



Values of Composing Trades

How music industry reforms may be the blueprint for capital markets

a Whitepaper on

- ◆ Who owns the data
- ◆ Should market participants be compensated, and how, when aggregators sell market data
- ◆ What gets paid, who gets what, how rates will be set and administered, so every constituent benefits



DATA BOILER
TECHNOLOGIES, LLC

BIG DATA | BIG PICTURE | BIG OPPORTUNITIES

We see big to continuously boil down the essential improvements until you achieve sustainable growth!

Introduction

Who owns the data? Should market participants be compensated, and how, when aggregators sell market data? While every market participant **negotiates to be more equal** for lower fees, higher rebates, more incentives, and other privileges, who dictates the outcome, how conflicts will be addressed, and what constitutes as unreasonable, unfair and/or discriminatory? When accessing the **Values of Composing Trades** to determine who gets what, has anyone forgotten that the traders and algorithm developers are indeed the composers deserving the most credit?

We picture **traders** as performance artists, **algorithm developers** (including the **risk control professionals**) as musicians, composers, and sound engineers producing songs, and their respective **financial institutions** as record label companies. The music industry has gone through decades of reforms that helped them delineate **copyright and royalty payments** for **fair use** of musical works that benefits every constituent and grows the overall pie.

We invite you to join us in envisioning how the music industry's **copyright licensing system** may be able to address our industry's long-standing issue - who owns the data.



Table of Contents

Pg. 1) Introduction

Pg. 2) What Gets Paid

Types of rights and royalties

Pg. 3) Who Gets What

Who administers payments

Pg. 5) High Level Approach

Algo works and trade recording

Pg. 6) Licensing System

Conferring rights upon creators

- *Public non-display performance*
- *Sync and Master licenses*
- *Reproduction and distribution*
- *Rates setting*
- *Operating arrangements*
 - *Blanket license, market based standard, collective authorities*
 - *Prior Arts before effective date*
 - *Teaching exemptions*
- *Fair use consideration factors*

Pg. 10) Other Remarks

Additional research suggestions

What Gets Paid

Types of Rights and Royalties

Consider composing a trade strategy or developing a financial product being like making music. The difference in the end product (i.e. money or financial assets versus songs) should not preclude traders, algorithm developers, and their respective financial institutions from receiving copyright royalties for their composition and production works.

Trade strategy royalties are payments that go to algorithm developers and traders, financial institutions, trading venues, and other copyright holders for the right to use their intellectual property. The three main royalty types are mechanical, public performance, and synchronization.

Copyright owners are granted exclusive rights to control the use and distribution of copyrighted work:

- Reproduce and make copies of the original work (applicable to all



trade strategy formats that are handled through FIX or other APIs).

- Prepare derivative works based on the original work. (e.g. consists of a cover [outsourced] trade algorithm execution / algo-wheel / any altered version of an existing trade strategy).
- Distribute copyrighted work to the public (e.g. sales of algo solutions, internal liquidity and risk capital)
- Play copyrighted work publicly (e.g. wire or wireless connections, private or public cloud, interactive or non-interactive systems, or any order book replay mechanism, etc.)
- Perform copyrighted work publicly (e.g. Trade terminal display, advisory apps, OpenFin desktop, or other live stream on an audio visual media)
- Disclose the copyright work publicly (e.g. copy of source codes)

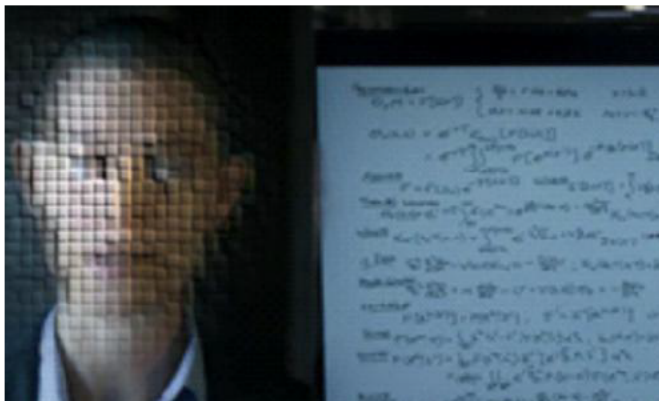
Who Gets What

Who administers payments

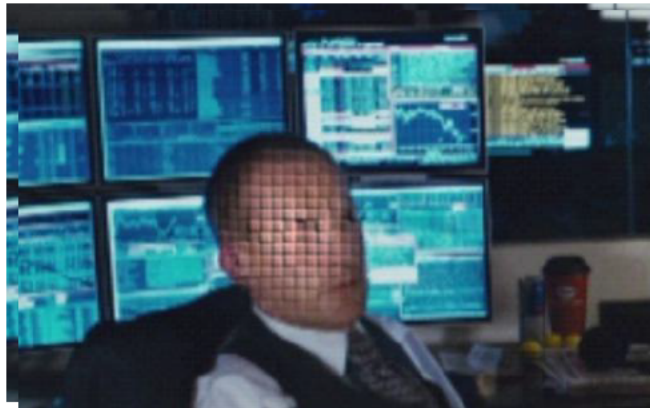
Under the post-1978 copyright laws, both published and unpublished works are protected. Technically, there are ways to keep a trade algorithm confidential and avoid others from using reverse engineering methods to plagiarize your trade moves.

We envisage the following roles to either receive or to distribute royalties for copyrighted works:

Algo developers - compose both the algo works and any other pieces of the original technique(s) for a trade strategy.



Traders - anyone who performs the algorithm developer's original work. Traders have no publishing rights unless they are also the algorithm developer.



Publishers - the financial products assembling companies (production house of pre-configured algorithm solutions) responsible for ensuring copyright holders receive payment for the use of their trade strategy. They also issue and monitor licenses for using trade strategies that they represent and collect licensing fees. Publishing royalties get split between the publisher and the algo developer.

Distributors - Broker-dealers (BDs) market and distribute an algorithm

developer and trader's original work. They often have the master rights to a recorded trade strategy but not the publishing rights. BDs generate income from mechanical and public performance royalties. They issue contracts that allow them to exploit the trade strategies in exchange for royalty payments over a set length of time. Algo developers and traders then receive agreed compensation of these royalties from BDs.



Aggregators/ market data vendors - distribute quotes and trade information on wire or wireless connections, private or public cloud, interactive or non-interactive systems, or any order book replay mechanism. They collect mechanical royalties for every algorithm purchase, download, or stream. They also collect public performance royalties generated from the public performance of the trade strategy.

Performance Rights Organizations (PROs) - collect public performance royalties and distribute them to the algorithm developers and traders and publishing financial institutions. PROs also monitor performances and broadcasting of registered trade strategy played in public.

NASD as an “Association” would have been ideal to take the PRO role, negotiating with the Exchanges (aggregators) and the traders and algorithm developers. However, as the NASD evolved to the “Regulatory Authority” structure that exists in FINRA, it may align closer to the other SROs rather than serving in the interest of market participants despite their collection of membership fees from BDs and administration of securities licenses for the professionals. Hence, STA and SIFMA may be alternate choices in this role.

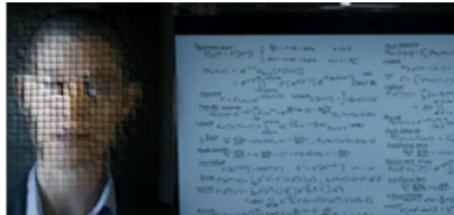
Mechanical Rights Agencies - manage mechanical licensing rights for the trade strategy publisher. They issue mechanical licenses for rights to anyone reproducing and distributing copyrighted algorithm compositions. They collect royalties on behalf of the rights holder and charge a set percentage for their service. A percentage of gross mechanical royalties collected are then paid to the publisher of the trade composition. MSCI, S&P, Rusell, and other indexing/rating companies or DTCC and other clearing firms may be a fit for this role.

Sync Licensing Agencies - acquire the rights from distributors and publishers to issue licenses for syncing trade strategy with trade terminal display, advisory apps, OpenFin desktop, or other live stream on an audio visual media. They also distribute royalties for sync licenses to whoever owns the master recording rights.

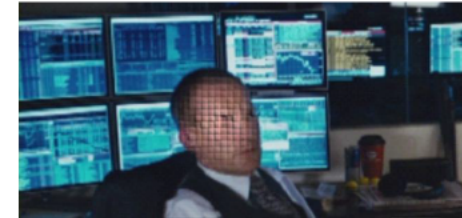
Liquidity sourcing, outsourced execution, smart order routers and vendors alike may fit this role to help their clients develop and promote their intellectual properties, create effective licensing programs, generate royalty revenue, and strengthen clients’ branded funds.

High Level Approach

Algorithm Publishing



Recorded Trade/ Order Sequence



	Algorithm Publishing				Recorded Trade/ Order Sequence					
Type of license	Synch rights	Mechanical rights (Replay)	Performance rights		Synch rights	Mechanical rights (Replay)	Performance rights (High Touch/ Electronic Trading)			
Entities seeking license	Visual Display	Reproduction & distribution	Non-interactive subscription	Interactive subscription	Visual Display	Reproduction & distribution	Interactive subscription (Dark Venues)	Non-interact subscription - Wireless	Non-interact subscription (Lit Venues)	Non-interact, non-subscr. (Public feed)
Consent decree	N/A	N/A	Yes	No	N/A	N/A	N/A	N/A	N/A	N/A
Rate set by	Free market	Copyright Royalty Board	Federal Rate Courts	Free market	Free market	Free market	Free market	Copyright Royalty Board	Copyright Royalty Board	N/A
Legal authority	N/A	801(b)(1) Factors	"Reasonable Rate", 50/50, featured 45%	N/A	N/A	N/A	N/A	801(b)(1) Factors	Willing buyer/seller std.	N/A
Collected by	Sync rights agencies (ODRL W3C)	Mechanical rights agencies (MSCI, S&P, Russell, DTCC)	Performance Rights Organizations (FINRA, STA, SIFMA)		Broker-Dealers directly	Broker-Dealers directly (except Internalizers/ ATs should pay Indie indirectly through a BD)		Stock Exchange	Stock Exchange	N/A



Licensing System

Conferring rights upon creators

Every trade strategy has two copyrights:

1. **Composition copyrights** include the underlying order fills, patterns, price levels, market timing, and any other piece of original trade strategy.
2. **Master copyrights** include the reproduction and distribution of the master recording.
 - A **master license** grants a trade strategy user **permission to use** intellectual property owned by someone else.
 - **Royalties** are the **payments generated from using** that intellectual property.

Public (Non-display) Performance

Public performance royalties generate income for copyrighted

works performed, recorded, played, or streamed in public. Generally, electronic market data transmissions will be classified according to whether they are:

- **Interactive services** - transmit digital trade strategy recordings at a user's request (dark pools, internalizers and other non-lit venues where members of such trading and investment communities may choose to interact with whose order flows through OMS, EMS, smart order router, and other order entry methods). These services are within the *voluntary* licensing tier; they do not qualify for the equivalent of §114 statutory license that applicable to the

capital markets.

- **Non-interactive subscription services** - transmit electronic market data or trade strategy recordings through streaming the market data, but for a fee (Exchanges, ECNs, other market data aggregators/ consolidated tape distributors indicating BBO and NBBO distribution). These non-interactive, subscription transmissions are subject to a *statutory (compulsory)* licensing fee.
- **Non-interactive, non-subscription services** - Market data transmissions often delivered via streaming that should be *free* to the consumer

Licensing System

Rate Setting

and the transmitting entity (e.g. traditional over-the-air radio and TV broadcasts and any bona fide news story; “on-hold” internal transmissions; and *statutorily exempt* performance).

NOTE: trader/ algorithm developer and financial institution of the work split public performance royalties 50/50. Therefore, one must register as the trader/ algorithm developer with PROs as well as the financial institution to receive 100% of the performance royalties. E.g. under Digital Performance Right in Sound Recordings Act (DPRA), featured performers would receive 45% of the performance royalties collected.

Sync and Master Licenses

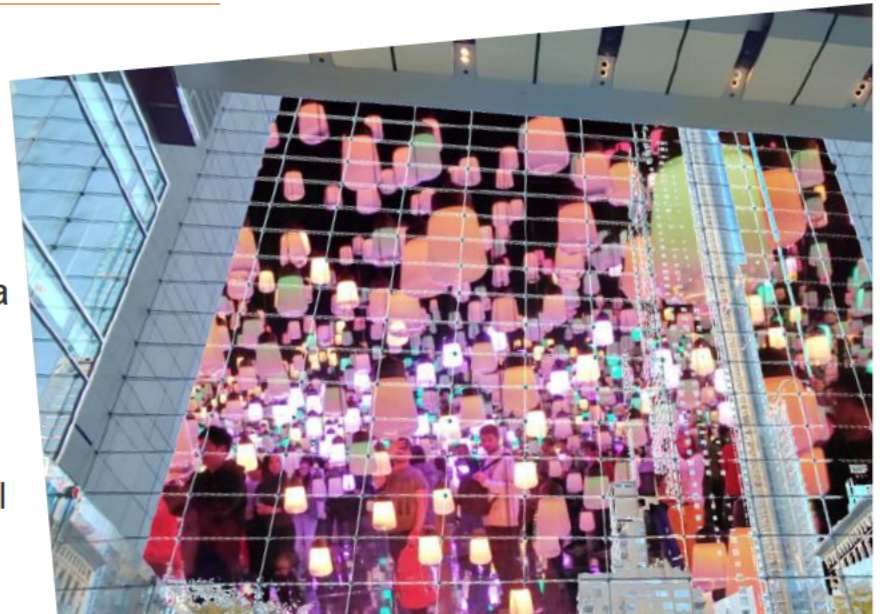
Synchronization royalties generate income for the copyrighted trade strategy **paired** or ‘**synced**’ with the visual media (e.g. trade terminal

display, advisory apps, OpenFin desktop, or other live stream on a visual media). A licensee will need a **master use license** in addition to sync license before **using** copyrighted trade strategy **with display function**. This is an agreement between the master recording owner (publisher) and the party seeking permission to use the recording.

Reproduction and Distribution

Each distributed “mechanical” copy of a trade strategy should entitle the trade strategy copyright holder to a royalty payment. The Copyright Act refers to digital downloads as digital phonorecord deliveries (DPDs)

(note: streamed transmission is not considered a DPD). **Mechanical licenses** are available for physical algo products (such as source codes), DPDs, and clipped partial trade signals/ triggers. Limited download and interactive streaming service providers would pay e.g. a mechanical royalty of 15.1% (by 2022 under Phonorecord III) of revenue, minus any amounts owed for performance royalties.



Licensing System

Operating Arrangements and Teaching Exemptions

Blanket License

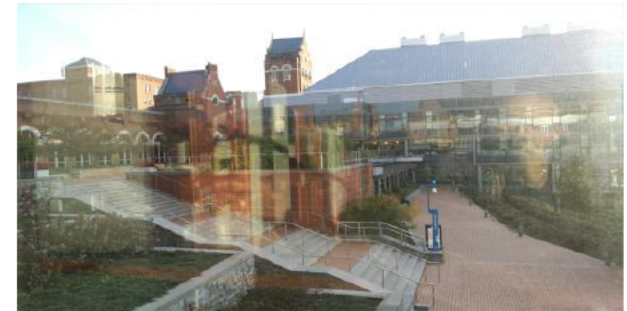
The compulsory blanket mechanical license (created by MMA Title I) covers activities related to the making of permanent downloads, limited downloads, and interactive streams of works embodied in trade strategy recordings (“covered activities”), rather than obtaining licenses on a trade pattern-by-pattern basis. The rates for this new blanket license will be determined through a **willing buyer/ willing seller standard** (a market based standard that requires the federal rate courts overseeing **consent decrees** that govern PROs to consider free-market conditions when determining rates).

Mechanical License Collective

is responsible for (i) collecting, distributing, and auditing the royalties generated from blanket and voluntary licenses for digital downloads and reproductions to and for the respective trade strategy work owners; (ii) creating and maintaining a database that identifies works with registered owners along with ownership share information [**entitlement of royalties must accompany with burden of potential liability if trade activity is market manipulation and/or trading violations**]; (iii) holding unclaimed royalties for at least 3 years before distributing them on a market-share basis to copyright owners as reflected by royalty payments made by trade strategy providers for the covered activities in question.

Prior Art before effective date

Trade strategy recordings will generally have a copyright term lasting 95 years from the date of publication or 120 years from the date of creation, whichever is sooner. Classics Act would treat “legacy traders” who recorded a trade strategy between 95 years ago and effective date/ year of licensing system more similarly to traders who made recordings after the effective date.



Teaching (Academic) Exemptions

Performance of a work done in the course of face-to-face instruction in a classroom (or a similar place – online learning site devoted to instruction), or performances done as part of instructional activities of a nonprofit institution, may not be an infringement of copyright.



Licensing System

Exceptions to Licensing Requirements - Fair Use

The statute recognizes fair use “for purposes such as criticism, comment, teaching, scholarship, or research.” A determination of fair use considers four factors:

- The purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes.
- Nature of the copyright work.
- Amount and substantiality of the portion used in relation to the work as a whole.
- Effect of the use upon the potential market for or value of the copyrighted work.

This four-factor test cannot be simplified by “bright-line rules,” but rather that the doctrine of fair use calls for “case-by-case” analysis per US Supreme Court. In the context of trade strategy

downloads and electronic market data transmissions, some alleged copyright infringers may attempt to use the doctrine of fair use to avoid liability for activities such as sampling, “space shifting” (techniques to allow media stored on one device to be accessed from another place through another device), and peer-to-peer file sharing. These attempts would not be successful because several federal appellate courts have ruled against the applicability of the fair use doctrine for these purposes.

Difficulty behind any fair use determination is the irresolute nature of the exception. Where there is doubt regarding the applicability of the exception, the most prudent choice is always the application of a license from the copyright holder.

Other Remarks

Additional Research Suggestions:

There is no need for our capital markets to go through what has taken the music sector several decades to figure out how to profit from MP3. The CT Plan if approved would merely give non-SRO representatives one-third voting right, rather than 50/50 equal footing in the Jukebox era. We learned after many hard lessons in the music sector, one undisputed truth is: record labels, music composers/producers, artists all become more prosperous with music reaching a wider audience via iTunes, Spotify, iHeartRadio, Pandora, Sirius, etc. Grow the pie and sharing bigger pieces should be the way forward.

See more music industry lessons at:
<https://crsreports.congress.gov/product/pdf/LSB/LSB10181>
<https://fordhamipinstitute.com/wp-content/uploads/2021-A-Songwriters-Odyssey-3.pdf>

About the Authors



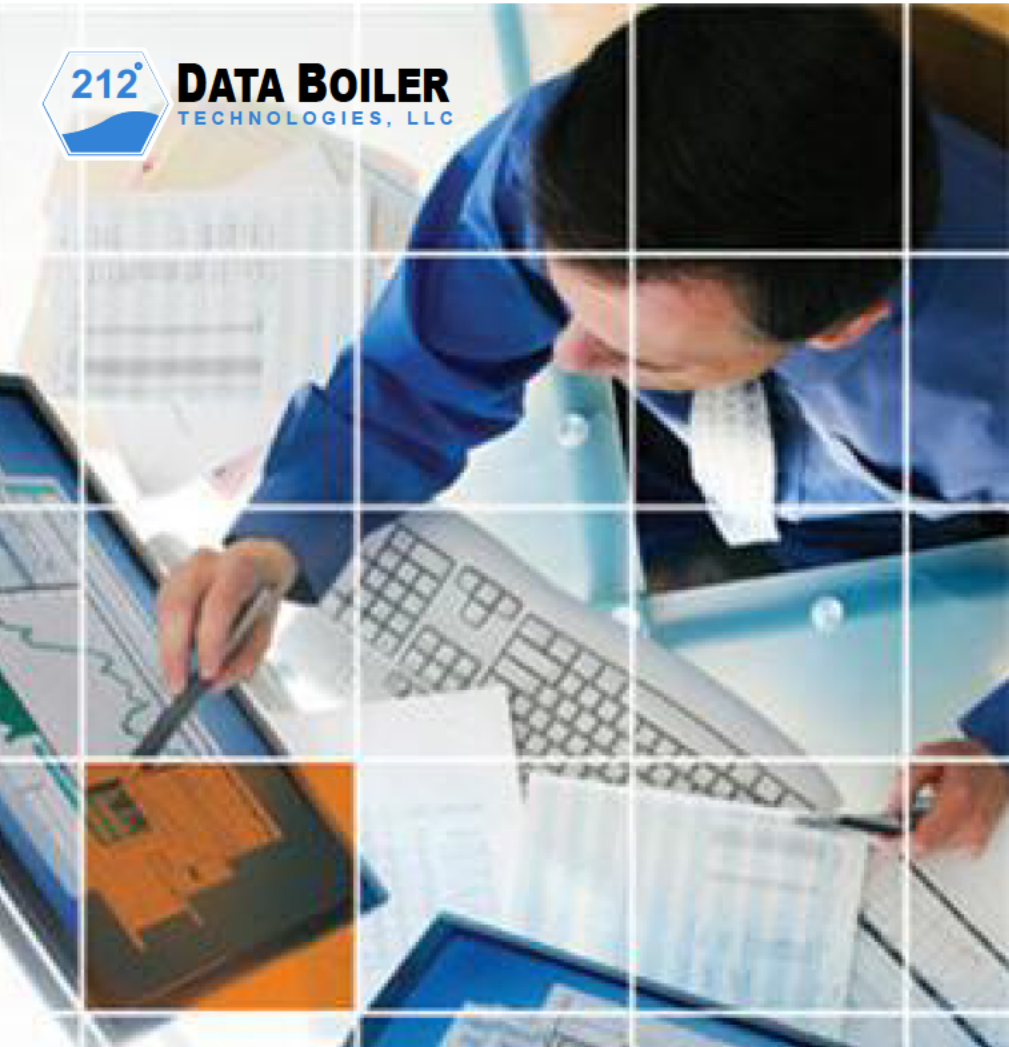
Kelvin To
Founder and President
Data Boiler
Technologies, LLC

Kelvin brings over 25 years of big data experience to FinTech innovations. His patented invention has earned him a nomination for the FinTech Person of the Year Award in 2015. In his prior career, he was VP at Broadridge, Functional Head at Citigroup, and Examiner at the Institute of Bankers. His proven successes include formulation of a 500+% growth model, products and e-banking platform development, and led M&A research. He has spoken at various professional organizations, and served as Tech Advisory Council committee for the Financial Services Roundtable/ BITS (Banking Policy Institute). He holds an MSc degree in Banking from City University, a Master of Management from Macquarie, and a BSc degree from Bentley University.



Peter Martyn
Managing Partner
Data Boiler
Technologies, LLC

Peter is known by the Stock Exchange and Trading space for his track record of success and deep industry knowledge. He was a Managing Director/VP at NASDAQ, VP at NSX, and Chief Technology Officer at Quadriserv (an equity finance solution provider). During his 18 years of service at NASDAQ, he was responsible for multiple exchange trading systems, access services and market data products. At NSX, he was responsible for Market Operations, FIX Support, product development and the FINRA/NSX Trade Reporting Facility. He has multiple patents, a Bachelor of Science Degree in Computer Information Systems from Manhattan College, as well as substantial consulting experience in recent years and prior.



www.DataBoiler.com

ContactUs

Phone:

Email:

Click here to follow us on [Linked in](#).

© 2021 All right reserved - Data Boiler Technologies, LLC

Data Boiler brings big data to solve big challenges in the financial industry. By seeing big and boiling all the puzzle pieces together, you will benefit from our FinTech innovations that turn problems into strategic opportunities. To realize big data ROI, it's not just the tools but our boiling hot ideas at 212° (the extra degree to make a positive difference).

Everybody talks about market problems or regulatory burden, but not just anyone can come up with a suite of patented solutions to make the best of every situation. We are about finding rare but high-impact values in controversial matters, straight talk of control flaws, leading innovation and change, creation of viable paths toward sustainable business development and economic growth.

Let's connect and discover how we will be able to support your navigating industry nuances, market design and economics, as well as applying or developing new technologies to make a positive difference. Together, we will foster a better state of financial stability.