

Blockchain-enabled smart contracts, copyright licensing, and the right to change one's mind – Guido Noto La Diega PhD FHEA

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The concept of smart contract predates the blockchain and was first presented in 1994 by Nick Szabo who defined it as 'a computerized transaction protocol that executes the terms of a contract.'^[1] The promise of automated execution has become even more alluring with the new generation of smart contracts, that are a collection of code and data (...) that is deployed using cryptographically signed transactions on the blockchain network.^[2] Indeed, these new smart contracts inherit all the features of the underlying blockchain infrastructure, including 'the tamperproof nature (...) that anchors their automated execution.' In a music copyright context, smart contracts could be used for several purposes, such as to automate the execution of a licence or as a form of digital rights management (DRM).^[3]

Whilst the use of blockchain-based smart contracts in copyright can be praised or criticised for a number of reasons,^[4] this article will assess their compatibility with a principle that we deem inherent to our legal system, i.e. the right to change one's mind. Contract law is designed to recognise such a right. This can be inferred by the compensatory nature of damages pursuant to the theory of efficient breach, and the prevalence of damages over specific performance. Since smart contracts 'prohibit or make more costly efficient breach,^[5] their adoption be encouraged?

The English legal system is one of several systems where contractual parties can walk away from the agreement without being penalised in the form of punitive damages or prevented to change their mind in the form of specific performance remedies.^[6] This can be seen as a reflection of the theory of efficient breach, whereby if a party can get better use of their resources by breaching the contract, then they should be able to without being penalised.^[7] More precisely, the breach is 'efficient, and therefore desirable, if the promisor's gain from breach, after payment of the promisee's expectation damages, will exceed the promisee's loss.'^[8] The theory is usually accepted as a justification for the current approach to remedies.^[9]

Even though the existing scheme of remedies for breach of contract in English law can be justified on non-efficiency based grounds,^[10] it can be submitted that the preference for compensatory damages over punitive damage and specific performance shows adoption of a theory of efficient breach. With the exception of debt, the common law remedy for a breach is that of damages.^[11] These damages have the function to compensate for the loss, whereas punitive damages – where the award goes beyond the loss in order to penalise the breaching party – have no place in the law of contract, regardless of how outrageous the defendant's conduct has been.^[12] The right to change one's mind is reflected also in the fact that the jurisdiction to order specific performance is supplementary to common law damages.^[13] and specific performance will not be granted where damages provide adequate relief.^[14] It must be said, however, that injunctions can be seen as a form of indirect specific performance and yet they have become increasingly common, even in circumstances where the court would not order specific performance.^[15] Although injunctions can be used to encourage performance, they are confined by a twofold restriction. First, there must be an express contractual clause whereby the party obliged themselves not to do something (an express negative stipulation).^[16] Second, the injunctive relief cannot have the effect of forcing the defendant to fulfil a contract for personal service or to abstain from any business whatsoever and for too long a term.^[17]

It would seem, therefore, that in light of the right to change one's mind, smart contracts' deployment is not desirable. One could object that these self-executing protocols could be programmed in order to allow a party to breach them under certain circumstances and the consequent reaction could follow efficient breach principles. However, it does not seem possible to decide *ex ante* (and accordingly encode) when the breach is efficient,^[18] and such a complexity could lead to vulnerabilities.^[19] More generally, if the automated execution can be discontinued in the event of a breach, this would defeat the whole purpose of using smart contracts.

The breach of a copyright licence can be seen as both a breach of contract (e.g. the royalties have not been timely paid) and as copyright infringe. This would be the case if the licensee went beyond the limits of the licence, for instance if the work has been used beyond the agreed expiration or for purposes other than those provided in the licence (e.g. the right to copy had been licensed, but the licensee communicated the work to the public). In the former scenario, the ordinary principles of contract law will apply and, therefore, the aforementioned considerations about the right to change one's mind enshrined in contract law can be reiterated here. If copyright infringement is at issue, in turn, things may differ. Copyright in a work is infringed if the defendant carried out a restrict act (e.g. reproduction)^[20] without a valid licence^[21] with regards to a substantial part of the claimant's work,^[22] if a causal link between the former and the defendant's work is established.^[23] If an infringement action, the owner and the exclusive licensee^[24] can seek damages, injunctions, accounts or any property-related remedy.^[25] The latter reference has been read as including an order for specific performance.^[26] Moreover, there are additional damages in the event of flagrancy,^[27] injunctions against internet service providers,^[28] delivery up,^[29] order for disposal,^[30] and seizure.^[31] Since blockchain technologies can be used as a form of digital lock or DRM,^[32] it is important to note that the circumvention of these locks is accompanied by the same remedies as copyright infringement itself.^[33] Damages based on the actual prejudice suffered by the rightholder, ^[34] but the Court of Justice of the EU ruled that Member States can introduce punitive damages.^[35] However, in the UK, damages have a compensatory function and they will not be awarded if the defendant did not know or had no reason to believe that copyright subsisted in the works.^[36] Although not technically punitive damages,^[37] the claimant can seek additional damages, if the defendant of the conduct was deceitful or treacherous,^[38] and having regard of the benefits accruing to the defendant by reason of the infringement.^[39] Without downplaying the importance of additional damages, it should be nonetheless recognised that their relevance is limited since they are often sought but rarely granted.^[40]

In addition to the damages, claimants can seek injunctions, often to prevent further infringing activities. However, being an equitable remedy, courts may exercise their discretion and not grant it, for example if there is an undue delay in commencing proceedings.^[41] It is expressly provided that courts can decide to replace injunctions with damages.^[42] Finally, court will not grant an injunction if damage is an appropriate remedy.^[43] Additionally, rightholders can seek injunctions against internet service providers, for example asking Sky to block access to an infringing website.^[44] The questions to be asked, as summarised in *1967 Ltd v British Sky Broadcasting*,^[45] are as follows: is the defendant a service provider? Do the website's users and operators infringe copyright? Do they use that website to do so? Has the defendant actual knowledge of the above? Whereas an assessment of whether damages would be more appropriate could take place when courts assess whether the sought injunctions are proportionate, effective, and dissuasive, there seems to be a clear trend of granting blocking injunctions.^[46]

In conclusion, smart contracts seem to be contrary to the right to change one's mind that characterises our contract law. This affects also its use in copyright licensing, since some dispute may regard a breach of licence as breach of contract. However, when the breach is such that the defendant carried out a restricted act beyond the scope of a licence, then copyright infringement principles will apply. In the copyright sub-system, the preference for compensatory damages over specific performance is not as clear as it is in contract law. Damages themselves are compensatory, but they can be accompanied by additional damages in the event of flagrancy. These are not technically punitive, but they certainly go beyond the typical compensatory function of damages. The rise of injunctions, finally, can be seen as an indirect way to favour specific performance. If this is the case, then the right to change one's mind is less strong in a copyright context and, at least from this point of view, the adoption of smart contracts should not be resisted. However, this should be cautiously, because contracts are often used to exclude copyright exceptions or defences (e.g. text and data mining).^[47]

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[1] Nick Szabo, 'Smart Contracts' (1994) <<http://www.fon.hum.uva.nl/rob/Courses/InformationInSpeech/CDROM/Lecture/LOTwinterschool2006/szabo.best.vwh.net/smart.contracts.html>> accessed 15 May 2019. Michèle Finck and Valentina Moscon, 'Copyright Law on Blockchains: Between New Forms of Rights Administration and Digital Rights Management 2.0' (2019) 50 IIC – International Review of Intellectual Property and Competition Law 77.

[2] Dylan Yaga, Peter Mell, Nik Roby, and Karen Scarfone, *Blockchain Technology Overview* (NIST 2018) 54.

[3] A typical example of DRM is that digital lock that was introduced in CDs to prevent their unauthorised copy. On DRM and smart contracts see Finck and Moscon (n 1).

[4] See e.g. Balázs Bódi, Daniel Gervais and João Pedro Quintais, 'Blockchain and Smart Contracts: The Missing Link in Copyright Licensing?' (2018) 26 International Journal of Law and Information Technology 311; Finck and Moscon (n 1).

[5] Max Raskin, 'The Law and Legality of Smart Contracts' (2017) 1 Geo L Tech Rev 305, 328. More broadly on this K O'Hara, 'Smart Contracts – Dumb Idea' (2017) 21 IEEE Internet Computing 97.

[6] For example, in Italy, whilst damages that go beyond the loss are available in the event of a infringement, they should be qualified as a form of restitution, as opposed to a punitive one. See Carlo Castronovo, 'La violazione della proprietà intellettuale come lesione del potere di disposizione. Dal danno all'arricchimento' (2003) 1 Dir ind 7; Carlo Castronovo, *La nuova responsabilità civile* (Giuffrè 2006) 644; Armando Plaia, *Proprietà intellettuale e risarcimento del danno* (Torino 2005) 62.

[7] Richard A Posner, *Economic Analysis of Law* (Ninth edition, Wolters Kluwer Law & Business 2014), cited in O'Hara (n 5).

[8] Melvin A Eisenberg, *The Theory of Efficient Breach*, vol 1 (Oxford University Press 2018) 51. The author criticises the theory because it would rest on incorrect factual predicates. i.e. that 'the expectation measure makes a promisee indifferent between performance and breach and that the promisor knows the value that the promisee places on the promisor's performance and therefore can make the calculation the theory requires' (ibid 52).

[9] See e.g. Thomas S. Ulen, 'The Efficiency of Specific Performance: Toward a Unified Theory of Contract Remedies', 83 MICH. L. REV. 341, 343 (1984), as cited by Ben Depoorter and Stephan Tontrup, 'How Law Frames Moral Intuitions: The Expressive Effect of Specific Performance' (2012) 54 Ariz L Rev 673, 675.

[10] Tareq Al-Tawil, 'English Contract Law and the Efficient Breach Theory: Can They Co-Exist?' (2015) 22 Maastricht Journal of European and Comparative Law 396.

[11] J Beaton, A Burrows, and J Cartwright, *Anson's Law of Contract* (30th ed, OUP 2016) 564.

[12] *Addis v Gramophone Co Ltd* [1909] AC 448; *Malik v Bank of Credit & Commerce International SA* [1998] 1 AC 20. Punitive damages may be available in tort; *Rookes v Barnard* [1964] AC 1129.

[13] Beaton (n 11) 608. For a comparison between common law and civil law jurisdiction, underlining some convergence, Ole Lando and Hugh Beale, *Principles of European Contract Law: Parts I and II* (Kluwer Law 2000) 399.

[14] *Harnett v Yelding* (1805) 2 Sch & Lef 549; *Ryan v Mutual Tontine Westminster Chambers Association* [1893] 1 Ch 116. In the US, whilst courts have granted some specific performance remedies, they have also refused the remedy where damages would be an adequate remedy (Raymond v. Raymond Estate, 2008 SKQB 278 (CanLI), and case law cited by Paul M Perell, 'Common Law Damages, Specific Performance and Equitable Compensation in an Abortive Contract for the Sale of Land: A Synopsis' (2011) 37 Advocates' Quarterly 408.

[15] *Lumley v Wagner* (1852) De GM & G 604; *Metropolitan Electric Supply Co Ltd v Ginder* [1901] 2 Ch 799

[16] *Mortimer v Beckett* [1920] 1 Ch 571.

[17] *Ehrman v Bartholomew* [1898] 1 Ch 671; *Warren v Mendy* [1989] 1 WLR 853.

[18] Patrick Dahm, 'The Efficiency of Breach of Smart Contracts' (*Asia Law Network Blog*, 22 February 2018) <<https://learn.asialawnetwork.com/2018/02/22/efficient-breach-smart-contracts/>> accessed 14 May 2019.

[19] The more complex the software, the more vulnerable it will be. See e.g. Michal Klincewicz, 'Autonomous Weapons Systems, the Frame Problem and Computer Security' (2015) 14 Journal of Military Ethics 162.

[20] CDPA, s 16(1).

[21] CDPA, s 16(2).

[22] *Designers Guild v Williams* [2000] 1 WLR 2416.

[23] *Sawkins v Hyperion* [2005] 1 WLR 3281.

[24] Except against the copyright owner, as provided under CDPA, s 101(1). Non-exclusive licensees have limited rights of action under s 101A.

[25] CDPA, s 96(2).

[26] David I Bainbridge, *Intellectual Property* (10th edn, Pearson 2018) 208.

[27] CDPA, s 97(2)

[28] CDPA, s 97A.

[29] CDPA, s 99.

[30] CDPA, s 114.

[31] CDPA, s 100.

[32] Finck and Moscon (n 1).

[33] CDPA, s296ZD(2).

[34] Directive 2004/48/EC of the European Parliament and of the Council of 29 April 2004 on the enforcement of intellectual property rights [2004] OJ L 157/16 (Enforcement Directive), art 13.

[35] Case C-367/15 *Stowarzyszenie "Oławska Telewizja Kablowa" w Oławie v Stowarzyszenie Filmowców Polskich w Warszawie* (CJEU, 25 January 2017); the ratio decidendi was that the Enforcement Directive lays down a minimum standard concerning the enforcement of IP rights and does not prevent Member States from laying down more protective measures. See David Serras Pereira and Carlos Madureira, 'The CJEU Decision in Stowarzyszenie "Oławska Telewizja Kablowa", C-367/15, and Punitive Damages in Copyright Law: A Portuguese Perspective' (2017) 12 Journal of Intellectual Property Law & Practice 373.

[36] CDPA, s 97(1); *Claydon Architectural Metalwork v DJ Higgins & Sons* [1997] FSR 475.

[37] Bainbridge (n 26) 212.

[38] This is the definition of flagrancy provided in *Nichols Advanced Vehicle Systems Inc v Reese & Oliver* [1979] RPC 127.

[39] CDPA, s 97(2).

[40] For an exception, see *Cola Homes (South) Ltd v Alfred McAlpine Homes East Ltd* [1995] FSR 818.

[41] Bainbridge (n 26) 214.

[42] Senior Courts Act 1981, s 50.

[43] This will be the case if the injury is small, pecuniary, can be adequately compensated with a small amount of money, and when it would be oppressive to the defendant to grant an injunction. This is the guidance laid out in *Shelfer v City of London Electric Lighting Co* [1895] 1 Ch 287.

[44] CDPA, s 97A

[45] [2015] EWHC 3444 (Ch) per Arnold J.

[46] See e.g. *Football League Premier Division v British Telecommunications plc* [2017] EWHC 480 (ch); *Carrier v British Sky Broadcasting Ltd* [2018] UKSC 28.

[47] In certain countries, contractual terms purporting to prevent or restrict the availability of these defences are not enforceable. See e.g. CDPA, s 29(4B). However, at the EU level only some defences are binding, although the recent reform of copyright may signal a trend reversal; see Directive of the European Parliament and of the Council on copyright and related rights in the Digital Single Market and amending Directives 96/9/EC and 2001/29/EC, PE 51 2019 INIT, art 7. However, the text and data mining exception does not seem to be binding (art 4). On the latter see Maria Lillà Montagnani and Giorgio Aime, 'Il text and data mining e il diritto d'autore' (2018) AIDA 2017 376; Christophe Geiger, Giancarlo Frosio, and Oleksandr Bulayenko, *The exception for text and data mining (TDM) in the proposed Directive on Copyright in the Digital Single Market legal aspects* (European Commission 2018).

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