Blockchains and smart contracts: A first round of feedback from experiments in the music industry

Christophe Waignier,
director of resources and strategy, Société des Auteurs, Compositeurs et Éditeurs de Musique (SACEM)

In J.P. Dardayrol, editor of the special issue *Blockchains and smart contracts: The technology of trust?* of *Réalités industrielles*, 2017

Abstract:
For fifteen years now, the music industry has been in the eye of the digital revolution. Blockchain technology has stirred up debate among recording artists and other stakeholders in this industry, in both the United States and Europe. Start-ups and, too, traditional actors, such as SACEM in France, are conducting experiments. The first results have attracted interest and opened new perspectives for collaboration among parties in the culture and entertainment industry. In the short run however, this emerging technology is still too frail to be used as a lever for accelerating the music industry's digital transformation.

For more than fifteen years now, the culture and entertainment industry has been in the eye of the revolution in information and communications technology (ICT).[1] The music industry, in the forefront, has paid its dues. Digital technology has introduced new uses and disseminated cultural products by expanding access to them, regardless of where consumers might be on the planet. To bring the technological issues into focus and sound the potential of blockchain technology, we must first recall a few points about this branch of the economy.

Behind works of music are the creators (songwriters and composers) and, too, music "publishers" (and eventual subpublishers) who develop the careers of the songwriters and musicians of whom they are in charge and who see to the sales of their works. A work of music is sung or performed either for recording (an activity financed by record producers) or during public performances (financed by promoters). Recordings made on various media (CDs, vinyl) are sold in stores, etc., or are played over radio or television; they might even be offered in a dematerialized format (such as MP3).

There are nearly twenty million works of music listed in SACEM's database, and nearly 200 million digital products of recorded music available to consumers worldwide via millions of distributors (radio and television stations, music halls, theaters, stores, Internet platforms, etc.). This system is, by nature, highly decentralized, a reflection of the diversity of cultures, genres and music consumption patterns. Technology must help conserve this diversity instead of being a tool that imposes standardization.

[1] This article has been translated from French by Noal Mellott (Omaha Beach, France).

Our objective at SACEM (Société des Auteurs, Compositeurs et Éditeurs de Musique) is to oversee the economic management of these activities in behalf of songwriters, composers and publishers. We make 700,000 contracts for the diffusion of music per year, for which we receive payments amounting to more than €900 million. SACEM processes six billion lines of information in order to ventilate these payments among two million works of music to the benefit of 300,000 songwriters, composers and publishers. This has been our purpose since SACEM was founded in 1851. Since then, the volume of information to process has, of course, increased considerably. Digitization has already changed our processes and organization, but we are still at the start of this big shift.

Why introduce blockchains in the music industry? And how?

The first discussion about using blockchains in the music industry took place across the Atlantic, at Berklee College of Music in Boston, where the greatest jazz musicians on the planet are trained. These young intellectuals specializing in music almost surely spent time at the same bars as students from the Massachusetts Institute of Technology (MIT). Out of these informal exchanges arose the initiative Rethink Music, organized by Berklee College students. SACEM took part in it, the aim being to propose "out of the box" thoughts about the music industry for the purpose of imagining a more satisfactory payment system for musicians. These discussions soon focused on blockchains. To try to imagine introducing such a revolutionary technology meant reconsidering the context at the start of the Internet in order to delimit the unlimited field of possibilities. Where to start? Who is to take the initiative? How to coordinate actions?

Although musicians are used to creative exercises, the music industry has a hard time moving beyond discussions and lectures on blockchains. Currently, the major forum on this topic is the Open Music Initiative, also steered (once again) by Berklee College. It brings together all stakeholders in this value chain in the United States: musicians and publishers along with some of the major organizations in the music industry, including SACEM and platforms such as Spotify or YouTube. For the time being, nothing very concrete has emerged from these discussions. They involve too many parties who have a hard time converging toward a common objective.

Beyond these forums, which try to make stakeholders in the music world aware of the issues, itself a useful activity, a few more concrete initiatives have been taken.

A first category of initiatives seeks to group parties who share the same objective. They offer to a limited number of recording artists a solution for the digital distribution of their music "direct to fans", without going through the existing service platforms (*e.g.*, Spotify or iTunes). Ujo Music, for instance, has developed an application for distributing Imogen Heap's most recent album to her fans, who may use bitcoins to pay. Behind Ujo Music is Consensys, a for-profit company that commercializes blockchain applications worldwide; it is affiliated with the consortium Ethereum. Also worth mentioning is the recent initiative by Benji Rodgers, who founded Pledge Music, an American digital label. He has set up Dot Blockchain Music Inc. with a fully "open" solution for digital distribution. I might also mention the projects Revelator, Blokur Internet Music and Stems.

In brief, these initiatives mainly propose replacing the current technology used for the digital distribution of music with blockchains — and thus becoming the only intermediary in the value chain. Far from keeping the promise of doing away with intermediaries however, these new players concentrate the middleman's role. They claim to be capable of replacing the highly specialized parties who are indispensable in an industry as mature as music. These initiatives are, in fact, often promoted by newcomers who want more to create a buzz about themselves than to offer durable improvements for the whole industry.

There is a second category of quite different initiatives. Instead of tackling the whole value chain with the goal of changing everything, these players are evaluating the capacity of blockchains for solving specific problems in the music industry. For instance, the Canadians behind SOCAN and the Finns behind Teosto are proposing platforms as intermediaries where artists make contracts with concert halls and declare the pieces of music to be played during live performances so that publishers, composers, songwriters and all other parties involved in the performances are paid (the idea probably being to sell tickets to viewers on the platform). There is also Allmade, a company for managing artists' royalties, that operates mostly in Africa. It proposes a "box" that, once installed in places equipped with sound systems, will identify the pieces of music played and report them to the organizations that collect royalties for the purpose of fairly distributing them. This system, fully managed through blockchains, allows for a traceability of works of music and for maximal accountability about their diffusion.

As for SACEM, it has pragmatically decided to develop a proof-of-concept tool, a realistic step-by-step approach that will quickly yield benefits. Unlike some blockchain initiatives that develop their products and services all alone, we have chosen to work with two of the biggest companies in the world. We hope to thus remain loyal to the blockchain mind-set (to enable sharing among several stakeholders) and to take account of the problem's international scope. Along with our British and American counterparts (PRS for Music Ltd. and ASCAP: American Society of Composers, Authors, and Publishers), we have decided to unite our forces to concentrate, initially, on one of the principal subjects under discussion in the music industry, namely: the lack of a shared repertory that links a work of music to all the various recordings made of it.

This work of documentation is a know-how specific to the organizations representing songwriters and composers. Despite the cooperation among these organizations, nothing has yet been done for sharing this information. Luckily, music works and recordings have been stamped with standardized, international codes (recognized by the International Organization of Standardization, ISO): ISWC (International Standard Musical Work Codes) and ISRC (International Standard Recording Codes). Linking a work of music and its recordings thus means examining the link between two codes, a much simpler task.

Our choice of technology is Hyperledger, an open-source platform that the Linux Foundation, which has chosen Go as programming language, launched in December 2015.[2] It allows for a shared register (ledger) with the possibility of smart contracts and the authentication of user identifications. It can move beyond some of the limitations of an open blockchain, in particular on computational time.

This project's first phase came to a close in mid-March 2017. SACEM thus became the first copyright collection organization to have actually coded an application based on blockchains. This phase clearly proved the operational worth of sharing information among collection organizations: nearly 80% of the singer-songwriter matches were held by one of the three organizations in our project. This experiment has also shed light on the difficulties with which each organization has to cope: 2% of the discrepancies were settled but, given the number of possibilities, at the cost of a tedious manual analysis.

A technical conclusion drawn from this project is that this technology's immaturity is definitely a brake on its rapid deployment. This caveat is usually made at the introduction of any new technology (as happened for Java, a programming language, and Apache Lucene, a free and open-source information retrieval software library). Nonetheless, blockchain technology has a great potential owing, in particular, to its capacity for making parties with diverse interests work together, since each benefits while making the whole system advance.

[2] https://en.wikipedia.org/wiki/Go_(programming_language) & https://en.wikipedia.org/wiki/Go_(programming_language)

To progress, we now need to start the second phase of experimentation by demonstrating that blockchains are capable of handling the volume of information processed by the music industry and, too, of better integrating (than current techniques) other parties who deal with similar problems. It would also be worthwhile to make sure that the system is flexible enough for procedures that automatically clear up discrepancies. In combination with artificial intelligence, blockchain technology could be developed with appropriate interfaces corresponding to the needs of music industry professionals.

These are the challenges to be taken up. There is no “intelligence” behind blockchain technology. The music industry ought to set the rules for securing the integrity of data and displaying them to users. It would thus avoid the “garbage-in/garbage-out” reflex, which would soon cause more problems than those settled. At this stage of experimentation, we do not think that blockchain technology alone can settle the music industry’s problems. A new form of governance for this sort of project must be set up, one involving a maximum of stakeholders while not falling into the trap of a centralized database. We are working on these issues in order to have a durable, economically viable system that is open and but also sufficiently organized.

In a world where data are, day after day, growing in value and where the first reflex is to ask “To whom do they belong?”, a blockchain solution must come up with the compromise that will convince companies to contribute so that the chain reaches the critical mass for it to become the authority of reference for participants and users.

Blockchains, still an emerging technology, are to be studied but without haste. The fantasies that present blockchain technology as THE answer to all problems of accountability and traceability have little to do with the reality in an industry that has made strides in becoming democratic but that is, above all, made up of extremely specialized professionals, whom a blockchain cannot replace.

In a hypothetical universe where everyone would be using a blockchain to manage works of music and establish contracts directly with distributors (on line, on air or on stage), we would bet that the “creators” would form a group for more effectively defending their rights in dealings with the big Internet firms. Were SACEM not to exist, it would have to be invented!