repair cafés[42] and empowered tool libraries around the world. Repair cafés are free and open workshops where people can bring products in need of repair and have volunteers help find information and parts. They are not only empowering individuals to take responsibility for fixing things themselves, but they are also actively increasing product lifespan, reducing waste, and generating knowledge. There are currently over 1,500 repair cafés worldwide, where people are fixing their own smartphones, laptops, household electrical appliances, bicycles, and many other things.[43] The COVID-19 pandemic has even borne virtual repair cafés into existence, including the international efforts of Fixit Clinic.[44]

21 The success and viability of these participatory repair activities depend not only on the efforts of volunteers, but also the free and open availability of repair manuals and information. Repair manuals can include tables of crucial repair information, such as circuit diagrams, wiring schematics and parts lists. This information is particularly crucial for electrical and electro-mechanical products, as well as those with embedded computer systems.[45] Though repair information for many products is available online through services such as *Manuall*[46] and *iFixit*[47], copyright protection in repair manuals acts as an impediment to wider availability. Given the foregoing environmental, social, and public health implications of un-repairability, there are compelling public interest justifications to encourage broader access to repair manuals.

C. Encouraging Repair Manual Access in the EU

22 The social, economic, and environmental costs of exclusive rights in repair information have not been lost on policymakers in the European Union. So far, a combination of member state level[48] and EU-wide policy initiatives have attempted to promote wider access to repair information to encourage the repairability of consumer products to promote a "circular economy".[49][50] The following

39 Teklit Gebregliorgis Ambaye et al., "Emerging technologies for the recovery of rare earth elements (REEs) from the end-of-life electronic wastes; a review on progress, challenges, and perspectives" (2020) 27:29 *Environmental Science and Pollution Research* 36052-36074.

40 Michelle Heacock et al., 'E-Waste and Harm to Vulnerable Populations: A Growing Global Problem' (2016) Environ Health Perspect 124(5) 550 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4858409/>.

41 Sabah M Abdelbasir et al, 'Status of electronic waste recycling techniques: a review' (2018) 25 Environmental Science and Pollution Research 16533 <https://link.springer.com/article/10.1007%2Fs11356-018-2136-6>.

42 Repair Café, *About* <https://www.repaircafe.org/en/>.

43 Repair Café, *FAQ* <https://www.repaircafe.org/en/faq/>.

44 Fixit Clinic, *About* <https://fixitclinic.blogspot.com/>.

45 Martin Charter and Scott Keiller, 'Repair cafes: Circular and social innovation' in Martin Charter (ed) *Designing for the Circular Economy* (Routledge 2019) 277.

46 Manuall, *About us* <https://www.repaircafe.org/en/partners/manuall/>.

47 iFixit, *Repair guides* <https://www.ifixit.com/Guide>.

48 Repairability Index (n 8).

49 European Commission (n 6).

50 "Circular economy" is a concept that refers to a set of policies to establish an economic system that eliminates waste and promotes the continual use of resources. This means maintaining the value of materials and products through expanding product life cycles and lengthening so-called "product loops". In the context of appliances and consumer electronics, circular economy initiatives involve maximising the efficiency of resource extraction, minimising environmental impacts though end-of-life product design, facilitating reuse markets, repairability, investing in material recovery technologies, and improved use of recycled materials. For further reading, see: Martin Charter, *Designing for the Circular Economy* (New York, Routledge, 2019) at 2; Sahra Svensson et al., 'The Emerging 'Right to Repair' legislation in the EU and the U.S.' (Going Green Care Innovation Conference, Vienna, November, 2018). <https://portal.research.lu.se/en/publications/the-emerging-right-to-repair-legislation-in-the-eu-and-the-us>, and Shahana

section canvases a recent EU initiative to stimulate repair information accessibility and identifies its shortcomings in resolving the deeper impediments to participatory repair posed by copyright.

I. Directive 2009/125/EC (the "EcoDesign Directive")

23 Key to the EU's circular economy objectives is the EcoDesign Directive.[51] It establishes a system for mandatory requirements concerning the environmental performance of energy-consuming products and devices. It is a framework directive[52], which instead of directly setting minimum standards relies on subsequent regulations to achieve various goals. The EcoDesign Directive's October 2019 implementing regulations (the "2019 Regulations") have prioritised access to repair information as part of its larger circular economy objectives.[53][54]

24 The 2019 Regulations address ten product categories, effective from April 2021 onward.[55] These categories include refrigerators, washing machines, dishwashers, electronic displays (including televisions), light sources, external power supplies, electric motors, vending machines, power transformers, and welding equipment. Though each product category has its own nuances in terms of the prescriptive regulatory requirements, each of the 2019 Regulations require manufacturers to provide "access to repair and maintenance information" after products have existed on the market for a certain amount of time.[56] Though ultimately a step in the right direction, the EcoDesign Directive falls short of ameliorating the impediments to repair posed by copyright.

1. "Professional Repairers"

25 Importantly, the EcoDesign Directive's ten sets of Regulations require that repair and maintenance information be accessible to "professional repairers"[57] -- a concept which is loosely defined. In the case of electronic displays, professional repairer is defined as "an operator or undertaking which provides services of repair and professional maintenance of electronic displays". Exactly who is considered a professional repairer is largely left to the OEM to unilaterally decide. Prior to making this determination, the manufacturer can require that the repairer demonstrate requisite "technical competence" and show proof of insurance covering liabilities resulting from its activities.[58][59] In effect, manufacturers are left with considerable discretion to determine which repairers are professional and which are not.[60] And in any case, the requirement to show proof of insurance and formally demonstrate technical competence leaves repair cafés, community initiatives and everyday people out of the equation entirely.

Althaf, Callie Babbitt & Roger Chen, 'Forecasting electronic waste flows for effective circular economy planning' (2019) Resour Conserv Recycl 151, 2.

51 EcoDesign Directive (n 7).

52 For a discussion on the distinction between framework directives and "classic" directives, see Emilia Korkea-aho, "Legal interpretation of EU framework Directives: a soft law approach" (2015) 40(1) E L Rev, 70-88.

53 Commission, 'Communication From the Commission: EcoDesign Working Plan 2016-2019' COM(2016) 773 final, 8-9.

54 Comission, 'Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Closing the loop – An EU action plan for the Circular Economy' COM(2015) 614 final.

55 European Commission, "Regulation laying down ecodesign requirements 1 October 2019" (*Europa.eu,* 1 October 2019) <https://ec.europa.eu/energy/topics/energy-efficiency/energy-label-and-ecodesign/regulation-laying-down-ecodesign-requirements-1-october-2019_en>.

56 For example, dishwasher manufacturers must provide access to repair and maintenance information two years after placing the product on the market. See Commission, Annexes to the Commission Regulation laying down ecodesign requirements for household dishwashers pursuant to Directive 2009/125/EC of the European Parliament and of the Council amending Commission Regulation (EC) No 1275/2008, C(2019) 2123 final, Annex II 5(3).

57 European Commission, "The new ecodesign measures explained" (*Europa.eu,* 1 October 2019) <https://ec.europa.eu/commission/presscorner/detail/en/QANDA_19_5889>.

58 Commission, Annexes to the Commission Regulation laying down ecodesign requirements for electronic displays pursuant to Directive 2009/125/EC of the European Parliament and of the Council amending Commission Regulation (EC) No 1275/2008, C(2019) 2123 final, Annex II D(5)(b).

59 *Ibid* 5(3)(a)(i)-(ii).

60 Chloé Mikolajczak, "New Ecodesign regulations: 5 reasons Europe still doesn't have the Right to Repair" (*Repair. Eu,* 21 March 2021) <https://repair.eu/news/new-ecodesign-regulations-5-reasons-europe-still-doesnt-have-the-right-to-repair/>.

2. "Access" to Repair Manuals

26 The 2019 Regulations are further limited by their stipulation that manufacturers are required only to provide "access" to repair and maintenance information. This notion of access is significant from a copyright perspective. The 2019 Regulations do not require OEMs to make repair manuals "available", nor provide "copies". To satisfy the requirement to provide access, OEMs may instead host their repair and maintenance information within a web-based subscription-service platform which may prohibit the user from electronically processing the information. Not unlike an eBook, this could include restrictions and prohibitions on electronic processing by users, including downloading or printing. These restrictions could significantly impair the ability for independent repairers and every people to access, share, improve, annotate, and disseminate repair manuals for the benefit of others.

27 The reliance on web-based platforms for repair manual access is not merely speculative. There is much precedent for this in the automotive industry, where repair information is obtained by independent repair technicians through an online subscription service.[61] Given the wide range of products as set out in the EcoDesign Directive's 2019 Implementing Regulations, it is likely that manufacturers would turn to a similar online platform to host their maintenance manuals and technical information.

28 Precedent reveals that there are drawbacks to this approach, however. This subscription access model for repair and maintenance information was at issue before the European Court of Justice in 2019. Namely, in *Gesamtverband Autotelle-Handel eV*[62], the ECJ was asked to interpret Article 6 of EU Regulation 2007/715.[63] Of particular concern for the ECJ was the obligation of manufacturers to provide:

> "...unrestricted and standardised access to vehicle repair and maintenance information to independent operators through websites using a **standardised format** in a readily accessible and prompt manner, **and in a manner which is non-discriminatory** compared to the provision given or access granted to authorised dealers and repairers."[Emphasis added]

29 KIA Motor Company provides repair and maintenance information to its licenced repairers and dealers in non-web format which is capable of electronic processing. In other words, the information is provided to these repairers as downloadable data. Independent repairers, however, are given access to KIA Motor Company's repair and maintenance information through partslink24's online platform. The Gesamtverband, a German trade association for spare automotive parts, alleged that this constituted discrimination within the meaning of Article 6 of EU Regulation 2007/715. The ECJ disagreed with the Gesamtverband's claim. It found no difference in the extensiveness or quality of the information provided. In effect, this means that in providing access, manufacturers have no obligation to provide downloadable copies or versions capable of independent electronic processing.

30 The decision in *Gesamtverband Autotelle-Handel eV* offers some clues as to how manufacturers will respond to their obligations under the EcoDesign Directive's 2019 Regulations. For one, where manufactures are given an option to restrict electronic processing and dissemination of repair manuals, they likely will. And furthermore, imposing use restrictions is most easily accomplished by offering access to repair manuals through a web-based subscription platform.

31 The bottom line is that standardised access does not mean being given a copy of a manual. Nor does it provide independent repairers and everyday people with the opportunity to make full use of the information provided. In leaving manufacturers with considerable control over the format and model for accessing repair information, the 2019 Regulations fall short of enabling participatory repair initiatives.

3. "Reasonable and Proportionate" Fees

32 Finally, the 2019 Regulations permit manufacturers to charge "reasonable and proportionate fees" for access to repair manuals and any "regular updates".[64] What is reasonable or proportionate in the case of product-specific repair manual databases is still anyone's guess. Looking to partslink24, it is likely that manufacturers would structure these fees on a monthly or yearly subscription basis – providing access to a repertoire of manuals and information. For smaller manufacturers, they may also outsource this to third parties. In the case of amateur and DIY repairers, or those working on a volunteer

61 See, for example "Partslink24", LexCom, *Products* <https://www.lexcom.co.jp/en/products/>.

62 Case C-527/18 *Gesamtverband Autoteile-Handel e.V. v KIA Motors Corporation* ECLI:EU:C:2019:762.

63 Council Regulation (EC) 715/2007 of 20 June 2007 on type approval of motor vehicles with respect to emissions from light passenger and commercial vehicles (Euro 5 and Euro 6) and on access to vehicle repair and maintenance information [2007] OJ I.171/1.

64 Commission (n 58), 5(3)(c).

basis within (for example) not-for-profit organisations, this structure could very easily become exclusionary and prohibitive. Of course, commercial independent repairers may easily absorb monthly access fees as part of their operational costs. More generalist, non-profit and community repair environments like tool libraries and repair cafes, however, may find this infeasible where the range of products and devices being repaired vary widely from day to day.

33 Though the European Commission asserts in its explanation of the 2019 Regulations that the measures will "enhance the repair market", the above demonstrates that this may come at a cost. They are largely ineffective in encouraging an inclusive and participatory culture of repair. By focusing solely on professional repair businesses, the 2019 Regulations fall short of making repair manuals accessible to everyday people, community organisations and hobbyists. Broadening access to repair in this way is necessary to achieve a whole host of socially beneficial outcomes, including reducing electronics waste, facilitating a circular economy within the internal market, and diffusing technical knowledge throughout the EU. For those outside of the commercial repair business envisioned by the 2019 Regulations, access to repair manuals will likely depend on what is freely available through basic web searches or through so-called grey markets for repair manuals.[65]

II. Industry-led Commitments

34 Beyond regulatory measures like those found in the EcoDesign Directive, at least some manufacturers have shown willingness to voluntarily provide free access to their repair information. These commitments often echo the EcoDesign Directive's access approach. Notably, technology giant Apple announced in November of 2021 that it would be launching its own Self Service Repair program.[66] The announcement came as a surprise to many Right to Repair advocates, who had long regarded Apple as the figurehead of opposition to proposed policy reforms which would enable greater access to replacement parts, tools, and manuals.[67] Intended for "individual technicians with the knowledge and experience to repair electronic devices", Apple's Self Service Repair program will provide access to Apple's genuine repair manuals, along with specialised parts and tools. The details remain to be fully fleshed out in detail.

35 Though industry-led commitments like Apple's Self Service Repair program provide reason to feel optimistic about more widespread access to repair manuals, the underlying copyright issues persist. Importantly, Apple's Self Service Repair Program's announcement does not commit to ensuring open access to its manuals and related information. Rather, it requires that participants register for the program, pay for the necessary parts and tools, and demonstrate the requisite competence to carry out the desired repair before being given access to the necessary information.

36 Ultimately, industry-led commitments like Apple's Self Service Repair program provide *permission* to access repair manuals at the charitable discretion of the manufacturer.[68] This is a far cry from empowering individual repairers through a user's right or copyright exception. Under a voluntary arrangement, the keys to understanding how to repair our own devices and products will remain in the hands of those who manufactured them. Not only is this likely to result in inconsistencies across product categories and industries, but it is reasonable to assume that access to these manuals would be facilitated through a web-based platform. For the same reasons that the 2019 Regulations fall short of encouraging participatory repair throughout the EU, voluntary commitments from private industry are also insufficient. For products and manuals which fall outside of these commitments, the only reprieve afforded to community repair groups and everyday people is found in the exceptions and limitations to copyright.

D. The EU's Exceptions and Limitations to Copyright

37 Copyright law in the European Union is comprised of an overlapping patchwork of directives. The result is that no single EU directive addresses the whole of copyright and its related subjects. This compartmentalisation of EU copyright law can present difficulties in discerning a coherent overall legislative purpose and intent. Nevertheless, the instrument governing the lion's share of copyrightable subject-matter

65 Wiens (n 23).

66 Apple, 'Apple Announces Self Service Repair' <https://www.apple.com/ca/newsroom/2021/11/apple-announces-self-service-repair/>.

67 U.S. PIRG, 'Who doesn't want the Right to Repair? Companies worth over $10 trillion' <https://uspirg.org/blogs/blog/usp/who-doesn%E2%80%99t-want-right-repair-companies-worth-over-10-trillion>.

68 Anthony D. Rosborough, "Apple's pledge to let consumers repair their own gadgets doesn't go far enough" (*Corporate Knights*, 21 December 2021) <https://www.corporateknights.com/waste/apples-pledge-to-let-consumers-repair-their-own-gadgets-doesnt-go-far-enough/>.

is Directive 2001/29/EC (the "InfoSoc Directive").

38 The InfoSoc Directive was constructed at the turn of the millennium with the primary goal of harmonising copyright law throughout the EU while implementing the 1996 WIPO World Copyright Treaty ("WCT"). In addition to providing a framework of exclusive rights, the InfoSoc Directive includes an exhaustive list of non-mandatory exceptions[69] to the rights of reproduction and communication to the public for Member States to pick and choose from. Sometimes referred to as the "shopping list"[70][71] or the "European menu"[72], these optional exceptions have been implemented to varying degrees throughout the EU. As a result, determining which exceptions apply in which member states requires sorting through a relatively complex hodgepodge of legal instruments.[73]

39 The InfoSoc Directive's list of non-mandatory exceptions is found at Articles 5(2) and 5(3). The optional exceptions or limitations listed in Articles 5(2) and 5(3) include uses for teaching and scientific purposes, uses for people with disabilities, for reporting current events, quotations, public security, and others. While member states are free to choose from these 15 optional exceptions and limitations and those in Article 5(2), they are generally *not* free to imagine new ones. The only flexibility left to member states in this regard is the so-called "grandfather clause" found at Article 5(3)(o), which allows member states to retain exceptions or limitations in their copyright statutes which predate the InfoSoc Directive's enactment.

40 Measuring the overall efficacy and consequences of this non-mandatory (yet exhaustive) approach to copyright exceptions and limitations is well beyond the scope of this article. It is also well canvassed in the existing literature by many notable scholars.[74] The overwhelming consensus among these experts is that the shopping list approach has been generally ineffective (and in some instances counterproductive) to harmonising copyright law throughout the European Union.[75] Furthermore, by effectively locking in the potential scope of exceptions and limitations, the InfoSoc Directive's optional and exhaustive approach impairs the ability of the EU legislator to respond to technological change and digitalisation[76], necessitating the enactment of subsequent directives.[77]

41 One reason for the shopping list's shortcomings is the paucity of judicial interpretation at the EU level. Indeed, more active judicial interpretation of the exceptions and limitations is a necessary *quid pro quo* for its exhaustive character. There are at least two reasons why this is the case: first, the closed character of the list necessitates some degree of evolutionary judicial interpretation in response to societal and technological change. Secondly, interpretation is necessary for resolving definitional and conceptual ambiguities as they appear in the list itself. Leaving member states to their own devices on these two fronts only encourages them to arrive at their own creative interpretations, and therefore undermines the InfoSoc Directive's harmonisation goal. The need for "coherent application" in this regard is set out in Recital 32 of the InfoSoc Directive, which states that the:

> "...list takes due account of the different legal traditions in Member States, while, at the same time, aiming to ensure a functioning internal market. Member States should arrive at a coherent application of these exceptions and limitations..."

42 Of course, coherent application does not occur organically; and certainly not for those exceptions and limitations which are uncommon or addressed

69 Though the "temporary acts of reproduction" at Article 5(1) is mandatory.

70 Bernt Hugenholtz, 'law and technology – Fair use in Europe' (2013) 56(5) *Communications of the ACM* 26, 27.

71 Eleonora Rosati, 'Copyright in the EU: in search of (in) flexibilities' [2014] 9(7) JIPLP 585, 592.

72 Lucie Guibault, 'Why Cherry-Picking Never Leads to Harmonisation: The Case of the Limitations on Copyright under Directive 2001/29/EC' (2010) 1 JIPITEC 55, 58.

73 For a helpful visualisation of this complexity, see Copyright Exceptions, *About* <https://copyrightexceptions.eu/static/about/>.

74 See Bernt Hugenholtz 'Why the Copyright Directive is unimportant, and possibly invalid' (2000) 22(11) EIPR 499; Marie-Christine Janssens 'The Issue Of Exceptions: Reshaping the Keys to the Gates in the Territory of Literary, Musical and Artistic Creation' in E Derclaye (ed) Research Handbook on the Future of EU Copyright (Edward Elgar Publishing Cheltenham 2009) 330-32; and Jonathan Griffiths, 'Unsticking the centre-piece – the liberation of European copyright law?' (2010) 1 JIPITEC 87.

75 Guibault (n 72).

76 Tito Rendas, *Exceptions in EU Copyright Law: In Search of a Balance Between Flexibility and Legal Certainty* (Wolters Kluwer, 2021), 154-162.

77 For example, 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, OJEU L 130/92 (DSM Directive).

differently in many jurisdictions. Given the conceptual and definitional ambiguities present in such provisions, it is hard to imagine how coherent application *could* come about spontaneously. The following analyses a peculiar exception in the shopping list with a repair focus, assesses its implementation in some member states, and explores how it might find benefit from a more coherent interpretation which supports participatory repair throughout the European Union.

I. Directive 2001/29/EC's "Repair Exception"

43 The Repair Exception is found at Article 5(3)(l) of the InfoSoc Directive. It provides an exception to the rights of reproduction and communication to the public for "use in connection with the demonstration or repair of equipment". This provision has not been interpreted in a reported judicial decision, and seldom has it received much attention from commentators or scholars.

44 The prevailing view among experts is that the Repair Exception allows repairers and sellers of devices like radios and televisions to play media or broadcasts in public to demonstrate proper functioning of the device.[78] And as will be contended in the following sections, this is an accurate yet incomplete view of the Repair Exception's potential scope and application. The following examines the Repair Exception's genesis, its varied implementation across EU member states, and how its status as an autonomous concept of EU law can support broader access and dissemination of repair manuals.

1. Genesis of the Repair Exception

45 It is no surprise that the Repair Exception was not at top of mind for legislators during the procedure leading to the InfoSoc Directive's enactment. This legislative procedure (1997/0359/COD) resulted in four main iterations of the draft directive[79]; none of which produced discussion or debate regarding an exception for the purposes of repair or demonstration of equipment. By all accounts, it appears as though the Repair Exception was added by the Council (along with many other provisions in the shopping list) without much comment near the end of the InfoSoc Directive's ordinary legislative procedure.[80]

46 In line with the InfoSoc Directive's Recital 32, however, the Repair Exception plays a role in Article 5(2) and 5(3)'s intent to mirror the pre-existing legal traditions within EU member states.[81] In furtherance of that goal, the Repair Exception reflects a long-standing exception to copyright for electronics repairers and retailers in Germany. There, the German *Act on Copyright and Related Rights* (UrhG)[82] includes at §56 an exception which states (in part, and when translated to English[83]):

> **Reproduction and communication to public in commercial enterprises**
>
> (1) In commercial enterprises which distribute appliances for making or communicating video or audio recordings, for the reception of broadcasts, or for electronic data processing, or which repair them, works may be transferred onto video or audio mediums, or onto data carriers, made perceivable to the public using video or audio recordings, or onto data carriers, and broadcasts may be made perceivable to the public and works may be make available to the public where it is necessary to demonstrate such appliances to customers or to repair them.

78 See Bently, "The Return of Industrial Copyright?" (Paper No 19/2012) at fn 149, "[T]hat provision was intended to permit repairers and sellers of radio and televisions to play and show broadcasts in public in order to check that and demonstrate that, the equipment works..."; and Thomas Dreier & Bernt Hugenholtz, *Concise European Copyright Law* (2nd ed, Wolters Kluwer, 2016), 467, where the authors write that "[an] example of this limitation is the communication to the public of audiovisual works in TV sets in an electronics store".

79 For a timeline of events during the legislative procedure leading to the InfoSoc Directive (including early versions of the Directive), see European Parliament, 'Legislative Observatory: 1997/0359(COD)' <https://oeil.secure.europarl.europa.eu/oeil/popups/ficheprocedure.do?lang=en&reference=1997/0359(COD)>.

80 European Commission, "Communication from the Commission to the European Parliament pursuant to the second subparagraph of Article 251(2) of the EC Treaty concerning the common position of the Council on the adoption of a Directive of the European Parliament and of the Council on the harmonization of certain aspects of copyright and related rights in the information society", SEC/2000/1734.

81 Rendas (n 76), 163-165.

82 Copyright Act of 9 September 1965 (Federal Law Gazette I, 1273), as last amended by Article 1 of the Act of 28 November 2018 (Federal Law Gazette I, 2014)

83 Bundesministerium der Justiz und fur Verbraucherschutz, *An Act on Copyright and Related Rights* (Germany) <https://www.gesetze-im-internet.de/englisch_urhg/englisch_urhg.html>.

47 This exception was first included in German copyright law in 1965, and amended in 2003 to expand its scope to electronic data processing equipment.[84] It was introduced primarily in response to the proliferation of audio-visual devices like reel-to-reel tape recorders and cassette players which had been marketed to consumers for the first time.[85] Long before the internet and online advertising, displaying the functionality of these devices in stores was the primary means though which consumers were introduced to them. The unavoidable copyright implications of having protected works being publicly perceptible in shops and public places necessitated some form of legislative intervention,[86] and the result was §56.

48 A few aspects of the German Copyright Act's §56 are worth highlighting. First, the exception applies only to "commercial enterprises", and specifically those which are in the business of selling, repairing, or distributing devices for audio-visual recording. Secondly, the exception only applies to a narrow class of technologies – namely, those necessary to display audio-visual works, receive broadcasts, or process electronic data. Third, §56 contains its own limitation in that it permits these activities only to the extent that they are *necessary* for demonstration or repair purposes. As will be discussed in relation to InfoSoc's Repair Exception as an autonomous concept, these caveats result in a far narrower German exception than what is otherwise permitted at the EU level.

2. Member State Implementation

49 Perhaps unsurprisingly, the peculiar origin of the Repair Exception in Germany has permitted varying interpretations in its implementation across EU member states.[87] Some member states, including Austria, Croatia, and the Czech Republic, mirror the German "commercial enterprises" approach quite closely. For example, Croatia's exception applies only to businesses which sell equipment for audio and video reproduction or reception.[88] The Czech Republic likewise restricts its exception for necessary uses of works to demonstrate or repair equipment "for a customer".[89]

50 Other member states, however, have taken a different approach in their implementation by including further caveats. One such additional caveat, found in Slovakia[90], is that the otherwise infringing act must be facilitated directly by the equipment being repaired or demonstrated. This approach is much more restrictive than what appears in the InfoSoc Directive. It almost certainly excludes the unauthorised reproduction and communication of repair manuals online. This is because the device being repaired in such cases is distinct from the device used to reproduce or communicate the manual.

51 Another narrow interpretation found in Romanian law is limiting the Repair Exception to "extracts" of works and only where necessary for the purposes of "testing" equipment "at the time of manufacture or sale".[91] This interpretation presumptively excludes repair activities on two grounds. First, "testing" can hardly be interpreted as applying the whole of repair activities, and secondly, repair is virtually always necessitated *after* the point of manufacture or sale. Slovenia largely shares this "necessity for testing only" approach.[92]

52 In at least one instance, the Repair Exception has been implemented as applying only to broadcasts of works. Though perhaps less instructive in a post-Brexit world, the United Kingdom's implementation of the Repair Exception applies only to broadcasts shown in public which are otherwise necessary for the purposes of repairing equipment used for broadcasting.[93] Like the necessity for testing approach seen in Romania and Slovenia, this narrower interpretation would also exclude the reproduction and communication of repair manuals

84 Dreier/Schulze/Dreier, 6. Aufl. 2018, UrhG § 56 Rn. 1, 2.

85 Fromm/Nordemann/Boddien, 12. Aufl. 2018, UrhG § 56 Rn. 1-4.

86 Dreier/Schulze/Dreier, 6. Aufl. 2018, UrhG § 56 Rn. 1, 2.

87 For an overview of the implementation of the InfoSoc Directive's non-mandatory exceptions across EU member states see European Parliament, *Copyright Law in the EU: Salient features of copyright law across the EU Member States* (European Parliamentary Research Service, June 2018) PE 625.126 <https://www.europarl.europa.eu/thinktank/en/document/EPRS_STU(2018)625126>.

88 *Copyright and Related Rights Act* (CRRA) (Croatia) Art 95.

89 Copyright and Rights Related to Copyright and on Amendment to Certain Acts (Czech Republic) Art 30b.

90 *Copyright Law,* National Law – Act No 185/2015 Coll (Slovakia) s 56.

91 *Law on Copyright and Neighbouring Rights* of 14 March 1996, National Law No 8/1996 (Romania) Art 37(1).

92 *Copyright and Related Rights Act* of 30 March 1995, last amended on 15 December 2006 (as in force from 13 January 2009) (Slovenia) Article 57 <http://www.uil-sipo.si/fileadmin/upload_folder/zakonodaja/ZASP_EN_2007.pdf>.

93 *Copyright, Designs and Patents Act,* 1988 c 48, 72(1B) [*UK CDPA*].

over the internet – particularly in relation to devices and equipment unrelated to broadcasting.

53 In other cases, however, EU member states have implemented a quite broad and liberal interpretation of the Repair Exception in their copyright statutes. Lithuania[94] and Malta[95], for example, follow most closely the wording found in the InfoSoc Directive and impose a blanket copyright exception to the rights of reproduction and communication to the public "in connection" with the repair of devices. No other caveats or conditions are attached to those exceptions. Finally, Poland stands out as adopting the most permissive approach by permitting all uses of works in connection with "any repair" of equipment.[96]

54 In all, only 10 of the EU's 27 member states have implemented (or partially implemented) the Repair Exception in their national copyright laws. As the above demonstrates, determining whether a directive's provision has been implemented is not always a neat and tidy or binary inquiry. But in general, the Repair Exception's ambiguous wording provides member states with significant flexibility in taking their own approaches to implementation.

55 Divergence in the implementation of this exception reveals ambiguities on several fronts. The first is whether the repair must be carried out for commercial purposes. Second, whether the device being repaired must be the same device used to perform the otherwise infringing act. And third, whether the exception applies to the whole of copyrightable subject matter, certain types of works, or only extracts of such works. Where the approach in Poland looks to support the reproduction and widespread communication of repair manuals, the Romanian and Slovenian implementations clearly do not.

56 Some divergences should be expected as the result of national discretion. However, the range of approaches to the Repair Exception's implementation reveals very large deviations in the potential scope and application of the exception throughout the EU. To this end, the varying approaches to the Repair Exception across EU member states goes far beyond mere formal methods of implementation and extends to significant substantive differences in the exclusive rights and permitted uses of works.[97] On its face, this divergence runs contrary to the overall harmonising objective of the InfoSoc Directive.

3. The Repair Exception as an Autonomous Concept of EU Law

57 Though surveying the varying implementation of the Repair Exception is helpful in determining the breadth of its interpretation throughout the EU, these implementations are not in themselves determinative of its meaning and scope. This is because the segments and wording within the exceptions and limitations found in the InfoSoc Directive's non-mandatory shopping list have been repeatedly recognised as "autonomous concepts of EU law" by the CJEU.[98] This means that, while member states may decide whether to implement an exception or limitation, they *may not* unilaterally determine its content or substantive limits.[99] Rather, the content and meaning of these exceptions and limitations is left to the CJEU.[100]

58 The implications of the autonomous character of optional exceptions and limitations have been heavily discussed by experts[101], particularly in relation to the residual discretion of EU member states to tailor these provisions to their national traditions. The prevailing and contemporary view is that the legislative and interpretive freedoms of member states have gradually diminished in response to an increasingly harmonising role played by the CJEU.[102] Of particular note on this point is the CJEU's decision in *ACI Adam,* where the court made clear that the discretion left to member states is limited to the choice of whether to implement an exception or limitation, and not to determine its substantive

94 *Law of 18 May 1999 No VIII-1185 on Copyright and Related Rights*, as amended (the Copyright Law), (Lithuania) Art 24(5).

95 *The Copyright Act of 1911,* National law – Chapter 415, (Malta) Art 9.1(t).

96 *The Copyright Act*, Ustawa z dnia 4 lutego 1994 r. o prawie autorskim i prawach pokrewnych (t.j. Dz. U. z 2017 r., poz. 880 ze zm), (Poland) Art 33(4).

97 C-516/17 *Spiegel Online* ECLI:EU:C:2019:625, 24.

98 Case C-201/13 *Johan Deckmyn and Vrijheidsfonds VZW v Helena Vandersteen and Others* ECLI:EU:C:2014:2132.

99 See Case C-467/08 *Padawan* ECLI: EU:C:2010:620, 32-36; and Case C-510/10 *DR and TV2 Danmark* ECLI:EU:C:2012:244, 33-36.

100 Christophe Geiger et al, 'Limitations and Exceptions as Key Elements of the Legal Framework for Copyright in the European Union – Opinion of the European Copyright Society on the Judgment of the CJEU in Case C-201/13 *Deckmyn*' (2015) 46 IIC 93, 97.

101 Rosati (n 71) 587

102 Justine Pila & Paul Torremans, E*uropean Intellectual Property Law* (OUP 2016) 331.

character.[103] In general, scholars have lauded this expansive role of the CJEU as being positive for the progressive development of copyright law and policy throughout the EU.[104]

59 Despite the CJEU's harmonising role, the wording of various exceptions and limitations unavoidably results in a sort of practical or linguistic discretion held by member states. Transposition of these provisions into various national languages only further exacerbates these potential differences. It turns out that the nature and extent of that discretion, however, depends on the wording of the specific provision and whether the CJEU has already elaborated an autonomous interpretation of certain concepts contained within it.[105]

60 To illustrate how this may apply to the Repair Exception, it is helpful to first examine two other exceptions in the InfoSoc Directive's shopping list. The first is the quotation exception found at Article 5(3)(d). It contains a caveat that the use of a quotation is permissible "...to the extent required by the specific purpose". Second is the press reporting right found at Article 5(3)(c), which contains a qualification that uses are permitted "...to the extent justified by the informatory purpose". In both cases, these are determinations which are reached *ex post,* and as such, only national courts can effectively determine their threshold in each case. Logically, this necessitates a reasonable degree of discretion left for member states.

61 Reconciling this point with the narrow discretion declared in earlier CJEU decisions was one of the core issues for the CJEU in *Spiegel Online*.[106] There, the CJEU held that the inclusion of open norm wording like that found in Articles 5(3)(c)-(d) evidences significant discretion left for member states. This discretion is nevertheless inherently limited by the three-step balancing test found at Article 5(5).

62 Unlike the quotation or press reporting exceptions, the Repair Exception is without reference to open norms or *ex post* weighing factors. It is unequivocal and broad in scope by permitting uses of copyright works "in connection with the repair...of equipment", full stop. Along with the parody exception found at Article 5(3)(k) and the "incidental inclusion" exception found at Article 5(3)(i), the Repair Exception has been described as a "prototype provision" for national law implementation.[107] By "prototype", it is regarded as a standard against which national implementations can be measured. And based on the CJEU's existing caselaw, it is not clear whether further conditions or narrowing of prototype provisions (as shown in the previous section) are permitted in the absence of open norms indicating a conferral of discretion to member states.[108] Some experts have even proposed transposing literal copies of prototype provisions like the Repair Exception into national laws to create semi-open norms that better respond to social and technological change.[109]

63 The above reveals a need for elaboration and interpretation of the Repair Exception as an autonomous EU concept. As it stands currently, it is victim to a strange interplay of interpretive principles. On the one hand, it carries a theoretically independent and uniform meaning throughout the EU. On the other hand, it is worded in a way that leaves substantial ambiguity, leaving broad leeway for varying national implementations. And quite evidently, member states have responded differently to that ambiguity. This result is significant disharmony across the EU which may inevitably pose significant social and environmental costs by unnecessarily inhibiting participatory repair.

64 Should the CJEU find occasion to elaborate upon the autonomous interpretation of the Repair Exception in the future, national courts will be bound to adopt that interpretation.[110] This would first require a request for preliminary ruling by a member state court and willing parties. Neither should be relied upon as inevitable. In the absence of such interpretive elaboration by the CJEU, it is worthwhile to explore how the Repair Exception might nevertheless be interpreted to bolster participatory repair activities by enabling the dissemination of repair manuals throughout the EU.

103 Case C-435/12 ACI Adam BV and Others v Stichting de Thuiskopie and Stichting Onderhandelingen Thuiskopie vergoeding ECLI:EU:C:2014:254, 34.

104 Rendas (n 76), 199-204.

105 *Ibid.*

106 Case C-516/517 *Spiegel Online* ECLI:EU:C:2019:625, 24-38.

107 Bernt Hugenholtz and Martin Senftleben, 'Fair Use in Europe: In Search of Flexibilities' (2011) Amsterdam Law School Research Paper No 2012-39, 14.

108 Daniël Joseph Wietse Jongsma, 'Creating EU copyright law: striking a fair balance' (Doctoral dissertation, Hanken School of Economics 2019) 212

109 Hugenholtz and Senftleben (n 107) 17.

110 Rendas (n 76), 204-208.

E. Toward a Robust Repair Exception

65 Like all autonomous concepts of EU law, the Repair Exception must receive independent and uniform interpretation.[111] In carrying out that interpretation, the CJEU examines the "usual meaning of the terms of the provision in everyday language, while also taking into account the context in which they occur and the purposes of the rules of which they are part".[112] As exemplified by its interpretation of "parody" and "under the authority", the usual meaning approach can be regarded as fairly established precedent going forward. The origins of a particular provision in EU law can also provide relevant contextual information for interpretation.[113] Of course, any interpretation reached must also fit within the larger parameters set by the InfoSoc Directive's three-step test found at Article 5(5) while furthering the public interest. The following assesses the potential scope of the Repair Exception's interpretation and how it may fit within these boundaries.

I. "Use in connection with"

66 The Repair Exception is worded differently from most of the other exceptions in Article 5(3). Rather than applying to uses for certain purposes, it speaks to uses "in connection" with repair or demonstration. While the notion of use "in connection" is common in the trademark realm[114], the concept is generally foreign to copyright law. This is not only the result of trademark law's peculiar notion of use, but also because exceptions and limitations to copyright are normally assessed in relation to the intended use or objectives of the user. For example, Article 5(3)(g) describes permitted use "during religious celebrations or official celebrations organised by a public authority". Further, Article 5(3)(k) permits use "for the purpose of caricature, parody or pastiche". These examples evidence a close relationship between the activity and the use in question. This can be contrasted quite clearly from the rather nebulous "in connection with" language found in the Repair Exception.

67 Looking more widely at the language used elsewhere in the InfoSoc Directive offers some assistance here. The directive contains three other references to uses in connection with. The first is at recital 50, where it is clarified that InfoSoc does not alter the "protection of technological measures used in connection with computer programs..." as set out in Directive 91/250/EC (the "Software Directive"). The second is at Article 5(3)(c) which permits (in part), the "use of works or other subject-matter in connection with the reporting of current events...". Finally, Article 7(2) clarifies that the obligation to protect rights-management information will apply when such information is associated with a copy or a work, or "appears in connection with" a work when communicated to the public.

68 Though there is very little joining together TPMs, news reporting, and rights-management information, there is a common denominator underlying these references. In each case, the notion of connected use implies an ancillary, secondary, or incidental association. It also implies a clear conceptual distinction between the otherwise infringing use and the activity. This stands in contrast to the religious celebrations and parody exceptions, which show a tight link between the activity and the use. Put simply, the Repair Exception's language privileges the activity over the use. It stands to reason, therefore, that permitted uses "in connection with repair" is broader and more permissive than an exception or limitation which permits uses only for a specific purpose.

69 Despite the restrictive interpretation implemented in some member states, therefore, the Repair Exception permits a wide range of uses so long as they bear an ancillary or incidental relationship to repair. Notably, the requirement under Slovakian law for the equipment being repaired to also facilitate the otherwise infringing use finds no basis in the InfoSoc Directive. Further, the necessity requirement seen in Romanian, Slovenian, German, and Czech law also appear to be without basis at the EU level. Importantly, by permitting uses "in connection with" repair, Article 5(3)(l) permits the repair of equipment independent from that used to facilitate the act of reproduction or communication.

70 When it comes to sharing electronic copies of repair manuals freely online for today's gamut of devices and equipment, the Repair Exception's "in connection with" language is important for a few reasons. For one, by including the repair of equipment independent from that used to perform the reproduction or communication, it significantly broadens the scope of "equipment". This language implies that it is not restricted merely to reel-to-reel tape recorders or media playback technologies involved in reproduction or communication, but also includes the

111 Deckmyn (n 10) 45.

112 Case C-119/12 *Josef Probst v mr.nexnet GmbH,* EU:C:2012:748, 20.

113 Case C583/11 P, *Inuit Tapiriit Kanatami and Others* v *Parliament and Council,* EU:C:2013:625, 50

114 Regulation (EU) 2017/1001 of the European Parliament and of the Council of 14 June 2017 on the European Union trade mark, Art 18 <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32017R1001>.

repair of things like washing machines, lawnmowers, cars, barbeques, and electric skateboards. This vastly improves the utility and modern relevance of the Repair Exception and its potential to enable participatory repair throughout the EU.

71 Secondly, "in connection with" also provides room for uses of repair manuals which are incidental or ancillary to the end repair activities. For example, some repair activities may be accomplished without reference to a manual, though nevertheless significantly aided by it. In these cases, the use of the repair manual is supplementary and in connection with repair, but perhaps not essential. In other cases, users may search online for and download a repair manual merely to determine whether the required task is within their skillset and competence. In the end, they may decide to opt for a professional repairer to carry out the task to ensure that it is done properly. By extending to uses in connection with repair, the Repair Exception would cover these types referential or supplementary uses of manuals as well.

72 In sum, the scope of uses permitted by the Repair Exception should be interpreted broadly. The language used in the provision supports such an approach. Despite the narrow interpretation adopted in some member states which restricts its application to uses necessary for repair, or only in relation to specific classes of equipment, the wording of Article 5(3)(l) contains no such limitations. By permitting uses in connection with repair, the Repair Exception should be interpreted as permitting the use of repair manuals for a whole host of products, devices, and equipment in ways that directly or indirectly facilitate repair activities.

II. "Repair"

73 Though the Repair Exception can be interpreted as enabling a broad range of uses, it is important to clarify which activities fall within the ambit of "repair". The InfoSoc Directive does not define repair, and nor does it offer any interpretive aid in its recitals. For this reason, insight must be gained by looking to the ordinary meaning of the term along with its legislative context and purpose.

74 According to the Merriam-Webster dictionary, repair means to "put into good order something that is injured, damaged, or defective", or to "restore by replacing a part or putting together what is torn or broken".[115] These conceptualisations of repair are straightforward, but there are nevertheless some remaining ambiguities. For instance, where is the boundary at which restoration or fixing of an article becomes a *de facto* replacement? And, when does repair transcend restorative work and amount to customisation or modification?

75 Providing some assistance here, the concept of repair has rubbed shoulders with intellectual property principles on a few occasions in the past.[116] Some of the earlier interactions in this regard came in the form of caselaw centred on disputes between automobile manufacturers and aftermarket parts producers. One well-cited example is the 1986 UK House of Lords decision *British Leyland.*[117] The case was concerned with industrial copyright in the physical shape and dimensions of exhaust pipes, and whether the manufacture of aftermarket replacement pipes constituted infringement. The House of Lords decided that it did not and formulated a right to repair defence, citing the importance of repair to the public interest. The House of Lords defined repair as to "restore to good condition by renewal and replacement of decayed and damaged parts".[118] The necessary implication from this definition is that repair does not extend to the replacement of the entire object.[119]

76 Another and more contemporary instance of judicial interpretation of repair in EU law is the ECJ's judgement in *Acacia Srl*[120] within the context of the Community Design Regulation[121] and the Community Design Directive.[122] At issue was the manufacture of replica aftermarket alloy wheel rims which were identical in design to those produced by Porsche and Audi. The dispute centred on an exception to community design rights which allow the reproduction of "parts of a complex product" for the purpose of repairing that product and whether the alloy rims fell

115 Merriam-Webster, 'repair' <https://www.merriam-webster.com/dictionary/repair> accessed 20 December 2021

116 For a more comprehensive overview of the interface between repair and different intellectual property rights, see Estelle Derclaye, 'Repair and Recycle between IP Rights, End User Licence Agreements and Encryption' in Christopher Heath and Anselm Kamperman Sanders (eds), *Spares, Repairs and Intellectual Property Rights* (Kluwer Law International 2009), 22-24.

117 *British Leyland Motor Corporation and Others v Armstrong Patents Company Limited* [1986] RPC 279 (UK).

118 *Ibid* 348.

119 Derclaye (n 116) 22.

120 Case C-435/16 *Acacia Srl v Pneusgarda and another C-397/16; Acacia Srl and another v Porsche AG* ECLI:EU:C:2017:992.

121 Council Regulation (EC) 6/2002 of 12 December 2001 on Community designs [2002] OJ L3/1.

122 *Ibid* Art 19(1).

within that exception. In analysing the boundaries of repair in this context, the ECJ found that the Community Design Regulation's repair clause requires that the part be "necessary for the normal use of the complex product or, in other words, if that if the part were faulty or missing, this would prevent such normal use"[123]. The ECJ went on to elaborate that:

> "Any use of a component part for reasons of preference or purely of convenience, such as, inter alia, the replacement of a part for aesthetic purposes or customisation of the complex product is therefore excluded from the 'repair' clause".[124]

77 Though both *British Leyland* and *Acacia Srl* were concerned with replacement parts, their interpretations of repair are helpful for understanding its conceptual limitations within intellectual property theory. In broad terms, repair is restricted to restorative or ameliorative activities which ensure good functioning of an object or equipment. It does not include entire replacement of the article, voluntary modification, or adaptation.

78 Though instructive, these conceptual boundaries do not materially narrow the types of activities that fall within the ambit of repair. Even within the context of restorative or ameliorative work, there is a broad range of potential activities. Such practices may include reverse engineering, diagnosis, measuring, testing, preventative maintenance, and rebuilding. It may also include recovery and redistribution activities such as salvaging and cannibalisation of parts, as well as remanufacturing.[125] All of these activities are directly relevant to participatory repair activities like those carried out in repair cafés and through the assistance of tool libraries.

79 When combining this broad notion of repair with the Repair Exception's legislative purpose and objectives, the result is a quite promising platform for enabling participatory repair. Though the InfoSoc Directive makes frequent references to the importance of a "high level of protection" for rightsholders, its overall goal is to harmonise certain aspects of copyright throughout the EU. It also stresses the importance of the "smooth functioning of the internal market" and the public interest in promoting "education and teaching".[126]

123 *Acacia Srl* (n 120) 70.

124 *Ibid.*

125 Ricardo J Hernandez et al, 'Empowering Sustainable Consumption by Giving Back Consumers the "Right to Repair"' (2020) 12(3) Sustainability 850, 853.

126 InfoSoc Directive (n 5), Recital 14.

Vastly unequal access to repair information – and particularly on non-profit and participatory basis - significantly impairs these latter goals.

III. TFEU's Principle of Sustainable Development

80 Robust interpretation of the Repair Exceptions is also consistent with broader EU law objectives, and particularly Article 11 TFEU.[127] That provision creates an all-encompassing duty to integrate environmental protection and sustainable development in the policies and activities of the Union, including the administration and interpretation of its laws.[128] As articulated above, participatory repair and the diffusion of technical knowledge is crucial for curtailing the burgeoning tide of electronics waste, harmful resource extraction, and manufacturing processes incidental to the production and sale of modern devices. Therefore, the Repair Exception ought to be interpreted in a way that mitigates these impacts.

81 The interpretation of EU law generally follows a teleological approach[129], and therefore Article 11 TFEU's broad call for integrating environmental protection and sustainable development into the interpretation of EU Directives functions as more than a mere cursory consideration or weighing factor. These principles apply directly to the interpretation of the Repair Exception and the InfoSoc Directive as a whole. Viewed within this context, interpreting the Repair Exception to enable and facilitate participatory repair is not only consistent with Article 11 TFEU, but is required by it.

82 The foregoing demonstrates that the proliferation of restrictive design among today's computerised devices creates for a heightened public interest in the free and open access to repair manuals. In looking to the disharmony and lack of uniformity in member state implementation of the Repair Exception and the potential for asymmetrical facilitation of participatory repair, it is evident that a more uniform and permissive interpretation is both warranted and required. Though it is clear that EU policymakers should use every tool at their disposal to further sustainable development goals, questions linger about

127 The Treaty on the functioning of the European Union, last amended by the Treaty of Lisbon, OJ 2008 C115 (consolidated version) [TFEU].

128 Beate Sjåfjell, 'The legal significance of Article 11 TFEU for EU institutions and Member States' in Beate Sjåfjell and Anja Wiesbrock (eds), *The Greening of European Business under EU Law: Taking Article 11 TFEU Seriously* (Routledge 2015), 52.

129 *Ibid.*

the encroachment on exclusive rights held by copyright owners.

IV. Interpretive Boundaries: The Three-Step Test

83 As compelling as the public interest may be in the widespread dissemination and access to repair manuals, there are necessary limits to the Repair Exception's potential scope. A key limitation in this regard is the three-step test at Article 5(5) of the InfoSoc Directive. That provision requires that exceptions and limitations only be applied "in certain special cases which do not conflict with a normal exploitation of the work or other subject-matter and do not unreasonably prejudice the legitimate interests of the rightholder". Notwithstanding any of the Repair Exception's internal limitations, it must also satisfy the three-step test.[130] In general, the three-step test acts to create a presumption *against* the liberal interpretation of exceptions.[131] Experts have argued that the three-step test should be understood as an indivisible entirety and interpreted as such.[132] Nevertheless, the following canvasses how a robustly interpreted Repair Exception might find agreement with each of its elements.

1. "Certain special cases"

84 The "certain special cases" requirement has been the subject of much discussion among scholars and experts. One position in the debate adopts a very qualitative view of special cases. Namely, that it requires the use be unavoidable and incidental in the normal course of a given activity.[133] In the case of the Repair Exception, this narrow conceptualisation has led to the view that it is permissible to reproduce or communicate works only to the extent necessary for repair, and on account of 'some clear reason of public policy'.[134]

85 Adopting this constraining interpretation of "certain special cases" would obviously be problematic for enabling wider access to repair manuals. Unlike the reproduction or communication of works as facilitated by the equipment being repaired, online sharing of repair manuals is not strictly necessary and therefore theoretically avoidable. Moreover, the benefits of participatory repair will only be realised if these activities can proliferate beyond special cases. This constrained view of the certain special cases requirement has been persuasively rejected, however. In the well-cited *Declaration on a Balanced Interpretation of the "Three-Step Test" in Copyright Law,* notable copyright experts have contended that the certain special cases requirement simply requires some foreseeability within the scope of limitations and exceptions.[135]

86 One way that a robust Repair Exception might comply with this element of the test is to restrict uses of repair manuals to non-commercial repair activities. This would enable participatory and community repair activities like those which occur in repair cafés and through tool libraries while ensuring consistency in the exception's application. With this additional caveat or limitation, the Repair Exception would resemble the non-commercial nature of virtually all other exceptions and limitations to copyright and therefore be largely foreseeable.

2. "Normal exploitation"

87 The classical view of "normal exploitation" is a measurement of the effect of use on the actual or potential markets for a work.[136] More expansive interpretations have included an assessment of whether rightsholders *ought* to have control over the use in question considering competing rights and interests.[137] Irrespective of the view one takes on the meaning of 'normal exploitation', a robust Repair

130 Case C-403/08 *Football Association Premier League Ltd and Others v QC Leisure and Others* CJEU *Premier League* ECLI:EU:C:2011:631, 181.

131 Jonathan Griffiths, 'The "Three-Step Test" in European Copyright Law – Problems and Solutions' (2009) Queen Mary School of Law Legal Studies Research Paper 31/200, 441. <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1476968> accessed 20 December 2021.

132 Reto Hilty, 'Declaration: A Balanced Interpretation of the "Three-Step Test" in Copyright Law' (2010) 1 JIPITEC 119, 120.

133 Martin Senftleben, *Copyright Limitations and the Three-step test. An Analysis of the Three-Step Test in International and EC Copyright Law* (Kluwer Law International 2004) 263.

134 *Ibid* 152.

135 Jongsma (n 108) 216.

136 World Trade Organization, "United States – Section 110(5) of the US Copyright Act: Report of the Panel" WT/DS160/R (15 June 2000) 6.183 <https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=Q:/WT/DS/160R-00.pdf&Open=True>.

137 Chrisophe Geiger, Daniel Gervais & Martin Sentfleben, 'Understanding the Three-Step Test' in Daniel J Gervais (ed), *International Intellectual Property – A Handbook of Contemporary Research* (Edward Elgar, 2015) 175.

Exception could comply with this element by clarifying its application. One approach in this to apply only to repair manuals which are produced by original equipment manufacturers. The presumption being that manufacturers of devices and technologies are generally not in the business of selling repair manuals, and therefore the copyright in these manuals is not the subject of normal exploitation. By creating this distinction, the Repair Exception would also account for the importance of copyright for third-party publishers like Haynes.[138] It would also remain largely effective in encouraging access to repair manuals for non-profit uses.

3. "Unreasonable prejudice"

88 The third element of the three-step test has been defined as prejudice to legitimate interests of rightsholders where an exception or limitation "causes or has the potential to cause an unreasonable loss of income".[139] What is reasonable in each circumstance is far from clear. It could perhaps be inferred that direct economic competition with rightsholders is required for a loss to become unreasonable, but this is speculative.

89 In any event, one approach to a robust Repair Exception which may ameliorate the concerns of unreasonable prejudice is to extend the exception only to manuals for products which have been on the market for some period or been succeeded by a new generation. For smartphones with relative short generations, the latter calculation would apply. For home appliances with relative long lifecycles, a fixed period for that product category could apply. In simplifying this calculation, this assessment could refer to the timelines as set out in the EcoDesign Directive's 2019 Implementing Regulations. These measures stipulate timelines for when manufacturers must provide repair information to professional repairers and various end-of-life and product lifecycle calculations.[140] Overall, limiting the Repair Exception's scope to prescribed time periods in this way would ensure that the legitimate interests of rightsholders are not unreasonably prejudiced.

138 See Part I.

139 World Trade Organization (n 136) 6-229.

140 For example, dishwasher manufacturers are required to provide repairers with repair information once a product has been on the market for two years. These timelines could be used as a reference to effectively measure the period of third-party repair manual exclusivity for product categories.

F. Conclusion

90 Repair has become increasingly front of mind for policymakers and the public throughout the EU in recent years. Repair enables secondary markets, reduces waste, and diffuses technical knowledge. It offers a way out of the current trajectory we find ourselves on, which risks exacerbating social inequality, further harming the environment, and concentrating technical knowledge in the hands of the few.

91 Efforts at the EU level to enable wider access to repair manuals make an important step in this direction but fall short of supporting participatory repair activities and fostering a culture of repair. Industry-led commitments, with their limited and discretionary access to repair information, are both unreliable and insufficient. Legislative and policy reforms addressing repair impediments posed by copyright and other intellectual property rights are warranted. The foregoing analysis reveals one such impediment and how lawmakers in the EU might address it.

92 The primary contribution of this article is its assertion that enabling broader dissemination and access to repair manuals is possible through an autonomous reading of the InfoSoc Directive's Article 5(3)(l). It appears to be the first in-depth analysis of this provision, including an assessment of its genesis and member state implementation. It is also the first to explore its potential as a platform for broader uses of copyright works in situations that transcend its original conceptualisation.

93 To realise the potential benefits to the public interest that occasion participatory repair activities, the European Commission should develop guidance on the scope and interpretation of the Repair Exception. As it stands currently, the conventional wisdom concerning the Repair Exception's purpose results in a narrow interpretation with limited utility in the modern world. Failure to address how this exception may remedy the pressing social, economic, and environmental costs brought about by un-repairability is a missed opportunity to achieve meaningful progress on these issues.

94 In the absence of the European Commission's clarification of the Repair Exception's interpretive scope, it is hoped that this article can serve as a foundation for future research in this area. This analysis may serve as a platform for future inquiries into Repair Exception's role in removing barriers to repair posed by other uses of copyright works. Future research may also explore the extent to which a broad interpretation of the InfoSoc's Repair Exception may influence and inform other intellectual property regimes that impact repair, including trademark, industrial design, and patent law.