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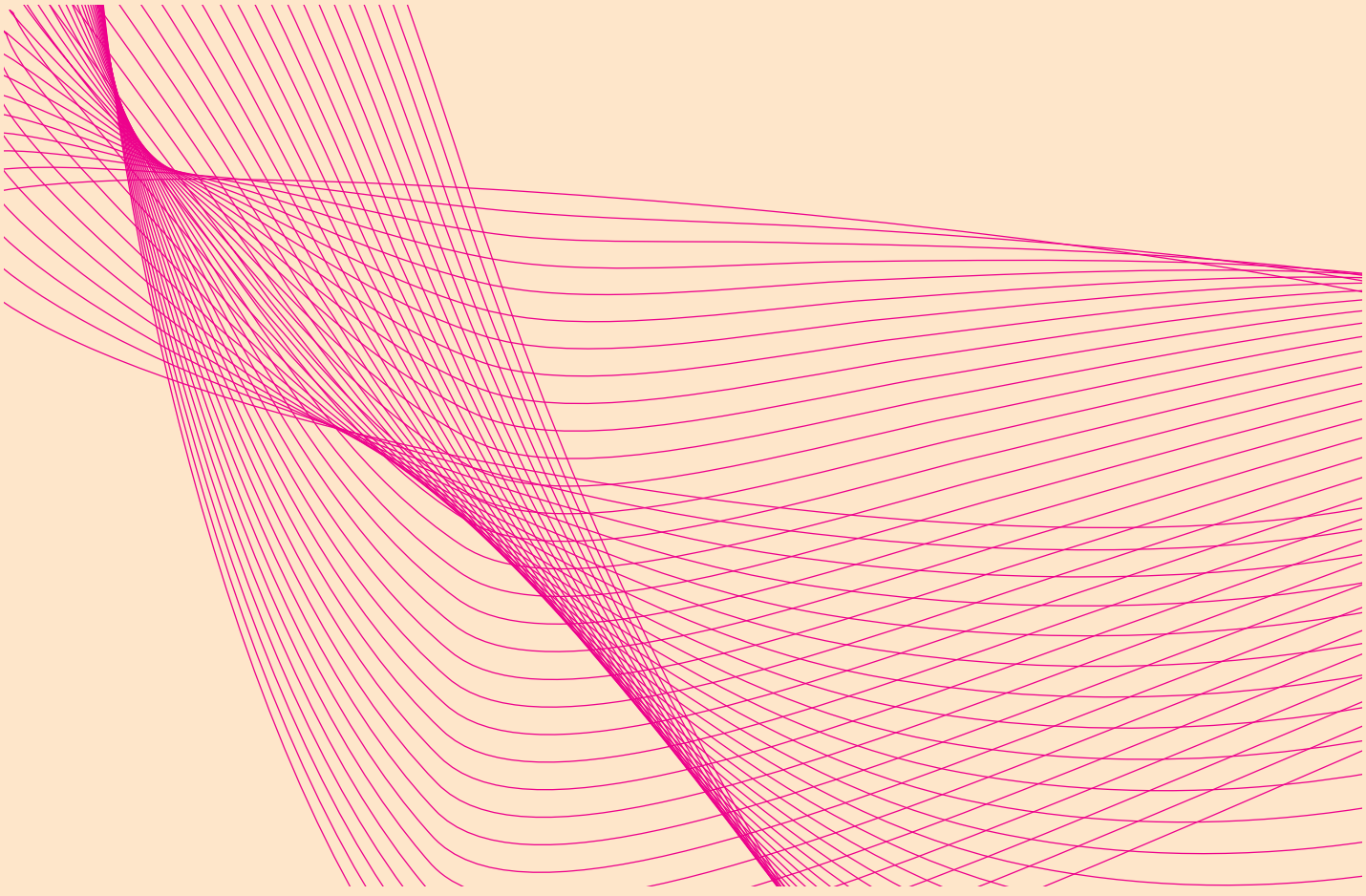

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Editorial

While writing these few words and preparing to send the next issue of Stockholm IP Law Review to the print, the world as we know it is not the same. It has been some five months since the first news of the COVID-19 outbreak reached us, and since then the worldwide expansion of the pandemic has gradually but steadily influenced the way we live, the way we work and the way we socialize. It has been a time of cancellations of conferences and meetings, an equally long time since we entered an airplane or travelled anywhere to begin with. Teaching, meetings and seminars have moved from "in real life" to digital platforms, and we have had to familiarize ourselves with communication tools such as Zoom, Teams, Skype etc., experiencing both pros and cons from this transition.

It does not come as a surprise that the IP world was to be influenced as well. By mid-March both the EUIPO and the EPO announced that they would extend the deadlines directed to parties until the beginning of May. Shortly afterwards the same was announced for the Community Plant Variety Office. Starting end of March, IP Courts in the UK moved the proceedings from the analogue world to digital meetings. Reading the guidelines published by the Courts, leaves no doubt about the practical challenges of this change of environment.

Apart from the pure technical issues concerning IP practice, governments have taken steps in order to address the COVID-19 crisis by making use of exceptions to IP rights.

The Israeli Government, acting through its Minister of Health with the authorization of the Attorney General of Israel, issued a precedential permit for the use of three Israeli patents covering the anti retrovirus drug "KALETRA" in order to import quantities of a generic version of the drug for use in the treatment of patients suffering from the COVID-19 virus. Several other countries, such as India, Mexico and Italy to name a few have explored the possibilities to make use of compulsory licensing in order to guarantee access to pharmaceuticals and to necessary equipment to deal with the pandemic. In this process, the role of patent rights, orphan drugs designations and even trademarks have been presented and debated in IP blogs and in webinars.

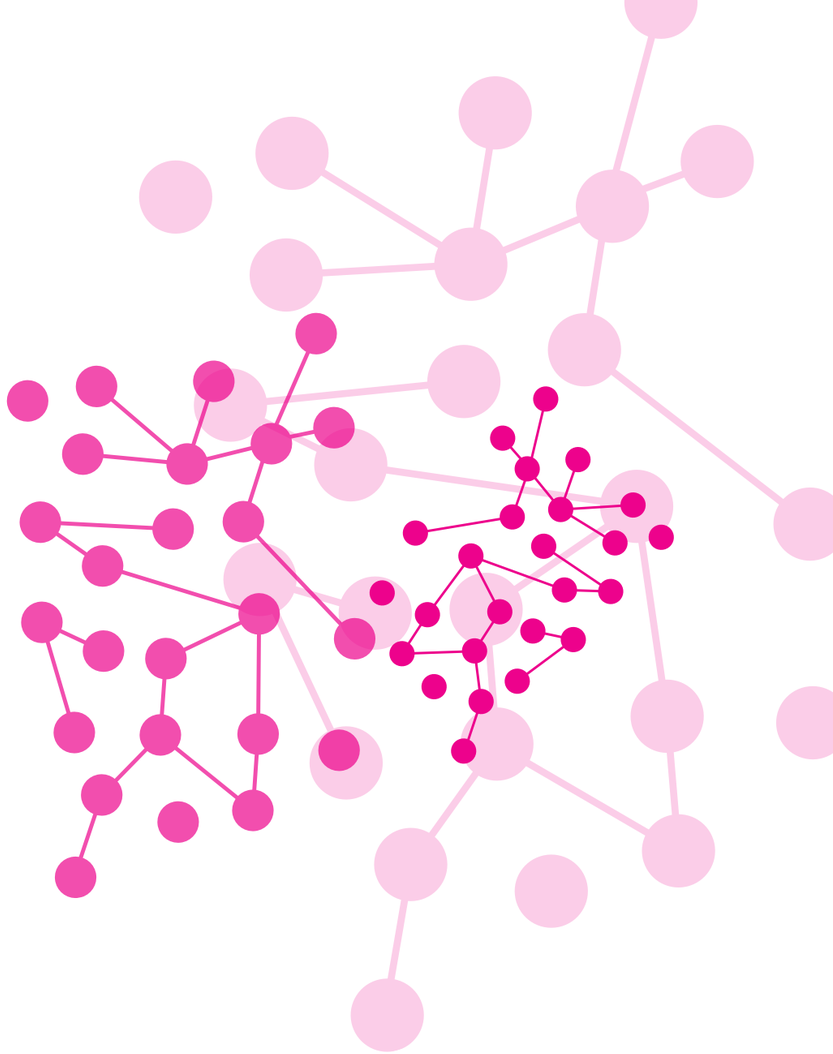
The work of our journal has also been influenced. Several of the members of our editing team had to fly back to their home countries, and we have postponed our yearly seminar from May to December 2020. Despite this, we are pleased that the Stockholm IP Law Review spring issue of 2020 has come together, even though we in the editorial team had to practice social distancing during the work.

Looking back to one year ago, it is of interest to note that several of the articles of the 2019 spring issue , as well as our conference on the 4th of June 2019 concerned public health issues. Reading the articles now, during the COVID-19 pandemic, their relevance and importance is renewed.

This 2020 Spring issue of Stockholm IP Law Review does not focus on COVID-19 issues, but on other important and timely issues, the IP challenges of the digital world. In the article by Holgersson, Granstrand and Opedal we find out what an innovation ecosystem is and how multilayered licensing influences fairness considerations in capturing and sharing value within contributors. Rosati's article on the other hand, analyzes the approach adopted by the CJEU regarding direct liability of online intermediaries in relation to user activities. Hyperlinking on the internet, and how this is classified from a copyright perspective is discussed by Bohle in her article, that includes the most important case law of the CJEU concerning the interpretation of Article 3(1) of the Infosoc Directive. The business opportunities and the legal loopholes of blockchain solutions for the online music industry are discussed by Carretta, while Kempas reflects on IP considerations on AI in Europe and in Sweden.

We hope you enjoy the reading and that the next issue of our journal comes at a time when we may deliver the issues in person.

Åsa Hellstadius & Frantzeska Papadopoulou



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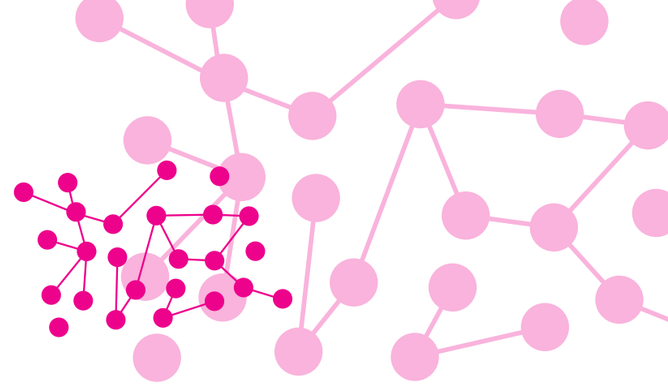
Fairness in intellectual property valuation and value-sharing:

Towards fair pricing in technology trade and licensing

By Ove Granstrand, Marcus Holgersson & Andreas Opedal



ABSTRACT

In today's complex and digital business landscape, innovation is typically not an effort of a lonely genius or an activity confined to a single corporate R&D lab. Instead, the innovation process often involves open innovation, technology trade, and intellectual property (IP) licensing between multiple firms in what is sometimes referred to as an innovation ecosystem. While this interaction is conducive to value creation, it also creates a pressing need for better methods and principles for fairly capturing and sharing value among contributors. The purpose of this paper is to shed light on the plurality and specificity of fairness principles, how they appear in IP negotiation experiments with 105 participants, and what outcomes they generate compared to competitive behavior. The paper especially highlights how investments and the structure of innovation actors, artifacts (such as patents), and activities impact fairness.[1]

1. INTRODUCTION

Competitive behavior in some form is prevalent among all living creatures while fair or just behavior in some sense is a social construction primarily among humans. Competitive behavior is a key subject in economics while fair behavior and justice is a key subject in law. This is not to suggest that legal studies are more human-focused than economic studies, but nevertheless fair behavior does not feature as prominently as competitive behavior in economics, beyond connections between the two such as fair competition. At the same time competition does not feature centrally in legal studies except for competition law. These disciplinary biases in studies of human behavior suggest that competitive behavior and fair behavior are fertile candidates for interdisciplinary studies in law and economics.

One area where there is a central connection between competitiveness and fairness, as well as between economics and law, is that of intellectual property (IP) licensing and technology trade, and the related IP contracting and pricing. In this area, the value of IP is shared between actors through some price mechanism. In commodity markets, sellers are price-takers subject to competition pushing prices down towards marginal costs. IP markets, in contrast, are characterized by uniqueness of the traded asset and by complementarities between the traded IP and other assets.[2] They are also characterized by low liquidity, low transparency, information asymmetries, intermediation, and two-sidedness (with both buyers and sellers having preferences about each other), typically involving a relatively low number of potential buyers and sellers with unique assets, which can only be valued in connection to their complementary and substitute assets.[3] Consequently, pricing, or in other words value-sharing, becomes a costly and time-consuming negotiation effort, implying considerable transaction costs.

In the current era of digitalization, which is the focus of this journal issue, technologies are becoming increasingly complex, being developed and controlled by numerous actors who collaborate and compete with complementary and substitute assets in innovation ecosystems[4] involving various forms of open innovation.[5] This, in turn, leads to an increasing number of costly transactions of technology and IP.[6] However, research on innovation ecosystems has primarily been occupied with the potential for collaborative value creation in innovation ecosystems[7], leaving a pressing need to better understand how this value could and should be shared among, or fairly captured by, ecosystem actors.[8]

A parallel trend enabled by digitalization is that of smart and automated contracting,[9] which has the potential to offset the increasing transaction costs mentioned above. Some progress has been made in order to standardize and automate contracting, but much remains to be done.[10] For example, there is a need to match automated contract clauses with automated contract prices. Whether it is automated or not, price-setting (including royalty-setting) can be helped by establishing and using a set of *ex ante* agreed upon fairness principles. This kind of axiomatic pricing or "smart pricing" can, at least partly, replace negotiation and thereby decrease transaction costs.[11]

The purpose of this paper is to shed light on the plurality and specificity of fairness principles, how they appear in negotiation experiments, and what outcomes they generate compared to competitive behavior. These fairness principles are of relevance to law in general and to technology trade and IP licensing in particular—not least in complex innovation ecosystems.

The paper will start with a theoretical and conceptual discussion of a number of fairness principles. This is followed by illustrative examples of the differences in outcomes from these and other principles depending on the structure of actors, artifacts, and activities, or in other terms depending on the structure of the innovation ecosystem.[12] To complement these theoretical principles, the paper then presents empirical results from negotiations in an experimental setting focused on bargaining and fairness of simple IP deals, before finally drawing some conclusions.

As to limitations of this paper, no review of the vast subject of notions and principles of fairness and distributive justice is attempted, nor of problems and methods of experimental economics. The approach in this paper is mainly qualitative and informal although the theoretical underpinnings are possible to formalize and model quantitatively. Moreover, there are both opportunities and challenges with the practical use of fairness principles. One such major challenge is that of incomplete information and information asymmetries across actors. In no way should this paper be seen as an attempt to downplay such practical challenges, but rather as a small step towards contributing to the theoretical principles leading the way to more practical use.

2. SOME PRINCIPLES AND PROBLEMS OF FAIRNESS

It is fair to say that fairness has a fair deal of connotations. No universal definitional element is apparent, nor is there any universally accepted notion of fairness or unfairness across jurisdictions and cultures. However, a common, if not dominant, notion rests on an egalitarian principle of equity or equality or equal treatment and equal sharing of something across players in a fair game with rules that are reasonable and do not discriminate against any of the

1 The work on this article has been undertaken within the projects "Intellectual property management in digitalizing businesses" and "Intellectual assets, innovation, growth and value creation and the role of new digital technologies and digital property" at Chalmers University of Technology and Institute for Management of Innovation and Technology, respectively. The highly capable research assistance by Justin Lundgren, and the financial support from VINNOVA (grants 2016-04666 and 2017-04469) are gratefully acknowledged. Authors in alphabetical order.

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10 Charlotta Kronblad and Johanna E. Pregmark, "Beyond Digital Inventions—Diffusion of Technology and Organizational Capabilities to Change", in Legal Tech, Smart Contracts and Blockchain, ed. Marcelo Corrales, Mark Fenwick, and Helena Haapio (Singapore: Springer Singapore, 2019).

11 In the telecommunications industry there have been efforts focused on capping aggregate royalty rates of standard essential patent to enable fair, reasonable and non-discriminatory (FRAND) licensing. See, e.g., G. Brismark and K. Alfalahi, "Patent Strategies - a Fork in the Road toward 4g", Ericsson Business Review 2008, no. 3 (2008); Holgersson, Granstrand, and Bogers, "The Evolution of Intellectual Property Strategy in Innovation Ecosystems: Uncovering Complementary and Substitute Appropriability Regimes."

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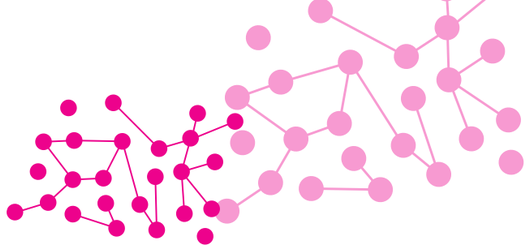


players. Such a principle may be sufficient for acceptance of fairness but it might not be necessary, as the popularity of playing roulette against the odds indicates. Equality in sharing might on the other hand be necessary but not sufficient as the problems with equality in cake cutting or pie sharing among several (more than three) kids indicate due to procedural uncertainties, envy, and disputes. As to serious games in bargaining about IP rights, a serious search for applicable and acceptable fairness principles is warranted to reduce transaction costs (apart from being warranted on moral grounds or on pure utilitarian grounds).

The search for acceptable fairness principles in general can be guided by stipulating a set of desirable properties they ideally should have, such as being:

- Egalitarian or equitable in the sense that something is equalized across some relevant entities like individuals or groups of them and there is no discrimination
- Efficient in the sense that the outcomes are Pareto-optimal (i.e. there is no other outcome that is at least as good for all and better for some)
- Envy-free in the sense that nobody thinks someone else is better off (and if so willing to trade)
- Guilt-free in the sense that nobody feels guilty about the outcome
- Robust against manipulation, strategic gaming, and misrepresentation
- Transparent

The ideal fairness principle does not exist, however, so choices and trade-offs between these desirable properties have to be made, typically between equity and efficiency.

An egalitarian principle in itself is moreover far from unproblematic. Apart from the basic problems of conceptualizing equality or equity and compromising between equity and efficiency, problems arise regarding, for example, who, what, when and how to equalize—i.e., problems in answering the questions:

- **Who are the subjects or actors to be equalized?**
- Individuals, teams, or organizations?
- Owners, producers, users, or third parties?
- **What objects, resources, artifacts, or outcomes are to be equalized?**
- Levels of or changes in gross or net absolute or relative returns, profits, costs, or terminal wealth?
- Some other measure of value, expected value, or discounted value?
- Some other entity altogether, like a piece of cake or a piece of background or foreground knowledge or access to opportunities?
- **Which activities are carried out in order to equalize?**
- Sharing, allocating, redistributing, repaying, encumbering, transferring values or valuables?
- **When is equality in treatment and/or outcomes to be established?**
- *Ex ante* or *ex post* in the short or long term?
- **How is fairness to be established and by whom?**
- By yardsticks, rules, or cultural norms applied by participants, third parties, or some judicial institution?

Answers to these (mostly old philosophical) questions generate a number of fairness principles, or, alternatively, means to reduce some measure of unfairness, in some cases related to principles of justice, e.g.:

- **A proportionality principle**
- As when awarded IP damages are proportional to the number of infringed and valid patents (without concern about their structural importance)
- **A probabilistic principle**
- As when players are given an equal chance to something or an equal expected value or utility of something (without concern for envy *ex post*)
- **A reciprocity principle**
- As expressed by Jesus: "whatever you desire for men to do to you, you shall also do to them"[13] (without concern for differing preferences or values among people)
- **A Marxian principle for distributive justice**
- As expressed by Marx: "from each according to his ability, to each according to his need"[14]
- **A Rawlsian principle for distributive justice**
- As when conditionally providing most to those with the dearest need plus providing equal opportunity to all[15]

These examples are listed here in order to contextualize the following discussion rather than to attempt a brief review of the rich literature from ancient times onwards on various notions of fairness, justice, equality, right, reason, etc. As these notions are deeply embedded in our culture(s) they tend to enter into negotiations, often implicitly, which calls for some explication. This is so especially when axiomatic bargaining approaches are sought for, i.e., principles that bargaining parties can make binding commitments to *ex ante*, e.g., in form of fair, reasonable and non-discriminatory (FRAND) commitments in royalty-setting of IP licenses.

This paper focuses on egalitarian fairness principles involving some form of proportionality or reciprocity. Such principles in a bargaining context could simply be classified as cost-based, value-based, or investment-based, depending upon what is being shared and equalized.

From an investment point of view, equalizing the rates of return (on investment) could be motivated as fair and reasonable since capital constrained investors tend to rank their indivisible investment opportunities according to rate of return rather than according to absolute returns from investments. Thus, this would ensure fair rates of return (FROR) in relative terms. This approach has been proposed for FRAND-based royalty-setting for independent assets in form of non-exclusive patent licenses with additive returns and investments among the licensees.[16] On the other hand if the investments have already been made with sunk costs and the corresponding assets are pooled *ex post* as complementary assets in a joint collaborative project with economies of scope it might be considered a more fair approach to equalize absolute returns, since bygones are bygones. Thus, this would ensure fair returns (FR) in absolute terms.

Finally, as to limitations of these two fairness principles, one may observe that neither of them provides portfolio value shares that are preserved under aggregation and disaggregation of assets or asset-holding players. This is most easily seen from considering the example with two asset holders, each with one left shoe, and a third asset holder with one right shoe. The left shoe holders could pool their assets and then capture half of the portfolio value as their fair share jointly and then split this half equally among themselves, thereby each getting a quarter.

In case of patents instead of shoes, this example could be reformulated to correspond to the situation when two strongly complementary patents A and B are held separately and a third party holds a strong substitute patent C to B. Note that C as well as B are complements to A, see Figure 1.

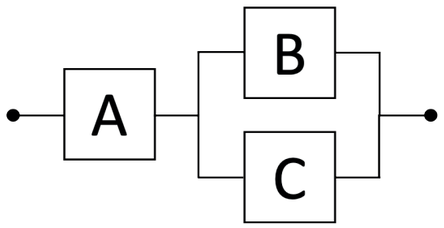


Figure 1 Patent A with complement patents B and C, which in turn are substitutes to each other.

Now suppose B is invented in R&D stage I and then B is invented around by C at a subsequent R&D stage II. Essentiality of B now is lost. Then the previous fair 50/50 split between A and B is no longer fair considering the portfolio {A, B, C}. If instead applying the so called Shapley value[17], introduced in 1951 by Lloyd Shapley who later received the Nobel Prize[18], the value shares of A, B, and C in stage II are 2/3, 1/6, and 1/6. This is also a type of coalitional outcome. Here, the value is split in accordance of each patent's weighted average marginal contribution to the coalition. It is not clear that this split would be considered fair and reasonable to the B-holder, who then would have no incentive to allow the C-holder to enter into any collaboration, while the A-holder has a strong incentive to do so. Thus, a Shapley-based fairness principle could produce non-Pareto changes in the value sharing of a dynamically changing asset portfolio, in which new pure substitute patents are included. At the same time it could be argued on other fairness grounds that the new entrant, i.e., the C-holder, does not add total value to the portfolio, just redistributes the Shapley value, and thus should not receive any value. One could also argue that the B- and C-holder could form a coalition, pool their substitute assets and claim a fair share for their coalition, and then split that share equally. The A-holder, on the other hand, has a strong incentive to abandon a fair sharing regardless of any fairness principle, since pure competitive bargaining could allow the A-holder to appropriate almost the total value.

This illustrates a number of things:

- There are several equally justifiable fairness principles among which a choice has to be made
- Complementary as well as substitute assets matter for appropriation and sharing of value
- What is fair and reasonable may depend upon how the assets are created over time[19]
- Fairness could be exercised among assets, among partitions (modules) of assets and among actors with differing outcomes
- Fairness could be exercised sequentially

The next section further elaborates on this with numerical examples as illustration, and then also considers how investments may affect fair sharing and pricing.

[13] Matthew 7:12, The World English Bible.
[14] Karl Marx, Critique of the Gotha Program (1875).
[15] John Rawls, "A Theory of Justice", (1971).
[16] Ove Granstrand and Marcus Holgersson, "The 25% Rule Revisited and a New Investment-Based Method for Determining Frand Licensing Royalties", LES Nouvelles 25 (2012).
[17] The Shapley value is a general egalitarian method for valuation of contributions from players in a cooperative game or contributions from assets in a portfolio without any concern about the initial wealth of the players. The method is based on reciprocity in the sense that the marginal value any player contributes to any other player's share of any coalition's value in a cooperative game is bilaterally equalized. The fair value of any player then turns out in a somewhat surprising and counterintuitive way to become a weighted sum of that player's marginal value added to each conceivable coalition in the game with the weights being the average over all coalition sizes of the average marginal value added by that player to each coalition of a certain size. This is more easily grasped by a formula; see, e.g., Kevin Leyton-Brown and Yoav Shoham, "Essentials of Game Theory: A Concise Multidisciplinary Introduction", Synthesis lectures on artificial intelligence and machine learning 2, no. 1 (2008). For further applications of the Shapley value in patent portfolio valuations, see Ove Granstrand, "Valuation and Value Sharing of Structured Portfolios with Complementary and Substitute Assets", CIM Working Paper 2014:1, Chalmers University of Technology (2014).
[18] Formally The Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel.
[19] This is also discussed by Coase in the classical case of an upstream factory polluting water for a downstream laundry. This is generally considered unfair to the laundry but would it be unfair if the factory was first established and then the laundry was located downstream despite knowledge about the pollution? In general there is a presumption of a first mover advantage in rights allocation. See Ronald H. Coase, "The Problem of Social Cost", Journal of Law and Economics 3, no. Oct. (1960).

3. ILLUSTRATIVE EXAMPLES OF SIMPLE FAIRNESS PRINCIPLES AND BARGAINING SITUATIONS

To illustrate the conceptual discussion above and the potential outcomes of different fairness principles a couple of simple numerical examples will be introduced. First assume two patents, A and B, owned by two different firms. A is worth 50 alone, while B is worthless on its own. Jointly, however, the two patents are worth 100. What is then a fair split of the joint 100 between the A-holder and the B-holder? According to experience from discussing these issues with practitioners and students over several years, there is close to a consensus that a fair split of the 100 would be 75 to the A-holder and 25 to the B-holder. The argument typically brought forward is that the individual value of A (50) should be kept by the A-holder, while the added value of combining A and B (another 50) should be distributed equally (25 each) between the A-holder and B-holder since they contribute equally.

By adding a third patent, C, and a third actor, the C-holder, things are made more complicated. Now assume that A, B, and C are all worth zero on their own. The combinations {A, B}, {A, C}, {A, B, C} are all equally valuable, being jointly worth 100 (see Figure 1). This means that B and C are substitutes while they are both complementary to A, in line with the discussion in the previous section. While this is still a relatively simple example, there no longer is consensus what a fair split of the value of 100 between A, B, and C is. One way of arguing is that since there is competition between the B-holder and the C-holder, the A-holder has the opportunity to play one off against the other and reap very close to all of the value while the others would not receive anything or hardly anything. Another way of arguing is that the B-holder and the C-holder can form a coalition through which they would reach the same bargaining power as the A-holder. Then A would be valued at 50 and the portfolio of B and C would be valued at 50, which would then be split up equally (25 each) between B and C. This is the structural proportionality principle. A third way of arguing is that whenever it is decided which one of the two patents B or C is used in conjunction with A, that one is equally important as A, and they should therefore be valued equally (50 each). This is the selective proportionality principle.[20] A fourth way of arguing, here called pure proportionality, is a variant of the previous, but instead of assuming a patent selection among substitutes it assumes equal value of all complementary and substitute patents (in this case 33 each). A fifth way of arguing is to calculate the Shapley value, as briefly introduced above, leading to A being valued at 67 and B and C each at 17. The outcomes of these different fairness principles are summarized in Table 1.

Table 1. Illustrative outcomes from different fairness principles compared to competitive bargaining (with rounded numbers).

	A	B	C	Total
Competitive bargaining	100-ε	ε or 0	0 or ε	100
Structural proportionality	50	25	25	100
Selective proportionality	50	50 or 0	0 or 50	100
Pure proportionality	33	33	33	100
Shapley value	67	17	17	100

The example above can also illustrate how the structure of actors, technological artifacts (inventions, patents, etc.), and activities in an innovation ecosystem impact the perception of fairness. First, consider actor structure, and compare the standard situation introduced above in Figure 1 with a situation where patent A and B are owned by Owner 1 while C is owned by Owner 2, see Figure 2a. Since Owner 1 holds both of the two necessary complements, i.e., the complete technology, while Owner 2 just holds an incomplete technology, with zero value on its own, most would argue that it is not fair that Owner 1 should share any value with Owner 2, and that Owner 1's two patents therefore are equally valuable. This is in line with the selective proportionality principle, see Table 1. Second, consider artifact structure. By focusing on symmetries among artifacts one outcome is that patents B and C are together equally important and valuable as patent A, and that B is equally important and valuable as C, see Figure 2b. This is the structural proportionality principle. An alternative is to calculate the weighted average marginal contributions in line with the Shapley value. With the Shapley principle B and C are also equally valuable, but with a lower joint value than A. Third, consider activity structure, and more specifically the order in which the assets or artifacts are created. Assume that patent A and B are invented in stage I and patent C in stage II, see Figure 2c. There is then a first mover claim to fairness in the sense that who is first to invent has arguably a larger fair claim than who is second with an invent-around substitute patent, and the selective proportionality principle could again be applied.

[20] In practice and court cases this is sometimes referred to as the top-down approach of royalty calculation.

[21] The same investment levels for B and C are used here for simplicity, but the principles are applicable also with individual differences in investments.

[22] If the A-holder contracts with the B-holder, the selective proportionality principle would, when accounting for investments, say that the A-holder and B-holder should share their joint net value of 100 – 30 – 10 = 60 equally. Thus, A-holder would receive 30 + 30 = 60 and B-holder would receive 10 + 30 = 40, giving them the same net values (30 each). In contrast, the pure proportionality principle would give an equal share of the surplus (50 / 3 = 17) to all three patent holders, in addition to their respective investments. The Shapley principle would instead distribute the net value by giving 2/3 of the surplus to the A-holder and 1/3 each to the B-holder and C-holder.

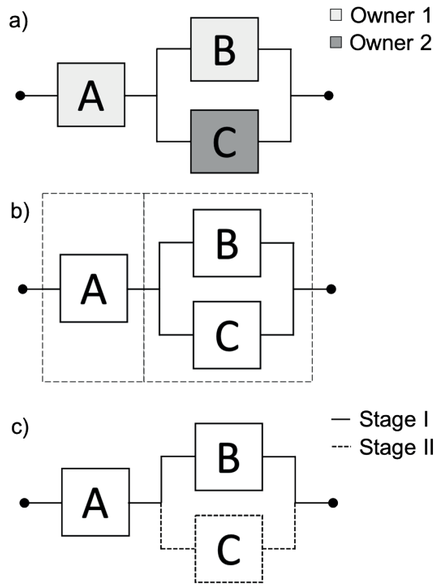


Figure 2 Three patents and the related actor, artifact, and activity structures.

In addition to the complication of a third patent as discussed above, the investments behind each of the three patents can now be introduced to complicate matters further. Assume that the A-holder has spent 30 on developing A and the holders of B, and C have spent 10 each on their patents.[21] This means that the net value or surplus of the three patents is 100 – 30 – 10 – 10 = 50. The same relationships apply, meaning that each patent is worthless alone but A together with B and/or C have a gross value of 100. Fairness can now be argued on the basis of absolute values (some form of fair returns) or relative values (some form of fair rates of returns) when accounting for investments.

For principles based on absolute values, emphasizing fair returns, the actors involved in collaboration are first reimbursed for their investments, and the surplus value is subsequently shared in line with the different principles introduced above. For example, in line with structural proportionality of surplus, the (explicit or implicit) coalition between the B-holder and the C-holder receives reimbursement for its investments (10 + 10 = 20) plus half of the surplus (50 / 2 = 25), meaning a total gross value of 45, which is shared between the B-holder and the C-holder. Analogously, the A-holder receives reimbursement of its investment (30) plus half of the surplus (25), meaning a total gross value of 55. The selective proportionality, pure proportionality, and Shapley principles follow the same logic of being applied to the surplus rather than gross value, see Table 2.[22]

Table 2 Illustrative outcomes from different fairness principles when accounting for investments (with rounded numbers)

	A	B	C	Total
Amount of investment	30	10	10	50
Principles based on absolute values / fair returns (FR):				
Structural proportionality of surplus				
gross value	55	23	23	100
net value	25	13	13	50
Selective proportionality of surplus				
gross value	60	40 or 0	0 or 40	100
net value	30	30 or -10	-10 or 30	50
Pure proportionality of surplus				
gross value	47	27	27	100
net value	17	17	17	50
Shapley distribution of surplus				
gross value	63	18	18	100
net value	33	8	8	50
Principles based on relative values / Fair rates of returns (FROR):				
Selective fair rate of return (FROR)				
gross value	75	25 or 0	0 or 25	100
net value	45	15 or -10	-10 or 15	50
Structural FROR				
gross value	60	20	20	100
net value	30	10	10	50

However, another way to argue in case of bilateral contracting or various coalitions is that since the A-holder invested more it makes sense that A should be assigned a higher share of the net value. Such principles would be based on relative values, and they follow the logic of sharing profits or dividends across investors or shareholders. The more you have invested, the more you should receive. Applying this logic in case of a bilateral contract involving A and B, it would be fair if A and B are assigned values leading to equal rates of returns, as discussed above.[23] If the A-holder receives 75, the rate of return is (75 – 30) / 30 = 150%, which leaves 25 to B-holder, also giving a rate of return (25 – 10) / 10 = 150%. If instead the B-holder and C-holder form a coalition that contracts with the A-holder, one fairness principle is that the coalition's rate of return should be the same as the A-holder's rate of return. This would lead to the final value distribution in Table 2, i.e., 60 to the A-holder and 20 each to the B- and C-holder.

4. AN EXPERIMENT OF BARGAINING AND FAIRNESS IN PATENT TRADE

After introducing a number of theoretical fairness principles, and illustrating the variation of outcomes they produce, results from an experiment of bargaining and fairness in patent trade will now be presented to explore how individuals bargain and reason about fairness in collaborative and competitive situations. In the first section below the experimental design is briefly introduced, and in the second section the experimental results are presented.

4.1 Experimental design

The experiment was conducted through oTree which is an open source platform for behavioral research.[24] A cohort consisting of 105 university students took part in the experiment as participants in bargaining games. The participants were kept physically separated from each other and communicated through game-internal chat messages on their computers. They were kept anonymous and were asked not to reveal their identities in the chat. In order to create incentives for the participants to perform well, real world prizes of 1000 SEK were given out in a lottery, and lottery tickets were awarded to the participants in a weighted fashion based on performance. The experiment was part of a larger study on the game theoretic aspects of intellectual asset negotiations and only the parts relevant for this paper are presented here.

The first part of the experiment to be presented here was a trilateral game which featured three anonymous players who were assigned the roles A-holder (buyer), B-holder (seller) and C-holder (seller). The A-holder held a product patent zero value, the B-holder held a process patent B with zero value and the C-holder held a process patent C with zero value. The total value of holding both the product patent and one of the process patents, i.e., either A and B or A and C, was however 100. Thus, A formed a complementary relation with B and C respectively, while B and C formed a substitute relation with each other, i.e., the same structure as in Figure 1 which has been introduced conceptually and numerically above.

During three rounds, the A-holder negotiated with the B-holder and/or the C-holder for the complementary process patent. The players communicated by chat to agree on a, for all players, non-binding price. At the end of each round the buying A-holder was asked to give a take-it-or-leave-it binding offer to the selling player, which the seller could choose to accept or reject. I.e., the end of each round was designed as a version of the classical ultimatum game. The ultimatum game has many variants but in its basic standard form it has one proposer, who proposes as a take-it-or-leave-it offer a split of 100 to a responder who can accept the offer in which case the split is paid out to the players, or reject the offer in which case neither player gets anything. Rational players who prefer something to nothing without caring about fairness are then expected to end up with a 99/1 split. Empirically, however, an aversion to unfairness almost always enters into the game as well as sometimes a preference for fairness. Thus, fairness has an intrinsic value and the responder is willing to pay a price for it, depending on a variety of factors, according to empirical studies.[25]

In the first round, only the A-holder and the B-holder got to negotiate while the C-holder was asked to wait. Similarly, in the second round the B-holder was instead asked to wait while the A-holder and the C-holder got to negotiate. In the third round the A-holder could negotiate with both sellers simultaneously, and could at the end of the round choose to give an offer to either one of the selling players. For all three rounds, the B-holder and the C-holder had no knowledge of each other unless the A-holder, who held this as private information, chose to reveal it.

In an additional round of the trilateral game all three players were asked to discuss retrospectively what would have been a fair split of the total value of 100. At the end of the round, the A-holder would enter the fair value assigned to each player and the other players would enter whether they agreed with these specified value assignments. The intention was here to explore the participants' sense of fairness rather than the bargaining outcome.

The second part of the experiment was a public goods game[26] which featured four players in which two were given an initial wealth of 100,000 SEK (categorized as "poor") and two were given an initial wealth of 2,000,000 SEK (categorized as "rich"). All players could choose what amount to contribute to a common investment pool, which was to be multiplied by 1.6 after which all four players shared the final sum in four equally large parts. See Figure 3 for an illustration. The players had information about whether they were a poor or a rich player, but they did not know the initial wealth assigned to the other player category. They were asked to maximize their individual terminal wealth, which would be the individual share of the return from their joint investment plus the share of the individual initial wealth they did not invest.

Similarly to the trilateral game there was an additional round of the public goods game. In this round the players discussed what would have been a fair principle to use for the distribution of the total returns.

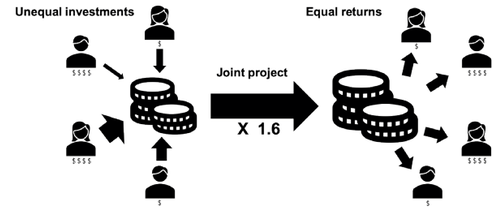


Figure 3 The public goods game with two rich and two poor players investing in a common pool.

4.2 Empirical results from experiment

The results from the three negotiation rounds of the trilateral game are presented in Table 3, where the number of deals made, the proportion of games where a deal was made, as well as the sample mean, sample median, and sample standard deviation of the accepted prices are presented for each round. Player groups with apparent misinterpretations of the game or frivolous behavior were deemed as outliers and these data points were excluded when computing the summary statistics. Four (11%) out of the 35 games played in total were excluded for these reasons.

The data seems to suggest a trend with decreasing prices over the number of rounds. To assess whether these differences are statistically significant, two-sided Wilcoxon signed-rank tests were performed for differences between round one and two and between round two and three, respectively.[27] The test of the difference between round one and two gave a p-value of 0.0143 and the test of the difference between round two and three gave a p-value of 0.0005. Thus, both of the differences are significant at the 0.05 significance level, meaning that the data indicates a decreasing trend in price over consecutive rounds. This decrease is in line with expectations given the competition on the seller side of the market and the information asymmetry in favor of the A-holder, even though the absolute numbers are surprisingly high.

As for the fairness discussion round of the trilateral game, there were 23 participant group discussions left to analyze after excluding outliers. Out of these, 14 (61%) managed to agree upon a fair value distribution. A majority consisting of nine of the groups that reached an agreement (64%) proposed a 33/33/33 split, corresponding to the pure proportionality principle. Two groups (14%) agreed to a split of 50/25/25 which corresponds to the structural proportionality principle. Another two groups (14%) suggested something in between, namely a 40/30/30 split where the buyer takes a larger share. One group with agreement (7%) proposed a 60/0/40 split. The A-holder of the groups that did not agree proposed the following value distributions: 33/33/33, 50/25/25, 40/30/30, 50/50/0, 50/0/50 and 60/40/0. These results are summarized in Table 4.

Table 3 Results and summary statistics from the trilateral game

	# of deals	Proportion of deals	Sample mean	Sample median	Sample standard deviation
Round One	24	0.77	48.5	50	3.7
Round Two	21	0.68	45.4	47	6.2
Round Three	29	0.94	41.1	40	9.1

Table 4 Suggested fairness distributions in the trilateral game

Value distribution			# of proposals	
A-holder	B-holder	C-holder	With agreement	Without agreement
33	33	33	9	2
50	25	25	2	2
40	30	30	2	1
60	0	40	1	0
60	40	0	0	1
50	50	0	0	2
50	0	50	0	1
Total			**14**	**9**

[23] This approach has been introduced as the investment-based method of royalty calculation, see Granstrand and Holgersson, "The 25% Rule Revisited and a New Investment-Based Method for Determining Frand Licensing Royalties."; Ove Granstrand, "Fair and Reasonable Royalty Rate Determination", les Nouvelles 41, no. 3 (2006).

[24] For details, see Daniel L. Chen, Martin Schonger, and Chris Wickens, "Otree—an Open-Source Platform for Laboratory, Online, and Field Experiments", Journal of Behavioral and Experimental Finance 9 (2016).

[25] For example, the price goes up if the responder is under the influence of alcohol, meaning that alcohol increases the unfairness aversion or in other words the propensity to become "pissed off" by an unfair offer. For more details, see Carey K. Morewedge, Tamar Krishnamurti, and Dan Ariely, "Focused on Fairness: Alcohol Intoxication Increases the Costly Rejection of Inequitable Rewards", Journal of Experimental Social Psychology 50 (2014).

[26] See J. H. Kagel and A. E. Roth, eds., The handbook of experimental economics (Princeton University Press, Princeton, 1995).

[27] Wilcoxon's non-parametric test was chosen over Student's t-test as the sample means could not confidently be assumed to follow a normal distribution and the equal variance assumption is seemingly violated. Furthermore, the paired two-sample signed-rank test was chosen to take advantage of the dependent structure coming from the same participants playing together in all rounds. It came at a cost of reduced sample size however, as only data points where there was a deal in both rounds could be included in the test. This consideration resulted in 18 data points being included in the first test and 19 data points being included in the second test.

The results from the first round of the public goods game are presented in Table 5, computed from the 27 games that were played. As can be seen in the table, the investments from rich players are considerably higher than those of the poor players. In relative terms however, poor players made larger contributions to the common pool, indicating a higher relative contribution among the poor, albeit with smaller absolute contributions. The relative difference is not significant however, according to a two-sided Wilcoxon rank-sum test performed on normalized values with significance level 0.05, which produced a p-value of 0.079.[28] Furthermore, no significant differences between males and females were found.[29]

Of main interest to this article is the fairness discussion round of the public goods game, which was focused on agreeing upon a fair distribution of the returns from the game. The results were summarized by manually analyzing and concluding the overall consensus from the chat messages. Most participants agreed that splitting the return by equal rate of return (or FROR) would be fair. Out of all 27 groups, 19 (70%) either agreed fully or had a majority suggesting that this would be the fairest way of sharing the returns. Four groups suggested or agreed to equal absolute returns (more in line with the proportionality principle discussed above). There were additionally a number of more creative suggestions, examples being receiving the amount invested plus an equal absolute share of the profit, FROR given that everyone invests 100,000 SEK and a split of 45% of returns to the rich players and 5% of returns to the poor players. All of these were unique when compared across groups.

Table 5 Results and summary statistics from the public goods game

	Poor group (n = 54)	Rich group (n = 51)[30]
Average size of investment	45,012	614,525
Average size of investment as share of initial wealth	0.450	0.307
Median size of investment	50,000	500,000
Median size of investment as share of initial wealth	0.5	0.25
Standard deviation of size of investment	37,436	587,437
Coefficient of variation for size of investment	0.83	0.96

5. CONCLUDING DISCUSSION

Trade and transfer of new technologies, data, and information is growing fast worldwide, due to increasing technological complexity and R&D costs, and not the least due to new digital technologies, which are facilitating trade and transfer processes through lowering transaction costs. At the same time digital technologies are traded and transferred as information products and thus take on dual roles in trade and transfer. Transaction costs could also be lowered by managerial and legal means for improving market search, negotiations, contracting, dispute resolution (arbitration, mediation, litigation), and by provision of a contractual infrastructure such as the IPR system. This paper has attempted to argue that employment of notions and principles of fairness and fair pricing behavior of technology and IP licenses in the spirit of axiomatic bargaining is one way to lower transaction costs compared to competitive pricing due to the idiosyncrasies of technology and IP markets. Fairness principles may moreover be implemented in automated contracting through algorithms, certified as fair analogous to the certification of fair trade. The use of fairness principles may also convey other benefits such as increased equity but also costs such as decreased efficiency. However, fairness is an ambiguous concept, witnessed not the least by experiences from FRAND licensing in the telecommunications innovation ecosystem. The purpose of this paper has been to shed light on the plurality and specificity of fairness principles, how they appear in negotiation experiments and what bargaining outcomes they generate compared to competitive behavior.

One contribution of the paper is the highlighting of how focusing on actor, artifact, and activity structures, respectively, impact fairness. Since these components are central components in innovation ecosystems[31] the results here indicate the close relationship between the architecture of an innovation ecosystem and the fair value distribution, or fair value capture, among the ecosystem participants. This is a promising avenue for future research, not least since research on innovation ecosystems has primarily been concerned with value creation.[32]

Another contribution of the paper, more specifically from the experiment, is that the employment of some amount of fairness in bargaining is quite frequent even in competitive settings.[33] When the actors then are instructed to strike a fair deal, a number of different fairness principles appear with or without concern for the structural importance of the different patents for sale or the structural importance of the different patent rights holders. A surprising finding is the propensity to use the pure proportionality principle even in the experimental setting involving both complement and substitute patents, i.e., disregarding the uniqueness of patent A.

However, when investment information is provided, a majority of participants converge towards fairness principles based on relative value, striving towards equal or fair rates of return (FROR). The FROR principle in turn could be used in at least two ways as illustrated by the examples, either through equalizing rate of returns simultaneously or sequentially. A sequential or stepwise FROR principle first considers coalitions or modules of actors or artifacts with similar structural positions, i.e., B and C in the examples, and then equalize the rate of return with regard to the coalitions' aggregate investments, and, second, makes a fair sharing within the coalitions. In other and more general words, one first performs an inter-group sharing and then an intra-group sharing, possibly using different fairness principles as well.

The Shapley value, that takes structural importance but not explicitly investments into account, was never invoked in the experiment, possibly due to bounded rationality and lack of awareness, but could analytically be used also when investments enter the picture as demonstrated conceptually.

It is interesting to note how the inclusion of investments, sacrifices, or efforts more generally apparently changes our notions or perceptions of fairness. A practical implication of this observation is that one should devise principles for output sharing that takes investments, efforts, or sacrifices into account in order to incentivize input contributions for a common good. On a more general level this observation opens up questions for further research and philosophical speculation about the role of entitlements or endowments in the conception of fairness and distributive justice. One can also note that principles for fair sharing of value also could apply to fair sharing of chores and even in some situations a "fair" or justifiable sharing of damages and guilt, such as in a crime committed by several actors or a disaster caused by the joint failure of several artifacts. Again, many questions for further research open up.

A final conclusion is that the concept of fairness is difficult even in simple cases like here. This hardly comes as a surprise to practitioners and scholars of law, but maybe more so to managers and executives of technology-based firms and corporations, where there is an increasing strive to build and engage in innovation ecosystems and other forms of open innovation and collaborative R&D. This points to the great potential impact from formulating, analyzing, and testing fairness principles. Hopefully, this article has not only started to contribute with such principles, but also inspired others to participate in the fair deal of research on fairness that lies ahead.

28 A non-parametric Wilcoxon test is once again chosen as assumptions regarding normal distribution and equal variance cannot be made. This time the samples are independent however, requiring a rank-sum test as opposed to the signed-rank test used previously.

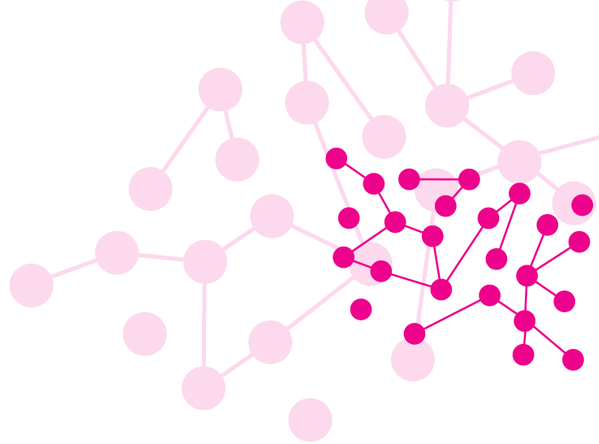
29 For more research on inequality and contributions to public goods, see Lisa R. Anderson, Jennifer M. Mellor, and Jeffrey Milyo, "Inequality and Public Good Provision: An Experimental Analysis", The Journal of Socio-Economics 37, no. 3 (2008).

30 Note the difference in sample size which is due to the number of participants not adding up to a multiple of 4.

31 Granstrand and Holgersson, "Innovation Ecosystems: A Conceptual Review and a New Definition."

32 Gomes et al., "Unpacking the Innovation Ecosystem Construct: Evolution, Gaps and Trends."; Granstrand and Holgersson, "Innovation Ecosystems: A Conceptual Review and a New Definition."

33 This goes in line with the rich research on ultimatum games. See, e.g., Martin A. Nowak, Karen M. Page, and Karl Sigmund, "Fairness Versus Reason in the Ultimatum Game", Science 289, no. 5485 (2000).



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The Direct Liability of Online Intermediaries for IPR Infringements

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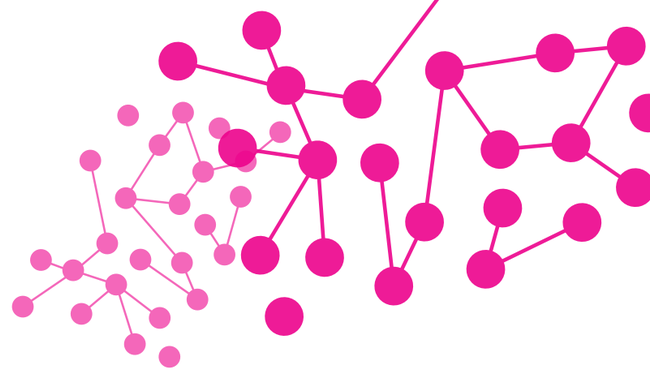


ABSTRACT

One of the most interesting and relevant developments in respect of online intermediaries concerns the emerging possibility – especially in the copyright field – to go beyond the traditional approach to their liability based on the safe harbour legislation and, with that, the system of secondary/accessory legislation and root, instead, their liability within a primary/direct liability regime, also in relation to user activities and user-uploaded content. This contribution explains how the Court of Justice of the European Union has come to consider the possibility of direct liability of online intermediaries in relation to user activities and undertakes a reflection on the implications of said approach, also with regard to its application to less egregious scenarios than piracy-focused platforms and other IP rights (notably: trade marks).

1. INTRODUCTION

One of the most interesting and relevant developments in respect of online intermediaries concerns the emerging possibility to go beyond the traditional approach to their liability based on the safe harbour legislation and, with that, the system of secondary/accessory legislation and root, instead, their liability within a primary/direct liability regime, also in relation to user activities and user-uploaded content (UUC).

The Court of Justice of the European Union (CJEU) has expressly envisaged the possibility of direct liability in the copyright field in the context of its increasingly expansive case law on the right of communication to the public within Article 3(1) of Directive 2001/29 (the InfoSoc Directive)[1], including the 2017 decision in Stichting Brein, C-610/15[2] (the Pirate Bay case).

This contribution explains how the CJEU has come to consider the possibility of direct liability of online intermediaries in relation to user activities and undertakes a reflection on the implications of said approach, also with regard to the possibility of extending the reasoning in Stichting Brein, C-610/15 to less egregious scenarios than the Pirate Bay, as well as to other IP rights (notably: trade marks).

1. THE RIGHT OF COMMUNICATION TO THE PUBLIC AS CONSTRUED THROUGH CASE LAW

The right of communication to the public within Article 3(1) of the InfoSoc Directive has been subject to a significant number of referrals since the first ruling in 2006 in SGAE, C-306/05.[3] By relying on international sources and a purpose-driven interpretation of the InfoSoc Directive, the CJEU has construed this exclusive right broadly and in such a way as to encompass, at certain conditions, different types of acts, including the making available of TV sets in certain contexts, linking to protected content, the provision of certain types of set-up boxes, indexing activities by a platform, and cloud-based recording services.[4]

At the international level, the right of communication to the public received its first formulation in Article 11*bis* of the Berne Convention, as adopted in 1928 and later revised with the Brussels Act 1948.[5] The WIPO Copyright Treaty supplemented the Berne Convention[6], and introduced the concept of 'making available to the public'.[7] The wording of Article 3(1) of the InfoSoc Directive is derived from Article 8 of the WIPO Copyright Treaty.[8] However, Article 3(1) of the InfoSoc Directive does not define the concept of 'communication to the public'. This provision, in fact, only states that EU

> *Member States shall provide authors with the exclusive right to authorise or prohibit any communication to the public of their works, by wire or wireless means, including the making available to the public of their works in such a way that members of the public may access them from a place and at a time individually chosen by them.*

Lacking a definition of the notion of 'communication to the public', the CJEU has sought to determine the meaning and scope of this concept in light of the objectives pursued by the InfoSoc Directive, notably ensuring a high level of protection of intellectual property (Recital 24) and for authors. In its rich body of case law on Article 3(1) of the InfoSoc Directive, the CJEU has consistently stated that the essential requirements of Article 3(1) are an 'act of communication', directed to a 'public'. In addition, the CJEU has also highlighted the importance of considering additional criteria, which are not autonomous and are interdependent, and may – in different situations – be present to widely varying degrees. Such criteria must be applied both individually and in their interaction with one another.[9]

Starting from 'public', this is a concept that has not been straightforward to comprehend, also because the relevant understanding may change depending on the context.[10] In general terms, the notion of 'public' is that of an indeterminate and fairly large (above de minimis) number of people.[11] In the case of a communication concerning the same works as those covered by the initial communication and made by the same technical means (eg internet), the communication must be directed to a 'new' public. Derived from the interpretation given by the 1978 WIPO Guide to the Berne Convention of Article 11*bis*(1)(iii) of the Berne Convention as first employed by Advocate General (AG) La Pergola in his Opinion in EGEDA, C-293/98[12], the 'new public' that is relevant to the establishment of Article 3(1) applicability is the public which was not taken into account by the relevant rightholder when it authorized the initial communication to the public.[13]

* Associate Professor in Intellectual Property Law at Stockholm University. Email: eleonora@e-lawnora.com. This contribution is partly derived from Chapter 3 of my monograph Copyright and the Court of Justice of the European Union (OUP:2019).

1 Directive 2001/29/EC of the European Parliament and of the Council of 22 May 2001 on the harmonisation of certain aspects of copyright and related rights in the information society, OJ L 167, 22.06.2001, 10–19.

2 Stichting Brein, C-610/15, EU:C:2017:456.

3 They are (in chronological order): SGAE, C-306/05, EU:C:2006:764; Organismos Sillogikis Diacheirisis Dimiourgon Theatrikon kai Optikoakoustikon Ergon, C-136/09, EU:C:2010:151; Circul Globus Bucuresti, C-283/10, EU:C:2011:772; Football Association Premier League and Others, C-403/08 and C-429/08, EU:C:2011:631; Airfield and Canal Digitaal, C-431/09, EU:C:2011:648; SCF, C-135/10, EU:C:2012:140; Phonographic Performance (Ireland), C-162/10, EU:C:2012:141; ITV Broadcasting, C-607/11, EU:C:2013:147; Svensson and Others, C-466/12, EU:C:2014:76; OSA, C-351/12, EU:C:2014:110; BestWater, C-348/13, EU:C:2014:2315; C More Entertainment, C-279/13, EU:C:2015:199; Sociedade Portuguesa de Autores CRL, C-151/15, EU:C:2015:468; SBS Belgium, C-325/14, EU:C:2015:764; Reha Training, C 117/15, EU:C:2016:379; GS Media, C-160/15, EU:C:2016:644; Stichting Brein, C-527/15, EU:C:2017:300; AKM, C-138/16, EU:C:2017:218; Stichting Brein, C-610/15, EU:C:2017:456; VCAST, C-265/16, EU:C:2017:913; Renckhoff, C-161/17, EU:C:2018:634; and Tom Kabinet, C-263/18, EU:C:2019:1111.

4 According to some commentators, rather than a unified concept of communication to the public, in its case law the CJEU has created specific sui generis groups of communication to the public cases: see B Clark – S Tozzi, '"Communication to the public" under EU copyright law: an increasingly Delphic concept or intentional fragmentation?' (2016) 38(12) EIPR 715, 717.

5 See M Ficsor, Guide to copyright and related rights treaties administered by WIPO and glossary of copyright and related rights terms (2003), BC-11bis.1.

6 Article 1(4) WCT mandates compliance with Articles 1 to 21 of and the Appendix to the Berne Convention.

7 On the concept of making available within Article 8 WCT, see MM Walter, 'Article 3 Right of communication to the public of works and right of making available to the public of other subject matter', in MM Walter – S von Lewinski, European copyright law – A commentary (2010:OUP), 975-980.

8 It may be interesting to contrast EU law-making (and subsequent expansive interpretations of the CJEU) with the US, which took the position that the existing rights of distribution and public performance under the US Act were sufficient to comply with the WIPO Copyright Treaty's making available right and no changes to the statute were needed in light of its new international obligations: see United States Copyright Office, The making available right in the United States – A report of the Register of Copyrights (February 2016), available at https://www.copyright.gov/docs/making_available/making-available-right.pdf (last accessed 19 March 2020), 15-18.

9 SCF, C-135/10, EU:C:2012:140, para 79; Phonographic Performance (Ireland), C-162/10, EU:C:2012:141, para 30; and Reha Training, C 117/15, EU:C:2016:379, para 35; GS Media, C-160/15, EU:C:2016:644, para 34; Stichting Brein, C-527/15, EU:C:2017:300, para 30; Stichting Brein, C-610/15, EU:C:2017:456, para 25.

10 S Karapapa, 'The requirement for a "new public" in EU copyright law' (2017) 42(1) EL Rev 63, 66.

11 SGAE, para 38; SCF, para 84; Phonographic Performance (Ireland), C-162/10, EU:C:2012:141, para 33; ITV Broadcasting, C-607/11, EU:C:2013:147, para 32; Svensson and Others, C-466/12, EU:C:2014:76, para 21; OSA, C-351/12, EU:C:2014:110, para 27; Sociedade Portuguesa de Autores CRL, C-151/15, EU:C:2015:468, para 19; SBS Belgium, C-325/14, EU:C:2015:764, para 21; GS Media, C-160/15, EU:C:2016:644, para 36; Stichting Brein, C-527/15, EU:C:2017:300, para 45; AKM, C-138/16, EU:C:2017:218, para 24; Stichting Brein, C-610/15, EU:C:2017:456, paras 27 and 42.

12 Opinion of Advocate General Antonio Mario La Pergola in EGEDA, C-293/98, EU:C:1999:403, para 20. See further PB Hugenholtz – SC Van Velze, 'Communication to a new public? Three reasons why EU copyright law can do without a "new public"' (2016) 47(7) IIC 797, 802-803.

13 SGAE, C-306/05, EU:C:2006:764, paras. 40 and 42; Organismos Sillogikis Diacheirisis Dimiourgon Theatrikon kai Optikoakoustikon Ergon, C-136/09, EU:C:2010:151, para 39; Football Association Premier League and Others, C-403/08 and C-429/08, EU:C:2011:631, para 197, Airfield and Canal Digitaal, C-431/09, EU:C:2011:648, para 72; Svensson and Others, C-466/12, EU:C:2014:76, para 24; OSA, C-351/12, EU:C:2014:110, para 31; Reha Training, C 117/15, EU:C:2016:379, para 45; GS Media, C-160/15, EU:C:2016:644, para 37; Stichting Brein, C-527/15, EU:C:2017:300, para 47; Stichting Brein, C-610/15, EU:C:2017:456, para 28; Renckhoff, C-161/17, EU:C:2018:634, para 24. But cf AKM, C-138/16, EU:C:2017:218, paras 26-27, suggesting that consideration of whether the communication at hand is addressed to a 'new public' is required also when the specific technical means used is different. On whether terms and conditions of use of a certain website might be relevant to determine whether the public targeted by the defendant's link is 'new', see (arguing in the negative) P McBride, 'The "new public" criterion after Svensson: the (ir)relevance of website terms and conditions' (2017) 2017/3 IPQ 262, 275-277.

With regard to the notion of 'act of communication', case law appears now solidly oriented in the sense of requiring the mere making available of a copyright work – not also its actual transmission[14] – in such a way that the persons forming the public may access it, irrespective of whether they avail themselves of such opportunity.[15]

In cases where the CJEU has held the making available of a work sufficient, the Court has however indicated the need to consider whether there is a necessary and deliberate intervention on the side of the user/defendant, without which third parties could not access the work at issue. More specifically, the user performs an act of communication when it intervenes – in full knowledge of the consequences of their action – to give access to a protected work to its customers, and does so, in particular, where, in the absence of that intervention, their customers would not, in principle, be able to enjoy the work.[16] In this sense, the intervention of the user/defendant must result from a role that is 'incontournable', that is an essential/indispensable role.[17]

With particular regard to the notion of essentiality/indispensability of one's own intervention, the Court has recently clarified that an intervention which *facilitates* access to unlicensed content that would be otherwise more difficult to locate qualifies as an essential/indispensable intervention. Over time the CJEU has dismissed attempts to interpret this criterion narrowly. A clear example is GS *Media*, C-160/15. In his Opinion in that case, AG Wathelet had excluded tout court that the unauthorized provision of a link to a copyright work – whether published with the consent of the rightholder or not – could be classified as an act of communication to the public. This would be so on consideration that, to establish an act of communication, the intervention of the 'hyperlinker' must be vital or indispensable in order to benefit from or enjoy the relevant copyright work. Hyperlinks posted on a website that direct to copyright works freely accessible on another website cannot be classified as an 'act of communication': the intervention of the operator of the website that posts the hyperlinks is not indispensable to the making available of the works in question to users.[18]

Another criterion considered by the CJEU is whether the user/defendant merely provides physical facilities or not. While the mere provision of physical facilities does not amount to an act of communication to the public (Recital 27), the installation of such facilities may make the public access to copyright works technically possible, and thus fall within the scope of Article 3(1) of the InfoSoc Directive.[19]

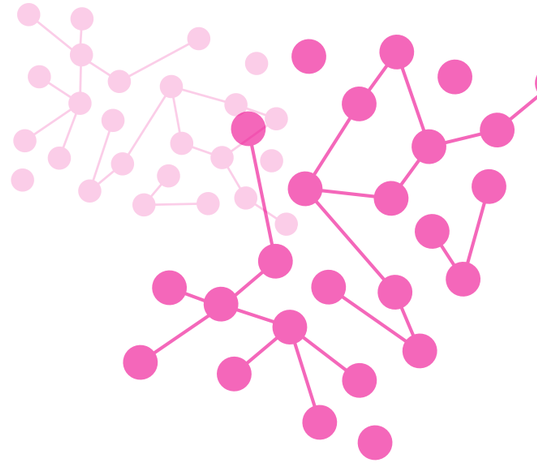
In addition to the requirements of an act of communication directed to a public, the Court has also considered – from time to time – other non-autonomous and interdependent criteria (having no clear textual basis), necessary to undertake an individual assessment of the case at issue. Such criteria may, in different situations, be present to widely varying degrees. They must be applied both individually and in their interaction with one another.[20] In *GS Media*, C-160/15 the Court, among other things, relied in particular on the 'profit-making' character of the communication at issue to determine potential liability of the 'hyperlinker' for the posting of links to unlicensed content. Prior to *GS Media*, C-160/15, the profit-making character of the communication at issue had not been given the centrality that it did instead acquire in that case: in Reha Training, C-117/15, for instance, the Grand Chamber of the CJEU considered that this criterion, while not irrelevant, would not be however decisive.[21] In *GS Media*, C-160/15, instead, the Court adopted a rebuttable presumption that 'when the posting of hyperlinks is carried out for profit, it can be expected that the person who posted such a link carries out the necessary checks to ensure that the work concerned is not illegally published on the website to which those hyperlinks lead, so that it must be presumed that that posting has occurred with the full knowledge of the protected nature of that work and the possible lack of consent to publication on the internet by the copyright holder.'[22] Overall, in the context of communication to the public by linking, the Court deemed it necessary to move towards an assessment in which the subjective element is decisive to determine prima facie liability.[23]

The operation of this presumption was confirmed in the subsequent ruling in Stichting Brein, C-527/15.[24] As discussed more at length elsewhere, it might not be self-evident whether the presence of a profit-making intention should be assessed in relation to the specific act of communication at hand, or the broader context in which such act is performed. Although both alternatives may be plausible, consideration of the context in which the relevant link is provided is more in line with existing CJEU case law, both preceding and following GS Media, C-160/15.[25] In SGAE, C-306/05, Football Association Premier League and Others, C-403/08 and C-429/08, and Reha Training, C-117/15, in fact, the Court considered that the profit-making nature of the communication would be apparent from the fact that the defendants transmitted the relevant works in their own establishment (hotels, a public house, and a rehabilitation centre, respectively) in order to benefit therefrom and attract customers to whom the works transmitted are of interest.[26] In Stichting Brein, C-527/15, the CJEU identified the profit-making intention of the defendant in the circumstance that the relevant multimedia player 'is supplied with a view to making a profit, the price for the multimedia player being paid in particular to obtain direct access to protected works available on streaming websites without the consent of the copyright holders.'[27]

2. LIABILITY OF PLATFORM OPERATORS FOR THE DOING OF ACTS OF COMMUNICATION TO THE PUBLIC: THE PIRATE BAY CASE

In its 2017 judgment in Stichting Brein, C-610/15, the CJEU further developed its construction of the right of communication to the public within Article 3(1) of the InfoSoc Directive, and clarified under what conditions the operators of an unlicensed online platform are potentially liable for copyright infringement. The operators of a platform that makes available to the public third-party uploaded copyright content and provides functions such as indexing, categorization, deletion and filtering of content may be liable for copyright infringement, jointly with the users. For a finding of liability it is not required that the operators possess actual knowledge of the infringing character of the content uploaded by users.

This reference for a preliminary ruling from the Dutch Supreme Court arose in the context of litigation between Dutch anti-piracy foundation BREIN and two internet access providers regarding the application, by the former, for an order that would require the latter to block access for their customers to the website of the Pirate Bay. An engine for peer-to-peer (P2P) file-sharing, the Pirate Bay does not host any protected works. However, it operates a system by means of which metadata on protected works which is present on the users' computers is indexed and categorized for users, so that the users can trace, upload and download the protected works on the basis thereof. It is estimated that the near totality (90% to 95%) of the files shared on the network of the Pirate Bay contain copyright works distributed unlawfully.[28] Despite several attempts to prevent access to the Pirate Bay, including blocking injunctions against ISPs (Internet Service Providers) in several jurisdictions, the platform – also by using different domain names – remains easily accessible.



[14] This appeared to be the case in: Circul Globus Bucuresti, C-283/10, EU:C:2011:772, para 40; Football Association Premier League and Others, C-403/08 and C-429/08, EU:C:2011:631, paras. 190, 193, and 207; OSA, C-351/12, EU:C:2014:110, para 25; SBS Belgium, C-325/14, EU:C:2015:764, para 16; and Reha Training, C 117/15, EU:C:2016:379, para 38.

[15] SGAE, C-306/05, EU:C:2006:764, para 43; Svensson and Others, C-466/12, EU:C:2014:76, para 19; GS Media, C-160/15, EU:C:2016:644, para 27; Stichting Brein, C-527/15, EU:C:2017:300, para 36, AKM, C-138/16, EU:C:2017:218, para 20; Stichting Brein, C-610/15, EU:C:2017:456, para 19; Renckhoff, C-161/17, EU:C:2018:634, para 20. On the accessibility criterion, see (critically) J Koo, 'Away we Ziggo: the latest chapter in the EU communication to the public story' (2018) 13(7) JIPLP 542, 545-546.

[16] SGAE, C-306/05, EU:C:2006:764, para 42; Football Association Premier League and Others, C-403/08 and C-429/08, EU:C:2011:631, paras. 194 and 195; Airfield and Canal Digitaal, C-431/09, EU:C:2011:648, para 79; SCF, C-135/10, EU:C:2012:140, para 82; Phonographic Performance (Ireland), C-162/10, EU:C:2012:141, para 31; Reha Training, C 117/15, EU:C:2016:379, para 46; GS Media, C-160/15, EU:C:2016:644, para 35; Stichting Brein, C-527/15, EU:C:2017:300, para 31; Stichting Brein, C-610/15, EU:C:2017:456, para 26.

[17] While in the original language version (French) of relevant judgments use of the adjective 'incontournable' is consistent, in the English versions that is not always the case: eg, in Reha Training, C 117/15, EU:C:2016:379, para 46, and GS Media, C-160/15, EU:C:2016:644, para 35, the adjective 'indispensable' is used, while in Stichting Brein, C-527/15, EU:C:2017:300, para 31, and Stichting Brein, C-610/15, EU:C:2017:456, para 26 the adjective 'essential' is employed. See however GF Frosio, 'To filter or not to filter? That is the question in EU copyright reform' (2018) 36(2) AELJ 101, 114, suggesting that there would be instead a difference between the standards of 'indispensability' and 'essentiality' of one's own role.

[18] Opinion of Advocate General Melchior Wathelet in GS Media, C-160/15, EU:C:2016:221, paras 57 to 60.

[19] SGAE, C-306/05, EU:C:2006:764, paras 45 to 47.

[20] GS Media, C-160/15, EU:C:2016:644, para 34, referring to: SCF, C-135/10, EU:C:2012:140, para 79; Phonographic Performance (Ireland), C-162/10, EU:C:2012:141, para 30; and Reha Training, C 117/15, EU:C:2016:379, para 35.

[21] Reha Training, C 117/15, EU:C:2016:379, para 49, referring to: ITV Broadcasting and Others, C 607/11, EU:C:2013:147, para 43; and Football Association Premier League and Others, C 403/08 and C 429/08, EU:C:2011:631, para 204. Commenting favourably on the consideration of the profit-making character of the communication at issue, see P Mysoor, 'Unpacking the right of communication to the public: a closer look at international and EU copyright law' (2013) 2013/2 IPQ 166, 182.

[22] GS Media, C-160/15, EU:C:2016:644, para 51.

[23] On this, see (critically) TE Synodinou, 'Decoding the Kodi box: to link or not to link?' (2017) 39(12) EIPR 733, 735.

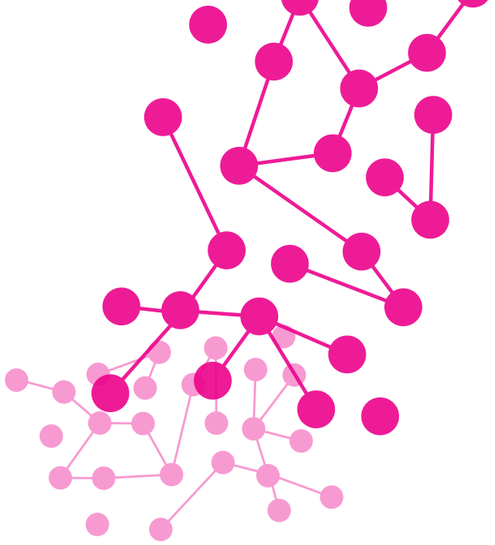
[24] Stichting Brein, C-527/15, EU:C:2017:300, paras 49 and 51.

[25] E Rosati, 'GS Media and its implications for the construction of the right of communication to the public within EU copyright architecture' (2017) 54(4) CML Rev 1221, 1237-1238. In a similar sense, see also B Clark – J Dickinson, 'Theseus and the labyrinth? An overview of "communication to the public" under EU copyright law: after Reha Training and GS Media where are we now and where do we go from here?' (2017) 39(5) EIPR 265, 269-270. Submitting instead that the profit-making intention of the 'hyperlinker' is to be appreciated with regard to the particular act of hyperlinking, see T Rendas, 'How Playboy photos compromised EU copyright law: the GS Media judgment' (2017) J Internet L 11, 14.

[26] SGAE, C-306/05, EU:C:2006:764, para 44; Football Association Premier League and Others, C-403/08 and C-429/08, EU:C:2011:631, paras 205-206; Reha Training, C 117/15, EU:C:2016:379, paras 63-64.

[27] Stichting Brein, C-527/15, EU:C:2017:300, para 51.

[28] Opinion of Advocate General Maciej Szpunar in Stichting Brein, C-610/15, EU:C:2017:99, para 23.



The Dutch Supreme Court sought guidance from the CJEU on whether the operators of a website like the Pirate Bay are to be regarded as making acts of communication to the public within the meaning of Article 3(1) of the InfoSoc Directive. To answer this question the CJEU noted that the right of communication to the public, on the one hand, has a preventive character and must be interpreted broadly and, on the other hand, requires an individual assessment that depends on the circumstances at issue.[29] The Court agreed with AG Szpunar that there would be no dispute that acts of communication to the public are being made[30], and are directed to a 'public' (a 'new public').[31] The point was however to determine whether the platform operators could be responsible for them.

Considering the first requirement in Article 3(1), i.e. the need for an 'act of communication', the Court acknowledged that the works made available to the users of the Pirate Bay are placed online on that platform not by the platform operators but by users. However, by making that platform available and managing the platform, its operators provide users with access to the works concerned. They can therefore be regarded as playing an essential role in making the works in question available. As regards the requirement of full knowledge of the relevant facts, this is satisfied by consideration of how the Pirate Bay operators index torrent files so to allow users of the platform to locate those works and share them within the context of a P2P network. Without such intervention, it would not be possible or it would be more difficult for users to share the works.

The Court also dismissed the argument that the Pirate Bay operators could be regarded as providing mere physical facilities for enabling or making a communication, thus falling outside the scope of Article 3(1). The undertaking by The Pirate Bay operators of indexing, categorization, deletion, or filtering activities rules out any assimilation to the mere provision of facilities within the meaning of Recital 27. The making available and management of an online sharing platform must be therefore considered an act of communication for the purposes of Article 3(1).[32]

Turning to the requirement that the communication at hand must be directed to a 'new public', i.e. a public not taken into account by the copyright holders when they authorized the initial communication, the CJEU concluded that also this requirement would be met. The court referred to the fact that the Pirate Bay operators were informed that their platform provides access to works published without authorization of the relevant rightholders.[33] However, the CJEU did not limit liability to situations of actual knowledge (as instead the AG had done): it also included constructive knowledge ('could not be unaware') and arguably more. In relation to constructive knowledge, the Court observed how the Pirate Bay operators

> *could not be unaware that this platform provides access to works published without the consent of the rightholders, given that, as expressly highlighted by the referring court, a very large number of torrent files on the online sharing platform [the Pirate Bay] relate to works published without the consent of the rightholders. In those circumstances, it must be held that there is communication to a 'new public'.*[34]

Liability based on 'constructive' knowledge echoes – though the Court did not mention it – the reasoning in the decision in *L'Oréal and Others*, C-324/09 notably the part in which the CJEU suggested that the safe harbour within Article 14 of the E-commerce Directive would not apply to an information society service which is aware of facts or circumstances on the basis of which a diligent economic operator should have identified the illegality in question and acted in accordance with Article 14(1)(b) of the E-commerce Directive.[35]

The Court could have limited liability to situations of actual or constructive knowledge (as per the 'diligent economic operator' criterion). However, if this were the case, it would be difficult to understand the meaning of paragraphs 46 and 47 of the judgment, in which the CJEU referred to the profit-making intention of the defendants and seemingly linked that to a finding of prima facie liability:

> *[46] Furthermore, there can be no dispute that the making available and management of an online sharing platform, such as that at issue in the main proceedings, is carried out with the purpose of obtaining profit therefrom, it being clear from the observations submitted to the Court that that platform generates considerable advertising revenues.*
>
> *[47] Therefore, it must be held that the making available and management of an online sharing platform, such as that at issue in the main proceedings, constitutes a 'communication to the public', within the meaning of Article 3(1) of Directive 2001/29.*

Although it did not refer explicitly to it, the Court had GS Media, C-160/15 in mind (the Judge-Rapporteur was the same in both cases: Marko Ilešič), when it appeared to link together the making available and management of an online sharing platform, the profit-making intention of their operators, and prima facie liability under Article 3(1). In particular, the relevant part of that judgment is paragraphs 47 to 54. Like in that case, in Stichting Brein, C-601/15 the CJEU implied that the operator of an online platform that does so 'with the purpose of obtaining profit therefrom' (paragraph 46 of Stichting Brein, C-610/15) can be expected to have undertaken all the necessary checks to ensure that the work concerned is not illegally published on the website to which those hyperlinks lead, so that it must be presumed that that posting has occurred with the full knowledge of the protected nature of that work and the possible lack of consent to publication on the internet by the copyright holder. In such circumstances, so far as that rebuttable presumption is not rebutted, the act of posting a hyperlink to a work which was illegally placed on the internet constitutes a 'communication to the public' within the meaning of Article 3(1) of the InfoSoc Directive (paragraph 51 of GS Media, C-160/15).

This interpretation finds support in two additional considerations. The first one is that the reasoning of the Court follows extensively Stichting Brein, C-527/15 (also there the Judge-Rapporteur was Ilešič). In particular, the Court referred with approval to paragraph 50 of that judgment, in which the CJEU had concluded that both the indispensable intervention of the defendant/user and its profit-making intention would lead to a finding of liability under Article 3(1) of the InfoSoc Directive. As mentioned above, in Stichting Brein, C-527/15 the CJEU confirmed the validity and application of the GS Media presumption of knowledge. The second consideration is that 'knowledge' must not be intended in a subjective sense, i.e. as actual awareness of third-party infringements by the platform operators, but rather – in line with earlier CJEU case law – as knowledge and acceptance of the possible consequences of one's own conduct.

Hence, it is not convincing to suggest that Stichting Brein, C-610/15 is silent regarding the treatment of situations in which the operators of an online platform that makes available third-party uploaded content have no actual knowledge of the unlawful character of the content thus made available, but nonetheless pursue a profit. On the contrary, this decision follows the same reasoning of the earlier CJEU decisions in GS Media, C-160/15 and Stichting Brein, C-527/15: a profit-making intention on the side of the defendant may be sufficient to trigger a rebuttable presumption of knowledge, by the defendant, of the character – licensed or not – of the content communicated through its platform.[36]

3. APPLICABILITY TO LESS EGREGIOUS SCENARIOS

Even a couple of years after the decision in Stichting Brein, C-610/15, irrespective of the recent legislative innovation brought about by Article 17 of Directive 2019/790[37], it remains uncertain to what extent the conclusion achieved therein may be applied to less egregious scenarios than the Pirate Bay under Article 3 of the InfoSoc Directive alone (or, in any case, prior to the 2019 EU copyright reform).

According to the CJEU, an 'intervention' for the purpose of determining what amounts to an act of communication merely requires, in fact, the making of acts of indexing, categorization, deletion, or filtering of content. It is not relevant whether such activities are carried out manually or automatically, eg algorithmically: it is sufficient that a system is put in place to perform such activities. How many platforms would be caught within such broad understanding of intervention as *incontournable*?

National case law has begun emerging, although the issue remains controversial. This is also due to the fact that it is unclear whether the safe harbour for hosting providers within Article 14 of Directive 2000/31[38] (the E-commerce Directive) would be available.[39]

[29] Stichting Brein, C-610/15, EU:C:2017:456, para 22.
[30] Ibid, para 35.
[31] Ibid, paras 40-44.
[32] Ibid, paras 36-39.
[33] Ibid, para 45.
[34] Ibid (emphasis added).
[35] L'Oréal SA and Others, C-324/09, EU:C:2011:474, para 120. See further, E Rosati, 'The CJEU Pirate Bay judgment and its impact on the liability of online platforms' (2017) 39(12) EIPR 737, 743-744. For a discussion of the nature of 'limitation' or 'exemption' of the safe harbour within Article 14 of the E-commerce Directive, see further E Rosati, 'Why a reform of hosting providers' safe harbour is unnecessary under EU copyright law' (2016) 38(11) EIPR 668, 671-672.
[36] See, contra, C Angelopoulos, 'Communication to the public and accessory copyright infringement' (2017) 76(3) CLJ 496, 498.
[37] 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, OJ L 130, 17.5.2019, p. 92–125. Article 17 concerns the '[u]se of protected content by online content-sharing service providers' and mandates a licensing obligation on their side, on consideration that the Directive clarifies "that online content-sharing service providers perform an act of communication to the public or of making available to the public when they give the public access to copyright-protected works or other protected subject matter uploaded by their users. Consequently, online content-sharing service providers should obtain an authorisation, including via a licensing agreement, from the relevant rightholders. This does not affect the concept of communication to the public or of making available to the public elsewhere under Union law, nor does it affect the possible application of Article 3(1) and (2) of Directive 2001/29/EC to other service providers using copyright-protected content." (Recital 64).
[38] Directive 2000/31/EC of the European Parliament and of the Council of 8 June 2000 on certain legal aspects of information society services, in particular electronic commerce, in the Internal Market, OJ L 178, 17.07.2000, 1–16.
[39] For a discussion of selected national experiences (in the EU: France, Germany, Netherlands, Poland, Spain, Sweden, and UK), see further the questionnaires in JP Quintais, Global Online Piracy Study – Legal Background Report (July 2018), available at ←https://www.ivir.nl/publicaties/download/Global-Online-Piracy-Study-Legal-Background-Report.pdf→ (last accessed 19 March 2020).

A court in Austria (in the context of interim proceedings) has recently ruled that YouTube performs acts of communication to the public and may be therefore liable, on a primary basis, for the making available of infringing UUC.[40] Similarly, courts in Italy have found that: (1) Facebook would be liable for hosting links to third-party unlicensed content[41] and (2) the operators of Dailymotion would be directly liable for the making available of infringing content uploaded by users.[42] The Regional Court of Hamburg ruled that the Usenet provider UseneXT would be liable if it promoted third-party unauthorized making available and sharing of protected content[43], and Germany's Federal Court of Justice in Germany is also expected to rule on whether YouTube might be regarded as primarily responsible (and liable) for acts of communication to the public.[44] The claimant in the latter case is a music producer who sued Google/YouTube over the unauthorized making available, on the defendants' platform, of videos containing musical works from the repertoire of a soprano. The claimant signed an exclusive contract with this singer in 2006, allowing him to exploit recordings of her performances. In 2008 unauthorized videos featuring such performances were made available on YouTube. Following a takedown request, these videos removed from YouTube, but infringing material was made available once again shortly afterwards. In 2010 the first instance court sided with the claimant in respect of three songs, and dismissed the action for the remaining claims.[45] Both the producer and Google/YouTube appealed the decision and, in 2015, the appellate court only partly sided with the producer. Most importantly, it rejected the idea that YouTube could be regarded as primarily liable for the making available of infringing content, although it found that liability would subsist under the 'Störerhaftung' doctrine (a form of accessory liability) under §97(1) UrhG.[46] In September 2018 the German court decided to stay the proceedings and a made a reference for a preliminary ruling to the CJEU. The referral, C-682/18. seeks guidance on the question whether the operator of an online video platform on which users make available to the public copyright protected content without the right owners' consent commit acts of communication to the public within the meaning of Article 3(1) of the InfoSoc Directive when:

- the platform makes revenue from advertisements, the uploads are an automated process without any control or checks by the platform before the content goes online,
- the platform receives, according to the Terms of Service (TOS), a worldwide, non-exclusive and free license for the uploaded videos for the duration the video is online,
- the platform provides rights owners with tools to have infringing content removed.
- the platform sorts videos into categories and lists them by ranking, and suggests further videos to registered users according to videos previously watched provided the platform does not have actual knowledge of illegal activity or information or upon obtaining such knowledge or awareness, acts expeditiously to remove or to disable access to the information.[47]

4. OTHER IMPLICATIONS: PRIMARY/ SECONDARY LIABILITY AND SAFE HARBOURS

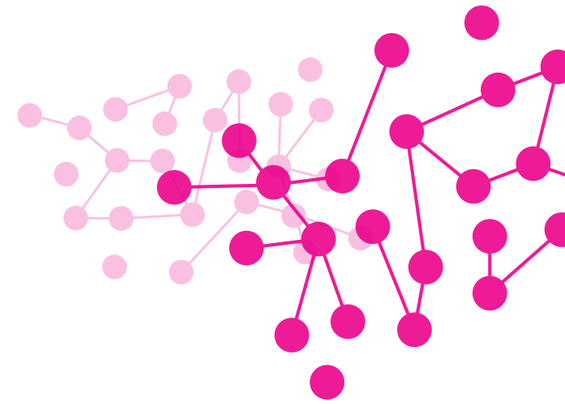
The decision in Stichting Brein, C-610/15 has also affected primary and secondary liability, by embracing an autonomous (EU) concept of liability through a process that, according to some commentators, was initiated as early as in Svensson and Others, C-466/12.[48] While EU legislature has harmonized the conditions for primary liability, the existence of and conditions for a finding of liability as a secondary infringer have been left to the legal systems of individual Member States.[49] By introducing a knowledge requirement within the scope of primary liability, the CJEU has blurred the distinction between what has been traditionally regarded as a strict liability tort (primary infringement) and liability informed by the defendant's subjective state of actual or constructive knowledge (secondary infringement).[50] All this is likely to result in practical uncertainties for those EU jurisdictions with a secondary liability regime, notably liability by authorization.[51]

The decision in Stichting Brein, C-610/15 also raises the question whether a platform that is primarily liable for unauthorized acts of communication to the public can nonetheless invoke the safe harbour regime available to hosting providers under Article 14 of the E-commerce Directive. Considering the relationship between liability under the InfoSoc Directive and applicability of the E-commerce Directive safe harbours, while the former is without prejudice to the provisions of the latter (Recitals 16 and 20 of the InfoSoc Directive), confirmation that the operators of an online platform may be jointly liable with users for copyright infringement should have indeed an impact on the applicability of Articles 12 to 14 of the E-Commerce Directive, in the sense of excluding it.

By proposing the adoption of the E-commerce Directive, the European Commission sought to clarify the responsibility of providers for transmitting and storing information at the request of third parties, that is when providers act as mere intermediaries. Although outside the scope of the present contribution, a similar trend towards a greater responsibilization of providers may be also found in recent decisions of the European Court of Human Rights (ECtHR), eg *Delfi v* Estonia[52] and Magyar Tartalomszolgáltatók v Hungary[53], which suggest that in certain situations the mere provision of a notice-and-takedown system may be insufficient. It appears that the insulation[54] provided by the safe harbour regime does not apply to providers that go beyond a passive role of intermediary. This means that a provider that was found liable for the making of unauthorized acts of communication to the public should be also regarded as playing an 'active role' (in the sense clarified by the CJEU in L'Oréal and Others, C-324/09) and should be, as such, ineligible forthe protection offered under Article 14 of the Ecommerce Directive.[55]

This conclusion, which remains open to discussion[56], is supported by both textual references to the wording of the E-commerce Directive and CJEU case law.[57] In Google France and Google, C-236/08 to C-238/08, the CJEU held that the exemptions from liability established in the E-commerce Directive cover only cases in which the activity of the information society service provider is 'of a mere technical, automatic and passive nature', which implies that that service provider 'has neither knowledge of nor control over the information which is transmitted or stored'.[58]

Further clarity on this point may be required. A possible solution may be however to interpret the presumption imposed by the CJEU in GS Media, C-160/15 as part of a broader obligation to conform to the behaviour of a 'diligent economic operator'. In this sense, operators of platforms with a profit-making intention would have an *ex ante* reasonable duty of care and be subject to an *ex post* notice-and-takedown system[59], which would also include an obligation to prevent infringements of the same kind, eg by means of re-uploads of the same content. Albeit in the different context of intermediary injunctions, the CJEU has already clarified that requiring a provider to take measures which contribute, not just to bringing to an end existing infringements, but also preventing further infringements of that kind are compatible with Article 15(1) of the E-Commerce Directive as long as the relevant order is effective, proportionate, dissuasive and does not create barriers to legitimate trade.[60]



40 Handelsgericht Wien, 11 Cg 65/14t – 56.
41 Tribunale di Roma, decision 3512/2019.
42 Tribunale di Roma, decision 14757/2019.
43 LG Hamburg, 308 O 314/16.
44 Bundesgerichtshof, I ZR 140/15 – Haftung von YouTube für Urheberrechtsverletzungen.
45 LG Hamburg, 308 O 27/09.
46 OLG Hamburg, 5 U 175/10.
47 At the time of writing the case is still pending.
48 A Ohly, 'The broad concept of "communication to the public" in recent CJEU judgments and the liability of intermediaries: primary, secondary or unitary liability?' (2018) 13(8) JIPLP 664, 670-671. In the same sense, see: also with regard to the impact on German law, JB Nordemann, 'Recent CJEU case law on communication to the public and its application in Germany: a new EU concept of liability' (2018) 13(9) JIPLP 744, 745; and, also with regard to UK law, N Cordell – B Potts, 'Communication to the public or accessory liability? Is the CJEU using communication to the public to harmonise accessory liability across the EU?' (2018) 40(5) EIPR 289, 293.
49 GF Frosio, 'From horizontal to vertical: an intermediary liability earthquake in Europe' (2017) 12(7) JIPLP 565, 570, recalls that in the majority of EU Member States, secondary liability is subject to highly demanding conditions that are derived from miscellaneous doctrines of tort law, such as the doctrines of joint tortfeasance, authorization, inducement, common design, contributory liability, vicarious liability or extra-contractual liability. See also M Leistner, 'Structural aspects of secondary (provider) liability in Europe' (2014) 9(1) JIPLP 75, 87-90, addressing the question whether common principles of secondary liability may be discerned.
50 C Angelopoulos, 'CJEU decision on Ziggo: The Pirate Bay communicates works to the public' (30.06.2017), Kluwer Copyright Blog, available at ←http://copyrightblog.kluweriplaw.com/2017/06/30/cjeu-decision-ziggo-pirate-bay-communicates-works-public/→ (last accessed 19 March 2020).
51 See GB Dinwoodie, 'A comparative analysis of the secondary liability of online service providers' in GB Dinwoodie (ed), Secondary liability of internet service providers (Springer:2017), 8, noting that he concept of 'authorization' in this context is such as to establish 'an act of nominally primary liability that clearly maps in substance to conventional forms of secondary or joint tortfeasor liability.'
52 Delfi AS v Estonia, App No 64569/09, 16.06.2015.
53 Magyar Tartalomszolgáltatók Egyesülete and Index.hu Zrt v Hungary, App No 22947/13, 02.02.2016.
54 J Riordan, The liability of internet intermediaries (OUP:2016), §12.11.
55 In the same sense, see also JB Nordemann, Liability of online service providers for copyrighted content – regulatory action needed? (2018) Directorate General for Internal Policies – Policy Department A: Economic and Scientific Policy, IP/A/IMCO/2017-08 - PE 614.207, 23.
56 Arguing that the safe harbour protection would be available in cases of primary and secondary infringements alike, see: M Husovec, Injunctions against intermediaries in the European Union: accountable but not liable? (CUP:2017), 56, also referring for support to Papasavvas, C-291/13, EU:C:2014:2209, and L'Oréal and Others, C-324/09, EU:C:2011:474; C Angelopoulos, European intermediary liability in copyright: A tort-based analysis (Wolters Kluwer:2017), 68; J Riordan, The liability of internet intermediaries (OUP:2016), §12.11, §§12.01 and 12.37.
57 L'Oréal and Others, C-324/09, EU:C:2011:474, para 113, referring to Google France and Google, C-236/08 to C-238/08, EU:C:2010:159, paras 114 and 120.
58 Google France and Google, C-236/08 to C-238/08, EU:C:2010:159, para 113.
59 In this sense, M Leistner, 'Closing the book on the hyperlinks: brief outline of the CJEU's case law and proposal for European legislative reform' (2017) 39(6) EIPR 327, 331.
60 L'Oréal and Others, C-324/09, EU:C:2011:474, paras 139 and 144.

5. PIRATE BAY COMING TO TRADE MARK LAW TOO?

The evolution seen in the copyright field may not remain limited to this IP right. A similar approach might be also discerned in the trade mark field, both with regard to decisions of national courts[61] and an AG Opinion. The latter is the Opinion of AG Campos Sánchez-Bordona in Coty, C-567/18[62] (at the time of writing, the case is still pending), in which he advised the CJEU to rule that – for the sake of applying Articles 9(2)(b) and 9(3)(b) of the EU Trade Mark Regulation 2017/1001[63] (EUTMR) (stocking of goods for the purpose of offering of putting them on the market):

- if a subject (a) has no awareness/knowledge of the infringing character of the goods which they stock and (b) does not intend to offer or put the goods on the market themselves, then there is no liability for the purpose of this provision. However,
- if a subject (eg, Amazon) actively contributes to the distribution of said goods, eg through a programme like Fulfilment by Amazon[64] (which allows the stocking of the goods sold by traders through Amazon and their subsequent delivery to purchasers), then they are deemed to stock the goods within the meaning of the provisions. In this sense, it does not matter whether they possess awareness or knowledge of the infringing character of the goods, insofar as it could have been reasonably expected from them to act to detect the infringement.

The AG considered the various language versions of the EUTMR, and concluded that the meaning of 'stocking' implies the possession of goods for commercial goals. Hence, for a trade mark owner to be able to prohibit this activity, two cumulative requirements need to be fulfilled: a material element, that is the possession (posesión) of the infringing goods; and a subjective element, that is the intention to offer the goods on the market through a contract, which includes an offer for sale.

Starting with the former (the material element), it appears necessary to distinguish the situation of warehouse keeper from that of an online marketplace. With regard to the former, it follows from *TOP Logistics*, C-379/14 that the "provision of a warehouse service for goods bearing another's trade mark does not constitute use of a sign identical to that trade mark for goods or services identical or similar to those in respect of which the mark is registered. Inasmuch as such a service provider permits such use by its customers, its role cannot be assessed under Directive 89/104 but must be examined, if necessary, from the point of view of other rules of law."[65] Turning to the latter, L'Oréal and Others, C-324/09 indicates that an online marketplace is not even comparable to a warehouse keeper if the activities are of an intermediary nature only.

In a scenario like the one described by the referring court, Amazon would not stock goods for sale within the meaning of Article 9(3)(b) EUTMR. However, based on the parties' observations and the CJEU hearing, it might be possible that the scenario be actually more complex than the one described by the referring court: the model could actually be an 'integrated store' in which Amazon plays an active role in the selling process. The corollary would be that Amazon has an absolute control over said process. In such scenario, it is necessary to distinguish between external elements, that is those elements that the average consumer perceives, and internal elements, that is those elements that relate to the relationship between the seller and Amazon. From the point of view of an end consumer who buys a product from an Amazon seller, it is not always easy to discern whether the relevant goods come from the trade mark owner, from an undertaking linked to it or an unrelated third party. With the Amazon programme, the companies which are part of the Amazon group do not just stock and transport the goods in a neutral fashion: rather, they undertake a much broader range of activities. These include the preparation of the goods for delivery and their delivery, advertising and promotional activities, information to customers, and the refund of the price of faulty goods. Amazon also receives payment for the goods sold, which it then transfers to the seller's bank account.

Hence, if it was confirmed that indeed the Amazon group companies had provided these services (or, at least, the most important ones), then the conclusion would be that – indeed – the behaviour falls within the scope of application of Article 9(3)(b) EUTMR. Importantly (and correctly), the AG also confirmed that, in the event that Amazon was found directly liable for trade mark infringement under that provision, the safe harbours in Article 14 of the E-commerce Directive would not apply. This is nothing new, pointed out the AG: it was clarified by the CJEU as early as L'Oréal and Others, C-324/09.

As mentioned, Article 9(3)(b) also requires the fulfilment of a subjective requirement, that is the intention to stock with the purpose to sell/offer. According to the AG, it would be difficult to deny that also the companies of the Amazon group share this intention if their role was not considered a neutral one. The AG also addressed the issue raised by the referring court that the company that stocks is not aware of the infringing nature of the goods stocked. Knowledge of the infringement is relevant in various contexts, including with regard to the applicability of the safe harbours and the calculation of damages, as well as in relation to intermediaries. However, in the case of companies that perform an active role lack of actual knowledge may not be enough to exclude liability.

It is clear that, if the CJEU follows its AG, then – similarly to what has happened in the copyright field – a significant development in the scope and application of direct liability to online platforms, well beyond the classic approach 'safe harbours: YES' / 'safe harbours: NO' would occur.

CONCLUSION

Over time, the CJEU – prompted by a significant number of preliminary referrals – has envisaged a broad construction of the right of communication to the public. One of the most significant developments has been holding that also the operators of a platform that gives access to UUC may, at certain conditions, be deemed as making acts relevant under Article 3(1) of the InfoSoc Directive. The far-reaching issues, which are yet to be fully worked out, of all this are the following: first, whether the findings in *Stichting Brein*, C-610/15 may be applied also to platforms other than those whose core business is piracy; second, whether a distinction between (harmonized) primary and (unharmonized) secondary liability still makes sense; third, whether the safe harbours protection may be even available in principle to platforms that are deemed to make acts of communication to the public.

While the second point mandates further reflection, an answer to the first and final questions seems to have been provided in Article 17 of Directive 2019/790. That provision, in both the original proposal[66] and the adopted final version, moves from the assumption that a platform that gives access to UUC directly makes acts of communication to the public. With regard to safe harbour availability, while the EU Commission's original proposal envisaged the applicability of Article of the E-commerce Directive also to platforms that are potentially liable under Article 3(1) of the InfoSoc Directive, the final version excludes the applicability of insulation provided by Article 14 of the E-commerce Directive, at least as far as liability arising in copyright is concerned. All this stands as a demonstration that the path towards increased responsibilization and enhanced liability of intermediaries is already well underway, and judicial and policy discourse are proceedings along similar – if not the same – paths.[67]

Finally, a similar – if not identical – approach may emerge in the field of trade mark law. Although the AG Opinion in Coty, C-567/18 is built through several 'hypotheticals' (including the main one, i.e. whether Amazon's activity actually falls within the scope of application of Article 9(2) EUTMR and, so Article 9(3), in the first place), it also provides two important indications. The first is that a platform that plays an 'active role' not only would fall in a L'Oréal-like scenario (a secondary/indirect liability scenarios resulting from the inapplicability of the hosting safe harbour), but could actually be considered as directly infringing trade mark rights. The second is that a platform that is directly liable for IPR infringements is not eligible for the hosting safe harbour in Article 14 of the e-Commerce Directive. The two points noted allow the creation of a significant parallel with similar issues that have arisen in the copyright sphere.

Post-scriptum: On 2 April 2020, the CJEU issued its ruling in Coty, C-567/18 (EU:C:2020:267). Unlike the AG Opinion, the Court limited its analysis to answering the tightly-drafted question referred to it, without exploring the possibility of the platform's own direct liability.

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[61] Tribunal de l'enterprise francophone de Bruxelles, decision on 7 August 2019, case No A/19/00918.

[62] Opinion of Advocate General Manuel Campos Sánchez-Bordona in Coty, C-567/18, EU:C:2019:103. The analysis is based on E Rosati, 'AG Campos advises CJEU to rule that Amazon might be potentially liable for trade mark infringement' (The IPKat), 4 December 2019, available at ←http://ipkitten.blogspot.com/2019/12/ag-campos-advises-cjeu-to-rule-that.html→ (last accessed 19 March 2020).

[63] Regulation (EU) 2017/1001 of the European Parliament and of the Council of 14 June 2017 on the European Union trade mark, OJ L 154, 16.6.2017, 1–99.

[64] See ←https://services.amazon.com/fulfillment-by-amazon/benefits.html→ (last accessed 19 March 2020).

[65] TOP Logistics, C-379/14, EU:C:2015:497, para 45.

[66] Proposal for a Directive of the European Parliament and of the Council on copyright in the Digital Single Market, COM(2016) 593.

[67] I made this point in E Rosati, 'The CJEU Pirate Bay judgment and its impact on the liability of online platforms' (2017) 39(12) EIPR 737, 746-748.

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Copyright in the digital age

The CJEU's interpretation of Art. 3(1) InfoSoc Directive exemplified by hyperlinking on the internet

By Sophie-Elena Bohle

ABSTRACT

This article evaluates the interpretation of the right of communication to the public, as per Art. 3(1) of Directive 2001/29/EC (the InfoSoc Directive), within the context of hyperlinking on the internet undertaken by the Court of Justice of the European Union (CJEU) in its case law over the last years on EU level as well as by the Federal Court of Justice in Germany (BGH). In order to determine how the interpretation - in particular the development of the new public criterion by the CJEU - influences the interests of authors and users, and the functioning of the internet, an in-depth analysis of the case law of the CJEU and the BGH is conducted. Thereby, the conditions under which the setting of a hyperlink infringes the right of communication under Art. 3(1) of the InfoSoc Directive are outlined. In this framework, the influence of the CJEU on the jurisprudence of the BGH is discussed. Ultimately, this article assesses the extent to which CJEU case law has given rise to alternative proposals regarding the treatment of hyperlinks, discussing both challenges and endorsements.

1. INTRODUCTION

The internet provides an opportunity for authors to distribute their works[1] to a broader audience around the world. However, the expansion of the internet also means that the author's control over his/her published work is partially withdrawn. Nowadays, internet users not only have the opportunity to access works from anywhere but also to circulate them themselves. The simple setting of a hyperlink, a cross-reference that allows one to jump to another electronic document, enables the further spread of a work. This offers the possibility to exchange information in real time. Since the internet virtually eradicated national borders, it was crucial to bring the rights of authors within the EU into accordance.[2] The InfoSoc Directive made a decisive contribution to this aim by harmonizing the authors' exploitation rights. One of the core rights of authors is the exclusive right to communicate a work to the public, contained in Art. 3(1) of the InfoSoc Directive. As a result of the introduction of this article, national courts repeatedly referred questions to the CJEU for preliminary rulings regarding its interpretation. Within the framework of its case law, the CJEU applied not only a two-step examination scheme, consisting of an act of communication and a public but also developed the much-discussed criterion of the "new public". The subsequent interpretation of this criterion, and of Art. 3(1) of the InfoSoc Directive in general, finds its decisive beginning in 2011 in the decision *Football Association Premier League (FAPL)*, C-403/08, concerning the broadcasting of a program, containing copyright-protected works, in a place accessible to the public.[3] In 2018 in the case of *Cordoba*, C-161/17, the CJEU considered the question of whether re-uploading a photo, published on the internet, was an infringement of Art. 3(1) of the InfoSoc Directive.[4] At national level in Germany, the right to communicate a work to the public was not only adapted to the harmonization by the EU but moreover was shaped by national case law. In 2003, the highest court of the ordinary jurisdiction, the BGH, ruled that the setting of a link[5] did not fall within the scope of the author's right to communicate a work.[6] In the course of the following years, however, with the implementation of the InfoSoc Directive and the evolving case law of the CJEU, the BGH modified its jurisprudence.[7] Case law at both EU and national level shows the need to transfer copyright from an analogue to a digital world, not necessarily by changing the law, but by interpreting it. Especially against a background where the internet has become an indispensable platform for the exchange of information and given that this is unlikely to change. Both authors and users benefit from the opportunity to share or access works. This article examines the impact of the CJEU's interpretation of the new public criterion in Art. 3(1) of the InfoSoc Directive on the interests of authors[8], users, and the functioning of the internet. This article also assesses the way in which Art. 3(1) of the InfoSoc Directive – and especially the criterion of a new public – is interpreted by the CJEU and the BGH in the context of hyperlinking on the internet.

2. LEGAL DEVELOPMENTS IN THE EU

2.1. Article 3(1) of the InfoSoc Directive

The exclusive right to communicate a work to the public, laid down in Art. 3(1) of the InfoSoc Directive, is one of the core rights of an author.[9] Not only shall it be interpreted broadly[10], but it is also non-exhaustible according to Art. 3(3) of the InfoSoc Directive. The concept of communication to the public is not defined within Art. 3(1), so its meaning must be determined in the case law of the CJEU where the FAPL decision is of central importance.

2.1.1 Decision in FAPL

This case concerned a conflict between a pub owner, Ms. Murphy, and the Football Association Premier League Ltd (FAPL). FAPL organized the filming of Premier League matches, the leading professional league competition for football in the UK, and further granted licenses relating to these matches on a territorial basis. By buying a card and a decoder box to receive a foreign satellite channel broadcast in another Member State, bars and restaurants in the UK started to show Premier League matches to their customers. Ms. Murphy obtained a decoder card from the Greek sub-licenser of FAPL, called NOVA, to screen the Premier League matches. As a result, Ms. Murphy was accused of copyright infringement and in the course of this litigation the High Court of Justice of England and Wales referred a number of questions to the CJEU, among others, whether communication to the public within the meaning of Art. 3(1) of the InfoSoc Directive should be interpreted as including the transmission of a work via a television screen and loudspeakers to persons present in a public place.[11]

The CJEU answered this question in the affirmative, substantiating its answer with the following. In order to communicate a work within the meaning of Art. 3(1) of the InfoSoc Directive, two requirements must be met. First, an intervention, which gives access to the work, must have taken place. Secondly, a communication to a new public must have occurred. Thereby, the term 'public' means a fairly large number of persons, and those persons constitute a new public if the right holder did not have them in mind when agreeing to the original communication. In the present case, the CJEU found that Ms. Murphy intervened in a way that gave persons access to the broadcasts of the Premier League matches, and without this intervention, those persons would not have had the possibility to watch the matches. Regarding the criterion of a new public, the CJEU stated that an author who consented to the broadcast of his/her work only had owners of TV sets in mind that received the signal in an own or private circle. Therefore, the broadcasting of the copyright protected parts of the matches, such as the opening video sequence, the Premier League anthem and so forth, to visitors of a public house constituted a new public. Lastly, the CJEU argued that the profit-making nature of the communication within Art. 3(1) of the InfoSoc Directive is a relevant factor. Thus, the fact that the proprietor of a bar or a restaurant gained benefits from showing the Premier League matches - since this attracted more customers - plays a decisive role in whether the criteria of Art. 3(1) are fulfilled.[12]

2.1.2 New public criterion

In the *FAPL* decision, the Court relied on the new public criterion which it developed in the *SGAE* case that dealt with the retransmission of TV signals to private hotel rooms. In this case, AG Sharpston and the CJEU argued that the concept of the public in Art. 3(1) should be interpreted in the light of Art. 11*bis* (1)(ii) of the Berne Convention.[13] Sharpston stated in her opinion that the test in Art. 11*bis* (1)(ii)[14] has the same meaning as the criterion of a new public. By referring to the interpretive and non-bin-

1 In the course of this article, "work" refers to works, which are protected by copyright.
2 EU Commission, Green Paper on Copyright and the Challenge of Technology - Copyright Issues Requiring Immediate Action, (COM(88) 172 final, 7 June 1988), p. 13.
3 Judgment of 4 October 2011, Football Association Premier League, C-403/08, EU:C:2011:613, paras. 31, 35.
4 Judgment of 7 August 2018, Renckhoff, C-161/17, EU:C:2018:634, para. 12.
5 The terms "hyperlink(ing)" and "link(ing)" are used as equivalents within the course of this article.
6 Decision of 17 July 2003, Paperboy, I ZR 259/00, pp. 5 - 9, 19.
7 Jani, O./Leenen, E., Paradigmenwechsel bei Links und Framing, in: NJW 2016, p. 3138.
8 In the course of this article, "author" stands for author as well as copyright holder.
9 Walter, Michael M./von Lewinski, Silke, European Copyright Law, A Commentary, Oxford, Oxford University Press, 2013, para. 11.1.26.
10 Recital 23 of the Preamble of the InfoSoc Directive and respective case law of CJEU.
11 Judgment of 4 October 2011, Football Association Premier League, C-403/08, EU:C:2011:613, paras. 32 - 42, 50 - 54.
12 Ibid., paras. 194 - 199, 204 - 206.
13 Judgment of 7 December 2006, SGAE, C-306/05, EU:C:2006:764, para. 40; Opinion of AG Sharpston delivered on 13 July 2006, SGAE, C-306/05, EU:C:2006:479, para. 46.
14 This article reads as follows: "(1) Authors of literary and artistic works shall enjoy the exclusive right of authorizing: (ii) any communication to the public by wire or by rebroadcasting of the broadcast of the work, when this communication is made by an organisation other than the original one."

ding 1978 WIPO Guide[15] she concluded that Art. 3(1) includes a new public test.[16] The CJEU reached the same conclusion, referring to Art. 11*bis* (1)(ii) and the 1978 WIPO Guide.[17] The consequence of this interpretation is that, as soon as the same technical means are used, it is necessary to determine whether the communication is aimed at a new public. This new public is defined as a public which the right holder did not have in mind when consenting to the initial communication.[18]

2.2. Case law of the CJEU

The *FAPL* case was followed by a series of CJEU decisions dealing with the interpretation of Art. 3(1). These decisions placed particular emphasis on the criterion of the new public and its interpretation in a variety of situations. This article will treat CJEU cases in a thematic and not chronological way. The issues treated in the caselaw are:

- Broadcasting of works in certain establishments;
- Live-streams of TV broadcasts on the internet;
- Linking on the internet;
- Access to works without the consent of the right holder, and
- Downloading and uploading of a photo.

Broadcasting of works in certain establishments

Three preliminary rulings of the CJEU, *Circul Globus*, C-283/10, SCF, C-135/10, and *OSA*, C-351/12, concerned the broadcasting of works in certain establishments. All three cases involved the broadcasting of a work at a specific location.[19] While the CJEU did not address the new public criterion in its decision in the cases *Circul Globus* and *SCF*, these decisions underline the approach of interpretation of Art. 3(1)by the CJEU.[20] The decision in *OSA* on the other hand focuses on the criterion of the new public. The CJEU stated that right holders, when agreeing to the initial communication, only had private TV receivers in mind, the visitors of a certain establishment were therefore not taken into account and thus form a new public. In this context, the CJEU relied on the conventional definition of the new public. Namely, that a new public is a public which was not taken into account by the author when consenting to the initial communication.[21]

Live-streams of TV broadcasts on the internet

The CJEU dealt with two situations in which TV broadcasts were streamed on the internet: *ITV Broadcasting*, C-607/11, and *VCAST*, C-265/16. In both cases, the CJEU was asked whether the type of stream in question should be understood as communication to the public within the meaning of Art. 3(1). Rather than referring to the criterion of the new public, the CJEU used the criterion of specific technical means to determine the applicability of Art. 3(1). Because different technical means were used for the original communication and the following one, the consent of the right holder is required separately for each of these communications.[22]

Linking on the internet

Three of the CJEU's preliminary rulings concern linking on the internet and interpreted Art. 3(1) in the context of the provision of those links. The relevant cases are *Svensson*, C-466/12, *BestWater International*, C-348/13, and *GS Media*, C-279/13. Since the same technical means were used for the different forms of communications, namely the internet, the CJEU had to revert in fact to to the criterion of the new public. Whether a new public was present was decided based on whether the work was originally uploaded with or without the consent of the author as well as who it was that actually posted the link. In this regard, the CJEU established various case constellations. If the author gives their consent to the original communication and the work is freely available, the right holder has all internet users in mind and the application of Art. 3(1) fails because of the lack of a new public. If the author gives consent to the original communication but the work is not freely accessible, the right holder only has a certain public in mind and the provision of a link constitutes a communication to a new public within the meaning of Art. 3(1). In the absence of the right holder's consent to the initial communication, a distinction must be made, for the purpose of determining the existence of a communication within the meaning of Art. 3(1), as to who posts the link. In the case of private individuals, it can be assumed that they are unaware of the lack of consent and therefore do not intervene in full knowledge within the meaning of Art. 3(1). The situation is different, however, if such a private individual knew or could have known of the lack of consent. In this case, creating the link constitutes a communication to the public according to Art. 3(1). The same applies if the link makes it possible for users to circumvent technical protective measures. Otherwise, if the link was posted for profit, it is assumed that the person who posted the link knew of the lack of consent since in this case it can be assumed that the necessary checks were carried out.[23]

Access to works without the consent of the right holder

Two cases in which access was granted via a multimedia player in *Filmspeler*, C-527/15 and via the internet in *The Pirate Bay*, C-610/15, to works published without the consent of the right holders, were decided by the CJEU. The Court referred to the importance of the author's consent as established in the cases regarding linking on the internet. Therefore, the fact that the right holder did not give his/her consent is known, and that an intervention was nevertheless carried out in such a way as to give users access to the work, led in these cases to a new public and the application of Art. 3(1).[24]

Downloading and uploading of a photo

The *Cordoba* case, C-161/17, is a case in which a work was freely accessible on a website, with the consent of the right holder, and a third party published this work on another website. As a download and subsequently an upload of the work took place - instead of providing a link to a work - the CJEU did not apply its criteria developed for the cases concerning hyperlinking but fell back on the general definition of the new public and asked which public the right holder had in mind when consenting to the original communication. This led to an affirmation of the presence and importance of a new public.[25]

2.2.1 Comparison of the categories

It can be observed that the CJEU consistently applies the two-stage examination within the framework of Art. 3(1). In addition to this examination, further criteria are applied which depend on the specific facts of the case. This was already established by the CJEU in the *SCF* case and has been applied since.

With regard to the criterion of a new public, the CJEU adheres to the definition developed in *SGAE*. However, in the light of the increasing complexity of cases related to hyperlinking, it can be said that it adapted this definition, since a too rigid adherence would otherwise lead to an extreme restriction of the author's rights.

Furthermore, the CJEU tends to fall back on criteria which it has introduced in earlier decisions. For instance, the criterion of a profit-making nature was already applied by the CJEU in 2012 in the *SCF* case. Four years later the Court used this criterion in the context of the new public criterion in the GS *Media* case.

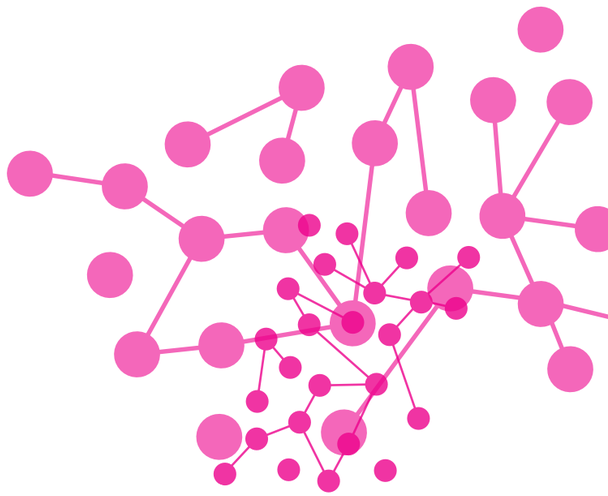
In terms of its interpretation of the criteria of Art. 3(1) it can be said that the CJEU interprets it in the identical manner only insofar as the situation of the case if also the same. This becomes evident from the *Svensson* and *BestWater International* cases, where the Court applied the same interpretation of Art. 3(1) by stating that the situations in both cases were the same. The *Cordoba* case can be used as an example of the explicit choice not to provide the same interpretation. Here, the CJEU chose not to apply its own jurisprudence, by stating that the constellation of those cases differed significantly from one another.

With regard to hyperlinks, this means that an exact differentiation must be made in order to determine whether the setting of a link falls within the scope of Art. 3(1) depending on the person that creates the link as previously discussed.

3. LEGAL DEVELOPMENTS IN GERMANY

3.1. Right of communication in the German Copyright Act

The German Copyright Act[26] distinguishes between physical and non-physical exploitation of a work. Art. 15 of the Copyright Act serves as a general clause that also assigns so-called unnamed forms of exploitation to the author. These exploitation rights are to be interpreted in conformity with the InfoSoc Directive. In the context of non-physical exploitation, Art. 15(2) of the Copyright Act constitutes the general clause, while the most important cases of application are regulated in Art. 19 et seq. of the Copyright Act. Of relevance are the so-called unnamed exploitation right of Art. 15(2)(1) as well as the right of making works available to the public as per Art. 19a of the Copyright Act. The unnamed exploitation right covers - as a general clause - the right of the author to publicly communicate the work in a non-physical form. Art. 19a of the Copyright Act includes the right to make the work accessible by electronic means in such a way that it can be retrieved at any time, thus online uses of protected works are covered hereby.



15 AG Sharpston and the CJEU refer to Art. 11bis, paragraph (1), 11bis.12 of the 1978 WIPO Guide on pp. 68.

16 Opinion of AG Sharpston delivered on 13 July 2006, SGAE, C-306/05, EU:C:2006:479, para. 50.

17 Judgment of 7 December 2006, SGAE, C-306/05, EU:C:2006:764, paras. 40 - 41.

18 Eleonora Rosati, Copyright and the Court of Justice of the European Union, Oxford, Oxford University Press, 2019, p. 96.

19 In the cases concerned, the works were broadcasted either without the consent of the right holder or without the involvement of a collective management society.

20 Judgment of 24 November 2011, Circul Globus, C-283/10, EU:C:2011:772, paras. 26, 30, 35; Judgment of 15 March 2012, SCF, C-135/10, EU:C:2012:140, paras. 35, 81 - 88, 94 - 96.

21 Judgment of 27 February 2014, OSA, C-351/12, EU:C:2014:110, paras. 31, 32.

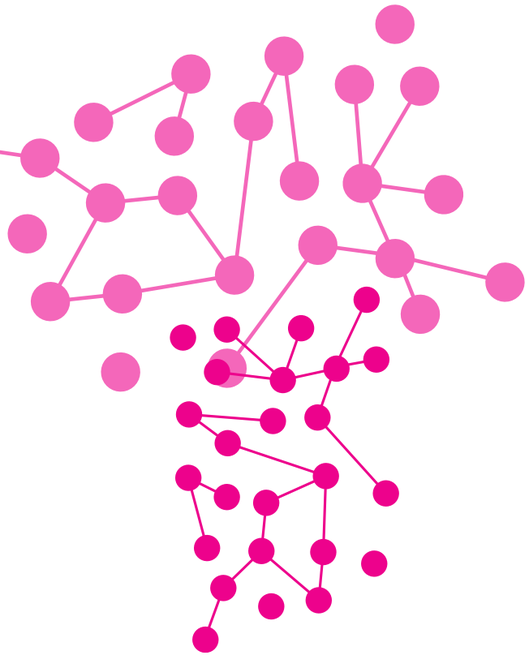
22 Judgment of 7 March 2013, ITV Broadcasting, C-607/11, EU:C:2013:147, paras. 37 - 39; Judgment of 29 November 2017, VCAST, C-265/16, EU:C:2017:913, paras. 48 - 50.

23 Judgment of 13 February 2014, Svensson, C-466/12, EU:C:2014:76, paras. 24 - 31, 26 - 28; Order of the Court of 21 October 2014, BestWater International, C-348/13, EU:C:2014:2315, paras. 15f.; Judgment of 8 September 2016, GS Media, C-160/15, EU:C:2016:644, paras. 37, 44 - 54.

24 Judgment of 26 April 2017, Stichting Brein (Filmspeler), C-527/15, EU:C:2017:300, paras. 47 - 49, 53; Judgment of 14 June 2017, Stichting Brein (The Pirate Bay), C-610/15, EU:C:2017:456, paras. 44f., 48.

25 Judgment of 7 August 2018, Renckhoff, C-161/17, EU:C:2018:634, paras. 26 - 40.

26 Unless expressly stated otherwise the term "Copyright Act" hereafter always refers to the German Act on Copyright and Related Rights (Urheberrechtsgesetz, UrhG).



3.2. Case analysis

3.2.1. Prior to the implementation of the InfoSoc Directive

The first case in which the BGH had to deal with the subject of hyperlinking, *Paperboy*, I ZR 259/00, is from 2003, i.e. the same year that the InfoSoc Directive was implemented into German copyright law.[27] Newspaper articles were linked on the page of a search engine. The BGH ruled that the hyperlink merely referred to the work in a way that made it easier for the users to access a work which had already been published. The provider of the link did not keep the work available for access him/herself and did not transmit the work to third parties on demand either. The person who posted the work initially on the internet decided whether the work would remain accessible or not. An infringement of the right of communication was therefore excluded.[28]

3.2.2. Prior to the CJEU case law

The two subsequent decisions, *Vorschaubilder*, I ZR 69/08, and *Session-ID*, I ZR 39/08, were handed down by the BGH before the ruling of the CJEU in the *FAPL* case.[29] In the first case (*Vorschaubilder*) regarding thumbnails which the defendant had stored on its own server and thereby controlled their availability, it was decided accordingly that an act of communication was exercised. Nevertheless, this act did not lead to an infringement of the right of communication, since the BGH assumed that the claimant, the right holder, had consented to the use of his/her works as thumbnails by making the content of the website accessible to search engines without making use of technical means to exclude works from the search and the display by search engines in the form of thumbnails.[30]

On the same day (April 29, 2010), the BGH also announced its decision in the case of *Session-ID*, a case in which the defendant bypassed the claimant's homepage by a programmatic routine and led the users directly to the website containing the map sections. In this case, the BGH affirmed an infringement of the right of communication since access to the work, which would otherwise not exist for these users, was opened by a link circumventing protective measures. It is thereby irrelevant whether those protective measures were effective or not, the only decisive factor is if the measures are recognizable as such to third parties.[31]

3.2.3. Following the CJEU case law

The BGH decided the case of *Vorschaubilder* II in 2011, after the CJEU rulings in the cases of *FAPL* and *Circul Globus*. As in the previous decision concerning thumbnails from 2003, the question was whether the thumbnails infringed the author's right to communicate a work to the public. Within the course of this case the BGH confirmed its ruling made in the case of *Vorschaubilder*.[32]

Four years later, the BGH requested a preliminary ruling from the CJEU in the case of *Die Realität*, I ZR 46/12, concerning the question whether framing fell within the scope of Art. 3(1). The CJEU answered this question in the case of *BestWater International* in the negative. Thus, the CJEU contradicted the BGH's original view, since the BGH assumed that the so-called unnamed right of exploitation of communication to the public, laid down in Art. 15(2)(1) of the Copyright Act, included the act of framing.[33] In the subsequent decision (*Die Realität II)*, the BGH again denied a copyright infringement by linking. Even though it had to adjust its opinion regarding framing following the CJEU's decision, it came to the conclusion that there was no infringement in principle insofar the work was initially published on the internet with the author's consent. As in the decisions of the BGH regarding thumbnails, the consent of the right holder was the decisive factor for determining infringement. The BGH added a decisive element to the interpretation of the CJEU by stating that it can only be inferred from the case law of the CJEU that someone who published his/her work freely on the internet had all internet users in mind and thus a new public was regularly excluded, does not apply in the case in which the work was uploaded without the consent of the right holder.[34]

In 2017, the BGH had to decide again on the copyright admissibility of thumbnails in the case of *Vorschaubilder* III. For the third time, the operator of a search engine was on the defendant's side due to its image search service. The BGH ruled that there was no infringement, arguing that the presumption of knowledge - developed by the CJEU in GS Media - is not applicable to search engines, taking into account their special importance for the transmission of information on the internet and thus also their functionality. To impose an obligation on a search engine to monitor all displayed content would be contrary to its function. Therefore, knowledge of such an engine cannot be assumed but it must be positively established that the provider of the search function knew or could have known of the lack of permission.[35]

4. DISCUSSION

4.1 Influence of the CJEU case law on German jurisprudence

In the *Paperboy* case, the BGH attempted already at an early stage to liberalize copyright law and to adapt it to the demands of the digital age.[36] Many voices today accuse the CJEU of precisely this attitude.[37] Nevertheless, the *Paperboy* decision is no longer justifiable with regard to the case law of the CJEU, since linking was - from a copyright point of view - classified as irrelevant[38].

In its decision in the case of *Vorschaubilder*, the BGH tried to balance the interests in favor of the internet and the freedom of information and communication,[39] before the CJEU did. Therefore, not only the decision in *Vorschaubilder*, but also in *Session-ID* correspond to the ruling of the CJEU in *Svensson*.[40] In all these decisions, it was required that the work was freely available somewhere on the internet.[41] In contrast to *Paperboy*, the decisions of the BGH in *Vorschaubilder* and *Session-ID*, which were made after the implementation of the InfoSoc Directive but before the comprehensive case law on the right of communication to the public of the CJEU, would be certainly acceptable today.

With regard to the decision in *Vorschaubilder II*, no major tendency of the BGH in favor or against the caselaw of the CJEU can be discerned. It consistently remains in favor of its decision in the case of *Vorschaubilder* and continued to develop its created legal concept of justifying consent.[42] Even though this legal concept was criticized, the decision was ultimately understandable from the point of view of legal policy, since there was a lack of regulatory initiative at a European level to address the problems in this area.[43]

In the *BestWater International* case the CJEU ruled that it is not important whether the person who included the work of the third party on a website - by means of the framing technique - made this work his own.[44] In its decision in *Die Realität II*, the BGH then amended this answer of the CJEU by ruling that in the event that a third party made the work accessible to the public without authorization, the right holder does not intend to address any public at all.[45] However, the BGH agreed with the generous definition of technical means of the CJEU.[46] The BGH finally decided, although it was dissatisfied with the answer of the CJEU, not to re-submit the question to the CJEU on the grounds that no final decision was taken, as the Court of Appeal still had to clarify whether the right holder's consent to upload the video in question to YouTube was given or not.[47]

In the course of its decision in *Vorschaubilder III* which concerned the issue of setting links on the internet, the BGH carried out the paradigm shift prescribed by the CJEU in the interpretation of the right of communication to the public and adopted the criteria developed by the CJEU for this purpose.[48] In its decision the BGH adhered to the principles set out by the CJEU in the cases of *GS Media, Filmspeler* and *The Pirate Bay* and applied the requirement of knowledge or the necessity to know with regard to the illegality as the central guardrails.[49] At the same time it came to the conclusion that the presumption of knowledge does not apply to search engines which make a significant contribution to the open and structured landscape of information on the internet by invoking a normative fundamental rights-oriented interpretation of the individual criteria[50].

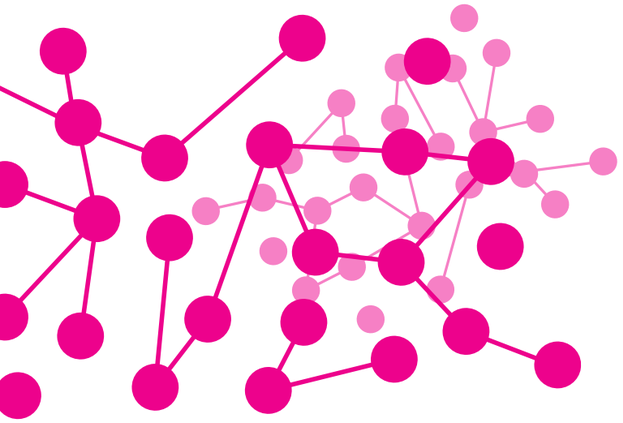
In summary, it can be said that a paradigm shift in the field of copyright took place at national level due to the case law of the CJEU, leading away from a purely objective view of the right of communication to the public to an interpretation determined by subjective aspects.[51] Even if the BGH applies the principles developed by the CJEU, it still allows itself the room to interpret them with regard to the individual case.

27 The InfoSoc Directive was implemented into German copyright law with the "Act Regulating Copyright in the Information Society of 11 April 2003".
28 Decision of 17 July 2003, Paperboy, I ZR 259/00, pp. 5 – 9, 19f.
29 Thumbnails are the reduced preview images shown in the hit list of a search engine.
30 Decision of 29 April 2010, Vorschaubilder, I ZR 69/08, pp. 2 -15.
31 Decision of 9 April 2010, Session-ID, I ZR 39/08, pp. 1f., 11 - 13.
32 Decision of 19 October 2011, Vorschaubilder II, I ZR 140/10, pp. 2 - 12.
33 Decision of 16 May 2013, Die Realität, I ZR 46/12, p. 10 et. seq.
34 Decision of 09 July 2015, Die Realität II, I ZR 46/12, pp. 1, 9 - 11, 15, 19, 21 et seq.
35 Decision of 21 November 2017, Vorschaubilder III, pp. 2 – 4, 9 - 12, 14 - 29.
36 Wiebe, A., BGH: Paperboy, in: MMR 2003, p. 724.
37 Xalabarder, R., The Role of the CJEU in Harmonizing the EU Copyright law, in: IIC 2016, p. 635.
38 Jani, O./Leenen, E., Paradigmenwechsel bei Links und Framing, in: NJW 2016, p. 3137.
39 Götting, H., Urheberrechtliche Zulässigkeit von Vorschaubildern in der Trefferliste einer Suchmaschine - Vorschaubilder, in: LMK 2010, 309481.
40 Jani, O./Leenen, E., Paradigmenwechsel bei Links und Framing, in: NJW 2016, p. 3137.
41 Decision of 09 July 2015, Die Realität II, I ZR 46/12, p. 15.
42 Thum, D., Schlichte Einwilligung zu Google-Thumbnails wirkt abstrakt-generell - „Vorschaubilder II", in: GRUR-Prax 2012, p. 215.
43 Spindler, G., BGH: Wiedergabe eines Lichtbilds als Vorschaubild im Internet - Vorschaubilder II, in: MMR 2012, p. 387.
44 Michl, F., BGH: Urheberrechtliche Zulässigkeit des so genannten „Framing" - Die Realität II, in: LMK 2016, 376535.
45 Ibid.
46 Dietrich, N., Urheberrechtliche Zulässigkeit des Framing - Die Realität II, in: MMR 2016, p. 194 et seq.
47 Ibid.
48 Jani, O., BGH: Keine Urheberrechtsverletzung bei Bildersuche durch Suchmaschinen - Vorschaubilder III, in: NJW 2018, p. 781.
49 Leistner, M., „In jedem Ende liegt ein neuer Anfang" - das BGH-Urteil „Vorschaubilder III", seine Bedeutung für die Bildersuche für die weitere Entwicklung des Haftungssystems im Urheberrecht, in: ZUM 2018, p. 288 et seq.
50 Ibid.; AG Szpunar was of the same opinion in The Pirate Bay case (cf. Opinion of AG Szpunar delivered on 8 February 2017, The Pirate Bay, C-610/10, EU:C:2017:99, para. 52).
51 Jani, O./Leenen, E., Paradigmenwechsel bei Links und Framing, in: NJW 2016, p. 3138.

In relation to the aforementioned, the BGH already applied some of the criteria that were later on stipulated in the CJEU caselaw.

In its decision *Session-ID* in 2010, the BGH ruled that the circumvention of technical protective measures leads to an infringement of the right of communication to the public.[52] The CJEU also made the same determination in the *Svensson*[53] and *GS Media*[54] decisions a couple of years later. The difference, however, is that the BGH gave a detailed opinion[55] on the requirements for a technical protective measure, while the CJEU did not give any further explanations.

In the *GS Media decision*, the CJEU determined the decisive importance of the right holder's consent to the initial communication for the existence of a new public and thus for an infringement of the right of communication.[56] The BGH established - already a year earlier - in its decision *Die Realität II* how decisive the consent of the right holder is.[57] Both, the BGH and the CJEU, concluded that if a work was uploaded without the author's consent, the author has no public in mind to whom he/she aimed to communicate the work, and thus any communication to a public constitutes a violation of his/her right.[58]



Even if the opinion of the AG in the *GS Media* case was not adopted - nor even discussed - by the CJEU, for the sake of completeness it is noted that the AG in *GS Media*, similar to the BGH in *Paperboy*[59], was of the opinion[60] that creating a hyperlink should not even fall within the scope of application of the right of communication to the public. The BGH argued that the person who sets a link to a work which was already freely available on the internet did not commit any act of copyright exploitation, providing thus a mere reference to the work. It compared hyperlinks with footnotes and emphasized that the person creating the link did not hold the work for retrieval himself, but the person who placed it on the internet.[61] The AG stated that there was no act of communication in the case of providing a link, since this was not indispensable or central for the enjoyment of the work.[62]

To ensure interpretation in conformity with the InfoSoc Directive, articulation of the right of communication to the public, the BGH had to proceed to apply the criteria and the CJEU's interpretation at a national level. Nevertheless, the Court interpreted these criteria specifically for each individual case, something that leaves certain flexibility at the national level.

It can be concluded that both the BGH and the CJEU pursue the goal of adapting copyright law to the digital age and of finding a balance of interests, which, above all, should not impede the proper functioning of the internet as a cornerstone of free communication and exchange of knowledge.

4.2. Discussion on an EU level

4.2.1 Alternative proposals

Almost to the day, exactly one year before the CJEU decided in the *Svensson case*, the European Copyright Society (ECS) published its opinion[63] on the case. The basic idea behind this opinion is that hyperlinking should not fall within the scope of Art. 3(1). AG Whatelet shared this view in the *GS Media* case a few years later by appealing to the CJEU to deviate from its case law on hyperlinking and to deny the applicability of Art. 3(1).[64]

The Association Littéraire et Artistique Internationale (ALAI), on the other hand, published three opinions regarding hyperlinking, and the criterion of the new public since 2013. However, with its opinion of 2015, ALAI withdrew both its first opinion of 2013 and its opinion of 2014. Nevertheless, it continues to maintain the view that the criterion of the new public contradicts international treaties and EU directives.[65]

Hyperlinking outside the scope of Art. 3(1) of the InfoSoc Directive

The ECS bases its argument, namely that hyperlinking does not fall within the scope of Art. 3(1), primarily on the fact that hyperlinking does not constitute a transmission as would be required for the applicability of Art. 3(1).[66]

By referring to Recital 23 of the Preamble of the InfoSoc Directive, the Commission Proposal of the InfoSoc Directive and the Basic Proposal of 1996, the ECS assumed that a transmission is a necessary condition for a communication within Art. 3(1). This finding is fostered, according to the ECS, by the fact that the CJEU referred to a transmission in its previous case law regarding an act of communication.[67]

Following this argumentation, the ECS came to the conclusion that a hyperlink only tells the user the location of a work and, since transmission means that a work must be placed on an electronic network, hyperlinking does not amount to a transmission. In this context, the ECS also referred to the *Paperboy* case of the BGH and its reasoning there.[68]

Nevertheless, the ECS also offered a solution in the event that a transmission is not considered necessary for an act of communication. Again, it referred to the decision of the BGH in *Paperboy* and argued that a hyperlink does not provide access to a work. A work can be removed from the internet, even in spite of a hyperlink. Furthermore, it stated that, should the posting of a hyperlink be considered an act of communication, not only the consent of the author of the specific work would have to be obtained but also the consent of any author of all works displayed on the website linked to.[69]

Even a further solution was provided in the event that the CJEU sees the setting of hyperlinks as an intervention granting access, namely that this act of communication is not directed to a new public. The ECS supported this with two arguments. On the one hand, a right holder who publishes a work on the internet knows that in principle any internet user can access it. Creating a hyperlink therefore does not add anyone to this public which the rightholder initially had in mind. On the other hand, in the case of freely accessible works, users already have the option of accessing the work, so the hyperlink does not open up the possibility of access that users would not otherwise have.[70]

With regard to hyperlinks to non-publicly accessible works, the ECS merely referred to its previous statement that such links do not fall within the scope of Art. 3(1).[71]

Furthermore, it stated that framing should not be treated differently from hyperlinking. Even if there would exist an act of communication within the scope of framing, due to the technical peculiarities of this procedure, it is not addressed to a new public.[72] In order not to allow the creation of hyperlinks completely, without any restrictions, the ECS sees accessory liability, unfair competition, infringement of moral rights and the circumvention of technological measures as the solution.[73]

A few years later in the case of *GS Media*, AG Whatelet called on the CJEU not to regard the setting of hyperlinks as an act of communication within Art. 3(1), similar to the ECS. He argued that hyperlinks only simplify the finding of works and do not make them available if they are already freely available on the internet. He further explained that the person who posts the link did not play an indispensable role. If the Court, however, was to see an act of communication in the setting of a link, there would still be no new public. This criterion would only be applicable, according to the AG, if the right holder consented to the initial communication. In the case of *GS Media* there was no such consent and thus the criterion was not applicable.[74]

In the following, the arguments against the assumption that the creation of a hyperlink does not fall within the scope of Art. 3(1) are outlined.

The ECS bases its argumentation primarily on the statement that a transmission is necessary for an act of communication within Art. 3(1). Thereby, the policy documents of the WCT and the InfoSoc Directive are not considered in their entirety. The Basic Proposal of 1996 confirmed that the relevant criterion for an act of communication is the fact that access is provided.[75] The Basic Proposal of 2005 confirmed this, by stating that Art. 8 WCT covers those actions which give access to the public.[76] Within the framework of the InfoSoc Directive, which implemented *inter alia* Art. 8 WCT, the Commission Proposal of the InfoSoc Directive also stated that the decisive condition for Art. 3(1) is that the work is made available to the public.[77] The position that a transmission is not required is also supported by voices in literature

52 Decision of 29 April 2010, Session-ID, I ZR 39/08, p. 11 et seq.
53 Judgment of 13 February 2014, Svensson, C-466/12, EU:C:2014:76, para. 31.
54 Judgment of 8 September 2016, GS Media, C-160/15, EU:C:2016:644, para. 50.
55 Decision of 29 April 2010, Session-ID, I ZR 39/08, p. 12 et seq.
56 Judgment of 8 September 2016, GS Media, C-160/15, EU:C:2016:644, paras. 40 - 43.
57 Decision of 09 July 2015, Die Realität II, I ZR 46/12, p. 15.
58 Ibid.; Judgment of 8 September 2016, GS Media, C-160/15, EU:C:2016:644, paras. 40 - 43.
59 Decision of 17 July 2003, Paperboy, I ZR 259/00, p. 19.
60 Opinion of the AG Wathelet delivered on 7 April 2006, GS Media, C-160/15, EU:C:2016:221, paras. 48 - 60.
61 Decision of 17 July 2003, Paperboy, I ZR 259/00, p. 19 et seq.
62 Opinion of the AG Wathelet delivered on 7 April 2006, GS Media, C-160/15, EU:C:2016:221, para. 60.
63 ECS, Opinion on the Reference to the CJEU in Case C-466/12 Svensson, 15 February 2013.
64 Opinion of AG Whatelet delivered on 7 April 2016, GS Media, C-160/15.
65 ALAI, Report and Opinion on the making available and communication to the public in the internet environment – focus on linking techniques on the internet, 16 September 2013; ALAI, Opinion on the criterion "New Public", developed by the Court of Justice of the European Union (CJEU), put in the context of making available and communication to the public, 17 September 2014; ALAI, ALAI Report and Opinion on a Berne-compatible reconciliation of hyperlinking and the communication to the public right on the internet, 17 June 2015.
66 ECS, Opinion on the Reference to the CJEU in Case C-466/12 Svensson, 15 February 2013, para. 6.
67 Ibid., paras. 9 - 34.
68 Ibid., paras. 35 - 38.
69 Ibid., paras. 40 - 45.
70 Ibid., paras. 46 - 49.
71 Ibid., paras. 50 - 52.
72 Ibid., paras. 53 - 59.
73 Ibid., para. 7.
74 Opinion of AG Whatelet delivered on 7 April 2016, GS Media, C-160/15, paras. 65, 60, 67.
75 WIPO, Chairman of the Committees of Experts, Basic Proposal for the Substantive Provisions of the Treaty on Certain Questions Concerning the Protection of Literary and Artistic Works to be considered by the Diplomatic Conference, (CRNR/DC/4, 30 August 1996), para. 10.10.
76 WIPO, Copyright in the Digital Environment: The WIPO Copyright Treaty (WCT) and the WIPO Performances and Phonograms Treaty (WPPT), (WIPO/CR/KRT/05/7, February 2005), para. 56.
77 EU Commission, Proposal for a European Parliament and Council Directive on the harmonization of certain aspects of copyright and related rights in the Information Society, (COM(97) 628 final, 10 December 1997), p. 25 et seq.

that assume that the provision of access is sufficient to fulfill Art. 3(1).[78] Therefore, Art. 3(1) has the function of an "umbrella provision", which is not limited to the traditional understanding of communication but also applies in a digital context.[79]

Additional reasons contradict the ECS proposal. The InfoSoc Directive aims to harmonize copyright law within Europe and to guarantee authors the same level of protection in all Member States. If hyperlinking were to be excluded from the scope of Art. 3(1), right holders would have to try to find protection in the general laws of the different Member States. However, these general laws differ. Thus, the exclusion of hyperlinking from Art. 3(1) would contradict the basic idea of the EU, namely harmonization and equal protection. Furthermore, the ECS merely refers to the right of freedom of expression and information (Art. 11 of the Charter of Fundamental Rights of the European Union (Charter)), but ignored the fact that the Charter also contains the right to intellectual property (Art. 17 of the Charter) and effective remedy (Art. 47 of the Charter).[80]

Express authorization or exceptions

In its most recent opinion of June 17, 2015, ALAI proposes to solve the legal problems that arise when linking to a work through either express authorization or the application of exceptions. ALAI assumes that a distinction must be made between the different types of linking and thereby reaffirms its view from the previous opinions. Hyperlinking to the home page of another website does not constitute a communication within the meaning of Art. 3(1). On the contrary, deep links and framing links require the consent of the copyright holder, as they make the work publicly accessible. However, these types of links may also be permitted, by express authorization or the application of exceptions.[81]

The main argument of ALAI, which opposes the application of the new public criterion, is that the criterion has no fundament in the Berne Convention and other international accords. Accordingly, the criterion violates Art. 11(1)(ii), 11*bis* (1), 11ter (1)(ii) and 14*bis* (1) of the Berne Convention, Art. 8 WCT, Art. 2, 10, 14 and 15 WPPT and Art. 3 of the InfoSoc Directive. None of these texts contains a limitation as caused by the criterion of the new public in the view of ALAI. Art. 11*bis* (1)(ii) of the Berne Convention contains only the criterion of a new communicator which in no case corresponds to the criterion of a new public. The criterion of a new communicator requires solely that the communication is carried out by a communicator other than the original one, and thus whether the communication is directed to the same public is irrelevant. This is decisive for Art. 3(1) as it implements the WCT and the WPPT and also international treaties such as the Berne Convention.[82]

Having this as a background, ALAI offers a solution based on the express authorization by right holders. This is to be done by including collective management societies, which grant licenses for commercial use. In these licenses, it shall be explicitly stated that mere hyperlinking does not constitute a communication to the public, while embedding and framing is subject to specific licensing provisions. The other option proposed by ALAI is to use website-embedded instructions, such as an Automated Content Access Protocol which allow the rightholder to permit or prohibit different types of linking.[83]

Another way of considering links not as an infringement of the right of communication to the public is to let links fall within the scope of exceptions. In this context, the exception for the press as per Art. 5(3)(c) of the InfoSoc Directive as well as the exception for quotations as per Art. 5(3)(d) should be taken into account. The exception for the press would cover the linking of a broad range of works by the press. Within the framework of the exception for quotations, ALAI draws attention to the issue of whether links can be regarded as quotations. However, they come to the conclusion that potential problems can be solved in favor of the application of the exception. It is also pointed out that the contracting parties of the WCT are authorized to develop new exceptions under Art. 10 WCT. Nevertheless, ALAI highlights possible inconsistencies with the three-step test, starting by whether hyperlinking is considered a "certain special case".[84]

In the following it is outlined, why the new public criterion does not contradict international treaties and EU directives.

The preparatory works on the Berne Convention, for example, provide evidence that the criterion of the new public is also of relevance in the Convention. On the one hand, the Berne Convention Centenary of 1986 mentions that the *"new circle of listeners or viewers"*, to whom the broadcast is aimed, constitute a *"new act of broadcasting"*.[85] On the other hand, the 1978 WIPO Guide refers to the expectation of the author who has solely private or family circles in mind when authorizing the broadcast.[86] The fact that the term "public" is not defined on an international level and that the CJEU therefore acted within the scope of its competences when it interpreted this concept, speaks in favor of the conformity of the criterion with the EU Directives.[87]

In addition, the ALAI proposal raises practical questions. Websites that already contain deep or framing links would have to obtain the consent of the authors retroactively. Obtaining consent, even beforehand, can be quite challenging, since it could be unknown who owns the rights to the publicly accessible works on the internet. If it is not possible to obtain the permission of the right holder to post a deep or framing link, this may result in users no longer being able to find the relevant work due to the large number of sub-pages all over the internet.[88]

The proposal that linking should be covered by exceptions is furthermore too shortsighted because this would cover only a very small part of the links that are posted daily. It does not solve the question of what happens to bloggers or private individuals, who provide other internet users with hyperlink on their social media accounts or blogs, since these do not fall within the scope of the addressed exceptions.

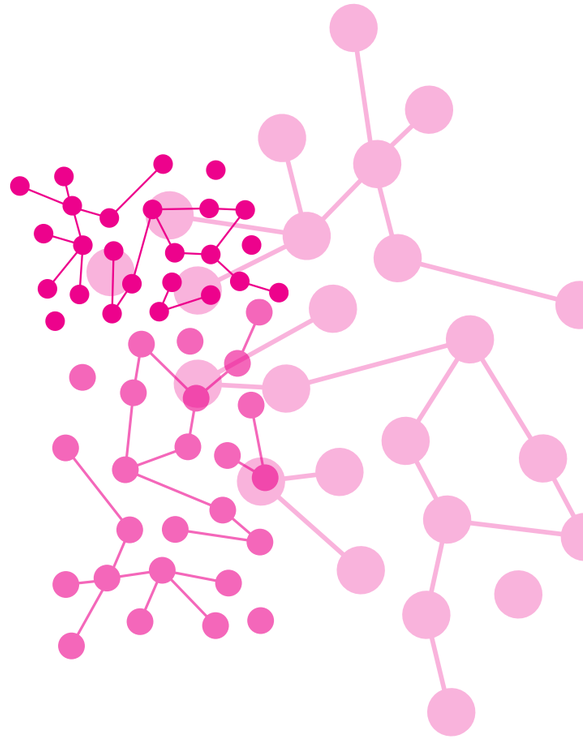
4.2.2 Challenges of the new public criterion

By trying to balance the relevant interests within the scope of Art. 3(1), not only were alternative proposals put forward but there are also voices questioning the CJEU's approach of developing the new public criterion. It is accused of leaving questions unanswered and causing challenges within Art. 3(1), as discussed in the following.

Creation of exhaustion

The ALAI recalled its opinion in which it stated that the CJEU creates exhaustion on Art. 3(1) by applying the new public criterion, nevertheless, voices in the literature are still of the opinion that the new public criterion establishes exhaustion on the right of communication to the public. This would contradict Art. 3(3) of the InfoSoc Directive that explicitly states that the right of communication as per Art. 3(1) cannot be exhausted. Thus, it follows from Art. 3(3) of the InfoSoc Directive that the right holder's authorization is needed for every communication to the public. The CJEU stated in the *Svensson* case that a work, which is freely accessible on the internet, addresses all internet users, hence, never be communicated to a new public on the internet. This means that a right holder who makes a work freely accessible on the internet cannot object to a further communication of this work on the internet, unless restrictive measures were put in place when uploading the work. Thereby, the author's exclusive right would be in fact exhausted once he/she communicates the work online.[89]

Nonetheless, also ALAI already came to the conclusion that the alleged exhaustion is limited in scope, since not all forms of communication are affected. The CJEU emphasized in *Svensson* that its decision is solely applicable for cases in which the work is freely accessible on the internet, while cases concerning works, which are protected by restrictive measures or uploaded without the consent of the right holder, shall be dealt with differently. Therefore, the problem of the exhaustion in relation to Art. 3(1) seems to arise merely with regard to works which are freely accessible on the internet with the consent of the author. Notwithstanding, a hyperlink is a reference to a work uploaded on a different website, meaning that if the work were removed from the initial website, the hyperlink would not lead to the work, but to an empty website. Hence, the new public criterion does not create exhaustion of Art. 3(1) but constitutes an inherent limitation on the right based on economic considerations.[90]



78 Ricketson, Sam/Ginsburg, Jane, International Rights and Neighbouring Rights: The Berne Convention and Beyond, Oxford, Oxford University Press, 2006, p. 746 et seq.; Stefan Bechtold, Directive 2001/29/EC - on the harmonization of certain aspects of copyright and related rights in the information society (Information Society Directive), in: Dreier/Hugenholtz, Concise Copyright Law, Alphen aan den Rijn, Kluwer Law International B.V., 2016, p. 443; Walter/von Lewinski, European Copyright Law, para. 11.3.22; Rosati, Copyright and the Court of Justice of the European Union, p. 96.

79 Tsoutsanis, A., Why Copyright and linking can tango, in: Journal of Intellectual Property Law & Practice, 2014, Vol. 9, No. 6, p. 500.

80 Ibid., p. 501 et seq..

81 ALAI, ALAI Report and Opinion on a Berne-compatible reconciliation of hyperlinking and the communication to the public right on the internet, 17 June 2015, pp. 1.

82 ALAI, Opinion on the criterion "New Public", developed by the Court of Justice of the European Union (CJEU), put in the context of making available and communication to the public, 17 September 2014, p. 9.

83 ALAI, ALAI Report and Opinion on a Berne-compatible reconciliation of hyperlinking and the communication to the public right on the internet, 17 June 2015, p. 3.

84 Ibid., pp. 5 - 9.

85 UN. Economic and Social Council, Centenary of the Berne Convention for the Protection of Literary and Artistic Works, (E/RES/1986/68), 1986, p. 185.

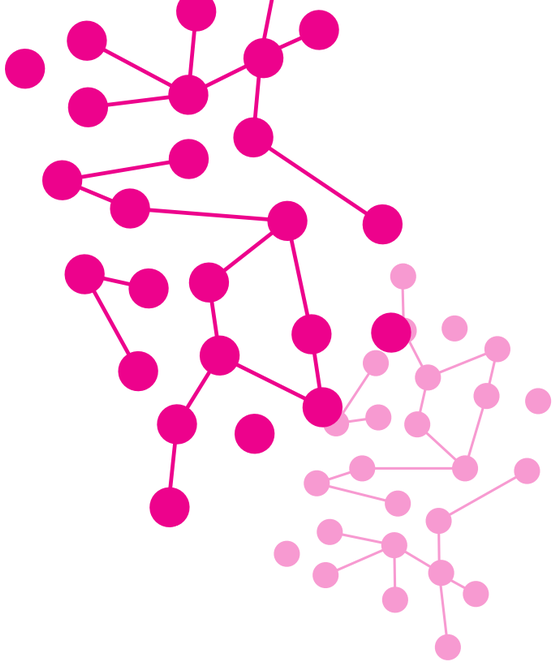
86 WIPO, Guide to the Berne Convention for the Protection of Literary and Artistic Works, 1987, p. 68 et seq..

87 Axhamn, J., Hyperlinking: Case C-466/12 Svensson and Others and its Impact on Swedish Copyright Law, in: Europarättslig tidskrift, Vol. 18, no. 4, p. 864.

88 Koolen, C., The Use of Hyperlinks in an Online Environment: Putting Links in Chains?, in: GRUR Int. 2016, p. 870.

89 ALAI, Opinion on the criterion "New Public", developed by the Court of Justice of the European Union (CJEU), put in the context of making available and communication to the public, 17 September 2014, p. 15; Hugenholtz, P./van Velze, S., Communication to a New Public? Three Reasons Why EU Copyright Law Can Do Without a "New Public", in: IIC 2016, p. 810; Rosati, E., The CJEU 'new public' criterion? National judges should not apply it, says Prof Jan Rosen, 15 April 2015, The IPKat, available on: http://ipkitten.blogspot.com/2015/04/the-cjeu-new-public-criterion-national.html.

90 Axhamn, J., Internet Linking and the Notion of "New Public", in : Nordiskt Immateriellt Rättsskydd, 2014, p. 131; ALAI, Opinion on the criterion "New Public", developed by the Court of Justice of the European Union (CJEU), put in the context of making available and communication to the public, 17 September 2014, p. 15.



"Unitary liability"

A further challenge that the development of the new public criterion by the CJEU and its corresponding case law allegedly aroused is the new form of "unitary liability" especially regarding intermediaries.

The CJEU is accused of interfusing primary and secondary liability as distinguished by most national jurisdiction within the EU. Primary liability means the liability for an action that is in the scope of an exclusive right. Secondary liability, on the other hand, is usually caused by an act that can be seen as a material contribution by facilitating, causing or otherwise being responsible for a direct infringement of an exclusive right. The EU Directives do not harmonize secondary liability within the EU. By its decision in *GS Media*, the CJEU made the operator of the website in question directly liable for the infringement of the right holder's exclusive right as of Art. 3(1). The CJEU derived this liability by adding the profit-making and knowledge criteria to the notion of a new public. The same argumentation was brought forward by the Court one year later in the cases of *Filmspeler* and *The Pirate Bay*. Consequently, operators of such websites, namely intermediaries, may be liable as primary infringers, provided they intervene in full knowledge. Their liability is not limited to injunctive reliefs and claims for removal any longer. A so-called "unitary liability" was thus established by the CJEU on the EU level, which does not draw a clear line between persons posting works themselves and intermediaries.[91]

In Germany this means that the doctrine of the interferer's liability must be adjusted accordingly or completely given up. The concept of communication now encompasses all forms of providing access, which means that it also covers acts in which the person providing the access does not have the authority of action within the meaning of German law. The distinction between perpetration, participation and interference liability, as it has been in German law, must be reviewed and adapted.[92]

After the European Parliament adopted the latest version of the proposal for the DSM Directive on March 26, 2019 and the vote of the Council in favor of the proposal on April 15, 2019, the question arises whether the purported mixing up of primary and secondary liability by the CJEU will still have an effect in the future.[93]

Art. 17 of the DSM Directive introduces various obligations for online content-sharing service providers[94] that organize and promote works uploaded by users on their platform for profit-making purposes. These platforms will in future be directly responsible for the communication of those works under Art. 3(1). Furthermore, the provider of such platforms must enter into license agreements with the relevant right holders. Failure to do so may result in liability under certain conditions. Additionally, such platforms will no longer be able to rely on the so-called safe harbor[95] in connection with copyright infringements. Moreover, there will exist an obligation to put mechanisms in place, to make certain information available to users in the general terms and conditions, and to make appropriate information available to the right holders.[96]

Although, it remains to be seen in the future exactly what impact the DSM Directive will have until it is finally implemented and applied, it is already assumed that the current legal situation will not change in the EU. With regard to Art. 17 of the DSM Directive, nothing seems to change for the Member States, since it is not intended to amend legal provisions under the InfoSoc Directive, but merely to clarify it as stated in Recital 64 of the Preamble of the DSM Directive. Art. 3(1) and the related case law concerning the liability of intermediaries therefore remain in force.[97]

Even though Art. 17 of the DSM Directive might have no influence on Art. 3(1) of the InfoSoc Directive and even if the fact remains that national systems of liability for intermediaries must be adapted to the case law of the CJEU, this is not necessarily negative. The Court created an EU-wide "unitary liability" with reference to Art. 3(1) of the InfoSoc Directive, which makes sense with regard to the often cross-border communication to the public of works.[98]

Unanswered questions

Notwithstanding it was welcomed that the radical approach from the *Svensson* case was modified in *GS Media*, the CJEU was accused of leaving questions unanswered regarding the new public criterion. Specifically, it was not sufficiently clarified which conditions a person must fulfill in order to act for profit. It was also left open what the knowledge must refer to exactly: the mere absence of consent or also the absence of possible applicable exceptions. Furthermore, it was not specified for exactly whom the presumption of knowledge is applicable. In this context, the applicability to search engines, for example, is unclear. The question regarding the exact nature of the necessary checks that have to be carried out also remains open.[99]

4.2.3 Endorsement of the new public criterion

Aside from the challenges caused by the case law of the CJEU, there is widespread endorsement of the path taken by the Court. Aspects of harmonization, economic considerations, the protection of authors as well as the balancing of the interests play a crucial role. All of those considerations are also reflected in the InfoSoc Directive.

Flexible approach

Already at the very beginning of the InfoSoc Directive, in Recital 2 of the Preamble, the importance of creating a flexible framework to promote development in the EU is emphasized.

By interpreting Art. 3(1) as a general clause, the CJEU thus meets this demand for flexibility. Even if the fundamental structure consists of a two-stage examination scheme, other criteria (dependent on and intertwined with one another) must be taken into account, depending on the particular situation. The CJEU is thus shifting away from a rigid examination scheme towards a concept which includes not only additional criteria but also fundamental rights. Instead of a technical-schematic examination scheme, a function-related interpretation of the right of communication is adopted.[100]

This flexibility means that copyright, which was created before the digital age, is prepared for the challenges of rapid technological development. The approach taken by the CJEU should therefore be appreciated, above all, in the context of the information society.[101]

Economic considerations

In addition to purely copyright related aspects, the CJEU allows economic aspects to play a role in the interpretation of Art. 3(1). The Directive itself speaks of adapting copyright law to the economic reality.[102]

By giving these aspects a central role in the design of the infringing act, the CJEU is able to adapt the exploitation rights - taken over from the analogue world - flexibly to the requirements of the online markets, which are subject to rapid change. This can lead to new business models being adequately assessed and protected.[103]

Legal uncertainties addressed in further CJEU case law

At present, several questions for a preliminary ruling concerning Art. 3(1) are pending at the CJEU. Whether the operators of the platform Youtube exercise an act of communication within the meaning of Art. 3(1) under certain conditions is the question of two referrals, *Google and Others*, C-682/18, and *Elsevier*, C-683/18, by the BGH to the CJEU from 2018.[104] The case *VG Bild-Kunst*, C-392/19, revolves around the question of whether the embedding of a work which is freely available on the internet on the website of a third party by way of framing constitutes a communication to the public within the meaning of Art. 3(1) . The pivotal parameter might be the fact that protective measures against the framing taken or instigated by the right holder were circumvented.[105] Further, the case *Stichting Brein*, C-442/19, deals with the issue whether the operator of a platform for Usenet services made a communication to the public within the meaning of Art. 3(1).[106] The CJEU will therefore have sufficient opportunity in the future to further shape the right under Art. 3(1) and to clarify open questions.

Balance of interests

Another consideration of the InfoSoc Directive is the balancing of the interests involved. A uniform copyright law at EU level aims to contribute to a fair balance between

91 Ohly, A., The broad concept of „communication to the public" in recent CJEU judgments and the liability of intermediaries: primary, secondary or unitary liability?, in: GRUR Int. 2018, p. 517; Hanuz, B., Linking to unauthorized content after the CJEU GS Media decision, in: GRUR Int. 2017, p. 98; Ohly, A., EuGH: Keine "öffentliche Wiedergabe" durch Hyperlinksetzen ohne Gewinnrzielungsabsicht, in: GRUR 2016, p. 1156.

92 Nordemann, J., EuGH-Urteile GS Media, Filmspeler und ThePirateBay: ein neues europäisches Haftungskonzept um Urheberrecht für die öffentliche Wiedergabe, in: GRUR Int. 2018, p. 528; Ohly, A., Der weite Täterbegriff des EuGH in den Urteilen "GS Media", "Filmspeler" und "The Pirate Bay": Abenddämmerung für die Störerhaftung, in: ZUM 2017, p. 793.

93 The DSM Directive will not be discussed in the course of this thesis in detail, but only on this specific aspect regarding Art. 17 of the DSM Directive.

94 Art. 17 of the DSM Directive does not generally refer to intermediaries, but only specifically to online content-sharing service providers defined as follows in Art. 2(6) of the DSM Directive: "'online content-sharing service provider' means a provider of an information society service of which the main or one of the main purposes is to store and give the public access to a large amount of copyright-protected works or other protected subject matter uploaded by its users, which it organises and promotes for profit-making purposes. (...)".

95 According to Art. 14(1) of the E-Commerce Directive service providers are not liable for copyright infringement in the case of hosting.

96 Rosati, E., DSM Directive Series #4: Article 17 obligations ... in a chart, 17 April 2019, The IPKat, available on: http://ipkitten.blogspot.com/2019/04/dsm-directive-series-4-article-17.html.

97 Rosati, E., DSM Directive Series #1: Do Member States have to transpose the value gap provision and does the YouTube referral matter?, 29 March 2019, The IPKat, available on: http://ipkitten.blogspot.com/2019/03/dsm-directive-series-1-do-member-states.html.

98 Nordemann, J., EuGH-Urteile GS Media, Filmspeler und ThePirateBay: ein neues europäisches Haftungskonzept um Urheberrecht für die öffentliche Wiedergabe, in: GRUR Int. 2018, p. 532.

99 Ohly, A., The broad concept of "communication to the public" in recent CJEU judgments and the liability of intermediaries: primary, secondary or unitary liability?, in: GRUR Int. 2018, p. 521; Hanuz, B., Linking to unauthorized content after the CJEU GS Media decision, in GRUR Int. 2017, p. 98.

100 Hofman, F., Aktuelle Entwicklungen der Rechtsprechung zum europäischen Urheberrecht, in: EuZW 2018, p. 518; Ohly, A., EuGH: Keine „öffentliche Wiedergabe" durch Hyperlinksetzen ohne Gewinnerzielungsabsicht - GS Media/Sanoma ua, in: GRUR 2016, p. 1156.

101 Xalabarder, R., The Role of the CJEU in Harmonizing EU Copyright Law, in: IIC 2016, p. 635; Koolen, C., The Use of Hyperlinks in an Online Environment: Putting Links in Chains?, in: GRUR Int. 2016, p. 876.

102 Recital 5 of the Preamble of the InfoSoc Directive.

103 Ohly, A., EuGH: Keine "öffentliche Wiedergabe" durch Hyperlinksetzen ohne Gewinnrzielungsabsicht, in: GRUR 2016, p. 1156 et. seq.

104 Referral C-682/18, Google and Others, 6 November 2018; Referral C-683/18, Elsevier, 6 November 2018.

105 Case C-392/19, VG-Bild-Kunst, 21 May 2019.

106 Case C-442/19, Stichting Brein, 12 June 2019.

the interests of authors and users but also those of the information society and thus of the internet.[107]

Especially in the *GS Media* case, it became apparent that the CJEU envisaged the negative effects that linking without further specifications or too restrictive measures would have. Thus, the CJEU weighed the right of freedom of information, as per Art. 11 of the Charter, the situation of users but also the protection of authors by differentiating who posts the link.[108]

It is not a novelty that the CJEU tries to balance the interests of authors and users within the framework of copyright law. New in *GS Media*, however, was that the CJEU not only took into account those interests, but also explicitly included the fundamental rights, laid down in the Charter, in its consideration. The Court also pointed out the decisive role of the internet in the exercise of these fundamental rights. In this context, it also addressed the special aspects of linking in detail.[109]

Harmonization of copyright law

One of the fundamental ideas of the EU is to harmonize the legal systems, such as copyright law, of the individual Member States. Not only does this benefit right holders by providing them with the same protection within the EU but it also ensures legal certainty for users by allowing them to determine throughout the EU which acts they can carry out without infringing any right. [110]

Although the CJEU does not form the legislative authority at EU level, but the European Parliament and the Council of the European Union, it is precisely that Court which shapes copyright law at European level and to some extent even designs it. The CJEU seems to have committed itself to the target of harmonization and is pursuing it in longer term. Especially considering the partly, distorted and rather slow harmonization of copyright law, the CJEU's approach is to be welcomed. In contrast to the other intellectual property rights, such as trademark, patent and design law, in which binding regulations exist, European copyright law is governed by directives that give the Member States a certain amount of individual autonomy.[111]

A uniform interpretation of the right of communication as per Art. 3(1), which takes into account the developments of the digital age, thus contributes significantly to the harmonization of copyright law within the EU. [112]

5. CONCLUDING REMARKS

The key article, around which this article revolves, is Art. 3(1) of the InfoSoc Directive that gives authors the exclusive right to communicate a work to the public. This article implements the right of communication under previous international treaties. It is composed of two pillars, the act of communication and the public, supplemented by other criteria, depending on the individual case. These interdependent and interconnected criteria include, among others, the new public criterion, developed by the Court. The interpretation of Art. 3(1) is strongly influenced by the case law of the CJEU over the last years.

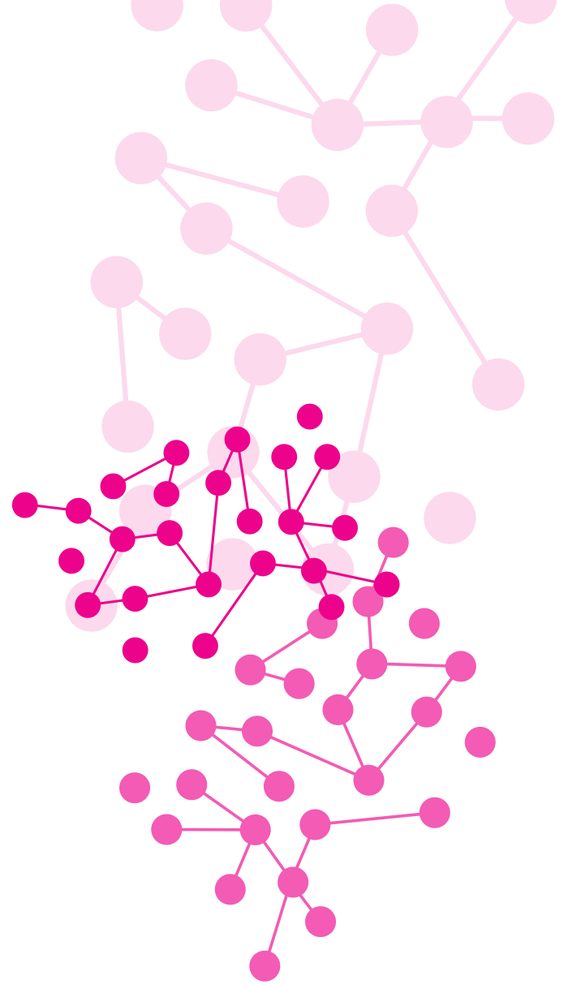
In the context of this case law, the CJEU developed a system of when creating a link constitutes a communication to a new public, thus leading to an infringement of the right under Art. 3(1), and when it does not. It must be mentioned that the specific type of link does not play a role. First, it must be distinguished whether the work was originally published on the internet with the consent of the right holder. If this is the case, the next step is to differentiate whether the work is freely accessible to the public or protected by technical measures. In the former case, linking to the work does not constitute a communication to a new public. If technical protective measures are circumvented by setting the link, this in turn constitutes a communication to a new public, thus an infringement of Art. 3(1). Where the work was initially uploaded without the consent of the right holder, a distinction is made between three categories. If the work is freely accessible, the link provider does not pursue any profit-making intention by setting the link and the person is not aware of the unlawfulness of the work, no communication to a new public takes place. Otherwise, if the only difference in this constellation is that the person posting the link is aware of the unlawfulness, then this constitutes a communication to a new public. In the event that the work is freely accessible and the link provider acts with a profit-making intention, a rebuttable presumption of knowledge is applied and the provision of the link consequently leads to a communication to a new public and therefore to an infringement of Art. 3(1).

At national level in Germany, the BGH, prior to the influence of the EU, namely the InfoSoc Directive and the CJEU case law, decided that linking did not fall within the scope of the right of communication to the public. Due to the implementation of the InfoSoc Directive and the related case law of the CJEU, its interpretation had to be adapted. However, even if the BGH now applies the examination scheme and criteria developed by the CJEU in the course of the right of communication to the public, the BGH grants itself a certain leeway with regard to interpretation at national level.

Even though the case law of the CJEU caused considerable concern, and alternative proposals regarding the copyright handling of links were submitted as a result, there is still consensus on the result of the Court's case law. Similarly, the CJEU gained widespread endorsement and admiration for its courageous and innovative approach. By developing the new public criterion, the CJEU made a decisive contribution to the interpretation and further development of Art. 3(1). The decisions of the CJEU show that the broad wording of this article had to be clarified in order to meet the requirements of a modern information society. The CJEU endeavored to preserve the exclusive right of authors and to enable them to exercise this right even on a platform as complex as the internet. However, the CJEU did not only try to balance the interests of authors and users but also the functioning of the internet. Thus, the Court does not want to hinder the important functioning of the internet, on the other hand it also wants to prevent the emergence of a legal vacuum.

Copyright law is under constant pressure to undergo adaption, at national and EU level, as a result of technological developments. It has been 26 years since the first website went online in Switzerland.[113] Since then, the number of active websites rose to around 181 million.[114] Approximately 674 million people in the EU, thus approx. 80% of the total population, use the internet.[115] Moreover, 91% of Europeans use the internet to obtain information.[116] It is therefore likely that links, which make it much easier to find that information in the mass of websites, will not lose their importance. The development of the new public criterion by the CJEU was a courageous step to adapt copyright law, in particular Art. 3(1), to the digital age in Europe. Even if there are still unanswered questions, the current questions for preliminary rulings pending at the CJEU show that the Court will continue to have the possibility to answer these questions and thus contribute to a greater legal certainty on the internet in the future. As mentioned in the introduction of this article, the internet significantly changed the lives of authors and users. The rapid circulation of works throughout the EU is a key factor in the exchange of opinions and information. Copyright law must not hinder this exchange but should ensure that the interests of the parties involved are adequately protected.

[107] Recital 31 of the Preamble of the InfoSoc Directive.
[108] Ross, A., Hot links – pirate porn leads CJEU to rule on linking to unauthorised content, in: Entertain Law Rev 28, 2016, p. 18; Bellan, A., Compared to Svensson, GS Media is not that bad after all, 4 October 2016, The IPKat, available on: http://ipkitten.blogspot.com/2016/10/compared-to-svensson-gs-media-is-not.html.
[109] Torremans, Paul, Research Handbook on Copyright Law, Cheltenham/Northampton, Edward Elgar Publishing, 2017, p. 153 et seq.
[110] Recitals 3, 6, 9 of the Preamble of the InfoSoc Directive.
[111] Xalabarder, R., The Role of the CJEU in Harmonizing EU Copyright Law, in: IIC 2016, p. 639.
[112] Ibid.
[113] Tim Berners-Lee launched the first website (http://info.cern.ch/hypertext/WWW/TheProject.html) on its computer on the April 30, 1993 (cf. https://home.cern/science/computing/birth-web).
[114] Netcraft, April 2019 Web Server Survey, available on: https://news.netcraft.com/archives/category/web-server-survey/.
[115] Kemp, S., We Are Social, Digital in 2018: Essential Insights Into internet, Social Media, Mobile, And Ecommerce Use Around The World, 30 January 2018, available on: https://wearesocial.com/blog/2018/01/global-digital-report-2018.
[116] Statistische Ämter des Bundes und der Länder, Private Haushalte in der Informationsgesellschaft: Europäische Erhebung zur Nutzung von Informations- und Kommunikationstechnologien (Private households in the information society: European survey on the use of information and communication technologies), 2019, available on: https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Einkommen-Konsum-Lebensbedingungen/IT-Nutzung/Publikationen/Downloads-IT-Nutzung/private-haushalte-ikt-2150400197004.pdf?__blob=publicationFile



Sophie-Elena Bohle

After finishing her law studies in Germany, Sophie-Elena Bohle obtained a master's degree in IP law from Stockholm University in 2019. Currently, she is a legal clerk in Berlin and is preparing for the second state examination. After various practical experiences in the field of IP law, most recently at Hannes Snellman law firm in Stockholm, she would like to pursue a career in this field, especially with a focus on copyright law.

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Blockchain solutions for the online music industry

REVOLUTIONISING THE VALUE CHAIN THROUGH BETTER PROTECTION OF ARTISTS' RIGHTS, A CREATION OF A FAIRER MUSIC ECOSYSTEM AND FRICTIONLESS ROYALTIES PAYMENT.

By Silvia A. Carretta

ABSTRACT

New technological developments are changing the legal status of copyright. As blockchain technology seems to be revolutionising modern times, it is difficult to underestimate the hype around this technology.

This article introduces various legal aspects of the application of blockchain technology in the copyright sphere, with specific reference to the analysis of the online music industry in its modern status. Within this framework, it could be assumed that blockchain technology might represent an opportunity to reimagine and revamp the protection of copyright by implementing a blockchain-enabled system with the characteristics of being trustworthy, transparent, more affordable, highly standardised, time-stamped and automated.

Although still in its infancy, the potential application of this technology in relation to the music industry is of particular interest, as it appears to offer solutions to problems that artists, musicians, performing artists, and composers have encountered for decades. It promises a way out of the current deadlock between artists and intermediaries and it offers a foundation that can bring together the entire value chain and revamp the music industry by letting go of the outdated, hierarchic framework.

The complexity of the current system will take some time to unravel and rebuild. Nevertheless blockchain applications could lead to better protection of ownership, to artists having more say in deciding how and to whom the works are licensed and to faster, prompter remuneration of holders in the music industry, allowing artists to make a living out of creating music.

1. INTRODUCTION

Nowadays, digitalisation and the internet have fundamentally transformed the way listeners access and listen to music. The need for a proper legal framework for protection of artists[1] and copyright holders has arisen from rapid technological developments that transformed the way works of music[2] are created, produced, distributed, and exploited online. For quite some time now, artists have struggled to protect their digital works, often finding them appropriated and republished without their permission across the web over user-upload content platforms. This exploitation is often free of charge or subject to a comparatively lower remuneration.

Today, the music industry is estimated to be worth US$45 billion worldwide, of which the record industry is responsible for approximately US$19.1 billion in revenues. 2019 was the fourth consecutive year of global growth and the highest rate of growth since 1997.[3] This growth was predominantly driven by a 32.9% rise in paid streaming that now accounts for 37.0% of total revenue.[4] It is therefore evident what enourmous sums are involved and how a central role new, digital ways of exploiting music play in the modern online music industry (such as copying, distribution, paid download, free or paid streaming etc.). From this, stems the need to create a proper legal framework that includes all these new uses and types of exploitation.

This article investigates how the advent of blockchain technology might present an opportunity to revamp the framework of the music industry and reimagine the protection and use of copyrighted works. It is argued that blockchain might introduce long-awaited transparency, trust, and certainty in matters of protection of copyright ownership, and transfer of contractual obligations, thus leading to fairer trade in the negotiation of licensing terms. Such a blockchain-enabled system is tamper-free, immutable, trustworthy, and transparent, as well as more affordable, highly standardised, and automated. Clarity and transparency in information leads to easier identification of right holders, which in turn leads to fairer remuneration of royalty revenues on a planetary scale. Moreover, by using the instrument of smart contracts, blockchain could introduce a contractual adjustment mechanism that would estimate the real value of rights; automatic calculation of revenue for each use of a work depending on the instruction stored on the code by the parties; and automatic redistribution of royalties in a fast, frictionless way.

In synthesis, blockchain has been presented as a sophisticated, dynamic technology, to be used as a constraining force to better protect and revamp the online music industry by shaping the way users interact with this technology. Nevertheless, it should be kept in mind that only a few of the hypothetical developments discussed today are viable and could be developed from a technical, and legal point of view.[5]

This article aims to understand the current trends in blockchain technology and to anticipate the changes that it can bring to the music industry. Initially, it describes the main technical features of blockchain by explaining keywords. Then, current legal problems within the music industry are discussed. Afterwards, technical solutions of blockchain that might impact the value chain are introduced, first from the point of view of artists, then from that of record labels, producers, and collective management organizations (CMOs). Furthermore, there is consideration of how blockchain could upset the powers within the value chain through disintermediation, by allowing artists to connect directly to listeners. Jointly, it is debated whether it is likely that complete disintermediation is reached soon. Real life scenarios are analysed for each case. The last section investigates the possibility of using smart contracts to enable automatic execution of agreements through code and to facilitate near-instant micropayment of royalties. In the end, a broad discussion is introduced over unresolved legal and technical issues that might hinder the use of smart contracts and consequently affect future implementation of blockchain. In particular weight is given to the fact that blockchain could be a positive and fruitful technology if concrete legal issues are overcome and the current legal paradigm is adapted to the new needs of the music industry.

2. TECHNICAL FEATURES OF BLOCKCHAIN

Technology and law have always been closely connected through reciprocal developments. Fast technological changes call for a change in the status of the law as these technological changes require in some way to be 'legalised' in order to be normalised in our own lives. The same change is happening nowadays with blockchain technology, defined by Don and Alex Prescott as *"the second era of internet"*.[6]

The first time someone wrote about blockchain was in 2008. Author Satoshi Nakamoto, the pseudonymous mastermind behind the theory of bitcoin cryptocurrency, discussed in his famous White Paper[7] for the first time the possibility of creating a new technical infrastructure for cash payments. This method allowed for a more secure, traceable, and transparent payment as a by-product of the fact that all transactions were saved on various computers and were verifiable in a reliable and secure way by all parties of the chain.

Contrary to the traditional belief of most, distributed ledgers technology – and its more commonly known version i.e. blockchain technology[8] – is not a unique technology, but is better thought of as a class of technologies that vary widely in their technical and governance configurations.

1 The term artist is a comprehensive term for composer (writer of music and/or lyrics of a work) and performing artist (any person who sings, delivers, declaims, plays in, or otherwise performs artistic works). It includes also professional and amateur DJs and, in general, any person who creates, reproduces, adapts, performs a work of music, in accordance with the definitions provided by international treaties and conventions, in particular by Art. 3 of the Rome Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organizations (1961).

2 A work of music is defined as a phonogram, with or without lyrics (i.e. any exclusively aural fixation of sounds of a performance or of other sounds). In particular under Art. 2 (1) of the Berne Convention for Protection of Literary and Artistic Works (1886) the expression 'work' defines "every production in the [...] artistic domain, whatever may be the mode or form of its expression, such as [...] musical compositions with or without words".

3 IPFI Global Music Report 2019.

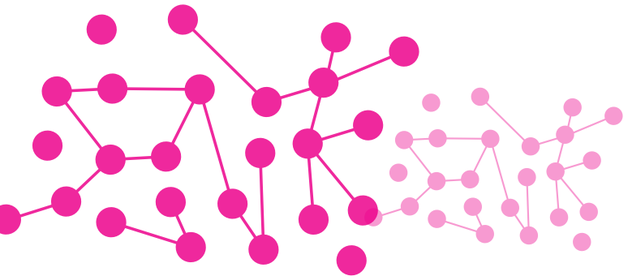
4 Although physical format revenue declined in 2018 by 10.1%, it is to be said that the Global Recorded Music Revenues from physical sale of recorded music still accounts for around a quarter of the total market (24.7%).

5 Although some of the scenarios imagined so far are still just speculation and not presently viable, one practical case for the use of smart contracts for sale of Works on a blockchain in the liberal arts environment has been explored at the University of Milan with impressive results: see A. PONZO, with the supervision of PH.D. A. BELLACICCA, Multichain con nodi ad accesso condiviso (trad.: "Multichain with shared access Nodes"), Università degli Studi di Milano – Bicocca (Milan), 2019.

6 D. & A. TAPSCOTT, What the Blockchain Means for Economic Prosperity, Coin Desk, December 24, 2015.

7 S. NAKAMOTO, Bitcoin: A Peer-to-Peer Electronic Cash System, Bitcoin.org, 2008. Although, it is to be noticed that the term 'blockchain' does not explicitly figure in the paper.

8 Under a technical point of view, there can be nuances between a blockchain and distributed ledgers technology. Nevertheless, here they are used as synonyms for the sake of simplicity and in accordance with conventional usage.



To define blockchain technology in simple words, one can say that it serves as a shared and synchronised common asset registry to track and store data in a trustworthy, transparent, and tamper-free way. The technology gets its name from the fact that multiple transactions are ordered together in so-called blocks (technically 'ledgers').

Of foremost importance is the characteristic that blockchain technology relies on consensus among a network of computers ('nodes'), taking part on a peer-to-peer basis in verifying the legitimacy of each transaction – in advance – before it is stored on the blockchain. Before creating the block, in fact, all nodes are required to compete with each other in order to solve a cryptographical puzzle to verify the transaction. Once a solution is found, its 'proof-of-work' is shared with the network of nodes. The latter will verify its validity and then approve the transaction to be chained to the existing blocks through a hashing process.[9]

In essence, the real innovation of blockchain technology is that it ensures the integrity of each ledger being *"near un-hackable"*[10]. Changing records on blockchain is prohibitively difficult and requires the consensus of the nodes, provided in accordance with the protocol (e.g. by the majority or totality of nodes). Thus, no single party has the ability to arbitrarily or unilaterally change any entries or tamper with the data in the blocks, ensuring therefore immutability of the records by intrinsic properties of the underlying code.

Furthermore, blocks are connected in a chronological order through tamper-proof time-stamps. They mark the time for each transaction on the blockchain, providing proof of what has happened and when on the blockchain. Given the time-stamp feature, blockchain is suitable to play the same role of a notary public but with stronger credibility since data is verified through consensus by all node and cannot be modified unilaterally.

Extremely important are the characteristics of decentralisation and disintermediation. Thanks to the former, each node participating in the blockchain stores a complete copy of the data.[11] Depending on the protocol underlying the structure of the blockchain, (most of or all) the nodes have access to (most or all) of the data of the chain and can request new transactions to be added, hence guaranteeing high levels of transparency within the chain. The main advantages of decentralisation are fault tolerance due to a system malfunction, attack resistance from malicious actions of third parties, and collusion resistance at the expense of other participants.

Furthermore, thanks to the second characteristic of disintermediation there is no longer any client-server hierarchy, removing the need for single authorities within the blockchain, decreasing transaction costs and risks associated with presence of such intermediaries ('middle men'). However, it does not mean that new kinds of intermediaries will not be created as a result of deeper implementation of blockchain technology in the social fabric, depending on which environment the blockchain is developed in.

In conclusion, trust is embedded in the blockchain, rendering unnecessary the existence of single authorities. In other words: one can trust that the data in each block has been verified by all nodes and cannot be tampered with. Thus, trust is created in the process and in the data.

3. THE ADVANTAGES CLAIMED BY ARTISTS ON BEHALF OF BLOCKCHAIN TECHNOLOGY

Recently, many artists inside the music industry have claimed that the framework of the industry is fundamentally in need of reform due to the many difficulties brought forth by the advent of the internet and due to the rigidity of the industry, unable to adapt to the surge of new technologies.[12] Senior Lecturer O' Dair affirmed in a statement:

> *"Since the turn of the millennium, people trying to make money from recorded music have struggled with significant challenges. Music can be streamed and downloaded at the click of a button but payments to the people who actually make that music can be slow and opaque. There is also a major problem with copyright data".*[13]

The need to revamp the music industry originates from the complexity of multiple copyrights over the same work of music.[14] For instance, under the Berne Convention, the copyright holder enjoys a series of exclusive moral and economic rights instantly when the work is created, without the need to be registered or recognised by any authority. In particular, the right holder potentially gets 177 different national copyrights and related rights, summed up together in a 'fragmentation' of national copyrights at international level.[15]

Furthermore, the complexity of the music industry lies in the multi-layering of rights embodied in a single work, each of which corresponds to multiple right holders (performing artists, composers, musicians, producers and so on). It is important to understand that any work of music contains not one but two sets of copyrights: one for underlying lyrics and music composition and one for the sound recording itself. The former are called performance rights (performning on a recording as well as in public), created by composers and lyricists and are monetised by music producers; the latter are called mechanical rights (right to copy or reproduce and distribute), created by performing artists and are usually monetised by the record labels.[16] Having to split the rights and profits among this multitude of players makes the ability to correctly identify the legitimate right holders of foremost importance

Artists, record labels, producers and major music institutions are searching for solutions to a long-standing problem: the lack of unique and complete (national or international) databases containing a catalogue of works of music and data of the right holders. With data scattered all over various databases, it is extremely difficult for any willing party to ensure that all those involved in the creation process are acknowledged fully as well as to identify the legitimate right holder of authorship and creatorship rights over a work, in order to personally negotiate use and licensing terms.

The increased availability of music online in digital formats, via streaming services and downloading platforms, has made it more difficult for artists to make a living in the music industry.[17] Currently, there is an increasingly fragmented industry in favour of few who retain most of the commercial and economic power by keeping most of the revenue,[18] while many artists have difficulties obtaining financial comeback for their work. To have the chance of achieving commercial success and making a name for themselves, most artists seek economic support and sponsorship in the market from big intermediaries, such as record labels, producers, CMOs and streaming platforms. This leads to unbalanced bargaining positions, often forcing artists to agree on economically disadvantageous contractual provisions and give up most of the control over the economic and licensing terms of the use of their work.

Lastly, another issue is the non-existence of data on the exploitation of the work (i.e. for how long, for which uses and by whom). This is a direct consequence of the aforementioned lack of reliable data on authorship, together with the inequitable contractual terms the artists are subject to. Without standardised reports from intermediaries and digital services, payment of royalties is disjointed, inaccurate, and incomplete.

In light of the aforementioned problems there is an emerging sense that the overall music industry model needs reform. Thanks to its intrinsic technical characteristics, blockchain technology is presently advertised as the solution to revolutionise modern times.[19] Thus, it is difficult to underestimate the hype concerning this technology. Although still in its infancy, the potential application of this technology to the music industry is of particular interest, as it appears to offer solutions to long-standing problems that artists have encountered for decades and are still currently facing.[20]

3.1 How blockchain can bring better recognition of authorship and proper tracking of rights, connecting artists directly to listeners

The music industry is growing and a new generation of artists are demanding more transparency in the recognition and protection of their rights. The law already protects artists and their copyright in *abstracto*,[21] giving them exclusive rights towards their works. But the vagueness of how the music industry deals with those rights and the uncertainty as to who is the rightful owner give reason for this new generation of artists to demand a deep change in the way the music industry works.

9 Hashing can be defined as a one-way cryptographic function, designed to be impossible to revert. This creates a unique fingerprint that represents information as a string of characters and numbers and can't be modified once added to the block.

10 B. CLARK, Blockchain and IP Law: A Match made in Crypto Heaven?, WIPO Magazines, Issue 1/2018.

11 Readers shall be aware that in this article the term 'database' with reference to blockchain is used a-technically. This facilitates regrouping of concepts (DLT, blockchain, databases) that can be treated as the same under a legal point of view.

12 J. SILVER, Blockchain or the Chaingang? Challenges, opportunities and hype: the music industry and blockchain technologies, CREATe Working Paper No. 2016/05, 2016, p. 21.

13 Interview of Marcus O'Dair by Richard Ward for '11 IS LOUDER THAN 10' in 2016.

14 Under Art. 2 (1) of the Berne Convention, the expression 'work' defines "every production in the literary, scientific and artistic domain, whatever may be the mode or form of its expression, such as [...] musical compositions with or without words". All the convention and treaties hereinafter mentioned, make provisions for exclusive rights in respect of works of music.

15 As defined by M. SHAFFER VAN HOUWELING, Author autonomy and atomism in copyright law, Virginia Law Review, Issue 96, 2010, p. 549.

16 BERKLEE INSTITUTE OF CREATIVE ENTREPRENEURSHIP (BERKLEE ICE), Project 'Rethink music: transparency and payment flows in the music industry', 2015.

17 The National Music Producers Association (NMPA) in the U.S. claims that as much of 25% of the activity on streaming platforms is unlicensed and this presents a problem for artists that don't obtain due revenue from usage.

18 The mentioned ICE Project of Boston's Berklee School of Music shows that record labels and producers keep 73% of royalties collected from streaming services, leading to an economic monopoly of record labels and producers over Artists. See: BERKLEE INSTITUTE OF CREATIVE ENTREPRENEURSHIP, op. cit.

19 As maintained ex multis by: D.A. WALLACH, Bitcoin for rock stars: how cryptocurrency can revolutionise the music industry, Coin Desk, 2014.

20 Such as lack of recognition of authorship; lack of transparency on the economic terms of the use of the works as well as difficulties in royalties calculations; lack of balance in the bargaining power with intermediaries that hold control over artists and over their relationship with the listeners. See: M. HVIID, ET ALL., Digitalisation and intermediaries in the music industry, CREATe Working Paper, issue No. 07/2017.

21 Indeed, copyright law is territorial in nature but works are protected in multiple countries through international instruments. See for instance the provisions of Arts. 2, 3, 5, 6*bis* Berne Convention; Arts. 3, 4, 9 TRIPs Agreement; Arts. 1, 6, 7, 8 WIPO Copyright Treaty; Arts. 2 to 5 Info Soc Directive as well as national copyright laws.

As mentioned, the problems that artists face originate mainly from the fact that there is no comprehensive database that shows copyright ownership of every track in existence, being connected to other databases in a complementary function.[22] This is where blockchain technology can alter the existing framework by enabling artists to register ownership of their works without the need of middle-men authorities. As Fairfield put it, blockchain technology could be *"a revolution in how to keep track of rights"*.[23] In fact, blockchain provides the ability to digitise and securely store information of practically any IP asset, increasing availability of information about copyright ownership and allowing right holders to track the use of their work[24], solving most of the issues mentioned above.

Lately, this use of blockchain has been attracting the interest of many companies in the music industry which are investing funds to study further applications. One of the first companies to develop a prototype of a comprehensive database based on the Ethereum[25] blockchain is the platform Ujo Music. It aims to connect artists and listeners directly and determine ownership of creative works, using a unique ID hash to enable artists to manage their identities and works, as well as for users to instantly obtain information on songs, artists, and other right holders involved in the music production.[26]

Besides the aforementioned example, other players in the value chain have started to realise the potential of blockchain to keep track of music and related data. One example worth mentioning is the service offered by Aurovine. The company launched in spring 2019 celebrates the ideal of having developed a system that simplifies music distribution to support artists and at the same time, it incentives buying works directly from artists. In fact, it permits users to *"Listen, Rate and Share music in one go"*[27] through social media and, in exchange, be rewarded with Audiocoins (crypto coin named 'ADC') in their digital wallet.

These examples might suggest that blockchain technology could indeed be used to create a single, universal database of music copyright and a modernised rights management solution for artists and intermediaries. Nevertheless, only time will tell if this financial investment will grow in acknowledgement by the music industry and become popular enough between users to develop its full potential, thus having a real impact on the value chain of music.

3.2 How blockchain can give artists increased control over the management of their works. The music ecosystem imagined by Imogen Heap.

A consequence of the aforementioned advantage of using blockchain in the music industry is that, if authorship is recognised and protected, artists can have more control over the terms of use of their work. Ergo, it is possible to envisage artists using blockchain technology to break the hold of record labels or producers, be more economically independent, and have a more important say over the use or licensing of their works, at prices of their own choosing. Although at the moment this possibility is still hindered by technical limitations and legal hurdles, which would need to be approached and solved as blockchain technology evolves, ideally this could create a direct connection between artists and listeners all across the world.

22 As reported by Khartanovich, information relating to compositions and songs is scattered across over 5,000 databases, online or offline. See: M. KHARTANOVICH, Managed Chaos: Why the Music Industry Needs Blockchain, CoinTelegraph, January 24, 2017.

23 J. FAIRFIELD, BitProperty, Southern California Law Review, Volume 88, Issue 4, 2015, p. 4.

24 P. GODSIFF, Disruptive Potential, in M. Waplort, Distributed Ledger Technology: Beyond Blockchain, Wordlink (London), 2016, p. 57.

25 Ethereum is a decentralized blockchain-based platform, founded in 2014 by Vitalik Buterin.

26 https://ujomusic.com/.

27 https://www.aurovine.com.

28 The notion that blockchain technology can create a 'fair' music trade has been proposed by artists such as Imogen Heap and Benji Rogers; as well as by companies like Aurovine; the music streaming platform Resonate and Stem, a start-up exploring the potential of blockchain for tracking revenue streams from digital service providers.

29 The song, sold for $0,60 each, gained total revenue of only $133,20 due to the difficulties to obtain cryptocurrencies on the Ethereum platform to make the required payment.

30 http://myceliaformusic.org.

31 As defined by J. BARTLETT, Imogen Heap: Saviour of the Music Industry?, The Guardian, September 6, 2015.

32 Consequently, artists have sometimes challenged the pricing policies of record labels and CMOs, claiming they violated Article 102 TFEU (rules on competition with regard to union policies and internal actions). The Court of Justice of the European Union has been requested to rule on excessive licensing fees: e.g. joined cases C-110/88, C-241/88 and C-242/88, François Lucazeau v SACEM; Case C-52/07, Kanal 5 Ltd and TV 4 AB v STIM; Case C-177/16, BiedrĐba "AutortiesĐbu un komunicĐšanĐs konsultĐciju aĐentĐra - Latvijas Autoru apvienĐba" Konkurences padome

33 See for instance the report prepared by Cooke to explain how music rights have been exploited in the past, how digital licensing has evolved, and what issues now need to be tackled for fair payment of royalties. C. COOK, Dissecting the Digital Dollar Part One: How Streaming Services are Licensed and the Challenges Artists Now Face, Music Managers Forum Report, CMU Insights, 2015.

34 As defined by Berklee ICE in its project, where it is estimated that 20% to 50% of music payments don't make it to their rightful recipients. See: BERKLEE INSTITUTE OF CREATIVE ENTREPRENEURSHIP, op. cit.

35 Barry was interviewed by Gottfried for an article published on Billboard. See: G. GOTTFRIED, How 'The blockchain' could actually change the music industry, Billboard, May 8, 2015.

36 For example, Paul McCartney filed a lawsuit against Sony to reclaim the copyright to some of his earliest songs from 1960s with the Beatles; Duran Durans lost the battle with Sony/ATV but are still pushing for another attempt to reclaim the publishing copyrights on over three dozen songs they licenced in UK; and Taylor Swift interrupted all collaborations with Spotify due to lack of fair payment of royalties for the streaming of her songs.

37 As stated on their website: http://dotblockchainmedia.com/main/#about-section.

38 The combined partners bring together a catalogue of more than 63 million recordings. With more than 150,000 new recordings added each month, dotBC is hoping to soon be working with the vast majority of the modern music library, ensuring comprehensive coverage of recorded works for the project.

Thanks to the potential benefits of blockchain technology, some distinguished persons in the music industry have suggested that blockchain could bring about a 'fair trade'[28] in the music industry for empowering artists. The first attempt to create a fair, sustainable, and vibrant music industry involving various online music interaction services came from the experiment of the British singer and technology advocate, Imogen Heap. She recorded a new song – 'Tiny Human'– and decided to release it for commerce only on a blockchain platform for music sharing (developed by Ujo Music on Ethereum). The experiment in itself was, from an economic point of view, not a success for Heap.[29] Nevertheless, it was a wake-up call for many, who started realising the real potential of blockchain and how the music industry might take advantage of the technological capabilities that this technology allows.

Savvy of her first attempt's positive impact, Heap went on with her ideal to reform the music industry and launched one (if not the main) blockchain-based project: Mycelia.[30] The project was developed together with the support of Ujo Music in an attempt to automate the background disbursement of royalties to the legitimate parties through the creation of music related metadata and by soon employing smart contracts for 'smarter', faster payments. The entire *'music eco-system'*[31] of Mycelia proposes a database containing all data relating to the works (such as lyrics, music sheets and photographs) as well as giving full credit to artists (i.e. musicians, performing artists, composers, producers and so on). Mycelia, as well as the previously mentioned Ujo Music, hopes to use blockchain technology to create a system that enables listeners to better locate the right holders and more easily obtain a license for the use of the music for various purposes, ideally directly from the artist itself.

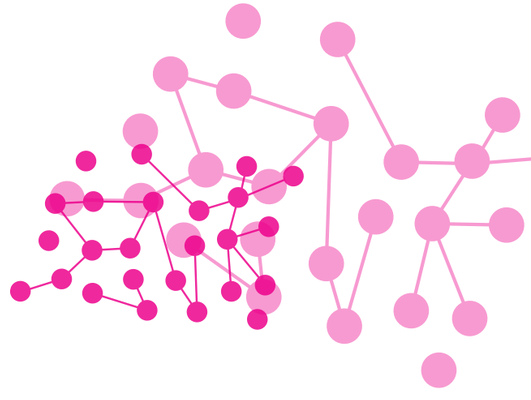
3.3 How blockchain can ensure a faster, more accurate system for royalties payment to artists

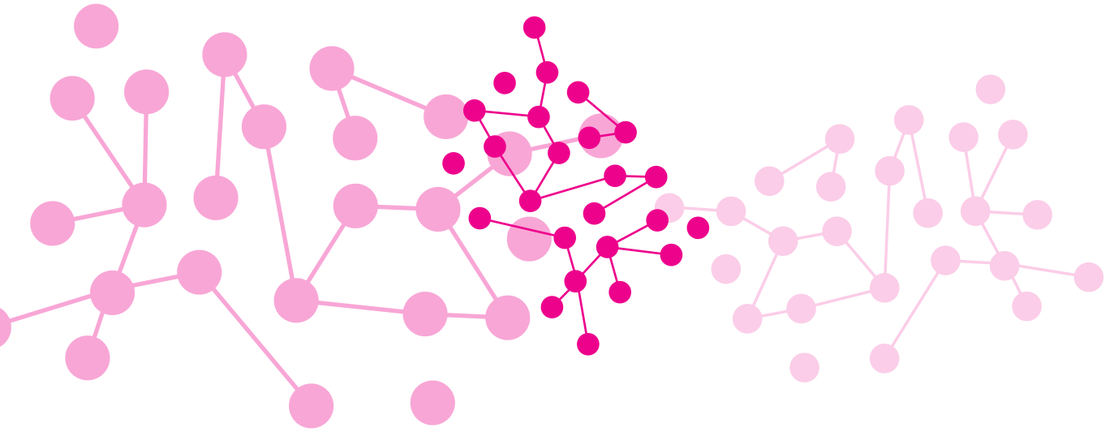
A second advantageous consequence of using blockchain in the music industry is that, if the identification of the person that owns the economic right to the work is made easier, it is also easier to ensure a faster and more correct payment of royalties.

As mentioned above, the questionable economic framework of royalties causes the payment, for both the sound recording and the underlying words and music, to reach the right holders after an extremely long period of time, taking months or even years.[32] Even more so, in a culture of confidentiality and non-disclosure agreements on details of many streaming deals, it is extremely difficult for artists or their managers to audit whether record labels, producers or CMOs are processing payments efficiently.[33] Worse, significant amounts of royalties repeatedly fail to reach legitimate recipients, even ending up in so-called 'black boxes'[34] in cases where the rightful owner of the rights is not identified accurately. The founder of Ujo Music goes as far as suggesting that approximately 12.7% of royalties currently disappear on the operating costs of a CMOs.[35] This is mostly due to the fact that the mechanism by which royalties are calculated and paid is often opaque. Nor does it help that there is no unique international music database that could unequivocally determine the rights' ownership. Through adoption of blockchain technology, all these lost amounts could instead be made available for profit to artists and record labels. As a consequence, many artists are pushing toward transparency and fairness in their own ways, for instance by opposing major record labels or starting legal actions against streaming platforms.[36]

An interesting attempt to contrast this lack of transparency is brought forth by DOT Blockchain Media Inc., a self-defined *"shared surface on which all parties in the music industry can collectively share and own information about the songs and artists they work with"*.[37] Founded by Benji Rogers, the DOT Blockchain Music Project is a public benefit corporation that offers an open-source technology to support a new file format for music called '.bc' (i.e. Dot Blockchain), which contains digital audio along with metadata that points to entries in the blockchain denoting music rights transactions. This empowers the company in offering a service that uses existing industry standards for tracking of royalties (such as DDEX and CWR data) to ensure that all parties involved can obtain truthful collective data about a given song and/or recording and its right holders, through blockchain technology. The value of this project is reflected in the partnership signed in 2017 with the Canadian collecting management society SOCAN and its four partners (i.e. MediaNet subsidiary, Downtown Music subsidiary's Songtrust and digital distributors CD Baby and FUGA)[38] which provide technical and financial resources to Dot Blockchain Media Inc. to achieve its goal of music rights transparency.

In light of this, blockchain technology has the potential to change the current situation of the music industry in various ways. Most significantly, by introducing a new way of identifying the correct right holder, tracking the licensing and usage of the work through metadata and bringing transparency in royalties payments from record labels, producers, and CMOs. Finally, as described further on, blockchain eliminates the need for the mediation of 'middle-men' intermediaries between artists and their listeners. All these advancements together might finally help the music industry to evolve, creating fairer and more equal positions for each player in the value chain of music.





4. THE PLAYERS OF THE VALUE CHAIN: A BRIEF OUTLINE OF THE CURRENT MUSIC INDUSTRY

In the last twenty years, the music industry has made a shift to a model based on 'access' rather than 'ownership'[39] and this has brought new significant challenges, in particular to the online music industry.

By necessity, artists are entrepreneurs. Their job is to create music and their income originates from listeners' appreciation of their work. Sometimes they are able to match their passion with a serious career, taking on complicated tasks such as manufacture and distribution of the works or activities like marketing, press publicity, sponsoring and so on. Though oftentimes it seems that artists are constantly waiting for fair financial returns for their efforts.[40] In order to achieve commercial success and make a name for themselves, most turn toward intermediaries to obtain economic and commercial support. Artists become dependent on record labels and producers to promote, sponsor, and market their works to the public and at the same time they are dependent on CMOs to collect royalties for the use of their work by the public all over the world. Often, these collaborations between artists and intermediaries are presented as an investment in the artists' success, but in reality, they are more akin to a loan, rather than an equity stake. In so-called *'360-degree'* deals, intermediaries expand their economic rights on artists' success: the money given is treated as a recoupable account and the artists don't see royalties until the intermediaries have recouped the entire amount given up front. Due to unbalanced bargaining powers, artists are thus forced to sign such economically disadvantageous contracts with the hope, in the future, of obtaining commercial success that would guarantee a fair return for their efforts.[41]

A study of the Institute for Creative Entrepreneurship at Boston's Berklee School of Music[42] shows that record labels and producers keep as high as 73% of royalties collected from streaming services, allowing these intermediaries to be entitled to disproportionately high amounts of revenue. The same goes for revenues of royalties collected and kept by most CMOs in various countries, which creates an enormous discrepancy between artists' and intermediaries' revenues.

For the sake of clarity, it is possible to summarise the critical points that create disparities in the music industry as follows: as discussed above, the lack of unique, complete, open-access database, with data scattered all over various databases, makes it difficult to identify legitimate right holders, whether they are affiliated with any collective management organizations, and which territory they have licensed, further complicating already convoluted rights tracking and preventing the correct licensing of works between record labels, producers, and CMOs.

Furthermore, the aforementioned lack of transparency on revenue data that affected artists also has a negative impact on the roles of intermediaries. The access to real-time, comprehensible information on the collection of royalties is anything but straightforward. Payment information is disjointed, inaccurate, and incomplete for lack of standardised royalties statements from intermediaries and digital services (explaining the details of the payment flows, of who is paying who and for what usage, and how royalties are calculated)[43].

Lastly, time is another major issue. It can take months or years for royalties to finally reach the intermediaries (and consequently their artists) due to bureaucratic administrative verifications, dramatically slowing down the recouping of investments made in artists and obstructing the continued investment in other emerging artists.

In light of this situation of disparity, there is an emerging sense that the music industry's practices - which led to lack of equality and transparency between artists and intermediaries - do not fit any longer in the fast exchange of information of the digital economy. Thus, the need of a reform of the overall role of each party involved in the value chain is heightened.[44] So it follows the need for a new framework, in which blockchain will likely bring positive changes toward a future, reformed, artist-oriented scenario.

4.1 The potential of disintermediation within the value chain

Today, artists seek more transparency in the management of their rights and more say in the commercial and economic aspects related to the use of their works. Perhaps the most radical and controversial aspect of how blockchain technology could affect the structure of the music industry relates to its potential for creating a direct link between artists and listeners, eliminating the need for intermediation by record labels, producers, or CMOs. As Wright and De Filippi put it, blockchain:

> *"has the potential to decentralise the way we store data and manage information, potentially leading to a reduced role for one of the most important regulatory actors in our society: the middle-men".*[45]

The reduction in the number of intermediaries capturing economic gain in the value chain could be made a reality by blockchain through its characteristic of disintermediation. This technology could automate most of the processes between artists and listeners and equilibrate the powers in the value chain by removing the enormous power of such intermediaries, hence reducing disparity.[46] This would allow artists to (more) easily sell their work to listeners worldwide and receive direct and automated payments. The same would happen for all parties involved in the creation of the work (i.e. composers, performing artists, and producers etc.) that normally are not acknowledged nor involved in the negotiations with the intermediaries.

This has recently been made possible by a number of blockchain-based companies. One example is the service offered from the UK company Bittunes[47], which has assembled a number of independent indie bands from over seventy countries and is trading music on its blockchain-based platform. The company celebrates the ideal of having developed a system that simplifies music distribution to exclusively support artists that are not part of any major record label.

Similar to the previous company is PeerTracks,[48] a start-up worth mentioning due to the fact that it is the first streaming application that offers artists the possibility of entering into contact directly with their listeners and obtaining simultaneous payment of royalties. In fact, by utilising the SOUNDAC blockchain platform, royalties are paid immediately at the moment the work is streamed by users.

Lastly, another positive input comes from the aforementioned open access projects of the Institute for Creative Entrepreneurship at Berklee School of Music,[49] which has managed to gather almost every major party under the music industry to explain why blockchain is at least worth exploring and engaging with.

In conclusion, these ideals are pure, but only time will tell if blockchain will become popular enough between users to establish a change. The ideal of upsetting the entire status quo of the value chain system and reach complete disintermediation without 'middle-men' takes time, especially since it mainly needs acceptance by the general public to become a valid substitutive technological method and new legal paradigm, which will still need to be tried out and perfected over time.

4.2 The impact of blockchain over the roles of CMOs

CMOs face the same type of challenges that record labels and producers face due to disintermediation via blockchain. Artists and producers must go through hundreds of CMOs from all over the world to collect royalties for a work of music (assuming that the technology used by CMOs records all of the uses of the work, since most music consumption and distribution happens online). The administration of works requires extensive data processing capabilities and the ability to keep information up to date, thus uncertainty remains regarding the ability of CMOs to properly provide their services for online management of works.

Currently, there is a breakthrough under way in digital royalties tracking and collection and CMOs are being pressured to reduce overheads, become more competitive with each other, and more transparent toward artists.[50] Many CMOs around the world do not have the ability to quickly and accurately exchange electronic data with online service providers pertaining to online usage of works and verifying the existence of licenses. In the era of global digitalisation, right holders often have to rely on outdated collection methods and manual verification of the correctness of data that subsequently hinder the correct

39 M. O'DAIR, Music on the blockchain. Blockchain for creative industries, Cluster, Middlesex University, Report Nº 1, July 2016.

40 M. O'DAIR, The networked record industry – How blockchain technology could transform the consumption and monetization of recorded music, in Special Issue: The Future of Money and Further Applications of the Blockchain, Nemode, Volume 26, Issue 5, 2017.

41 For instance, Schwartz analysed a royalties' statement sheet. The statement shows a song streamed 162,525 times on Spotify had a total of royalties reported for US$11.46. Of those, the songwriter receives 50% of the royalties, which amount to US$5.73. The value per stream is US$0.000035. See: E. SCHWARTZ, Coda: fair trade music: letting the light shine, Cambridge Intellectual Property and Information Law, Cambridge University Press (Cambridge), 2014, p. 314.

42 The report tries to exemplify payments from streaming services and relationship between the parties. BERKLEE INSTITUTE OF CREATIVE ENTREPRENEURSHIP, op. cit.

43 Initiatives like Digital Data Exchange (DDEX) have attempted to establish some XML messaging standards for the communication among others, communications regarding electronic releases, digital sales, and music licensing in the digital supply-chain.

44 M. O'DAIR, Music on the blockchain. Blockchain for creative industries, op. cit.

45 A. WRIGHT, P. DE FILIPPI, Decentralized Blockchain Technology and the Rise of Lex Cryptographia (March 10, 2015). Available at SSRN: https://ssrn.com/abstract=2580664 or http://dx.doi.org/10.2139/ssrn.2580664, p. 6.

46 Indeed, as Nakamoto believed, the ingenuity of blockchain lies in 'allowing any two willing parties to transact directly with each other without the need for a trusted third party'. S. NAKAMOTO, Bitcoin: A Peer-to-Peer Electronic Cash System, op. cit., p. 1.

47 http://bittunes.co.uk/.

48 https://www.peertracks.com/.

49 BERKLEE INSTITUTE OF CREATIVE ENTREPRENEURSHIP, op. cit., p. 10.

50 Recital 3 and 46 and Arts. 16 – 18 – 20 of the Directive (EU) 2019/790 of the European Parliament and 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, May 2019 ('DSM Directive').

processing of users' reports and related invoicing as well as delaying the correct distribution of due amounts.[51]

Pushed by this wave of old challenges and new technological developments, some CMOs have recognised the need for them to step up with their role in the music industry by improving their functioning and accountability, embracing new technologies, and establishing new collaborations to fill the gaps caused by a non-transparent and unbalanced market. Guidance and directions also came from the CMO Directive, which aimed to provide a response to the extensive fragmentation of national rules on collective right management but also on fragmentation of remedies against the inefficiencies of CMOs in copyright exploitation.[52]

Remarkably, blockchain technology could assist CMOs in their daily activities, enabling advances in correct and automatic tracking of digital usage and generating fair compensation for artists in a cost-effective manner (through fingerprinting of works). Pre-agreed contractual rules put in place between CMOs and right holders, and imputed in the code, would facilitate fast and frictionless royalties collection.

For instance, Polaris Nordic[53] - a North European alliance of three collective societies - is driven by the idea of bettering its services towards artists. It seeks to develop a joint back-end system for music reporting and distribution of the revenues, in order to adapt collective rights management and licensing processes to the digital era. With the goal of reaching the European Commission's objectives stated in the DSM Directive,[54] in 2018, Polaris Nordic partnered with the blockchain-based company Revelator[55] which developed a first copyright application programming interface,[56] providing Polaris Nordic with a framework for upgrading its data management system. Only time will tell if this interface will really bring a change in these CMOs data management and royalties' collection, but the current preparatory work is already a good step towards a very plausible right solution for revamping the relationship between CMOs and artists.

Another example of CMOs willing to partner up to explore the advantages of blockchain is PRS for Music, ASCAP, and SACEM.[57] In April 2017, they initiated a joint project to model a new system for improving the data accuracy for right holders and the processing of royalty matching, which will in turn speed up licensing, reduce errors and costs.[58] They are working with IBM - leveraging the open source Hyperledger Fabric blockchain platform from the Linux Foundation - to match, aggregate, and qualify existing links between various recording standard codes, and to solve the problem of data scalability. The project is currently entering its second phase, which will test a real-life situation, extending the library to millions of works.[59]

In essence, these platforms show a new form of possible profit for intermediaries and demonstrate how blockchain could radically simplify the way music right holders are identified and compensated, resulting in sustainable business models for artists and intermediaries alike.

4.3 Complete disintermediation is unlikely at the moment

The main question is whether blockchain technology will be well received by record labels, producers, and CMOs. At present, the process of disintermediation that blockchain could generate is perceived by those same intermediaries as a threat.[60]

In the light of the recent discussions, while the innovators of the music industry point optimistically to blockchain to offer potential transformation, such as challenging the economic models and bringing about more equal and fair solutions for all parties involved, this reasoning is at the same time too simplistic and underestimates the work currently carried out by record labels, producers, and CMOs.

[51] This critical assessment is well described in EU Commission, Working Document, COM(2012) 372 final. p. 26.

[52] Recital 5 of the Directive 2014/26/EU of the European Parliament and of the Council of 26 February 2014 on collective management of copyright and related rights and multi-territorial licensing of rights in musical works for online use in the internal market ('CMO Directive').

[53] Koda (Denmark), TEOSTO (Finland) and Tono (Norway). https://www.polarisnordic.org/.

[54] Namely the modernisation of EU copyright framework to take account of technological developments and new channels of distribution of protected content in the internal market. See Recital 2, DSM Directive.

[55] Revelator is a cloud-based digital asset platform founded in 2012, now leading provider of data services such as aggregating, processing, reporting and analysing of large volumes of data and of solution for achieving transparency in royalties' distributions. https://revelator.com/.

[56] The goal of the Polaris Nordic case study is to provide for much called transparency and efficiency, by offering to developers and enterprises tools to access and manage digital assets, including copyrights. ←https://revelator.com/case/3159/polaris→.

[57] PRS for Music Limited, UK's leading CMO. ASCAP (American Society of Composers, Authors, and Publishers), American non-profit performance-rights organization. SACEM (Société des Auteurs, Compositeurs et Editeurs de Musique), French CMO.

[58] https://societe.sacem.fr/en/press-resources/per-publication/press-releases/ascap-sacem-and-prs-for-music-initiate-joint-blockchain-project-to-improve-data-accuracy-for-rightsholders.

[59] P.J. QUINTAIS, B. BODÒ, L. GROENEVELD, Blockchain Copyright Symposium: Summary Report', Kluwer Copyright Blog, August 4, 2017.

[60] C. SITONIO, A. NUCCIARELLI, The Impact of Blockchain on the Music Industry, Conference Paper: R&D Management Conference 2018, (Milan), July 2018.

[61] Respectively Art. 12, Art. 8 and Art. 16 DSM Directive.

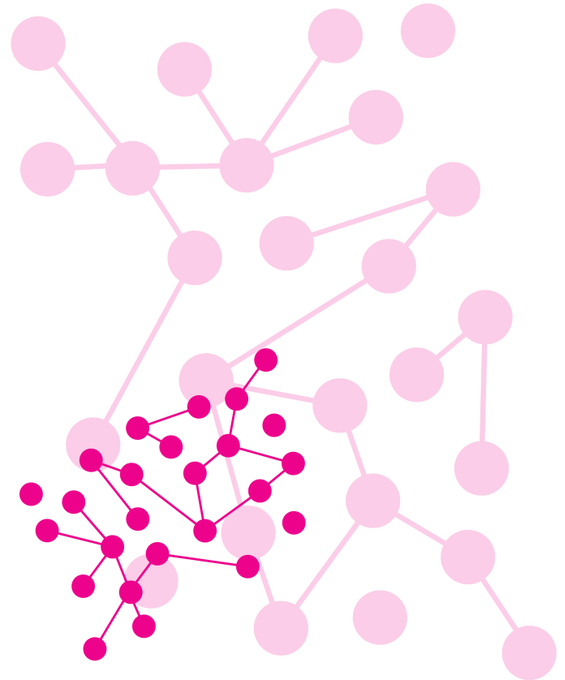
[62] J. SILVER, Blockchain or the Chaingang? Challenges, opportunities and hype: the music industry and blockchain technologies, op. cit., p. 55.

[63] The value gap is the misalignment between the volume of creative content accessed globally by users through online service providers, that obtain unreasonable value from just enabling sharing of content, and the revenue that these accesses generate for the right holders.

[64] Recital 73 DSM Directive.

[65] Recital 75 DSM Directive.

[66] Recital 78 DSM Directive.



First of all, they are uniquely responsible for identifying artists' details, eligibility, and status for collecting in a particular territory. Then, there is the question of tracking down previously unrecognised contributors when data is lacking. Only manual work could allow this type of checks. Of primary importance is their role in managing claims over contributions and the power to decide in dispute resolution. Moreover, given the role that the DSM Directive gives to CMOs, for instance in collective licensing, protecting cultural heritage or achieving appropriate compensations for artists,[61] it is clear that the legislator does not share this revolutionary idea of eliminating CMOs.

Nevertheless, there seem to be opportunities in blockchain technology that current CMOs, records labels, and producers indeed could and should explore. By implementing an efficient system via blockchain to create a system for royalties tracking, gathering and distribution, the benefits are likely to bring them more incremental return on investment. Even after the hypothetical adoption of blockchain, the complexity of the current system will take some time to unravel and rebuild. Provided that intermediaries are willing to step outside their roles and venture into a greater form of openness and transparency, they could achieve a higher level of trust between the parties in the value chain (nowadays lacking[62]).

5. HOW BLOCKCHAIN CAN HELP IMPLEMENT THE GOALS OF THE DSM DIRECTIVE

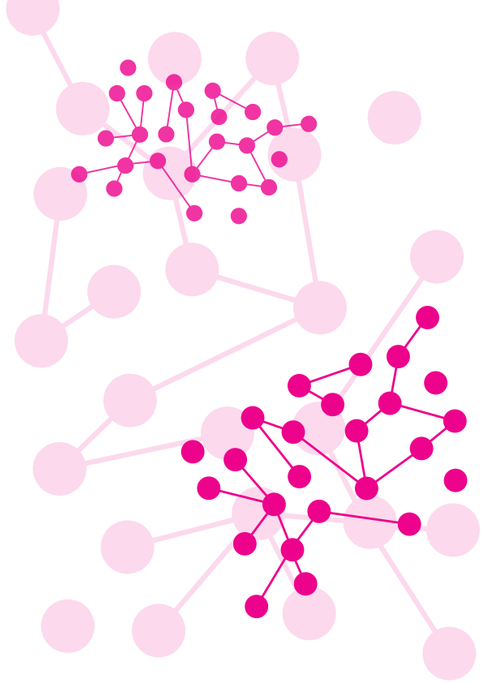
The EU institutions have recently addressed the need for a proper legal framework for the protection of artists and other copyright holders within the framework of the DSM Directive. In order to achieve a well-functioning, fair marketplace for copyright protected works, the EU legislator has introduced four innovative provisions that will improve protection on:

i) the use of protected works by online content-sharing service providers storing and giving access to user-uploaded content (Article 17). This provision is easily the most controversial as it addresses the perceived 'value gap'.[63] By allowing its users to upload copyright protected works, service providers perform an act of communication or an act of making available to the public for the purposes of the DSM Directive. Hence, they must obtain an authorisation from the right holders in order to avoid liability for copyright infringement. This is the key obligation enshrined in the new DSM Directive. Where no authorisation has been granted to the service providers, it shall be assessed whether the latter has made its best efforts to prevent the availability of unauthorised works online.

ii) artists' appropriate and proportionate remuneration (Article 18). This provision requires the implementation of different mechanisms that allow the supervision of the use of each work and easy determination of who uses the work and for what purpose. Appropriate and proportionate remuneration of artists is guaranteed in relation to the actual or potential economic value of the licensed or transferred rights, taking into account all circumstances.[64] It also requires the creation of a database containing the correct information of the right holders so that the remuneration can be allocated in time.

iii) transparency obligations for up-to-date, relevant and comprehensive information over the exploitation of the works (Article 19). As artists tend to be the weaker contractual party, it is important that they receive adequate and accurate information to assess the actual economic value of their rights. In order to achieve the requested level of transparency and balance in the remuneration of artists,[65] the latter shall receive on a regular basis comprehensive, up-to-date and comprehensible information on the exploitation of their works from third parties to whom they have licensed or transferred their rights. Thus, this provision requires to identify a technological instrument that would allow for easy, automated, immediate tracking of the use of works and automatic calculation of the amount of revenue originated for each right holder.

iv) use of mechanisms for contract adjustment of economical remuneration (Article 20). These mechanisms allow artists to renegotiate with their contractual counterparts in the event that the economic value of the rights turn out to be significantly higher than initially estimated and the remuneration is therefore disproportionately low compared to all relevant revenues derived from the subsequent exploitation.[66] The assessment of proportionality should take account of all relevant revenues and specific circumstances.



In light of the above, it cannot be denied that the attempt to revise copyright law is a commendable effort by the EU Parliament to prevent artistic theft and increase the protection of artists and their IP rights. In this perspective, blockchain technology may play an important role in ensuring the protection of copyright protected works of music, thanks to its intrinsic characteristics.

In conclusion, blockchain is shaping up to be transformational and developments are currently moving fast, with concrete applications being developed. Even the EU Commission has recognised blockchain-based technologies as having significant potential for the purposes of the DSM Directive.[67] At the same time, it will be another couple of years before the DSM Directive takes effect across the member states. Only time will tell what the real and effective advantages brought to artists by this new legislation will be.

6. SMART CONTRACTS FOR AUTOMATIC EXECUTION OF OBLIGATIONS, STANDARDISED LICENSING AND NEAR-INSTANT PAYMENTS OF ROYALTIES

One of the first to theorise the concept of a contract that was created, executed, and maintained online was Nick Szabo. He conceived the term 'smart contract' back in 1994, to denote *"a computerised transaction protocol that executes the terms of a contract"*.[68] In spite of their name, in the blockchain context[69] smart contracts are not legally binding contracts but are algorithms commonly referred to as 'executable software' that express the content of a contractual agreement. As better explained by Cuccuru, a smart contract is a computer program, running as second level application and implemented on top of the chain.[70] It contains a set of rules provided by the parties, in regard to a specific contractual agreement. Upon the satisfaction of these predetermined rules, the agreement contained in the smart contract automatically processes inputs and autonomously enforces the rules through the code of the blockchain. The main value of smart contracts is their automated execution of contractual obligations modelled after simple if-then rules,[71] making them a useful tool for on-chain relationships in order to introduce higher efficiency in terms of cost, speed, and security.

The above has led to expectations that smart contracts, embedded on blockchain, may be used in the music industry to reliably enable automatic execution of a large volume of agreement transactions within the copyright domain. Even more so, as second-layer applications embedded on blockchain, they benefit from the same tamperproof nature of the underlying blockchain infrastructure. At the same time, thanks to the blockchain's characteristic of time-stamping each transaction with the exact date and time, uncertainties about the temporal context and execution of the agreed obligations are prevented.

Moreover, as smart contracts leave no room for voluntary breaches of the agreement, they are a great tool to reduce the risk of non-compliance and interpretative uncertainty.[72] Consequently, blockchain has the potential of playing a role in standardising licensing terms and conditions for protection of copyright protected works across various uses and different jurisdictions through licensing standards embedded in the software.[73] Following the example of Creative Commons licenses,[74] blockchain-based smart contracts can be used to generate customised smart contracts containing the terms of the license agreement, the obligations of each party, the time and place of execution, the terms of payment – possibly even its split between various beneficiaries – further lowering the number of intermediaries between the rights holders and their audience.[75]

Finally, smart contracts allow the collection and distribution of rights in almost real time by introducing frictionless, near-instant micropayments that operate according to pre-agreed rules put in place by right holders to control who has access to their works and under which conditions. Thus, time for artists to get paid would likely decline drastically in comparison to the current timing within the value chain's framework, which has inordinate delays in payments to artists.

In summary, blockchain technology could allow the music industry to capture greater upsides. This is undoubtedly good news for aspiring artists who often agree to disadvantageous contractual terms in order to get higher exposure.

6.1 Unresolved technical and legal issues related to smart contracts, and transversely to blockchain in general

Despite the advantages mentioned above, smart contracts also have certain limits that already draw boundaries in their innovative character and which mainly stem from both the intrinsic rigidity of the digital environment and the decentralised architecture they are included in. There remain substantial unresolved issues limiting the applicability of smart contracts in the music industry – and transversely of blockchain in general. It is known that legal systems lack consensus on how code as contract fits into the traditional concepts of contract law. Furthermore, it is unclear how to resolve issues related to jurisdictional conflicts and determining applicable law, which are crucial questions for a markedly territorial right like copyright. As a consequence, at the moment the system lacks appropriate instruments to handle dispute resolution.

More broadly, it is necessary to univocally determine how to coordinate the provisions of a-territorial smart contracts, that restrict the use of the work in a way that conflicts with exceptions or limitations to the use established by the legislation of the country of each user.

Further, the rigidity of the code doesn't allow for easy adaption of the code to a peculiar situation when contractual parties are willing to provide a certain level of flexibility and vagueness in their contractual terms, for different reasons. Smart contracts structurally limit parties' discretion, as the code needs unequivocal and pre-defined propositions to follow instructions given and process them automatically.[76]

Moreover, using blockchain technology for copyright licensing requires a massive amount of coordination between on-chain and off-chain transactions. To prevent potential conflicts (i.e. de-synchronisation), the reality as represented on a blockchain and the reality as represented through non-blockchain contracts and traditional institutions must always remain synchronous.[77] So far, the system lacks remedial measures for upset coordination between on-chain smart contracts and off-chain traditional contracts.

Further, there are still other technical and legal questions that need to be resolved before blockchain could gain popularity. Blockchain can guarantee the existence of a work at a specific time (thanks to the time-stamp characteristic). Nevertheless, it cannot prevent the work from being copied off-chain. In order to do so, something akin to DRM would be required.

Of foremost importance, blockchain has two main points of tension with GDPR,[78] as identified by an EU Parliament study in 2019.[79] First, the GDPR requires that in relation to each personal data point, there is at least one natural or legal person (i.e. the data controller) that can be addressed by data subjects to enforce their rights. Blockchain, however, often seeks to achieve decentralisation and this makes the allocation of responsibility and accountability burdensome. Second, the GDPR guarantees that data can be modified or erased where necessary to comply with legal requirements (Articles 16 and 17 GDPR). Blockchain, however, renders such modifications of data purposefully onerous in order to ensure data integrity and increase trust in the chain. The study has concluded that it can be easier for private and permissioned blockchains to comply with these legal requirements as opposed to private and permission-less blockchains.

67 On April 3, 2019 the EU Commission launched the International Association of Trusted Blockchain -Applications ('INATBA') with the aim of promoting a global model of governance for blockchain. https://ec.europa.eu/digital-single-market/en/news/launch-international-association-trusted-blockchain-applications-inatba.Also see the EU Policy on Blockchain Technologies: https://ec.europa.eu/digital-single-market/en/blockchain-technologies.

68 N. SZABO, Smart contracts: building blocks for digital markets, King's College London, 1996.

69 The need to specify smart contracts 'on blockchain' from other smart contracts originates from the fact that there are many other types of smart contracts in our daily life, even if most are not aware of. One instance of a smart contract could be a simple vending machine. When the 'if-condition' is triggered, i.e. money is inserted into the machine, the machine operates the 'then-condition', therefore a sale contract is executed automatically and the machine provides the consumer with the chosen product. This is a smart contract.

70 P. CUCCURU, Beyond bitcoin: an early overview on smart contracts. An early overview on smart contracts, International Journal of Law and Information Technology, Volume 25, Issue 3, 2017.

71 Vitalik Buterin portrays smart contracts as "cryptographic 'boxes' that contain value and only unlock it if certain conditions are met". See: V. BUTERIN, Ethereum white paper. A next generation smart contract & decentralized application platform, Blockchain Research Network, 2013, p. 13.

72 The effectiveness of the relationships derives directly from formally embedding the instructions within the code. That is well exemplified by Lawrence Lessing's 'code-is-law' theory, which elevates technological architecture among the regulatory constraints that people's behaviours are influenced by (the others being law, market forces and social norms). See: L. LESSING, Code: and other laws of cyberspace, Basic Books (U.S.A.), 1999.

73 B. ROSENBLATT, Watermarking Technology and Blockchains in the Music Industry, Digimarc, 2017.

74 In 2001 a group of US Internet legal and IP experts, as well as other interested parties, established a non-profit corporation called 'Creative Commons' to draft a set of licences which could be used to modify the actual approach of 'All Rights Reserved' to a more flexible approach to copyright of 'Some Rights Reserved'. The central idea of Creative Commons is that copyright owners can, by attaching a CC licence to their works, explicitly and automatically give certain rights to licensees (i.e. anyone who accesses their work) while reserving certain other rights to themselves (hence 'Some Rights Reserved') https://creativecommons.org/.

75 A. I. SAVELYEV, Copyright in the Blockchain Era: promises and challenges, Higher School of Economics Research Paper No. WP BRP 77/LAW/2017, 2018, p. 4–12.

76 Code lines are not able to render 'grey areas'; everything is either 1 or 0. See P. CUCCURU, Beyond bitcoin: an early overview on smart contracts. An early overview on smart contracts, op. cit.

77 Where the on-chain token is simply the avatar of an off-chain work, the blockchain cannot prevent that copyright protected works, such as a song, is copied or sold without the update of the relevant information on the chain. See: A. I. SAVELYEV, Copyright in the Blockchain Era: promises and challenges, op. cit., p. 3 – 8.

78 Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC ('GDPR').

79 Study of the EU Parliament: Blockchain and the General Data Protection Regulation. Can distributed ledgers be squared with European data protection law?, Panel for the future of science and technology, European Parliamentary Research Service Scientific Foresight Unit (STOA), PE 634.445, July 2019.

Furthermore, there is the problem of cryptocurrency implementations and validation on the market that needs to be solved. Finally, one must consider the capacity of the system to support bigger and more numerous transactions if blockchain evolves in a popular method of music sharing and licensing.

Notwithstanding the serious legal and technical issues surrounding smart contracts and blockchain, this technology needs to reach mass use by a significant number of right holders and cover a significant amount of copyright protected works in order to unleash its full potential. Only then will it be possible to evaluate the consequences of its implementation and solve all relevant issues.

For the foreseeable future, this uncertainty surrounding the legal status of smart contracts is likely to limit the emergence of more complex and robust arrangements in the domain of music copyright protection on blockchain.[80] This cautious normative discussion leads us to embrace the description given by Quintais, Bodò and Groeneveld on the future of blockchain. They concluded that:

> *"at best, blockchain [was] is an opportunity for incremental improvement of efficiency and transparency of online music licensing and rights management, while offering artists an additional avenue for direct licensing. At worst, blockchain [was] is a seriously overhyped fad with none of the predicted revolutionary potential. A more measured, theoretical, normative analysis, [...] reveals both promises for improving copyright-based practices, and frictions between the design of the technology and the legal architecture".*[81]

In conclusion, only time and a higher number of applications of this technology will show if the promises are met for improving copyright-based practices, reducing frictions within the current framework of the value chain, and improving the legal architecture of copyright protection in the music industry.

7. CONCLUDING REMARKS

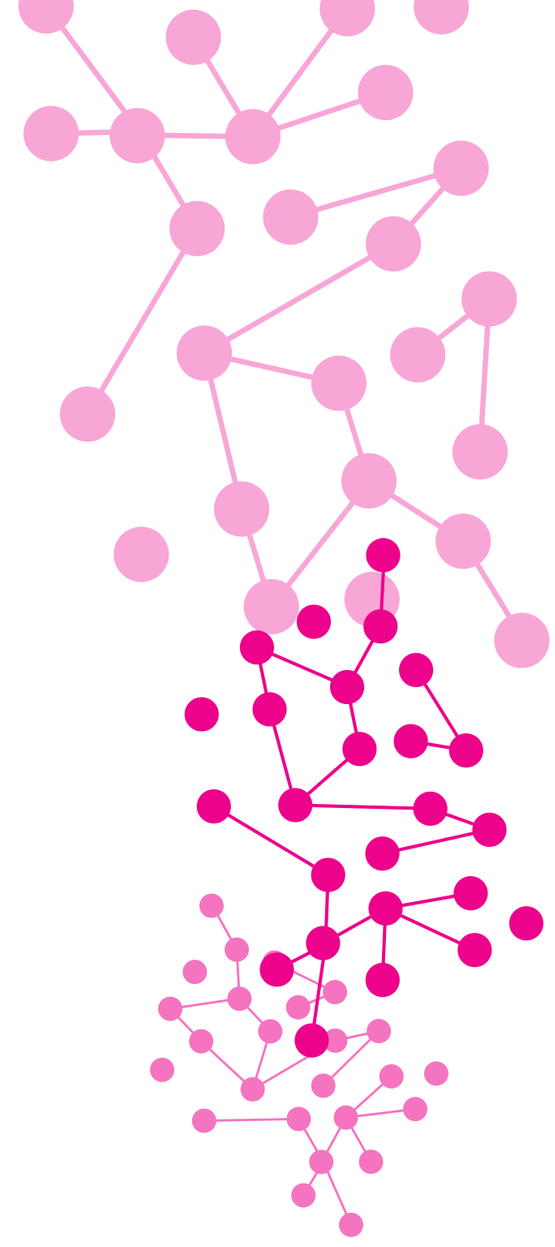
Blockchain technology, though in its infancy, seems to hold the potential to transform the entire music value chain drastically. By introducing a new legal paradigm for the protection of works of music, blockchain is likely to bring artists benefits, particularly in terms of better protection of authorship through the creation of a comprehensive database (with information about right holders, works, licensing terms, history of ownership, transferring of rights, and so on); implementation of an efficient blockchain system to create royalties tracking, gathering and distribution, radically simplifying the way right holders are identified and compensated, and resulting in fairer remuneration of artists through fast and frictionless payments of royalties. All this will have the consequence of enabling artists to make a living out of creating music and allowing the full development of the online music industry through the use of smart contracts, embedded on blockchain.

Albeit the advantages that blockchain technology could bring to the music industry, there are still some technical and legal questions to be resolved before this technology could be accepted by parties of the value chain and the general public as a valid substitutive technological method and new legal paradigm.

It takes time to adapt the legal paradigm to new social and technological situations and it takes even more time for the law to accept the technological changes, study them and their effects on real life, and find a way to legislate to accommodate them. In addition, one should take into consideration the fact that the public must support the change before it actualises. For instance, not all parties might welcome a shift toward a peer-to-peer digital networked music industry, as not all will benefit from it. Many key stakeholders are too hesitant to accept these new technological developments, afraid to see their *status quo* upset in the value chain. As discussed, the current framework of the music industry doesn't make it feasible to completely cut out these 'middle-men' in the near future, as many of their responsibilities cannot be easily replaced by the automatic computerised actions of blockchain technology and smart contracts.

The process of disintermediation that blockchain could enable will take time. Even after a hypothetical full adoption of blockchain, the complexity of the current system will take some time to unravel and be rebuilt, just as for a new legal paradigm to be instituted. The music framework first needs to achieve a high level of trust by the different parties involved in the value chain - nowadays lacking - in order for them to willingly cooperate and make the contribution of blockchain a really valuable instrument. Subsequently, blockchain applications need to be tried-out and perfected over time until they achieve a degree of development, scalability, reliability, and market adoption where all parties are equally represented, enabled, and protected in the music industry. In fact, aware of the impacts of the application of earlier technology novelties,[82] the music industry is still trying to find a balance in accepting the inevitable role of new technological solutions in this industry. There are grounds to fear the risk and negative impact that these new solutions could bring about in the music industry – if not well moderated, adapted, and controlled – disrupting once more the value chain and the industry's inner equilibrium.

It's still too early to say how blockchain-based music platforms will perform, since most are very new and have yet to be widely recognised and implemented. Blockchain is probably not a panacea to all the problems plaguing the music industry. However, it promises a way out of the current deadlock between artists and intermediaries and it offers a foundation that can bring together the entire value chain and revamp the music industry by getting rid of the outdated hierarchic framework. Should blockchain technology reach its full market potential in the forthcoming years and be followed by a shift to a blockchain networked application, this may have a significant, transformative impact on copyright in the digital music industry, as well as on other creative industries entirely.



[80] B. BODÒ, D. GERVAIS, P.J. QUINTAIS, Blockchain and smart contracts: the missing link in copyright licensing?, International Journal of Law and Informatics Technology, Volume 26, Issue 4, 2018, p. 13.

[81] P.J. QUINTAIS, B. BODÒ, L. GROENEVELD, Blockchain Copyright Symposium: Summary Report', op. cit.

[82] Exemplified by free streaming/download platforms that allowed users to access and download copyright protected works in violation of copyright legislations, such as Napster, Gnutella, Grokster, Limewire, as well as to the early 2000s types of BitTorrent networks i.e. Kick Ass Torrents or the infamous Pirate Bay platforms.

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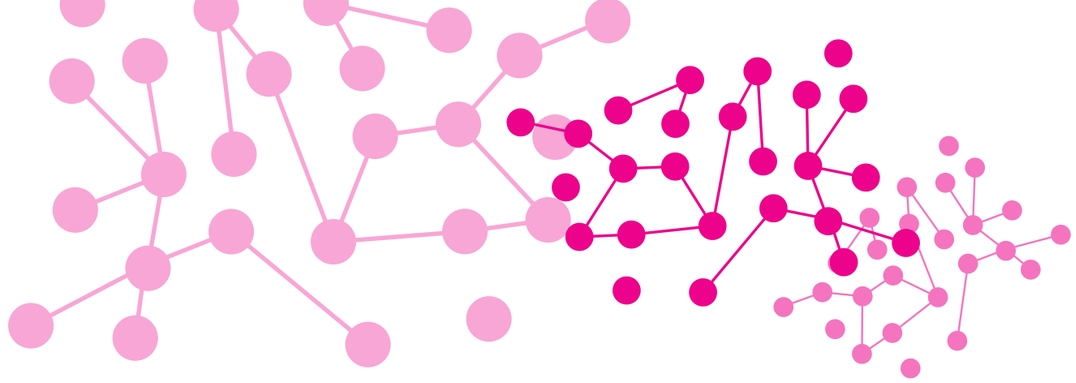
A note on artificial intelligence and intellectual property in Sweden and the EU

By Tobias Kempas



ABSTRACT

Artificial intelligence ("AI") is a key driver of the fourth industrial revolution. AI systems and machine learning technologies are already having a significant impact on the development, production and sales of a vast range of economic and cultural goods and services.

Inevitably, seeing that AI blurs the boundaries between the physical, digital, and biological worlds, AI intersects with the Swedish and European intellectual property ("IP") framework at several different points. In fact, the technological evolution brings into question a number of fundamental IP concepts relating to, e.g. IP protection of creative or innovative results generated by intelligent software. In addition, seeing that AI technologies are already affecting many business sectors and are likely to become even more essential to modern life in the future, the IP protection of AI technologies as such will be important to incentivize continued technological research and development.

Given how fast AI is evolving, more legal and economic research is needed to ensure that IP law will continue to encourage new technologies, artistic expressions and inventions. Policymakers should discuss and determine whether the current state of IP law, including the humanistic approach to IP protection, meets tomorrow's needs. Arguably, contemporary IP law may have to be changed or at least supplemented by new rules and principles, to ensure that the law will serve its purpose and remain relevant in the new AI era.

1. INTRODUCTION

Today most industrial countries, including Sweden, are investing heavily in the development of artificial intelligence ("AI") and machine learning software. According to a recent white paper from the Swedish Government *"Sweden aims to be the world leader in harnessing the opportunities offered by digital transformation."*[1] As far as AI is concerned *"the Government's goal is to make Sweden a leader in harnessing the opportunities that the use of AI can offer."*[2] The Swedish view is not unique. Many governments and international organizations have developed formal AI frameworks to help spur economic and technological growth.[3] Internationally, major investments are being made in AI research, especially in the United States and China. In Europe, the "European AI Alliance" has been formed to increase Europe's competitiveness in the research and deployment of AI. In a recent White Paper the European Commission (the "EC") has also unveiled an ambitious programme intended to strengthen and consolidate a European approach to AI.[4]

Much like the countries in which they operate, an increasing number of corporations are convinced that AI will be essential to maintaining a leading position in the future. In fact, a clear majority of the early adopters are convinced that AI technologies are very important to their business success today. According to a recent report, the number of enterprises implementing AI technologies has grown by 270 per cent over the past four years.[5] Hence, although strong and long-term research in AI will be essential to realize the technological opportunities, the current capabilities of AI technologies are already revolutionizing a very large spectrum of areas such as facial and voice recognition, autonomous vehicles, personalized medicine, legal discovery, investment fund management, military defense, energy production, individualized marketing, customer service, culture and entertainment. The rapid development is expected to continue. Analysts predict global spending on AI to USD 79.2 billion by 2022.[6]

Inevitably, seeing that AI is already becoming omnipresent in our everyday life, the development raises broad and multi-disciplinary policy questions, including several aspects of intellectual property ("IP"). Today, artificial narrow intelligence ("ANI") systems can perform specified tasks such as generating artworks and music, writing news and novels, driving innovation processes and executing product suggestion and purchasing services. In the long run, it is not unlikely that we will have systems that can learn from experience with humanlike breadth and even surpass human performance in many cognitive tasks. Assuming that further research into, and development of, deep learning technologies and artificial general intelligence ("AGI") will generate even more intelligent software, AI systems may not be dependent on any human intervention to achieve an almost unlimited range of outstanding results.

The technology transition brings into question several fundamental IP concepts. Seeing that the IP laws were written at a time when only natural intelligence and human cognitive processing were contemplated, AI challenges many traditional IP legal notions such as "originality", "copying", "author", "designer", "inventor", "inventive step", "a person skilled in the art" and the "average consumer". Arguably, when AI systems are engaged to perform creative or other cognitive tasks, the prevailing humanistic approach to IP is not well suited to protect the generated results. From the system developer's perspective, it is also important that the IP regulatory framework offers sufficient room for protection of AI technologies as such. In these regards, a closer look at the current legal requirements for IP protection reveals a number of questions that call for further discussion.

Set forth below is an introductory presentation of some IP questions raised by the technological advances in the AI field. The article discusses IP protection of AI technologies (Section 2), IP protection of AI generated works, inventions and designs (Section 3), protection of and access to data (Section 4) and the impact AI may have on trademark law (Section 5). The primary purpose is to provide an overview of some IP challenges in Sweden and the EU and, where possible, to offer some limited conclusions.

2. IP PROTECTION OF AI TECHNOLOGIES

2.1 Copyright law

An AI system is first developed as a computer program. Under EU and Swedish copyright law, copyright protection applies to the expression in any form of a computer program, provided that the program is original in the sense that it is the author's own intellectual creation. In respect of the criteria to be applied in determining whether a computer program meets the originality requirement, no tests as to the qualitative or aesthetic merits of the program should be applied. Originality manifests itself in the structure and architecture of the program. The originality threshold is quite low. Simply put, as long as the author of a computer program has been able to select which steps will be taken and the way in which those steps are expressed, the computer program will be deemed original and will therefore be subject to copyright protection.

However, ideas, methods and principles which underlie any element of a computer program, including those which underlie its interfaces, are not protected by copyright. Only expressions of intellectual efforts (e.g. source code) are protected. In addition, since no registration is necessary for copyright protection to arise (although different options for voluntary deposit or registration exist in some EU member states), collection of evidence may sometimes be difficult. Therefore, from an economic standpoint, the scope of copyright protection for an AI system may be perceived as insufficient. Seeing that copyright will not protect the creativity, skill and inventiveness devoted to the development of the functional concept behind an AI system, it may be recommended not to rely solely on copyright law. It may also be prudent to explore the option of obtaining patent and/or trade secret protection, as such protection may be invoked to prevent others from technically exploiting, e.g. a certain algorithm and/or from creating computer programs that perform certain functions.

2.2 Patent law

AI systems rely on performing mathematical methods or algorithms by way of computer implementation. Hence, although an increasing number of AI related patents are being granted, the current law on patentable subject matter poses certain challenges. According to Article 52(2) of the EPC and Article 1(2) of the Swedish Patents Act, mathematical methods and computer programs are expressly excluded from patentability when claimed as such. In

1 Ministry of Enterprise and Innovation, "National approach to artificial intelligence", Article no: N2018.36.

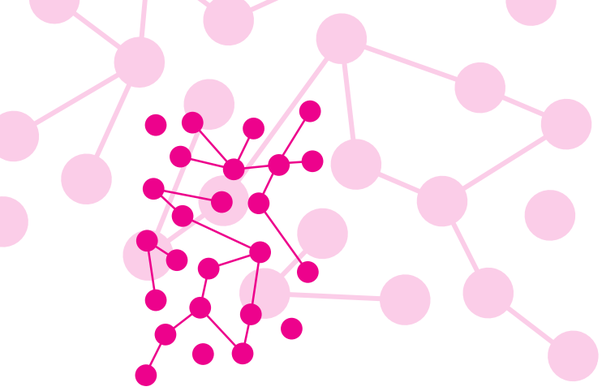
2 Ministry of Enterprise and Innovation, "National approach to artificial intelligence", Article no: N2018.36.

3 Cf. Future of Life Institute, "National and international AI strategies", 2019.

4 COM (2020) 65 final.

5 Cf. Pooja Singh, "Enterprise use of AI has grown 270 per cent globally over the past four years", Entrepreneur Asia Pacific, January 22, 2019.

6 Cf. International Data Corporation (IDC), "Worldwide spending on artificial intelligence systems will grow to nearly $35.8 billion in 2019, according to new IDC spending guide", March 11, 2019.



other words, pure mathematical methods and computer programs are not "inventions".

As explained by the November 2019 edition of the Guidelines for Examination in the European Patent Office (the "GL"), AI and machine learning are based on computational models and algorithms which are per se of an abstract mathematical nature, irrespective of whether they can be "trained" based on training data.[7] Hence, the GL also state that the patentability of AI computational models and algorithms ought to be assessed according to the general guidance provided in respect of mathematical methods.

It follows that the methods and algorithms employed by an AI system must contribute to producing a technical effect that serves a technical purpose, by their application to a technical field and/or by being adapted to a specific technical implementation (cf. the decision of the EPO's Board of Appeal (the "BoA") in case T 2330/13). The "normal" inherent technical interactions between an AI system's computer program and its hardware, such as the circulation of electrical currents in the computer, are not in themselves sufficient (cf. the BoA in case T 1173/97). As explained by the BoA *"it is not the case that the implementation of a non-technical method on a computer necessarily results in a process providing a technical contribution going beyond its computer implementation"*.[8] Hence, normally a further technical effect is required. According to the BoA's current jurisprudence *"a technical effect requires, at a minimum, a direct link with physical reality, such as a change in or a measurement of a physical entity."*.[9]

The distinction between mathematical methods and technical processes lies *"in the fact that a mathematical method or a mathematical algorithm is carried out on numbers (whatever these numbers may represent) and provides a result also in numerical form, the mathematical method or algorithm being only an abstract concept prescribing how to operate on the numbers. No direct technical result is produced by the method as such. In contrast thereto, if a mathematical method is used in a technical process, that process is carried out on a physical entity (which may be a material object but equally an image stored as an electric signal) by some technical means implementing the method and provides as its result a certain change in that entity. The technical means might include a computer comprising suitable hardware or an appropriately programmed general purpose computer"*.[10]

Accordingly, the mere use of a computer to perform calculations is not, as such, a patentable invention. Present case law requires a physical technical effect beyond the performance of a mathematical method or algorithm by way of computer implementation. For example, according to the GL, the use of a neural network in a heart monitoring apparatus for identifying irregular heartbeats makes a technical contribution.[11]

Arguably, the legal requirement of "a direct link with physical reality" may pose a threat to the patentability of certain AI technologies, seeing that the beauty of AI lies in its ability to mimic the human brain. An AI system is designed, e.g. to analyze and process data, and to decide what the best action is to achieve a specific goal. While these actions are essential, they do not, by themselves, indicate a technical use being made of the resulting decision. The prohibition on patents on "methods for performing mental acts" (Article 52(2) of the EPC) adds an extra layer of complexity in this regard. While the general purpose of an AI system is to assist (or replace) its user in the performance of a cognitive task, established case law prescribes that any method that could exclusively be carried out mentally will be deemed to lack technical character. Complexity of an activity is not normally considered to be sufficient to escape the mental act exclusion. This principle also applies to *"any algorithmically specified procedure that can be carried out mentally"*.[12]

It would thus seem that the very definition of AI may possibly disqualify certain AI technologies from patentability under Article 52(2) of the EPC. To mitigate this problem, special attention needs to be paid to the formulation of the patent claims. Preferably, the core AI technology should be described as an embedded component of a larger system, rather than applying for patent protection for a stand-alone AI technology having little or no connection to "physical reality". If possible, terms such as "support vector machine", "reasoning engine" or "neural network" should be avoided because, as explained in the GL, such terms may, depending on the context, be understood as references to abstract models or algorithms and do not necessarily imply the use of a technical means.[13] That said, given how fast AI is evolving, governments and other policy makers really ought to discuss whether the present subject-matter patentability standard sufficiently promotes the main objectives of patent law.

If an AI system meets the patent subject-matter eligibility standard, the invention will be examined under the same patentability requirements as any other invention. A patent will thus be granted only if the invention is new in relation to what was known before the filing date of the patent application (novelty) and differs essentially therefrom (inventive step). For the assessment of inventive step, all features which contribute to the inventions' technical character (as defined above) must be considered. Non-technical features are considered in the assessment of an inventive step only to the extent that they interact with the technical subject-matter of the claim to solve a technical problem or, equivalently, to bring about a technical effect. For instance, the GL recognize that *"where a classification method serves a technical purpose, the steps of generating the training set and training the classifier may ... contribute to the technical character of the invention if they support achieving that technical purpose"*.[14] Reversely, if the implementation on a computer would be the only technical aspect of a claimed method, the method would lack an inventive step over a known general-purpose computer. In summary, an AI system will be patentable only if it provides a new and non-obvious technical solution to a technical problem, but this does not mean that patent protection will never be afforded, e.g. to neural network training methodologies, processes or techniques used to build, test and validate the system. The decisive question is whether the claimed invention, as a whole, is new, non-obvious and serves a technical purpose.

The mandatory disclosure requirements pose an additional challenge for AI inventions. Article 83 of the EPC and Section 8 of the Swedish Patents Act require that a patent application shall disclose the invention in a manner sufficiently clear and complete for it to be carried out by "a person skilled in the art". In addition, Rule 42(1)(c) of the EPC requires that the description disclose the invention, as claimed, in such terms that the technical problem (even if not expressly stated as such) and its solution can be understood.

In the context of AI and machine learning algorithms, it may be difficult to determine how to satisfy these requirements. Sophisticated AI systems will sometimes produce results without explanation. This is commonly referred to as the "black box" dilemma. If an AI computer program is a black box, it will make predictions and decisions without being able to communicate its reasons for doing so. In essence, the black box predicament arises from the complexity of distributed elements, such as in deep neural networks, and from the inability of humans to visualize higher-dimensional patterns.[15] AI that relies on machine-learning algorithms can sometimes be as difficult to understand as the human brain. Hence, a black box can make it difficult or impossible to disclose the innovation in sufficient levels of detail to satisfy Article 83 of the EPC and Section 8 of the Swedish Patents Act.

The GL do not address the black box problem, but they emphasize that that the invention must be described not only in terms of its structure but also in terms of its function, unless the functions of the various parts are immediately apparent.[16] Consequently, if an AI invention is claimed without explaining in sufficient detail how the AI technology works, the application may be refused on the ground that it lacks a clear and complete disclosure of the invention. This happened, e.g. in case No. T 0521/95, in which the applicant asserted that the invention (a pattern recognition system) solved certain problems by simulating the operation of the human brain. According to the BoA, the invention was not simply a conventional associative memory, but rather a complex neural network that would be difficult to train successfully. Finding the correct training scheme was thus a critical part of the design of the system. The BoA noted that the description did not mention this matter, let alone provide any guidance on how the training should be done. Therefore, according to the BoA, the skilled person would not be able to train the whole system to solve the specific problems given in the application without undue burden. In conclusion, the BoA considered, e.g. that the lack of adequate instructions, the vague functional nature of the description and the lack of any concrete definition of the invention meant that the disclosure of the invention failed to fulfil the requirements set out in Article 83 EPC.

In summary, there are some hurdles to be overcome to satisfy patent examiners and courts that an AI system is eligible for patent protection. From the applicant's perspective, one important question is what parts of the technology that should be claimed. Should a possible patent focus on the processes by which the AI system is created, trained and validated, or should it rather focus on the final technical result achieved through these operations? In addition, although providing details in the claim can help avoid abstraction, doing so can limit the granted scope of protection. This raises several tactical questions, one of which is whether patent protection is desirable at all. Sometimes it may be more appropriate to rely on contractual arrangements, copyrights and/or trade secret protection.

From society's point of view, considering the important role that AI systems play in the development of new products and services, more political, academic and legal discussions are needed to ensure that patent law is predictable and that it provides for desired technological advances.

2.3 Law on trade secrets

Somewhat simplified, in Article 2 of the Trade Secrets Directive (EU) 2016/943 (the "TSD") and Article 2 of the Swedish Act on Trade Secrets (the "TSA"), a "trade secret" is defined as information which:

(i) is secret in the sense that it is not, as a body or in the precise configuration and assembly of its components, generally known among or readily accessible to persons within the circles that normally deal with the kind of information in question;

(ii) has commercial value because it is secret; and

(iii) has been subject to reasonable steps under the circumstances, by the person lawfully in control of the information, to keep it secret.

7 G-II, 3.3.1.
8 Case T 1173/97.
9 Case T 0489/14.
10 Case T 208/84.
11 G-II, 3.3.1.
12 The BoA in case T 0489/14, reasons 15.
13 G-II, 3.3.1.
14 G-II, 3.3.1.
15 Cf. Yavar Bathaee, The artificial intelligence black box and the failure of intent and causation, Harvard Journal of Law & Technology, Volume 31, Number 2, 2018.
16 F-III, 1(4).

Accordingly, even though practically any information can be kept and protected as a trade secret, such protection is particularly suited to technologies that are incapable of independent discovery or reverse engineering and/or that cannot be described in detail without substantial efforts. Modern AI technologies are thus well suited to trade secret protection. For example, AI applications and functions may be provided as cloud services under such circumstances that external users do not get access to underlying algorithms and program code.

Trade secret protection of AI technologies may be particularly important prior to patent application filings. The basic purpose of patent law is to reward inventors with a limited exclusive right on their invention and for providing technical information and progress to society. When patents and patent applications are published, they provide an insight into present technological developments and help avoiding parallel superfluous developments.

This, however, does not necessarily mean that patents and trade secrets are mutually exclusive. In practice, patent protection and trade secret protection are often complementary. For instance, while a patent may protect a core AI invention, trade secrets may protect valuable know-how associated with the invention. It is not unusual that a patented invention cannot be effectively and commercially exploited without access to such know-how.

Trade secret protection undoubtedly has some advantages over patent protection. For instance, patent protection may be deemed ineffective or unattainable due to the current law on patentable subject matter or because of the invention disclosure requirements (cf. Section 2.2 above). Moreover, trade secret protection is not dependent on novelty or inventive step requirements. Trade secrets are immediately protected and generally cover broader subject matter than patents. In addition, as some AI technologies are very complex, a patent holder may not be able to effectively discern whether a third party is using the patented technology. Furthermore, trade secret protection is not subject to statutory time limits, whereas patent protection (as well as copyright protection) will inevitably expire after a given period.

Unlike patents and copyrights, however, a trade secret does not give its controller an exclusive right to exploit the protected subject matter. The information is only protected against misappropriation, such as unauthorized acquisition or disclosure. If, for any reason, a trade secret becomes "generally known among or readily accessible to persons within the circles that normally deal with the kind of information", it will no longer be defined as a trade secret and, hence, the information will no longer be protected. In addition, as trade secret protection is not dependent on registration, it may sometimes be difficult to define and keep track of protected information and as a consequence it may be difficult to keep the information secret.

2.4 Concluding remarks

As with any technology, AI can be protected with a variety of IP assets. Patents, copyrights and trade secrets are all viable means. A combined-model approach, using the advantages of each type of IP protection, is probably the best option. The right IP strategy depends on a number of factors such as the type, expected lifespan, value and importance of the AI technology and the costs involved to obtain and enforce exclusive rights. An active management of the company's IP assets will also require due regard to changes in the law.

3. IP PROTECTION OF AI GENERATED WORKS, INVENTIONS AND DESIGNS

3.1 Works

AI systems are capable of analyzing and reproducing products, processes and available data in order to create new outcomes. Another characteristic of AI systems is the ability to choose between alternatives in order to achieve the best outcome. Hence, the creative abilities of AI, including the capacity to create, e.g. music or paintings, are not dependent on a human writing detailed code with a desired visual or aural outcome in mind. Instead, one or more humans may write algorithms to "teach" the AI system a specific aesthetic by analyzing thousands of data sets including, e.g. images or sound. In the current state of the art, the collection of data to feed the algorithm is chosen by one or more humans. The algorithm then tries to generate new works in adherence to the aesthetics it has learned. Alternatively, the AI system is not "taught" to mimic a certain aesthetic or style but is rather tasked with creating something new, based on more general input such as thousands of representative Western canon portraits from the past 500 years. One example of this is the AICAN (artificial intelligence creative adversarial network). AICAN is a program that can generate innovate images in a way that can be considered relatively autonomous and unpredictable.[17] Another example is the Swedish theater play "Nattygsbordet". According to the Gothenburg City Theatre, Nattygsbordet is written entirely by AI. The AI system has created the dialogue, situations, scenography, sound, lighting and costumes.[18]

Can there be any copyright to such results and, if so, where do the rights lie?

[17] Cf. Elgammal, "AI Is Blurring the Definition of Artist", American Scientist, Volume 107, Number 1, 2019.

[18] https://kulturpunkten.nu/evenemang/nattygsbordet-en-pjas-helt-skriven-av-en-al/?time=15908.

[19] Cf. the CJEU in Case C-310/17 (Levola Hengelo), paragraphs 35-41.

[20] Cf. the CJEU in Case C-5/08 (Infopaq), paragraph 37.

[21] Cf. the CJEU in Case C-145/10 (Painer), paragraphs 88-89.

[22] Cf. Murphy, paragraph 98, and Dataco, paragraph 39.

[23] Cf. EUIPO, "Intellectual property rights and firm performance in Europe: an economic analysis", Firm-Level Analysis Report, June 2015.

Under Swedish and EU copyright law, two cumulative conditions must be satisfied for any subject matter to be classified as a copyright protected work. Firstly, the subject matter must be expressed in a manner which makes it identifiable with sufficient precision and objectivity.[19] Copyright does not protect information but expressions. Mere ideas, methods, opinions and principles are excluded from copyright. Secondly, the subject matter must be original in the sense that it is the author's own intellectual creation.[20] The CJEU has also clarified that an intellectual creation is an author's own if the creation reflects the author's personality. That is the case if the author was able to express his creative abilities in the production of the work by making free and creative choices.[21] On the contrary, as emphasized by the CJEU in Cases C-403/08 (Murphy) and C-604/10 (Dataco), the originality criterion is not satisfied when the creation is dictated by technical considerations, rules or constraints which leave no room for creative freedom.[22]

The originality criterion, as developed by the CJEU with references to the author's "intellectual" creation, "personality" and "free and creative choices", strongly implies that originality requires a human creator. Arguably, when an AI system is tasked with generating a painting or any other work, based on its analysis and processing of data, the appearance and characteristics of the final, identifiable, expression (the work) is not a reflection of a human artist's personality. Hence, works that are created solely by AI systems are most likely not eligible for copyright protection under EU copyright law. This conclusion is also consistent with earlier Swedish case law establishing that works created by animals are not copyright protected. In fact, at the current time, most jurisdictions appear to consider human intellectual authorship a prerequisite for copyright protection.

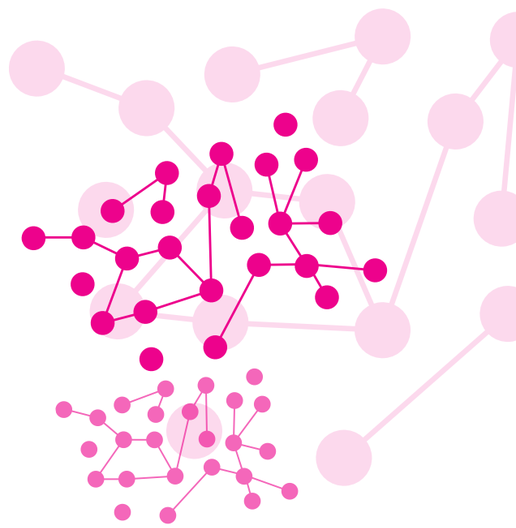
A human author requirement is also consistent with the statutory rules on the duration of copyright as expressed, e.g. in the Berne Convention. The Berne Convention stipulates that copyright protection lasts for the life of the author plus at least 50 years. The EU Directive 2006/116/EC states, with reference to the Bern Convention, that copyrights shall run for the life of the author and for 70 years after his death. According to the Swedish Copyright Act, copyright in a work subsists to the expiry of the seventieth year after the year in which the author deceased. The references to the "life of the author", "the year in which the author deceased" and the authors "death" strongly suggest that only natural persons can create copyright protected works. In addition, both the Software Directive 2009/24/EC and the Database Directive 96/9/EG expressly define authorship on the basis of the natural person(s) who created the work (although, according to both directives, the author may also be a legal person where national legislation so permits). Moreover, in Sweden and in many other countries around the world, copyright privileges include rights of attribution and association and rights of integrity (commonly referred to as "moral rights"). Moral rights are based on the notion that the work is an extension of the author's personality and, hence, the mere existence of these rights strongly imply that copyright protection requires human intellectual authorship.

In conclusion, as AI systems lack the human attributes required by Swedish and EU copyright law, AI-generated works are not eligible for copyright protection.

However, if a natural person is directly implicated in the creative process by giving instructions to the AI system to modify the generated result and/or by manually modifying the generated result, it should most likely be considered an expression of the natural person's creative abilities and, hence, the work should be eligible for copyright protection. Under such circumstances the AI system may be considered a tool in the hands of a human user. In addition, certain rights neighboring to copyright may possibly arise when an AI system autonomously generates a product. For instance, if an AI system is engaged to create a recording of sound and/or moving images, or to generate a catalogue, a database or similar compilation, such products may sometimes be protected regardless of human authorship or originality. That said, in the absence of explicit rules on the protection of AI generated results, it is likely that such results are often unprotected under the current IP laws of many countries.

Assuming that AI generated works are not eligible for copyright protection under current Swedish and EU copyright law, it should be assessed whether there actually is a need to protect such works and, if so, how such protection should be defined and constructed.

From an economic point of view, investments in AI are considerable. These investments include development of technologies for the creation of works. One of the purposes of copyright is to encourage the creation of works. Even though there seems to be a lack of empirical evidence supporting the need to create new property rights in the field of AI, recent and evidence-based data indicates the great importance of IP to creativity, innovation and economic growth.[23] Accordingly, if creations generated through AI are desirable, protecting such creations should be equally desirable.



In light of the above, considering that the vast majority of IP experts from most industrial countries are seemingly unwilling to afford (genuine) copyright protection to AI generated works[24], one may consider introducing new sui generis neighboring rights to encourage continued AI research and development. Such a model would respect the humanist approach to copyright law but would nevertheless incentivize future AI investments. The new rights could have the same scope as the rights of reproduction and making available to the public provided for in Swedish and EU copyright law. The new rules could also be subject to the already existing provisions on exceptions and limitations. That said, the author of this article contends that any new sui generis neighboring rights to AI generated works should only be given a limited term of protection and not be disproportionately prioritized at the expense of human authorship, competition and public access to information and culture. Hence, in a world where millions of works can be created at the push of a button, the well-known risks of excessive monopolies should be taken into account.

A related question concerns ownership. Who should be the first owner of the IP rights in AI generated works (assuming that such rights are introduced)? Should the rights reside with the AI system developer(s), with the owner of the AI machine or with the end user of the AI system? Some authors (including the author of this article) would prefer a solution inspired by the US "work made for hire" doctrine, according to which the person or entity that orders or initiates the work is entitled to the copyright in the work.[25] Such a model would essentially view AI systems as creative employees or subcontractors working for their users. The model would offer an important exception to the general rule that copyright protection rests with the author, who, in the case of AI generated works, would be the AI machine. It would encourage further investments in AI technology, as the IP rights would normally vest in the commercial actor that takes the financial risk of buying or licensing the AI system to produce a specific result. Applying this model to AI generated works would also facilitate the imposition of accountability on the user to avoid damages and infringements of third party rights. Hence, preferably, the user would be entitled to IP rights as well as accountability regarding the works generated by the AI system.

3.2 Inventions

It goes without saying that actions and capabilities like learning, logic, reasoning, perception, communication and creativity are extremely useful in inventive processes. AI systems process such abilities. Even though today's ANI systems are not capable of replicating the full depth and breadth of human skills and cognition, AI's abilities are already being widely used to generate "inventive" ideas and solutions that would otherwise be impossible through human inventiveness alone. A few examples are Stephen Thaler's "Creativity Machine", which can generate new ideas through artificial neural networks, John Koza's "Invention Machine", which is based on genetic programming, i.e. modelled after the process of biological evolution, and IBM's supercomputer "Watson", which combines an architecture of logical deduction with access to massive databases containing knowledge and expertise to generate "novel, non-obvious and useful ideas".[26] Many experts accept that some results generated by these AI systems, including several technical solutions achieved with practically no human guidance, meet the traditional criteria for patentability, i.e. that they are new and non-obvious to a "person skilled in the art". Additional AI research and development, particularly in algorithm design, increase the probability that AI systems will invent autonomously within the foreseeable future.

From a contemporary patent law perspective there is a clear difference between AI-assisted invention, on the one hand, and autonomous AI invention, on the other. Under Swedish and EU patent law, invention is considered a human activity. For instance, hitherto it is not permitted to designate AI systems as inventors in patent applications. This principle was recently confirmed by the EPO when it rejected an attempt to register an AI system, "DABUS", as an official inventor. According to the EPO, the

> *"EPC does not provide for non-persons, i.e. neither natural nor legal persons, as applicant, inventor or in any other role in the patent grant proceedings". As explained by the EPO, "AI systems or machines have at present no rights because they have no legal personality comparable to natural or legal persons. Legal personality is assigned to a natural person as a consequence of their being human, and to a legal person based on legal fiction. Where non-natural persons are concerned, legal personality is only given on the basis of legal fictions. These legal fictions are either directly created by legislation, or developed through consistent jurisprudence establishing such a legal fiction. It follows that AI systems or machines cannot have rights that come from being an inventor, such as the right to be mentioned as the inventor or to be designated as an inventor in the patent application". As a consequence, as "AI systems or machines cannot have any legal title over their output which could be transferred by operation of law and agreement ... the owner of an AI system or machine cannot be considered to be a successor in title within the meaning of Article 60(1) EPC". Moreover, according to the EPO, "[t]he legislative history shows that the legislators of the EPC were in agreement that the term "inventor" refers to a natural person only".*[27]

Accordingly, under current patent law, a patent registration applicant is tasked with identifying and disclosing one or more humans that are responsible, wholly or partially, for the intellectual and creative conception of the invention, i.e. natural persons that are inventors. According to established case law, to qualify as an inventor or at least a joint inventor, one must contribute independently and intellectually to the finalized invention. In general, such contribution must express innovative technical problem solving and constitute a part of the inventive step. The mere desire for a final solution to a problem, or a mere suggestion or instruction to solve a problem, will not in itself contribute to a new invention and will thus not constitute grounds for inventorship. As a consequence, if an invention would be an original creation of an AI system, with no or insignificant human involvement in the creative conception of the finalized invention, it would be ineligible for patent protection.

It is debatable whether current patent legislation should keep or abolish the requirement for a human inventor. Some authors believe that traditional patent law is irrelevant, inefficient and inapplicable to AI generated inventions and that such inventions should not be patentable at all, while recognizing other tools that can achieve the same ends.[28] Others argue that patent rights to AI-generated inventions would accelerate innovation and enable developments that would otherwise be unachievable.[29] Still others fear that granting patent rights to AI-generated inventions would stifle human invention, as human intelligence and creativity would be supplanted by superior AI systems. Evaluating and balancing these competing views is indeed a difficult task. While it may be impossible to find a "perfect" solution that satisfies all legitimate interests and objectives, the best alternative could perhaps be some moderate changes in the patent system, seeing that outdated patent law would most likely result in negative effects on technology. For instance, instead of maintaining the view that AI-generated inventions should never be eligible for patent protection, one could consider raising the patentability standard for AI-generated inventions and/or granting different terms of protection based on the level of human involvement in the inventive process.

As regards the patentability of AI-generated inventions, the "person skilled in the art" is another key issue. Under current Swedish and EU patent law, the central condition governing patentability is that the invention involves an inventive step. An invention shall be considered as involving an inventive step if, having regard to the state of the art, it is not obvious to a person skilled in the art. The GL states:

> *"Thus the question to consider, in relation to any claim defining the invention, is whether before the filing or priority date valid for that claim, having regard to the art known at the time, it would have been obvious to the person skilled in the art to arrive at something falling within the terms of the claim. If so, the claim is not allowable for lack of inventive step. The term "obvious" means that which does not go beyond the normal progress of technology but merely follows plainly or logically from the prior art, i.e. something which does not involve the exercise of any skill or ability beyond that to be expected of the person skilled in the art."* [30]

According to established case law and guidelines, the person skilled in the art is presumed to be a skilled practitioner in the relevant field of technology, who is possessed of average knowledge and ability and is aware of what was common general knowledge in the art at the relevant date. He is also presumed to have had access to everything in the "state of the art" and to have had at his disposal the means and capacity for routine work and experimentation which are normal for the field of technology in question. The "person" skilled in the art can in fact also be a team of people with different skills.

Hence, arguably, if the use of AI is common practice in the relevant field of technology, the person skilled in the art should mean a person equipped with AI resources. If the law were to be construed this way, it could significantly raise the bar for non-obviousness. That could become a big issue particularly in fields where innovation requires management of large data volumes and/or substantial investments in research and experimentation. When AGI (or even superintelligent AI) technologies become prevalent in various industries, perhaps only the most groundbreaking technologies will be patentable, as many inventions would be deemed obvious to a skilled person equipped with relevant AI technology. On the other hand, as AI technologies are already being used in innovative processes and will become even more employed in such processes in the future (cf. above), setting the patentability standard too low (i.e. without regard to available AI resources in the hands of the skilled person) could result in an overflow of scrap patents being granted and in more infringement litigation. Further discussions on these issues are clearly needed.

3.3 Designs

In the world of designs, thus far AI has perhaps been mostly about optimization and speed. AI systems can analyze vast amounts of data and suggest design adjustments. Once an AI system recognizes a pattern, it can apply the pattern to generate numerous variations in an instant. For instance, in a project called "Nutella Unica", an AI system was able to use a database of patterns and colors to create seven million different versions of Nutella's packaging.[31]

[24] Cf. the Resolution "Copyright in artificially generated works" adopted at the AIPPI World Congress London in September 2019.

[25] Cf. Shlomit Yanisky-Ravid, Generating Rembrandt: Artificial Intelligence, Copyright, and Accountability in the 3A Era—The Human-Like Authors are Already Here—A New Model, 2017 Mich. St. L. Rev. 659 (2017).

[26] Cf. Abbott, "I Think, Therefore I Invent: Creative Computers and the Future of Patent Law", B.C.L. Rev. 57(4), 1079, 28 September 2016.

[27] Cf. the EPO's decision of 27 January 2020 in the matter of application EP 18 275 163 (appealed).

[28] Cf. Yanisky-Ravid, Shlomit and Liu, Xiaoqiong (Jackie), When Artificial Intelligence Systems Produce Inventions: The 3A Era and an Alternative Model for Patent Law (March 1, 2017). 39 Cardozo Law Review, 2215-2263 (2018).

[29] Cf. Abbot, supra, and Fraser, Erica, Computers as Inventors – Legal and Policy Implications of Artificial Intelligence on Patent Law, (2016) 13:3 SCRIPTed 305.

[30] G-VII, 4.

[31] https://youtu.be/sHYakhyvJps.

As with works and inventions (cf. Sections 3.1 and 3.2 above), designs may be produced with the assistance of AI or may be autonomously generated by AI applications.

AI assisted designs may be regarded as a variant of computer-aided designs and, hence, they should not pose any specific problems from an IP perspective. However, under current Swedish and EU design law, designs that have been produced autonomously by AI applications are not eligible for design protection. Only natural persons can qualify as designers. This conclusion is supported, inter alia, by the statutory references to the designer and "his successor in title" (Article 1(a) of the Swedish Design Protection Act, Article 5 of the European Designs Directive 98/71/EC and Articles 7 and 14 of the Community Design Regulation (EC) No 6/2002). As emphasized by the EPO, AI systems cannot have successors in title (cf. Section 3.2 above, regarding patent application EP 18 275 163). In addition, Article 17 of the European Designs Directive states that a design protected by a design right registered in a Member State shall also be eligible for copyright protection in that Member State. Article 96 of the Community Design Regulation (EC) No 6/2002 contain similar rules. Seeing that copyright obviously requires a human author (cf. Section 3.1 above) the principle of cumulation of protection, as formulated in Article 17 of the Directive and Article 96 of the Regulation, respectively, would not be applicable or coherent if AI generated designs were eligible for design protection.

Hence, in the case of AI generated designs, issues and considerations arise that are similar to those that arise with respect to AI generated works (Section 3.1 above) and AI generated inventions (Section 3.2 above). For example, how should we distinguish between AI assisted designs that are eligible for protection and AI generated designs that are ineligible for protection? What level of human intervention is required, under contemporary law, for a design to be eligible for design protection? Is it desired to uphold the distinction between human and non-human creativity in the assessment of protectability? Should we afford design protection to autonomously AI generated designs and, if so, under which circumstances? These and other pertinent questions should be discussed and decided with a view to finding the right balance between the interests of rights holders and the public.

4. PROTECTION OF AND ACCESS TO DATA

Over the last few years, machine learning has emerged as a dominant branch of AI technology. Machine learning is very much dependent on access to big and varied datasets. As stressed by the EC, *"without data, there is no AI"*, because *"[t]he functioning of many AI systems, and the actions and decisions to which they may lead, very much depend on the data set on which the systems have been trained"*.[32]

The shift towards online activities, including the "Internet of Things", has created a huge bulk of easily accessible data that are cheap to collect and store. Valuable data sets can be obtained from many different sources, such as internet browsers, social media sites, smartphone apps, cameras, cars and other connected devices. In practice, information is often collected in connection with the use of products and services. For instance, it is no secret that Netflix has become very successful by collecting "big data" from their 151 million subscribers and implementing data analytics models to discover customer behaviour and buying patterns.

Seeing that data availability is a key driver of developments in AI, policymakers ought to ensure that the law allows a fair balance to be struck between data access rights, on the one hand, and data protection, on the other. Even though access to data matters greatly for the development of AI, protective rules will also be necessary to incentivize data production and to protect individuals and enterprises from illicit exploitation of sensitive information.

Exclusive or proprietary "rights" to information as such are not recognized under current Swedish or European IP law. Even so, the rules on copyright, sui generis database rights and trade secrets may prevent collection of and/or further exploitation of data.

4.1 Copyright protection

Copyright protection is actualized in relation to expressions (e.g. texts or pictures) that meet the originality requirement (cf. Section 3.1 above). Copyright protection cannot be granted to pure information, ideas, procedures, methods of operation or mathematical concepts as such. Conceivably, therefore, the big sets of data that are nowadays being collected and processed within the context of AI analysis will rarely be protected by copyright. Some authors draw a distinction between "data" and the "semantic content" being carried by the data, while arguing that only the semantic content (e.g. books, music, film and news articles), and not the data, may be granted copyright protection.[33] Similarly, to the extent protected works (e.g. drawings) are used to train an AI system, it is also important to distinguish between a work as such, on the one hand, and information about the work, on the other. Feeding an algorithm with data does not necessarily involve reproduction of the work. That said, in some situations it may of course be difficult to distinguish non-proprietary digital information about a work, on the one hand, from an altered or adapted digital version of that work, on the other. From a copyright enforcement perspective, an adequate and sufficient comparison between two clusters of digital data will only be possible on the semantic (human) level, as it will ultimately be up to one or more human judges (assisted by human technical experts, where necessary) to assess whether an infringement has occurred.

The data collection software being used in AI analysis contexts is unlikely to select or arrange the collected data in a way that would meet the originality criterion.[34] Hence, even though a compilation of data will be defined as a "database" under the Database Directive 96/9/EC, provided that the compilation is *"a collection of independent works, data or other materials arranged in a systematic or methodical way and individually accessible by electronic or other means"*, the databases created through data collection software will rarely be protected by copyright. Instead, the collector may have to rely on sui generis database rights (cf. Section 4.2 below) and/or trade secret protection (cf. Section 4.3 below) to prevent unauthorized access to and/or reuse of the information thus assembled.

4.2 Sui generis protection of databases

In Swedish and EU law, there is a sui generis right in databases. In essence, although data as such are not protected by proprietary rights, the maker of a protected database (or his successor in title) has a right to prevent extraction and/or re-utilization of the whole or of a substantial part of the contents of the database.

The sui generis right is not dependent on originality. According to the Database Directive, sui generis protection requires that the database is a result of a substantial investment in either the obtaining, verification or presentation of the contents of the database. In Sweden, the requirements are lower. Under the Swedish Copyright Act, a data compilation will be protected: (i) if it contains "a large number of information items"; or (ii) if the compilation is the result of a significant investment. While it is debatable whether Swedish law is compliant with the Database Directive in this regard, the Swedish courts have thus far applied the statutory law according to its wording. For instance, in Case T 15952-11, the Gothenburg District Court ruled that the scope of the contents of two databases was such that the databases were protected "already on this ground". The Court of Appeal for Western Sweden shared this principal view in Case T 3375-13. Hence, hitherto database makers have enjoyed a relatively strong degree of protection under Swedish law.

The term *"substantial investment"*, as used in the Database Directive, refers to the creation of the database as such. As emphasized by the CJEU, the purpose of the protection through the sui generis right *"is to promote the establishment of storage and processing systems for existing information and not the creation of materials capable of being collected subsequently in a database"*.[35] Thus, regarding collection of data, only the investments into obtaining the contents of a database will be relevant, whereas investments into the creation of materials are irrelevant. Consequently, the outputs generated through AI analysis of already collected data may not be protected by the sui generis right, as machine-generated data is arguably "created" and not resulting from substantial investments in the obtaining of the data. Nonetheless, *"many cases of sensor- or other machine generated data should be covered by the sui generis right on the condition that the investments into measuring or otherwise obtaining verifying and presenting the data were substantial"*.[36] Moreover, as mentioned above, current Swedish law seeks to protect any large compilation of data from unauthorized extraction and/or reuse, regardless of the investments made in the creation of the compilation.

In principle, when a database is protected by the sui generis right, any temporary or per-manent extraction and/or re-utilization of a substantial part of the data would need permission from the rightholder, unless an exception applies. Consequently, the collection of commercial and/or structured information from, e.g. publicly available websites or other databases may be prohibited in the absence of rightholder authorization.

To avoid this obstacle, data analysts may wish to explore the possibilities of using applications where the "code comes to the data", and not the classic model of the data having to find the code. This is because, arguably, "analyses whereby the 'code comes to the data' in order to generate new information will not lead to any 'extraction' since there will be no 'permanent or temporary transfer of all or a substantial part of the contents of a database to another medium'".[37] In addition, Articles 3 and 4 of the recently adopted Directive (EU) 2019/790 on Copyright in the Digital Single Market (the "DSM Directive") may bring some good news for analysts involved in text and data mining ("TDM"), defined in the DSM Directive as "any automated analytical technique aimed at analysing text and data in digital form in order to generate information which includes but is not limited to patterns, trends and correlations". Article 3 of the DSM Directive allows TDM by research organizations and cultural heritage institutions having legal access to works or databases, for scientific research. Other entities (e.g. private companies) may, according to Article 4, reproduce and extract lawfully accessible works and other materials for the purposes of TDM, provided that such use has not been expressly reserved by the rightholders in an appropriate manner. The exceptions under Articles 3 and 4 relate to both copyright and database sui generis rights. As just mentioned, however, a rightholder may "in an appropriate manner" oppose TDM conducted by commercial entities under Article 4. Hence, it remains to be seen whether Article 4 will have any significant positive effects on private companies that depend on TDM in AI related contexts.

4.3 Trade secret protection and de facto control

In comparison to copyrights and sui generis database rights, trade secrets protection has the advantage of protecting the specific data as such. The TSD and the TSA thus protect the data holder from unlawful acquisition, use or disclosure ("misappropriation") of any data that qualifies as a trade secret. Misappropriation of trade secrets is sanctioned by rules on, inter alia, injunctions and damages.

[32] White Paper On Artificial Intelligence - A European approach to excellence and trust (COM(2020) 65 final).

[33] Cf. Nestor Duch-Brown, Bertin Martens and Frank Mueller-Langer, The economics of ownership, access and trade in digital data; Digital Economy Working Paper 2017-01; JRC Technical Reports, p. 8.

[34] Cf. Gervais, Daniel, Exploring the Interfaces Between Big Data and Intellectual Property Law, 10 (2019) JIPITEC 22.

[35] The CJEU in Case C-338/02 (Fixtures Marketing), paragraph 24.

[36] Leistner, Matthias, Big Data and the EU Database Directive 96/9/EC: Current Law and Potential for Reform (September 7, 2018), p. 2.

[37] Drexl, Josef, Designing Competitive Markets for Industrial Data - Between Propertisation and Access (October 31, 2016). Max Planck Institute for Innovation & Competition Research Paper No. 16-13, p. 21-22.

However, as explained above (Section 2.3), a piece of information will qualify as a trade secret only if it satisfies three cumulative conditions. It is sometimes difficult to assess whether all requirements are met. For instance, trade secrets protection requires a causal link between the secrecy of the data and its commercial value. In the context of big data, an individual piece of information may be rather unimportant, but great value may arise from correlations with other data. In addition, it may sometimes be difficult to fulfil the requirements that the information ought to be kept secret by the holder and not be readily accessible to other persons. This may be particularly difficult in respect of data produced by connected devices, i.e. by sensors attached to smart products such as cars. For instance, when a car transmits information about, e.g. traffic conditions, the same information may be sent by other cars, to other receivers. Moreover, in the context of connected devices, information may be used by many actors in the dynamic value networks that characterize the data economy. When data is generated in a network of different entities connected through a value network, it may be very difficult to allocate protection to a single entity controlling the secret.[38]

These difficulties aside, the overall protection offered by a combination of copyrights, sui generis database rights and trade secrets protection may of course be sufficient to prevent unauthorized access and exploitation of data in many situations. In addition, and perhaps most importantly, contractual arrangements and technical access restrictions may be used to create de facto control over valuable information. The key policy question is to what extent such control is desirable from society's point of view.[39]

5. AI AND TRADEMARK LAW

The basic purpose of a trademark is to guarantee the identity of the origin of the trade-marked product or service to the consumer or ultimate user. This essential function is also a pre-requisite for trademark protection, as trademarks may only consist of signs that are capable of "distinguishing the goods or services of one undertaking from those of other under-takings" (Article 3(a) of the Trademark Directive (EU) 2015/2436, Article 4(a) of the Trademark Regulation (EU) 2017/1001 and Chapter 1, Articles 4 and 5, of the Swedish Trademarks Act).

Although the basic function of a trademark is to identify commercial origin, a trademark may also serve additional purposes, all of which are protected by EU and Swedish trademark law. A trademark owner may prevent use by a third party that affects or is liable to affect any of the functions of the trademark. According to the CJEU's jurisprudence

> *"[t]hese functions include not only the essential function of the trade mark, which is to guarantee to consumers the origin of the goods or services, but also its other functions, in particular that of guaranteeing the quality of the goods or services in question and those of communication, investment or advertising."*[40] *Hence, the owner "is entitled to prevent the use by a third party … even where such use is not capable of jeopardising the essential function of the mark, which is to indicate the origin of the goods or services, provided that such use affects or is liable to affect one of the other functions of the mark."*[41]

A negative impact on any of the functions described by the CJEU (trademark infringement) obviously requires interference with cognitive processing. A trademark would hardly serve any purpose without the deep-rooted tendency of the human mind to proceed by association. For instance, when the CJEU defines the "investment function" as the use of the mark by its proprietor *"to acquire or preserve a reputation capable of attracting consumers and retaining their loyalty"*[42], the CJEU apparently refers to the fact that a trademark activates associations in the consumer's mind. Similarly, when, e.g. the Trademark Directive protects a trademark from use that "takes unfair advantage of, or is detrimental to, the distinctive character or the repute of the trade mark" (Article 10.2(c)), the law assumes that the trademark triggers notions and emotions in the mind of the consumer. As explained by the CJEU,

> *"[t]he advantage arising from the use by a third party of a sign similar to a mark with a reputation is unfair "where that party seeks by that use to ride on the coat-tails of the mark with a reputation in order to benefit from the power of attraction, the reputation and the prestige of that mark and to exploit… the marketing effort expended by the proprietor of the mark in order to create and maintain the mark's image."*[43]

Positive associations with a trademark thus drive purchase behaviour and positively affect the user's experience of the trade-marked product. It does not matter whether the associations objectively correspond to the "truth". For example, several blind tests demonstrate that people like Pepsi better than Coke until they know what it is they are drinking, at which point preferences shift to Coke.

Hence, trademark protection is premised on a psychological assumption, namely that a trade-mark has an inherent and/or acquired ability to communicate and trigger mental associations. Trademarks affect thinking. Cognitive science supports this assumption. Consequently, when a court is tasked with an infringement assessment, the court must evaluate the overall perception of the compared marks "in the mind of the average consumer" of the goods or services in question.[44] Similarly, the main pieces of EU and Swedish trademark legislation explain that *"the likelihood of confusion includes the likelihood of association"* (see e.g. Article 9.2(b) of the Trademark Regulation). *In fact, "the perception of marks in the mind of the average consumer … plays a decisive role in the global appreciation of the likelihood of confusion."*[45]

Through a series of judgments, the CJEU has also established certain guidelines for assessing the average consumer's ability to mentally process the impressions and associations conveyed by the trademark(s) at issue. Hence, according to established case law, the average consumer is deemed to be reasonably well-informed and reasonably observant and circumspect.[46] Trademark law also assumes that the average consumer only rarely has the chance to make a direct comparison between the different marks but must place his trust in an imperfect recollection of them. Furthermore, the average consumer's level of attention is assumed to vary depending on the category of goods or services concerned.[47] In summary, according to EU and Swedish trademark law, the average consumer is (or is represented by) a natural person who, as a main rule, is moderately attentive, somewhat susceptible to manipulation and sometimes not even aware of the actual reasons for his or her decision making.

But what happens when the natural person is replaced by an AI system?

Today, AI systems are already being employed on a wide scale to reduce human involvement in product suggestion and product purchasing processes. For instance, Amazon's website (www.amazon.in) employs AI software to recommend products based on the user's browsing and purchase history. Sophisticated AI products, such as several Google home devices, are programmed to interact with humans. The systems get better and better at understanding human emotions, desires and cultural aspects. Some products, such as Amazon's "Echo", are run by voice recognition software and make product suggestions to consumers based on, e.g. past purchase behaviour. Various replenishing services, powered by AI, automatically re-order consumable items, e.g. ink cartridges and coffee pods, to ensure that the end user does not run out. Hence, AI systems are already assisting and sometimes substituting human purchasing decision-making. The trend is upward.

AI systems do not make purchasing decisions as a direct or immediate response to human associations, emotions and vague memories triggered by trademarks. AI systems have no emotions (arguably), but they have perfect memory. They do not get confused, at least not in the human sense contemplated in trademark law. AI systems objectively analyze vast amounts of data to optimize decision-making and to take adequate action. AI systems can perfectly recollect commercial origin and they are not impressed by fancy commercials. Compared to humans, AI systems are super-rational. Hence, to convince an AI system in the purchasing process, it will rarely be sufficient to use a certain trademark. Information about purchase history, price, quality, availability, delivery, consumer reviews, official recommendations and other data can be collected and analyzed by AI, in an instant, and objectively weighed together to make the most rational purchase decision, with little or no human involvement. Simply put, AI systems do not suffer from the human "deficiencies" that current trademark law take as a reference point. In summary, conceivably, it may take another AI system and not a trademark to influence an AI system to order or recommend a product or service.

Where does this leave trade mark law? The existing rules, including the doctrine of trademark functions, will serve their purpose as long as humans consider trademarks as important carriers of information, values and emotions. For a human, a trademark may serve different purposes before, during or after the purchase of a product or service. Humans consume for many reasons, and not only to satisfy physical and material needs. Humans attach substantial value to features that individualize them. Trademarks are used as a means of self-expression, self-realization or to satisfy other emotional desires. In parallel, most likely, courts and other policymakers will have to consider new rules, concepts and principles to ensure that trademark law does not become irrelevant in some situations, as the use of AI drastically changes the rules of the game for the interaction between businesses and consumers.

6. CONCLUDING REMARKS

Technological advance in the AI field raises many IP questions, some of which challenge the very essence of current IP law. Today, when Swedish and European courts and other authorities apply "intellectual" property law, they are typically protecting creations of the human intellect (such as works or inventions) or items that influence human cognition and behaviour (such as trademarks). When IP protection is sought, the traditional legal solution is to look for the human behind the artificial process, even when he or she does not exist. Arguably, this solution is untenable in the long run. Given how fast AI is evolving and seeing that the main purpose of IP law is to encourage the creation and distribution of a wide variety of goods to the benefit of consumers, more research is needed to ensure that the IP legal framework will serve its purpose in the new AI era.

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[38] Cf. Drexl, Josef, supra.
[39] For more on this issue, see Nestor Duch-Brown, Bertin Martens and Frank Mueller-Langer, The economics of ownership, access and trade in digital data; Digital Economy Working Paper 2017-01; JRC Technical Reports.
[40] Case C-487/07 (L'Oréal), paragraph 58.
[41] Case C-487/07 (L'Oréal), paragraph 65.
[42] Case C-323/09 (Interflora), paragraph 60.
[43] Case C-487/07 (L'Oréal), paragraph 50.
[44] CJEU in Case C-342/97 (Lloyd), paragraph 25.
[45] CJEU in Case C-251/95 (Sabel), paragraph 23.
[46] See e.g. the CJEU in Case 299/99 (Philips).
[47] See e.g. the CJEU in Case C-342/97 (Lloyd), paragraph 26.

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