Tixico whitepaper

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Contents

1 Introduction

Event organizers face a variety of challenges. Mainly depending on the events size and prestige, these challenges are of varied importance to the organizers.

The ticketing market is especially relevant for high-end events where a high demand for tickets exists. The market structure as it is today only allows little to no control over the ticket prices once they are sold at the primary market. Such high-end events usually are sold out to ticket scalpers who resell the tickets with high markups. This means that the organizers miss out on additional revenue they could have gained from the secondary market and potential attendees miss the event altogether because of the high markup price. There is also a potential for fraud in the secondary market in the form of fake or counterfeit tickets. This can lead to a negative reputation for the organizers of these events.

On the other hand, for smaller events, these challenges are different. Such events usually face high financial risks due to unpredictable demand. The barrier to entry for local events to sell tickets is also high. In the end, potential event-goers do not attend the events because they are not relevant to them and the event organizers lose money and stop bringing world-known artists to certain regions.

The solution for all previously mentioned issues is Tixico. Tixico is an innovative event management ecosystem, which turns tickets into a virtual asset and offers support to event organizers to fund their events. It reduces counterfeit risk and ensures that resellers can earn money by selling timely purchased tickets to highly-requested concerts in a managed and controllable way. Furthermore, the power over this virtual asset ensures that the event organizer can charge extra for each subsequent ticket sale and control the maximum trading price. Tickets can be tied to the holder and can either be used for attending the event or resell within the boundaries set by the event organizer. To prevent off-chain trades with additional markups to tickets, review and report mechanisms will ensure such offenses can be punished.

Likewise, Tixico offers crowdfunding functionality for events. Registered users can allocate funds for a profit share, or buy discounted pre-sale tickets to events announced on the protocol. The events can be configured and promoted within the Tixico platform and, if needed, opened for the crowdfunding functionality with the incentives mentioned. This functionality can lead to risk reduction and better planning for organizers of specialized or local events where the real demand can hardly be identified. A soft-cap de-

fined for crowdfunding of an event can be used as a feasability benchmark for organizing the event.

At a later stage, the Tixico protocol and platform will be complemented with a sponsoring pool, where sponsors can define their profile, e.g. target groups or desired artists, and match the target group with promoted events based on data from past events and attributes defined by the event organizer.

For the final stage, features which support the execution of events will be added to the application. Cashless payments for beverages and merchandise will be a valuable addition to the entry controls that are needed for the ticketing solution in the earlier stages of the project. Also, domain-specific features like athlete tracking for sports events are possible add-on features once the protocol is established and the demand for these solutions is met. The data generated by these features can then be used to optimize future event planning, promotion and sponsor matching. Eventually, Tixico will offer a whole new ticketing and event organizing environment.

Consequently, the protocol and application helps in the following ways:

- Second-hand market for tickets of various, including sold-out events;
- Additional income to the organizer of the event from second-hand market;
- Safe ticket trade on the secondary market with significantly reduced risk of fraud;
- Cheaper ticketing service for event organizers;
- Crowdfunding to lower financial risks for event organizers;
- Investment opportunity for users;
- Pre-sale option for supporters of crowdfunded events;
- Domain-specific features.

2 Functionality

The Tixico basic protocol consists of a primary and secondary ticketing market as well as a specific crowdfunding layer.

2.1 Ticketing

When purchasing a ticket, the user buys a virtual asset that represents the ticket on the blockchain. This has two benefits. First of all, this type of ticket is protected by the blockchain mechanism, which ensures the continuity of information, data immutability and eliminates duplicates; these two properties provide a higher level of protection against ticket counterfeiting. Secondly, this unit can be resold on the secondary market. When a user attends the event there are several entrance methods that can be used but all of them involve burning the ticket on the blockchain meaning there are no duplicates left. To provide additional means of protection we only allow to verify the tickets at the entrance in a specific time period which is in close range to the starting time of the event. We would also like to mention that certain types of tickets can be upgraded to include additional extras for example parking at the venue. They can be upgraded both after the primary sale and secondary sale.

Users can acquire a ticket via the primary or the secondary market. In the primary ticket market, tickets are being sold from event organizers to users at a predetermined price. This is similar to existing ticketing services and provides the basic functionality of the Tixico protocol. Before purchasing a ticket the user can view all information about the event and select a ticket according to one's needs and availability. The organizer of the event can enter all event details and other supporting information.

Everyone can create their own event on the protocol and the event contract encapsulates information about the creator and gives him/her permission to manage the specific event.

Since the tickets are distributed via the blockchain we can provide the users and organizers with a safe, counterfeit-free secondary market that benefits both sides. The main advantage for the organizer is the fact that they can generate additional income from each sale of the ticket on a secondary market. This can be done because the ticket is exchanged on the blockchain and thus always contains information about the event and its creator. During an exchange, a small portion of the payment can be sent directly to the organizer. The organizer can also set up preferences for the tickets sold in the secondary market. These settings include but are not limited to a number of times a ticket can be resold, earnings from each resale and minimum / maximum price of the ticket. Such preferences attract more potential users and limit unwanted price increase. When reselling a ticket, the price is set

by the user but is also influenced by the limits set by the organizer of the event. For the end user, the advantage is that all tickets available on this secondary market are legitimate, since the ticket asset cannot be falsified. After a successful purchase of the ticket, the buyer receives it and the seller gets the corresponding amount, minus the organizer's fee, which is taken from the organizer's resale preferences. Consequently, there are two winners (the seller and the organizer) from the sale of a ticket, but the ticket now belongs only to one of them (the buyer). To keep tickets on the second-hand market from selling out and to increase the reseller and organizer profits they can also be auctioned.

2.2 Crowdfunding

Next, to deal with today's problems on the ticketing market, Tixico will host a complete environment for event organizers, location owners, and sponsors. One of the strongest features of the environment will be the crowdfunding functionality. This allows for smaller or local events to attract much-needed funds before announcing the event to the public. It allows organizers to gain traction to their events and validate their assumptions before proceeding to plan. To reduce the risks for our users we will require the organizers to provide additional identification and a deposit to make sure the event is legitimate. Community moderators, elected by the Tixico token holders, can specifically regulate this aspect as well. In return for funding events, the users can be granted early access to the ticket sales or they can participate in profit sharing with the organizers. The early access options give users the opportunity to buy valuable tickets in advance. Which means that tickets can be later used to attend the event with friends. Or they can use the tickets to recoup money by reselling part of or all of them. The profit sharing provides everyone in the world with the opportunity to increase their capital by funding attractive events around the globe. The potential profit sharing mechanism is explained in a simplified form by

$$\begin{aligned} \text{returns} &= \frac{i}{t} \cdot r, \\ \text{where } i &= \text{user investment}, \\ t &= \text{total investment}, \\ r &= \text{event revenue} \end{aligned}$$

2.3 Scalability and adaptability

The crowdfunding functionality for events is what separates us from our competitors. However, it is not our only advantage. After long discussions with our partners from the event industry, we saw that blockchain ticketing has drawbacks that make it less appealing for adoption. One of these drawbacks is the lack of physical or paper tickets. We plan to provide various entry flows. One of these flows is a hybrid solution for both physical tickets next to blockchain tickets. This way, we can increase the adaptability of the technology. To minimize the counterfeit risk for this entrance flow we burn the corresponding virtual asset on the blockchain and apply protection from copying. After an adaptation period of 5 years, we plan to limit the paper ticket functionality by enforcing additional fees to increase protection of the involved parties.

The other drawback is the transaction speed. Current blockchain technologies are not fast enough to be reliably used for ticket verification and transfer shortly before the start of the event. We eliminate this problem by introducing an off-chain service layer that caches information and handles ticket verification. When blockchain technology is evolved enough we plan to eliminate this hybrid solution.

We will provide a rating system to ensure that most tickets are sold on the chain under the preferences set by the organizer. This system allows to rate and report scamming resellers, enforcing honest usage of the protocol. The rating system is also used to rate event organizers and potential events. Hence allowing users to avoid potential scams and promoting honest organizers and their events. This functionality is further explained in the next section.

After an event ends we provide in-depth statistics to the event creator. This way the event organizer knows who attended the event, when they arrived, and so on. The organizer can then use this data to improve future events.

2.4 Future

Aside from the plans mentioned in previous section, Tixico is aiming to become a one-stop shop for event organizers. After a successful launch of the market and crowdfunding functionalities, we plan to offer additional solutions. One of these solutions is a payment protocol that can be deployed on devices at the event venue. This means that the user could make all pur-

chases via a familiar interface that at the same time provides more insights to the organizer. Another solution that we believe would be useful to organizers is matchmaking organizers with potential sponsors and advertisers. This can be provided via the crowdfunding functionality since it would allow the organizer to receive additional funding, exposure or partners that make it easier to deliver the event. The sponsors can query for event organizers that fall in their field of interest and acquire better sponsoring deals with more suitable events.

In the future, the application would also contain information about suppliers like caterers or security, so that event organizers can quickly connect, see their track record, and give input on their performance. Such a system makes the process of event management much easier and less risky. These solutions will be developed after the successful launch of our initial protocol and application and as such, are out of the scope of this document. Our long-term vision for Tixico is to create a reliable and easy-to-use solution for event management and promotion.

3 Technology

From the technical perspective, the protocol layer is based on smart contracts. The organizers and other users can interact with these contracts using a front-end web application provided by us or by our partners. The information is cached for reliability in a separate service layer. The protocol can also be used directly by interacting with the available contracts. In this section, we break up and highlight different parts of the protocol and the technologies around it. The parts mentioned here are not necessarily different contracts or systems but just different structures that we have identified as necessary and divided into smaller modules.

3.1 Top level

We keep information about the protocol and addresses to supported contracts in a top-level contract. This gives sustainability to the protocol as in the future we plan to allow token owners to vote for changes in this contract so that it points to newer versions of the contracts in use. This contract also keeps a list of non-fraudulent events, organizers, and parameters that are used in voting.

3.2 Event

The information of an event is kept in a smart contract on the blockchain. This contract can be initiated by an event organizer. The organizer enters basic information about the event and uploads it to IPFS (peer-to-peer hypermedia protocol). Then the IPFS hash, the address of the event owner and the identifier of the event is stored on the blockchain in the contract. Additionally, if the organizer uses a front-end application (provided either by us or by our partners) to set up his/her event, the information from that front end is stored. This information would be the identity in the application and identificator of the application itself.

After the event has been created, the owner of the contract (also known as the organizer) can start adding team members who will collaborate and help with shaping the event so that they can also interact with the contract. The addresses of these members are also stored in the smart contract.

3.3 Event creation

Events can only be created using the Tixico token. The creation is done either by interacting directly with the smart contracts or by using an application interface. All costs for creating the event have to be covered by the creator.

3.4 Category

When the team is finalized the organizer needs to add ticket information. Firstly, categories are added. Categories are used to set up basic information. The minimum required information is:

- BASE PRICE - the starting price of all the tickets in this category;
- RESALE LIMIT - maximum amount for which a ticket in this category can be resold;
- RESALE PROFIT - the percentage that goes to the organizer from each resold ticket;
- CATEGORY NAME - such as the sector number or any other name for the seating area for example “balcony to the left”;
- COUNT - count of tickets that will be available in this category;

- ROWS - a list of all available row names in this category;
- SEATS PER ROW - a mapping with the number of seats for each row.

All this information is stored as a separate structure.

As we expect that most of the venues will be used to host more than one event, there will be presets available. These presets will be created by Tixico's team and include the most popular venues in various configurations as well as previously used event venues added by the organizers.

3.5 Ticket

The ticket is the virtual asset that users can hold, sell and use for entering an event. Tickets are managed by the smart contract of the event. The core of the ticket consists of the following information:

- OWNER - address of the owner;
- EVENT - identificator of the event;
- APP - identificator/name of the used frontend application (only if an application is used);
- APP USER - identificator/name for the user in the frontend application (only if an application is used);
- PRIMARY PRICE - the primary market price of the ticket;
- PRICE - current price for ticket (if listed on the secondary market);
- CATEGORY - the corresponding category of the ticket;
- ROW - the row in the venue where the seat is located;
- LISTED - a quick check boolean parameter that shows if the ticket is listed on the market or not;
- BURNED - a quick check boolean parameter that shows if the ticket has been burned;
- SEAT - place for seating in the venue.

To post the ticket on the secondary market the user needs to be the owner of it and provide the price that he or she wants to get in return for a function in the smart contract. This transaction has an associated cost that has to be covered by the seller. Afterwards, the ticket becomes available for purchase to other users. Other users can query for tickets listed on the secondary market and select the best offer.

Tickets on the secondary market can also be auctioned to maximize revenues and ensure tickets are being resold in an honest manner. Auctioning, in this case, means that users can make their bids for the ticket and the one that has the highest bid after a certain period of time acquires the ticket. The bid then is paid out to the seller. The swap is executed immediately if the amount of the bid exceeds the limit. The bid is then set to the maximum resale limit and the rest of the bid is returned to the user.

3.6 Crowdfunding

Event crowdfunding technically is a separate component that is tied to a specific event. The crowdfunding functionality can only be used with the Tixico token. An organizer is only allowed to set up crowdfunding if he or she is verified by network moderators (elected by token holders) or by the founding body and if he or she has paid the deposit fee. The deposit fee is only returned after the public ticket sale has ended on Tixico. The crowdfunding component should contain at least the following information:

- EVENT - the address of the event that the campaign is bound to;
- STATUS - the status (*in progress* or *ended*) of the campaign;
- ORGANIZER - the address of the organizer of the event and thus the campaign;
- SOFT CAP - the soft cap of the campaign;
- HARD CAP - the hard cap of the campaign;
- SUPPORTERS - list of addresses that have participated in funding the event;
- MODEL - the reward model that is used (early access or profit share).

The events are crowdfunded either until the hard cap is reached or until the organizer decides to halt crowdfunding. In case the cap is reached the funds are granted to the organizer, in case the campaign is halted and the soft cap is not reached all raised funds are returned to the supporters. If the soft cap was reached the funds are granted to the organizer. Uncapped events are not allowed. The process is visually described by Figure 1.

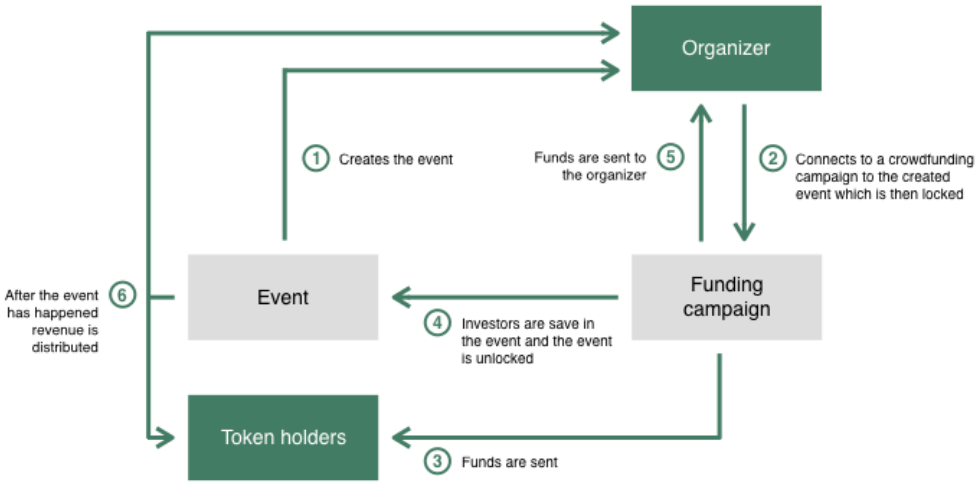

Figure 1: Crowdfunding solution overview.

3.7 Reporting and ratings

To keep the protocol clear of fake events we introduce voting and ratings for events. Events that are added to the blockchain are frozen for a fixed time period. In this time period, Tixico token owners can cast their votes. In exchange, they can receive a small amount of Tixico tokens if the vote has been successful. Also, note that Tixico will work with existing event organizers to verify their profiles and add secure events to the event feed. These secure events will be excluded from voting and available instantly.

A vote would usually consist of:

- EVENT - the event the vote is cast for;

- VERDICT - a true/false verdict which shows whether the user thinks the event is legit or not.

Votes are basically accumulated in a mapping on a higher level. After the freeze period ends the votes are checked and if there are at least 100 votes of which more than 75% are in favor of the event being legitimate it is added to the blockchain. This is shown in the formula below,

$$\text{LEGITIMATE} = \begin{cases} 1 & \text{if } |V| \geq 100 \text{ and } \frac{\sum_{v \in V} v}{|V|} > 0,75 \\ 0 & \text{otherwise} \end{cases}$$

where V represents the verdicts for an event and $v \in \{0, 1\}$. We plan to allow token holders to vote for these limits/thresholds in the future. Note that users holding more Tixico tokens will have more weight for their votes.

Token holders will also be able to rate event organizers and other users. Rating organizers helps to promote trustworthy organizers and allow them to make more attractive events. Once again Tixico will work to verify existing organizers and to add them to the protocol as securely verified. These organizers will have a special label and their events will always be considered as safe.

A rating would usually consist of:

- ORGANIZER OR USER - the address of an event organizer or user;
- VERDICT - a corresponding 1 to 5 star rating.

An additional level of security can be provided with a formal ID verification process. This process is not mandatory but would make the organizer more legitimate in the eyes of potential users and therefore an important part of organizers' credentials. In the beginning this task would be managed manually by the founders but later on, selected moderators can help in the process.

The rating system for users is similar than to the one for organizers. Users receive ratings for selling tickets on the secondary market. Fraudulent users can also be reported by anyone utilizing the protocol. With the help of these two mechanisms in place, we hope to reduce counterfeit risk and ban unwanted off chain activity.

3.8 Market price

Ticket prices are calculated and shown in FIAT to the end user on the protocol and on the application but they are bought using our token or a stable token. If the user is not familiar with cryptocurrencies he or she can make the purchase using a FIAT currency on an application that handles the exchange before purchase to a corresponding value of suitable compliant coins that are then used for the purchase. The conversion rate is calculated using a market-feed oracle. We do this to provide a more user-friendly environment and be more accessible to the general public.

3.9 Entry flows

To offer better adaptability and shorten queues at the entrances we provide various entry flows to the organizers. Some of the entrance flows need action to be taken by the usher. This action is usually done via a dedicated administration application with which the usher can scan tickets. Together we plan to provide three options. They are explained in this section.

1. **Check-in**: Tickets can be burned before the event in exchange for a QR code or PDF ticket. This functions as a hybrid solution and keeps the existing familiar ticketing experience. It is burned in advance to ensure that everyone comes to the event with the same type of ticket that contains a scannable QR code. The QR code is only showed after burning the virtual ticket so other people cannot counterfeit it. The user then only needs to show the QR code that is scanned at the entrance by the usher. This method also allows for physical tickets to be sold at the venue as we can immediately burn a ticket asset and print out the relevant ticket. This method distinguishes Tixico and will be our main focus in the beginning as it is approved by industry experts, more reliable, accessible and easy to use for the end user. By using the check-in method we make way for a smooth transition between the usual ticketing flow and the blockchain ticketing flow. Unfortunately, this method allows for off chain risks that we try to limit by using our rating system and providing copying defense mechanisms to the tickets. We plan to strictly limit this feature by enforcing additional fees in 5 years after the first ticket is successfully sold on our protocol.

2. **Validate via wallet at the event**: The simplest way of validating

a ticket at the entrance is showing a valid ticket in your virtual wallet that is linked to your personal address. The usher triggers a method in his application that burns that ticket at this point and allows entry. This method requires that the user has a smartphone with which he or she can access the ticket.

3. **Validate with ID**: Tickets can be associated with specific IDs. This means that the ticket holds not only the address of the owner but also his or her name and surname. At the entrance, the usher can check and compare the name and surname with the ticket and the name, surname on the ID presented by the person entering.

3.10 Scalability

Current blockchain technology is too slow to ensure fast ticket transfers and verification. We know that this is a temporary issue and the technology will become faster in the near future. But we want to deliver our product and start the ticketing revolution now. To do this we are going to develop an off chain service layer for the protocol.

This layer is going to keep information about users, tickets, ticket verification and pending transactions. This will allow for near-instant ticket verification at the event entrance since this action is going to be registered instantly off the chain. This instant verification ensures that one ticket can be only really used once. The off chain layer is also going to allow tickets to be exchanged and sold just minutes before the start of the event. This allows last-minute purchases for attendees which gives them more freedom for decision making and also allows to maximize the organizers' revenue. The additional off chain layer also provides a better experience to the end user since he can see and monitor updates in real time.

We want to encourage developers to create additional applications on top of our protocol so we are going to create an open API so that developers can interact with the protocol and the off chain layer. This is also going to make the whole process more transparent. Our vision for the final solution is a completely modular system, where a developer can select and use only components he or she needs and swap out the service layer for his own or create an application without any off chain activities.

In the future when blockchain technology is mature enough and fast enough to support the needs of large events, we will eliminate this off chain

layer and rely fully on the blockchain. At this moment we can not provide an estimate on when this will happen.

4 Token

The success of the protocol depends on the Tixico (TXI) utility token. Only the owners of this token will be able to support or fund specific events created by the organizers and also become event organizers themselves. Holders of the Tixico token will be able to vote for legitimate events, rate organizers or resellers meaning that they participate in keeping the protocol free of fraud. The Tixico token can also be used for transactions on the protocol. All of this means that the token is an essential piece in our ecosystem and the value of the token will increase with each event that is added.

A separate token for the protocol is needed to provide a layer of self-regulation, ensure the smart contract mechanism, reward early supporters and supporters and of course to successfully fund and launch the project.

4.1 Usage

The Tixico token is primarily used to fund events that the user finds interesting. In return for this funding, he can get early access to tickets or share some of the profits after the event has successfully happened. This means that only the owners of the Tixico token can be part of a successful event and become a piece of the puzzle for developing more diverse and interesting events in various regions. The event supporters in return receive not only the satisfaction of supporting and expanding a local community but also share a part of the organizers' profits. From the organizers perspective, they are also required to use TXI, since they have to pay all fees and a small deposit. All of this is done with the Tixico token.

Event creation can only be made with the TXI token. The creation costs a certain fee and the creator also needs to pay a deposit to reduce the risk of fraud. The deposit fee could change over time. This means that with the increase of available events on the protocol the usage of the token increases.

The third use case is voting for fraudulent or fake events and rating event organizers or resellers. This is used to keep fake events or tickets off the blockchain and to promote event organizers that have proven to be successful previously.

Last but not least the tokens can be used for transactions on the protocol. Since the TXI token is a regular ERC20 token it can be used for transactions. Ticket purchases would also be cheaper if made directly with the TXI token. The overall discount for purchases made with TXI specifically would be around 1%. This discount is set in the smart contract when it recognizes the corresponding token.

The movement of the TXI token can be seen in Figure 2.

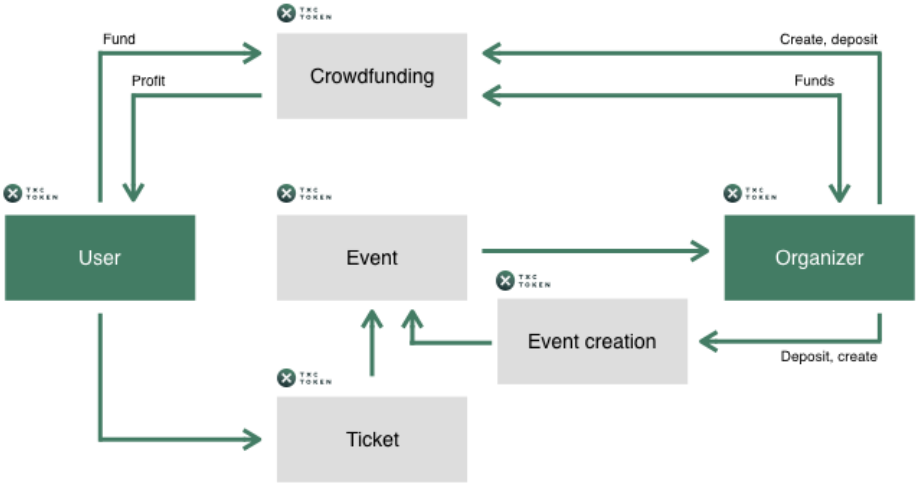

Figure 2: Token movement overview.

4.2 Purpose

There are four reasons why the protocol needs its own separate token:

First, the token is used to provide a layer of self-regulation to the protocol. This is done in order for the protocol to be self-sustainable so that it can survive for a long period of time. The owners of the token will have an opportunity to rate resellers or organizers and report suspicious activity. This ensures that the protocol stays free of fraudulent activities and adds a degree of decentralization.

Second, the token is used to power most interaction with the smart contracts in the Tixico ecosystem. Our smart contracts rely on this token to be in place and we have completely designed our architecture around the token.

Third, the token is used to gather funding and increase the probability of success. In order for the project to be a success, it has to have a proper, unambiguous and secure codebase, relevant documentation and of course organizers have to trust it. After market analysis we already can see that there are certain costs associated with securing a stable position in the market. These costs mostly include development and marketing.

Fourth, the token allows early adopters to benefit from network effects. Since with the progress of the protocol the usage of the token itself would also increase it is likely that it will have greater value.

A breakdown of functionality for token holders and regular users can be seen in Figure 3.

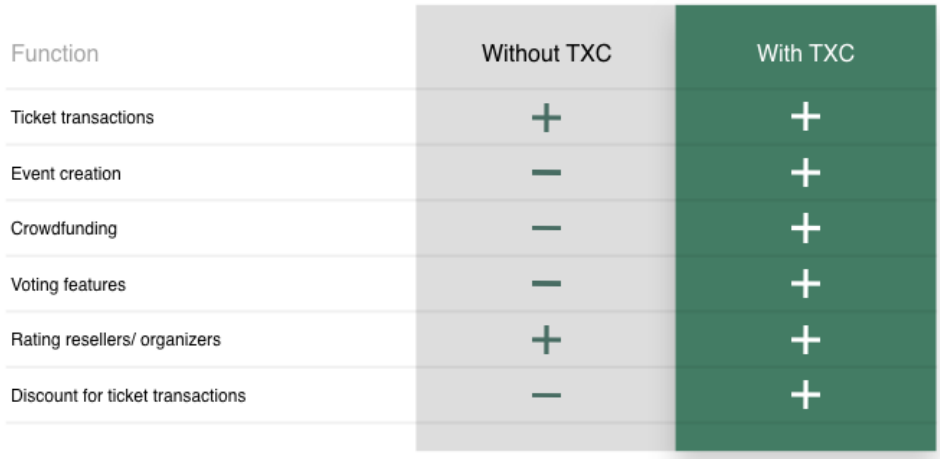

Figure 3: Token holder advantages.

4.3 Sale details

In total there will be 100 000 000 TXI tokens emitted, out of which 70% or 70 000 000 tokens will be available for purchase during the token sale period. They will be available in two rounds, with pre-sale starting in June 2018 and lasting for three weeks and public sale lasting for six weeks in late August 2018.

The remaining 30% of TXI tokens will be allocated between founders and team, advisors, bounties and reserve fund.

3% or 3 000 000 TXI tokens will be distributed among Tixico audience for various bounties and will be sent to their respective recipients right after the conclusion of the token sale.

Tixico advisors will receive a total of 5% or 5 000 000 TXI tokens. To guarantee the stability of the token, they will be locked for first 6 months after the conclusion of the public sale.

Founders and team of Tixico will split 12% of tokens or 12 000 000 of TXI tokens. These tokens will be locked for 12 months after the conclusion of the public sale and will become available only after the production release of the Tixico protocol.

Lastly, another 10% or 10 000 000 TXI will be allocated to the reserve fund of Tixico. These tokens will be locked for 12 months after the conclusion of the token sale.

4.4 Fund allocation

Tixico hard cap has been set at 4.2M USD that will ensure safe runaway of the company for the first two years, including future hiring, research and product development, legal, management, operational, sales and marketing costs. With these funds, Tixico will have enough time for start expansion in other, in terms of size more lucrative, European Union markets besides the Baltics. This will allow Tixico to attract enough partners to become profitable and thus ensure the stability and growth of the token and protocol in the future.

60% of this cap will be used to fund the research and develpment of Tixico. Costs of sales and marketing will take up 19% of the cap, just like legal and management that also will receive 19% of the funds. Lastly, 2% of the budget will be allocated for operational costs.

In order to ensure that Tixico token sale doesn't exceed planned 4.2M

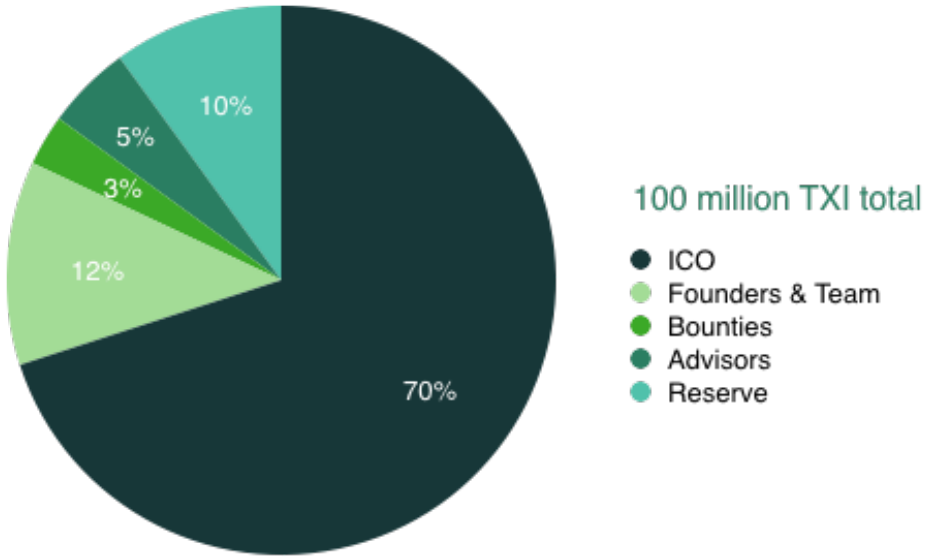

Figure 4: Token allocation.

USD, at the moment cap has been set in FIAT currency. Exact ETH to TXI exchange rate will be announced a couple of weeks before the beginning of the token sale.

Tixico's soft cap has been set at 420 000 USD. These funds will be enough to finance the project until the initial release of Tixico platform.

5 Application

The protocol is primarily meant for the use of applications that provide a familiar user interface and function in a web browser. The application can be used together with the off chain service layer or can interact with the protocol layer directly. Such an application would take care of managing accounts for users. We will build a fully functioning front-end application that will be used by our partners and their clients. The optional service layer is provided to ensure better scalability at the start and to handle conversions. We also plan to build minimized custom applications for our partners' usage that go hand in hand with their own online presence. An application provides high-

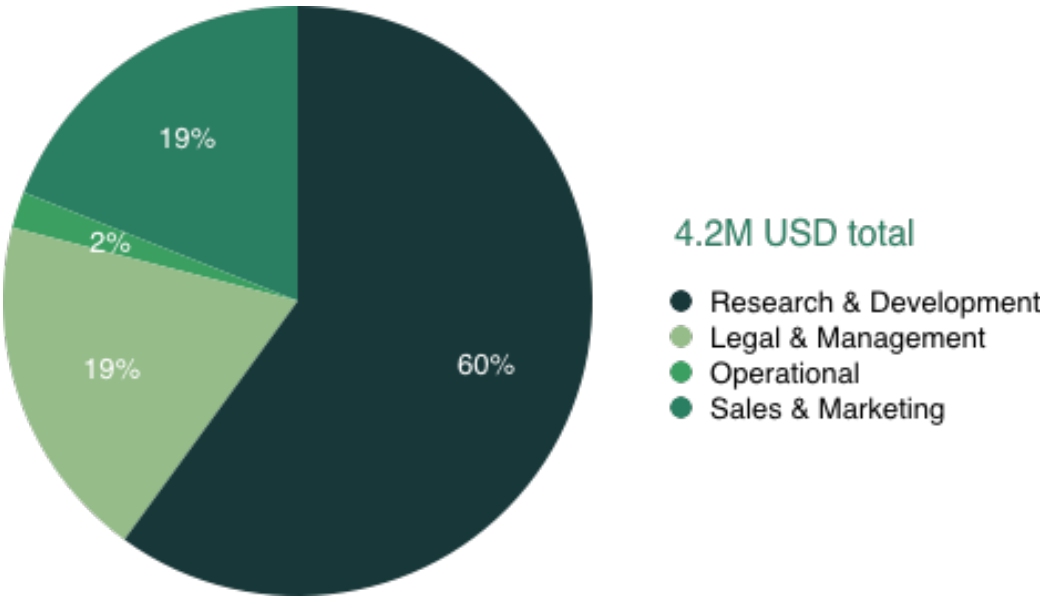

Figure 5: Fund allocation.

level interaction with the protocol and makes the protocol more accessible to an average user. Our main Tixico application will be a cornerstone for success of the whole protocol. A demo of the Tixico application that uses a proof of concept version of our protocol will be released shortly before the token sale. The relationship between the three different layers can be seen in Figure 4.

6 Market

Nowadays almost no events are imaginable without organizer's cooperation with the ticketing services, thus allowing this industry to become an important and lucrative part of the entertainment industry. It's estimated that in 2018 ticketing market in the EU amounts to approximately EUR 10.5 billion. This is a rapidly growing industry with expectations of annual growth rate around 9.8% until 2022, resulting in a market value of EUR 15.3 billion [6]. This can be seen in Figure 5. The largest market for entertainment, cultural and sporting event ticketing in Europe is the UK. It accounts for almost a

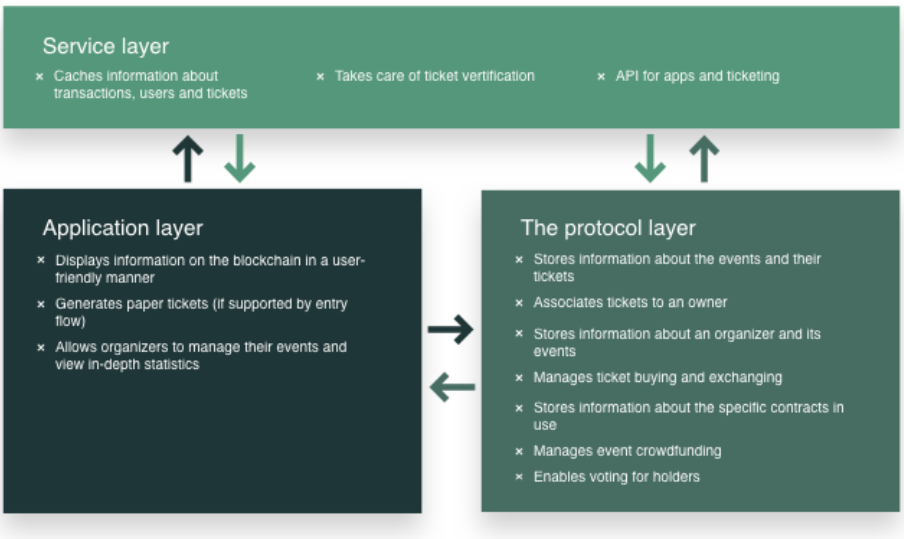

Figure 6: The layers of Tixico.

third of the total sales volume in the European Union as in 2015 it was nearly EUR 3.3 billion in 2015, with forecasts to grow to EUR 3.8 billion by 2020 [7].

In 2016 sales of cultural, entertainment and sports events tickets in the Baltic States exceeded EUR 85 million by our calculations. Sales for the largest operator in Baltics - Baltic Ticket Holding - exceeded EUR 49 million [4] while others keep their figures a secret. Judging from annual reports of companies like Biļešu Paradīze, which has similar revenue to the Latvian division of Baltic Ticket Holding [5], it's safe to guess that total ticketing market in Baltics exceeds EUR 85 million and most likely is bigger than EUR 100 million. As Baltics are a rapidly developing market, in last 6 years growing approximately by 4,5% each year, it is predicted to continue growth by at least 4,5% per year until 2020. The Baltic market is graphically represented in Figure 5.

Since ticket sales are a largely fragmented market, on average operators are charging their customers anywhere between 3% and 15% of the ticket price for ticketing services based on their market share and the saturation of the market. The most common business model is to charge an additional

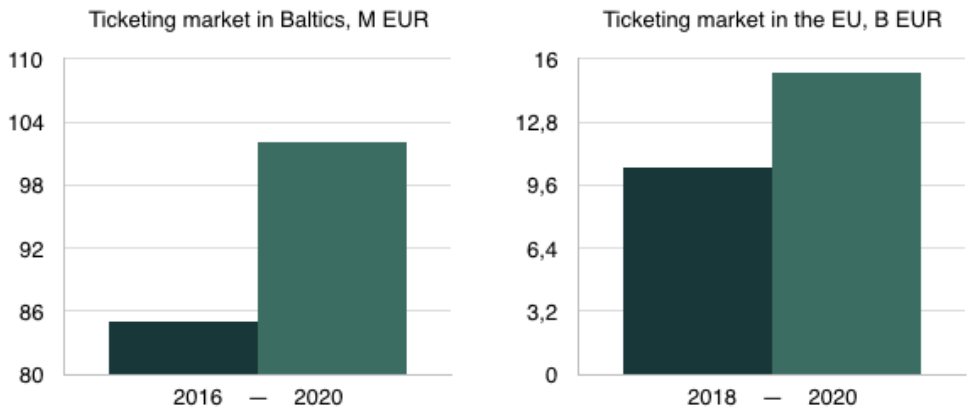

Figure 7: Ticketing market in the Baltics.

fixed fee for each purchase from the consumer.

In developed markets, up to 70% of all tickets purchased are from second-hand sales, which currently is a poorly regulated and generally not very reliable market. Only certain platforms have fixed price caps, while other businesses allow unlimited speculation. It has been discovered that bots are purchasing up to 60% of the tickets to the most sought after events. Then the creators of these bots resell these tickets with a huge profit, usually ranging between 150 to 1000% of the original price. This kind of third-party sales prevents the audience from attending events without overpaying for tickets, does not give additional revenue to the organizers and is working in favor to ticket fraud, as about 10-30% of tickets in the second-hand markets are fake.

The competitive advantages of our application comparing to traditional platforms are as follows:

- More lucrative;
- Better event data insights to the organizers;
- Secure secondary market that is beneficial for all parties involved;
- Additional upselling opportunities for organizers;
- Highly adaptable to support paper tickets alongside blockchain tickets;

- Improved accessibility to events for the average user;
- Elimination of ticket scalpers.

A unique feature of Tixico is its' crowdfunding function. It can be used both to test if there is interest for a specific event in a particular location as well as to finance smaller events that are lacking sponsors but might be able to secure funding via the community. With this feature, organizers will be able to offer a broader variety of events without the risk of financial failure that might affect other projects. At the same time fans will be able to not only attend the said event but also receive a portion of the profits accordingly to their investment. This way Tixico will help event organizers to be more interactive with their audience making sure that their offer is actually relevant to the public. We have presented the crowdfunding feature to small event organizers and most of them have expressed the need for such functionality. This means that our target market could be even bigger than estimated since we enable new organizers to participate in the market.

7 Strategy

As mentioned previously, Tixico consists of a protocol, service layer and an application side for the project. As the protocol will be decentralized and thus the growth of it will mainly be organic, this strategy will be devoted to the application/service layers of the platform.

Similar to most of the competitors in both traditional and blockchain ticketing markets, Tixico will have both - a fixed ticket processing fee paid by the customer as well as a percentage of the total volume of tickets sold, paid by the creator of the event. Due to the usage of the blockchain technology and the secondary ticket market, Tixico will be able to offer lower fees than the industry standard which will have the same rates in all of the markets of operation.

Once the blockchain ticketing function is ready for operations, it will be complemented by the second core element of Tixico, a crowdfunding mechanism to help event managers to better plan events and manage financial risks. It also allows other users to support their favored events and earn money in form of a profit share at the same time. This is a key point for success of Tixico and will make us the leading one-stop shop for event management and ticket sales.

After the token sale process and successful completion of the first development phase, the Tixico application will first launch and mainly operate in the three Baltic states of Latvia, Lithuania, and Estonia that are all part of the European Union - a rapidly developing region in Europe which has faster GDP per capita growth than the EU average. In all three of these countries, seven partners are already signed up in both music and sports industries that have agreed to use the Tixico application when the platform becomes available. Starting from 2019, Tixico will be the ticketing partner of SynotTip Virslīga, top-tier club football league in Latvia, providing tickets to every match of the season. Among other already signed partners, there are former UEFA Champions League and current UEFA Europa League participants FK Liepāja, event planning agency Passport Productions, Latvian music award Austras balva, bar Tims Mints, music PR agency ParaPops and FuckUp Nights Riga events. These partners organize events of various sizes. During the token sale, we plan to add additional partners to strengthen the client base for the product launch even more.

One of the main reasons behind selecting the Baltics as a starting market of Tixico is the rapid growth of the region. This is partly due to some of the fastest internet connection speeds in the world that is on average up to three times higher than the global median. This, in additon to the relatively cheap internet prices and good coverage, has helped to increase the usage of smartphones and accelerate the adaptation of various web-based services, including online shopping. In fact, in 2016 44% of all tickets were purchased online in the Baltics compared to the average of 38% in all of the European Union [2]. It is important to note that while this number is better than in the rest of the EU, it's still rather low and is projected to rapidly increase over the next decade. That is why we focus on accessibility to still support the current majority but also help the market advance. Since 2015 the number of users who make purchases online with mobile devices has tripled (from 18% to 54%) [9] and it's expected for this trend to continue. However, before everyone is ready to switch to mobile-only tickets, Tixico will offer its users hybrid paper-ticketing solution where one will be able to choose between online and offline ticket to use.

In 2016 ticketing market in all three Baltic states combined exceeded EUR 85 million. Although this number is not high, especially compared to biggest markets in Europe like the UK that exceeds EUR 3.3 billion, it is big enough to serve as a launching platform for the Tixico application. In 2020 the Tixico application aims to have at least 5% of the market share

in the Baltics that equals to a yearly revenue around EUR 4.5 million and is enough to both test our business model and the platform in real life and finance further expansion in other markets.

Initially, the Tixico application will be mostly utilized as a custom application for organizers. Afterwards, starting with the kickoff of the project, the Tixico website and the standalone application will list all of the events and users will be able to purchase tickets there. Most of the sales until late 2019 will be generated via our custom applications for organizers. Main reasons behind this decision are the following:

- Possibility to do more A/B tests with different organizers to speed up development of the platform;
- Trust enabled second-hand marketplace as a service;
- Faster adaptation of Tixico from casual users who are not familiar with blockchain technology;
- Possibility to initially focus Tixico's app and website to crowdfunding of events and ticket purchasing with tokens instead of FIAT currencies;
- More time to attract organizers, resulting in a greater selection of events thus making Tixico also a marketing platform for said events in the future;
- Possibility to have fewer investments in initial marketing to end users, instead of investing funds in the development of the product and sales.

Starting from 2020 Tixico will expand further in the European Union market, one by one adding all of the 25 other countries. This should be done until the end of 2023 when Tixico aims to have at least 5% of the European ticketing market that is equal to EUR 750 million in ticket sales.

At the same time, starting from late 2019, Tixico will start to put greater emphasis on its own app and website as a mainstream ticketing platform. This will result in four main benefits:

- Increased volume of sales;
- Extra exposure for the events as an added bonus for the organizers;
- More exposure for the crowdfunding projects;

- More insight into the behavior of the visitors that will help organizers to improve marketing and decide on future projects.

8 Competition

As noted previously, tickets are being either sold or distributed to most of the public events meaning that the ticketing industry, in general, is an integral part of the entertainment industry. As tickets are being needed to organize all kinds of events, starting from small plays in local theaters and ending with huge festivals that are attended by hundreds of thousands of visitors, there are tens of thousands of ticketing companies all over the world.

Historically ticketing companies have been operating in one or few countries thus aiding the global market to be very divided. There are a couple of very big players like Ticketmaster (operates in 23 markets all over the globe [8]) and Eventbrite (tickets are being processed in 180 countries [3]). However, in every country there are many local ticketing companies who have a significant market share as well.

It is important to note that nowadays ticketing industry could be divided into two parts - classic providers and blockchain based solutions. Almost all of the existing and successful companies at the moment are classic providers who have physical tickets, distribution chains etc., however, they are not safe from scalpers, fraud and all of the other challenges of the ticketing industry.

In last few years there have been a lot of blockchain based ticketing company projects, however, at the moment none of them have started to operate with gaining significant market share that means that there is still room to become next big company.

While Tixico's overall competition in various markets is measured in hundreds and even thousands, there are three main direct competitors that we will be focusing on during the go-to-market strategy:

8.1 GUTS/GET

GUTS tickets with the GET foundation strives towards a fully blockchain based event creation and ticketing protocol that solves the main problems of today's ticketing industry. They tackle counterfeit tickets, the secondary market, create an API for ordinary ticketing companies and create a sophisticated token economy within their environment. GUTS tickets already

operate and has some customers, which makes them Tixico's strongest competitor. However, GUTS operates still mainly off-chain and Tixico will offer additional features, such as crowdfunding, which increases the value of the environment for all stakeholders. Tixico will offer an API not only for the protocol to enable ordinary ticketing industry to access the environment but also for features like sponsoring or catering intermediation to be added by external parties.

8.2 Aventus

Aventus is a direct competitor. Their product is also based on blockchain technology and, from a functionality point of view, both platforms are very similar. Similarly, Tixico and Aventus introduce a protocol that handles events and respective ticketing on the blockchain, which avoids ticket counterfeiting and solves the secondary market problems. The possibility to develop apps for Aventus seems to be limited to domain-specific ticketing interfaces. Although Aventus states that additional services may be added on demand, there is no clear roadmap for additional features. Unlike Tixico with the crowdfunding feature and an API that allows external parties to enrich the Tixico environment with additional features.

At the moment Aventus lacks the cooperation partners and our go-to-market strategy is stronger and more effective since we have already thought about scalability and adaptability and are working closely with partners from the event industry.

8.3 Blocktix

Blocktix is another competitor with blockchain ticketing. Blocktix solely focuses on the ticketing and event creation mechanism. They plan to tackle counterfeit tickets and fake events. Solving secondary market problems and adding additional features to events are not communicated goals of Blocktix. Blocktix is seemingly an encapsulated ticketing company using blockchain technology without a protocol open to the market. Tixico has a wider scope of its environment that will generate a lot more adaption.

8.4 Baltic Ticket Holding

Baltic Ticket Holding is the biggest traditional ticketing operator in the Baltic States, the starting market of Tixico application, thus making it one of our main competitors in the first year of operation. Their main strength is the great distribution network that includes more than 400 locations [1] in all three countries combined as well as popular, country-specific websites that serve both as an online marketplace for tickets and calendar for upcoming events. Although at the moment Baltic Ticket Holding controls at least 50% of the market share in the Baltic region, as they are a traditional ticketing company, they lack all of the benefits of blockchain technology. Baltic Ticket Holding also doesn't have an official second-hand marketplace and their current system isn't very easy to use from mobile devices. We see that we can offer a better service for both the event organizers and the attendees and this is why we want to start in the Baltics and shake up the market.

9 Team

Normunds Vucāns – sales and management. Has more than 9 years of experience in various roles in the music industry including journalism, band management and hosting events. He's the organizer of Austras balva, the Latvian equivalent of Mercury Music Prize. Furthermore, he has 4 years of experience in sales, including leading a sales team. Normunds is one of the co-founders of Tixico responsible for sales and attraction of partners, communication with them, development and implementation of sales strategy as well as everything else related to the business side of the project.

Krists Kreics – technical lead. Holds a Bachelor's degree in computer science. His Bachelor's thesis was "Blockchain based smart contracts" that was also mentioned in a Latvian legal journal. Currently a Master's student at the Technical University of Eindhoven, which is considered one of the most prestigious technical universities in Europe. Krists has professional experience in the industry. He has spent years as a part of teams that develop IT products used by some of the biggest companies in the world. Has spent the last two years on studying various blockchain technologies and testing concepts with smart contracts. Most recently he has been working as a technical lead on various IT projects for SMEs. Currently he is dedicated to

make Tixico a reality.

Stefan Esser – operations. Holds a Bachelor's degree in information systems and has more than 8 years of experience in system, database and network administration. Currently he is doing his Master in Business Information Systems at TU Eindhoven. He has been involved in IT-support and different projects which made him aquire a broad knowledge in the various aspects of IT-systems and project management. In 2013 Stefan discovered his passion for cryptocurrencies and the blockchain technology. Starting as a hobby miner he quickly became interested in the overall properties and advantages of the technology and built up vast knowledge in the field ever since.

Reinis Anziķis – lead designer. With an experience starting from year 2012 has been designing user interfaces, brand identities, social media content, print and video materials for such cliens like SEB bank, Nordea bank, Telia, Maybelline, Samsung, Rimi, Radisson Blu and many others. With a passion for web design and user experience the search for every small detail perfected never stops, trying to make internet a more beautiful and reliable place. As the part of the Tixico team, Reinis makes sure that the product's visual character speaks to every user in understandable and trustworthy manner.

Andrea Nardelli – data scientist and technologist. Holds a Bachelor's degree cum laude in Computer Science from the University of Trento which he pursued while simultaneously working for the top research institute in Italy according to scientific excellence. Is passionate about novel applications of machine learning. Currently pursuing a double degree Master's program at the TU Eindhoven and Royal Institute of Technology, Stockholm. His contributions to the team include custom-tailored analytics, profiling and IT administration.

Ainars Kreics – lawyer. The most experienced member of the team. Ainars has been practicing law for almost 30 years and is one of the most successful lawyers in the country. He is also a business owner and an investor having previously invested in successful fintech companies from the Baltics. Ainars will lead the legal development of the company and his business experience will allow to keep the company on the growth track.

Luize Jansone - marketing manager. Luize has gained project management and consulting experience in international projects such as development of a manual for municipalities and schools for youth engagement in sustainable urban planning and NGO pro-bono consulting. She has gained experience at Microsoft Latvia as a business program manager and marketing communications manager. Most recently she has brought global movement FuckUp Nights to Latvia and initiated and now assisting in a consulting course at Riga Business School. At Tixico she is responsible for marketing strategy and execution – introducing the product to the society and creating community to support the team in the launching and token sale process.

10 Roadmap

The full roadmap can be seen in Figure 6. We have decided to split the development into three main phases. During the first development phase we will create, test and validate the minimal ticketing functionality. This means that we will develop an application that can be used by our partners and other organizers to sell tickets. This app will use our token for transactions, store the core information about tickets on the blockchain and provide a safe secondary market. The resulting product of this phase will be used by most of our partners as their main ticketing provider. After successful completion of the first phase, in the second phase we are going to develop a fully functioning ticketing protocol that will be open to everyone and provide all the ticketing functionality on the blockchain. With the ticketing protocol in place we will move on to develop the crowdfunding functionality which is the third phase of development. Before a production release of the crowdfunding functionality, the code will be audited and we will test it once again with one of our partners.

The success of our token sale will determine how far we get into the development roadmap. The soft cap of 420 000 USD will allow us to develop and deploy the first phase. To develop and deploy the second phase we would require to sell approximately 2 000 000 USD worth of tokens during our sale. The third phase will be developed and deployed if we achieve an amount of 4 200 000 USD.

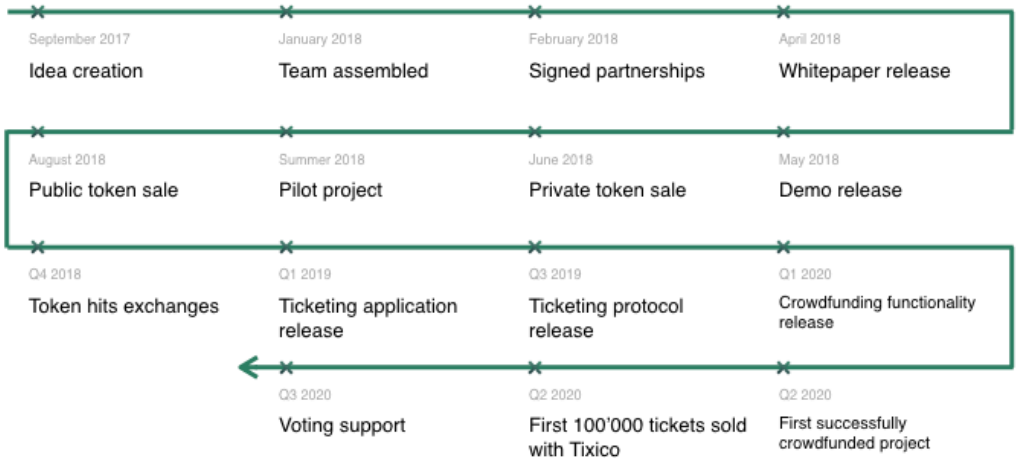

Figure 8: Roadmap.

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