

Rainbow Index Foundation

Rix White Paper

AI Cryptocurrency Investment Platform

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This document is not for legal tender.

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It is not covered in this document that the acquisition of the cryptocurrency used to participate in the exchange of goods.

We warn you about negative returns of money that due to the resources invested in the acquisition of cryptocurrency and the activity on exchanging of cryptocurrency.

2018-03-14

Rix White Paper v2.02

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1. Summary

RIX is an AI Cryptocurrency investment platform built based on *Rainbow Option Index. In Cryptocurrency trading market, there are many opportunities to make profits but at the same time a lot of investors lose their money. Rix has been invented to help individuals having difficulty making profits in the market, namely private investors, become more profitable.

① Rix has intrinsic assets. It is the very first in the world.

Rix buys Cryptocurrency 70% of the issuance price and deposits them as intrinsic assets.

These intrinsic assets become a basis for Rix's market price and help stabilize the price.

② Rix's AI investment platform invests these intrinsic assets and multiplies them. The target rate of return ranges from 0.3% to 0.9% on daily average. This is higher than Bitcoin's daily average increase rate of 0.671% and lower than Scalper's daily rate of return ranging from 3 to 10%. Considering the performance level of typical investment machines in the market, it is rather an achievable target rate and it is different in a way that it is structured to make an investment by machine learning rather than Quant algorithm.

③ Through the investment trust program, Rix allows investors who didn't purchase Rix to entrust their funds to AI investment platform service wallet and share profits using Rix's investment platform service.

④ Rix's ICD (Incentive Centered Design) mechanism improves survivability and profitability of the investment.

This design allows the total value of intrinsic assets and the unit value of Rix to increase as coins are consumed and its number decreases. This stabilizes the market price without entering into the risk zone of the investment.

⑤ Rix participants become an integral part of DAO (Decentralized Autonomous Organization). Rix is managed by DAO where investors take part in investment, asset management, and withdrawal and can safeguard its assets on its own.

*Rainbow Option Strategy is a risk management concept at the derivative market advocated by Mark Rubinstein in 1991. This is a strategy aimed at realizing the average rate of return of the market by structuring and managing the portfolio to achieve the expected rate of return similar or identical to that of a specific stock index based on the assumption of the long-term growth trend in the market.

2. Pain Point

Over the last year, the total market value of the Cryptocurrency and Bitcoin has grown by 1,300% and 720%, respectively. However, most of individual investors had little rate of return by investing in Cryptocurrency. Even, there is a large number of investors who entered into the market before May 2017 when the coin market started to explosively grow but ended up suffering loss. Why did many private investors unaware of when to buy or sell have to leave the coin market even if the market is growing rapidly? Let's take a look at the below matrix.

Picture 1. investor Risk-Benefit matrix

	Benefit-High	Benefit-Low/Negative
Risk- High	Personal Full-Time Investor	Personal Part-time Investor (general)
Risk- Low	Institutional Investor AI System	ICO Participant

As shown in the above Matrix, we can understand that the professional private investors are more profitable since they have an enough time and basis to make a better judgment call. On the other hand, part-time private investors are exposed to higher risk, which makes it hard for them to make profits.

Picture 2. 3 Days Candle Chart, BTC 2016.10~2017.10



The above figure is a graph showing the price increase in Bitcoin from October 2016 to October 2017. Even though Bitcoin's price has increased by nearly seven times over the last year, there must be few investors whose profits increased by the same rate. This is because it is very difficult to check the every moment of the market when it hits the high/low point within a period of 15 minutes. Full-time investors would have spent more time than private investors, which could have enabled them to make more profits.

2.1. Limitations of Private Investors

If you know any private investor making a large amount of profit, he must meet one of the following conditions.

- ① He is an experienced professional investor. Or he can continuously trade without having to sleep or take a break.
- ② He is equipped with tools and skills that no one could match.
- ③ He owns an asset large enough to move the market price.

For example, everyone knows the term called Dead Cat but few people is aware of what kind investor sentiment is caused by this dead cat every minute in a one-minute candle. Most of private investors suffer loss since they are not knowledgeable about institutional investors' trading patterns. There exists no market where everyone can win and non-professional private investors are destined to be put into the most unfavorable position among the market players.

2.2. Distinct Characteristic of the Cryptocurrency Market

It is difficult to apply conventional stock investment techniques to the Cryptocurrency Market. It is closer to the futures market rather than the stock market.

First, the coin market runs 24 hours a day.

It is important to allocate enough time to monitor the market trend to seize a good investment timing.

Therefore, by using a trading bot which never feels tired, it can expect the higher rate of return.

Second, there is no such thing as a circuit break. Because there is no upper/lower limit for the price, private investors tend to be more anxious of the investment in Cryptocurrency.

Third, it is legally not securities. Even if collusions or unfair transactions arise in the market, they cannot be legally sanctioned. Accordingly, people investing a large amount of funds or institutional investors generally have a stronger influence on the market price in the Cryptocurrency market compared to other financial markets.

Fourth, there are few tradable coins across the world and even less amount of reliable ones. Due to this, funds quickly move between types of coins and price is highly volatile. Since the private investors are forced to follow after institutional investors always making a preemptive move, in most cases, private investors make less amount of profits.

2.3. Inherent Limitation of Investment Analyzing Chart

Chart is a historical indicator. It is also called a lagging indicator. It is hard to predict the market price after one minute only with the historical data. Institutional investors who can manipulate the price is capable of drawing the chart on their own. Big money earns profits by making the exactly opposite situation to what individual can infer from the chart. It is more likely that investors will be trapped by Chart rather than they use it as a basis for the forecast.

Neither candle chart referenced in the Cryptocurrency Investment nor supplementary indicators referenced by the general public can constitute leading indicators.

The investment in Cryptocurrency shows a significantly different pattern from the trade naturally created by humans.

Essentially, it is difficult to predict the short-term market. Who can accurately analyze the Elliott 4 and 5 waves in every situation?

2.4. Problems with Investment Trust

The problem of investment trust is high commission fee and low rate of return. The annual return on the coin index is around 70%. Although this rate of return is decent compared to other investments, it is far less than the annual rate of return of Bitcoin.

Real-time trading bot, which is used for the investment trust technique, bases its investment decision on the split sale and split buy in accordance with the real-time information shown in the market price window. It is impossible to utilize supplementary index or strategize long-term investment. Since the risk aversion and profit seeking activities are implemented by single algorithm, it is challenging to achieve 15% monthly rate of return of the Bitcoin market constantly moving upward.

Recently, there has been an attempt to create a hybrid type combining trading bot and collective intelligence. It was designed to be assisted by humans as a real-time trading bot doesn't have a strategic point of view. However, it has little correlation to making a return from the investment.

There are also many problems inherent in collective intelligence. If collective intelligence was perfect, the place where the most people gathered would have earned the highest return.

3. Business Model (solution)

With the assistance of Rix, private investors can expect high returns even if they are handicapped with a small amount of investment and unable to respond to the market 24/7.

The characteristics of Rix that can assure private investors with high returns are as follows:

- ① Rix is Cryptocurrency holding intrinsic assets. It can form the high price level from the beginning and its value is well preserved.
- ② Rix increases its intrinsic assets through the AI investment machine. Humans are excluded from making any investment decision. It is able to respond to the every moment of the market regardless of investor's physical condition and help investors benefit from profitable trade.
- ③ Rix is operated by DAO whose operating guideline is set by Rix token holders. The coin holder is the operator, namely the owner of Rix, and determines the distribution of the return.
- ④ It provides investment trust service with private investors even not holding Rix coins. This is Rix token's business model that multiplies the value of intrinsic assets.
- ⑤ ICD design ensures that the value of Rix grows by making investors of the Rix coin seek their own benefits and contribute to each other's wealth. It is a mechanism that encourages the value and profit of Rix to grow together.
- ⑥ Investors can convert Rix into Qtum, ETH, BTC and withdraw them at the Rix Foundation. You can make the market price more stable.

To put it simply, it is designed to manage the asset 24 hours a day using AI so that private investors can withdraw their funds whenever necessary and overcome the psychological, physical and time limitation. The value of the investment stably improves from early on. If private investors invest in Rix, they can benefit from the favorable investment position

3.1. Autonomous AI platform

Rix has intrinsic assets suitable for investment objectives of small investors, helps the value of the investment constantly move upward and maximizes investment's survivability through AI technology.

The value of assets must continue to increase instead of staying still and autonomous AI investment machine is applied to allow for the growth of the asset value without involving humans.

This investment has a higher target than that of usual non-professional private investors (Long-term Bitcoin holder, annual return of 720%).

3.1.1. AI investment System

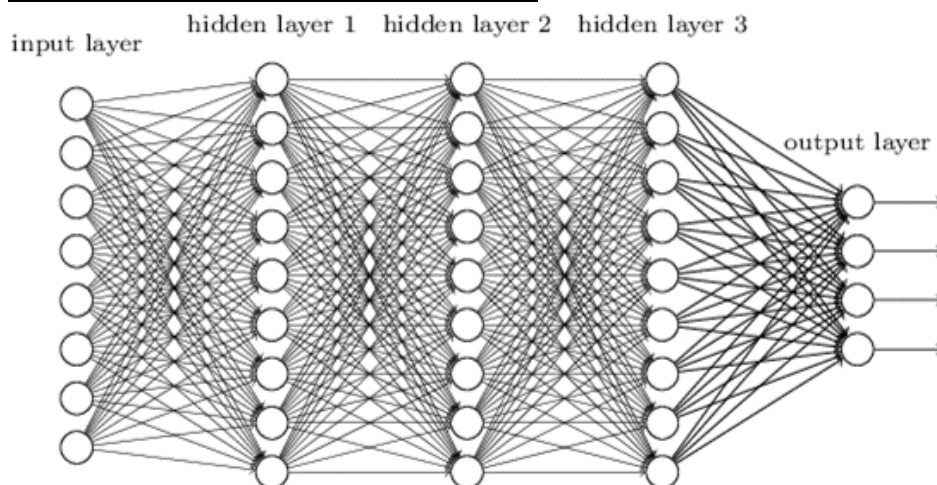
Rix's AI investment system rules out the human investment. This ensures low cost and transparency. Since its mechanism is built around machine learning technology, unlike common Quant based machine investments, it does not have complexly formulated algorithm.

To explain its characteristics, first of all, it operates investment 24/7.

Second, the generic algorithm automatically introduces new machine learning model-based investment machines and discard old ones.

Third, it is AI machine having multi layers. This means that the investment machine autonomously and flexibly uses historical data in compliance with the policies of the top-ranked AI. The setting and classification of investor's tendency between high-return and stability and the portfolio structuring are also autonomously conducted. Through this, it can solve problems such as overfitting and delusion caused by cross-trading.

Picture 4. Machine learning, Hidden Layer



If the upward trend of Bitcoin collapses, multiple AI investment models will hedge the risk and keep up with the profitability of the existing upward moving market.

Even if the upward trend of the coin market collapses, the genetic algorithm in the Rix system will give you a clear advantage over other private investors. Currently, the test module earns 5.2% return on daily average.

Please, refer to section 4.2 in this whitepaper for more details about the mechanisms such as DQN and the performance result of investment modules that we are currently developing.

3.1.2. Management of Intrinsic Assets

AI manages two types of assets. One of them is intrinsic assets.

The purchase amount of assets varies depending on how many investors were recruited. The larger the recruitment amount, the less the setup cost occurs, which will lead to the more purchase of assets.

70% of Rix's ICO funds and the sales amount of tokens are used to purchase assets. This becomes initial intrinsic assets. The rest of funds are used to build and maintain the bounty and bonus system. All of these initial intrinsic assets are used to buy Bitcoin. After the investment platform is validated, it will invest in various other coins to maximize the profitability. The value of intrinsic assets grows by not only its own return on investment but also an incentive received from the separately managed investment trust

3.1.3. Management of Trusted Asset

The second asset managed by AI is trusted assets.

Trusted assets are strictly separated from the intrinsic assets and thoroughly managed by AI.

Investors can benefit from the Rix investment system by entrusting their assets even if they don't own Rix.

In this service, the Rix platform makes high profits and provides private investors with a performance-based incentive if the value of Rix coin exceeds the market value of assets.

Management of trusted assets pays Rix a performance-based incentive depending on how much return has been earned.

For example, if it earns \$100,000 profit, the Rix system deducts \$20,000. So, \$80,000 is a net profit. When you withdraw this \$80,000, you pay Rix 80\$ commission fee. The performance based incentive deducted by the Rix system is added back to Rix's intrinsic assets.

Picture 5. Brief Concept of Trusted investment



3.2. Incentive Centered Design(ICD)

ICD is basically a system design that rewards players for all of their actions and allows the entire community to benefit when they seek their own benefits.

For example, an automatic vending machine is placed in a location where there are a lot of trashes and crows drop their feces over people's heads. This vending machine picks up the trash and releases cookie crumbles corresponding to the

weight of the picked-up trash. Since the crow is a smart creature, it mimics people taking the cookie crumbles after placing trashes on the vending machine. In an actual case, crows picked up trashes and took the cookies and then all of the trashes disappeared from the street.

Picture 6. Crows vending machine, Joshua Klein



People provide machines and cookies to clean. Crows act to have cookies. Through this system, people can easily clean the street and crows can have cookies. As such, acting for one's own benefit eventually leads to the common benefit.

Likewise, Rix is a system where long-term investors, Rix traders, and trustor investors provide incentives to each other with ICD.

The price of Rix has been designed to go up when all participants act for their own benefits

3.2.1. Estimated Scenario of ICD

The performance level of the AI investment machine was fully taken into account and has been estimated to be less than one third of private investors' performance. It did not take into account the advantage that it can respond to the market 24/7. This scenario is written based on the assumption that the machine runs in a conservative manner and at a low target. However, this scenario can't be used as a basis for a firm expectation for the future return.

[Long-term investors participating Rix ICO]

① It is people seeking profits through air drop and growth in the asset value in the long run.

② They participate in \$1000 ICO. This asset will grow by Rix's AI investment platform.

- ③ Once you hold them, you can expect the higher return than you could from the private investment. First, AI makes the market price move constantly upward. Second, it is the increase in coin's market price because of its withdrawal.
- ④ The assets contribute to the increase in the market price by controlling the quantity of supply from the beginning.
- ⑤ It hedges the risk with premium coming from Rix traders.
- ⑥ The performance based incentive received from the Rix trustor investors is added back to assets and thus increases the total value of assets.
- ⑦ It earns an annual return of 720% or more.

[Rix Traders]

- ① It is a group of people trading Rix on the exchange and making profits with the difference generated from trading.
- ② They act to earn the difference through a frequent number of trades.
- ③ With the expectation of the increase in the value, it adds premium to the market price of Rix through trading and contributes to the branding of the Rix system.
- ④ Adding premium to Rix encourages investors to entrust their assets to the AI investment system and grow the investment trust, which is one of Rix's core business models.
- ⑤ Rix trustor investors provide the difference generated from the fluctuation in the price.
- ⑥ There will be more opportunities to make trading profits than other coins.
- ⑦ The unit value of Rix grows by Rix received from the trustor investors as withdrawal fees, which is subsequently retired. Participants can benefit from the increase in value directly reflected in the price.

[Rix Trustor Investors]

- ① They are burdened with the premium created by short-term traders when they purchase Rix despite the expected increase in the value from the investment.
- ② Profits are earned through the AI platform and they are inclined to make premium-free profits.
- ③ 10% investment commission fee is deducted, which is included in Rix's asset value and improves the value of long-term holders of Rix and Rix traders.
- ④ They pay Rix a small amount of money as a withdrawal fee. They are required to buy the quantity set by DAO for the investment return of 1,000 dollars (for example, 0.1% set by DAO).

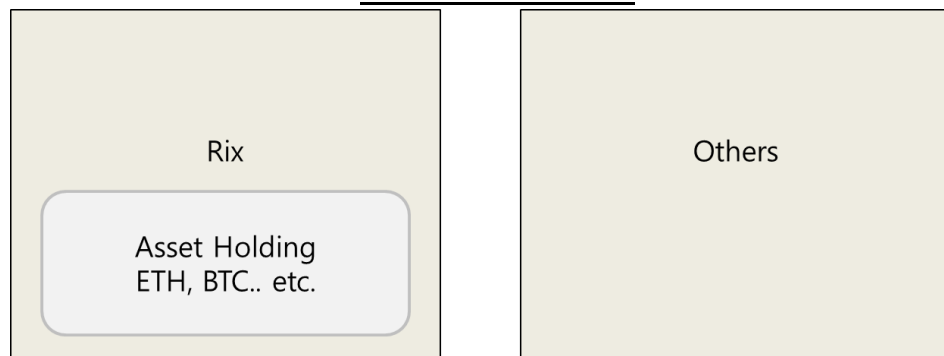
- ⑤ The withdrawal fee is a small amount of commission transferred to their own wallet and, since investors are hardly affected by the price of Rix at this point, they buy Rix regardless of its market price.
- ⑥ They realize profits by transferring the return to their personal wallets after paying for the withdrawal fee.
- ⑦ The price of Rix moves upward, significantly fluctuates, and brings profits to Rix traders.
- ⑧ Since Rix purchased as a withdrawal fee is retired, it increases the unit value of Rix and benefits everyone involved.

Due to the complexity that lies in the explanation of secondary improvements in the value and market price, in addition to the primary incentives encouraging participants to contribute to each other with ICD, they will not be covered in this whitepaper.

3.2.2. Basis for ICD : Increase in the Intrinsic Assets through AI Investment

First, Rix is designed to increase its value by daily rate ranging from 0.3%~0.9% in accordance with the increase in the asset value through AI investment.

Picture 7. Basic value



Second, since Rix is composed of Incentive Centered Design layers built around the assumption of the sustainable growth, market participants' profit-seeking behaviors result in the complex and multidimensional increase in the market price and the value of transferred assets.

ICD grows the value of Rix's intrinsic assets through interaction and creates a multiplier effect by reducing the quantity of Rix. Therefore, holding Rix brings combined investment outcomes

3.2.3. Rix-Qtum conversion

Rix holds assets immediately after ICO. So, it guarantees the conversion corresponding to the asset value. Through this, users are guaranteed the minimum price of Rix. There can be a change in the asset value between the time of calculating and transferring the entire asset. The risk is diversified

through the commission fee and calculation period. It can make a request for conversion to Qtum,BTC ,ETH .

Conversion is an important part of ICD. It contributes to the psychological stability of long-term investors and price stability of short-term investment

3.2.4. Profit from Management of Trusted Assets

- Reasons for Investment Trust

Returns earned from investing intrinsic assets are automatically added back to the intrinsic assets and grow the value of assets. At this point, the price of the Rix token is likely to be higher than its intrinsic value because of the conversion strategy. If the market price goes below the conversion price, it is more profitable to sell them to the Rix foundation than to the market.

This upward trend of Rix leads to the demand for investment trust. This is because there is a need for the premium-free investment.

The reason why there is demand for Rix investment trust is that, if directly invested, the market price of Rix exceeds its intrinsic value through premium.

In other words, if the Rix price premium becomes 5% higher than the value of the intrinsic assets, the investment trust is given a better chance of making profits than buying Rix.

- Commission from the Management of Trusted Assets

If you directly entrust assets to the Rix system, you can earn the premium-free return with the AI investment machine.

If assets are entrusted to Rix system, you will pay the foundation 5% commission fee for the return earned by entrusting assets based on the time when the conversion request is made.

This commission is automatically added to the intrinsic assets.

The rate of return on both purchasing Rix and entrusting assets will balance out in accordance with the difference in returns earned by the change in Rix's market price.

The trustee makes premium-free returns through investments and grows the value of intrinsic assets of Rix holders at the same time.

Through ICD, the trustor investors play a role in increasing the price of Rix, value of intrinsic assets, and influence over the market price.

3.2.5. Commission from Withdrawal

The trustor who entrusted assets to the AI investment system and applicants for ETH conversion must pay commission fee set by DAO to withdraw investments by purchasing 0.1% of Rix.

In this case, the trustor contributes to two things.

First, since he has to buy a very small amount of Rix compared to the amount that he withdraws, it hardly affects the market price of Rix. This leads to the increase in the market price of Rix.

Second, Rix purchased as a withdrawal fee is retired. Accordingly, when the trustor withdraws his investment, the number of Rix is reduced based on the entire value of assets and it drives the unit price of Rix to go up.

3.2.6. Compensation Strategy for ICO Participants: Air Drop

ICO Participants receive 10% of Rix token for free after proving that they have retained them for six months since the commencement of the investment at the Rix platform.

This leads to the long term retention from the initial owners of Rix and minimizes risk zone of the investment in Rix.

DAO enables ICO investors to maximize their returns on the long-term investment.

3.3. DAO-based management

The returns on Rix's intrinsic and investment assets are transparently managed by DAO organized by Rix holders and help small investors of Cryptocurrency earn returns. DAO is a Decentralized Autonomous Organization inside the Rix Foundation whose directors are not authorized to decide on the investment model or the transfer of assets. All investment and calculation activities are controlled by DAO with Smart Contract provided to the Rix token holders.

Operation policies such as change in the investment model and the rate of the commission fee can be revised by consensus system at DAO. It protects your profits with the most transparency through block chain and DAO.

3.3.1. AI Investment Management by Decentralized Organization

AI automatically enters into the operation status once its development is complete.

Although AI operates investment activities on its own, such as setting investment strategy and tactics and executing investments, it is DAO that can only govern AI's return policies.

But, DAO has no authority over returns, which have been earned by AI, being automatically added to intrinsic assets.

Instead, foundation's Article of Association gives DAO an authority over the commission, business model, and execution of various contracts, which no one can override.

- 3.3.2. Management of the Asset Value and Setting of POS(Proof of Stake)Quantity
Coin holders in DAO determine the commencement of POS.
Once the DAO's determination is made, it starts building its own system and Main net.

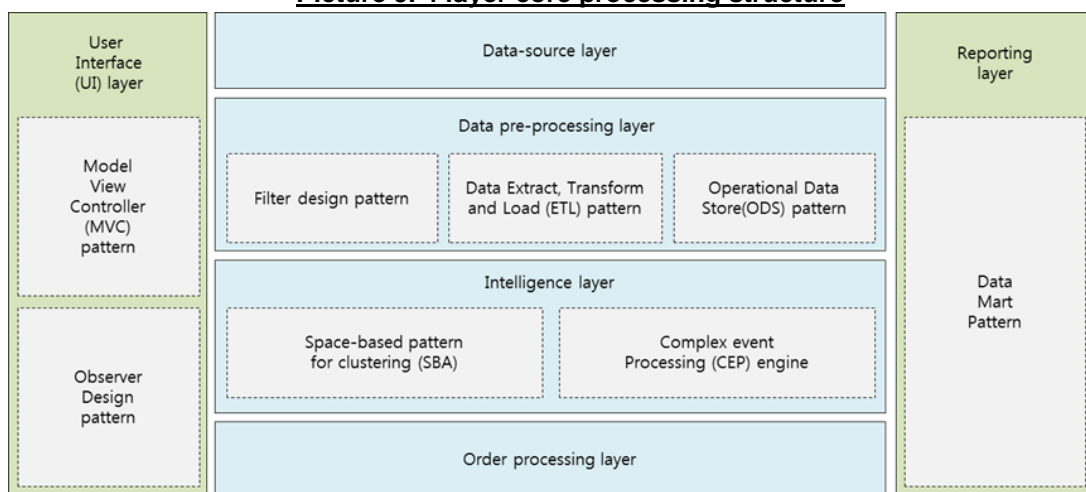
If its own network is run by roadmap, Rix can be mined using POS in case investors have the master nod. The conditions of the master node are invariable. Also, the rate of quantity of coins mined by POS using the master node cannot exceed the increase rate of the value of coin assets per each Rix. The mining of the coin is systematically available after Rix's main net but it is DAO that has a final authority over the issuance of the coin.
For example, the issuance volume is limited to 15% of the initial volume during the first year and 8.25% during the following year, which is 55% of first year's issuance volume. Accordingly, the annual issuance volume is reduced by half. Since the operation of scenario is only available by DAO, the consent of DAO is mandated to control the issuance volume

4. System and Technical Specifications

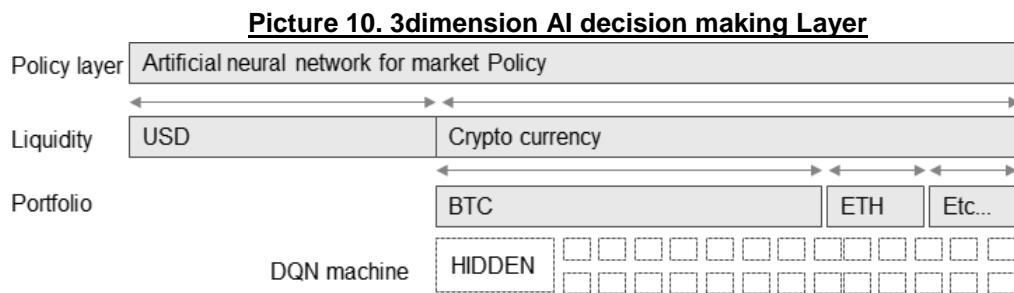
4.1. AI Trading System

The AI trading system consists of four layers; data-source layer collecting real-time trading data, preprocessing layer processing and delivering collected date to intelligence layer performing AI processing, intelligence layer structured with AI trading intelligence system based on neural network, and order processing layer performing the actual order processing. This four layered core processing structure connects to the UI front and reporting backend.

Picture 9. 4 layer core processing structure



4.1.1. Neural network-based AI Decision Making Engine



Rix's investment system doesn't involve human's adjustment. The investment is executed only by the AI investment machine, which utilizes a three-dimensional and multi-layered neural network.

With RNN and CNN, it consists of three layers including Policy layer, Liquidity layer, and Portfolio layer. It is controlled by total four intelligence layers, including the bottom-ranked machine learning hidden layer. Every element such as portfolio of the investment, selection of the exchange, investment amount, and timing, is automatically decided. It is made of numerous investment modules, each of them functioning as an independent profit-generating unit. It autonomously invests funds and calculates profits by controlling Bitcoin's trading volume from 0.01 to several hundred units. All of investment models are applied after verifying investment efficiency through the past learning data collected to date. It aims to effectively diversify and perform the investment.

4.1.2. Policy Layer Neural network

The basic policy is designed based on the meta-analysis of each coin's data over the last few months. It sets a timing for buying, selling, and holding assets as well as the size of the investment based on the value of current assets. Also, the investment can be further divided by setting the investment option depending on investor's attitude towards risk (if it is high risk taking or risk adverse).

For an analysis supporting decision-making at an early stage, it can use either RNN(Recurrent Neural Network), which suitable for time-series data analysis or CNN(Convolutional Neural Network) suitable for analyzing the pattern of two-dimensional image formed by various parameters, which is used to analyze coins.

It can use set policies as a reference for an early stage investment and works same as a draft which can be revised by more of learnings.

4.1.3. Liquidity Value Layer Neural Network

It could be difficult to accurately reflect the rapidly-changing aspect of the market if coins are traded without updating policies that were previously designed. To diversify risk, reinforcement Learning is separately introduced to analyze how liquidity can create new opportunities in the current market. This model is updated to better reflect the latest market trend by setting the compensation unit depending on the trading result and applying the reinforcement learning technique to each operation. The Rix system can provide the model further divided by user's investment tendency

4.1.4. Portfolio Neural network

The reinforcement learning adjusts portfolio ratio in real time. During the initial run, the investment ratio is arbitrarily selected according to the default value in determining what to sell and buy and when. After repeating this learning process, the investment ratio of each coin can be adjusted by the network to maximize the reward. The factors that determine reward take into account not only the rate of return but also each coin's risk factor assessed by Risk Assessment Process conducted by the headquarter, which can be adjusted in accordance with investor's investment tendency.

4.1.5. DQN Machine

By top three-dimensional AI decision-making, investment machines with individual profit-making units have their own DQN. They independently run reinforcement learning processes and have individualized investment methods. At this time, individual machine's cash ratio is fed back to the variable area during the process of verifying liquidity and controls the return on investment to prevent it from falling down due to excessive liquidity. In the case of DQN, the policies related with strengthening network may be revised depending on the reward and such factors are not fixed but rather changeable through social indicators(Ex: Charlie Lee's Tweet). One of the methods is natural language processing.

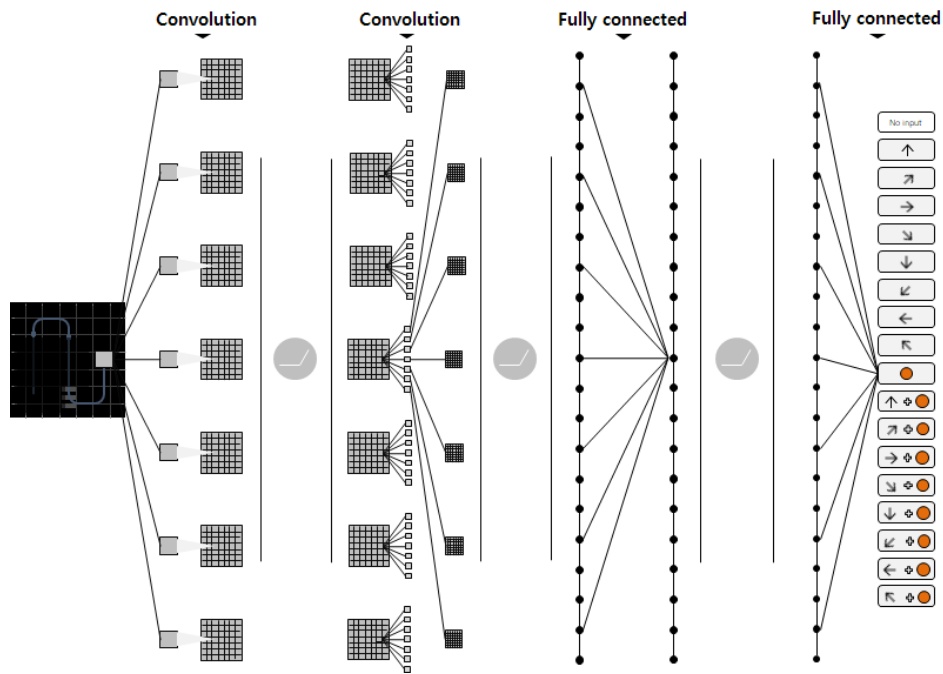
4.2. AI Technology Overview

Rix achieves the increasing rate of return through AI technologies classified by each level, eliminates risk, and aims to earn high returns all at the same time. The individual trading system can be divided into hundreds of thousands of units. Afterwards, it controls the extent of the cross trading through both liquidity neural network and portfolio neural network and approves individual machines' transactions. This allows individual machines to compete with each other and derive profits from the market rather than from each other.

4.2.1. Diversified Investment by DQN

DQN is a popular algorithm used by Google to study Atari games. The artificial neural network designed with multi-layers allocates resources to multiple investment machines, which autonomously invest assets and collect returns using the machine learning technology. Since machine learning yields results based on hidden layer's computation, the investment process cannot be explained by other algorithms except for DQN. In addition, since DQN's learning know-how can be reverse-engineered and affect investment efficiency, this white paper will cover only the minimum content.

Picture 11. DQN example *ATARI Game Learning



Each investment machine has a distinct investment tendency compared to the rest depending on survival environment that it faces, such as index, period and market. Individual mistake and success have little technological impact on the entire investment portfolio. At the investment modules we are currently testing, we have achieved 3 days-average rate of return of 16.5% per 1 Bitcoin by the time of writing this paper.

When the coin is initially priced at C_{start} and the coin price after n days is C_n , r , the daily average price change rate(%) is calculated as follows.

$$C_n = C_{start} * \left(1 + \frac{r}{100}\right)^n$$

Accordingly, the daily increase rate can be calculated by the following

formula $r = 100 * \left\{ \left(\frac{C_n}{C_{start}} \right)^{\frac{1}{n}} - 1 \right\}$, which appears to be 5.2% for investment modules that we are currently testing. If the amount of operation funds gets

bigger, we expect to have a less favorable result than what we currently have through testing the Rix AI investment module as there might fewer number of situations in which the machine buys or sells coins at the right timing. Although it does not reach 10%-20% daily return generally earned by a professional private scalper, this result shows that it is capable of making enough profits in the long-term.

date	amount(%)	date	amount(%)	date	amount(%)
2017-01-01	100	2017-06-01	211045.7994	2017-11-01	492929607.5
2017-02-01	481.37988	2017-07-01	965714.844	2017-12-01	2255574100
2017-03-01	1990.346316	2017-08-01	4648756.958	2017-12-31	10321178610
2017-04-01	9581.126707	2017-09-01	22378180.67		
2017-05-01	43841.84054	2017-10-01	102399295.9		

* A chart reflecting the daily interest rate of 5.2% assuming that it starts at 100% as of 1st, Jan. It shows that the rate increases by nearly 10 million times after one year.

<Approximation of Rix investment module's performance of 5.2%/Day for 12 months>

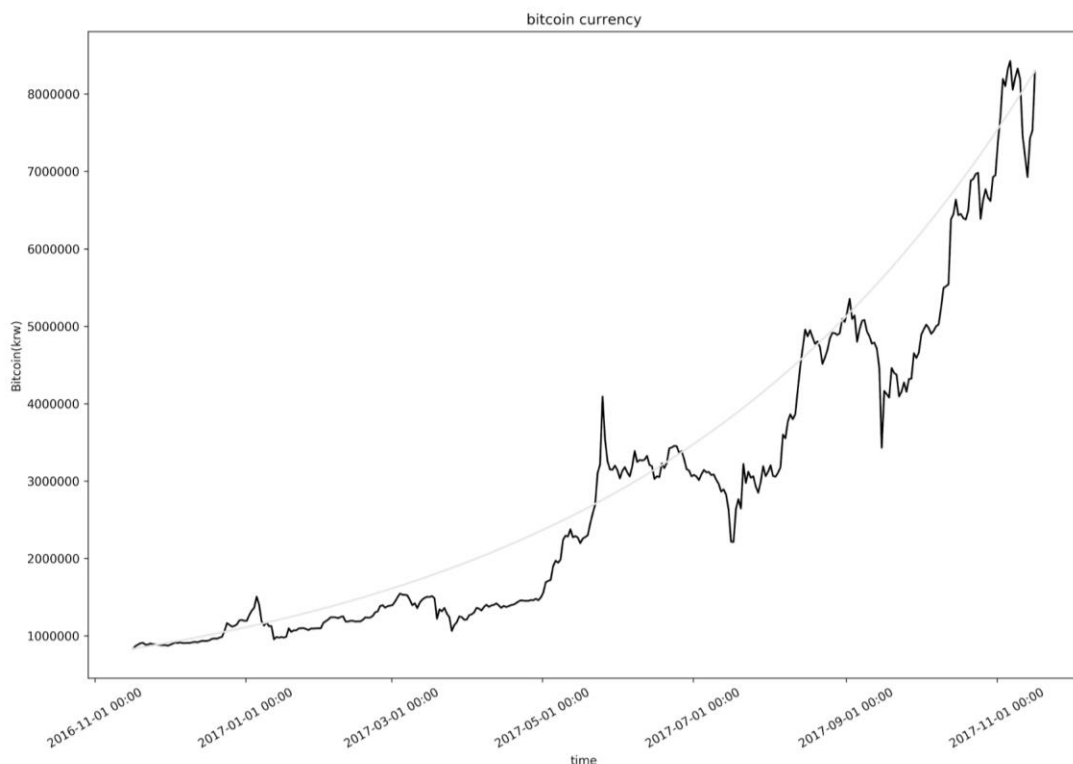
date	amount(%)	date	amount(%)	date	amount(%)
2017-01-01	100	2017-01-11	166.0188488	2017-01-21	275.6225817
2017-01-02	105.2	2017-01-12	174.651829	2017-01-22	289.954956
2017-01-03	110.6704	2017-01-13	183.7337241	2017-01-23	305.0326137
2017-01-04	116.4252608	2017-01-14	193.2878777	2017-01-24	320.8943096
2017-01-05	122.4793744	2017-01-15	203.3388474	2017-01-25	337.5808137
2017-01-06	128.8483018	2017-01-16	213.9124674	2017-01-26	355.135016
2017-01-07	135.5484135	2017-01-17	225.0359158	2017-01-27	373.6020368
2017-01-08	142.596931	2017-01-18	236.7377834	2017-01-28	393.0293427
2017-01-09	150.0119714	2017-01-19	249.0481481	2017-01-29	413.4668685
2017-01-10	157.812594	2017-01-20	261.9986518	2017-01-30	434.9671457

*A chart reflecting the daily interest rate of 5.2% assuming that it starts at 100% as of 1st, Jan. It shows that the rate increases by nearly 4.5 times during one month period.

<Approximation of Rix investment module's performance of 5.2%/Day for 30 days>

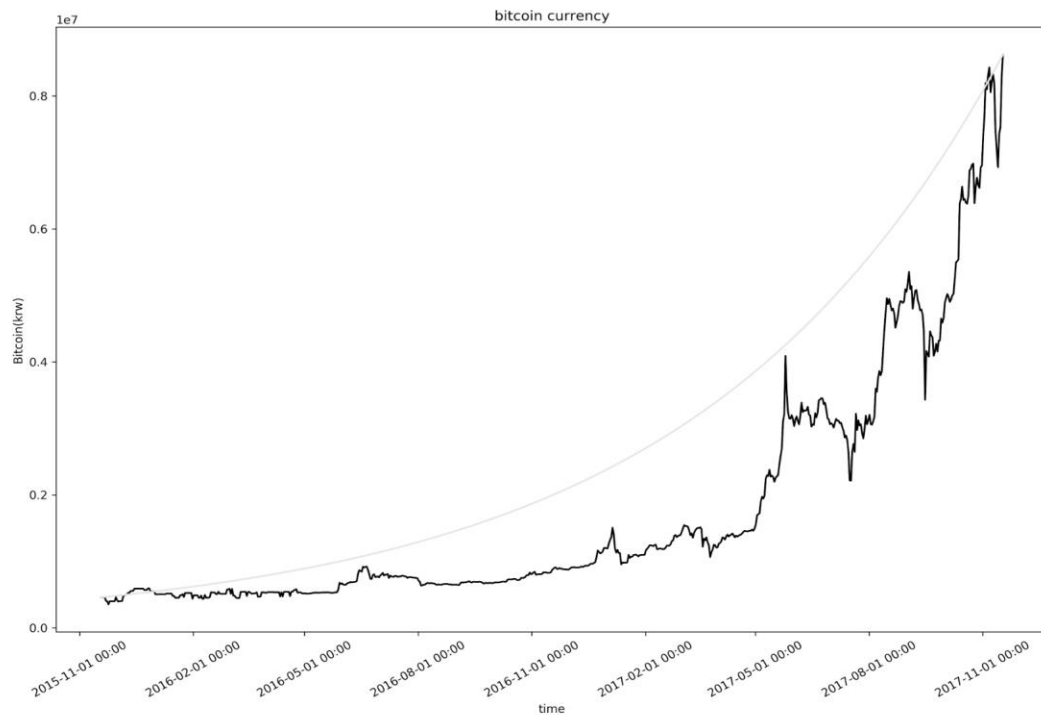
However, despite the above performance, if machines enter into actual investments with the much bigger amount of operation funds on hands, there will be far less opportunities for machine to timely buy and sell coins. So, in practice, it is unlikely that machines will have the same investment result as the test. After ICO, we believe that machines and exchange should be separated from each other and there should be some actions that need to be taken to reduce the unit trading price of coin. The target rate of DQN is positioned at the middle of the increase rate of Bitcoin over the last one year, which is 0.671% per day, and the rate of return currently demonstrated by the module.

Picture 12. The right upward market, Bitcoin



* The average increase rate demonstrated by an exponential curve after applying the daily average rate of 0.671%

Picture 13. Bitcoin, 2 years of growth



* The two-year average increase rate demonstrated by an exponential curve by applying the daily average increase rate of 0.402%

The target rate of return of this DQN is expected to range between 0.3%-0.9% per day.

The investment module that we are currently testing demonstrates 5.2% return per day. We can know from this that investing 1 million KRW can create return more than 14 million KRW after 3 months from the start of the service. This hypothetical return has been calculated by applying 3% daily rate of return, which is median value between Bitcoin's rate of return and tested module's rate of return. After one year, it brings an unbelievably profitable outcome.

However, considering that the test module is operated in small amount, there should be exponentially less amount of opportunities to timely buy or sell coins once it is put into practice.

Accordingly, we can reasonably assume that the target rate of this AI platform ranges from 0.3% to 0.9% per day. This target is even achievable with AI investment machines not performing so well.

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4.2.2. Genetic Algorithm

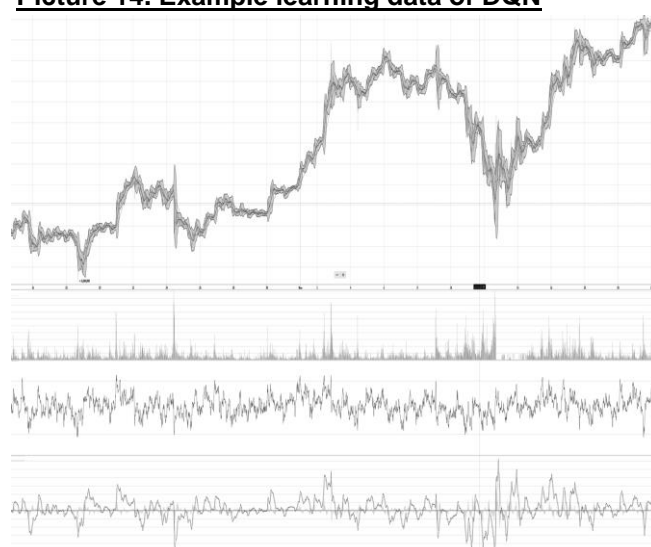
An individual DQN collects data, which will be used for learnings, from real-time price window of each exchange. After validating the rate of return of

each learning model, only surviving ones are applied to invest funds. After the application of DQNs, investment models failing to meet the certain criteria are replaced by new DQN models.

4.2.3. Learning Data

It accumulates real-time trading data of each market and simulates investments. During the simulation, it can only make an investment same as an actual quantity of sales and buy of coins. In other words, it can't simulate the transaction whose volume exceeds that of the actual trading. The real-time trading information and supplementary index such as STM, MACD, RSI, and VB are fed to DQN.

Picture 14. Example learning data of DQN



4.2.4. Natural Language Processing for Pre-analysis of Momentum

Natural language processing is a method of mechanically analyzing the human languages through the speech and turning into a form that the computer is able to comprehend or vice versa.

Among various parameters associated with pricing coins, parameters directly related to the pricing can be directly linked to its sell and buy function and parameters directly related to the trading volume can be involved in determining the transaction ratio of coins. For example, the crash of the coin market is led by Cryptocurrency's media and twitters of Cryptocurrency's celebrities. The investment machines of each institution responded to the market and humans intervened in that process. After inputting data indexed by natural language processing of the message that plays a critical role in such intervention, it sets criteria for analyzing the trading trend and calculating the transaction ratio by using traditional machine learning's class categorization and unsupervised grouping techniques.

The subject of the analysis includes SNS of Cryptocurrency celebrities, financial media such as Bloomberg, and Cryptocurrency communities. After verifying positive/negative indexing and numerical values, it can identify the correlation by using meta-analysis of the coin price and utilize it for the risk assessment. This will be used as a main tool to set the investment strategy of each coin.

4.3. Token network

4.3.1. ERC20 Standard Stage

Rix is created as an Ethereum-based token compatible with ERC20. Since it follows the ERC20 token standard, you can keep using the existing wallet compatible with Ethereum to hold and transfer coins.

4.3.2. Rix Independent Network Stage

After 12 months from ICO, Rix is optimized to serve its features and transferred to the independent and more secure network. The development roadmap is fixed and DAO determines how to operate after the development. Application of the self-developed block chain technology ensures that it is used at a broader range of service areas. In addition, subject to DAO's decision, it can issue tokens through POS mining. The issuance volume of POS is determined by DAO. The matters such as POS's master node condition, issuance amount, and whether to issue or not are also determined by DAO's Smart Voting system.

4.4. DAO Maintenance System by Smart Voting

It is integrated with the user environment such as proposition of motion and voting at DAO.

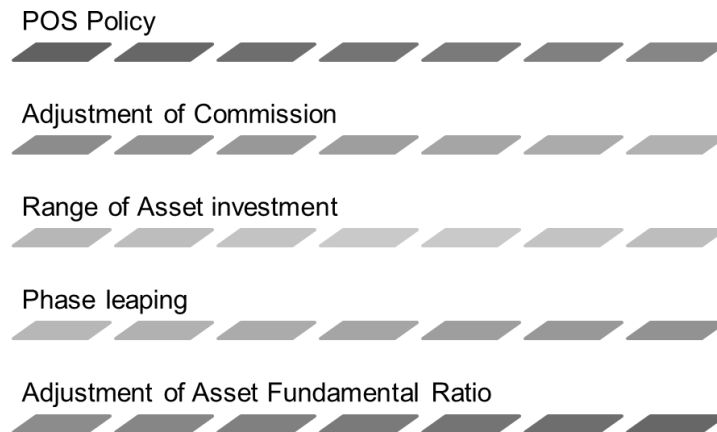
4.4.1. Policy Revision through DAO

The policy revision is proposed by Rix holders through DAO's UTOX and facilitated by smart voting of other holders.

4.4.2. DAO Dynamis Management System

DAO's decision categories will inevitably require an automated integration with the system. Rix handles various qualitative requests through the Dynamis Management System. The content and environment are later provided by DAO protocol, which will not covered in this white paper.

Picture 15. DAO Dynamis sample



5. ICO and Profit Distribution

5.1. ICO and Setup

RIX initially issues 8,000,000,000 tokens. Among them, 4,000,000,000 tokens are sold through ICO.

If it fails to reach the softcap, the business is canceled and all of funds raised through ICO are fully refunded.

Additionally, in case that it fails to reach the hardcap at first ICO, the business can still continue but it requires the second ICO in order to increase the ratio of operation funds compared to the development funds within the total amount of funds raised by ICO.

5.1.1. ICO Token Distribution



< Distribution ratio of token >

- Distribution ratio of token
 - 4,000,000,000 RIX - ICO Investors
 - 2,400,000,000 RIX – Air drop
 - 1,600,000,000 - Marketing, Contributors, allowance
- Pre-sale Bonus - 5%
- Price (RIX per 1 ETH)
 - Pre-sale – 105,000 units
 - ICO – 100,000 units
- Period
 - Pre-sale - middle of Feb., 2018
 - ICO – middle of March to April 2018 (posted on the homepage)
- Minimum amount of investment - 0.1 ETH
- Limitation on private investment - 100 ETH
- Soft cap - 6,000 ETH
- Hard cap - 40,000 ETH

At first, Rix invests all of its funds(70%) raised by ICO, excluding funds reserved for the development (30%), in major platform coins(BTC, ETH) , which plays a role of key currency in the current coin market and this allows Rix to have a certain value of assets right after ICO.

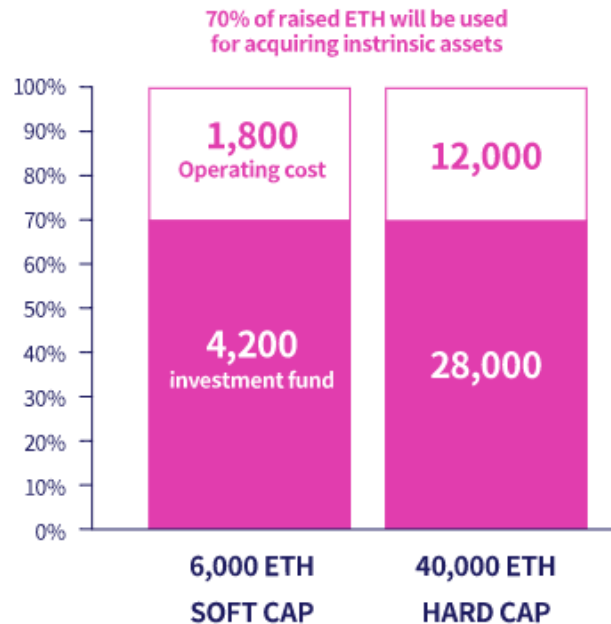
The company issues coins at its earliest possible opportunity after reaching the softcap to vitalize trades and maintains the minimum asset value of the invested funds by providing the Rix-ETH conversion service after the holding period(development period) of ICO funds ends.

In addition, since the invested funds during the development period will make the amount of operation assets higher than the amount at time of the investment, driven by the upward trend of the current market, it virtually eliminates the risk of investors losing their investment principals.

It was designed to give users the option to choose between the safe investment and high return-driven investment at the beginning.

5.1.2. ICO fund distribution

Rix buys and deposit key cryptocurrencies such as BTC as intrinsic assets using 70% of the ICO funds raised. Rest 30% of funds will be used for development and marketing.



5.2. User Rewards by Increase in DAO's Intrinsic Assets

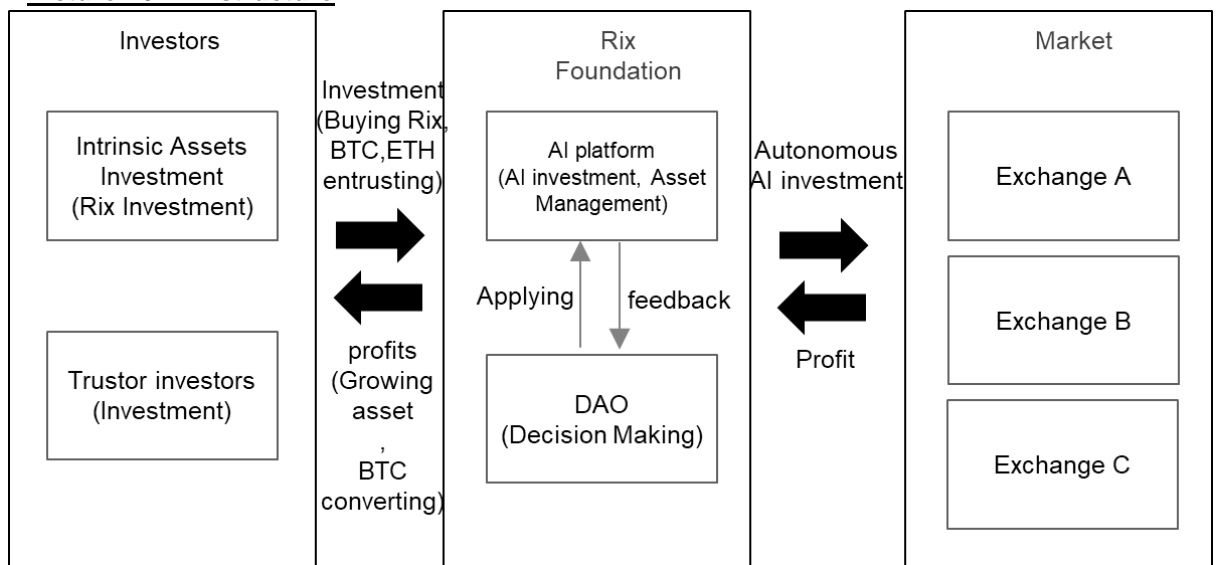
- Air drop (Compensation by Holding Time of Rix token)**
 It is a reward system targeting ICO participants and 10% air drop will be provided to those holding RIX from the early stage.
- Air drop (Compensation by Rising Value of Rix token)**
 This is a Reward for Rix owners.
 When the average price of Rix doubles the initial issue price, 10 % of RIX is given to owners. It will be given five times in total.
 This is an example.
 Rix's ICO price is 0.00001 ETH, after ICO Rix is listed on the exchange list and the transaction price reaches 0.00002 ETH.
 At this point, 10 % of Rix's existing rix holdings are paid for by air drop.
 So, The air drop of Rix would be given to onwner, when the ICO price base is doubled, quadrupled, eight-fold, 16-fold, 32-fold.
 There's Total five times of airdrop.
- POS**
 After switching the self-developed network, investors will be compensated through POS. The timing of the compensation will be 24 months after ICO and DAO determines whether to compensate and the ratio of the compensation. Since the number of coins issued by POS cannot exceed the extent that the value of intrinsic assets increases, it doesn't affect the intrinsic asset value allocated to 1 Rix coin.

5.3. Notice of Uncertainty of Future Value

The methods, technologies, and market conditions described as reasonable and feasible in this paper do not necessarily mean future profits are guaranteed. Accordingly, ICO participants are not guaranteed future profits and subject to a risk that the value of assets may fall below the original amount of the investment when converted into cash.

6. Organization

Picture 16. Rix structure



6.1. DAO Foundation

If Rix is only organized by DAO, it is impossible to protect its profits and retain assets.

The foundation has been established to carry out initial business activities and give Rix legal personality.

It is composed of the board of directors and DAO. DAO owns investment means. It is decentralized and vested the right to own and manage the Rix platform.

It holds assets to operate and distribute investments.

6.2. Company

It is a special purpose company and has been established to serve the foundation. It handles DAO's operations and doesn't perform any business activities other than those required by the foundation. Maintenance costs occur from the perspective of the foundation.

6.3. Developer Organization

The initial development is performed by the following senior developers:

Part of this team has studied block chain since 2012 but the block chain is only a minor part of the entire technology. The Rix project includes a variety of special development areas.

This team has the best development background in Korea in the field of network management, central control center, trading, block chain, AI, and big data.

- **Gregory Kim**

Founder, AI Designer, Developer

Customer's behavioral-analysis by RF flag

Indoor location detecting system by RF RSSI analysis

Analysis of detected location data on special ships of HYUNDAI

AI investment portfolio: RL based on risk assessment

Real-time application of risk factor based on NLP

- **Dongmin Shin**

Co-founder, Architect

- **Joonhee Kim**

AI Designer , AI Developer

Customer's behavioral-analysis by RF flag

Simulation of population model about pandemic disease

Indoor location detecting system by RF RSSI analysis

Analysis of detected location data on special ships of HYUNDAI

AI investment portfolio: RL based on risk assessment

Real-time application of risk factor based on NLP

- **Michelle Lee**

Developer

20 Years of IT consulting and enterprise system development

Global Fintech Service Tech Lead

Worked at Samsung, KT, KAIST, Hyundai Projects

- **Kijae Lee**

Developer

Meiji Japan Nutrition Management System

TSHUKUBA EXPRESS Railway Management System

Hyundai Oilbank OSM

Onse KT Snowman Portal

YTparkers Estate Portal

SKtelecom iMap 2.0

- **Sangsuk Lee**

Developer
KRCC Pension Management System
KRCC Fund Accounting System
Smilegate Gamezone
NIPA SW Engineering Information Storage
SKTelecom CMS
SKTelecom iMAP 2.0

- **Taehoon Kim**

Python, Hadoop.
SKTelecom IMS
SKTelecom A-DICT REDIS
SKTelecom PSS
SKTelecom Legacy NMS Platform Project
SKTelecom ODIN
SKTelecom SRAS

6.4. Advisor

- **Hwibum Song**

DB/Block-Chain Exepert
Executives of Oracle Korea,LTD
ORACLE Korea, LTD.

- **YongKwon Rick Chio**

IBM Architect
Direcor of Hybridcloud(Block-Chain Part) Department
Block-Chain Exepert

- **Suhee Kim**

Lawyer, Certified Public Accountant
Corporate Litigation Expert

- **Hoyeon Lee**

Cloud machine Expert
IBM Korea CO.LTD.

- **Mr. Rix**

Big data expert

7. Road map

Pre-sale.....	2018.02
ICO.....	2018.04
Purchase of intrinsic assets(Bitcoin).....	2018.2Q
Listing on the exchange.....	2018.2Q
AI platform operation.....	2018.4Q
The valuation of intrinsic assets.....	2018.4Q
The commencement of the investment trust service	2018.4Q
The start of the purchase of withdrawn assets.....	2018.4Q
Launching of DAO.....	2019.2Q
Platform conversion main net.....	
..... To be launched at the time when DAO is determined	