omisego

Unbank the Banked with Ethereum (OMG!)

Crowdfunding Whitepaper

June 19, 2017

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Summary

At OmiseGO, "Unbank the Banked" means disrupting banking services: providing alternative financial and digital commerce tools for everyone without having to go through traditional banks, institutions and card networks. OmiseGO is a next-generation Ethereum-based financial platform enabling real-time, peer-to-peer value exchange and payment services agnostically across national jurisdictions and organizational silos, and across both fiat money and decentralized currencies; enabling true financial inclusion as well as freedom from monetary limits that are not aligned with the people's interests.

Our target customers are both the 73% of the Southeast Asian population who do not currently use or have access to formal financial services (the so-called "unbanked") and the 27% of the population currently using formal financial services ("banked") because it's been their best option until now. These end-users will be provided a tool to more effectively and informatively manage their wealth in and out of whatever asset-type or currencies they choose, including decentralized currencies like ETH and BTC, as well as nationally licensed full reserve-backed fiat tokens that users can take custody of themselves. Further, end-users can elect to participate in running the very network maintaining their finances if they so choose - delivering control of not just their wealth, but also its *means of production*, back into their own hands.

The underlying OmiseGO network consists of cutting-edge crypto-economic constructions, including an on-chain decentralized exchange built into consensus that bonds to Ethereum for economic security, and a high-volume payments network capable of wider uses, with the ability to scale via off-chain channels.

Additionally, to ensure end-customers are able to fully interact with the OmiseGO network, we will make available at no charge the white-label digital wallet software development kit (SDK) in Q4 2017. This digital wallet (e.g. stored value facility) will be first of the many financial applications to be running on the OmiseGO network.

OmiseGO is best setup to implement this project as we, as Omise Holdings Pte. Ltd., have an established track record in building a fast-growing fintech startup in the payments and value-transfer landscape. In 2016, Omise was featured in Forbes as 'Fintech Rockstars'. Our business team is made up of professionals who previously held executive positions at a number of financial institutions and companies which facilitates electronic funds transfer. We know the financial services market inside and out. Our technical team is led by experienced professionals who have track records in high growth technology startups. The OmiseGO blockchain team specifically has been involved in the Ethereum community from its very beginning, and formally as part of Omise since 2015. Joseph Poon, best-known as the creator of Lightning Network, is the principal author of the OmiseGO whitepaper, and will guide the team in the architectural specification of his most recent work. Our technical advisory board includes some of the leading minds in the blockchain space like Vitalik Buterin, the creator of Ethereum, amongst others, are available to us for practical guidance and are actively involved in the project's development.

Participating in the OmiseGO crowdsale, and becoming an OMG token holder, means becoming part of the conversation about how to set the new standards and infrastructure for tomorrow's decentralized and disintermediated payments and value exchange services. It means lending a hand in disrupting legacy systems and de-monopolizing/de-oligopolizing centralized services such as card networks, fractional banking, and asset-heavy institutions. Token holders also have the right to participate in running the OmiseGO Proof-of-Stake network, and to earn fees from validating the transactions that occur on it.

This document provides information on the OmiseGO business, particularly focusing on the end-user applications and development roadmap, as well as on details about the upcoming crowdsale and OMG token. It is released in conjunction with the technical summary of the end-state architecture, the *"OmiseGO: Decentralized Exchange and Payments Platform"*. The Whitepaper and Crowdsale Explanatory Note & Governance Terms documents are available on the OMG crowdsale webpage (https://omg.omise.co/).

Project overview

What is OmiseGO?

OmiseGO is the answer to a fundamental coordination problem amongst payment processors, gateways and financial institutions. By enabling decentralized exchange at high volume and low cost, OmiseGO provides a next-generation value transfer service operating across currencies and asset types, and across national borders and corporate ledgers. Through the OmiseGO network, anyone will be able to conduct financial transactions such as payments, remittances, payroll deposit, B2B commerce, supply-chain finance, loyalty programs, asset management and trading, and other on-demand services, in a completely decentralized and inexpensive way.

Further, millions of mainstream users in Asia-Pacific, the largest growing economies in the world, will be empowered with a tool that can allow them to transition from using fiat money to using decentralized currencies such as ETH, BTC, and others. The OmiseGO network is intrinsically agnostic between fiat and decentralized money: as far as adoption and use go, the system is constructed so that the best currencies will win.

Our motivation

The primary value in creating an open blockchain and token for Omise as a technology provider is creating a future-proof infrastructure for payments and other forms of value transfer service which will be widely adopted. In the current financial system, assets such as currencies are locked up in a messy web of indirect ownership and delayed settlement. Transferring assets from one party to another often requires point-to-point interaction between multiple intermediaries, and reconciliation of duplicated ledgers. This is costly in many aspects including:

- **Time**: settlement of asset transfers or payments take days,
- **Monetary**: asset transfers involve fees to be paid to multiple intermediaries, and reconciliation comes with expensive overhead,
- **Transparency**: it is often difficult to find out the status of a pending transaction or the current owner of an asset,
- **Security**: the complexity of the existing system makes it difficult to prevent fraud or double-spending (if information is not up to date), and
- **Finality**: whether transactions are reversible depends on the transfer mechanism, rather than the business requirements of the transacting party.

We believe many of these problems could be addressed if the ownership and status of the asset was recorded on a *single shared ledger* or *a network of provably coordinated ledgers*. This is where the OmiseGO blockchain and interoperability network can solve the fundamental issue of coordination amongst financial services.

OmiseGO blockchain

The OmiseGO blockchain is a decentralized exchange, liquidity provider mechanism, clearinghouse messaging network, and asset-backed blockchain gateway. It is a scalable blockchain whose Proof-of-Stake (PoS) consensus is bonded to ensure that the chain behaves according to the rules specified in the protocol. The network is designed as a high performant system leveraging an interlinked blockchain construction: while clearing and settlement occurs over the OmiseGO blockchain, the costs of protecting transaction value is externalized to other chains in ways that directly promote the value of those chains.

Detailed information on the OmiseGO network can be found in the *"OmiseGO: Decentralized Exchange and Payments Platform"* whitepaper.

OmiseGO white-label digital wallet software development kit (SDK)

The OmiseGO white-label digital wallet SDK is the first end-user application to be built on top of the OmiseGO network. This digital wallet provides and easy access point for end-users to tap into OmiseGO blockchain benefits, while at the same time allowing Omise to scale its payment business into the future. This digital wallet will enable direct exchange of fiat-backed tokens with decentralized currencies and protocol tokens.

Section "OmiseGO digital wallet" provides further information about the application.
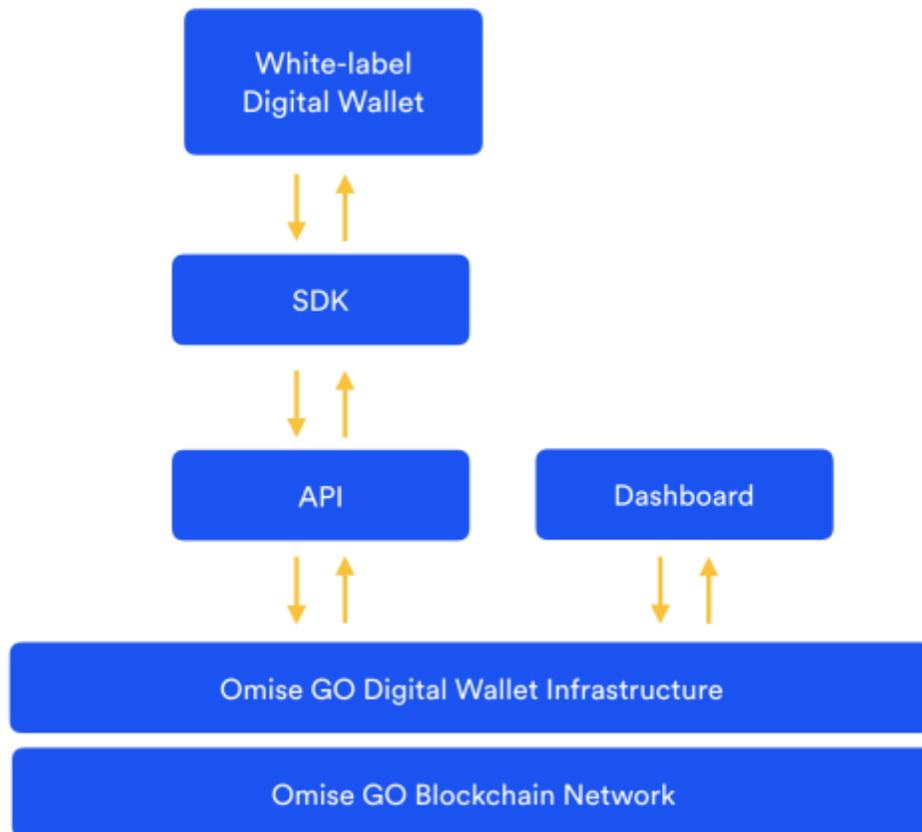
Who are OmiseGO's customers?

OmiseGO is working with global conglomerates in the financial (SBI Holdings, Mizuho Bank Ltd., Bank of Ayudhya and others), mobile and e-money (TrueMoney and others), and supply-chain sectors (which cannot currently be disclosed) to address their end-customer needs. We measure our success by whether our partners' networks succeed and work closely with them on the design, go-to-market, and operation of every solution we power. A typical engagement with our customers begins with a design study and continues as we support network operations.

When is OmiseGO a good fit?

There are many reasons why companies may wish to use OmiseGO:

- To move money quickly, both domestically and internationally,
- To gain a secure ledger for tracking assets across divisions of a large organization,
- To enable a next-generation mobile banking solution,
- To issue central bank currency digitally, to improve the payments system in a country,
- To create a loyalty points system for a consortium of brands, and
- To issue digital gift cards onto a network which can support multiple wallet vendors.

The beauty of the OmiseGO white-label digital wallet is that we are completely behind-the-scenes: end-customers will not necessarily know that their service is powered by OmiseGO, they will simply know that it works and that they get benefits passed down in terms of reduced costs, real-time transactions, and increased flexibility.

OmiseGO is also an introduction for mainstream end-customers to blockchain and cryptocurrency technology in general. With OmiseGO, end-customers will now have an avenue to engage directly with decentralized currencies in their comfort zone. Through a friendly digital wallet interface, which does not compel any behavioral change, users will be able to experience the freedom to transfer money in and out of whatever currencies they wish, including decentralized currencies such as ETH and BTC.

About us

Omise Holdings Pte. Ltd. ("Omise")

Founded in 2013, Omise is a venture-backed payments company with operations in Thailand, Japan, Singapore, and Indonesia, and rapid expansion plans to neighboring countries across Asia-Pacific. Our mission is to make "online payment available to all". In November 2016, Omise was featured in Forbes as 'Fintech Rockstars'. The secret behind Omise's success is our focus on understanding and addressing <u>real</u> business needs in an compellingly integrated and secure manner. In a short period of time, Omise has helped over 6,000 merchants move towards digital money and card processing.

At Omise, we believe human capital and company culture is one of the key foundations contributing to our success. We encourage our technical, business, and marketing staff to work as a team to solve commercial problems and drive innovation. Recently with the inclusion of the OmiseGO team, the Omise family has grown past 100 full-time people.

Detailed information on Omise's achievements can be found at (www.omise.co).

Founding of OmiseGO

In 2015, the Omise Blockchain Lab was formed under the umbrella of Omise, to explore avenues through which blockchain technology could solve real-world payment needs for businesses. After a few years of research and testing, OmiseGO Pte. Ltd. was launched with the mission *to build an accessible and inclusive financial technology platform that enables real-time exchange and payment services*.

The OmiseGO digital wallet, the first application to be running on OmiseGO network, will provide easy access for users, while allowing Omise to scale its payment business into the future. This endeavor has the highest priority for Omise, and is seen as paramount to the success of the core payments business itself. Thus, we have drawn together an experienced business and product-focused team to back it up with both their knowledge and experience.

Ethereum & blockchain community

Omise has been a big believer in Ethereum and its family of technologies, previously contributing to the Ethereum Foundation's DEVGRANTS initiative in 2015, as well as funding the development of Raiden, the Ethereum version of Lightning Network. The team also collaborated with many other exciting blockchain technologies including Hydrachain, Golem, Tendermint, and Cosmos. With OmiseGO, the company looks forward to continuing to give back in whatever way it can, so that everyone can take best advantage of these and further developments.

OmiseGO digital wallet

What is a digital wallet?

A digital wallet, or 'stored value facility', is a type of prepaid account in which a user can store his/her money for any future online transaction such as payments, or remittances predicated on fixed business arrangements. The OmiseGO digital wallet is the best combination of the mainstream digital wallet and cryptocurrency wallet as it enables secure real-time, peer-to-peer value exchange and payment services agnostically across jurisdictions and organizational silos, and across both fiat money and decentralized currencies. Any user of OmiseGO will be able to conduct financial transactions such as payments, remittances, payroll deposit, B2B commerce, supply-chain finance, loyalty programs, asset management and trading, and other on-demand services, in a completely decentralized and inexpensive way.

Breaking down the barriers for digital wallet interchange

OmiseGO aims to break down the silos of digital wallet interchange by building a blockchain which directly integrates with the Ethereum mainnet and Ethereum smart contracts. We believe that the history of computing infrastructure proves that building on top of open systems and networks has the potential to create the necessary effects for business success. There is significant interest in mid-market and boutique financial services businesses to provide digital wallets "fintech." These mobile applications, which hold digital representations of fiat currencies and other digital assets (e.g. loyalty, game points, travel rewards), are seeing widespread adoption, but face significant barriers around coordination.

We believe that the current generalized narrative and design around "fintech" will fall short of disrupting the current banking system, these designs are still significantly less interoperable than legacy banking infrastructure itself. Highly siloed digital wallets have been issued by most major mobile phone carriers in the Asia-Pacific region. In some countries, Internet companies and social media applications are entering into the market themselves, and digital wallets are being made for airlines, retail, logistics, entertainment and even the medical industry. Still, the de-facto siloed hypercompetitive approach continue to breed near-total lack of interoperability between digital wallet providers, limited merchant pools and high fees for cashing in and out. Thus, the fintech community needs a new approach.

But why Omise?

Logically for Omise as a payments provider, to keep our business ahead of the market, we are required to support *any* popular digital wallet platform that may emerge. Our business customers must be confident that their end-customers' needs are met, no matter what payment method they have chosen.

While ostensibly Omise *could* develop a centralized infrastructure for digital wallet interchange similar to existing card processors and clearinghouses, there is difficulty reaching sufficient stakeholder agreement towards switching to a system around a single company. Similar to open source software, there is significantly more trust around developing an open, decentralized system whereby participants can have assurance that they are not obligated to trust a single vendor. We believe that this path will bring greater adoption to this platform. OmiseGO will use centralized mechanisms only ever with an understanding that decentralized mechanisms will replace them, along with the open-source culture of a public development progress. Thus we decided that the best solution would be to create our own open digital wallet standard, OmiseGO, which we would build upon Ethereum, the most flexible, proven blockchain technology available.

OmiseGO's core software will be made available for free, including a basic end-user white-label digital wallet SDK. Our profit model would be a combination of validator fees and by owning some tokens ourselves, and the aforementioned anticipated growth of our payments business, with network effects of the interchange network creating the long-term value. We may also provide consultancy services to companies to implement OmiseGO blockchain services. We believe that this framework not only provides much needed leadership in the "fintech" space, but also provides a framework for emerging business models around heterogeneous stakeholder systems. By building a token and blockchain backed by the open Ethereum network, we are doing our part to show how to resolve society's financial coordination problems.

OmiseGO market opportunity & use-cases

Network layer

At the OmiseGO network layer, token holders will be eligible to earn transaction fees for interchange payments and decentralized exchange. Activity "on-chain" will pay transaction fees to token holders for validating the network.

See the Token mechanism section for further information.

Digital wallet application

OmiseGO removes layers of intermediation and its associated complexities to allow valuable assets (e.g. currencies, loyalty points, or game points) to move in different ways. This opens up the possibility for new types of financial and value-exchange services.

With significant demand for digital wallet infrastructure in the Asia-Pacific region, OmiseGO is already developing a system which will allow digital wallets to transact *inside* the OmiseGO network. Digital wallet users will get a seamless experience for diverse payments, remittances, and other forms of value-exchange. Meanwhile, wallet service providers have the flexibility to enhance, add, and customize payment solutions for various industries and vertical markets.

All transactions across digital wallet providers will be conducted on the OmiseGO network, and decentralized currencies can be traded freely alongside fiat money by all network users.

Use-case 1: Payments and remittances

The digital wallet market for payments is projected to reach USD $3.14 trillion by 2022[1], with around half of this market located in the Asia-Pacific region. OmiseGO is already tapping into this massive market opportunity by working with *TrueMoney*, a leading e-money provider in Southeast Asia, with over 20 million active users across Thailand, Indonesia, Vietnam, Cambodia, the Philippines and Myanmar. By integrating with OmiseGO, the *TrueMoney* digital wallet end-customers will be able to conduct real-time low-cost money transfers, cross border remittances, retail, and bill payments. They will also be able to interact with other digital wallet providers ("brands") that subscribe to the OmiseGO network.

The key benefit of using the OmiseGO digital wallet for payments and remittances is the ease-of-access for consumers. There is <u>no bank account required</u>. Payments and

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[1] Zion Market Research report "Mobile Wallet Market (NFC, Remote Wallet) for Retail payments Vending machines Public transportation, Restaurants and other application - Global Industry Perspective, Comprehensive Analysis, Size, Share, Growth, Segment, Trends and Forecast, 2016 – 2022"

remittances are available 24 hours a day, 365 days a year, in real-time. End-users of the wallet may tap into a rapidly growing number of Omise merchant sign-ups and network of clients (more than 6,000+ touch-points). This solves the liquidity and spending channel issues that often limit the adoption of digital wallets. Overall, the goal is to make it as convenient as possible to manage funds in and out of the platform, through various channels such as over-the-counter or agents.

In addition, a digital wallet of value must have strong features particularly interoperable capability across multiple wallets with an intuitive user interface. The application can make use of "always-on" features such as SMS, as well as data traffic. OmiseGO will enable wallet-to-wallet transfer anywhere in the world, and simple bill payment mechanisms too.

Furthermore, privacy and security is increasingly becoming an important customer concern. A standard OmiseGO digital wallet will have built-in prevention against unauthorized data modification and disclosure, as well as provision of data control and disclosure.

Use-case 2: Loyalty and rewards

By 2021 the loyalty and rewards market is expected to reach USD $4.59 billion[2]. The increasingly mobile-based customer lifestyles are driving companies to innovate in order to improve customer experience or risk being left behind. Loyalty programs play an important role in many industries for attracting and retaining customers.

From a consumer perspective, the need to manage points from multiple programs independently of one another is a cumbersome experience, and one that actually detracts from the value of rewards. Market surveys have shown that 61% of customers want to be able to redeem points or miles to pay for purchases directly from their mobile wallet. Nearly the same number reported to want to access all active loyalty programs through one app[3].

The OmiseGO network offers a solution for instant redemption and exchange of multiple loyalty point currencies on a single platform. With all their points stored in only one "wallet", consumers no longer have to hunt for each program's options, limitations, and redemption rules.

From the perspective of a company, direct interoperability across different loyalty programs could bypass the reliance on co-branded cards and partnerships to sell points and generate incremental revenue. The OmiseGO platform would enable companies to rapidly add and maintain loyalty partnerships without adding complexity or costs to their

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[2] Markets and Markets report "Loyalty Management Market by Type of Solution (Customer Loyalty, Employee Retention, and Channel Loyalty), Deployment Type (On-Premises and On-Demand), Organization Size (SMEs and Large Enterprises), Vertical, and Region - Global Forecast to 2021"

[3] Retail & Ecommerce article "What It means to Bring Loyalty to Mobile Wallets"

programs. A robust, frictionless consortium of loyalty providers could mean many more redemption options e.g. to form your own consortium of loyalty providers (Forex) and set trading rules.

The OmiseGO digital wallet allows easy enrollment, points transfer, cash-to-point exchange (and vice versa), redemptions in-store or online and contextual marketing are all possible using the system, making the value of this loyalty network much more valuable to customers and businesses. It is industry (e.g. retail, travel, hotels, insurance) agnostic, and will enable businesses to break out of the loyalty program mold of narrowly defined, one-size-fits-all programs and redemption processes filled with customer hassles.

Use-case 3: Gaming publishers and platforms

The mobile game or gaming platform industry is littered with examples of existing digital "wallets". While not regulated as digital wallets, they *are* very close in implementation. In-game tokens are merely a representation of money or a balance on your account, with a promise to be able to use them in-app, as digital assets.

Gaming marketplaces and publishers continue to face difficulty in providing their customer with seamless gaming credit purchasing. In many cases, the customers may be located in a jurisdiction where the method for game credit purchasing is not available or do not have a credit card or bank account to facilitate the transaction. Using OmiseGO it is possible for gaming publishers to allow direct purchase through the network. Publishers can continue to recover the usual revenue split with the marketplace. The combined option of gaming marketplaces and integration of OmiseGO network would open the gaming market to a much larger user-base.

Similarly, there is friction in payments for in-game content/currency where customers are not able to transfer fiat money into the gaming application. Several telecommunication companies (telcos) tried to address this problem with direct operator billing, where a customer can use their mobile credit as a payment solution. However, this mechanism is costly and not flexible for both game publishers and customers. Realizing the power of blockchain to support in-game purchasing, OmiseGO have started to work several regional telcos to design and roll-out a solution for in-game purchasing on our network.

Use-case 4: Messaging and communication

Messaging and communication services have been some of the key beneficiaries of the Internet age. Their growth has been meteoric, in many ways detrimentally to telcos. The distribution potential of these messaging and communication platforms is massive, numbering in the hundreds of millions of monthly active users. Now these platforms are moving towards becoming integrated ecosystems with many aspiring to expand their service menu to cover financial products. The OmiseGO team has already been in communication with one large global messaging service to support realization of their

platform expansion. Our partner became interested in leveraging the OmiseGO network as:

- Micro-transactions: In today's norm, micro-transactions across messaging and communication services are impossible or prohibitively expensive. To bypass this, OmiseGO can be used to issue a brand specific digital currency so that micro-transaction activities done in-app can be made possible and at a fraction of the cost and time,
- Creating an internal economy that is truly open: Existing ecosystem tokens have no intrinsic value, they are merely promissory value, to be redeemed for products or services only in-app or through the application's integrated partners. Turning in-app tokens into cryptocurrencies does not fundamentally change this. However, through OmiseGO, there exists an opportunity for messaging services to not only have their currencies, but *currencies that can be traded agnostically across multiple chains and platforms, and*
- Convenient cash-in and out: Messaging services hoping to deliver financial products will face similar difficulties as other digital services including identifying easy ways for user to cash in and out of the digital application. OmiseGO has existing channels (user touch-points) to support digital wallet top-up and cash-out.

Roadmap

Finances

The OMG crowdsale has a cap of USD $25 million, denominated in ETH. Majority of the funds raised will go towards the development of open source software. Overall fund usage will be split approximately 2:1 ratio between network and end-user application development.
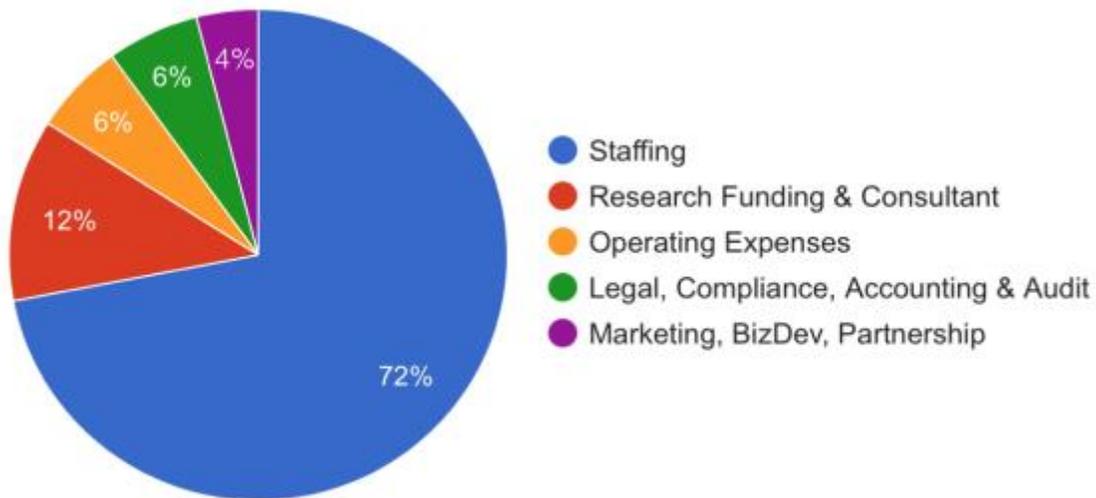
Network and application development

Funds will be used to develop the fully decentralized proof-of-stake system in conjunction with the Ethereum Virtual Machine (EVM), designed to run both on and alongside the Ethereum network. Funds will also be used to build out the first application running on the OmiseGO network: the white-label digital wallet SDK. A specification of the OmiseGO network is outlined in the "*OmiseGO: Decentralized Exchange and Payments Platform*" whitepaper.

Legal, compliance, accounting and auditing costs

Legal requirements include corporate setup in 2 additional jurisdictions for development, operations and business teams during the first phase of our work. These jurisdictions will be based out of Bangkok (development, operations and business) and in Poland (development). Other costs may include licensing, auditing, and compliance costs for the digital wallet, cross-border remittances, bill payment, and other financial services, according to our target markets' regulatory requirements. To date, OmiseGO has been engaging with Camford Law for legal services to develop the terms and governance of the crowdsale, ensuring full business compliance. We have also set aside a legal contingency fund (roughly 6% of the targeted crowdsale total amount) in case of future issues.

Marketing, business development and partnership

The business development team is already engaged with major global and regional banks such as SBI Holdings, Mizuho Bank Ltd. and Bank of Ayudhya, as well as mobile and e-money service providers such as TrueMoney, to design and provide OmiseGO services (as well as with other banks and telecommunication companies which cannot yet be disclosed). We have also entered into agreement with several regional and national conglomerates to support implementation of digital wallet solutions for supply-chain finance and loyalty programs. During the first phase of our work, we will refine and implement these existing business agreements and relationships, as well as focus on onboarding new partners and clients.

Marketing will focus on creating user awareness of the power of the OmiseGO network, *including* its potential to disrupt card networks and bypassing the traditional banking system. Even before the decentralized OmiseGO network is fully operational, we will be working closely with our partners and clients to educate them about blockchain technology, and to encourage them to further help us develop and test new financial tools.

Our Development Approach

One of the heaviest challenges for most blockchain projects is connecting the technology to real customers, while simultaneously building a strong business case around those relationships. At OmiseGO, we believe that our experience in the digital payments industry has given us not only the appropriate stepping-stones of knowledge, but also an incredibly large base for testing our assumptions. We believe this will allow us to make the right decisions about the project design and long-term direction.

Development team

OmiseGO is an open source community project; our team will develop the core network and white-label digital wallet SDK, which will both be made available on GitHub. External pull requests will be properly reviewed and welcome. Thus, third parties can work with us to develop their solutions, either on a readymade OmiseGO platform, or through extensions of our core.

The OmiseGO development team will also coordinate closely with the overall Omise ecosystem to leverage technical knowledge associated with payment and banking services.

Business team

At OmiseGO, we recognize that theory typically varies greatly from reality: developer opinion does not necessarily align with the user's pain point or needs. During the design

of the OmiseGO network, our team placed heavy emphasis on business development and solutions consultation to validate and refine our approach.

During buildout of the OmiseGO, our business team will operate in close coordination with the development team, to facilitate user testing while returning valuable back feedback which we can use to improve our product. Any interested user or developer can connect with us to participate in beta testing, voice their ideas for improving the product, or even develop their own application on top of the OmiseGO network. We will maintain a public forum via GitHub, Reddit, and Slack.

OmiseGO network and white-label wallet SDK Development roadmap

Through Omise's success in the business of online payment, we understand that time is money. Markets and clients will not wait for the perfect technological solution to be developed. Thus, we have put together a development roadmap that allow us to satisfy both the users' needs for quick go-to market solution, and to also achieve our long-term vision of the OmiseGO network.

Stage 1

OmiseGO white-label wallet SDK prototype

An initial wallet SDK prototype targeting developers and managers will be made available for both Android and iOS. The goal is that anyone from the IT department, to a business development operative, to a manager, could download the SDK, insert a few keys and a logo, and have a live, *branded* wallet to experiment with, within 10-15 minutes.

Prototype workshop

We will continue to engage with corporate clients and partners, in order to test and refine the prototype, identifying key functions to address specific user needs and use cases. These cases will be fed back into the development prioritization as needed.

Scale our development team in Poland

We are expanding our team of Ethereum and application developers. Since 2015, we have been working in collaboration with a development team in Poland. Moving forward, we plan to scale up our development team using this contacts and experience.

Stage 1.2

OmiseGO white-label wallet SDK launch

Launch wallet SDK with fully functioning wallet-to-wallet money transfer and bill payment, plus integration with debit and credit cards for top-up and cash-out options

(e.g. ATMs, over-the counter at OmiseGO partners or merchants), and integration with the Omise payment gateway.

OmiseGO hosted server node

Storage on a blockchain is very expensive, and should primarily be used to verify the accuracy of information such as identity, balance, and transaction history. An OmiseGO hosted server (similar to Coinbase or PayPal) is a generic database layer combining secure and cost-effective storage. This may be used by a financial institution for wallet transactions that are transacting *within* their own ecosystem. Such institutions may also want a centralized ledger where they can hold user funds in custody, or where coordination across institutions is not an immediate factor of concern. This hosted server node is constructed to be compatible with open blockchains (i.e. code will be able to be used for an ETH hosted wallet), and decentralized wallets will replace this for interchange in the 2018 development schedule.

Framework for decentralized cross-wallet payments

The detailed system architecture and design for decentralized cross-wallet payment over the OmiseGO network (*including* on-chain transactions) is finalized with feedback from the technical and business community.

Stage 1.3

Peer-to-peer SPV "light" mobile client launched

Functions include a validating ledger and maintaining balance of users funds without dependence on centralized/hosted wallet servers (only dependence on full nodes). Front-end of hosted app will be updated for full compatibility with SPV client.

Open-source centralized exchanges (with decentralized fund custody)

We will focus on developing, or applying already-developed, centralized exchange and clearing solutions that are in-line with our end-state vision of fully decentralized on-chain exchange (as opposed to just decentralized fund custody, or merely off-chain decentralized exchange).

Further work may be done to develop hosted interchange and clearing and to prepare a system where transaction fees can be paid to token holders for validating interchange. Initially, during the test phase, OmiseGO may run validators which have greater share (but do not receive validation fees); in the final deployment, these will be removed.

Stage 2

OmiseGO decentralized exchange (DEX)

This includes a proof-of-stake blockchain and OMG as staking token. Other functions include:

- Decentralized exchange governing the core consensus rules,
- The ability to use SPV proofs for ETH contracts requiring a ticker price,
- Being able to create smart contracts whose execution syncs with smart contract expiration,
- Bonding with ETH as backing token and enforcement of smart contracts,
- Interchange payments for digital wallets,
- Payment channel support, and
- Batch execution engine and order book.

Order blinding

We will develop a system that allows blinded orders/commitments to be placed to encourage transaction confidentiality and reduce systemic risks of market manipulation, and make improvements that will allow for blinding to be implemented on what is a natively pseudonymous and permissionless network without significant performance sacrifices.

Bitcoin (and Bitcoin-like) clearinghouse

We will develop constructions that will allow Bitcoin or Bitcoin-like blockchains to participate in decentralized exchange via external bonding (of those tokens) enforced by the OMG chain and backed by Ethereum mainnet smart contracts. Rather than use SPV proofs (to safeguard against chain attacks from counterparty-chain miners), the clearinghouse system will use novel Lightning channel constructions and bonded release of information to allow Bitcoin to be traded in a decentralized way on protocol token blockchains.

Stage 3

PoS and core consensus mechanism research

We will carry out further Proof-of-Stake research and develop core consensus mechanisms for scaling Ethereum smart contracts for cross-blockchain use.

OmiseGO Ecosystem Development Fund ("OmiseGO Fund")

Omise has been supporting the Ethereum ÐΞVgrants program since 2015 and has witnessed firsthand a number of initiatives that benefited the Ethereum ecosystem as a result of it. We ourselves are also a beneficiary of it through the role we played in developing Raiden, the Ethereum version of Lightning Network. As this is a public network whose consensus is determined by its participants, public participants have significant influence over the network. Helping to fund and increase decentralized

development of the OmiseGO chain is fundamental to its success. These funds are to further the goals, with an emphasis (but not requirement) on open source projects, with a principal goal of community development. Further, as token holders can run different open source implementations, encouraging a wider ecosystem (along with increasing ease and ability to have a diversified development process) within the network with contributions from many more development stakeholders.

We are looking to continue to support the growth in this ecosystem through the OmiseGO Ecosystem Development Fund. We will allocate a portion of our resources towards improving the community, as well as towards research and development, with the objective to support initiatives that can benefit the long-term growth of the OmiseGO network and Ethereum community. Specifically:

- Further research and development on PoS and the core consensus mechanisms for scaling up ETH contracts cross-blockchain, beyond the immediate needs for realization of the OmiseGO network. The funds allocated to companies, individuals and/or organizations are intended to be used to hire, allocate resources, and develop a team to do research and development on behalf of OmiseGO's project goals. Further research into innovation in robust Proof-of-Stake consensus mechanisms is a necessary area of research and development for OmiseGO directly applicable towards Decentralized Exchange scalability.
- Provide developers interested in contributing to the OmiseGO network and Ethereum ecosystem the opportunity to spend time on their project, in order to bring it to completion.
- Projects that contribute to core software, its development process or key parts of the OmiseGO ecosystem (common services, APIs, ABIs).
- Increase our outreach to other communities and the public. We will also consider funding opportunity for tech startups that may be looking for technical and funding support to bring their technology onto the blockchain space. We expect the OmiseGO Fund can be a strong vehicle to make it easier for mainstream innovations to be integrated into the blockchain community.
- Resources allocated to marketing and recruiting future candidates to contribute to the public OmiseGO network.
- Fund can be used for (but not exclusively limited to) payment of professional services or equipment, payment of expenses incurred as part of collaborative workflow, payment to help cover cost of project members, to create public goods which develop blockchain payments.

Token mechanism (OMG)

As the OmiseGO platform and underlying network develops and evolves over time, so does the nature and role of the OMG token.

OMG will be a standard Ethereum ERC20 token, until the OmiseGO chain ("OMGchain") is launches. When OMGchain is launched, ERC20-OMG is used as a Proof-of-Stake token on this network. This is achieved by allocating control of one's the ERC20 to an ETH contract reflecting the OMG chain. Further improvements are possible from reallocation of ERC20 tokens and may be taken if it proves to be a better design, but the current approach is to have the ERC20 token locked into activity on a contract on the ETH chain. It is the responsibility of the community to elect to allocate the ERC20 token towards the OMG chain, as the community has control over the network.

OmiseGO will be a conduit for bringing value to Ethereum mainnet, because the value of OMG will be backed by the value of the amounts transacted on OMGchain; both external, real-world money, and crypto-money that is being pushed through OMGchain's decentralized exchange (including the other applications that are outsourcing their DEX requirements to it). This serves as a gateway between ETH/ERC20s and BTC, as well as BTC-like coins. **This could consolidate a lot of the world's liquidity pools and push it through Ethereum via validator proof-checking.**

We believe that open blockchain tokens, backed by open blockchains (Ethereum mainnet), are the path for enterprise blockchains. Fully private blockchain technology not backed by open systems do not solve coordination problems. The OMG token allows society to address and resolve a market need and to run entire classes of business processes, by creating a token which produces transaction fees for operating this network.

OMG token sale

For the OMG token sale, contributors can receive updates and announced on the OMG crowdsale webpage (omg.omise.co). The OMG sale period will last until USD $25 million equivalent in Ethereum ETH tokens have been raised, or for a maximum duration of 1 calendar month (maximum duration of Creation Period), whichever is earlier.

In the event the project fails to meet the requirements of the Smart Contract System, each User will have the possibility to initiate the transfer of their respective amount of ETH submitted to the Smart Contract System from the Smart Contract System's address back to the address used to transfer the ETH to the Smart Contract System.

Funding vs functionality

The budget will be put towards the following:

- Construct and roll-out blockchain, including full node client,
- Construct and roll-out decentralized custody of funds,
- White-label wallet SDK,
- Hosted server node,
- Open-source centralized exchanges (which do not hold fund custody),
- Framework for decentralized cross-wallet payments,
- Peer-to-peer SPV "light" mobile client launched,
- On-chain decentralized exchange,
- BTC clearinghouse,
- Lightning liquidity provider, and
- OmiseGo Ecosystem Development Fund

Token allocations

During the crowdsale period ("OMG token creation period"), up to a total of USD $25 million (Maximal Launch Quantity) equivalent of OMG are to be created by the smart contract, all equal value and functionality, but divided by the smart contract into different pools, for both public and private distribution:

Public

(i) Sale [65.1% of OMG issued]

The bulk of the OMG will be released in a sale, where they will be sold in exchange for up to a maximum of USD $25 million equivalent.

(ii) Airdrop [5% of OMG issued]

We will airdrop 5% of OMG tokens to ETH stakeholders, as a means to encourage incentive alignment with the Ethereum mainnet, with which the OmiseGO chain will have a symbiotic relationship, and which will promote the diversity and balance of our PoS network validators. Airdrop will take place <u>after</u> the closing of the crowdsale. It is by no means a way to solicit funding for the sales. Further information about airdropping can be found in the Explanatory Note & Governance Term.

Private

(iii) OmiseGO reserve [20% of OMG issued]

Directly released by the smart contract to OmiseGO for future costs and uses including use for network validation as part of the development and execution of the project. These OMG are locked through a smart contract function and may not be transacted by OmiseGO for a period of 1 year, starting at the end of the creation period.

(iv) Team [9.9% of OMG issued]

Reserved for team members and key contributors who worked to develop the ideas, supporting structures, and actual implementations of the OmiseGO Project. These OMG are locked for 1 year.

Team

Leadership

Jun (CEO, Founder) and Don (COO, co-Founder) have worked with each other on various ventures for over 15 years. Their long-term vision and co-ownership team-building philosophy successfully scaled Omise Co. Ltd over the last few years. With the founding of OmiseGO, Jun and Donnie again put their philosophy to work, drawing together an experienced technical-, business-, and product-focused team. Their interest in blockchain technology started in 2015 when they began to contribute to and work with the Ethereum Foundation on promoting open source development, at a time when the only other mainstream companies to do so were Microsoft and Wanxiang Group.

Jun Hasegawa, CEO, Founder of Omise & OmiseGO

Prior to founding Omise, Jun was involved in founding a series of tech companies in Japan, primarily in the fields of e-commerce, life-logging, mobile payment, and payment infrastructure. He brings over 16 years of professional experience in Web & product design, and previously held different management positions with Alpha-do Inc. in Japan.

Jun currently leads an international team of engineers and business personnel in countries across Asia, and is gearing up for the company's expansions in Indonesia, Singapore and Malaysia. He is passionate about delivering online payments for everyone, and works to influence his team to do the same.

Ezra Don Harinsut, COO, co-Founder Omise & OmiseGO

Don has a professional record in leadership positions as an International Trade Manager and International Trade Coordinator. His industry experience includes more than 12 years in telecommunications and the financial technology industry. Over the course of his career, he has been involved in 2 large projects with NTT, Japan's leading telecommunications firm, administering production in China, Thailand and Vietnam.

He brings his innovative entrepreneurship to the financial technology sector aiming to revolutionize and set new benchmarks to the industry in Thailand. With a background in marketing, and dynamic experience in the startup world, Don has led the company through ups and downs, while also assisting in its growth and international expansion to Japan, Indonesia, Malaysia and Singapore.

Vansa Chatikavanij, Managing Director

Vansa has led dynamic teams of engineers, economists and social scientists to deliver bottom line results in global organizations. In her former role at the World Bank Group, she led teams to roll-out international development programs worth over US $1 billion across finance inclusion, infrastructure investments, and environmental and social development areas. Her international experience extends South and East Asia

emerging markets including Bangladesh, Cambodia, India, the Maldives, Lao PDR, Myanmar, Pakistan and Vietnam. Currently, Vansa serve as an advisor to the World Bank Group, Loxley Public Company Ltd., and Sky Visual Imaging Venture.

At OmiseGO, she is responsible for ensuring efficient project delivery, establishment and realization of the long-term business strategy, business development and partnerships.

Wendell Davis, Product Design

As a technology visionary and founder/entrepreneur both in and out of the blockchain space, Wendell serves an important role in OmiseGO as connective tissue between Ethereum and the larger movement of decentralization.

Some of his past endeavors include Hive, one of the earliest easy-to-use Bitcoin wallets, Vizor, an open source WebVR development platform, Splice, an online music-making/mashup community, and Kitchensurfing, which connected mobile chefs with buyers of their trade.

Thomas Greco, Special Advisor

Thomas is a proponent of the emerging fields of cryptoeconomics and cryptosocioeconomics. His work at OmiseGO concerns developing solutions that can add value to a financially and technologically disintermediated future. He also serves as an advisor to Cosmos/the Interchain Foundation and has served as an advisor to the Ethereum Foundation.

Advisors

Joseph Poon, Lightning Network Co-Author, OmiseGO Principal Author

Joseph is the principal author of the "Lightning Network," a net-settled network using the blockchain which allow for payments and contracts to do high-volume off-blockchain transactions without delegating full custody to clearinghouses.

Vitalik Buterin, Founder of Ethereum

Vitalik is the creator of Ethereum, a decentralized platform that runs smart contracts. His current work's focus is on the Ethereum 2.0 scaling solution, Casper.

Vlad Zamfir, Casper (Ethereum Foundation) Research Lead

Vlad is an Ethereum core researcher on consensus, with a specialization in the economic security of public blockchains.

Jae Kwon, Creator of Tendermint, Cosmos Network, Interchain Foundation Chairman

In addition to creating Tendermint, the first proof-of-stake consensus protocol with strong Byzantine Fault Tolerance widely used for private blockchains, Jae is also the creator of Cosmos Network, a network of similarly-BFT blockchains. His proof-of-stake research chiefly concerns improving BFT, speed, and interoperability.

Dr. Gavin Wood, Co-Founder of Ethereum, Founder of Parity & Polkadot

Gavin is a co-founder of Ethereum, the author of its "yellow paper", and the creator of Parity, a fast and highly-integrable blockchain client and Ethereum browser, as well as the creator of the proposed Web 3.0 network, Polkadot. His consensus technology research focuses on development and practical utilization.

Martin Becze, eWASM (Ethereum Web Assembly) Creator, Ethereum core developer

Martin is a system architect working on scaling Ethereum from the bottom of the stack up with eWASM, a fast and efficient bytecode format being modified for use in distributed computing and on parallelizable inter-process communication for contracts.

Julian Zawistowski, Founder of Golem, Economist

Julian is a decentralized economics enthusiast and leads the Golem Project, a decentralized sharing economy of computing power sometimes referred to as 'Airbnb for Computers'.

Prof. David Lee Kuo Chuen, Quantitative Finance, Singapore University of Social Sciences

A practicing professor of quantitative finance at the Singapore University of Social Sciences, David is an investor in Zcash and the co-author of the upcoming book, 'Handbook of Blockchain, Digital Finance, and Inclusion'. His present work concerns blockchain approaches for innovating financial inclusion.

Pandia Jiang, Founder of LinkTime

Pandia is the founder of LinkTime, a company focused on building Ethereum-based applications, as well as organizing industry consulting and training events in China and elsewhere, including EDCON in Paris in 2017.

Calvin Soh, Strategic Advertising and Marketing

Calvin is an expert in strategic advertisement who worked with the Boards of Fortune 500 companies early in his career. He set up Fallon Asia in 2002 and, as its youngest President and Creative Director, led the company to win international awards for its work on United Airlines, Citibank, MTV and VW Asia. In 2007, Calvin was given the role

of Vice Chairman and Chief Creative Officer for Publicis Asia. Calvin is providing guidance on strategic market positioning for the OmiseGO digital wallet.

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