ASSETSTREAM

The Global Decentralized Peer to Peer Microfinance Platform,
Replacing Intermediaries with Blockchain Technology

WHITEPAPER

AssetStream.co
AssetStream’s vision is to create a sustainable microfinance platform based on blockchain technology. Inspired by the “International Year of Microcredit”— dedicated by the U.N. back in 2005—and Muhammad Yunus, a Bangladeshi social entrepreneur who was awarded the Nobel Peace Prize jointly with the Grameen Bank in 2006 “for their efforts through microcredit to create economic and social development from below”. The AssetStream initiative was established to create a sustainable microfinance platform to enable growth and advocate poverty reduction of the unbanked population while providing an alternative, high-yield, peer-to-peer microfinance platform for everyone.

Peer to Peer lending brings the “bank” to your doorstep.
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Operating license:

- **Number**: FVR00072
  - Area of activity: Providing services of exchanging a virtual currency against a fiat currency
  - Start of validity: 22.02.2019
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  - Link: [https://mtr.mkm.ee/taotluse_tulemus/504283](https://mtr.mkm.ee/taotluse_tulemus/504283)

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All information regarding licenses and registration can be found at [https://mtr.mkm.ee/](https://mtr.mkm.ee/)
Two billion people worldwide do not have a bank account or access to a financial institution via a mobile phone, or any other device. More than 20% of unbanked adults receive wages or government grants in cash, and cash is usually the key payment method in developing countries. People that belong to this category have no credit history. Even though financial organizations declare that there are fewer unbanked each year, there are still people who remain in an unbanked state prevents them from getting access to basic and daily services such as making payments, access to credit and remittances. An example would be a foreign worker trying to remit money overseas to friends or family. If given better support, providing financial inclusion to more than two billion adults will provide the untapped potential for business profit and economic development.

People that work, study or travel abroad will effectively become underbanked abroad as they have no local credit history and they will face difficulties with opening a bank account which will result in deterrence to credit and international remittances. The only slight difference between the underbanked and the unbanked would be that underbanked have access to either a checking or savings account but rarely both, and households are usually given the underbanked distinction if they have tapped on alternative financing options during the previous year, such as money orders.

Small businesses usually require traditional funding and most of them do not have access to loans when they need it. Banks would require collateral or prefer to lend cash on cash. Loans requested from small businesses are usually too small for large financial institutions to do efficiently. There are also alternatives for securing a loan but the interest rates are too high from unorthodox lenders, and traditional p2p lenders will offer a high-interest rate due to private equity backing. Capital that has a chance to invest in small business credit has been blocked out of the market, and retail investors lack the tools to customize portfolios to their risk tolerance. Post-recession, banks have to increase their standards and be cautious about the risk in their portfolio. Small businesses are riskier than their larger counterparts, which makes banks think twice before lending them money. Small businesses usually had more success finding loans at a community bank than at a big bank, but the number of community banks is decreasing. Lastly, small business owners are looking for smaller loan amounts, and it doesn’t make sense for banks to provide smaller loans, as the cost to underwrite a five hundred thousand loan is essentially the same as for a fifty thousand loan. Banks can earn more interest by focusing on larger loans.


Emerging markets that have a high percentage of the unbanked, and a high usage of Internet and mobile services at the same time.

![Population (Billion)]

Even though India is the world’s fastest growing Internet market with a user base growth of 51.9 %, its unbanked population is currently ranked as the world’s 7th largest. PWC in 2015 has shown that **India’s unbanked population that year would be around 233 million.**

**China** alone has 731 million internet users, which amounts to 53.1% of the total online population. **In China around 200 million rural adults still remain outside the formal financial system.**

**Pakistan** has shown a whopping 185% growth of mobile broadband users, but **over 100 million Pakistanis are still unbanked.** Micro, Small and Medium Enterprises receive only 7% of total bank credit to the private sector, and even though there are 3.2 million SMEs, only approximately 188,000 SME loans are only reflected on banks’ books.

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While the share of adults in Africa with a bank account remain flat, the share with a mobile money accounts has almost doubled, to 21%. The region is home to all eight economies where 20% or more of adults use only a mobile money account: Burkina Faso, Côte d’Ivoire, Gabon, Kenya, Senegal, Tanzania, Uganda, and Zimbabwe. Opportunities abound to increase account ownership: up to 95 million unbanked adults in the region receive cash payments for agricultural products, and roughly 65 million save using semi-formal methods.6

There is a chance for the online marketplace model to make unsecured loans as risk-free as possible, due to it being simple as compared to its title-loan alternative with assets as collaterals. A transparent and open marketplace leveraging on blockchain technology will revolutionise the microlending industry.

Southeast Asia has a population of more than 600 million and a GDP of at least $2.31 trillion. The Association of Southeast Asian Nations is becoming a force of nature not to be trifled with. With China and India showing signs of slowing down and as the U.S. shifts its focus to the East, the region has become a hot spot for investment. ASEAN Economic Community also have plans to integrate regional economies to enable ASEAN countries to be more competitive with the rest of the world.7 Recent research also shows the region receiving more foreign direct investment inflows than China. A recent example of a huge market-moving IPO in 2013 would be the $2.1 billion listing for BTS Rail Mass Transit Growth Infrastructure Fund in Thailand.8

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3.1

With the rise of the Internet, the loan business has evolved, and P2P lending companies have emerged. Zopa, a UK-based P2P lending company created in 2005, has issued more than two billion in loans since its creation. Lenders and borrowers meet through a centralized platform. **The P2P company does the matchmaking and the credit check on the borrower for the lender. The lender sends the money to the borrower through the platform.**

The interest rate can be fixed by reverse auction. Since there are fewer intermediaries involved in the credit process, the interest rate is more interesting for both parties.

The P2P lending system is fascinating and has many applications: college loans, consumer credit, mortgages, etc. Nevertheless, the system can be risky: it is a black box for the lenders. They do not have any control over the project. If the P2P company defaults, both lenders and borrowers lose everything. **Zopa has proven itself to be a very successful company that does microfinancing.**

The platform also revealed that the average income of its borrowers is around $38,000 a year, and that the number of loans exceeded the number of borrowers. This suggests that many of its users are repeat customers. These factors have strongly suggested that the borrowers are not in urgent need of credit, and do not depend heavily on lending to wiggle out of debt.

**The numbers will reassure investors and will entice much more business for the lender.** It is also mentioned that Zopa customers tend to loan money for non-essential items such as purchasing a car or renovating a home while maintaining a high average salary. This fact suggests that the vast majority of the customers tend to not default on their loans and pay their dues on time.

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Within Southeast Asia, there are over 264 million adults who are currently unbanked, and many of them tend to save money under their mattress and borrow it from illegal lenders at high interest rates on a daily or weekly basis. Currently, only 50% of adults in ASEAN have an account at a financial institution, and rates of financial exclusion at rural areas are significantly low.\textsuperscript{10} In ASEAN countries, only 29\% of the workers receive their monthly salaries through an account from a financial institution while the rest is paid in cash by their companies. Having your salary in cash possesses several risks, such as the risk of being robbed easily. We will need to digitize payments and loans for the unbanked population, while ensuring that the customers are not charged exorbitant prices for it. The picture below shows the countries receiving their salaries in cash, compared to cash being deposited in the bank account.

With the maturity of the P2P industry in the U.S., UK and of course China, Southeast Asia would be the next market to foray into. Having a good P2P system will play a crucial role in the growth of the fintech industry because while Southeast Asia is a big market, it is also a fragmented one. Unlike China and developed Western countries, one will not be able to apply a single set of rules and regulations across at least 10 jurisdictions, especially when the regulatory frameworks are almost non-existent and always in a constant state of flux, as regulators play catch-up with new fintech innovations. However, with the rise and penetration of mobile technology, and with the younger generation being tech-savvy, it is very easy to adopt P2P lending in ASEAN.

AssetStream is a team of experts that have vast experience within the emerging market. By leveraging on the blockchain, AssetStream aims to reduce poverty and bring financial inclusion by providing unbanked people with access to financial services. We will expand it to a full P2P network which will include the local communities that can take personal loans. **AssetStream aims to create an extensive micro-financing ecosystem and will raise financial awareness among our clients through consulting services and educational materials.** We will be able to bring financially excluded people to the new global economy through blockchain.

AssetStream’s platform will be able to include the following benefits:

1. **Credit Rating and Badge System** – A badge system will be provided to represent borrower behaviour. This will reflect the credit rating system of the borrowers. For example, if a user has several good behaviour badges, such as “paying the loan on time”, compared to a user who has a bad behaviour badge such as “defaulting on loans”, the lenders’ sentiment might lean towards lending borrowers with good behaviour badges.

2. **Immutable credit data** – Borrowers will not be able to reverse or erase their credit history.

3. **Transparency** – AssetStream’s smart contract operates in real time and expected obligations are transparent to all involved parties.

4. **Two options for Lenders are provided in the platform** –
   - **Handpicking** – The lenders have a choice to decide which borrowers get the loan based on the borrowers’ criteria.
   - **Automatic matching** – The lenders will trigger a matching system when they fill up the desired criteria they want for the loan and AssetStream platform will match the criteria to the specific borrower.

5. **Lower transaction costs** – AssetStream’s platform will be using the existing infrastructure and will bring out convenience for borrowers living in the rural areas. This will lower overhead and transaction costs.

By using blockchain technology for microfinancing, AssetStream will create a layer of trust and security between borrowers and lenders. It is a new paradigm of the finance business to connect with the individual lender while enabling a new source of finances for small enterprises to fuel the global economic growth anywhere, anytime.
AssetStream will develop the ecosystem that delivers services not only to lenders and borrowers, but also to agencies that choose to partner up with us. **AssetStream funds will be financed from the purchasing of AST tokens.** Within the AssetStream ecosystem, AST will represent a value of 0.01 USD to promote stability. Outside the AssetStream platform, AST prices will be subjected to a fair market value reflected on the secondary exchanges. AssetStream will create their own rating criteria and it will be divided into personal loan and business loan.
Criteria for personal loan will include:
- Age
- Occupation
- Salary Base
- Credit line
- Address
- Personal Contact
- Current Working Duration
- Current Liabilities
- At least 3 months bank statements
- Notice of Assessment

Criteria for Business loans will include
- Type of Business
- Registered Capital
- Company Financial Status
- Collateral Asset

Lenders will sift through available “Loan Contracts” manually and can opt for automatic system through AssetStream autonomous matching system. AssetStream will scrutinise all credit ratings for SMEs as the loan will comprise of a higher amount. To streamline the process, AssetStream will automate matching systems for individuals but individuals are allowed to ask for a manual credit rating if they believed they received an unjust rating. Fees incurred from this method will be paid with ASD token.

When money is involved, due diligence is needed. The smart contract that AssetStream deploys will automatically send AST tokens from lender to the Local Agency Service. The AST will be held as collateral by the Local Agency Service until the end of the contract. The interested borrower can send a request for a loan to the AssetStream platform. Once the borrower has gathered enough community votes and found a local agency to participate in the loan, the loan request can enter the fundraising phase. During the fundraising phase the borrower needs to find enough lenders to fund his/her project to reach the soft cap before the project’s starting date. If the borrower does not reach the soft cap before the starting date of the project, the project will be declined.

When the borrower reaches the soft cap, he/she will be able to withdraw the first part of the loan in local currency with the local agency.
The fundraising phase will continue to reach the hard cap or until the project’s time runs out. Then the borrower will be able to withdraw the remaining funds he/she collected.

The loan contracts end when the borrower pays back the original sum borrowed, plus any accrued interest. The AssetStream platform will take a cut of the interest as a platform fee while the Local Agency will receive a reward fee. To start a loan, the lender needs to invest AST in the loan. This AST will be used as collateral. During the loan the lender will receive interest on a monthly basis. The interest he/she receives is minus the platform and reward fee. The interest will be paid in ASTR (for loans in Thailand).

At the end of the loan, the lender will receive back all the AST he/she invested in the loan plus last months’ interest.

The interest received by the lender varies, depending on the country where the loan is disbursed; for example, a lender will receive ASTR for loans disbursed in Thailand (1 ASTH = 1 THB). The ASTH can be subsequently exchanged for ASD (see Business Model above).

The lender can exchange the ASD back to his original cryptocurrency or AST as long as there are sufficient AST for purchase, and provided that he has enough ASD to make the purchase.

To ensure fast transactions, AssetStream will develop the AssetStream platform and smart contracts on the Stellar Blockchain Protocol.

AssetStream platform will greatly reduce the need for physical infrastructure and will bring out convenience and automation, which will increase efficiency and improve overall user experience. Agencies that have partnered with AssetStream will provide special instructions such as refinance, end-of-term processing and prepayment. If a borrower defaults or pays late, the contract will immediately go through the debt recollection process.
John is a retired businessman and currently has $100,000 extra in his savings that he doesn’t intend on using. He signs up with AssetStream as a lender. Once he verifies that he has $100,000 to lend, he will be issued with $100,000 worth of AST. John would be able to opt for manual selection or automated matching to borrowers. When the funds from the borrowers are returned, the platform will send the AST and last months’ interest to John.

John will receive a monthly reward from the projects he participates in, until the end of the loan contract. The reward will be sent to him minus the platform fees. When the loan contract ends, AssetStream platform will then return John’s AST. Because John chose the Thai microloans, the reward will be paid in ASTH. John can exchange ASTH into ASD and use that ASD to purchase more AST, as long as it is available (provided he has enough ASD to purchase AST) or exchange it into his original cryptocurrency.

**Verification**

The process starts with verifying all parties who contribute to the AssetStream platform in order to prevent anonymous and unfavorable agenda.

Due diligence will be conducted for each member whether they are going to be the Lender, Individual Borrower or Small and Mid-sized Enterprises (SMEs). The full information about the due diligence process can be found in article 7.5.

Third party ‘Local Agencies’ are assigned to check the required due diligence documents to comply with local laws and regulations, and to be able to enforce these laws in case legal actions are needed.
Based on the AssetStream platform design, the ‘Community’ also plays a role in screening the projects and reducing the risk of scam and fraudulent behaviour and projects have to be due diligence approved by ‘Local Agencies’.

Worth mentioning is our strategic partner ‘PICO Finance Institution’-a type of Enterprise business that will have specific due diligence according to their special ‘Business type’ to Thai law. They directly benefit lenders due to their publication of bi-weekly financial reports and tax payment. We will acknowledge their genuine information of each entity including Number of Customers, NPL rate occurred, and the overview of performance. All information concerning PICO Finance institution can be found in the Partner section 6.

**Prevention**

AssetStream, together with its strategic partner ‘CreditOK’ which specializes in credit scoring, will conduct due diligence for both individual and business types of borrower. This allows AssetStream to provide a ‘Credit Rating’ for Small and Mid-sized Enterprises (SMEs) and ‘Credit Scoring’ for the Individual borrower.

With the Credit Rating and Credit Scoring, we measure the probability of the borrower’s ability to repay both principal and interest. Every punctual payment or fulfilled commitment will immediately affect the credit rating/scoring in a positive way, and vice versa, as the platform promotes the punctualness to the community.

The ‘Credit Rating’ AssetStream provides to ‘PICO Finance’ is very straightforward, as it will happen according to their published financial reports as a financial institution. We will push forward to ensure the lowest NPL rate as possible and implement CreditOK’s Credit Scoring System (CCSS) and eKYC to ‘Pico Finance’. The ‘CCSS and eKYC’ process will replace ‘PICO Finance’s’ traditional paper personal-loan form and will indicate an individual measurement which will display the best loan value for the individual.

The benefits of a cross-check between ‘AssetStream’ and ‘CreditOK’ is that the lender not only has to rely on just AssetStream’s credit rating system, but is also able to confide every loan contract ‘PICO Finance’ placed for its customer on their end, therefore lowering the risk of NPL rate for Pico’s even further.

In order to diversify the risks, AssetStream will offer a range of business types to achieve ‘Diversified Investments’ for the lenders. Our team of professionals will continue to scan the markets, list rising businesses and narrow down the outdated ones. AssetStream’s agents, financial advisors and industry experts, will handle the operation to offer ‘Diversified Investments’. Similarly to the ‘AssetStream’ x ‘PICO Finance’ business collaboration model,
the upcoming industry’s credibility is highly valuable. A promising model like this needs the evaluation before we can offer it to our lenders.

There are other very details we developed and updating monthly to ensure the community will face NPL at the lowest possible rate. Such as the ‘up to 10% Maximum per project,’ which allows a single lender to contribute up to 10% of the project’s Hard Cap. The automatic matching system allows lenders to place their ideal loan conditions as criteria in the system and in return, the system will offer perfectly matched candidates.

**Monitoring**

In developing countries, like most of Southeast Asia, a major threat to micro finance or peer to peer lending is monitoring and the debt collection process. From the lenders perspective, the typical model of Peer to Peer lending is difficult to monitor, barely enforceable and debt collection is nigh impossible. Because of the ‘No intermediaries concept’ results in the lack of creditor awareness, one of the consequences is a high rate of NPL. (Refer to Nano Finance NPL (10%) vs Pico Finance NPL (3%) 111213141516)

Unlike a typical lending model, the ‘True Creditors’ are not just Lenders but also the ‘Local agencies.’ The Borrowers acquire ‘AST’ as collateral and place the collateral to enter in a Local lending agreement with ‘Local Agencies.’ They are fully obligated to fulfill any commitments made with Local Agencies including monitoring and debt collecting process. The model is fully incorporated with local laws, and our in-house lawyer is ready to take any action if necessary.

AssetStream Platform promotes punctuality to the community. Every transaction the borrowers make, whether in good or bad faith, will affect their public profile. This level of transparency contributes to one of the many factors to decrease the workload of necessary monitoring.

Debt collection consists of 4 consecutive phases. We encourage our lenders to visit article 4.3 debt collection process, as we stand by all the lenders and are ready to protect their profit and the sustainability of the platform.

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11 [https://thestandard.co/nano-finance/](https://thestandard.co/nano-finance/)
12 [http://www2.bot.or.th/statistics/MetaData/FLCB_093_ENG.PDF](http://www2.bot.or.th/statistics/MetaData/FLCB_093_ENG.PDF)
14 [http://www.nationmultimedia.com/detail/Corporate/30364010](http://www.nationmultimedia.com/detail/Corporate/30364010)
15 [http://www2.bot.or.th/statistics/Download/FL_CB_093_ENG_ALL.XLS](http://www2.bot.or.th/statistics/Download/FL_CB_093_ENG_ALL.XLS)
Legal Action

In South East Asia, P2P lending is a new phenomenon, as are the regulations to manage it. Most countries are still in the developing process of the regulations. The ones that introduced legal statements change/update them frequently. Such a state is disadvantageous for the lenders. Due to the lack of a legal system to protect them, they have hardly any means to track what is rightfully theirs.

With this in mind, we developed our business model to protect the lenders in case of a NPL. As mentioned earlier, the borrower not only has a loan contract with the platform but also a second contract with a local agency. This second contract allows AssetStream to invoke local laws to compel the borrower to pay their outstanding debt.

The legal procedure is part of our debt collection process and will be activated during the third phase of the debt collection process. More information about the debt collection process can be found in article 4.3 debt collection process.

DEBT COLLECTION PROCESS

5.3

Every loan contract will commence between the 23rd and 30th day of each month with the first payment due on the same day of the next month.

Grace Period

Regardless of the actual due date for payment, the system will only check whether the payment has been made on the 5th day of the next month at 12.01 a.m. (UTC +8). This creates an implicit grace period until and including the 4th day of that month where borrowers can make payment without incurring a late fee. To ensure that borrowers pay on time, this grace period will not be announced or disclosed publicly.
**Phase 1: Late Fee**

Should the borrower fail to make payment for that month before the end of the grace period, they will be charged with a late fee at 15% per annum on the outstanding sum.

The late payment fee will be calculated from the payment date (and not the end of the grace period), to the date when the payment is finally made. **Once the payment with late fees have been paid, the borrower will return to the regular payment scheme.**

**Phase 2: Negotiation Phase**

Phase Two will commence when a borrower has defaulted on a payment for two consecutive months, including the grace period. **During this phase, the Local Agency will attempt to negotiate with the borrower for new repayment terms for the loan contract on at least two occasions.** While the negotiations are ongoing, the late fee will continue to accrue on the outstanding sum until such time when the sum is finally paid.

**Phase 3: Legal Action**

Two months after the commencement of Phase Two, if no payment has been made or if negotiations fail, AssetStream and the Local Agency will consider taking legal actions against the borrower to recover the outstanding sum. **The borrower will be blacklisted from the AssetStream platform.** During this time, the late fee will continue to accrue.

**Phase 4: Non-Performing Loans**

In the event that no legal action was commenced against the borrower or was unsuccessful in recovering the full sum under the loan contract, Phase Four will commence. This will take place six months after the start of Phase Three. **The lender’s AST will be unlocked and will be used to purchase the contract from the Local Agency, allowing the Local Agency to liquidate the AST and recuperate its losses.**

AssetStream will try to sell the loan contract to debt collectors. The money AssetStream recovers from the sale will be given to the lender less any fees, costs or expenses expended in the debt collection process.
# Case Study of a Non-Performing Loan

<table>
<thead>
<tr>
<th>Date</th>
<th>Phase</th>
<th>Action</th>
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<tbody>
<tr>
<td>23 January</td>
<td>Start of the loan contract</td>
<td></td>
</tr>
<tr>
<td>23 February</td>
<td>Start of grace period</td>
<td>Due date of the first payment</td>
</tr>
<tr>
<td>5 March</td>
<td>End of grace period</td>
<td>At 12.01 a.m., the system checks whether the payment has been made.</td>
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<tr>
<td></td>
<td>Phase 1</td>
<td>If no payment has been made, late fees will start to accrue.</td>
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<tr>
<td></td>
<td><em>Late Fee</em></td>
<td></td>
</tr>
<tr>
<td>5 April</td>
<td>Phase 2</td>
<td>If the borrower, defaults on payment for two consecutive months, the Local Agency will attempt to negotiate new terms for the loan contract. Late fees continue to accrue.</td>
</tr>
<tr>
<td></td>
<td><em>Negotiation Phase</em></td>
<td></td>
</tr>
<tr>
<td>5 June</td>
<td>Phase 3</td>
<td>If no payment has been made or if negotiations fail, AssetStream and the Local Agency will consider taking legal actions against the borrower. Late fees continue to accrue.</td>
</tr>
<tr>
<td></td>
<td><em>Legal Action</em></td>
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</tr>
<tr>
<td>5 December</td>
<td>Phase 4</td>
<td>The lender’s AST will be unlocked and will be used to purchase the contract from the Local Agency, allowing the Local Agency to liquidate the AST and recuperate its losses.</td>
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<tr>
<td></td>
<td><em>Non-Performing Loans</em></td>
<td>AssetStream will try to sell the loan contract to debt collectors. The money AssetStream recuperates from the sale will be given to the lender less any fees, costs or expenses expended in the debt collection process.</td>
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</table>
Blockchains are not decentralized by default and consensus protocols are needed. A decentralized system without the use of a common consensus will fall into pieces within a second. It does not matter whether lenders of the system trust each other or do not trust at all. The lenders will have to agree on certain principles of functioning that would be common for all of them, and that is the direct role of a consensus mechanism.

We will be adopting the Stellar Consensus Protocol which is an evolution of Federated Byzantine Agreement as SCP uses open membership compared to FBA protocols having a determined membership. SCP is a model that uses nodes, quorum slices and quorums. Quorum slices are a specific set of nodes that can be used for reaching an agreement. An agreement that can never change in the future will be referred as a quorum. This mechanism permits reaching consensus among a large of number of lenders which AssetStream predicts to have in their platform. FBA was initially applied in Ripple and later improved in Stellar, each lender will choose a limited group of other lenders which forms a circle of trust which they can easily reach consensus and eventually, we will get a number of trusted circles, that somehow can overlap, which makes it possible to achieve an overall consensus in the whole network.
Advantages and benefits of AST token holders includes:

▪ Use as fuel in the AssetStream ecosystem
▪ Increases your reputation for risk assessment
▪ AST tokens can be used to entice friends and families to be Lenders on the platform as a form of referral method
▪ Staking of AST on the network will provide additional reputation for the risk assessment for borrowers, lenders and even service providers

The AssetStream network will be powered by AST tokens. Activities in the platform will be paid in ASD. In essence, Lenders will be rewarded with a currency that represents the local market as a part of the fee.

For example, if the loan contract is made in Thailand, the reward fee paid to the lender will be in ASTH, where 1 ASTH = 1 THB. Subsequently, the lender can exchange the ASTH to ASD and use that ASD to exchange it into the original cryptocurrency that was staked on the AssetStream platform based on the prevailing exchange rate.

Stakeholders on the AssetStream network are required to pay certain fees with ASD such as:

▪ Conversion fee by lenders
▪ Optional credit rating fee by borrowers

The first credit rating charges will be waived by AssetStream. SMEs will receive a personal credit rating if they choose to use the AssetStream platform and private borrowers will have their rating done autonomously or they can purchase a manual rating with ASD.

The ownership of AssetStream Token does not have any rights other than the rights to exchange and claim them on the platform. To be precise, AssetStream has no ownership rights, equity, security or equivalent, intellectual property rights or any other form of control or revenue sharing relating to the AssetStream Network.
Lenders will be able to select their loans manually or opt for automation for personal loans and be given an option to pick SME loans to participate in.

The two options provided to the lenders would be either automatic matching or manual search

- **Automatic Matching** – Lender would set out his requirements, such as the maximum amount he wants to loan out, minimum interest the lender wants to receive, and maximum duration of the loan. Lastly, the lender can choose the minimum credit rating the borrower needs to have in order to borrow from the lender. **When there is a match of the criteria set by the lender to a specific borrower, the loan will automatically start.**

The borrower will be able to set up the criteria for his loan by stating the duration of loan, interest he is willing to give and the amount he wants to borrow. His credit rating will be listed automatically.

The automatic matching feature is currently still under development and will be added in the future.

- **Manual Search** – Borrowers will be able to set up their criteria and list their needs onto the AST platform. The lender would be able to look at the criteria listed on the exchange and will pick up the loan of his choice.

AssetStream autonomous user interface will enable fast matching, borrowers can tweak their financing request via point & click or drag & drop. Faster matching will occur when borrowers narrow down their searches based on availability of parameters and requirements.

After a due diligence process, the application will be approved, a smart contract catered to the deal will be generated for the lenders with detailed information, and when the borrower confirms the application, the smart contract gets added into the ledger. Funding will be immediate, as all relevant and required documents are already captured and verified by the due diligence team.
Pico Finances under Supervision and Pico finance Association Thailand

Pico Finance under Supervision is a licensed money lending company that was founded in 2017 with the support of the Thai government to solve the problem of informal loans & loan sharks in Thailand. The association comprises out of about 500 Pico Finance companies spread across the Kingdom of Thailand and operate on a provincial level.

The partnership between AssetStream and Pico Finance is mutually beneficial. The Pico’s will be able to supply for their increasing demand and make a profit by maintaining an NPL rate of less than 10%. The AssetStream platform will be able to deliver competitive, profitable loans with a low NPL rate to its lenders and great provincial entrance to the vast demand for an informal loan in Thailand. The informal loan market in Thailand is at least 1,000M USD calculated conservatively as if the population of Thailand all borrow 15 USD.

PICO FINANCE BUSINESS INFO

- REGISTERED PAID-UP CAPITAL 5 MILLION THB
- OPERATE ON PROVINCIAL LEVEL
- MAX FEES AND INTEREST NOT EXCEED 36% ANNUALLY
- CREDIT LINE MUST NOT EXCEED 50,000 THB
- ABLE TO ISSUE A SECURED LOAN
Being categorized as Specified business (Licensed non-bank money lending company) with the Thai government, Pico Finance has to follow strict government regulations and has to publish their financial report according to the rules of Fiscal Policy Office under the Ministry of Finance on a bi-weekly basis. At the end of the month, a final report is created and published in an online directory. The reports show an increased demand for Pico loans and a low NPL rate between 0–3% on average. A direct link to the directory can be found here: https://1359.go.th/fidp/news_fpo/

![PICO FINANCE TOTAL OPERATION 2017–2018](image)

Other guidelines worth noting are that fees and interest rates from Pico loans cannot exceed a total of 36% per annum. Furthermore, the maximum credit for each borrower is capped at 50,000 THB (approx. 1.500 USD).

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The Pico Finance Association has become a victim of its own success. As the demand for Pico loans keeps rising, it becomes increasingly more challenging for them to provide for this growing demand. In 2018, 56,558 accounts borrowed a total of 1.56 billion Thai Baht (approx. 49 million USD) from the Pico Finance Association. Mr. Somkiat, President of the Pico Finance Association, predicts that as the government crackdown on informal loans continues, the demand will double in 2019.\(^\text{19}\)

Technological improvements have made it increasingly easier for people around the globe to work independently. Nowadays, independent work represents a new approach to entrepreneurship. These new entrepreneurs value independence and autonomy as much as the traditional financial driver.

It has led to an exponential growth of micro-entrepreneurs who want to work by themselves and keep their businesses at a manageable size. Currently, there are around 400 million micro-entrepreneurs in South East Asia.

The financial startup, CreditOK, a winner of various financial and IT awards and notably the winner of the prestigious ‘FinTech Challenge 2018: The Discovery’ organized by the Securities and Exchange Commission of Thailand, has taken the media by storm with their mission to unlock the potential of the micro–entrepreneurial economy in Southeast Asia.\(^\text{20}\)

The collaboration between CreditOK and AssetStream is advantageous for both companies as the available data from eKYC and Credit Scoring will further strengthen and perfect CreditOK’s Rating system which in return will provide AssetStream with even more accurate ratings.

The collaboration brings innovation to the PICO Finance industry. An example of such innovation is the face recognition technology that is part of the eKYC which allows borrowers to create a profile from the comfort of their smartphone and data analysis will provide for a more in-depth scoring which will reduce the change of NPL even further.

\(^\text{20}\)https://www.prachachat.net/finance/news-247348
Jet Tantthanapongphan
CHIEF EXECUTIVE OFFICER
A Harvard & Stanford-educated serial entrepreneur with conviction to address financial inclusion challenges and over 10 years of experience in intellectual property strategy & management at SCG, one of the largest conglomerates in Southeast Asia.

Palm Norchoovech
CHIEF PRODUCT & DATA OFFICER
Over 10 years of experience in data analytics & finance in Silicon Valley tech companies, such as Agoda, Airbnb, eBay & SAP.

Gap Chaonithi
CHIEF TECHNOLOGY OFFICER
A professional full-stack software developer with computer science research experiences in natural language processing, big data, and machine learning.
**ADD-ON SERVICES**

**BADGE SYSTEM**

Lender and borrower will not have functions to comment and rate each other. However, the borrower will receive a credit rating and a social rating in the form of badges based on their behaviour. For example, borrowing and repaying the debt on time will reward the person with a “badge of consistency” and this positive rating will increase the credit rating of the person. Late payment is a form of negative trait and will result in a negative rating such as the “badge of late payment” which will lower the user's credit rating. There will be a need to utilise market research data to revise the quality of risk assessment and transparency. **The badge systems will provide lenders a reliable source of comparability between borrowers.**

**ASSET CLASSES**

There will be 2 categories which are personal loans and SMEs who have Business loans. The maximum amount you can borrow as an SME will depend on the registered capital and other factors. **The maximum amount for personal loan would rely on their monthly income and other credit rating factors.**
AssetStream will provide a summary view of key indicators to all users within the AssetStream ecosystem. They will be able to see an overview of transactions that have been executed or not executed, and there will be performance indicators, as well as support tools.

Important information, such as default, delinquency and performance information, would be made available to all users.

AssetStream’s platform will provide all news on financial and business matters, and they will be able to pull statistics to provide research on the view of the financial market and various business industries. The market overview will enable users in the ecosystem to make wise lending or borrowing decisions based on market sentiment. *Information about borrowers and lenders will be made available to ensure lenders make wise lending decisions.*
**DUE DILIGENCE**

*AssetStream will provide a demo account for people who want to familiarise themselves with the platform.* The users will be able to perform demo loans and receive demo money. Once the user is ready, he will be able to switch to the real account where the user is required to fill out the minimum required KYC documents. *The credit score will increase when more KYC information will be provided.*

When the borrower is ready to commit to the loan, a list of documents will be requested by a KYC agent. Both personal and business documents are required. Some examples of KYC documents include:

**Business:**
- ID card with picture
- Photo with the company name
- Provision of company documents such as proxy letter, proving of shareholder ship and the certification of company registration

**Personal:**
- Picture with ID card or passport
- Last drawn salary
- Address with attachment of bank statement or utility bill

KYC will be validated on the platform if the information provided is correct.

Users are free to use the platform after validation. Users can opt for a better credit rating by uploading extra credentials. Once the documents are approved, the borrower can choose to allow the information to be made into a KYC profile so the information can be reused and it will reduce the due diligence processes.
The total token supply is 3,300,000,000 AST, of which 2,100,000,000 (64%) will be sold in the ICO and the others will be distributed in the following manner:

**ICO (64%)** – All proceeds from the ICO sale will be kept as a backup in AssetStream platform and will be incorporated as a lubricant for the lending pool for Thailand market.

The total budget raised from ICO will set the maximum lending capacity of the platform to ensure that all tokens can be lent out at the same time.

At the same time the ICO proceeds will preserve the AssetStream Token(AST) value to be 0.01 USD and doubles as a guarantee to the lender to reimburse the lender in case the platform doesn’t provide any feature that has been committed to by the AssetStream Team.
Management and Advisory (15%) – Tokens will be committed to hiring, maintaining and training staff to compete with the global market. These tokens will also be used to promote long term alignment with advisors and to support other operational expenses. These Tokens will be locked up for 1 year.

Marketing and PR (8%) – These tokens will be used to increase adoption and attract lenders and borrowers in new and existing markets.

Business Development (5%) – Tokens have been set aside for potential partnerships to bring in participation from local governments and NGOs.

Product Development (4%) – External expenses incurred for the development and improvement of the micro-financing platform, mobile application, infrastructure and security.

Legal (3%) – Legal support in the creation of a legal entity and for the documentation of potential changes in legislation related to cryptocurrencies used in operational, marketing and business development activities.

Bounty (1%) – A portion of the tokens will be used to accelerate the growth of the community and assist in building awareness for AST.
**ICO DETAILS**

- **Tokens created:** 3,330,000,000 Tokens
- **Hard Cap:** 21,000,000 USD
- **Tokens issued:** 2,100,000,000 Tokens
- **Soft Cap:** 1,440,000 USD
- **Accepted Currencies:** Bitcoin, Bitcoin Cash, Ethereum
- **AST Par Price:** 0.01 USD

Each token sale round will start at 00:10 on the start date and will end at 23:00 on the end date. UTC +8 will be used as the default timezone for the tokensale.

### Tokens Sale:

<table>
<thead>
<tr>
<th>ICO Round</th>
<th>Start Date</th>
<th>End Date</th>
<th>Round Bonus</th>
<th>Token Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-ICO</td>
<td>27/05/2019</td>
<td>31/05/2019</td>
<td>25%</td>
<td>180M</td>
</tr>
<tr>
<td>Round 1</td>
<td>01/06/2019</td>
<td>05/06/2019</td>
<td>21%</td>
<td>240M</td>
</tr>
<tr>
<td>Round 2</td>
<td>06/06/2019</td>
<td>10/06/2019</td>
<td>18%</td>
<td>240M</td>
</tr>
<tr>
<td>Round 3</td>
<td>11/06/2019</td>
<td>15/06/2019</td>
<td>15%</td>
<td>240M</td>
</tr>
<tr>
<td>Round 4</td>
<td>16/06/2019</td>
<td>20/06/2019</td>
<td>12%</td>
<td>240M</td>
</tr>
<tr>
<td>Round 5</td>
<td>21/06/2019</td>
<td>25/06/2019</td>
<td>9%</td>
<td>240M</td>
</tr>
<tr>
<td>Round 6</td>
<td>26/06/2019</td>
<td>30/06/2019</td>
<td>6%</td>
<td>240M</td>
</tr>
<tr>
<td>Round 7</td>
<td>01/07/2019</td>
<td>05/07/2019</td>
<td>3%</td>
<td>240M</td>
</tr>
<tr>
<td>Round 8</td>
<td>06/07/2019</td>
<td>–</td>
<td>–</td>
<td>Until Hard Cap Reached</td>
</tr>
<tr>
<td>Exchange Listing</td>
<td>10/07/2019</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>
The referral system has been created to reward enthusiastic users. We believe that many small hands can help the platform achieve the sustainable growth.

Invitee and Invited users can both benefit from this program and will receive rewards from the system in ASD (equivalent to cash) and can be converted into cryptocurrency anytime.

**Invitee**
- Whenever your invited users purchase AssetStream Token, You will receive ‘Bonus ASD’ worth of 5% of the AST bill. (Excluding ICO round bonus tokens)
- Whenever the ‘Bonus ASD’ accumulation reaches a multiple of 300 ASD. You will receive 5 of ‘Tradeable Conversion Discount Coupon’ worth of 20$.

**Invited**
- Being invited members get free ‘Non-Tradeable Conversion Discount Coupon’ worth of 20$
- Whenever you purchase AssetStream Token, You will receive ASD worth of 3% of the AST bill. (Excluding ICO round bonus tokens)
- Whenever the ‘Bonus ASD’ accumulation reaches a multiple of 300 ASD. You will receive 5 of ‘Tradeable Conversion Discount Coupon’ worth of 20$.

* ‘Conversion Discount Coupon’ can be used to prevent/reduce conversion fee which will be applied when you convert ASD into cryptocurrency
AST

AST stands for AssetStream Token, which is a utility token. AssetStream will set and honour the token value of 0.01 USD inside the platform as the ICO price.

On the Exchanger AST (AssetStream Token) price is floating and fluctuates depending on supply/demand and Marketing mechanism. This means owner of AssetStream Token (AST) can utilize the inside the platform of its original value 0.01 USD

Moreover, AST will be list on 3rd party external exchange on 10 July and owners of AST will be able to utilize it as soon as they complete the KYC process on platform even during the ICO period

- Used on the AssetStream Platform
- Bought/Sold on external exchange
- Worth 0.01 USD when using on the AssetStream Platform as lender
**ASD**

ASD stands for AssetStream Dollar and is the main currency on the platform. It is equal to 1USD and will be used to pay for costs on the platform, such as conversion fees. You can purchase ASD with BTC, BCH or ETH. With ASD you can purchase AST or convert it back into BTC, BCH or ETH. Depending on your internal wallet.

- Convertible to BTC, BCH, ETH and vice versa
- Purchase AST only available during initial coin offering

![Diagram of ASD to BTC, BCH, ETH and AST conversion](image)

**ASTH**

ASTH is a sub currency of ASD and is used for the local Thai market and is equal to 1 THB. You will receive this currency as loan interest from Thai loans. Because the loans are in THB the lender will be paid in ASTH which is equivalent to THB. It is up to the lender to choose when to convert the ASTH to ASD. When converting ASTH to ASD a floating rate will be adopted. AssetStream does not take any commission on sub currency conversions.

- Convertible to ASD
- Receive from Thai loans
- No conversion commission

![Diagram of ASTH to ASD conversion](image)
2017

Q1  ▪ Four co-founders founded the AssetStream project as a great potential solution for the low-income communities in developing countries who are struggling with the loan shark problem.

Q2  ▪ After fundamental researches a proof of concept had been created.
    ▪ The proof of concept reached legal and technical viability
    ▪ During this period the AssetStream project evolved from a potential side project to a fully self-funded project, geared towards launching in 2019.

Q3  ▪ The recruitment team recruits professionals and specialists from Belgium, South Korea, Thailand, Singapore, Philippines and many more locations around the world

2018

Q1  ▪ Start development process of the AssetStream platform prototype.
    ▪ Selected Thailand as flagship region due to compliance of law, norm, customer behavior, market size.

Q3  ▪ Reached the demonstration version of platform infused with blockchain technology.
    ▪ Approached potential partners with demonstration version of the platform.
    ▪ Reached an agreement with the first strategic partners, Thailand PICO Finance Association (Consists out of about 500 money lending companies)

Q4  ▪ Approached the public as the AssetStream Platform aiming towards offering an alternative finance solution to customers in developing countries.
    ▪ Attended Hong Kong Fintech week 2018.
    ▪ Attended as one of the premium exhibitors at Consensus 2018 Singapore.
    ▪ Attended as one of the speakers during ‘Blockchain Innovation Tour’ promoting the AssetStream platform in Malaysia, the Philippines, Vietnam, Thailand, Singapore.
2019

Q1
- AssetStream Platform, with its strategic partners (Finanigo, Pico Finance Association Thailand), held the press conference event in Target market.
- Determined the Launching date of the AssetStream Platform and ‘AssetStream Token (AST)’ Token distribution.
- Started online advertising and public relation campaigns.
- Launch AssetStream social channels including Youtube, Facebook Fanpage, Twitter, Instagram, Telegram Group, WeChat, Line Official.
- Started development of AssetStream platform mobile version.
- Contributing Money/Blockchain expos around the world to meet the potential investors and platform users in person.

Q2
- May – ‘AssetStream Token (AST)’ Token Distribution takes place.
- June – The AssetStream Platform is fully operational.
- July – AssetStream’s first monthly pay out to Lender.
- AssetStream project moving toward Thailand market needs.
- Contribute Money/Blockchain expos around the globe to meet the potential investors and platform users in person.

Q3
- Announce the 2nd and 3rd target market (Potentially Vietnam, Philippines) with its strategic partners.
- AssetStream Platform with its strategic partners hold a press conference event in both target market.
- Contribute Money/Blockchain expos around the globe to meet the potential investors and platform users in person.

Q4
- October – New volume of ‘AssetStream Token (AST)’ Token Distribution takes place*
- November – Platform functions for 2nd and 3rd target are fully operational.
- December – 2nd and 3rd target market first monthly pay out to its lenders.
- Contribute Money/Blockchain expos around the globe to meet the potential investors and platform users in person.
2020

**Q1–Q2**
- AssetStream Platform beta test the features of peer to peer lending and start launching from the best situation of the target market.
- AssetStream becomes a fully functioning versatile global lending platform, alongside with the regional strategic partners.
- Launching of AssetStream platform on mobile to the available market.

**Q3–Q4 (Future stage)**
- Together with its local strategic partners, AssetStream expands its territory of services.
- The AssetStream platform can expand itself entering credit scoring, banking business based on user data of the platform.
- Pursue the social mission, a social enterprise, to apply basic financial education to developing countries to help prevent people from making financial mistakes and reduce reliability on loan sharks which improves the overall living quality.
THANIN PHIROMWARD
FOUNDER, HEAD OF IT & DEVELOPMENT

CEO of Electronics Extreme Company, a leading online game publisher and developer in Southeast Asia. The gaming industry’s most highly-valued skills involved leading all kinds of programmers and he is a founder and technical leader of several high-tech projects. More than 10 years’ experience in the IT sphere.

KEN PHIROMWARD
CO-FOUNDER, HEAD OF STRATEGY & MARKETING

Managing director who leads operations manager and marketing strategist at Electronics Extreme Company. Strongly vast experiences within the emerging market, and with a good knowledge of global innovation processes and financial business analytics.

DIDIER BOSMANS
CO-FOUNDER, HEAD OF COMMUNICATIONS

Didier is Head Of Communication and Co-Founder of AssetStream. He has a dual degree in Marketing and Public Relations from Karel de Grote Hogeschool and University College Thomas More. He worked as a marketing and communication consultant for the Cronos group, the largest Belgian IT group.
TUN SANTIANUCHIT
CO-FOUNDER, MANAGING PARTNER
Business development more than 6 years’ experience across global brands. Strategy and operations consulting in various industries. His specialist experience in digital marketing, branding, public and investor relations and community.

NUTTHAPON SIRIPAIBOON
SENIOR MANAGER, APPLICATION DEVELOPMENT
Experienced Game Producers or Development Directors. Over 10 years veterans in IT industry. He possesses in-depth knowledge and great expertise in User Experience Design, User Interface Design and Data Security.

CHUTHIYA PITTHAYAPITUK
SENIOR MANAGER, PROJECT MANAGEMENT
Marketing and project management specialist with a good knowledge of the digital technologies and well familiar with a full scope of marketing activities and project management processes.

ATIWAT YUWITAYA
MANAGER, BUSINESS DEVELOPMENT
Project Feasibility study, Financial Calculation, Problem Solving is a core responsibility for Business Development Manager at AssetStream. With experience working as an Investment Consultant at Finansia Syrus Securities, One of top leaders securities brokerage in Thailand. Assistant Financial Manager and Strategic Marketing Executive at Electronics Extreme company.
DR. CHATCHAI THNARUDEE

CEO, JP INSURANCE

Dr. Chatchai Thnarudee is a strategic, innovative and transformational business leader with over 22 years’ experience including managing global teams and having international leadership experiences in USA, New Zealand, Cambodia, China, Bangladesh, Vietnam, Myanmar and Thailand, and across industries: Banking, Insurance, Oil & Gas, Energy, Management & Strategy Consulting, Organizational Change Management & Transformation Consulting, Manufacturing, Start-up, Digital & Information Technology. He also brings with proven experience in effectively implementing digital and business strategy for multinational Fortune100, large-sized, SME-sized and startup firms, as well as building world class organization at the global, regional and business unit levels.

SEAN KOR

CO-FOUNDER, TRINIDE

Sean’s background in computing and four years of experience in the blockchain industry enable him to provide unique insights in the evolving technology sector, solidifying the fundamentals of Trinide — a technology consultancy firm that helps traditional industry leaders with their digital transformation and transition into a blockchain-powered ecosystem.
KARNIKA E. YASHWANT (Mr. KEY)
FOUNDER & CEO, KEY DIFFERENCE MEDIA

KEY is one of the rare genuine Blockchain and “crypto” authorities. While many have stepped on the stage since the technology’s mainstream growth –KEY has been investing in, working with, advising and running campaigns for industry projects since 2013. He’s a multi-award winning entrepreneur and CEO and holds an advisory or executive position in some of the top industry brands (including NewsBTC). His firm, KEY Difference Media, has been recognized in dozens of “top ICO firms” and “top ICO advisor” lists across the years. Furthermore, KEY is genuinely passionate about the opportunities provided by the Blockchain technology. He speaks at universities and business clubs regularly and has authored countless industry articles that can be found online.

JUN CHI
CO-FOUNDER, TRINIDE

A blockchain advocate with a strong background in engineering. Jun Chi is responsible for implementing strategic initiatives and solutions for companies. His strength lies in developing relationships, lead generation and sales. He currently holds a bachelor of engineering.