



## Credit Risk Assessment Based on Blockchain Accounting

### THIS WHITE PAPER IS NOT A PROSPECTUS

*The sole purpose of this Whitepaper is to share information about the proposed establishment and operation of the PayPie Blockchain Accounting platform to bring ultimate trust and transparency to the financial markets and the cryptographic blockchain tokens (“**PPP Tokens**”) for use within the PayPie platform. The information set forth below may not be exhaustive and does not imply any elements of a contractual relationship. The Whitepaper does not constitute an offer or invitation to any person to subscribe for or purchase shares, rights or any other securities of PayPie or any affiliated entity.*

*Any agreement in relation to the purchase and sale of PPP Tokens shall be governed by a separate document setting out the terms and conditions (the “**Terms and Conditions**”) of such agreement, which shall be made available at <http://www.paypie.com> prior to the sale of any PPP Tokens. In the event of any inconsistencies between the Terms and Conditions and this Whitepaper, the Terms and Conditions shall prevail.*



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# 1 Executive Summary

## 1.1 Introduction

PayPie is creating the first decentralized accounting platform for businesses that will provide real-time insight into financial data to achieve 100% accuracy for a credit risk algorithm that can be used globally. This analysis will be conducted using a single ledger approach and will consider businesses' all-time historical financial data to safeguard and transform the way credit risk is assessed by lenders, investors, banks and other financial institutions while building a blockchain-backed accounting ecosystem.

PayPie is the first fintech to develop credit risk profile of a business based on an in-built algorithm to constantly adjust it on the Ethereum blockchain depending upon the changes in more than 150 data points. This paper gives an overview on how PayPie will enable live financial audits, ends duplicate tasks, speed up credit approvals and improve the overall credit scoring process by disrupting business accounting landscape.

## 1.2 Today - Isolated, Closed & Disconnected Systems

The double entry accounting system was invented more than 600 years ago with the purpose of minimizing errors in the books of a company with the introduction of debit and credit. It allows firms to keep records that reflect what the firm owns and owes and what the company has earned and spent over any given period.

However, accounting systems today are closed systems, and unethical practices from companies like Enron used accounting limitations to misrepresent earnings and change the balance sheet to show favorable performance. Today there is no connection between the books of one company with the other company they are buying or selling products or services to/from. It allows company A to cheat on the transactions that were happening with company B. This lack of transparency contributed to the largest bankruptcy in American history at that time and one of the biggest audit failure of our era.

The double entry system solved the problem of companies knowing whether they could trust their books. However, to win the confidence of outsiders, independent public auditors also verify the company's financial information (balance sheet, income statement, cash flow statement, etc.). The cost of an annual audit of a moderately sized company starts with the tens of thousands of dollars and can easily reach into six figures.

Banks now lack real-time financial insights of business, and their decisions are based on historical data that may be six months to a year old and those numbers do not reveal enough quality data to obtain an accurate appraisal of the company's financial health. Traditional financial institutions turn down 72% of funding requests and other lending players take 2 to 7 business days for due diligence, and if approved, it takes 2-5 business days to get money in the bank. This is not an ideal situation, and if small and medium-



sized enterprises (SMEs) must accept deferred payments, then these enterprises need new ways to get financing.

Information in an accounting solution used by a business is usually isolated and closed to the public, so it is not possible to prove the immutability of records, accuracy of the data without exposing all the business secrets. Balance Sheet and P/L tells only half of the old story about business. Blockchain handles anonymity and is capable of bringing reliability by bringing transparency by publishing relevant, valuable data, and this is going to power the forward-thinking companies in coming years.

## 2 Target Audience

“PayPie Single Ledger” is going to open an abundance of opportunities for millions of SMEs worldwide. PayPie takes a disruptive approach to the outdated methods and completely offers a new, safe and secure way to expose financial data to lenders, auditors or regulatory authorities.

There are many business use cases enabled by the trustless accounting, and being able to build a transparent & trustful credit risk score of a business that can be used globally, is one of the most important. Because PayPie already had detailed transactional and financial information on businesses in some cases better than banks, our proven risk algorithm will score and recommend the best SMEs that can be selected for financing.

With the underlying health of a business visible on the blockchain, powerful innovation from PayPie could automate aspects of the regulatory, audit and accounting processes and may have long-term positive impact on the SMEs.

Some of the first opportunities found are

1. Opening peer-to-peer lending opportunities to SMEs
2. Credit opportunities for banks, financial institutions, investors, invoice factoring companies
3. 3rd-party financial audit & review data, accounting firms, and Governments
4. Insurers - Sell insurance products to SMEs

## 3 Journal Entries

### 3.1 Authentic Data

At PayPie, we started looking at how to fix this problem and found that there were more than 60 million businesses worldwide that can be helped by introducing the blockchain in an accounting software. These



firms can be further supported by a single ledger based on a decentralized accounting platform that ends duplication of efforts.

PayPie brings transparency to the financials of business by introducing triple entry accounting. Each journal entry and transaction will be hashed and time-stamped on secure blockchain giving PayPie better visibility than banks into the financial health of a business that can be used to make a faster decision on lending. Blockchain in an accounting software brings better visibility into the actual income and expenses of the business thus reducing risk to the lenders.

The underlying input of a company's financial is the journal entry data that is being entered manually or automatically in an accounting or ERP software. The data is used to calculate income, expense, payables, receivables, etc. and ultimately all financial reports like retained earnings, balance sheet, total assets or liabilities of a business. With PayPie, every journal entry data is allocated to the blockchain through automatic API connections to an accounting or ERP software. PayPie will use technology to assign a unique fingerprint to every transaction performed in an accounting software and publish them on the blockchain. Typical operations in a business are sales invoices, vendor bills, expenses, debit notes, credit notes, payroll and other income and expenditure.

## **3.2 Foundational Accounting Framework**

The PayPie platform introduces the blockchain into the existing workflows of an accounting software; the ones that are already trusted by SMEs.

Accounting software SlickPie will provide the initial accounting logic framework and source code for the foundation of the PayPie platform to store journal entry and other accounting data. This saves us time in coding and writing those involved accounting logics, and we already have a great platform to start with. Adding blockchain record in the world of debit and credit effectively creates a triple entry accounting system.

PayPie brings transparency to a modern business by building a platform that we will hash all the journal entries and other relevant information from an accounting software on blockchain so that we can use the transparency & track record to build a live credit scoring algorithm. We believe an accounting software has better visibility than banks into the actual finances of a business such as income, expenses, customers, vendors, payable, receivables, payroll, sales tax, VAT, etc. and we can use this information to build a trusted platform. The days when financial reports for companies were outdated (by 6-12 months) are over, and now creditors have live quality data to obtain an accurate appraisal of the company's financial health for a better term sheet for financing (interest rate, maturity, annuity, collateral required, etc.). With all the new data factored in the risk premium, SMEs may qualify for a better term sheet for the credit.

Finding lending opportunities is the biggest problem being faced by our competitors and that puts PayPie in a unique position. More than 16,000 SMEs already using the SlickPie accounting software and they are



an asset to the PayPie platform and offer us an advantage as new platforms often face the "chicken or egg problem." We don't have this issue as we already have access to businesses to kick start our journey who would be happy to use the PayPie platform.

New core functionality will be added to fetch journal entry and other accounting data from different ERP softwares in real time. API integration with likes of Xero, QBO, Sage, SAP, NetSuite, etc. will make real-time financial and credit risk assessment based on triple-entry blockchain immediately available worldwide. Building strong partnerships with major accounting and ERP systems is a major aim of our overall marketing strategy. For example, QuickBooks Online has a strong connection with TSheets & Bill.com, and this makes their services available right inside the QBO to more than 2.3 million users with the click of a button. We can visualize that day when companies can access short-term lending or finance their invoices exactly this way by leveraging blockchain technology.

PayPie will also be able to make prompt recommendations based on our ability to predict patterns from a company's account history. We will also be able to anonymize financial data from many kinds of businesses and use that data to give small business owners or investors an idea of lending opportunities and compare it to anonymized data from other firms in their industry.

Potential implications are enormous as transparency brings a whole new value to businesses, regulators, and investors. For example, if an auditing firm is looking at various companies and checking all the transactions on the blockchain to see what has happened or gone on between them, we could take that data and use data visualization tools to have a view of that segment of the business. Individual companies have a lot of liabilities to each other, and all this would be visible on the blockchain that they cannot alter. The cost and time necessary to conduct an audit on a company would also decline considerably because auditors could easily verify the most critical data behind the financial statements.

Access to the PayPie platform will be free for SMEs interested in offering credit score analytics on the actual financials of their business for better access to the lending market. An excellent credit score at the PayPie platform will qualify for best deals from the invoice marketplace.

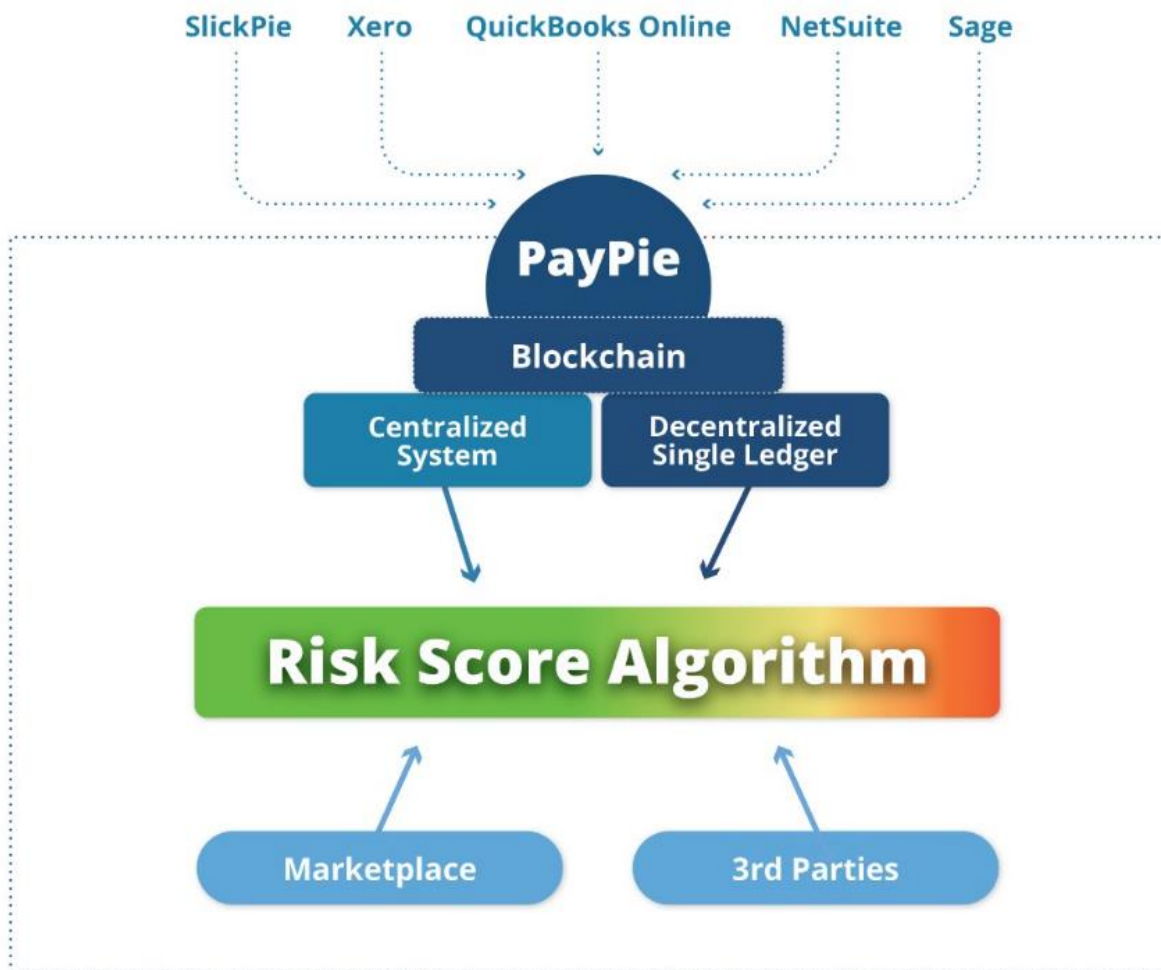
PayPie will follow IFRS accounting standards so that we are independent of country-specific approaches that are usually followed by an ERP software.

### **3.3 Risk Assessment to the Limits of Surgical Precisions**

PayPie risk algorithm will score each company based on its financial and transactional history in the platform. PayPie will have access to the complete history of SMEs in their accounting solution like who are their vendors, how reliable SMEs are at making payments to their vendors, what's the projected cash flow for the coming weeks, months and year based on the historical data, balance sheet, income statement and other data points. This makes PayPie the first to have a real business accounting platform to take advantage of blockchain technology and smart contracts to revolutionize the financial sector for companies. We believe that innovation will help millions of businesses in coming years as we fully utilize the blockchain to help solve real-world problems, like smart contracts to detect false, inflated or duplicate



invoices or fake reporting. We are thus creating an efficient solution with tremendous global potential by bringing crypto to the world of decentralized accounting, in the form of the PayPie platform.



Big data based on real-time unique credit risk algorithm scoring would be primarily based on the live financials of a business in PayPie and will be based on more than 150 data points including below

- Current Assets
- Current Liabilities
- Working Capital
- Retained Earnings
- Earnings Before Interest and Taxes
- Total Liabilities
- Total Assets
- Gross Sales

- Book Value of Equity
- Payment History
- Budget
- Cash flow forecasting
- Decentralized Trust and Transparency Rating (DTTR)
- Social fingerprints

Credit ratings would include numbers, ratios, and colors to help lenders quickly evaluate the risk. Other scoring and bankruptcy formulas, such as Altman Z-score used in the financial lending world or solutions like Experian, Dun & Bradstreet, and publicly available XBRL data may also play a role in future as we develop an ecosystem for real-time credit scoring.

## 4 Problem of Liquidity

Lack of positive cash flow kills 25% of SMEs out there, and it is more important than ever to keep a business cash flow positive. Unfortunately, it is one of the biggest challenges faced by small business today, and SMEs struggle to create new opportunities, implement existing plans, pay salaries, manage working capital to buy new equipment, and negotiate the best terms with their suppliers. Most business payments get paid only after 90-120 days and cost them billions in lost opportunities.

Invoice factoring or invoice discounting also known as invoice financing could help. Cash is given to the SME against outstanding sales invoices instantly by an investor at a cost that creates a solution where everyone benefits. Millions of businesses worldwide use invoice financing to support their operations of activities at various stages of their business life cycle. The total market size for invoice finance has been growing rapidly over 11% per annum and estimated to be over US \$3 trillion worldwide where factoring providers collect the final payment in 90-120 days, profiting from the factoring fee/interest rate. In recent years, the USA's alternative financial model has exploded. Many traditional commercial platforms have found that the problem of delay in the invoice payment and the bank's reluctance to lend to businesses, is growing. SMEs already face enormous obstacles, and delayed payment has become one of the biggest problems for the companies worldwide.

Legacy solutions allow sellers to upload or send invoices manually. Those invoices may be fake, false, inflated and many times the same invoice is sent to 2 different invoice factoring companies which increase the risk for lenders. There is no solution out there that can start tracking a bill from its point of origin and end all the manual work of uploading or sending except PayPie. Many times, businesses must submit more financial documentation that comes from the isolated environments of bookkeeping software.

Invoice verification is one of the most labor-intensive and costly processes today but is a crucial tool in preventing fraud in factoring invoices. Verification of sent invoices includes multiple steps such as confirmation that invoiced products and services were delivered as claimed, an inspection and confirmation that the quantity and quality of the invoiced goods were provided as requested, an onsite inspection of the work and products to confirm that they met the specifications as invoiced.





The market today demands an urgent need for a trusted platform that lets businesses build a transparent financial track record that helps them with better access to the funding. Integration of the blockchain technology with an accounting software is the way to improve transparency, automate lending, and accelerate processes. The clarity of events in an accounting solution along the supply chain via the blockchain is an enabler of faster payment, increased efficiency, reduced risk of fraud, and lower costs. Exchanging information related to these events in a distributed ledger helps trigger events that need to take place.

And this is precisely the gap that the PayPie is looking to fill. All above can easily be handled by smart contracts in a triple entry accounting solution. Put simply; it's a game changer for the industry. Our end-to-end platform will give SMEs super easy access to short-term financing by turning their accounts receivables into tradable assets. PayPie platform integration with major accounting and ERP systems enable automation because all transactions will flow through blockchain and validity of all transactions including sent invoices can be verified with a click along with associated journal entry data and relevant documents to assess the risk. Things that demand time and resources today will be completely automated.

## 5 PayPie Platform Evolvement

We already have a significant pool of businesses using SlickPie as their accounting platform, and now blockchain and smart contracts can solve their liquidity problem. We also have specific real-time financial information on their activities; we have all the data and history on their business. We know their customers, vendors, income, expenses, and money in the bank as live bank feeds pull data on a daily basis. We are not “chasing potential invoice sellers” around, but will give them a new possibility that works with their choice of accounting system already being used by them.

Transaction verification is an important part of the lending process and demands time and resources for the lending firm. Verification of correctness of all the transactions will be available on the blockchain. To access lending on the PayPie platform, a Know-Your-Customer (KYC) process will be in place for SMEs.

Let's say you own a business that sells rubber to Nike for their shoes. You are good at your job, but it takes Nike 90-120 days to pay you for your work. Marketplace lender will buy that invoice from you at a discount & then wait for Nike to pay the original sum to the lender. This allows you to make payroll, purchase new materials, hire new people & grow faster.

We have the edge over traditional factoring companies because either they don't have a pool of invoice sellers to start with or they don't have access to the live financial data whose immutability is guaranteed by the blockchain. PayPie will reduce the mortality rate of qualified SMEs by helping them improve their access to the capital as soon as they click on “Get Paid Now” button inside the app.

### 5.1 Marketplace - Built on Credit Risk Algorithm

PayPie credit risk algorithm will enable top scoring SMEs to gain immediate access to liquidity by selling their invoices to the token holders. Because PayPie already had detailed transactional and financial



information on their business, which in some cases better than their banks, our proven risk algorithm will score and recommend the best companies that can be marketed and selected for financing. Those companies with a good history and lowest risk score will earn benefits, and incentives will be available. Token holders will buy invoices at a discounted rate & provide SMEs with the money within 24 hours while waiting for the first customer to pay the lender original amount as per the term sheet. The PayPie platform will help SMEs to get immediate funding on monies owed to them by their customers from token holders, rather than waiting for customers to pay invoices after a long-deferred period that usually causes a strain on their cash flow.

A token holder can be an individual contributor, lender, investor, bank, or other financial institution. Any invoices originating from the PayPie platform are tradable assets and the marketplace enables access to invoice financing along with complete visibility into the history of a business and risks involved. We will provide historical transactional and financial data & credit rating system built from the blockchain to enable lending from token holders. Our credit scoring data will be indicating and assessing the risk of invoice default so that buyers can make educated decisions. Blockchain makes it much easier for smaller investors to get involved in an industry that has until now been reserved only for big lenders who had the resources to do background checks and research.

Our algorithm seeks to match the risk appetites of token holders with the risk profile of companies that need short-term financing. If you are doing well & suddenly find yourself with some extra money, you can now pay a fee in PPP Tokens & buy an invoice at a discounted rate from an SME whose credit rating would be given by the platform & wait for their customer to pay you. You will have best possible financial data on the companies whose invoices you are buying and their customer companies who owe you money.

It means that you will be able to purchase data on how risky your investment in an individual SME's invoice is & pay us a fee for giving you access to that data in PPP Tokens. This allows someone in China to buy a bill at a discount from the SME & then pick up the original amount from its initial customer in the USA by trusting our real-time credit scoring. All internal payments will be managed using ERC20 compatible stable "Pie Coins" that are exchangeable for fiat and pegged 1:1 against major currencies to avoid exposure to fluctuations in the prices of cryptocurrencies.

To prevent defaults, all parties involved will be able to rate each other at the end of the transaction and this history will be recorded on the immutable Ethereum blockchain to build a Decentralized Trust and Transparency Rating (DTTR) so that others can make well-informed lending decisions. Smart contracts will automatically amend each party's trust rating according to an algorithm after completion of the lending process.

The PayPie platform connects forward-thinking SMEs worldwide to the trusted and easy lending by implementing crypto in a triple entry accounting system. PayPie is taking care of the most common issue lenders are facing today: duplicate lending, lack of transparency and false reporting of financials of the business. Clear visibility into the business finances will open new doors and opportunities for the masses.



# PayPie Platform Marketplace

Each transaction goes through a smart contract that includes seller, buyer, price and other details. It's digitally signed & IPFS hash links to further documentation.



SME connects their accounting or ERP software with PayPie

Journal entry and other relevant data from accounting software populate PayPie platform



Data is tokenized and published on the blockchain. Update PayPie with links to the data. Buyer acknowledge receipts of goods or services

Risk scores are calculated on each company based on the data in PayPie and made available on dashboard



SME makes blockchain verified invoices and company data available to buyers on the PayPie platform

Lenders review investment opportunity and make tokenized offers and terms for factoring



Best offer get accepted by the company, signed and published on blockchain

Lender confirms, signs and funds get transferred to the company and published on blockchain



Actual customer (Buyer) of the company get notified with the details of new beneficiary

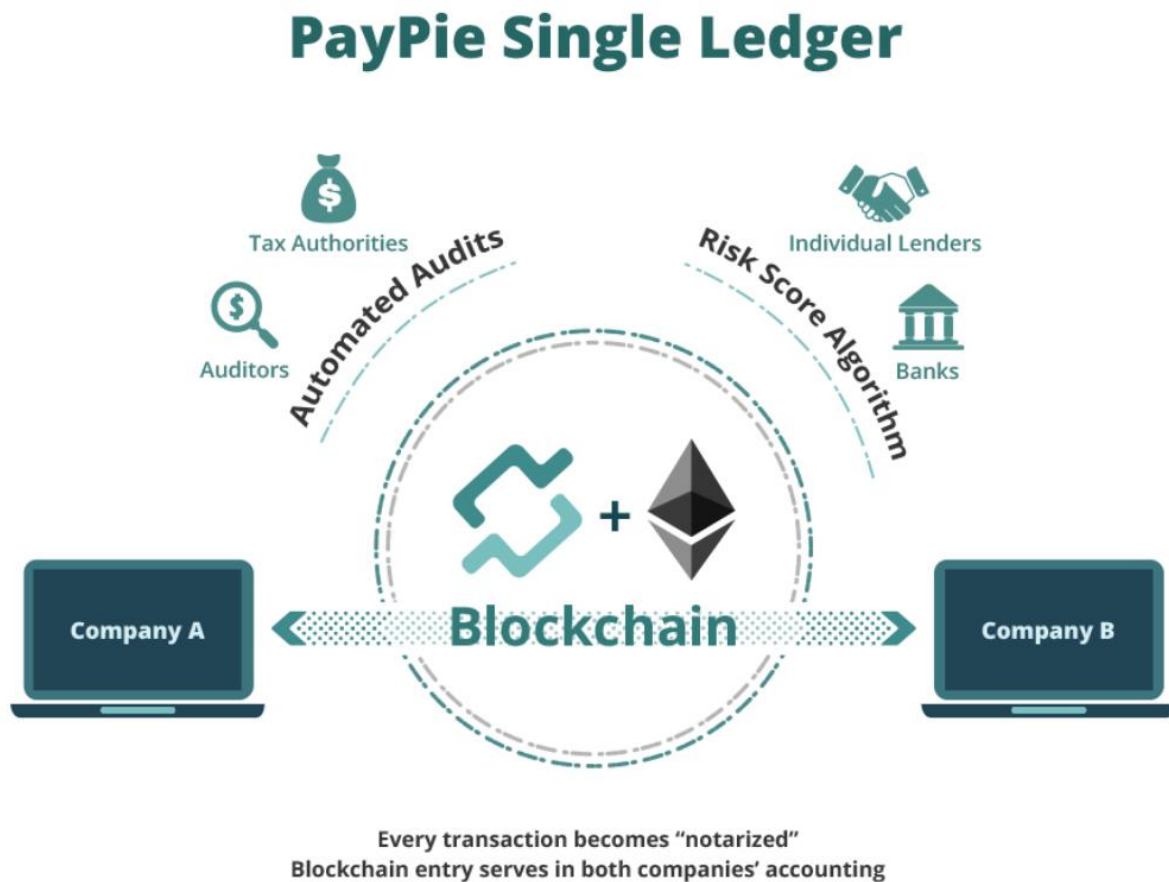


## 5.2 Future of Accounting – PayPie Single Ledger

This is the most ambitious part of the project, and we are taking a bottom-up approach to this one. We will use the already built above ecosystem to transform isolated & centralized accounting systems



employed by SMEs worldwide and introduce a new decentralized accounting platform. Instead of keeping separate records in different accounting software, companies can write their transactions directly into a joint register, creating an interlocking system of ensuring accounting records.



Business will prepare, sign and send hashed UBL documents and associated smart contracts so that process from issuing a purchase order, invoicing, delivery of goods and services to the payment can be seamlessly tracked on a trustless accounting platform. The USA economy alone processes about 25 billion invoices in a year and this will allow us to remove the "disconnect" that happens when different parties use different accounting software and will immensely improve the accuracy of our risk analysis score. This will result in better rates from the marketplace for the invoice sellers as businesses will be able to tap the resources already built for them.

Our single ledger approach will significantly disrupt established legacy accounting workflows and regulators in all markets. There will be many uses of trustless accounting on the blockchain. Some other benefits achieved due to the meaningful application of the technology:

- No re-keying of data by different parties
- Less time spent in billing collaboration, e.g., following-up unpaid invoices, eliminating duplicate

- invoices, ends duplication of efforts
- Automatic distributed reconciliation of financial records
- Automatic & seamless regulatory and compliance documentation
- Traceable audit trails / automated audit process
- Tracking ownership of assets
- Significant savings on credit insurance, audit & review

### **5.2.1 No Transaction Fees World**

We believe that transaction fees are a business model of the past. Providers like PayPal and Stripe charge transaction fees that are usually 2.9% + 0.30 for credit card transactions. Once the decentralized single ledger is set up, PayPie trustless ecosystem can be used to move money among parties without involving providers like Stripe, PayPal or any other 3<sup>rd</sup> party using internal stable “Pie Coin” pegged 1:1 against major currencies and balances tracked on the single ledger.

### **5.2.2 Partnerships and Ecosystem Integration**

Single ledger will allow the creation of new business models based on the real-time financial of a business. Our algorithm-as-a-Service would allow anyone to build new services on top of our services quickly.

Ecosystem integration is an important part of our long-term plan for PayPie. This long-term plan involves integrating with the third-party popular apps extending functionality (for payroll, CRM, time tracking, the point of sale, e-commerce, etc.) and exploring synergies that return success for both sides by allowing them to build blockchain based solutions on top of our platform.

### **5.2.3 Independent Risk and Valuation Services**

We are building better foundations for financial infrastructures by allowing real-time comprehensive audits, with real-time risk metrics and sensitivity analyses. We enable movement of compliance into smart contracts rather than a headcount of compliance officers in businesses so cost reduction will be potentially enormous. Blockchain technology is set to revolutionize not only the internal accounting of businesses but also the services that are dependent on the financial health of a business.

PayPie would help companies not only with greater transparency, but will also lower the cost of audits due to streamlining of accounting and finance operations. Company investors do not have to wait for financial information given on a quarterly basis, and they will be able to respond to opportunities in real-time.

The role of accounting firms will change, and companies like PricewaterhouseCoopers, Deloitte or smaller companies like Chun & Company will be focused more on offering advisory services than compliance ensuring everything is in order. There is no counterparty risk. If the ledger says it is true, then it is true.

Auditors and financiers such as factoring firms could have automated forms of analysis at their disposal to appraise the underlying health of a balance sheet, a powerful innovation that could automate aspects of the regulatory, audit and accounting processes. Moreover, such a tool would bring integrity to the system. All fraud would be much harder to carry out. A public ledger that is continually audited and verified means that company books can be fully trusted; there is integrity in the statements or the transaction logs because the network itself verifies this.



Generating any up-to-the-minute financial statement would be straightforward, with the click of a button providing an immutable, complete and searchable financial statement, free of error.

We foresee factoring firms, banks, investment funds, insurance companies, P2P lenders and private investors being a customer of PayPie platform to get access to real-time data that is 100% correct and reflects a genuine picture of a business to offer liquidity to the market by their specific criteria and expected returns.

## 6 Technology

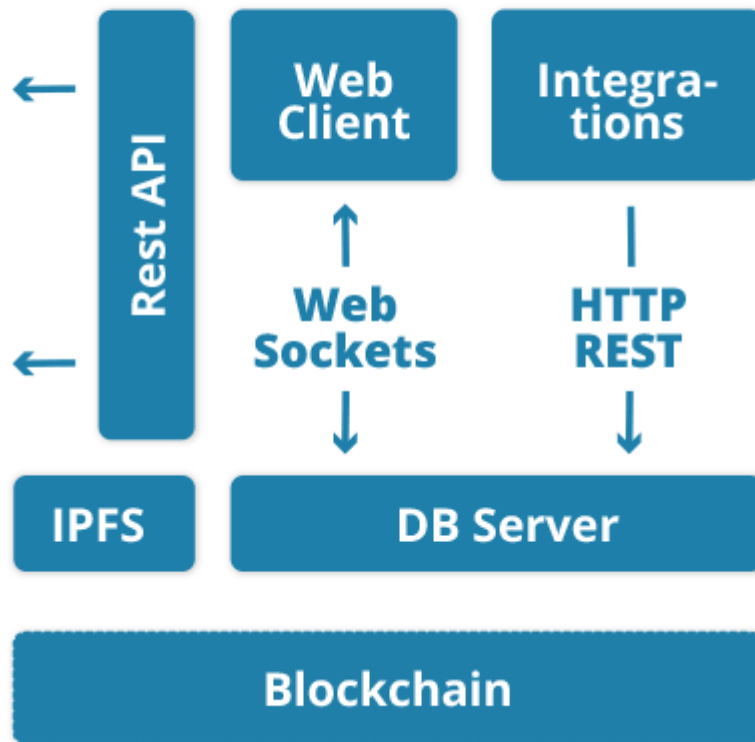
### 6.1 Smart Contracts

At the core of the PayPie platform's underlying architecture are Ethereum smart contracts. Our design follows a modular structure, making contracts highly reusable and easy to upgrade. A smart contract is a computer process that is stored on the blockchain and automatically carries out predetermined functions once a triggering event has occurred. Legal terms and conditions are embedded in the computer code of a smart contract, which enables the automatic execution of duties defined by the contract itself while avoiding the services of a middleman.

All smart contract modules will be written in Solidity.



## Technology Stack



### Example functions:

An accounting transaction is based on the journal entry data that is tokenized, so each transaction has a unique identity visible on the blockchain with the rest of the information published at IPFS. A smart contract will not allow for more financing to be received against an invoice that has already been financed, thus lowering the risk to lenders allowing them to offer better terms for the credit (maturity, interest rate, annuity, collateral needed, etc.).

In a traditional platform, invoice sellers enter their invoices manually and make them available for factoring. Invoice duplication has been a significant obstacle in preventing invoice factoring solutions from being more easily accessible to SMEs at affordable terms. But the incorporation of blockchain technology at the source of those transactions ends this issue. In simple terms, there is no other better way to ensure that an invoice is authentic based on the complete transparency built in an accounting solution.

A smart contract is entered between a lender and an invoice seller showing the borrowing conditions to which both parties have agreed on. Once tokenized, the contract cannot be altered. The smart contract will automatically disburse a payment event that needs action to be taken by the bank. The amount is automatically remitted to the parties once confirmation has been entered into the system.

A smart contract is what enables the existence of the PayPie platform as a truly transparent and decentralized accounting platform. The whole business process will be embodied in a smart contract, including issuance, change of ownership and payments on an invoice. Through smart contracts, the complicated process of collecting the actual real-time financial data, income of a business, expenses, short-term debts and long-term obligations, etc. can be documented in the contract itself, and business decision of lending is based on the data we have in distributed Ethereum network and take advantage of the blockchain qualities.

For example, if a smart contract can be written between an investor and an invoice seller to say that once the seller is victorious in reaching a particular credit score in the PayPie platform, 80% of the funds will be released to the invoice seller. A smart contract would automatically disburse payment once the confirmation is entered into a distributed ledger by the PayPie platform. Smart contracts also offer protection against duplicate invoice financing, as the contract will not allow for an invoice that has already been financed, to receive more funding.

A smart contract will include multiple actors such as lenders, borrowers, banks, buyers, sellers and can trigger payment events based on when a product or service is delivered and ensure they are carried out automatically. An essential part of the smart contract ecosystem, 'oracles' will allow smart contracts a way to communicate to access information like invoice status change about the beneficiaries.

## 6.2 Storage

Another core part of the PayPie platform is storage. Since the blockchain has high storage costs, PayPie adopts IPFS to host business and accounting related media, such as PDFs, word documents, images, videos and larger metadata on KYC, directors, shareholders, auditors, etc. IPFS is an open source project developed since 2014 by Protocol Labs with the help from open source community. Nodes in the IPFS network form a distributed file system, and it is built especially for storing and sharing files.

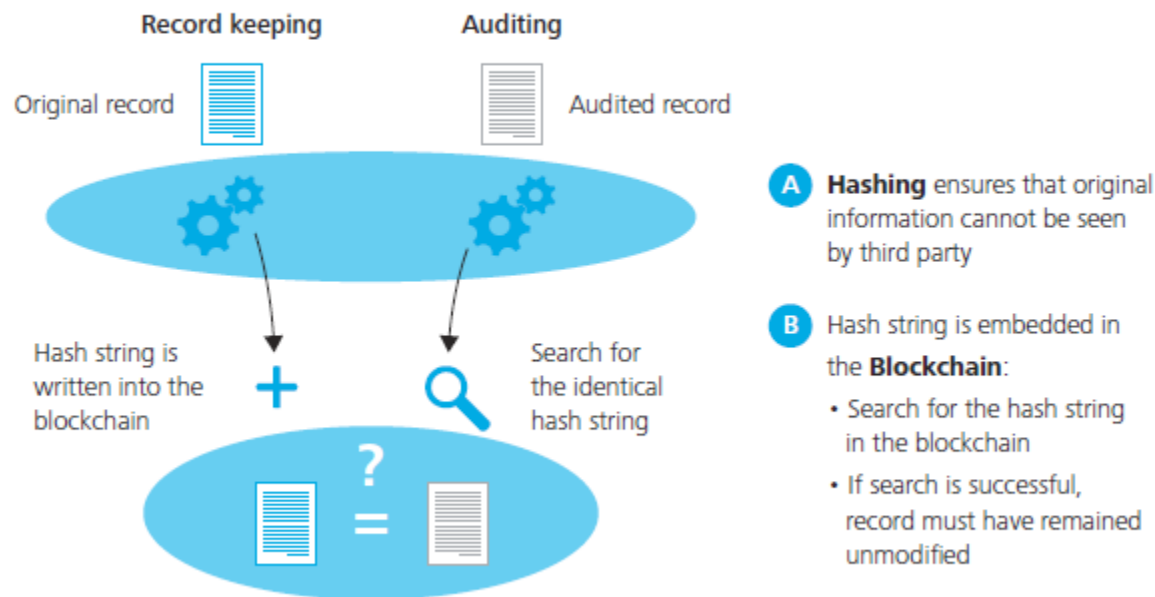
Both Ethereum and IPFS lack search capabilities, so PayPie will introduce scalable on-chain search functionality to query data associated with a particular invoice to make it easier for the lenders. Examples of such queries would be like retrieving the latest status of a particular bill, change in ownership, amount, due date, etc.

We will be generating a hash string of the files and store digital fingerprint into the Blockchain instead of storing the whole documents. The integrity of all those documents can be verified again by generating the fingerprint and comparing it with the fingerprint stored in the blockchain. If they match, the document will stay unaltered since first writing the hash to the Blockchain.





**Fig. 2 – One approach to verify the integrity of records using the Blockchain**



**Image Source:**

[https://www2.deloitte.com/content/dam/Deloitte/de/Documents/Innovation/Blockchain\\_A%20game-changer%20in%20accounting.pdf](https://www2.deloitte.com/content/dam/Deloitte/de/Documents/Innovation/Blockchain_A%20game-changer%20in%20accounting.pdf)

### 6.3 Data and API Services

One concern, blockchains are still not capable of supporting the load that the entire accounting industry would need. The Bitcoin blockchain can handle a maximum of seven transactions per second, Ethereum — 10–20. The good news is that many people are working on scaling public blockchains and these improvements are well underway.

PayPie will generate large amounts of data related to the credit risk which will be of tremendous value to our customers. The data will give market insights that do not exist today. External companies can utilize risk data as part of their solutions. Parts of our software will be open source, available to the other solution vendors to use. By doing this, we aim to create a robust ecosystem and with an active community of adopters.

## 7 Privacy - Protecting Supply Chain

Privacy is a big concern for businesses and important privacy protection features will be there on the platform to publish only relevant data. Only core information related to the invoices/ business will be transparent, and competitors will be able to see, but not name or detect supply chain, customers, vendors and other relevant information of SMEs. We will explore the possibilities of keeping some of the information on a private chain like HydraChain or some other Ethereum compatible solution.

All transactions will be encrypted, so only the parties that are immediately involved in a transaction will be able to see its details. Access to detailed financial data on business can only be granted by the company itself to lenders, auditors, regulators, managers, and other key stakeholders. We will allow each company to decide on how much information it is willing to expose to the counterparty if it's looking for credit or an audit.

PayPie single ledger would continually be audited and verified by blockchain, so it will be free of fraud, always up to date and will generate an up-to-the-minute financial statement with the click of a button, which was not possible so far. Encryption ensures data privacy, giving parties access only to the information they have been given rights to.

## 8 PPP – The PayPie Platform Token

PPP Tokens will be based on Ethereum ERC20 standard, a blockchain-based distributed computing platform. Ethereum allows smart contracts - distributed computer programs that can help online contractual agreements in a cryptographically secure manner. Ethereum is open-source and adopted by institutions worldwide JP Morgan, Deloitte, IBM, Microsoft, and Toyota.

PPP Token is the utility token which provides access to the PayPie platform for certain transactions and services. Each PPP Token grants the holder the right to access certain services including the purchase of invoices and access to credit histories of SMEs.

Lenders will require PPP Tokens to access the PayPie platform, and tokens can be used to buy discounted invoices, credit scoring data and real-time financial data of an SME. For example, if you are buying a bill from business X at a discounted price so that their customer, business Y, can pay you the full invoice amount at payment deadline - let's say 120 days from now - will cost you XXX amount of PPP Tokens.

Additional services available on the PayPie platform include changing the beneficiary of an invoice and financial auditing of SMEs. Financial information verified by blockchain has tremendous value because it will provide token holders with the ability to view real-time financials of a company.

PPP Tokens carry no rights other than the right to exchange tokens and access services on the PayPie platform. PPP Tokens do not stand for or confer any ownership right or stake, share or security or equivalent rights, or any other form of participation relating to the PayPie or PayPie Platform. As activities are carried out on the platform, PPP Tokens are transferred directly from one participant to another.



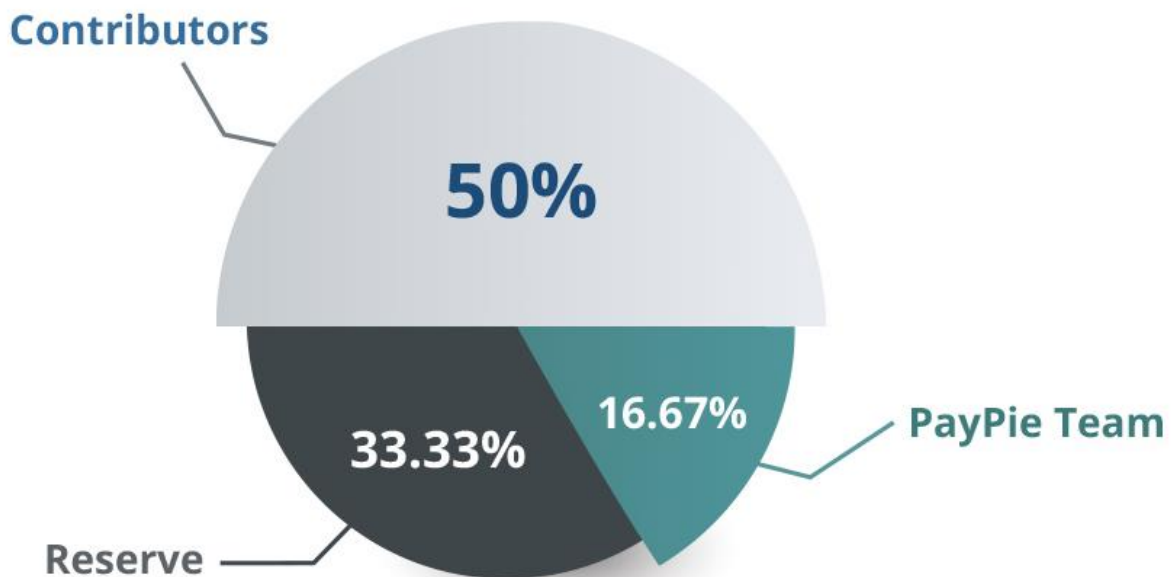
**Token Supply:** 165,000,000 PPP tokens are available for distribution. Only 82,500,000 PPP are available for sale to contributors.

A total of 27,500,000 PPP are for the team, advisors, bounties etc. Core team and advisors' tokens will be vested for 12 months with 3 months' cliff. We wish to benefit only if the project is operationally successful. Bounty tokens won't be vested.

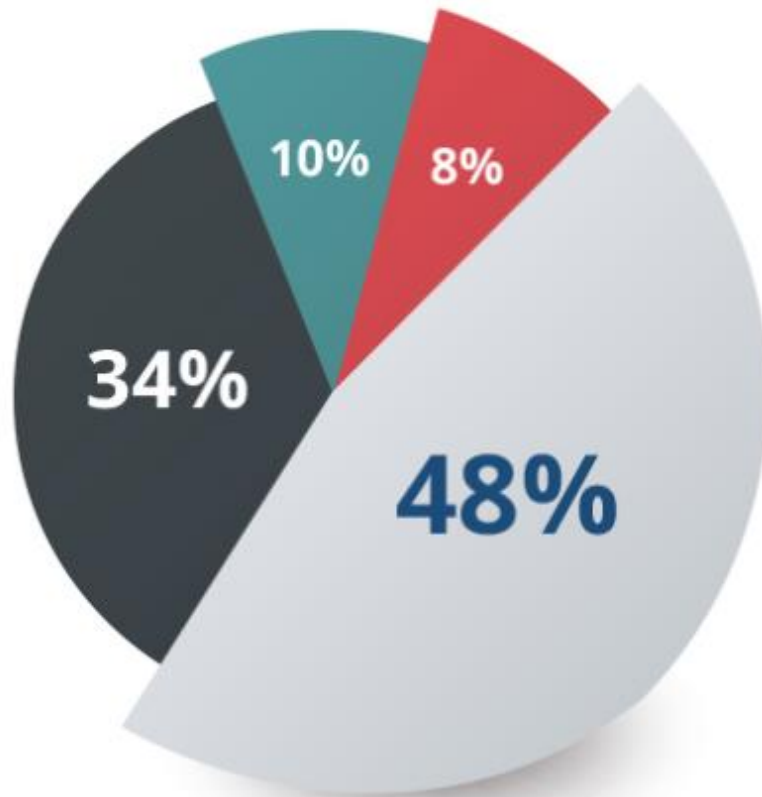
The rest 55,000,000 PPP tokens will be kept as a reserve and locked for one year solely to develop partnerships and future acquisitions to become a dominant market leader.

**Price per token:** 1 PPP = 0.0011 ETH

## PPP Token Distribution



## Planned use of funds



**48%**

Platform Development

**10%**

Operations

**34%**

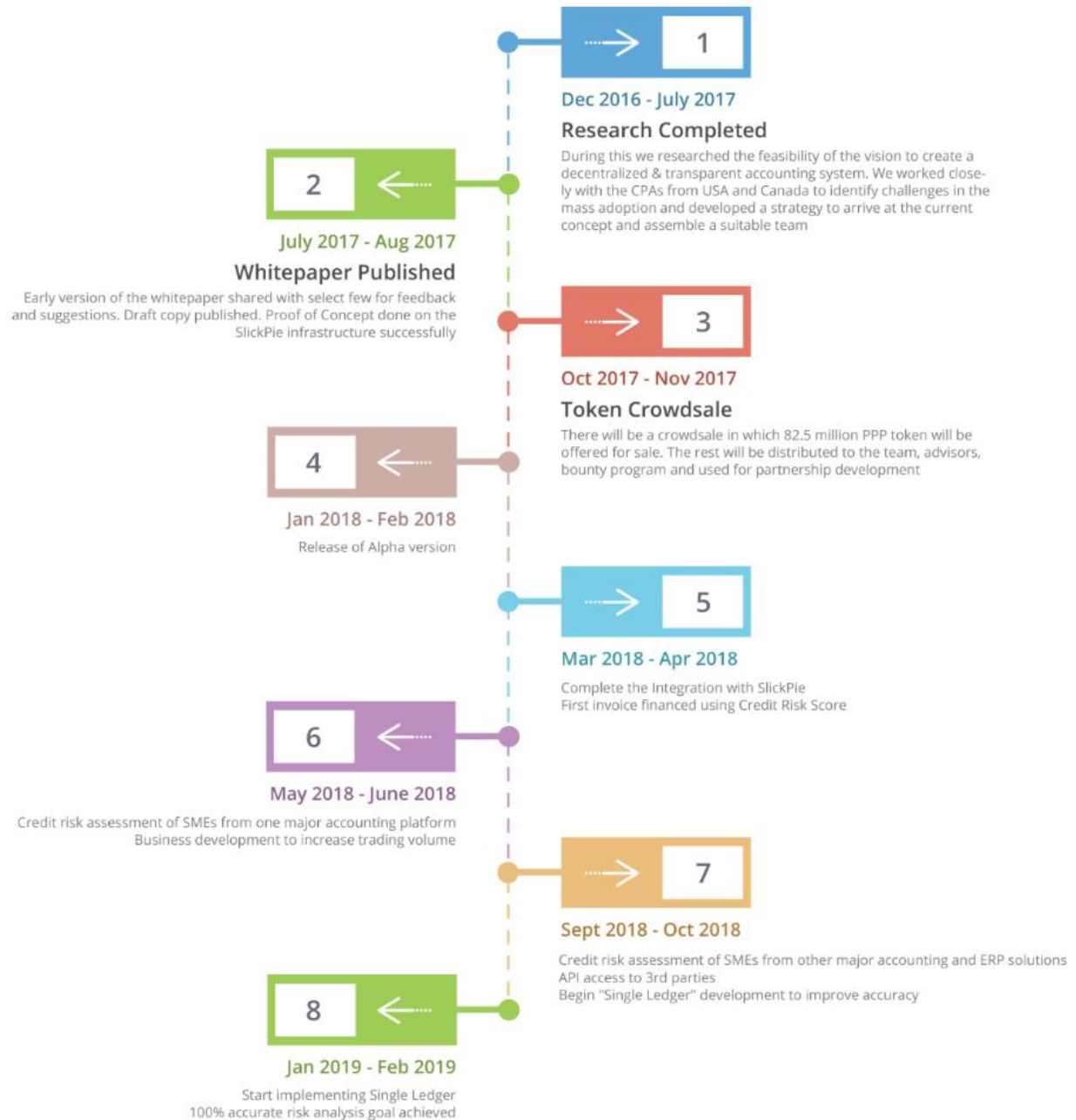
Marketing & business development

**8%**

Contingency

## 9 Timeline

**Status:** More than 50% work on the platform is completed including core accounting framework and POC for the Single Ledger.



## 9.1 Market

We have a long history of experience working primarily with SMEs & accountants based in the USA and Canada, and we have already identified the innovative opportunities in these massive markets that will be leveraged for growth and to capture sizeable market share. We believe there is also a great opportunity for us in Europe, China, and India. China is already taking the lead in solving credit & lending problems for SMEs. Experience shows there will be rapid innovation in the Chinese market before other markets catch up. In India, huge projects to digitize financial transactions have been rolled out in last one year in the form of demonetization and GST and millions of new businesses will be in market first time who can be helped by PayPie platform. Entering the bills and invoice marketplace in China & India is one of our important goals, and we will work towards engaging those markets. Part of the contribution will be used to make PayPie multi-language to make it more convenient for non-English speaking countries.

## 9.2 Project Transparency

Transparency is our goal. On successful completion of the crowdsale, we will be providing periodic updates on the progress of the PayPie platform to token holders using a disclosure service such as <http://www.tokenfilings.com>. Once the platform is launched and there are transactions & services available in the network, there will be a real-time stats API and website so that information is provided on network activity and growth in real-time to partners and token holders.

# 10 Conclusion

We believe the "first mover" advantage is on our side. We have a solid team with business, financial & tech backgrounds. With the emergence of Ethereum, the timing is perfect for blockchain and accounting data integration to play a significant role in lending, review and audit operations using a decentralized accounting platform. Traditional players like banks will soon follow suit and will use accounting data for making credit decisions. Things like relying on credit reference agencies, annual accounting audits & reviews will become a thing of the past. With countries like Japan accepting a cryptocurrency, blockchain is likely to go mainstream to help SMEs.

Our proposal is to build a blockchain accounting platform for the 21<sup>st</sup> century. When connecting the accounting sector and cryptographic infrastructure, a lot of room will open for business process optimization, as well as more transparent and efficient functioning of the industries based on the financial data. With blockchain technology evolving at this rapid pace, we see its implementation in the accounting industry as unavoidable.

Being the first in the market, plugging the crypto-world into business accounting is a great global opportunity that no one should miss. We are in a prime and a unique position to become a leader in the market.



## 11 Team

PayPie employs an international team with vision, ability, innovative thinking, openness, management skills, marketing knowledge, and developers coming from various backgrounds as IT, accounting, finance, blockchain, and more. A complete profile of the team is available at <https://www.paypie.com>.

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