



ML² yellowpaper
Technical document

January 2018
version 1.0 technical document + ICO

March 2018
version 2.0 technical document

A personal note on the ML² ICO and the ML² token

- if you are an active derivative trader

The ML² philosophy is to create an enclosed trading platform / ecosystem that delivers, through a number of tools, the required intelligence to enable active traders to create and meet their trading objectives => this is the ML² platform

ML² token will assign perpetual access rights to the ML² platform = the most advanced next generation+ predictive analytical derivative trading platform

- ML² is not just a platform, it is the active trading ecosystem

The predictive analytics algorithms [5 algorithms which cover different instrument profiles as well as market price structures = whether trending-momentum, mean reverting, random price structures] that create the most advanced trading program => the next generation+

- simply because **the predictive analytics can detect in advance the directional price movements for any instrument across selected time windows**, their current and forward market price structure, and when that price path will [is about to] change
- time windows range from 1 minute, 15min, 30min, 60min to 24 hours [EoD]

For this reason, the ML² token will have restrictive access rights

- access to the ML² platform requires the ownership of 1 Core token, but access rights are perpetual
- there is also a hard cap on the number of tokens released = no more will ever be created and none will be burnt [an enclosed ecosystem]

ML² platform is designed to offer the active derivative trader all the tools and intelligence necessary so they can determine - create and meet their trading objectives:

- 40+ current tools
- all the new tools in development, and enhancements to current tools
- access to third party tools and platforms
- automated, discretionary and hybrid trading programs
- execution of the trade from the ML² platform with your broker

The algorithms are advanced, sophisticated and cannot be replicated - such intelligence will not be made available to retail and institutional traders on an open platform other than ML²

- there is not much else the active trader needs to know other than the fear of missing out [participate in the ML token releases [pre ICO] and ICO auctions to guarantee access - or buy a token on the ML² DEX exchange after the ICO]

The 5 algorithms that have been developed are around 90% efficient. There is room for improvement within the optimization programs, more clarity around categorization of the core state, and selecting smaller price windows for price entry and exit. The recent development of the 4th and 5th algorithm improves the main Core algorithms and such is set as being the CSi raw, bringing a new pathway to understanding the forward price path

- so the process is for continuous development in what is already the most advanced predictive trading program

ManagedLeverage.com = at every time window, the active trader will always be ahead of the price curve



ML^2 ICO [Token Asset Sale]

Token name: ML^2

Website: ManagedLeverage.com
ManagedLeverage2ico.com

Type of Offer: Initial Coin Offering - [Token Asset Sale]

Total tokens: 100,000 ICO release and auctions
total 344,000 with bonus and ML inventory tokens

ERC20 token: Yes

Accepted currencies: ETH

Token release price: 0.125 ETH = 1 ML^2 token [first release]
0.300 ETH = 1 ML^2 token [second release]

Token auction price: set by the highest ETHUSD bid price

Offering structure: 344,000 ML^2 tokens

pre ICO

Release 1 2,000 tokens
8,000 bonus tokens assigned each 1 ML^2 token [free]

Release 2 8,000 tokens
16,000 bonus tokens assigned each 1 ML^2 token [free]

ICO

Auction 1 30,000 tokens
60,000 bonus tokens [free]

Auction 2 30,000 tokens
60,000 bonus tokens [free]

Auction 3 30,000 tokens
60,000 bonus tokens [free]

Auction 4 open auction on any unsold ML^2 tokens from previous
auctions: option to assign to ML inventory and sold
at a later date

maximum capped tokens 344,000
minimum capped tokens 344,000 - no tokens will be burnt, no new tokens



ML² derivative trading platform

Whitepaper

ICO program
version 1.400

ML² platform:

[next generation+ trading platform](#): the most advanced predictive analytical platform available to retail and institutional derivative traders

- offering a series of trading algorithms that detect price anomalies through and ahead in time [advanced warning of directional changes in the price of any financial instrument]
- that enable the active trader to map the forward price path of any financial instrument within a series of time windows [1 minute, 15 minutes, 30 minutes, 60 minutes to 24 hours]

These algorithms would normally not be available or accessed on an open platform to retail and institutional traders

- and therefore access to the ML² platform will be restricted to small minority through the purchase of ML² tokens
 - 6 advanced algorithms [each algorithm is suited to the profile of the instrument]: log return or volatility based CSI
 - [a] Single instrument [FX, commodities, stocks]
 - [b] Portfolio of instruments [stock index, ETFs, complex stocks]
 - [c] Instruments whose price moves in volatility clusters or spikes
 - [d] Volatility based CSI
 - access to the ML² platform is through a restricted number of ML² tokens - so there is a bounded universe of users within the ML ecosystem
 - ownership confers perpetual access rights to the ML² platform, its current and future trading tools and intelligence programs

ML² token will be available through an ICO-TAO release: which is outlined in this document

The ML² token is a 'membership' utility token, as it only creates access rights to the ML² platform for use by the active derivative trader - therefore the term 'membership' token [access will be restricted to a capped number of tokens that are sold in staged auction in specific time windows]

This white paper describes the ML² algorithms, the ML² platform and the ML² token release program

Disclaimer

This document is a technical whitepaper setting out the current and future developments of the ML² platform programs

This white paper is for informational purposes only

Unless otherwise expressed, at this point in time, the products and innovations set out in this White paper have been developed and in pre Beta commercialization

The ML² platform has been operational for 4 years, and is undergoing enhancements to both the current suite of tools to incorporate intraday price signals and the addition of several new tools [RADAR, automated platform, heatmap]

Beta release will be given to selected active traders within the partner brokers to test, as well as an open demonstration model for general review



Contents

| | |
|---|---------------|
| ▪ <u>ML^2 proprietary trading algorithms</u> | page7 |
| - <i>solution to traders pain points</i> | |
| - <i>outline ML trading platforms</i> | |
| - <i>ML business model</i> | |
| ▪ Platform product strategy | page9 |
| ▪ Summary ML^2 history | page11 |
| ▪ ML^2 intelligence risk engine / algorithms | page12 |
| - <i>the problem with trading programs</i> | |
| ▪ ML^2 partners | page13 |
| ▪ ML^2 web platform [current version] | page14 |
| ▪ strategic philosophy | page15 |
| ▪ competitors [predictive analytics] market space | page17 |
| ▪ ML^2 technical paper | page18 |
| - <i>detail on ML^2 intellectual property</i> | |
| ▪ listing of ML^2 platform trading tools | page22 |
| ▪ listing of ML^3 platform trading tools | page24 |
| - ML^2 DEX exchange | page27 |
| - ML platform development summary | page28 |
| ○ Risks | page29 |
| ▪ definitions | page31 |
| ▪ ML^2 Roadmap | page32 |

ML²

ML² proprietary trading algorithms

ML trading platforms - range of platforms and their targeted user base

ML² is designed as the next generation+ trading platform for derivative traders - offering all the tools necessary to / for active traders to achieve their trading objectives within an enclosed [ecosystem / platform]

=> ML series of tools includes:

5 unique algorithms that can detect price anomalies ahead in time [advanced warning on directional price changes in financial instruments] - that map the forward price and the price path through a series of time windows

- time windows [ranging from 1 minute => 15 minute, 30 minute, 60 minute through to the 24 hour] which present the forward price path and volatility states
- determines the current 'Core state' for each instrument :
{ 'Core states' = trending-momentum +/-, mean reverting +/-, random }
- ability to detect price anomalies [advanced warning on directional price changes] that lead to changes in the price path = ['phase transition'] ahead in time
the change in the current Core state, the new Core state and the duration period for the Core state
example: the current Core state may be 'persistent long trending' - when a phase transition occurs, this Core state will change to a new Core state, such as 'persistent short trending' or 'mean reverting long' - both these states are detected in advance
- determines the next 'Core state' in the current time window: 'phase transition'
- the time windows : 1 minute, 15 minutes, 30 minutes, 60 minutes, 24 hours out to 10 time blocks in the future [high, low, close, extreme prices and worst price]

Each financial instrument prices move in a 'wave' or sine-wave pattern through any time period.

The ML² algorithms can detect what the current directional price trend is [mean reverting, momentum, random Core state], the time left in that state [duration], project the forward price path of each state, and when that state is about to change [phase transition] the new Core state => ahead in time

ML² solution to trader's pain point:

"If the trader is to know where the forward price will be at any future point in time, what else do they need to know = they know all that there is, as is required in order to achieve their trading objectives"

ML trading platforms - range of platforms and their targeted user base

ML² platform has currently 40+ unique proprietary tools: all historical, current and future tools that are developed will be made available on the ML² platform - as well as selected tools to the ML³ and ML⁴ platforms

ML² platform

- trading platform for active derivative retail traders through ML² selected broker partners

ML³ platform

- automated trading platform for active institutional traders - broker agnostic [institutions can use their current broker]

ML⁴ platform

- trading platform for longer term active traders in financial instruments and digital assets: similar to a digital adviser platform

ML business model:

ML² platform: will be offered free to active traders [who need to own 1 ML² Core token, to gain access rights in perpetuity]

- ML will receive rebate dollars from the partner broker on the turnover of derivatives offered through their platform

ML³ platform: will be offered to selected institutional traders [1 ML³ token confers access to the CSI analysis on 1 instrument listed on the ML³ platform]

- ML will receive a pre-set percentage of the returns above an agreed benchmark with each institutional trader

ML⁴ platform: will be offered free to active longer term investors [1 Core ML⁴ token, to gain access rights in perpetuity]

ML² algorithms - restricted access

Given the nature of the algorithms and the CSI intelligence, access to the ML² platform will be restricted to a maximum number of global active traders - access will be through the ownership of an ML² Core token, that can either be purchased through the ML token releases / auctions or purchased on the ML² DEX exchange where the tokens are listed

ML² will run an extended auction program whereby buyers and sellers of the ML token can exchange ETHUSD for any number of ML tokens



Platform product strategy

What is the ML² platform to the users

ML² platform is designed to provide all the tools necessary for the active derivative trader through to long-term investor in financial instruments to:

- develop their trading and investment objectives [investment risk profile, portfolio and instrument returns, drawdown, leverage, portfolio weights, rebalancing, hedging => capital protection]
- create their own active trading programs [discretionary and automated]
- create and manage - monitor their trading / investment portfolio through time
- unique series of risk and price profiling algorithms that can detect price anomalies ahead in time [advanced warning on directional price movements]
- project the forward price path for each instrument and therefore the projected forward value of each instrument / portfolio [know when the portfolio's value will peak or trough]
 - Tools and programs designed for discretionary and automated traders
 - Tools designed for experienced traders through to the new to trading

Platform description summary

Next **generation+** platform that provides ML proprietary intelligence within a range of 45+ tools, and includes

- **unique algorithms that detect directional price movements ahead in time**
 - [standard] charting to support the predictive algorithms
 - standard technical analysis tools
 - ability to execute the trade
- => all within the ML² and ML³ platform

Next **generation+** suggests what the ML⁺ programs can achieve are currently theoretically impossible

- not only that price movements on financial instruments and their derivatives can be detected in advance, but the forward price path can be mapped with a high degree of accuracy [also that the price path will follow one of 3 Core states: momentum-trending state, mean reverting state or random state]

- and then have these algorithms available on a platform open to the active retail trader, when it would normally not be made available on a public platform => that's the next generation+

Current market pressures

FX-CFD margin brokers face regulatory winds impacting their business that limit client reach, as well in a very competitive environment, higher Client Acquisition Costs [client on-boarding and retention] and lower spreads reducing the MM books ability to create \$ per Lot traded

- now there is a new breed of brokerless margin brokers [Trade.io] funded by ICO and adopting the blockchain technologies to offer the same products and rewarding token holders by profit distributions

Asset managers face pressure to lower fees given poor performance v passive investment funds [ETFs]

Passive investment v {active investment => high costs with poor performance} debate in a historical period of low interest rates, high correlation between all asset classes, and low volatility: where passive is winning - active management cannot create enough alpha to beat the index, which can in part be attributed to active management being constrained by their mandated benchmarks

HFT trading firms annual profits have been declining for multiple years as the industry consolidates - their trading edge [which is dependent on both volume turnover and price volatility] has been dampened and firms are looking at either at cryptocurrency trading [follow the volatility] and trading outside the microsecond - seconds time windows to mid tiered time periods

Machine learning, and sentiment analysis [crowd forecasting] appear the next phase in trading analysis for generating alpha, but given the level and nature of interest in this field, early gains may eventually follow the HFT trend as more and more institutions use this machine learning to try and gain alpha and limit the return horizon

- Cindicator, Augur and Numer.ai are business models that incentivise the crowd to forecast accurately, are worth watching but target a different trader base than ML active individual trader/ investor
- Trade.io is the next generation derivative trading platform adopting the trading platform but using blockchain technologies as the edge and they reward token holders from the earnings from the trading pool
- Spectre.ai is another business model based around blockchain technology in the margin broker space

NOTE: both Trade.io and Spectre.ai adopt the natural hedge risk management program current CFD-FX margin brokers use to capture active trader losses - that 80%+ of their active trader base will lose their money in trading, and so not meet their trade objectives, and so this assumption forms the basis of their business model



Summary ML² history

- ML² risk engine algorithms developed in 2009 / 2010
- 7 years testing the algorithms over 1500+ financial instruments across 20 years of historical price data across all listed asset classes [OTC and Exchange Traded]
- initial ML² sequential calculator developed in 2011
- stage 1 platform development occurred mid 2013
- stage 2 => 6 software development from 2014 - 2017
- discussions and testing with preferred partners from 2015 - 2017
- current platform is in pre-Beta release to selected early adopters in Q1 2018

Platform product development

2013: there was a limited range of developed tools, focused more on the individual active derivative trader over a limited selection of financial instruments

- through time the range of tools increased to accommodate traders in CFD and physical stocks, automated trading programs, portfolio construction and monitoring [digital adviser platforms], statistical arbitrage [PAIRs] and intraday trading

- the time unit-window moved from predominately the 24 hour [EoD] analysis to 60, 30, 15, 1 minutes [over time the spreads offered by margin brokers decreased towards zero, allowing shorter time windows in the analysis and so afforded the development and migration from 24 hour EoD pricing to intraday trading tools]

ML² now has around 45 tools [none are based on technical analysis, machine learning or sentiment forecast] that allow the active trader to select their own tools to support their primary trade analysis [technical analysis] or a series of tools to create a primary trading rule based program [either discretionary, automated or hybrid combination]

- portfolio monitoring supports active mindset investors who have a longer term investment horizon with portfolio construction, downside risk protection, hedging strategies and rebalancing programs
- ML² program offers an alternative to digital advice platforms with its focus on concentrated active-dynamic trading, capital protection and risk management
- ML² will partner with ChartIQ.com to enable active traders to execute the trade with the partner broker on the ML² platform

ML²

ML² intelligence risk engine / algorithms

6 specific algorithms // risk engine that analyses the 'Core state' {price structure} of over 10,000 + financial instruments

Defines:

- financial instruments 5 'Core states':
(i) **persistent trending** + / - (ii) **mean reversion** + / - (iii) **random**
'Core states' duration is the [time left in the state-trend]
- 'phase transition': the point in time over which the current Core state is about to change into a new Core state = the Core state price path changes are detected ahead in time [usually 2 time units]
[ML² algorithms detect price anomalies ahead in time, which signals the change in the 'Core state' = change in the instruments price path]
- projected price path out to 10 time units [high, low, close, worst high - low, extreme] = so if analysing the 15 minute price path, the forward time windows are 15 x 10 = 150 minutes in 15 minute windows

Summary:

ML² algorithms detect the current 'Core state' of the financial instrument, the trend duration, the directional nature of the forward price [Core state] and 'phase transition' changes in the Core state down to minutes, hours, days in advance

- analysis covers 10,000 + financial instruments
- tool analysis time units : 1 minute, 15 minute, 30 minute, 60 minute, 24 hours

The universal trading problem = solved

Most trading programs fail eventually, simply because the market regime changes [Core state] - be that from a momentum trending state to a mean reverting or random state: as the trading program is optimised or designed for only 1 state or another. In effect, the trading programs are very fragile / not robust to incorporate any change in the underlying mechanics of the market [Core structure state]

ML² algorithms not only know the current state [Core state] but know when that state is about to change in advance [phase transition] and the new state
- the active trader can ride the price waves all the way to their trading objectives
- a sustainable and robust trading program through all market scenarios



ML^2 partners

Partner brokers who have agreed to test ML^2 platforms

FXCM

- global active derivative trader base 130,000
- foreign exchange, stock index, commodities
- turnover rebate

CMC Markets

- global active trader base
- global stocks, CFD stocks 10,000+ instruments
- turnover rebate

FP Markets

- regional active trader base
- CFD stocks, foreign exchange, stock index, commodities
- STP broker ECN broker

Market maker

- regional FX-CFD margin broker
- percentage profit
- B Book risk management

Viv Court

- proprietary trading house
- focused on Asian equity markets and commodities
- percentage profit on trades 50:50

Further discussions with a range of alternative institutions will be undertaken through 2018: the main issue is to find a broker whose business model is aligned with their active trader clients meeting their trading [\$]

- most CFD-FX margin broker models are market makers [MM] in which the broker takes the other side of the trade
- given that 80-90%+ of active traders lose their trading equity, the simple B Book model is profitable - their business model weakness is both high acquisition costs per new trader and low earnings tail per active retail trader

ML ecosystem creates longer trading cycles per active trader, higher turnover and lower on-boarding costs = marketing edge for the partner broker

ML^2 trading intelligence can also be applied to the B Book model - an increase the dollar return per Lot traded in managing active trader B Book exposure



ML^2 web platform [current version]

ML^2 Beta platform

ML^2 Beta platform is in pre commercialization:

the platform is to go through active user testing period to redefine user experience and interfaces through feedback [selected active traders are to test the Beta version platform and critic its features with focus on the ability of the interfaces to deliver the signal intelligence that can be understood across a wide range of experienced active traders]

ML^2 platform follows the lean principle of 'minimum viable product' in test stage, and through targeted user testing, feedback is received to suggest the required changes to meet user experience - the feedback will define changes in the ML^ platform

- continuous development of existing tools [refinement], new algorithms [version 2 has been developed = CSi raw algorithm] and new tools will be an ongoing part of the ML development cycle

Time to Beta release guideline:

4 - 6 weeks development time in the Beta version for active testing

- testing of tools conducted during software development
- handover to preferred broker partners for testing

2 + weeks partner and selected user testing on Beta platform
feedback: determines required changes to tools and User Interface

1 - 2 weeks developer time on specified testing changes

- change to platform UI based on selected user testing feedback

Commercialization with preferred broker partners

- global reach in about => 5 - 10 weeks

Dependencies will be in the active user testing and from that, the required changes to the platform timelines



Strategic philosophy

Range of derivative trading platforms

Retail broking platform

preferred partners: ML is actively working with several global and regional CFD-FX margin brokers

- selected partner brokers to exclusively offer the ML² platform to current and new active traders
- ML² has access to the brokers active retail traders [experienced traders]
- ML² focus is on B2B 2c services = product development
- broker business model in CFD-FX preferred as STP / ECN
- broker business model in global stocks preferred
- turnover rebate : standard monetization program
- earnings model assumes per 1,000 active retail traders: rebate = estimated at ~\$2,000,000 USD per annum given turnover assumptions
- instrument universe is limited to the partner brokers listed instruments

Constraints

- small number preferred partner brokers with suitable business model
- broker partner needs to be incentivized to market ML² platform
- achieving global reach with adequate instrument universe
- regulatory constraints in global reach

Institutional platform [ML³ platform]

ML will be offering, as a separate trading platform [ML³] targeting institutional traders such as hedge funds / proprietary trading houses based on algorithmic trading programs

- ML³ platform offers tools available on the ML² platform, but as broker agnostic [no selected partner brokers]
- ML³ has access to high turnover trading houses
- ML³ focus is on B2B
- ML³ token creates access to the ML³ platform and instrument coverage - broker platform agnostic - the instrument universe is selected by the token owner
- license fee or profit share // combination

Constraints

- leakage in ML³ not capturing all the trades or profit earnings

Digital asset crypto-currency platform

ML² and ML³ platforms will offer digital assets in cryptocurrencies / tokens through both a CFD-FX margin broker [leverage and short selling] and OTC BTC exchange [physical trading] along with the standard instruments

- specific CFD-FX margin broker that has adopted crypto-currency trading [usually limited to the top 20 digital assets given liquidity constraints] - like coinspot.com.au
- CFD-FX margin broker to allow leverage and short selling
- OTC exchange for physical trading that offers a larger range of digital assets than the CFD brokers [combined with derivatives to hedge physical exposures - requires higher level risk management in defining correlated digital assets to short against the physical digital asset = ETH hedges EOS]
- large universe of liquid cryptocurrencies [and growing as tokens mature in terms of trading liquidity = survivors]
- high volatility
- new risk management tools required in instrument and portfolio management [in development]
- new futures and option contracts on ET exchanges
- crypto currency funds
- MDA in digital assets [LONG - SHORT fund]

ML²

Competitors [predictive analytics] and the market space

Algodynamix.com

One of the top 100-fintech companies in Europe

Detects price anomalies in a limited range of instruments through the use of unsupervised machine learning based on traded volume data from profiled segmented traders [the smart traders => to the dumb and dumber]

- the methodology segments traders into clusters that are monitored for each clusters directional traded volumes, to then detect when prices of the financial instrument will rise or fall
- detection is usually several days in advance, but can be shorter to minutes, with 2 - 3 signals per trade required
- average trade signal is every 10 - 20 days = 1 - 2 trade signals per month [at this point in time]
- at this point, limited to between one / two price anomalies per month with no projected price path [they offer a target price within a confidence level]
- monthly cost \$1,250 USD per instrument

ML² managedleverage.com

Detects continuous price anomalies in the 1 minute out to 15 minute, 30 minute, 60 minute and 24 hour time windows price data, with an average signal every 2 - 8 time units

- 2 time units warning of a change in the Core state and price path [where the time unit is 15 minutes: the warning will be for the next 30 minute period = 2 x 15 minutes: => to exit the current trade and enter the new trade - the price will continue to move in the current trend state, but will change direction/ Core state within the 30 minute window]
- analysis on the current 'Core state' and the new 'Core state'
- calculation of the forward price path [high. low. close.] including extreme prices
- the above analysis applies equally to the volatility path [volatility increasing or decreasing] in the forward price path

Essentially ML² analysis detects all the price wave patterns in the price of any financial instrument [10,000 + instruments] with a > 90% accuracy - ensuring the active traders can achieve a target percentage of between 70% <=> 99% total basis points of the price move in the 'Core state'



Technical paper

Summary detail on ML² intellectual property {algorithms}

ML² has developed 5 algorithms that can detect the current and future 'Core state' of any financial instrument

- The Core states are presented as:
 - (i) persistent [momentum-trending] LONG and SHORT
 - (ii) mean reverting LONG and SHORT
 - (iii) random
- The Core state duration = the time left in the current Core state
- Detects price anomalies ahead in time and the new 'Core state' - anomalies occur in the 'phase transition' period when the current 'Core state' is changing to a new 'Core state'
- 'phase transition' alerts the trader in advance that the current 'Core state' is about to change and the nature of the new 'Core state'
- ML² algorithms work from the 5 minute, 15 minute, 30 minute, 60 minute and 24 hour [as well as weekly, monthly] price data
- *although the programs can detect the Core state and anomalies to the 1 minute time unit, the main issue is around the bid offer spread and the 60 second window price high-low range limiting the total return at in this time period [cryptocurrencies have high bid-offer spread in this space]*
- there is a pivot point by which the user can select a time period that suits their trading style but at the moment we limit the analysis to 15 minutes onwards in the projected price path - 1 minute analysis is set for such search tools as 'price entry' and 'moments to stress'

CSi index [Core Structure index]

- the 5 algorithms produce a CSi index = 'Core Structure index'
- 2 algorithms focuses on single one-dimensional instruments such as AUDUSD, EURUSD, OIL, COPPER etc.
- 1 algorithm focuses on financial instruments that represent a portfolio of different instruments such as stock indices, ETFs, BHP, Amazon
- 1 algorithm is fine tuned to pick up sensitive price anomalies in any instrument and is used to set price entry/ exit signals within each time window = more frequent trade signals
- 1 algorithm creates the CSi based on the instruments volatility measurement [multiple standard deviation methodologies]



Technical paper

CSi index

- CSi index moves between 0.50 and 3.00, and is normalized to a range between 0.00 and 1.00
- CSi will move between 0.00 and 1.00 in sequential steps, higher or lower - and depending on both the direction and level of the index at any point, will determine the 'Core state'
Example: if the CSi is moving from 1.00 towards 0.50, the 'Core state' is 'persistent' LONG

CSi moves in the opposite direction to the price of the financial instrument - in order to avoid confusion, in the graphical presentations we convert the CSi to a FDi that shows the CSi index moving in the same direction as the price of any financial instrument

- When the CSi changes direction, and is validated [rule based], then the 'Core state' is about to change - this is 'phase transition' - and at this point, the level of the CSi level and the new direction = the new 'Core state'

Price path

- the CSi algorithms can project the forward CSi, and so the forward price path [high, low, close, extreme high / low, and worst price] : The forward CSi are input into the following tools: price path, enhanced price path, moments to stress, price entry, cash buffer / FX cash buffer, portfolio monitoring forward valuations
- CSi index input is the log return and the standard deviation of the financial instrument price
- CSi index can use the standard deviation of the log return and with that create both the standard CSi and the CSi volatility index - [how volatility will change] - this is used in option arbitrage and as a directional price movement indicator in itself

PAIRS

- CSi index can be used to compare two instruments - in a statistical arbitrage trading program in order to determine how the directional price spread [basis points] will change through the selected time window, either in moving closer together or moving further apart



Technical paper

Risk engine

Continuous exposure

- HFT trading firms adopt an continuous exposure trade, with no stop loss - an 'equilibrium price' is calculated and trades are entered as long or short based on where the spot price is to the projected 'equilibrium price' [up to a maximum limit exposure - so if the spot price is below the equilibrium price then the instrument is bought, if above, the instrument is sold [to the maximum limit] = on a continuous time scale [risk management would have the exposures closed at the end of the day unless the instruments is 24/7]
- ML² algorithms and logic are well suited to this trading program, which is by nature more institutional than retail in framework, and more for automated than discretionary trading programs given high time resources

Crypto-currencies

- Due to the unique structure of BTC, ETH, XRP and up to the other 1000+ crypto-currencies - their volatility, lack of correlation to most asset classes, the nature of the traders, and the business model backing the token
 - The ML² algorithms are particularly suited to trading these instruments given their persistent momentum nature
 - : So in the development of both the ML² and the ML³ platform, a crypto-currency automated trading program will be offered, as well as the discretionary trading program

Optimization

- In the calculation of the CSI for each instrument in each of the 5 algorithms, a selection of 10 - 12 historic time periods are used - this produces around 60 different CSI for each instrument
- the optimised CSI algorithm and time period chosen is the algorithm chosen that produces the 'phase transition' [the change in the CSI that is 1-2 units in time closest to the price peak [high] or trough [low]
- the CSI will change direction before the price changes direction [Core state], so the price will keep on rising in a 'phase transition' when the CSI is falling - creating a program where the traders sells into a rising price that is about to turn down and buys into a falling price that is about to rise [short term contrarian trading mindset]

- optimization in 'phase transition' sets a stable time window in which the trader can manage the price exit and entry - that is exit the long exposure nearest the highest price, or buy near the lowest price
- all CSI algorithms and historical time periods detect the price anomalies in the 'Core state' at 'phase transition', but with varying time lags - an optimizer algorithm is chosen to select the algorithm and historic price time period that is benchmarked time window at two time units
- or the trader can select their own CSI algorithm and time period through graphical interpretation

Portfolio monitoring program

- program that is built around the digital advice platforms offering automated portfolio investment, rebalancing and monitoring through time
- ML² programs are designed for longer term investors but with an active management overlay program that allows rebalancing [new financial instruments replacing existing financial instruments in the portfolio], downside capital protection and hedging [using derivatives to hedge the physical financial instruments], and risk profiled leverage [maximum safe leverage]
- ML² programs can also present the forward value of each financial instrument and the portfolio value [time windows out to 10 time units] so the peak \$value of the portfolio is presented in advance as well as the forward point in time
 - Action then can be taken to protect the forward value of the portfolio via hedging the stressed instrument, rebalancing the portfolio towards cash or replacing the stressors

ML²

ML² platform tools

ML² platform is targeting active retail and institutional traders in derivatives through selected partner brokers

- Within an enclosed platform that offers all the tools necessary for traders to create and meet their trading objectives

ML² is the next generation+ platform with advanced predictive analytical tools [Core structure, phase transition, price path]

The following is a list of the tools available on the ML² platform [Read ManagedLeverage.com main webpage and the insights blog for a detailed description for each tool]

Mi portfolio

- Mi portfolio
- Mi watchlist
- Instrument Scorecard
- Mi ETF portfolio
- Asset Allocation

Leverage intelligence

- o cash buffer
- o FX cash buffer
- o Core structure - price strength signal
- o moments to stress

Market intelligence

- Core structure - standard CSi[^]
- Core structure - raw CSi[^]
- phase transition
- portfolio ROI directional
- price path - forward price path
- entry point - execution price
- directional volatility
- option arbitrage
- derivative trendiness

Intelligence modules

- RADAR
- entry level module
- self-directed investor module
- introducing broker module
- heat map

Portfolio monitoring modules

- portfolio monitoring
- sleep@nightLVR
- ETF portfolio monitoring
- APA portfolio monitoring
- portfolio LVR margin
- portfolio construction

Intra trading modules

- extreme LONG<5
- intra signals
- PAIRs
- co-integration
- automation trading program

Benchmark

- OTS benchmark
- Csi^ simulation tool

Tool shed

- leverage calculator
- option calculator
- MT4 application module
- ML^2 access - Core structure index

ML³

ML³ platform [automated trading]

Automated trading platform that adopts the ML² risk engine - {python version} with open API to user preferred brokers [capital allocation / larger universe of instruments such as crypto-currencies]

ManagedLeverage3.com

- Mi portfolio
- Mi watchlist

- RADAR
- Core structure index - standard CSi[^]
- Core structure index - raw CSi[^]
- phase transition
- price path
- price entry
- directional volatility
- heat map
- cash buffer / FX cash buffer
- moments to stress

- portfolio monitoring
- portfolio LVR margin
- portfolio construction

- intra signals
- PAIRs
- CSI simulation tool
- CSi access

ML²

ML² tokens

Initial Coin Offering

Ethereum smart contracts

ManagedLeverage will undertake a token sale to raise funds for the continual development of the ML series of platforms [see ML Master Plan report at the end of this paper] - the capital raised will fund current and future operational expenditures [staff, servers, office etc.], strengthen the balance sheet, research and development, and marketing

- and the development of the ML² DEX exchange

ML² ICO token:

the ML² ecosystem is a closed end platform in which a ML token represent proof of ownership in exchange for exclusive access to the ML² platform

- creates access to the ML² platform through the ownership [of at least 1 Core token] - in perpetuity
- Bonus tokens will be offered in all selected stages [at various ratios to each Core token] of the token release and auctions [Bonus tokens confer no access rights until they are sold to a new owner]
- ML² tokens will be able to be traded on the ML² DEX exchange. Bonus tokens can be sold on the ML² DEX exchange - tokens sold on any exchange will confer access rights to the ML² platform in perpetuity, where the buyer is a new owner

Token structure:

ML² platform

: is designed for retail active derivative traders - linked to preferred broker partners only

ML³ platform

: is designed for institutional and professional traders to access the automated platform that is broker agnostic - allows the trader to select their own broker and hybrid platforms via API
- based on the python coded language

ML² Tokens

ML² tokens will allow perpetual access to all the ML platform tools

URL: ManagedLeverage.com

- The instrument universe will be limited to what the preferred broker partners offer [but we will ensure this universe is 10,000+ instruments]
- The buyer must own 1 ML² token [the owner can own multiple tokens but must own at least 1 ML token to get access]

Framework:

- **maximum capped number tokens in total** - no more tokens will be created nor burnt on the full release of the tokens through the ICO auctions
- maximum capped number Core tokens that create access rights to the ML² platform [tokens available for release and auction sale]
- **maximum number of Bonus tokens** [to early state release and auction sale buyers]
- **maximum number tokens held by ManagedLeverage** [used to create liquidity in the on market exchange - tokens can be bought and sold as well as offered to current shareholders / management]

Ethereum standard: ERC20 token

Ethereum is a decentralized platform that runs smart contracts: applications that run exactly as programmed without any possibility of downtime, censorship, fraud or third party interference

- Ethereum blockchain [standard ERC20] is designed for exchanging cryptocurrencies - in allowing tokens to be created and traded on the Ethereum blockchain infrastructure
- the ML² tokens will be traded on the ML² DEX exchange after the token releases and auction sales have been completed [or at a time designated by the token sale road map]

ML² will create a tradable digital token as:

- (i) **proof of membership** [creating access rights to the ML² platform]
- (ii) create **perpetual access rights** based on token ownership
- (iii) digital asset whose value is derived from the access rights to the ML² platform
- (iv) **maximum capped number of tokens** [smart contract specifications - no more tokens will be created: period]

ML² trading program is restricted to a maximum number of active traders on selected preferred broker platforms = the instrument universe will be determined by the broker partners instrument coverage

- the ML² risk engine and algorithms were designed to create the CSI for any instrument listed on an OTC or stock exchange which can number in excess of 15,000 individual instruments
- ML will seek out partner brokers that cover as much of this total instrument universe as possible
- the main limitation is that most OTC brokers business model relies on client losses for revenue



ML^2 DEX exchange

ML^2 tokens will be listed and traded on an ML^ DEX exchange build and managed by ML [ManagedLeverage]

- as well as listing the planned ML^3, ML^4 tokens and ML^fund tokens
- the planned exchange that will list the ML tokens will also offer the option to create a decentralised ecosystem, whereby ML tokens owners become the exchange
- this will allow ML token holders to use the value in those tokens to trade on the ML^ DEX exchange

The trading engine for the DEX exchange will be developed and implemented during the ML^2 ICO auctions as part of the development program within the ICO roadmaps

ML^ has the option to become a margin broker - exchange: which will require regulatory license from various countries

- This will be considered in due course, the immediate model is to offer the ML platform to active traders working with preferred brokers partners [CFD-FX margin brokers and crypto exchanges]

ML²

ML² current platform is focused on active derivative traders with selected partner brokers - all current tools re-developed and new future tools will be made available in the ML² platform

ManagedLeverage [owner of ML² platform] is in the business to develop a suite of platforms targeting active traders in both derivatives [margin-leverage] and non-leverage financial instruments across all asset classes

Creating an ecosystem for traders / investors to think about their trading objectives, create their portfolio = monitored and rebalanced through time to meet their trading objectives [which are dynamic through time]

In development:-

ML³ platform:

Automated platform / broker agnostic / wider universe of financial instruments / target market institutional and professional traders

- the ML³ token will create perpetual access rights to the ML³ platform and analysis on 1 instrument
- a maximum of 500,000 tokens will be released

ML⁴ platform:

Long term investors in physical assets / similar to the current digital [robo] platforms but the tools offered will allow the investor to create their own portfolio and allow tools to create, monitor and hedge [capital protection] of the portfolio to meet their own financial goals

ML² and ML³ platform {cryptoccy - digital assets}:

Automated platform for cryptocurrencies that would incorporate arbitrage and directional trading tools as well as new blockchain exchanges

ML² Managed Discretionary Accounts [wholesale and retail]

Similar to an active fund but the investment account is owned by the investor = account holder - each instrument in the account is owned by the investor but managed by ML²

- funded through ML²fund tokens

ML mobile platforms - android and iOS operating systems in smart phones and tablets



Material Risks

Regulatory Compliance

- ML² utility tokens are not considered a financial instrument and therefore the token is not governed by ASIC as ManagedLeverage is incorporated under Australian Law

ManagedLeverage Pty Ltd will adhere to all regulatory requirements in each country it sources its active traders from, such as AML /CTF requirements, Corporations Act and Fair Trading and will provide an avenue for dispute resolution

Token value

ML² tokens create access rights to the ML² platform - it does not create any equity or ownership rights to ManagedLeverage

ML² tokens will be listed on a nominated exchange and the price will fluctuate based on current supply / demand profiles and the perceptions around the value of accessing the ML platform [current and future iterations of the Core state intelligence and tools]

ML² tokens will be capped at 344,000 - no further ML² tokens will be created and none will be burnt [these are the rules set within the smart contract]

Liquidity of the token

ML² will build its own ML² DEX exchange to list the ML² tokens for secondary market trading in the tokens - this is considered an essential component of the ML² ecosystem

The value of the token is directly attributable to the value placed on the access rights to the ML² platform and its suite of tools / products and any future enhancements

ML² platform offers tools that create unique insights into the future price of a financial instrument

- these tools create a signal which can either be interpreted and acted through a discretionary trading program or an automated trading program - either approach requires the active user to make an interpretation of the intelligence in the signal

ML² platform is dependent on the internet and cloud based servers - both of which can decay in service levels at a point in time

- also ML² platform can be subject to DoS attacks or other forms of cyber attacks

Legal disclaimer

ML^2 token is not a financial instrument, currency or gaming product

ML^2 tokens solely create access rights to the ML^2 platform and its suite of tools / products and does not confer any rights in ManagedLeverage pty ltd [not a share, or a financial instrument] or its earnings / profit

ML^2 tokens are bought through the exchange of Ethereum tokens [ETHUSD] for ML^2 tokens and may be sold on an exchange that listed the ML^2 token

- the ML^2 tokens are the sole responsibility of the holder



Some definitions:

ManagedLeverage: ManagedLeverage pty ltd - the legal company who owns ML^2 platform intellectual property

ML^2 Core token: token that confers perpetual rights to access the ML^2 platform when trading with the selected ML broker partner [access won't be given if the token owner does not have an account with the broker partner]

ML^2 Bonus token: token that confers no access rights unless sold on the OTC exchange to a new owner

ML^2 platform: URL: ManagedLeverage.com
ML^3 platform: URL: ManagedLeverage3.com

Token release: tokens sold in pre ICO at specific prices

Token auction: tokens sold through the token auction where bidders set their price

CSi: Core State index

ERC20: Ethereum smart contract standard

Open: tokens will be open to any person who is not currently an active trader within one of the broker partners

Broker partner: ML^2 will list the broker partners selected that link to the ML^2 platform for trade execution - these brokers are the only brokers that ML^2 will allow trading within the ML^2 platform



Proposed roadmap [more detailed]

The timelines listed are subject to change given dependencies, but the following roadmap timelines should be considered as the benchmark

Proposed roadmap to ICO [detailed operational processes]

Components to the ICO framework

- (i) Beta software development of the ML² platform - focused on MVM for release to partner broker testers and selected active trader clients: this work will be undertaken by the current software developer who has built the platform since 2013
 - the current ML² platform is the 80% solution: specific tools must be updated for enhanced analysis, such as price path with new formulas and an enhancement to the CSi algorithm and this will be done pre-release to Beta testers
 - Beta release is to allow selected active traders with appropriate trading profiles to test the ML platform and give critical feedback - so there will be a set period for feedback development work to fix the user interfaces
 - Broker partners will test the ML² platform in-house as well as selecting a group of active clients [social marketing can create a teaser to get excitement on the ML² platform for testing given privileges for testers in the ML² token pre ICO stage]

- (ii) Ethereum smart contract development: a developer has been selected to build the ML² utility tokens on the Ethereum blockchain - to ERC20 standards
 - the smart contract rules have been detailed and settled
 - the main risk with the smart contract is to test for bugs and to ensure it does what it is designed to do, as once set on the blockchain it is immutable - so errors require a new smart contract
 - need to create a ML² wallet // method to allow the users to send ETH to the ML² wallet and ML to send ML² token to the users wallet addresses
 - a web page needs to be created for the token auctions setting out the continuous results of any release or auction
 - build the ML² DEX exchange for the ML² tokens to be exchanged [traded]

- (iii) marketing program to incorporate main stakeholders [existing partner broker active traders, partner broker testers, open active traders, institutions, network of equity holders 'mates' etc.] for both Beta stage release, pre ICO, ICO and post ICO
 - the marketing program will focus on social media and 'word of mouth' through LinkedIn, Facebook, Reddit, financemagnates, ICOshow, YouTube and a special blogs [on M^2 platform]
 - a percentage of exiting partner broker active traders and 'open' active traders [other broker active traders] on a global scale = so Asian, and European active CFD-FX margin traders
- (iv) preICO token release // ICO token auctions
- (v) ML^2 token listing on the ML^ DEX exchange

ICO Roadmap timelines and dependencies

(i) ML^2 Beta release platform development

- 4 week development time on the ML^2 Beta tools functionality and stable data feeds

Material risk: datafeeds unstable and fail during platform demonstration period

Mitigated through working with the broker developers to ensure the data feeds are stable, functional and robust [as they are expected to be]

- the data feeds will create an instrument universe of around 10,000+ [so this may be filtered to around 500 for demonstration testing]

Assumed start date for Beta development: mid-January 2018

Assumed finish date for software development *to required standards for Beta release:* mid-February 2018

- (ii) Release of Beta version for demonstration to active users [given to broker partners active traders as well as 'open' to anyone interested active trader to test]

Release of ML^2 platform for Beta testers: from 1st week February until late February and onwards [late February is a given end time to set up the time for feedback and pre ICO token release]

Selected testers in broker partners would have been made aware of the release dates - we give them enough time to test the platform [not to trade on the platform] no ability to execute the trade until ChartIQ [chartIQ.com] software is engaged

Once the ML^2 platform is released in Beta testing it remains in release

Software development work will not interfere with the uptime on the platform as backend development can be uploaded without interfering with the platform uptime