BLOCKCHAIN FOR TRADE AND FINANCE

BUSINESS WHITEPAPER

By

XinFin Organization

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Blockchain technology for global trade and finance

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Table of Contents

List of Figures:

Purpose & Audience

The purpose of this business whitepaper is to give readers a comprehensive business understanding of XinFin's hybrid blockchain solution, which is positioned to help address the inefficiencies that exist in the global trade and finance markets today.

XinFin is offering a business solution for the global trade and finance industry through its proprietary permissioned blockchain, powered by the XDC01 Protocol, a fork of Ethereum and Quorum. This hybrid architecture combines the best of both private and public blockchains, prioritizing security, scalability and speed.

The XDC01 Protocol facilitates the creation and deployment of distributed applications, such as TradeFinex — a marketplace platform that connects global participants of the trade and finance industry. The TradeFinex platform enables global contracting, financing, payments and settlements through authorized financial institutions.

The intended audience for this whitepaper includes both incumbent participants within the global trade and finance ecosystem and those who are interested in understanding how blockchain technology can transform real world business processes. The concepts and designs discussed in this whitepaper will be of interest to governments, regulators, financial institutions, and corporations who regularly engage in trade and finance and are actively seeking new means of low-cost financing to complement traditional finance. This paper is also useful to industry experts investigating the potential of blockchain and its ability to address inefficiencies across different financial sectors.

In this whitepaper, we focus on the business applications of the XDC01 Protocol, and we encourage the interested readers to refer to our Technical Whitepaper on www.xinfin.org for more technical information.

We hope this paper encourages our audience to ponder the effects of blockchain on real world trade and finance.

1. Global Trade & Finance Market Outlook

1.1 Trade

The import and export of goods and services across international boundaries, settled through financial transactions, is known simply as global trade. A fundamental component of global trade, which underlies various commercial activities, is comparative advantage. Comparative advantage represents an economy's capacity to produce particular goods or services at a lower opportunity cost than its partners and counterparties. Comparative advantage has a material impact on economic conditions and standards of living. A number of factors contribute to the comparative advantage in a particular region, including human evolution, inventions, geographic conditions, political conditions and natural resources.

Global trade can help level the economic playing field by expanding international reach and supporting developing economies. Domestically, regions can focus on providing goods and services within the brackets of their comparative advantage, in order ensure quality and cost effectiveness. Meanwhile, internationally, they can import goods and services, which are not produced as efficiently within their own regions, effectively facilitating a global trade ecosystem where all participating parties benefit. This inclusive ecosystem will also provide a beneficial social dimension, whereby trade, and its resulting lines of communication, can improve interregional relations and promote the exchange of culture among different geographies and populations. Historically, international trade has supported economic growth and development, helping reduce poverty around the world.

As a result of globalization and technological development, cross-border trade has been growing every year. According to a 2017 International Chamber of Commerce (ICC) report, world trade flows will grow at an annual rate of about 4.3%, reaching nearly $19 trillion by 2020. Majority of this trade is driven by global infrastructure development due to increased population and urbanization. According to a Global Infrastructure Hub report, published in 2017: by 2040, the global population will increase by almost 2 billion people – a 25% surge. Additionally, migration from rural to urban areas is expected to skew the growth curve in populated cities, concentrating population growth by up to 46% in urban areas. This will trigger a massive demand for infrastructure support. To keep pace with this growth, the global infrastructure investment needs are forecasted to reach $94 trillion by 2040, which is an average of $3.7 trillion per year. Based on current spending levels, the figure required falls short by more than $18 trillion, which amounts to a one trillion dollar gap every year.

Regarding investment parameters within different sectors, electricity and roads remain the two most important sectors to develop. Together, they account for more than two-thirds of global investment needs. Economic development is not uniform across all arenas, and the availability of basic infrastructure needs differs in developed and developing economies. The World Health Organization reports that more than 1 billion people live without electricity, 2.3 billion people still do not have access to basic sanitation facilities, and 844 million people lack access to even basic drinking-water services. Therefore, it is expected that by 2025, half of the world's population will be living in water-stressed areas. The infrastructure investment needs in order to ensure access to drinking water, sanitation and electricity is expected to increase by $3.5 trillion by 2025.

1.2 Finance

To fuel such massive infrastructure growth, financial institutions and banks are expected to pump money into the ecosystem. This process is known as trade finance. However, after the recent financial crisis and global meltdown, trust levels have degraded and risk levels have skyrocketed. As a result, due to the limitations imposed by increased regulatory and

compliance standards within traditional financing systems, deserving businesses and individuals around the world are either denied or delayed access to trade finance. In essence, there has been a growing gap between increasing trade needs and available trade finance.

According to a 2017 survey by the Asian Development Bank (ADB), the gap in global trade finance is in the range of $1.6 trillion annually.

Infrastructure remains the most sizeable and critical global financing need for both developed and developing economies. Enhanced infrastructure, by means of reliable transport, real estate, electricity, water and operational telecoms, affects economic growth by boosting economic activity and productivity. Though central and pivotal to any country's socioeconomic progress, infrastructure financing remains underserved, receiving less support from the private sector. This results in heavier tax burdens on governments and consequently, on the general public of a given country. Inefficiencies in financing further add to the cost of capital. Finance rates across the world vary significantly and remain largely inaccessible, as centralised funds are often inconvenient to access due to limitations imposed by intermediaries. The current financial ecosystem is not fully equipped to meet the growing financing demand. These limitations and inefficiencies will result in a massive opportunity cost for global trade and in turn will stifle economic development. The current system requires innovative financial instruments to complement traditional finance.

The deficit in financing is skewed. Financial support is disproportionately accessible to large, multinational corporations (i.e. the tip of the market pyramid), and is consistently absent in micro, small and medium sized enterprises (MSMEs). Though small in size, these MSMEs cumulatively make a large contribution to the economic ecosystem worldwide, both in terms of contribution to GDP and creation of employment opportunities. Many studies show that the contribution of formal MSMEs in high-income countries amounts to about 50% of GDP on average. According to a 2016 India International Centre March report, MSMEs in India account for 95% of total industrial units and 46 % of industrial production.

According to an IFC 2014 analysis, there are more than 160 million formal MSMEs, employing more than 500 million employees. MSMEs account for 50% to 70% of employment across regions. The numbers clearly indicate the importance and contribution of the MSME segment to the world economy, especially in under-developed and emerging economies, where there is immense growth in the number of MSMEs.

While their contribution is significant, the small size and fragmented spread of MSMEs leads to many trade challenges. As expressed by a World Bank survey, access to finance remains the biggest obstacle facing MSMEs and is adversely affecting their growth. The total credit gap for both formal and informal SMEs is as high as $2.6 trillion. Across South East Asia and the Pacific region, more than 120 million MSMEs, both formal and informal, are unserved or underserved in terms of credit facilities. Similarly, there are about 30 million MSMEs in African and Latin American markets, which are also unserved or underserved.

MSMEs remain underserved compared to larger firms for various reasons, including high cost of capital, less upfront collateral that MSMEs have the means to provide, high costs incurred by the complex processes required to access traditional finance, etc. Improved access to finance for MSMEs can create significant economic value, especially for developing economies in the Asian Pacific, African and Latin American regions.

The challenge is not only present in funding capital expenses, but also in managing operational expenses, which includes managing day-to-day transactions, and ensuring working capital — particularly in cross border payments. As covered by a McKinsey & Company report on global payments in 2016, cross-border payment flows amounted to $135.8 trillion in 2015. Such massive payment flows lead to high transaction and remittance costs, which are growing every year and are estimated to reach $2.05 trillion in 2018. The impact is more pronounced when processing smaller transactions, most often issued by MSMEs. An Institute of Financial

Operations survey, recorded in September 2011 on cross-border payments perspectives, clearly states that the high cost of transactions reduces margins and discourages smaller businesses from engaging in business transactions, particularly for those making payments of less than $10,000, and especially for those making payments in the $500 to $2,000 range.

To address these issues, there have been innovations in financial technology and supply chains, both of which are designed to disrupt current systems and remove the major inefficiencies that exist today.

1.3 Inefficiencies in Trade and Finance

There are various factors that limit global infrastructure development within trade and financing. Inefficiencies arise due to disjointed systems, manual processes, multiple intermediaries and an inherent need to demonstrate an environment of trust among all parties engaged in commerce.

- **Nature of infrastructure investments**

  Infrastructure projects often face funding challenges due to large up-front investments. This, coupled with longer cycles to realize returns and uncertainties linked to both government policies and regulation, limits private sector investments. Lack of participation by the private sector leads to governments borrowing at high cost of capital to develop infrastructure, which in turn leads to an increased tax burden on citizens.

- **Limitations of traditional providers**

  Traditional financial providers, such as banks, face capacity challenges. They are constrained by balance sheets and regulatory requirements (AML, KYC, sanctions, Basel, etc.). Insufficient levels of collateral and complex procedures also create limitations. This forms a barrier to entry for trade finance, specifically for MSMEs. There is a lot of pressure on trade finance due to the increasing costs of compliance and the volatility in the prices of commodities. Post global financial crisis, the industry has been consolidating, leading to the withdrawal of several correspondent banking relationships across high-risk markets.

- **Lack of a truly global financial marketplace**

  Despite globalization, finance still remains largely regionalised and centralised. The cost of capital remains high but can be combatted with the expected benefits that come with increased competition. A global marketplace, where financiers can finance projects anywhere around the world, is the missing centerpiece. With this marketplace, the trade finance industry can increase competition and reduce the cost of capital for every participant.

- **Cross-border latencies**

  Cross-border payments and settlements remain the biggest challenge for merchants and beneficiaries. The cumbersome cross-border payment process, and accompanying infrastructure, not only cause delayed trade and payment confirmations but also increase financing costs. Having several intermediaries involved introduces time latency. A simple cross-border payment today still takes 3-5 days. This is preventing merchants and beneficiaries from tapping into global business opportunities.

- **Legacy issues**

  Global trade and finance have to work through a complex web of legacy systems, which have cumbersome processes for handling letters of credit and associated documentation. A slew of other complex procedures, which require participation from various entities — including suppliers, buyers, and banks — create friction within the system.

Clearly, the trade and finance industry suffers through many inefficiencies today, both in terms of financial funding and infrastructure support. The world economy stands to benefit as a whole if we are able to provide an innovative financing mechanism that can overcome these inefficiencies and complement the existing financial system.

2. Blockchain as a Tool to Improve Efficiency

Blockchain technology provides a means of establishing a public, distributed database, or set of records/transactions, that is cryptographically secured and immutable. A distributed consensus mechanism is used across various nodes of the network. This consensus mechanism makes and/or verifies any changes made to the blockchain. Consensus ensures that the nodes in the network are synchronised and always agree on the latest state of the blockchain, as long as the majority of the network is honest. The distributed, decentralised nature of a blockchain network and its consensus mechanism ensure that there are no central points of failure in the system. There is a close link between the evolution of finance and blockchain technology.

Traditionally, finance has always been dominated by intermediaries such as banks, governments and central authorities. These entities work to establish 'trust' for storage and/or exchange of value. With the internet boom in early 2000s and the mobile revolution in late 2000s, much of this commerce found new 'channels' to exchange value. However, the concept of establishing trust by relying on a third party largely remained stagnant. Thus, traditional commerce, followed by e-commerce, remained largely 'centralised,' pushing up transaction fees. The financial crisis of 2007 made many examine the role of intermediaries in establishing trust.

After many previous movements towards 'decentralised' money, in 2008-2009 the public witnessed the emergence of the first distributed digital currency, 'Bitcoin,' which facilitated an exchange of value without needing a trusted third party or intermediary. Basically, it enabled anyone, anywhere in the world, to buy, sell, and exchange the native digital currency, Bitcoin, against fiat, and the blockchain system ensured the transaction was immutable, secure, irreversible and recorded on a public distributed ledger.

Bitcoin's value dynamics are governed by supply and demand, just like any fiat currency, with one key difference. In the case of Bitcoin, the supply is fixed by the system — not by the monetary policies of governments or bank consortiums. Bitcoin, however, has limited applications in real world finance due to the public nature of its transactions and the limited functionality supported on a protocol level.

With the growing popularity of a new digital asset, the interest in the technology behind Bitcoin, referred to as 'blockchain' technology, soared. Blockchain presented a wide array of possibilities to the financial world. Imagine a global, distributed financial ledger, where every person in the world can transact with one another, while paying a minimum to zero fees, in a trustless system. Such a platform would remove all barriers to banking, trade and finance. Of course, many considered this type of platform only a mere dream.

Ethereum, which was proposed in late 2013, added to the public, open and distributed blockchain ecosystem, with the notion of 'smart contracts,' which would be facilitated by a complete programming language. Smart contracts were a major breakthrough. They promised endless possibilities for building 'distributed applications,' mapped to real world use cases. Ethereum also brought other significant advantages, including rapid development time, security for small and rarely used applications, etc.

However, by neglecting 'privacy' Ethereum struggled to gain a foothold in the financial world. The need for privacy on a ledger led to new blockchain variants, such as 'Quorum', a permissioned blockchain developed by J.P. Morgan, based on Ethereum. It introduced transaction and contract privacy by facilitating 'public' and 'private' states on the network. And

with this innovation, the whole blockchain solution proposition inched closer to a role in real world financing and enterprise use cases.

'XinFin' has taken this blockchain technology even further by developing a truly hybrid blockchain, the 'XDC01 Protocol,' which offers privacy but also provides complete interoperability with public blockchain networks. Its ability to support private transactions makes it suitable for financial and other real world applications.

As you continue to read this whitepaper, you will discover extensive research spotlighting different methods for strengthening different blockchain networks, protocols and consensus mechanisms.

2.1 Advantages of Blockchain Over a Traditional System

Blockchain can record financial transactions, or any structured information, in a trustless, secure and immutable manner. Its utility can be applied in nearly any societal system where records are maintained. Below we will focus on the key advantages blockchain offers compared to traditional or legacy systems.

- **Digitized Ledger**

  Since blockchain is a distributed database at its core, it provides a means for storing digital records of all kinds, including transactions, documents and contracts. Therefore, any financing, trade, or alternative industry business process can be digitally recorded on the blockchain.

- **Decentralisation and Disintermediation**

  Since there is no central ownership of the blockchain, there is no central or single point of failure in the blockchain system. Decentralisation can remove many barriers for trade and finance by reducing dependency on intermediaries or single authorities. Financiers, buyers and suppliers can transact with each other on the blockchain while also using smart contracts, paving the way for a more efficient transactional process and more user-friendly experience.

- **Immutability and Auditability**

  Blockchain is secured by advanced cryptography. Any change to the blockchain or its records requires some form of consensus from the entire network, thereby making records and transactions very secure and immutable. The need for consensus inherently builds trust and safety in the system. This provides an in-editable audit trail for both financial/non-financial assets and transactions that are recorded on the blockchain.

- **Efficiency Improvements**

  Most of the complex processes that are involved in trade and finance today can be re-engineered and automated using smart contracts over the blockchain, thereby building efficiency in the system. For example, lending and repayments, trade, shipment and settlement can all be automated using smart contracts.

2.2 Blockchain Applications in Trade & Finance

The current financial system moves trillions of dollars every day and provides financial services to billions of people around the world. There is a huge, complex network, which includes several intermediaries that run through a massive financial web. Central points within this

web include banks, payment networks, stock exchanges, money transfer services, regulators and beyond. However, the system still operates with significant delays and high degrees of crime on each level. This increases the financial burden on the entire value chain. Let us broadly see how blockchain can be applied to real world trade and finance to become more efficient and gain significant financial and nonfinancial value for all parties involved.

- **Digital contracts**

  Various types of traditional trade and finance contracts can be executed using blockchain based smart contracts. Traditional lending, trade finance and other scenarios can be re-engineered and automated using digital smart contracts. These smart contracts can use underlying digital or crypto tokens that can be liquidated on the market against fiat currencies or other crypto currencies.

- **Facilitating cross-border transactions**

  Blockchain provides infrastructure to facilitate cross-border and domestic transactions. Through these transactions different entities around the world can connect and contract with each other using digital tokens and smart contracts, by extension removing all geographical barriers and currency-based limitations. The crypto tokens can be liquidated through authorized exchanges, thereby opening up the global markets to a wide range of participants.

- **Real time payments and settlement**

  The efficiency of blockchain enables transactions to be executed with a very high throughput and without post-trade settlement and recovery processes. Once the digital asset is transferred, the transaction is settled. The transfer is the settlement itself, as the receiving party instantly gets the ownership of the digital asset.

- **Asset digitisation**

  In addition to the digital token that underlies trade and finance smart contracts, the asset, goods or services offered in the transaction can also be digitally represented on the blockchain and monitored in real time. This protocol is known as the Internet of Things (IoT). For example, in an aircraft financing contract, the aircraft itself can be represented as a digital asset within the smart contract and its usage and value can be monitored real time by means of IoT or by other market feeds.

3. The XinFin Solution

Our mission at XinFin is to address the global trade and finance deficit with a robust next-generation financing mechanism that will seamlessly complement the existing financial ecosystem. Our vision is to leverage fast-evolving blockchain financial technology and develop a complete ecosystem around the proprietary permissioned blockchain, the XDC01 Protocol, with the participation of governments, financers, buyers, suppliers, regulators and various communities to help bridge the global trade and finance deficit.

3.1 XDC01 Protocol

XinFin has architected its network from a fork of Ethereum and Quorum. The hybrid architecture of the network combines the best of both private and public blockchains. It maintains both a private state and a public state. The private state ensures that sensitive financial data is secure, meanwhile the public state makes it transparent and verifiable. The architecture supports the XDC protocol's security, scalability and speed. Its hybrid nature also makes it highly interoperable with legacy systems and other blockchain platforms.

The network runs on a delegated proof of stake consensus between trusted masternodes. The blockchain is powered by its next generation digital token, the XDC token. The underlying fuel, XDC, is very cost-efficient when used in transactions. The IoT layer over the XDC protocol allows real time data to be fed into the blockchain. The XDC01 Protocol will enable utility tokens, in compliant jurisdictions, to run within the network.

Thus, the XDC01 Protocol functions as both a messaging and confirmation layer for domestic or cross border approved payments, while the XDC token can be used as a payment and settlement layer, supported by approved financial institutions. The XDC01 Protocol is essentially sector agnostic, thus can be used across different industry sectors.

The XDC blockchain is forked from Quorum, a permissioned blockchain built by J.P. Morgan. Aside from smart contracts, private states, higher throughputs and an easily modifiable consensus mechanism — which are necessary for most enterprise applications — the ability to reuse the substantial development efforts dedicated to the Ethereum protocol makes the choice of Quorum as the base implementation for XDC very appropriate.

Additionally, our fork includes a number of improvements to the Quorum protocol. The throughput of transactions is significantly higher (tested up to 300 TPS in our test environment vis-a-vis 20 TPS on Ethereum network). We've developed a smart contract manager that allows for interoperability between the XDC blockchain and public blockchains. We've added punitive smart contracts to ensure those who stake XDC to run network infrastructure remain honest.

3.2 Distributed Consensus Mechanism

Our permissioned distributed consensus mechanism replaces wasteful, energy-intensive mining. Our consensus mechanism has evolved into a distributed proof of stake consensus, which gives nodes with higher a XDC stake, higher voting power and thus, ensures honesty on the network (as any attempts to attack the network results in nodes losing their stake.) This is addressed by punitive smart contracts built on the XDC blockchain.

3.3 Hybrid Blockchain Architecture

The XDC blockchain is built upon the paradigm of consortium blockchains, differing from conventional private/permissioned blockchains, as well as public blockchains. The public state of the XDC blockchain is shared by all participating nodes, which are owned by different kinds of constituents. Groups of nodes can further form fully permissioned networks with their own private state, which is only accessible to authorized members. The private network state is maintained in its respective network, however, a record (hash) of transactions and smart contracts is stored on the public state of the blockchain. The public state can be used to share basic account details and other data, securely and transparently across the XDC network. The private state can be used to protect sensitive data from outside world.

There are multiple blockchain implementations today, however, most implementations are not suitable for real world applications. The XDC hybrid architecture addresses the shortcomings of all private and public blockchains, making the XDC protocol suitable for real world applications. It combines the availability, transparency and decentralization benefits of a public blockchain along with the security, privacy and high transaction speeds of a private blockchain.

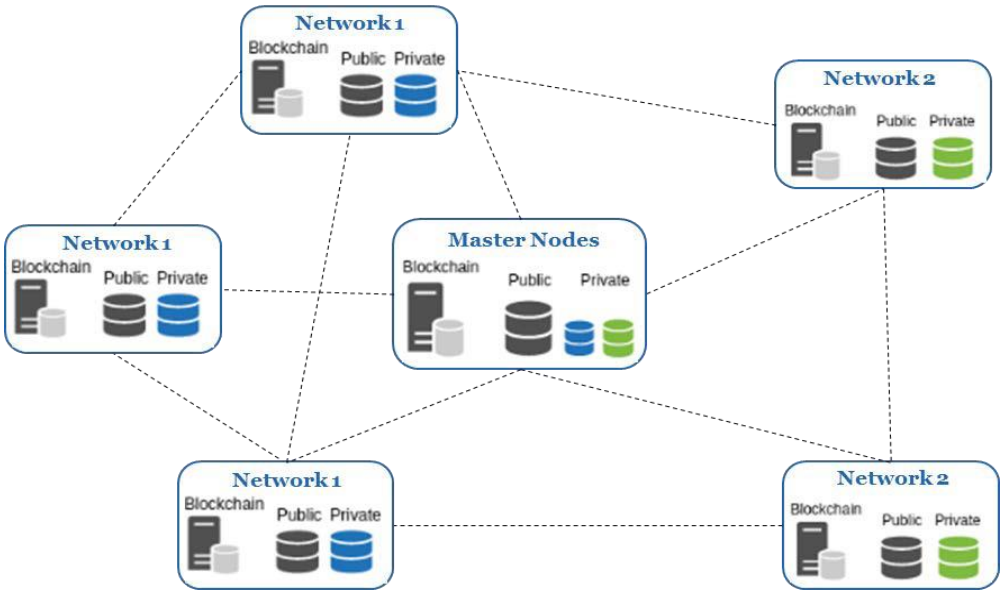


Figure 1: XinFin hybrid blockchain architecture.

3.4 Interoperability with Public Blockchains

The 'hybrid' nature of the XDC blockchain provides interoperability with public blockchains like Ethereum and Bitcoin. Transactions that are marked as hybrid on the XDC blockchain can be transmitted to and executed on the Ethereum public blockchain, without the need for external wallets or exchanges. The XDC protocol seeks to create a truly decentralized cryptocurrency space through interoperability.

3.5 Consortium Membership

Consortium membership here refers to the relationship that different institutions and individuals can have with the XDC blockchain.

The XDC blockchain has three kinds of membership. The first tier is the most accessible. If an individual or institution owns XDC tokens, they are part of the Tier 1 membership by default. These tokens can be bought by interested individuals or institutions through a planned crowdsale. Tier 2 and Tier 3 memberships are both obtained by holding a certain amount of XDC, subject to requisite vetting. These tiers allow institutions to host XDC nodes and participate in the consensus mechanism of the XDC blockchain

3.6 XDC Token & Wallet

The fuel that powers the XDC blockchain is the XDC token. XDC is a utility token that provides utility to the global trade and finance industry by facilitating international and domestic transactions and supporting business efficiency use cases across different sectors through non-tokenized and tokenized solutions. Utility tokens for specific industries can be built through child chains on the XDC01 Protocol. The users can buy XDC 'fuel' through authorized exchanges. XDC token allocation and dynamics are explained in the *XDC Economics* section.

XinFin's blockchain platform offers integrated wallet solutions to enable real time payment and settlement across the globe. Built on the highly evolved XDC01 Protocol, the wallet offers secure and high transaction throughput making it an ideal solution for real world transactions. Interested users can sign-up for the XDC Wallet on the Google Play Store, Apple Store or through the following link: https://ewallet.xinfin.org

3.7 Business Applications

The XDC01 Protocol and smart contracts can be leveraged to build various distributed applications (DAPPS) that will find a wide array of use cases in areas such as supply chain, financing, procurement, distribution, settlement, etc. For example, an Uber-like service could actually be deployed on the XDC blockchain, where riders and customers can book their rides via a DAPP, and have their transactions instantly recorded and settled on the blockchain. The XDC protocol will also support non-tokenized solutions that will help improve business processes across different industry sectors. The possibilities are endless.

XinFin encourages the development community and industry professionals to source more ideas, building DAPPs and developing use cases along with XinFin to facilitate several industrial applications on the XDC blockchain. There are several use cases and DAPPs that XinFin is already working on. We are stretching into different sectors such as banking, aviation, tourism, power, medical and other industries.

4. TradeFinex – A Platform for Global Trade & Finance

4.1 TradeFinex Participants

Trade is all about exchanging goods and services against settlement, proving transfer of ownership through financial transactions. Any project related trade or finance engages many different participants, often at a high level. They can be classified as *beneficiary*, *supplier* and *financier*.

- **Beneficiary** is an individual or an institution who is the owner of a project and is seeking finance in order to procure goods and services. There are always limited avenues for raising funds. Cost of capital is high. Often, one may have to deal with unreliable suppliers. Eventually projects can become delayed, which imposes an additional financial burden on the private financer or levies taxes on the general public.
- **Supplier** is an individual, company, manufacturer, distributor or service provider that supplies goods and/or services to the beneficiary. Generally, suppliers do not have high visibility to global buyers. They have to deal with intermediaries for cross border trade and are forced to deal with the burdens of inefficient payment processing and remittance costs.
- **Financier** is an individual, institution or company who is seeking improved project opportunities to invest money in order to receive attractive returns, in an acceptable risk environment. In our current trade finance setup, there is limited visibility on global opportunities, poor transparency of project health, and high risk of escalations and delays, which combine to lead to low returns. This makes infrastructure investments less attractive.

Figure 2: Inefficiencies in global commerce.

Interactions and trade relations between core participants are broken or disrupted often due to the challenges and inefficiencies discussed above. The TradeFinex platform ensures synced and trusted relations among participants. It minimizes transactional inefficiencies, leading to various benefits for the global trade ecosystem.

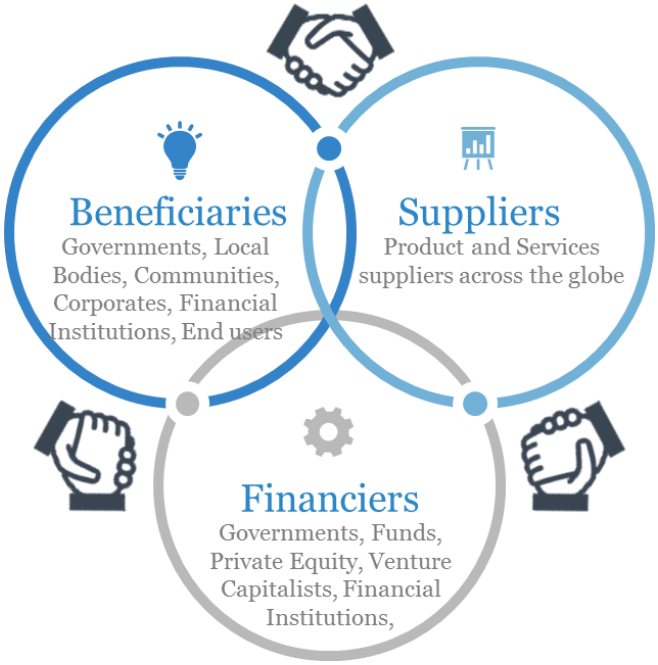


Figure 3: TradeFinex marketplace platform.

The TradeFinex platform is designed specifically for trade and finance transactions using the XinFin permissioned blockchain protocol, XDC01. The key features of the TradeFinex platform are explained below:

- TradeFinex lets different participants connect with each other on the marketplace without any restrictions. The platform can be used for all four stages of contracting including *discovery*, *negotiations*, *contracting* and *execution*.
- The platform has the ability to create legally binding digital smart contracts between participants over the XDC blockchain. Smart contracts bring transparency in the disbursement and utilization of funds.
- The platform is capable of carrying out real time cross border and domestic payments and settlements using the XDC token, in compliant jurisdictions, through regulated financial institutions.
- IoT integration allows beneficiaries to pay the financiers directly using digital smart contracts. IoT integration ensures real time access to an asset's health and financial performance, providing visibility on repayment.
- Alerts can be configured with pre-defined defaults and NPAs, keeping everyone informed about possible risks.
- Wallet services are integrated within the TradeFinex platform to ensure that any payment is secured digitally in the form of the XDC token or any other supporting currency.
- The platform incentivizes participants, in the form of XDC tokens, to carry out commerce using the TradeFinex platform.
- There is hedge pool functionality that lets participants hedge the fluctuation of XDC against fiat currencies.

4.2 Benefits for the Participants

All three of the core participants on the TradeFinex platform will benefit through their participation. The benefits can accrue in qualitative as well as quantitative terms. Quantity depends on the maturity of the existing business processes.

4.2.1 Benefits for Beneficiaries

The beneficiary stands to gain the following advantages by using the TradeFinex platform, thus improving the IRR of the project:

- **Lower cost of capital**

  Currently, most beneficiaries, including governments, institutions and individuals, are burdened with a high cost of borrowing due to inefficiencies in the global finance chain. A projects' access to resources, visibility, and currency movements serve as limitations. As we have often seen, the competitive market for lending does not help reduce rates, and often, governments and institutions either delay or cancel projects, causing beneficiaries to end up borrowing at higher rates. This high cost of capital in most cases is passed to end users or citizens in various forms, such as high tax rates, higher prices, etc. TradeFinex enables beneficiaries to access a global financing pool, helping bring down the costs of capital, which will be a major boost for global trade and finance.

- **Access to a global pool of funds**

  As TradeFinex is not restricted by countries and regions, beneficiaries can gain access to funds throughout different regions at a competitive rate from a global pool of financiers. When taking the traditional finance route, one rarely has this opportunity.

- **Access to credible suppliers and financiers**

  XinFin will do verification checks for participants on-boarding to the TradeFinex platform, thus giving beneficiaries access to a credible pool of suppliers and financiers. XinFin is also engaging credit assessment agencies to offer credit visibility for different participants and projects in order to achieve quicker industrialization for the platform. These efforts will encourage ecosystem growth, while ensuring reliability and transparency.

- **Participant incentives**

  Beneficiaries conducting trade and financing over TradeFinex smart contracts will also be awarded participation incentives. This encourages beneficiaries to increasingly shift their portfolio onto TradeFinex smart contracts. Beneficiaries can also leverage the advertising facilities offered through TradeFinex.

4.2.2 Benefits for Suppliers

Suppliers can also engage in trade with the beneficiaries through the TradeFinex platform and improve margins. The following advantages will help optimize margins on supplies:

- **Expand market for goods and services**

  The TradeFinex platform helps suppliers reach out to global consumers and tenders. Customers can competitively bid for products and services worldwide, expanding suppliers' horizons. Suppliers will receive more visibility and global access to emerging tenders and expanding customer bases.

- **Improved trade and cost efficiency**

  With the help of legally binding smart contracts, suppliers can ensure global real time payments and settlement for their products and services. An escrow capability within a smart contract can ensure suppliers receive payments for products and services rendered. Milestones are added to the smart contracts for the completion of linked payments. The peer-to-peer nature of smart contracts helps suppliers conduct trade and financing in a more secure and cost-efficient manner.

- **Participant incentives**

  Suppliers are incentivized to participate in trade on the TradeFinex platform because they now have a mechanism to provide seamless insight to their business. Suppliers can receive ratings based on customer experience with their products and services. Suppliers will also receive participation rewards for using smart contracts. Additionally, suppliers can leverage the advertising services offered through TradeFinex.

4.2.3 Benefits for Financiers

Financiers will receive the following benefits by working on the TradeFinex platform:

- **Finding global investment opportunities**

  Lack of visibility within global markets can deter financers' investment plans. The TradeFinex platform allows financiers to view global investment opportunities that align with their sectorial needs. Through TradeFinex they can reliably evaluate projects based on their techno-commercial feasibility and appeal.

- **Real time payment and settlement**

  Financiers can create legally binding digital smart contracts over the secure XDC blockchain network via TradeFinex, by extension ensuring real time global payments and settlements. The escrow capability of the smart contracts will ensure that payments are only released when goods and services are rendered. The peer-to-peer contracting nature of the smart contract makes it more secure and cost-efficient for all parties.

- **Real time investment tracking**

  Since all investment assets can be digitally represented over an immutable blockchain ledger, financiers can remotely keep track of the health of their investments in real time using IoT integration. The XDC01 Protocol has a resource manager and oracle service built into it. IoT devices can connect securely to the resource manager, and very tightly controlled oracle services can verify information related to the IoT service. This data is available to the smart contract to execute set of predefined conditions, essentially allowing the smart contract act on the real time feed provided by the IoT device.

- **Participant incentives for lowering cost of capital**

  Financiers using TradeFinex smart contracts will be incentivized with the underlying XDC token, which will function as fuel for their participation. XinFin has allocated a portion of XDC tokens to be used as rewards for hosting masternodes and as bounty/cashback for the participants. The bounty, the inflation-proof nature of XDC tokens, and the potential for appreciating value will empower financiers to offer easier terms to beneficiaries for real world infrastructure projects.

- **Hedge against the forex volatility**

  XinFin has developed a *hedge pool* that protects participants from the fluctuations in the price of XDC tokens. This will incentivize financiers to use XDC as fuel for international financing, trade and settlement.

In summary, XinFin provides benefits to all of its participants, enterprises and communities across the globe. Our protocol creates the proper arena for growth, expansion and participant satisfaction — a win-win scenario for the entire trade and finance industry.

4.3 Financing using the TradeFinex platform

Proper infrastructure increases connectivity between parties, facilitates productivity and stimulates trade. An efficient frame for trade and finance can enable economic growth and in turn increase investment capital and form a robust basis for infrastructure funding. Demand for infrastructure and other government services is rising. Many countries are now faced with the challenge of delivering increased investments during a period of reduced fiscal capacity.

Often, infrastructure prioritization is a rather informal process. There is no standard prioritization process either on a state or central government level. This approach to prioritization leads to delays. Projects are often implemented that may not necessarily drive economic growth.

The current global infrastructure deficit is estimated to be $15 trillion. Governments and institutions around the world are struggling to find adequate financing to enhance infrastructure. In today's world of high demand, slow economic growth and constrained fiscal budgets, a solution is desperately needed. Using TradeFinex, governments, infrastructure investors, project owners and sponsors can undertake projects without burdening government treasuries or excessively taxing citizens.

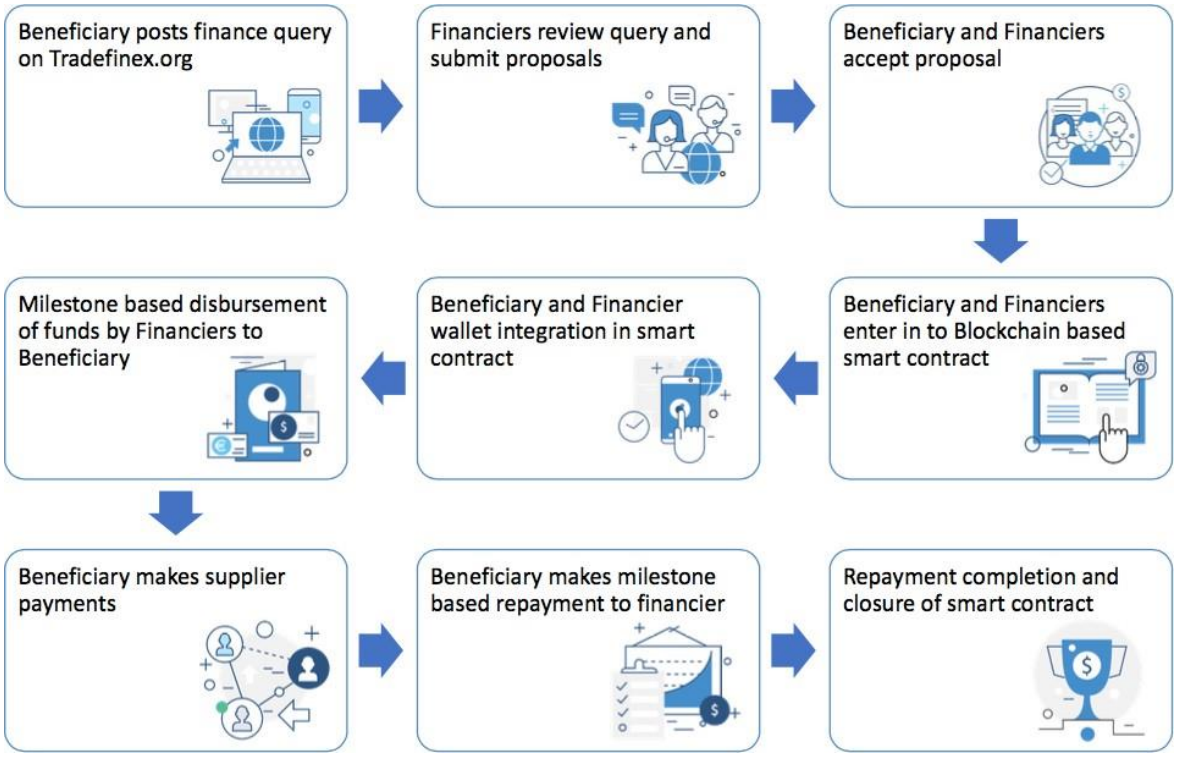


Figure 4: Financing using the TradeFinex platform.

XinFin recently simulated an example project, financing a solar plant using our hybrid blockchain technology. The project is illustrated in the example, Figure 5.

In this example, the beneficiary is a government with an attractive business proposition. It seeks to set up a solar project that will generate future returns in terms of revenue from power generation. The beneficiary posts their financial requirements on the TradeFinex platform, providing the details of the project and the terms for raising funds. Interested financiers then review the project and submit their proposal. Both parties engage in mutual discussions/negotiations, and close the deal. The beneficiary and financier enter into the blockchain based smart contract, which lays out critical milestones and default terms. Both parties integrate their XDC wallet with the appropriate smart contracts.

As the project is executed, the milestone payments are disbursed from the financier's wallet to the beneficiary's wallet. To ensure a timely completion of the project, the beneficiary buys raw material and engages road construction contractors. When the payments are due, the beneficiary pays the supplier. After the project is commissioned, the infrastructure starts generating clean power. The resulting revenue generation, which is linked to milestone-based criteria, is repayed to the financier. This process may take several years based on how large the project is and how much funding was raised. The power output generated can be integrated with IoT devices and smart contracts, in order to ensure real time visibility and transparency for both financiers and auditors.

Once the entire repayment is completed, the smart contract is closed. Subsequently, the beneficiary and the financier rate each other as partners, and these ratings are recorded as credentials on the blockchain network in order to assist future participants.

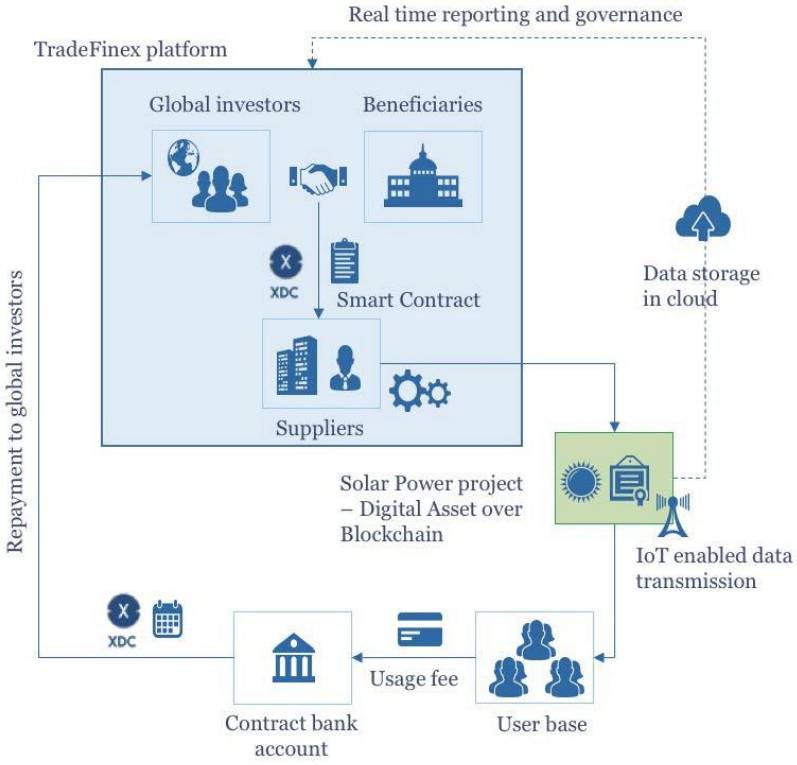


Figure 5: Financing using the TradeFinex platform.

4.4 Facilitating Trade using TradeFinex platform

According to a WTO report, nearly 80% of trade is financed by credit or credit insurance, however, coverage is not uniform. SMEs face the most significant hurdles when seeking to access affordable finance. There are over 160 million SMEs, and they account for 50% of global GDP and ~70% of global employment. Globally, over half of trade finance requests by SMEs are rejected, compared to a 7% rejection rate for multinational companies. Facilitating trade for SMEs would unlock stagnant trade capital and create millions of dollars in business globally.

XinFin offers a bridge to facilitate commerce in a digital era. We plan to provide a solution that lowers the cost of commerce to a mere fraction of what is it today. Participation incentives for early adopters will provide additional savings, thereby offering significant bottom-line benefits and opportunities for revenue growth.

The following figure will help readers understand how TradeFinex assists in conducting trade and enables transactions between beneficiaries and suppliers. The trade work-flow can be summarized below, in Figure 6.

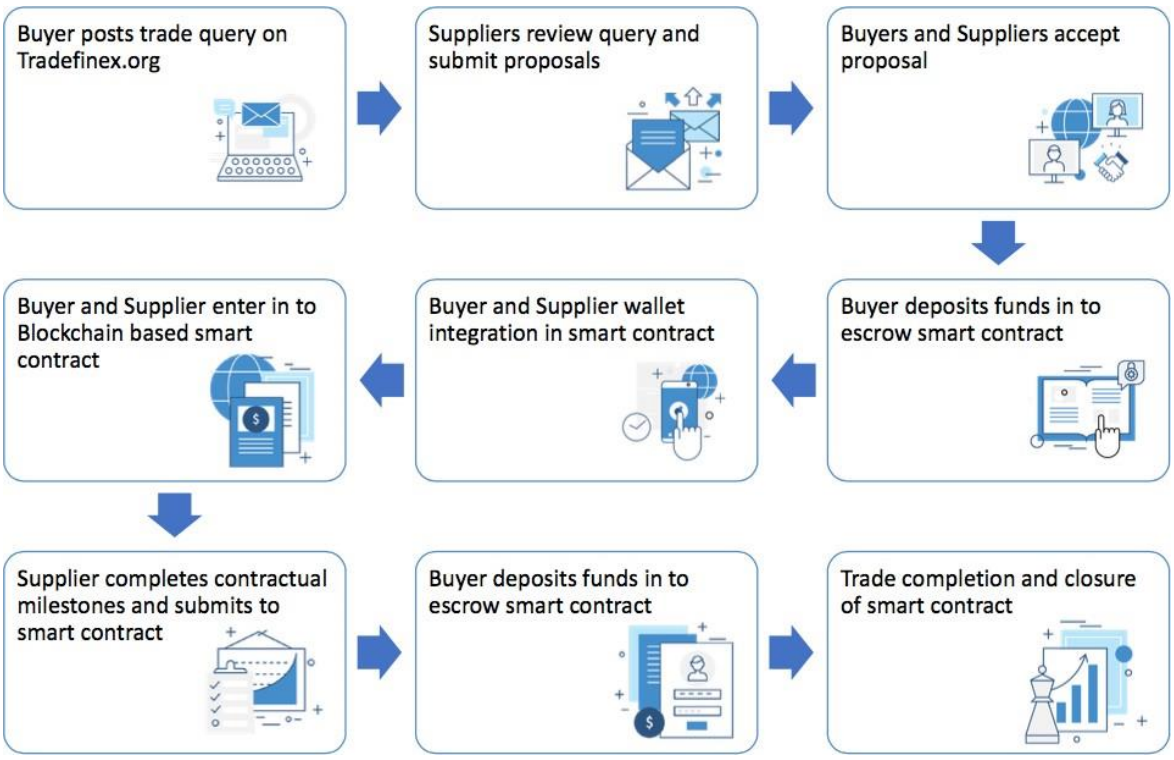


Figure 6: Facilitating commerce using the TradeFinex platform.

Recently, XinFin simulated cross border trade between two parties using hybrid blockchain technology. This project is illustrated in Figure 7.

In this example, the buyer, a global food and beverage manufacturer, posts his procurement requirement on the TradeFinex platform. The project can be viewed by global suppliers and they can submit a commercial proposal. The buyer can then negotiate with the supplier on and off the platform. Upon agreement, a blockchain based smart contract (from a standard template) can be executed between the buyer and the seller. The buyer procures and deposits XDC tokens into the escrow smart contract account. The buyer can avail an exchange rate lock

to minimize losses due to currency rate fluctuations. The supplier can view the payment received in the escrow smart contract and manufacture the product and/or deliver the services to the buyer. The condition of the smart contract is verified by independent certifying authorities. The payment is released to the seller from escrow, based on the XDC smart contract. Upon completion, the buyer and the seller are incentivized to carry out trade using the XinFin XDC platform. Once the entire repayment is completed, the smart contract is closed and the beneficiary and the financier provide ratings for each other, which will be recorded as credentials on the blockchain network in order to help other participants.

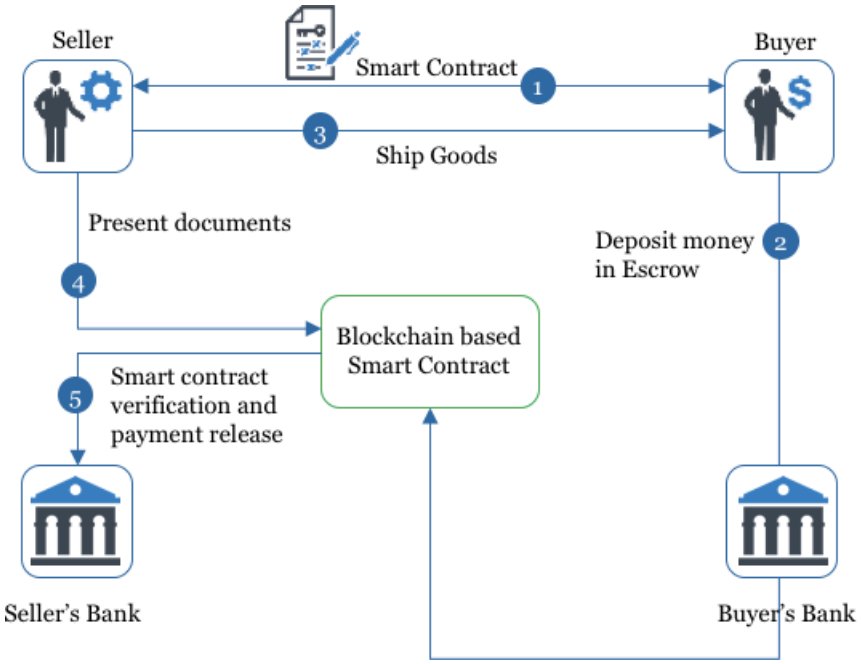


Figure 7: Enabling trade using the TradeFinex platform.

5. XinFin Business Applications

The XinFin solution can be applied to various industry sectors to improve their business processes. XinFin is currently working on several industrial projects in banking, power, solar, tourism, aviation, supply chain logistics and other sectors. Currently, customized solutions are being deployed across various business processes, including re-engineering, supply chains, financing, procurement, reconciliation, settlement and beyond. The solutions provided can be non-tokenized (without using the XDC token) or tokenized (using the underlying XDC token) depending on the use case and business application.

Across industries, people are trying to use blockchain in various business applications. In complex conglomerates, blockchain can be used for work flow management, enabling a system, without any one particular authority, to provide a tamperproof and reliable transaction history.

In some businesses, it is important to manage and maintain an asset's lifecycle chronologically. Such a process traditionally requires multiple participants who have their own methods of managing data related to the same asset. Problems emerge when one of these participants has to reconcile their data set against another data set belonging to a previous owner of the same asset. Due to disjointed systems and alienated processes, it can take ages to retrieve and reconcile information. Blockchain offers a shared ledger, instead of a fragmented system, making these processes substantially more efficient.

In the financial service industry, blockchain applications are even more impressive. The peer-to-peer settlement system improves validation and authentication processes, thereby eliminating fraud and money laundering issues. Purchase order management and invoicing processes are streamlined, leading to accelerated settlements. On top of this, blockchain can provide a strong audit trail, a feature critical to the industry.

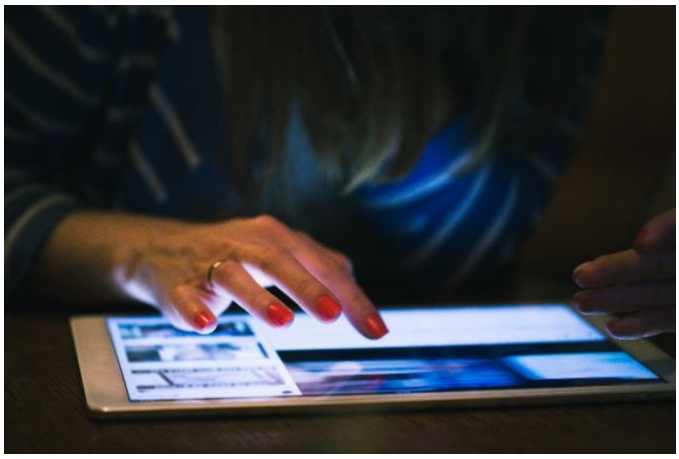
Cross border payments and remittances, especially those issued by migrant workers in developed countries to individuals in developing countries, are often inefficient and expensive. According to a World Bank remittance report published in Dec 2017, the transaction cost for remittances can reach as high as 16% of transaction value in some cases. Through blockchain technology, these cross-border payments can be transferred at a fraction of current costs.

In global business scenarios, where large corporations outsource certain business practices, it becomes challenging to manage all processes. Though most process integration occurs through IT systems, humans are still required to enter information into those systems. Installing IoT devices and sensors will not solve the problem of disconnected business management, as information can still be manipulated by inappropriate or dishonest human intervention. Blockchain makes the process of importing information immutable and tamperproof. It also ensures any external intervention will be recorded on the block.

Let us examine some of the non-tokenized and tokenized business applications for blockchain technology. These use cases are based on real world pilots that XinFin is successfully conducting with some of the top industry names in various sectors, both disclosed and non-disclosed.

5.1 Transforming Online Travel Booking

The travel ticketing and booking industry has evolved greatly in the last two decades. It has transitioned from smaller offline agent-based control and is now largely aggregated online at scale. However, online development has created challenges over time.



Synchronization delays between Online Travel Agents (OTA) and hotel or airline legacy systems have caused friction.

Different payment schemes organised by OTAs have led to a lack of standardization. Rising pressure on hotel margins, due to an increasingly competitive landscape, and OTA commissions have led to increased cost and friction. Capital locked, due to weekly/fortnightly/monthly settlements by OTA's has led to higher rates for customers. OTA's commission, high FX mark-ups and a high dependence on OTAs' efforts for rescheduling and cancellation causes delays for consumers. So, merely replacing offline agents with online agents has not helped expand the travel industry. The number of international travelers has only doubled in the last two decades. Over the next 10 years, travel industry experts predict that the digital travel space worldwide will expand at an annual rate of 3.8% to reach $11.4 trillion in 2027, according to Nielsen research.

Now, let us examine how the XDC blockchain, and accompanying wallet services, can further expand and transform the online travel booking industry. Since the XDC blockchain provides a way for real time payment and settlement, our wallet services can be integrated to help make payments more efficient, streamline reconciliation, and improve management for payables and receivables. End users, OTAs and hotels can all enter into smart contracts with a single click of a button, and settle payments in real time, thereby eliminating the need for aggregators.

End customers who book with an online travel agent will use their XDC wallets to make payments against fiat currency. The payments can be held in escrow for a period of time defined by the agent or the hotel, effectively emulating the terms of a cancellation policy. If the user cancels within time, funds will be refunded back to the customer's wallet. If the qualifying date for a refund passes, the funds will then be transferred to the agent, the hotel and/or XinFin, as laid out in the contract terms. The escrow will be linked to the hedge pool, protecting against the fluctuations of the XDC token. This will ensure that everyone receives the full amount money in terms of fiat currency, regardless of the fluctuations in the value of the XDC token at the time of settlement.

Benefits for OTAs: Direct peer-to-peer payments eliminate the need for data reconciliation and settlement, which in turn leads to reduced cost of operations. Enhanced visibility of hotel inventory and user preferences will drive more sales and customised promotional offers.

Benefits for hotels: Low OTA commissions, real time payments, little need for separate inventory platforms, ease of operations through API based calls, and integrated analytics make the booking process more attractive for hotels.

Benefits for consumers: Customers receive lower prices, additional cash-back, instantaneous refunds in case of cancellations, improved trust and transparency, and the ability to integrate insurance claims and loyalty rewards.

5.2 Transforming Medical Emergency Services

In recent years, the healthcare industry has undergone significant changes. Technological research and innovation often find their initial applications in healthcare. Rising opportunities for better healthcare come with increased expenses.

According to a Grand View Research report, the global expenditure per capita on healthcare has been rising exponentially over the past two decades. Statistics published by The World Bank Group suggest health expenditure per capita in 1996 was around $467.6, and by 2014, this number had grown exponentially, to $1,060.9 per capita. This exponential growth, around 55.0% per capita, in healthcare expenses can be attributed to improved economic environments, improved access to quality treatment, and increased awareness around proper healthcare treatments. All of which translate into increased demand for these services. However, the ability to save a human life is largely dependent on how promptly medical services can be administered during an emergency. Increased population and traffic conditions work to counteract the improvements in healthcare technology and add challenges when receiving emergency attention.

Air ambulance is an example of a technological innovation developed to make emergency services more efficient. Air ambulance, which was primarily used for military applications, extending rapid medical services to war zones, is now serving civilian spaces and growing every year. Research estimates that the global air ambulance service market size was evaluated at $3.7 billion in 2016, however, it is expected to grow at a compound annual growth rate (CAGR) of 9.3%. It is anticipated that a number of factors will cause the air ambulance service industry to grow at a steady rate over the forecasted period, including: global economic growth, increased spending rates on healthcare per capita, increased availability of reimbursement plans, growing prevalence of chronic disease requiring emergency medical responses (such as cardiac disorders) and a developing need for improved medical infrastructure catering to the sports and entertainment industries.

Emergencies arrive without knocking. One may need medical assistance on a bank holiday, a public holiday, or while vacationing in a foreign country. One may have the financial resources to spend on emergency healthcare, however, legacy systems will fail desperate parties when dealing with real time money transfer. The inability to deploy funds efficiently to engage capable services limits access to the best healthcare resources, even to those with the means to afford them.

The XDC blockchain, in this case, can literally be a life saver. Token-based payments can be used to facilitate instant payments for emergency medical services, both across borders and on bank holidays. XinFin has an exclusive connection with Airnetz, a flight chartering group in India that provides medical air ambulance services.

In event of a medical emergency, a user can request for an air ambulance service using the Airnetz.com platform. The user arranges money and transfers it to a local agent at pickup, and the local agent then procures (if needed) and makes the XDC transfer to Airnetz. Thus, Airnetz gets paid instantly and is financially equipped to arrange the medical transfer. Upon flight completion, both the local agent and Airnetz are incentivized for providing life-critical medical services.

Benefits for consumers: The ability to arrange medical ambulance services on short notice, to potentially save a human life, in a challenging scenario where traditional banking channels would create friction and limitations.

5.3 Efficient Distributed Ledger Solutions

Today, companies deal with multiple vendors, often having to reconcile multiple documents to confirm the accuracy and authenticity of a given transaction.

These processes become more complicated when reconciling large organizational spending, as the average transaction size scales up considerably with larger companies. Reconciliation requires a party to match records from institutions with records from vendor systems, and issue payments accordingly, often leading to many manual corrections, approvals and delays along the way. Currently, these reconciliation processes are manual, cumbersome, and require coordination across multiple systems and participants, including employees, vendors, and account departments.

Since the XDC blockchain provides a distributed ledger solution that can store variety of records and information, the XDC platform can revamp several of these processes, finding a great number of business applications. The distributed ledger solution is particularly interesting for domestic scenarios, for large corporates and banks, and for all institutions dealing with large transaction volume. The XDC blockchain can help institutions improve the efficiency of their business and account processes, particularly in situations where multiple party reconciliation is required, and where disjointed systems and synchronization or efficiency challenges exist. Corporates can use the XDC protocol to build internal ledgers for transactions, KYC or AML records, employee records, travel data, intra-company transfers, etc.

XinFin has demonstrated a solution where the XDC blockchain can maintain all employee records on a single ledger between corporations, banks and chosen vendors. This enables a real time view of transactions at any given moment using a blockchain explorer, thus eliminating the need to get a Daily Sales Report (DSR) for the services provided by vendors. To put it simply, when identified fields in the employee request and vendor response match, the transaction is approved and uploaded on the blockchain. The vendor payment rules can be configured to automate the entire settlement process thereby eliminating the need for manual reconciliation. This secure, scalable and simplified process minimises manual interventions and processing overhead, offering significant savings for the client. Real time payment and settlement can also be integrated using the XDC token or any other currency of the client's choosing. Such a solution can be extended to other multi-party reconciliation processes within banks or any other large corporations.

Benefits to consumers: Reduction in overhead, real time settlement and enhanced business process efficiency.

5.4 Building Visibility in Supply Chain

Logistics companies are facing an era of unprecedented change as digitisation takes hold and customer expectations evolve. New technologies are enabling greater efficiency and more collaborative operating models; they're also re-shaping the marketplace in ways that are only just beginning to become apparent. Blockchain technology proposes a future where participants can maintain a universal, digital ledger of truth, preserving the integrity of deliverables, bringing transparency and offering instant settlement opportunities.

Using the XinFin Blockchain, multi-party smart contracts can be executed between participants within a supply chain using pre-defined payment terms. Deliveries can be tracked using IoT and other real time monitoring technologies. Therefore, the status of a delivery can be accessed in real time. Upon successful delivery, smart contracts can simultaneously release payments to all supply chain participants according to the agreed contractual milestones and payment terms. Using blockchain, all parties can ensure certainty about delivery and payments.

Transportation costs can be minimized by transparent contracting and timely payment to Logistics Services Providers. Furthermore, a rating system, coupled with the smart contracting solution, can be used to track performance of supply chain participants over a period of time.

5.5 Private Sub-Networks

One of the disadvantages of the public blockchain is the openness of information. Contrary to popular opinion, this is a disadvantage when considering scalability. Public ledgers will never meet the very particular needs of banks and enterprises. They offer very little to no privacy for transactions and by extension, these ledgers are also governed by weak security measures. Public ledgers require a substantial volume of computational power to achieve consensus, another disadvantage. Considering these limitations, they are largely unsuitable for enterprise use cases, especially use cases involving payment and settlement.

The hybrid nature of XDC blockchain allows users to create private sub-networks. By creating a private sub network, XinFin allows institutional users to connect securely and privately with participating members. Transactions made under private sub networks are not visible to the outside world, thereby keeping sensitive financial information and transactions secure and confidential. The institutions interested in hosting private sub networks can subscribe to Tier 2 or Tier 3 membership brackets and set up masternodes.

For example, a consortium of banks seeking to utilise Distributed Ledger Technology to simplify reconciliation and business processes can host a private sub network using the permissioned XDC protocol. The consortium can jointly host a masternode with permissioned access to the participating members. Any transactions between the participating members will not be visible to the outside world, however, a copy of the data and state change is recorded on the public network. The transactions in the private sub networks can be powered by a separate token, which may have its own internal listing and inherent value, either pegged to the XDC token or a token that is just used as a messaging layer.

Using the private sub network function within the XDC protocol, institutions willing to launch their own token can easily do so. By pegging the value of the token to XDC and using the permissioned hybrid blockchain feature, institutions can ensure the privacy and security of their transactions. The underlying XDC fuel can provide a highly cost-effective solution when compared to Ethereum gas fees, meanwhile addressing privacy and security concerns. Participants willing to launch their own tokens as reward points, as payment for utility bills, as representations of value within internal settlement systems, etc. are all empowered to do so using this feature.

In this business whitepaper, we have merely covered a few of the solutions the XDC hybrid blockchain can provide. However, we have not done so in excessive detail. Our blockchain applications team will be happy to help you improve the efficiency of your business processes, unique to your specific needs.

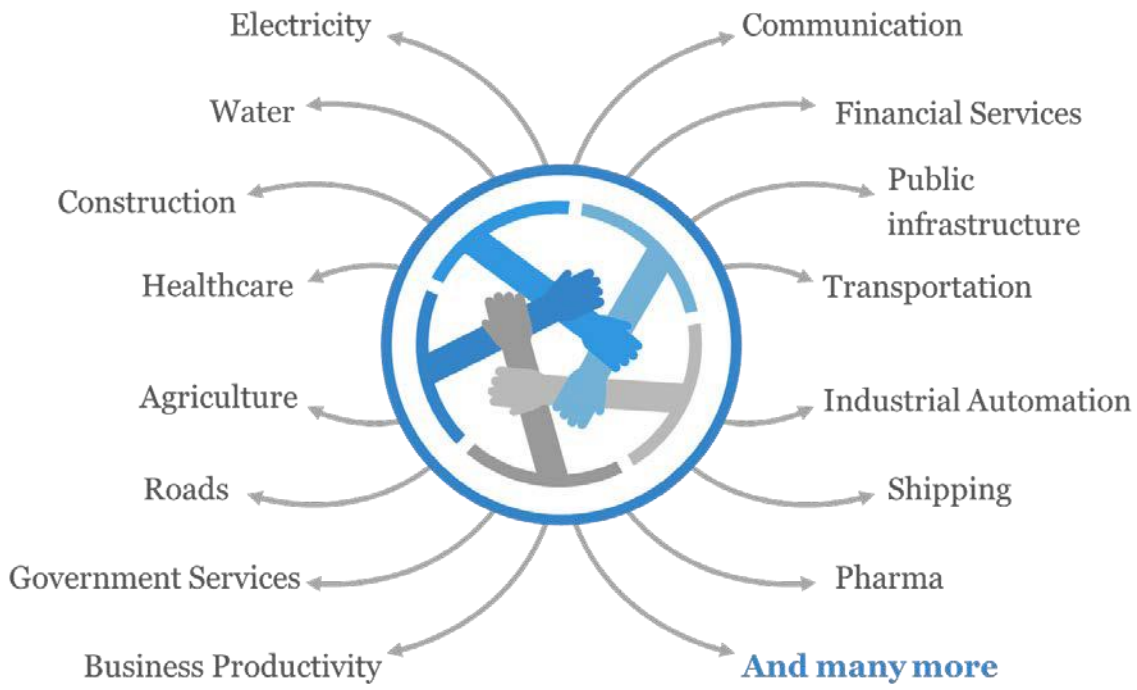


Figure 8: XinFin blockchain applications.

6. XinFin Ecosystem Participants

XinFin aims to create a complete, inclusive ecosystem, providing utility to all market participants. As the ecosystem grows, the financing capacity of our network will also increase. The more participants and projects using the XDC platform, the more efficient and cost-effective the ecosystem will be. XinFin is committed to engage participants across various industries and levels, in order to expand both vertically and horizontally.

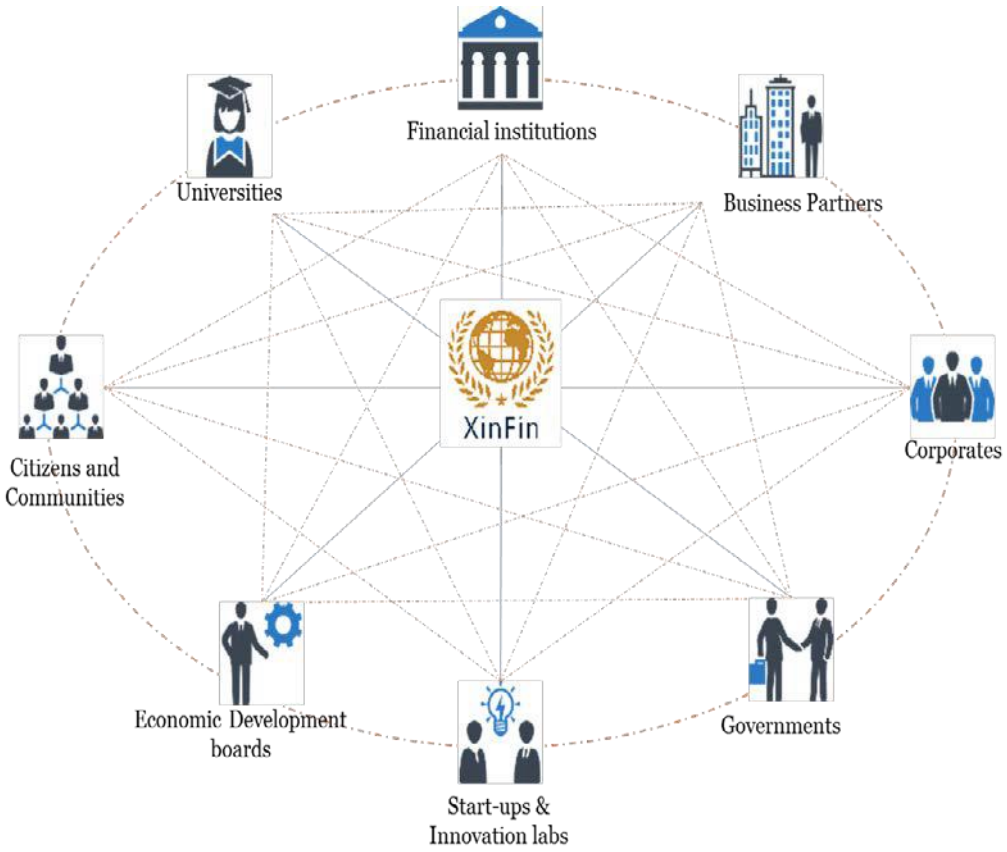


Figure 9: XinFin ecosystem.

Therefore, we invite all participants to join hands with us and contribute. Together, we will bridge the global trade and finance deficit.

Governments and regulators are called to use strategy to lay the foundation for these projects, and in turn receive the benefits of more efficient execution for infrastructure projects, and lift the undue burden on tax payers.

Trade associations, chambers of commerce and export councils are called to pursue their objectives of supporting MSMEs and boosting economic growth. By engaging with this platform, these associations receive the opportunity to influence the new system in order to uplift any specific business deficits within their respective region.

Financial institutions, banks and investors, who are an integral part of the financial ecosystem, are enabled to explore attractive investment opportunities and help bridge the substantial financial deficit that exists today. Various engagement opportunities include, bolstering payment services, financing loans, asset financing, distributing equity, supplying derivatives and developing other complex products. Such institutions can also leverage increased business process efficiency in order to drive several internal and compliance use cases, such as KYC, reporting, reconciliation, etc.

Corporations, across various industries, are encouraged to come forward and participate, as the XinFin blockchain platform is sector agnostic, and we are willing to customise solutions according to the requirements of different sectors. Corporates stand to benefit from our financing solution by receiving access to a wider market, improving financing and developing enhanced borrowing mechanisms. They can also integrate their supply chain into our ecosystem, so they can facilitate seamless trade and finance.

Universities, start-ups and innovation labs, we consider as potential partners; at XinFin, we believe in co-innovation. Therefore, by engaging with entrepreneur communities, we develop a vital part of our ecosystem. We engage extensively with the vast Ethereum and Quorum communities to benefit on-going blockchain development both for XinFin and other interoperable blockchain ecosystems.

7. XDC Economics

7.1 Token Allocation

The XinFin blockchain network has a total supply of 100 billion XDC tokens, its own native cryptocurrency. To add an element of certainty, the total 100 billion token supply is limited and locked. There is no need to understand the concept of 'mining', as all XDC tokens are pre-mined. Therefore, the most important factor to consider is the current 'available' supply of XDC on the market, which is generally referred to as 'circulating supply.' This supply is subject to change over time as more tokens become available to the market.

The manner in which XDC tokens are allocated is designed to promote inclusive growth of the entire ecosystem and promote a network effect.

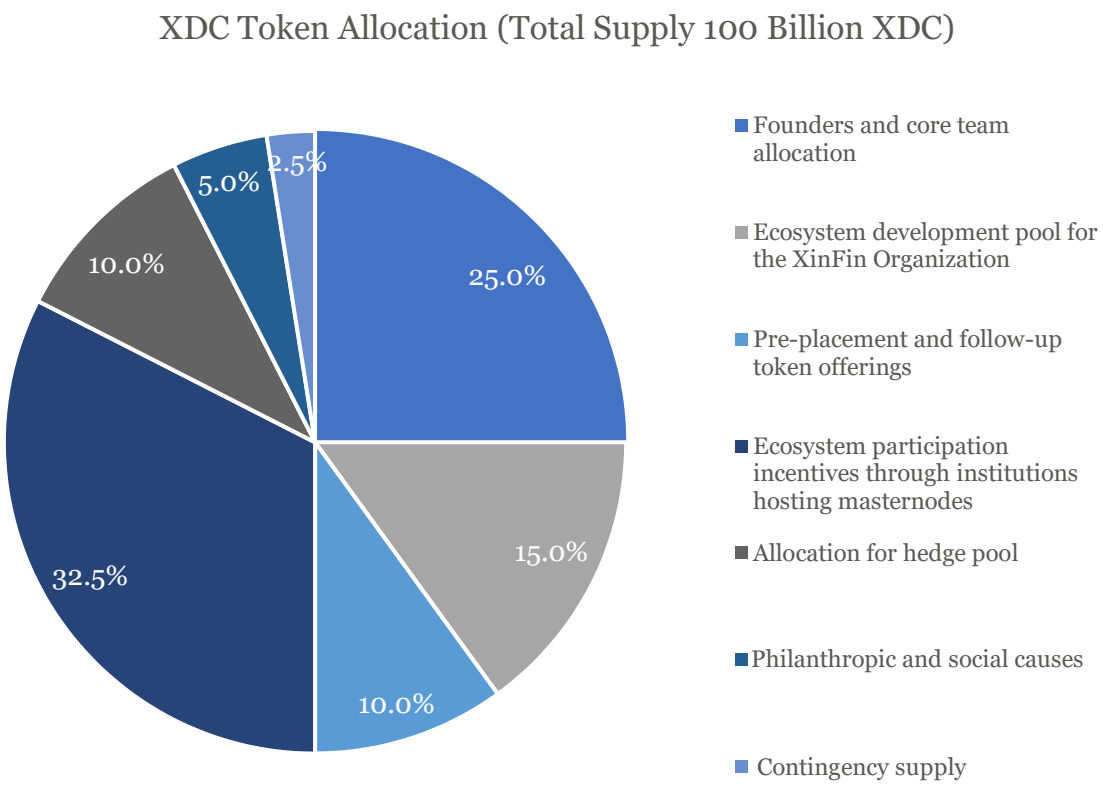


Figure 10: XDC token allocation

The details of the allocation's 'lock-in' periods for XDC are illustrated below:

- **Founders and core team allocation (25%):** This amount will be used as wage for the founding team, who are tasked with facilitating the development of the XinFin XDC platform — taking the project from concept to reality. The XDC platform is continuously undergoing an evolution, both as an idea and as a working product. Up to this point, this evolution would not have happened without persistent effort from the founding team. This supply is locked and a maximum of 1% of the holder supply can be released every year.
- **Ecosystem development pool for the Xinfin Organization (15%)**: This amount will be used to run the organization. The tokens from this pool will be used to fund corporations that support ecosystem development for XinFin. This supply is locked, and a maximum of 2.5% of this supply can be released every year.

- **Pre-placement and follow-up token offering (10%)**: XinFin completed a pre-placement sale of 3% of XDC tokens to private investors during the first half of 2017. The proceeds from this were used to develop the XDC protocol, the TradeFinex platform and to pay other operating expenses. The next follow-up token sale of an additional 3% of tokens will be conducted in early 2018. Any remainder will be used to support subsequent follow-up token sales and liquidity requirements for participating exchanges. Utilisation of follow-up token sales will be largely used to enhance the protocol, further develop the eco-system, strengthen the network, and cover operating expenses, including PoC development, business development, travel expenses, legal expenses, compliance expenses, etc.
- **Ecosystem participation incentives (32.5%):** This percentage of XDC will serve as a reward pool for institutions hosting masternodes and will serve as incentives for participants on the platform. Typically, reputable high-stake holders, technology partners and authorized and regulated institutions are expected to host masternodes by staking the predefined amount of XDC, and in turn, they would be rewarded for running and contributing towards network consensus. Part of this supply will be used as a reward scheme for participants on the platform. The amount XDC awarded will be determined dependent on a project's value, purpose and the participants involved. This supply is locked, and a maximum of 10% of XDC tokens held by the institutions running masternodes can be released every year.
- **Allocation for hedge pool (10%):** This token supply will be used to hedge commerce between financiers, buyers and suppliers against fluctuations in XDC token value. As all trade and financing transactions on TradeFinex for the end user will be represented in an equivalent fiat amount, any settlement losses arising due to a fall in the value of the underlying XDC token will be addressed and compensated for by the hedge pool. This supply is locked, and a maximum of 5% of this supply will be released every year.
- **Philanthropic and social causes (5%):** XinFin strongly believes that giving back to society is among the most important and valuable pursuits in both business and life. As part of its Corporate Social Responsibility, a portion of XDC will be used for philanthropic activities and to support various social causes, empowering individuals, communities and helping to build a sustainable future. The supply is locked and released as needed.
- **Contingency fund (2.5%):** The contingency fund is created as an insurance account to meet any unforeseen expenses. This supply is locked and released strictly on as needed.

Note: The token allocation is subject to change based on institutional participation and other determining factors, including the ideal token metrics needed to facilitate a seamless trade and financing experience and provide liquidity support.

7.2 Hedge Pool Functionality

XinFin acknowledges that the volatility shown in the value of digital utility tokens makes them less attractive to be used in long term trade and contracts. Procurement offices and CFOs are unlikely to sign token-based trade agreements when there exists a possibility for lower payouts, due to drops in the value of a given token. In order to protect participants from fluctuations in the value of XDC, XinFin has developed a hedge pool. This hedge pool will service participants during procurement and settlement, becoming particularly useful in trade contracts where there is an extended timeframe between contracting and settlement. Contracts set up through TradeFinex are agreed upon in terms of fiat value. The total loan amount, the payment milestones, etc. are all valued in fiat. At the time of settlement, XinFin will ensure payment is issued to the receiver in accordance with the agreed upon fiat currency

value. Thus, the hedge pool ensures that participants receive the agreed upon fiat currency value, based on agreed upon conditions, regardless of fluctuations in the value of the XDC token.

8. Addressing concerns

Looking at blockchain more broadly, experts have expressed varying views on how blockchain solutions and crypto tokens fit within current systems. Therefore, readers too may have some concerns related to security, legality and compliance.

8.1 Security

Data security is of the utmost importance for any blockchain based solution as blocks contain critical and important transactional data, which should not be compromised under any circumstance.

- **Audited and Secure Smart Contracts**

  The XDC blockchain provides a highly secure and robust hybrid blockchain protocol, offering interoperability with public blockchains. Since the XDC ecosystem belongs to the consortium blockchain paradigm, we plan to allow only comprehensively audited smart contracts. This will ensure not only the security of the XDC ecosystem, but also create a standardization that has secondary benefits in a number of fiduciary use cases. The permissioned nature of the blockchain prevents unwanted actors from tampering with the contracts.

- **Exceptional Wallet Security**

  XDC aims to provide exceptional wallet security by implementing easily accessible light wallets, which are uniquely associated with an account and securely connected to full network nodes within the XDC network. Each light wallet will have unique keys that are used to sign transactions from their associated account. Since the light wallet is a standalone application that serves only one account, the possibility of being hacked or losing the XDC tokens within becomes highly unlikely.

- **Consortium Membership**

  Since XDC is a permissioned hybrid blockchain, there are tiered membership rules for participation in the XDC network. These membership rules help maintain network integrity. The XDC blockchain has three kinds of memberships. The first tier is the most accessible. If an individual or institution owns XDC tokens, they are part of the Tier 1 membership by default. These tokens can be bought by interested individuals or institutions through the planned crowdsale. Tier 2 and Tier 3 memberships are both obtained by holding a certain amount of XDC, subject to requisite vetting. These tiers allow institutions to host XDC nodes and participate in the consensus mechanism of the XDC blockchain.

- **Punitive Smart Contracts**

  XinFin will add punitive smart contracts that ensure those who stake XDC to run network infrastructure remain honest. There will be asset forfeiture rules written into the protocol that seize the XDC holdings of unscrupulous consortium members looking to undermine the integrity of the XDC blockchain.

- **Data Security and Privacy**

  Since XDC is a hybrid blockchain supporting private sub-networks, sensitive data including financial transactions can be shielded from the public state of the blockchain,

thus providing enhanced cryptographic security on the private state. The public state allows for better transparency and auditability.

8.2 Legal

While blockchain based tokens currently operate in unregulated markets and have no regulatory clarity, some countries like Japan have legalised payments through Bitcoin and other cryptocurrencies. Many other countries have taken an open stand on cryptocurrencies and may regulate them in the future. Several mainstream exchanges in North America such as CBOE and CME have started trading derivatives on Bitcoin. The recent uptick in market value of several cryptocurrencies has made regulators all over the world look more seriously at crypto-currencies. XinFin does not aim to be an end-to-end player in the banking and financial services industry but only aims to provide community driven tools to the existing or authorised entities, in order help to solve real world problems. XinFin aims to be fully compliant with the laws of the land and work with authorized entities in various geographies. XinFin also plans to work with governments, regulators and lawmakers to define various aspects of blockchain applicability to financial sectors.

Readers are advised to read disclaimers, privacy statements, and Terms and Conditions presented on the XinFin website.

8.3 KYC / AML / CFT

XinFin will seek necessary user KYC information for the XDC wallets. The users on the TradeFinex platform (Beneficiaries, Suppliers & Financiers) will also be required to provide basic and sufficient identity information regarding individual or institutional details, including contact details.

The messaging facility on our TradeFinex platform further allows all entities, including governments, financial institutions and other enterprises, to securely exchange information regarding different contracts, transactions and associated parties. We are ready to work with our collaborators and partners to develop and enhance the functionality of the platform, improving business processes and facilitating a seamless integration into the XDC ecosystem for willing participants.

The entities that use the XDC platform would not need to change their regulatory and compliance procedures, such as KYC, AML etc. XinFin can collaborate with the respective entities to re-engineer compliance processes when necessary, again leveraging blockchain technology to drive more efficient regulatory procedures.

We are in talks with several leading credit assessment agencies that can help industrialise the credit rating process to benefit the users of our platform. We will be inviting leading project feasibility evaluators onto the TradeFinex platform. The financiers may evaluate and shortlist certain evaluators to carry out techno-commercial feasibility assessments of any given project, if needed. This will help financiers make an informed decision about investing in a project based on their own risk appetite. For larger projects, government security will be pursued. In general, we encourage our financiers to do their own due-diligence on projects before making any financing decision.

In phase one, the platform will engage small-medium size projects with national infrastructure importance and government security backing. Governments and leading corporations participating will receive preferential treatment. Individual projects will be evaluated based on a case-to-case basis. Beneficiaries can post projects on the TradeFinex platform and reach out to global financiers for funding and global suppliers for procurement.

9. Conclusion

Blockchain has raised enough interest around the world, however, in most cases, people are speculating on its potential. Now is the time to actually transform real world business processes and provide long-needed solutions using blockchain technology. XinFin aims to bridge the trade-finance gap, empowering investors to seamlessly bid on different infrastructure projects. By facilitating frictionless finance, investors can avoid all the issues and paperwork that often arise during the process, enabling them to finance projects both domestically and especially, internationally.

The XinFin blockchain protocol is positioned to offer an innovative financing solution to bolster the annual 3.7 trillion-dollar infrastructure financing market and lift the weight of the 1.6 trillion-dollar annual trade financing deficit. While we have laid the building blocks and foundation, our efforts to strengthen the XDC01 Protocol and its business applications are an ongoing endeavor. We are backed by a strong blockchain engineering and development team and a seasoned marketing, advisory and business team, the latter having experience in international project management, consulting, deal advisory, trade and finance. Through the TradeFinex platform rollout, the vision is to leverage the features of our blockchain platform to connect financiers and suppliers with appropriate beneficiaries in a secure environment, thereby enabling them to transact, trade and finance against certain secured digital assets, specifically, XDC.

By understanding the existing issues linked to public blockchains, XinFin offers a future-proof solution through its proprietary XDC01 Hybrid Protocol, which combines the best of both private and public blockchain networks.

While globally, the debate on the legality of digital tokens will continue, the inherent advantages of leveraging blockchain technology for improving business processes is apparent. Backed by hybrid blockchain technology, immutable, transparent and tamperproof architecture, XinFin stands out in this space. Peer-to-peer contracting and settlement capabilities, auditability and high transaction speed, couple with smart contracting capabilities make XinFin a unique value proposition as a blockchain solution. XinFin has already delivered 10+ pilot projects for international clients and is continuously focusing on enhancing technology and developing both our ecosystem and the blockchain ecosystem at broad. XinFin aims to solve real world problems, using both tokenized and non-tokenized solutions, as it positions itself to become the preferred choice for enterprise-ready blockchain solutions.