

XBM Token: a commission discount token for Betmatch

Vasily Sumanov

Chief Research Officer, betmatch.io

v.d.sumanov@gmail.com, sumanov@betmatch.io

Introduction

The last year and a half has been marked by a sharp increase in funding through crowdfunding in the Initial Coin Offering model, a process wherein a company/project releases its tokens which, ideally, are not construed as equity shares. The first projects funded by the ICO were primarily focused on infrastructure tasks for the creation of new blockchains and blockchain services. Tokens within these systems carried the function of protecting those protocols from Sibyl attacks and others while also being a mechanism for transferring value within the ecosystem. Later, the focus of attention of creators and developers began to gradually shift from decentralized protocols and infrastructure solutions to business applications. It is worth noting that often, these applications implement traditional business models, integrating blockchain into business processes in order to increase the value of a service for the user and also seeking to circumvent the problems and limitations in those fields of activity. Integration of tokens with a clear economic goal and value component into such projects has become a challenge in most cases, since the business model is often centralized and does not require any value carrier. Furthermore, the means of payment and settlement can be any existing "developed" cryptocurrency such as Bitcoin or Ethereum.

One of the pioneers who found a successful solution to this problem was Binance, who successfully implemented their tokens into the completely "centralized" business model of an exchange. This token serves as a means of payment that has significant advantages over other forms of payment within the framework of their project. In fact, the exchange's tokens (BNB) allows users to pay a commission which is twice as cheap (in the first year) before the value of the discount starts diminishing. In addition, Binance buys a part of the outstanding tokens from the market on a quarterly basis from their profits only to burn those purchased tokens. The link to the payment of commissions (as a consequence and actual binding to turnover), coupled with the purchase of shares from profits, leads to the fact that the value and price of the token becomes largely correlated with the development of the exchange (namely, the volume of trading and popularity). Thus, the company has managed to successfully create a financial instrument tied to the actual indicators of the company without the functions of a formal redistribution of the cash flow (i.e. dividends).

Obviously, the Binance model is one of the simplest and can be developed in an application to other businesses. It should be kept in mind that not all business processes allow a simple way to distinguish a commission and pay it with a discount as Binance does by using centralized calculations on the server (which in fact makes it possible to pay any small amounts of commissions, not including the cost of moving tokens in the blockchain). One of the models proposed for the implementation of "discount tokens" (and discounts are actually the amount of real money saved by the users) are stacking tokens. These tokens provide the opportunity to obtain significant discounts and benefits in the system by holding/freezing the tokens on the user's balance. A good implementation case of this model is the decentralized IDEX exchange. The IDXM Exchange Token gives any token-holder (and there are only 2,000 of them issued) to trade on the exchange for 5 years from the moment of launch without exchange commissions.

Thus, the possession of a token provides an "absolute discount" and even the opportunity to create your own personal business based on IDEX (for example, on market-making) using an inadequate exchange commission.

At the moment, work tokens, which give the token-holder the opportunity to work in a decentralized ecosystem while gaining income from intensive activities (similar to the Augur REP token) and discount tokens, which entitle the token-holder to receive a substantial discount on commissions within a business by keeping them on balance or using them as payment means, are the object of close attention of investors, foundations and researchers of economic and business systems. First of all, interest is caused by the appearance of an understandable organic component of the value of the token, which is measurable and essentially depends on business processes and their level of implementation. This is unlike many other tokens where the speculative component is unreasonably high. With proper design, the value and the cost of such tokens is directly related to the success of the project or business; and this connection is quantitative. In the cryptocurrency industry, which is primarily known for its high level of volatility, chaos, and speculative components on the investments markets in such "understandable" tokens, these tokens look extremely attractive. It should be noted that estimating the future value of such tokens is also simpler and more transparent (based on the Net Present Value theory) than estimating the value of traditional tokens of decentralized protocols, where the number of assumptions that are estimated (for example, based on the quantitative theory of money and Fisher's equation) can withstand no criticism. In addition, the value of the token used as the value transfer unit and the value of the work token can differ up to 1,000 times, as was previously shown for the famous Filecoin project.

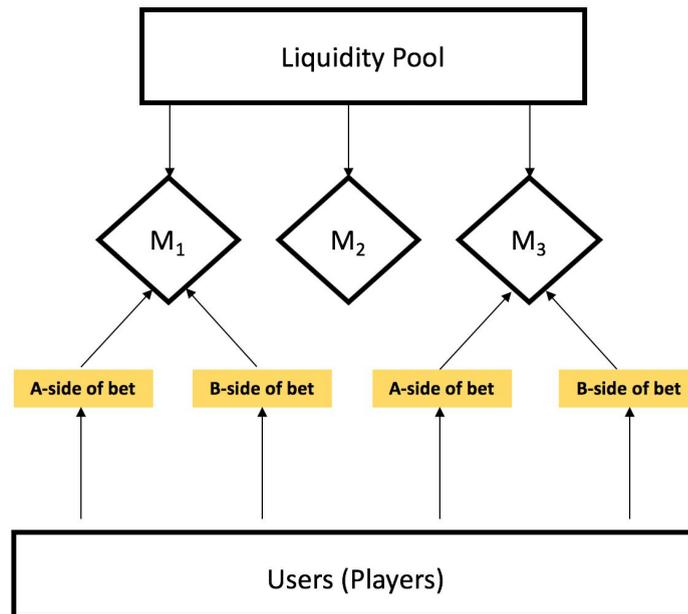
Within the framework of this document, the mechanics and functioning of the token of the first blockchain solution for bookmakers will be described.

The main goal of this article is to describe the principles and motivation around the design of a token that has simple, intrinsic value by being applied to the system as a commission-discount unit as well as supporting the community's growth around the decentralized service.

The system architecture: Betmatch

Betmatch is a blockchain solution for bookmakers by RevelDevelopment and can also be described as a "an instrument for betting business". At the current stage of development of blockchain technologies, it is almost impossible to build a successful business with functional performance in a completely decentralized environment. Often, this is not necessary since the decentralization of some business components is very costly and risky in terms of the quality of their future work, while the added value of this "event" is doubtful. As result of such vision, the architecture of the Betmatch service is a combination of decentralized and centralized components. Modules that are the most important and essential for the user community or in terms of security, transparency, and trust (deposit and storage of customer's funds, bets calculation, or storage of working capital of the service) are executed in a "decentralized" form. Modules, the centralization of which at this stage does not reduce the value of the product as a whole, but at the same time allows to launch it quickly, qualitatively, safely, were decided to be performed in a centralized process.

The architecture of the project is organized in the following way:



Key terms (glossary) within the framework of the system under consideration:

User/player - user of the project for its direct purpose (betting on the events).

The market is a set of bets within one event, logically and economically intertwined within the framework of probability theory.

Passive delegate - the owner of tokens, who sells the right to use them without clear targeting and target work for a certain audience, in a "passive" mode.

Active delegate – the owner of tokens, transferring the right to use them to a selected audience of players, collected exclusively by him as a result of his own activity.

The cost of leasing tokens is the price paid to the owner of the tokens by the player who used them in a rental mode to derive additional profit within their bets.

The architecture is built in the following way.

Storage of customers' funds is performed on contracts within the system. Customers' funds are under their personal control during the entire course of interaction with the system. The rules and "honesty" of the system are provided by the structure of smart contracts for storage of funds and the mechanics of markets (the contracts of the markets themselves). Within the system, the customers' funds can be withdrawn back only to their ETH wallet in case of a win or a return of the bet. In the event of a bet loss, the funds are transferred to other players who have won within the given market or liquidity pool.

Thus, the most important part of the system, namely the storage and redistribution of customers' funds, is transparent and inaccessible to circumstances of fraud due to the implementation of a decentralized process.

Centralized elements of the system include the system for calculating the bet outcomes and coefficients in real time and obtaining information about the fact of the end of the event and its result. This functionality was decided to be processed and performed in a centralized execution, at least at the first stage of the product implementation. This is due to the peculiarity of bookmaking business in real world conditions.

Bookmaker line of coefficients on events.

The coefficients for the outcomes are a very important part of the betting process; any mistake in them can lead to the loss of the bookmaker company. In the current reality, the coefficients are calculated by large teams of analysts in connection with the numerous cases of deception of automatic settlement systems by the players who manipulate the coefficients by setting large sums of funds and "twisting" the odds. Obviously, the decentralization of the process of determining the coefficients does not make any sense. If suddenly the odds are very different from the average in the industry (that is, they are not be profitable to players) – the players will not use such a system. In the event of a violation of the system of coefficients, the bookmaker company will lose, not the players; that is why the centralization of the coefficients does not harm the project and the user-experience of the players, but only strengthens it. The company is responsible for its own balance and means for the correctness and accuracy of calculation of the coefficients.

The fact of the end of the event and the determination of the outcome.

All events that will be offered in Betmatch, the instrument for betting business, are licensed and officially conducted by the respective federations and committees (one of such organizations is the well-known FIFA). Thus, the information on the completion of each event in the line, its outcome with detailed indicators is supplied by those large organizations (FIFA, UEFA, International Olympic Committee, etc.). In this regard, there is no problem of trust to the outcome. Moreover, in case of cheating by Betmatch itself (by calculating the bet based on some other outcome of the event, other than officially available and registered in the abovementioned organizations), players will no longer use the platform. Thus, this can be done only once with a complete loss of brand trust and user base. Obviously, the company has little motivation to cheat players (even in a very large event with a huge number of bets placed) and this motivation does not exceed the motivation of any other company in the world (it should be borne in mind that many bookmaker companies are registered in offshore zones, store funds in offshore banks, and may disappear at any time). The cost of the brand and user base is usually significantly higher than fraud on one game. Therefore, it is quite logical and acceptable at the first stage of the project to look for a centralized determination of the outcome of the event (given that the sources of information about the end are checked, and the motivation for fraud at the stage of receiving information about the outcome in the system is low). At the next stage of the project development, it is planned to switch to user consensus on each specific outcome, as is done by Augur (users put their tokens, deliver true information about the outcome of the event to the system and earn on it).

Thus, the architecture of the Betmatch project is a combination of centralized and decentralized services that provide the central core of the system and the execution of all core business model operations. A number of services, the ones most important for players and the company, is executed in the way that does not require trust for the company (this applies primarily to the storage of customers' funds and the execution of bets).

The company's business model in terms of accepting/calculating rates follows industry standards. In the line of coefficients, a bookmaker commission is put (5-7%, depending on the market). In addition, there is a basic commission to withdraw funds from the system, set to 3%. These two

commissions are the basic sources of the company's revenue, along with other off-system sources, such as advertising. Withdrawal commissions also have another purpose – to distinguish club members (token holders) and other players and incentivize the community to use tokens for free betting (it would be widely observed in next section).

Token XBM: a discount token for the player's community

Currently, the existence of any significant IT project is difficult to imagine without a strong community around it. In case of a world of bookmaking and sports betting, the community is especially relevant. It is known that around the betting process there is a wide field of social interactions with an impressive set of activities (sports analytics, consulting, recommendations on rates, provision of direct gambling decisions on rates). Obviously, around the technological core of the system, it is necessary to build a system of social interactions to enhance the interaction of the community with the product and the increased involvement of users.

Within Betmatch, a system has been designed that primarily focuses on holders of XBM tokens as well as content providers and information related to the world of rates - forecasters, analysts, people involved in the world of sports in some way or others producing valuable content.

Under certain conditions, the token allows (in accordance with the mechanics described in the next section) users to receive a discount on all system commissions for the player including getting the opportunity to make rates completely free of commission within a certain limit. The token is used in the "stacking" mode, that is, keeping it frozen on balance during active use. The functionality, described above, refers to the "discount token model".

Also, the token can be used by the owner to lease it out to others. Any player can use tokens of another person for betting to save on commission fees. In this case, according to the functionality of the token, the owner of the token gets the opportunity to bet without commission. A user who leases a token receives a 50% discount (in the current version) for all commissions. Technically this is expressed in the fact that the token holder himself (entitled to a fully free commission rate) takes half of the commissions from the player.

Thus, the token has two main functions:

1. The right to not pay service fees, or to get a discount in the amount of the full cost of the system commission within certain limits (in fact - the right to receive part of the commissions of the whole system in the form of a "natural product", that is, using them without payment); and
2. The right to collect commissions from players (as part of leasing a token).

In fact, some part of all XBM tokens in accordance with function 1 and 2, which is the right to a certain share of all commissions of the system at the moment. According to function 2, this is the right to sell (that is, to receive income from this) part of all commissions of the system to other players without spending the underlying asset (token). Given that the company itself invests in marketing and technology infrastructure, attracting the players and providing them with the most convenient and safe betting opportunities, the reselling of the part of the commissions to other players becomes quite a simple task of generating the revenue.

Leasing tokens can be performed using two options - working as an "active" delegate or "passive" leasing of tokens.

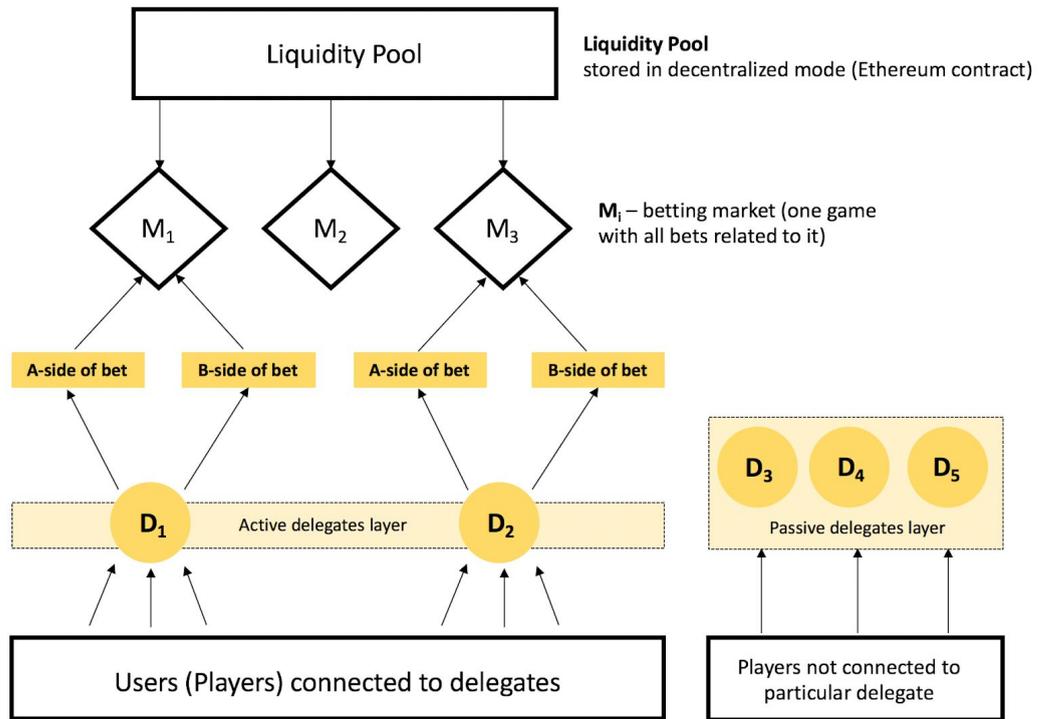
Automatic (passive) leasing of tokens implies the possibility to lease tokens without having a specific owner-oriented community. The owner of the tokens confirms the desire to use tokens in order to save commissions by other players in the personal account. Obviously, there can be quite a lot such persons and, accordingly, they are automatically provided with tokens. Therefore, in case of an occasional player's desire to rent tokens in order to use them for a specific bet (and this opportunity will be implemented on the website), the tokens for use are also randomly selected. The token owner cannot affect the frequency of use for his tokens (and, consequently, the earnings from them) in any way, except in the use of active token lending. The frequency of tokens' use in case of normal chaotic and random requests will correlate with the total number of tokens and their shares in the entire pool of tokens offered for leasing.

The active leasing of tokens implies that the delegate (the person who owns the tokens) somehow attracts a target community to himself. In the basic version it is assumed that this will be done by generating valuable content, for example sports analytics, recommendations on betting. While generating the content, the delegate becomes interesting to the community and players follow him to use his information. In doing so, the players can use his tokens for their bets if they do not have their own. In this case, the delegate earns from all winning players' bets (the fact is that the commission line and commission for withdrawal have sense only on wins). Unlike automatic leasing of tokens, the delegate's entire community uses only its tokens to save commission during the betting process.

An active delegate can gain revenue while working with service in the following way:

1. Provide his community with the tokens for bets. In fact, the resale of their share of commissions in the system. Leads to income -% of the turnover of his own community.
2. The fee from the community or a part of it (for example, from those who have access to the exclusive content) a percentage of the winnings at the rate.
3. Sale of additional content upon subscription

In addition, the active delegate receives the betting turnover statistics from all bets signed by the players in his personal statistics. These statistics are published and maintained by the top-100, which Betmatch plans to remunerate from the system's revenues on top of all commissions earned.



Thus, within the framework of discounts for the service within the system (commission), the token is classified as a **discount token**. Part of the earnings opportunities which are open to the holders of the token by reselling to their community (or the community of the whole project in general) the percentage of commissions to which token gives right during the betting process, coupled with the work on attracting the personal community (content, analytics) and working for the benefit of the system (attraction and retention of players).

XBM token: mathematics and mechanics of work

The main values and their values within the framework of the proposed model are presented below. This concept is a result of development an excellent SweetBridge protocol approach¹:

Name	Functionality/use in the system	Range of values accepted
C	Cost. Service cost	$[0; \infty]$
c	Service unit cost	$[0; commission]$
Y	The volume of the purchased service (in units of service)	$(1; \infty]$
T	Token. Number of tokens	$[0; emission]$
T_{FREE}	Token for free betting. The number of tokens that need to be frozen currently for betting without commission	$(0; emission]$
β	Discount coefficient. $1/\beta$ is discount fraction	$(1; \infty]$
T_A	Active-used tokens	$[0; emission]$
X_A	Active bets for a period	$[0; \infty]$

The system introduces the base value - the minimum bet equal 0.01 ETH. System service is the organization of the process of accepting and calculating the rates, which is paid by commissions.

¹ <https://sweetbridge.com/assets/docs/WP-Sweetbridge-Discount-Tokens.pdf>

Thus, the cost of a single "product" of Betmatch is the cost of commissions within the framework of working with a single rate.

Let C be the cost of the service. The cost of the service at any time depends on the number of tokens on the player's balance (T), the number of "single" products (Y) purchased, the value of a single product (c), and the discount share that can be obtained by owning a given number of tokens (T) and using them for obtaining discounts within the framework of this state of business (X)*:

* X is an indefinite abstract value that indicates the current state of the business and is expressed quantitatively in relation to T_A/X_A , which will be shown below.

$$C(T, Y, X) = c \cdot y \cdot (1 - f(T, Y, X))$$

$f(T, Y, X)$ – is a function of discounting. The discount function determines the dependence of the required number of tokens to obtain a discount of a certain amount from the volume of the desired service for purchase and the current state of the network. The function has the following basic mathematical principles of operation:

1. $F(0, Y, X) = 0$, that is 0 tokens = 0 discounts for any quantity of services and at any level of business development
2. $F(T_{FREE}, Y, X) = 1$, that is, the function has the value 1 (the maximum discount) in the event that there are the number of tokens on the balance necessary to obtain the maximum discount T_{FREE}
3. The volume of tokens to reach the T_{FREE} value increases linearly with the increase of volume of the purchased service

At the same time, the business does not give all possible revenues from the commissions to the players (for the sake of economy), but leaves part of it for the maintenance and development of its infrastructure. This is determined by the coefficient β :

$$\sum_{i=1}^n C(T_i, Y_i, X) = c \cdot (1 - \frac{1}{\beta}) \sum_{i=1}^n y_i$$

Thus, the total revenue of the company is the payment received for all the services (the collected commissions) minus the share of the community. Community share ($\frac{1}{\beta}$) is the share of system commissions that the community will not pay using the tokens (which means that this share is deducted from the company's revenue).

Particular attention should be paid to the X value. This is the system's state magnitude. The discounting function $F(T, Y, X)$ sets the feedback loop for a constant adjustment of the amount of tokens necessary to receive a discount on the minimum volume of the product (saving on the commission for the minimum rate).

Due to this, the volume of tokens necessary for operating with a minimum rate without commission (and, accordingly, any rate in general, a multiple of the minimum) is a dynamic value and depends on the current state of the system. The required volume of tokens is calculated by the formula:

$$T_{FREE} = \beta \cdot \frac{T_A}{X_A}, \text{ for a random bet } T_{FREE}(y) = y \cdot \beta \cdot \frac{T_A}{X_A}$$

Thus, T_{FREE} depends on the total amount of bets in the system (in units of the minimum bet) and the total number of tokens frozen (at the time of the bet) to reduce the costs for the users.

The coefficient β takes into account the division of commissions on commissions that are subject to discounting and are given to the company's income. The coefficient "y" allows you to calculate the number of tokens on the balance necessary for freezing in the case of a bet of a random size.

In case of an increase in the total volume of use of the service (in this case - the total amount of rates in monetary terms), according to the equation above, for each unit volume of tokens there will be an increasing share of service commissions that can be saved. Thus, the value of the token increases with the growth of the system and this can be measured quantitatively. With the growth of the system some number of tokens in the user's hands will bring more and more opportunities to save. If there is no need to use the entire volume, the tokens can be transferred temporarily to other players with a profit from this process.

The determination of the T_{FREE} volume for different markets

The market of bets for various events will be sufficiently diverse. The existence of a great number of sports, leagues and competitions leads to the fact that it is logically incorrect to formulate the cost of commission-free bets for different markets on general grounds. In this regard, for each market segment, a separate dependence of the "price" of the commission-free bets is formulated. So, for a large and meaningful football match, it is logical to determine separately the number of tokens that need to be frozen. This will lead to a gradual increase in the "cost" of saving commissions in frozen tokens, which leads to the following consequences. First, it is profitable to bet on a big event in advance (if you want to save) because the earlier the bet is made, the fewer tokens you need to freeze. At some point, the required amount of tokens to be frozen will be so large that it will not make sense to freeze tokens. Ultimately, the volume of commission-free rates will be distributed to various events. The indicator on the volume of freezing of the tokens for different matches can also be used as an indicator of the quantitative popularity of the match among the players who use cryptocurrencies for the bets.

The value of the token for users and investors

The possibility to rent tokens leads to a significant increase in the value of the token, since it allows you to effectively use the excess amount of the rights on commissions. This mechanism intensifies the participation in the system for large holders and provide them with passive income (it is necessary to point out that only the active work of a delegate allows him to have a predictable volume of rental of tokens, passive participation in this process makes the result probabilistic). Economically, the income appears due to receipt of commissions paid by the user through the specified rental mechanism by the holder of the tokens.

It should be noted that within the framework of the created system, the most profitable activity is that of an active delegate or user, unlike the investor who holds tokens outside the system of use or a passive delegate:

$$P_{INV} = T \cdot (P_{sell} - P_{buy})$$

$$P_{USER} = T \cdot (P_{sell} - P_{buy}) + T_K \cdot \sum_1^K U_k$$

$$P_{PASSIVE.DELEGATE} = T \cdot (P_{sell} - P_{buy}) + T_L \cdot \sum_1^L U_L$$

$$P_{ACTIVE.DELEGATE} = T \cdot (P_{sell} - P_{buy}) + T_L \cdot \sum_1^L U_L + Z$$

The investor only gets the difference between the price of buying and selling tokens. The user (player) who uses tokens to save commissions of the system receives the price difference + the saved commissions (direct utility of the token). The passive delegate who uses the mechanism of automatic (probabilistic) leasing of his tokens receives the price difference + earnings from a lease. The active delegate receives as a benefit the price difference, rental income (it is worth noting that these revenues are more predictable than in the previous case), as well as additional profit (the percentage of winning players' rates and revenues from other services). Additional profit is considered to be received by using a token as well, since the availability of tokens to reduce commissions as part of the subscription on the delegate is a competitive advantage for the delegate's client.

Conclusion

In the framework of developing the architecture of the bookmaker's company with the implementation of some functions in a decentralized environment, the mechanics of functioning of the XBM token has been developed. These mechanics are the application of the ideas mentioned in the documentation for the discount tokens of the SweetBridge Protocol, further refined for the nuances of the Betmatch service. As a part of the Betmatch service, the token performs the primary function of access to discounts. Using the token allows users to obtain a measurable cash flow, which is realized through the direct betting or the mechanism of leasing of tokens within the system of social interactions. This system, according to the project, will help the development of the user community around the project, its scaling and joint profit-making through active actions with the growth of the Betmatch service.