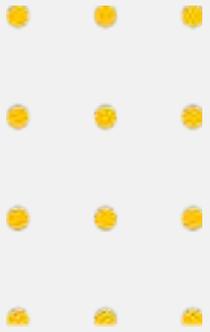




Phaeton
ESG Bond Exchange





Phaeton

ESG BOND EXCHANGE

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INTRODUCTION



The traditional banking and finance system is now challenged by financial technology (FinTech). There are many tech giants replacing banks and disrupting the legacy banking system. These companies are now offering financial services to consumers in a smarter way than the incumbent retail banks. Examples of such services such as Apple Pay, Google Pay and PayPal. Millennials are embracing these technological developments as this generation is more gadget dependent than their older generations. Banks have the opportunity to cater to the new generation embracing FinTech innovation for more intelligent banking solutions.



FinTech start-ups are usually intelligent young people who can predict the future; they solve existing problems by offering better technological solutions. These start-ups are bringing "new market disruption" in the financial services industry, offering a better way to pay, send money, borrow, and invest. Although the finance industry has the power to attract tech talent, they cannot seem to shake off their ingrained bureaucratic structure. Just offering internet banking or a mobile app for a current account is insufficient to challenge the emerging new economy. If they do not keep up with recent trends such as blockchain, they will lose their market share.

Through Blockchain innovation, the concept of Decentralised finance (DeFi) has been created. DeFi refers to a collection of financial products and services that are built on top of blockchain networks. This sector is still in its infancy, but it is evolving fast and gaining popularity. It has already started to cause disruptions to the traditional banking and finance sectors. DeFi, a sector with a market cap of a few million in 2017, is now rumoured to have a total market capitalisation of at least \$100 billion. One of the main benefits of DeFi over banks is the easy access to financial services. One of the finance areas that Phaeton has evaluated is the Bond Finance sector.

There are several Defi Blockchain start-ups, such as AAVE and Uniswap. These start-ups are focused on more consumer-driven products. On the other hand, Phaeton has decided to work on the Bond market as it fits in line with Phaeton's business philosophy, demonstrating how Blockchain Technology can be incorporated with intangible products that affect people's lives. These Phaeton products include Off-grid Modular Data Centres, Smarter Housing, Urban Agriculture and more. Bond Finance may be a motivating factor for financing Phaeton's projects. However, as an inclusive enterprise, Phaeton plans to create a Smart Bond Exchange Platform where other enterprises can promote Bonds. This White Paper evaluates the current Bond Market sector and how blockchain technology can improve the structure making it more efficient, transparent and open to more enterprises and investors in a decentralised ecosystem. While apps and platforms are being developed for DeFi automation, there is no unifying Exchange Platform for the digital bond market. Phaeton aims to unify technical and business logic frameworks for blockchain-based bonds. Our goal is to make it open source and democratise the fixed income market, making it more accessible, transparent, and efficient with the use of our technology. We aim to develop a Phaeton Smart Bond Platform, which will be natively built on one of the Phaeton Sidechains to serve bond issuers and investors. Primarily, the scope of the Phaeton Bond Exchange platform is a marketplace where new blockchain bonds can be issued and traded conveniently and fluidly. It will provide access to both primary and secondary markets with bonds issued at an affordable level, allowing Millennials to enter the market. In addition, the platform will focus primarily on Green Bonds as it ties into Phaeton's policy of creating a positive social impact and its drive toward creating an ecologically sustainable planet for future generations.

DECENTRALISED FINANCE (DEFI)



Decentralised finance (DeFi) is a structure by which financial products become available on a public decentralised blockchain network, making them available to anyone to use, rather than going through middlemen like banks or brokerages. It is a system by which software written on blockchains makes it possible for traders, lenders, and borrowers to interact peer to peer or with a strictly based smart contract rather than an institution facilitating a transaction. These smart contracts automate agreement terms between buyers and sellers or lenders and borrowers, making these financial products possible.

How does DeFi work?

Technology in financial services is not new to banks and financial services companies. However, the technology is restricted to being a facilitator of transactions in a centralised manner. In comparison, blockchain with a stack of standard software protocols places DeFi at the finance industry's front and centre of transactions.

Decentralised finance uses technology to disintermediate centralised models and enable the provisioning of financial services anywhere for anyone regardless of ethnicity, age, or culture. DeFi services and applications are mostly built on a public blockchain. They replicate existing offerings based on common technology standards or offer innovative services custom-designed for the DeFi ecosystem.

What are the components of DeFi?

All components of a DeFi system are aligned to a software stack. The element of each layer is supposed to perform a specific task in the DeFi system. These related components can be integrated to create a DeFi app. Below are the four layers that make up the DeFi stack:

1. Settlement Layer:

The settlement layer is called Layer 0 as it is the base layer upon which DeFi transactions are built. It consists of a public blockchain and its native digital currency. Transactions occurring on DeFi apps are settled using this currency, which may or may not be traded in public markets.

2. Protocol Layer:

Software protocols are rules and standards to govern specific tasks or activities. Like real-world institutions, this would be a set of rules and principles that participants in a particular industry have agreed to follow as a requirement to operate in the industry. DeFi protocols are interoperable, meaning multiple entities can use them simultaneously to build an app. The protocol layer offers liquidity to the DeFi ecosystem.

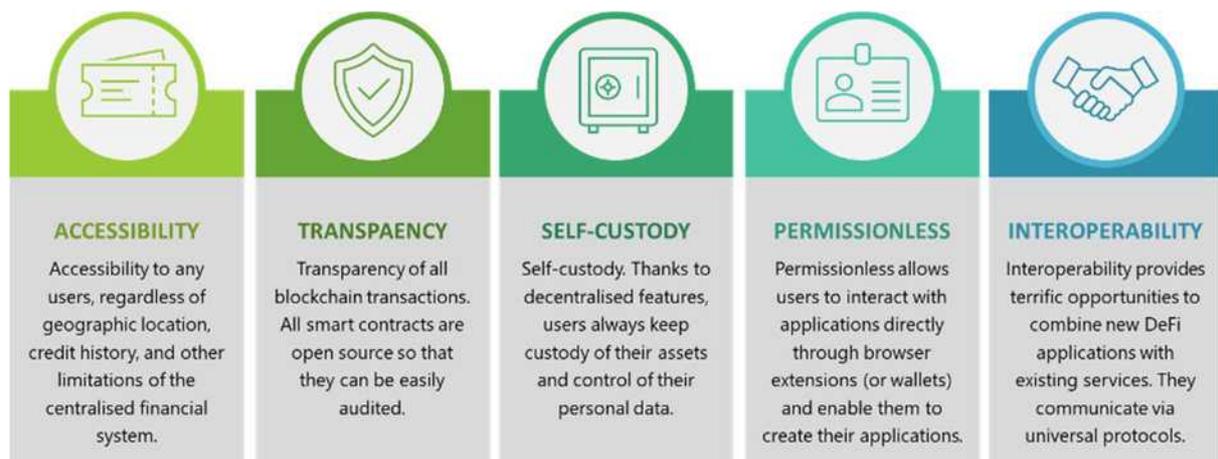
3. Application Layer:

The application layer is where consumer applications dwell. These applications abstract underlying protocols into a simple consumer-focused service. Most common applications involving cryptocurrencies, such as decentralised cryptocurrency exchanges and lending services, participate in this layer.

4. Aggregation Layer:

An aggregation layer consists of aggregators connecting various applications from the previous layer. For example, they can enable the seamless transfer of money between several financial instruments. Typically, trading actions would involve considerable paperwork and coordination. However, a technology-based framework will smoothen the process, allowing traders to switch between different services quickly. Lending and borrowing is an example of a service that exists on the aggregation layer.

Key advantages of a DeFi:



THE BOND MARKET



Since the introduction of blockchain, there has been a significant number of DeFi platforms. These platforms can range from traditional bank transactions, lending and borrowing to payment solutions. With so many Defi platforms in the marketplace, Phaeton has decided to focus and concentrate on a specific sector: the Bond market, as it runs parallel to Phaeton's current blockchain projects.

The Bond Market

The bond market is often called the debt market, fixed-income market, or credit market. It is the collective name given to all trades and issues of debt securities. Governments typically issue bonds to raise capital to pay down debts or fund infrastructural improvements. Listed companies issue bonds when they need to finance projects, business expansion projects or maintain ongoing operations.

The bond market is segmented into two different markets: the primary and the secondary markets. The primary market is the "new issues" market in which transactions strictly occur directly between the issuers and the bond buyers. Whereas in the secondary market, securities that have already been sold in the primary market are then bought and sold at later dates.

The primary functions of Bonds

Bonds represent the financing for long-term projects and innovations. For example, companies issue bonds to pay for acquisitions and large purchases instead of accruing debt from a conventional source. In addition, governments often fund costly infrastructure projects with bond investments. As a result,

the bond market plays a significant role in ensuring financial stability for both investors and Issuers. When the stock market hits a correction, the bond market is a more stable fallback for generating wealth.

Key Bond Terms

The bond market does not have as much language and jargon as other markets, but investors should know many vital terms. Here are some of the most prevalent terms governing bond investments:

Coupon: The annual percentage paid against the Bond in a given year.

Maturity: The date when the Bond will be repaid to the investor.

Premium: A corporate bond trading above the issued price of \$1,000.

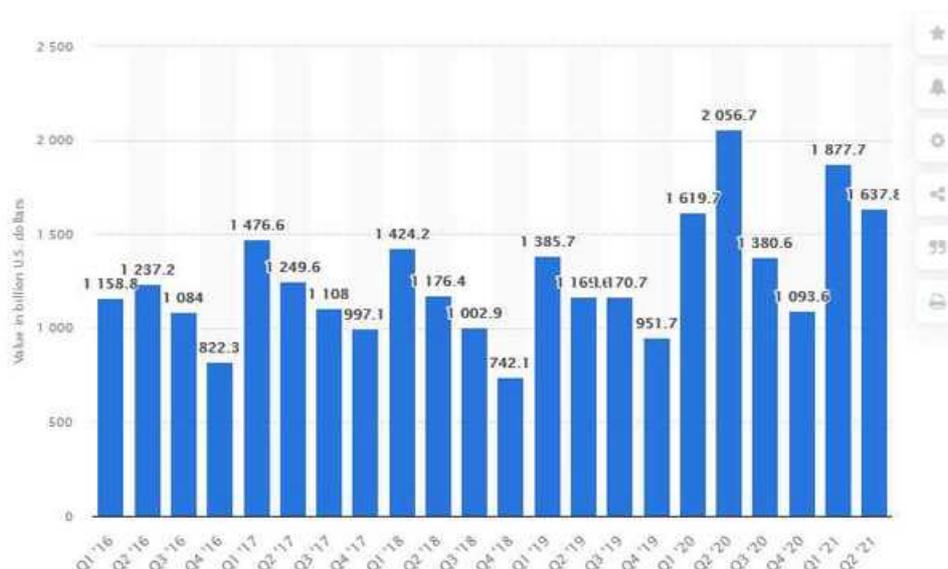
Price: The cost to purchase the Bond, which can vary based on the term.

Yield: The total profit the Bond generates after its maturity date.

These terms become more plentiful and complex as you dive deeper into the world of bond trading. However, for most bond investors, the above terms are the most important to know.

Value of the international Bond market

In the second quarter of 2021, the value of the international Bond Market transactions amounted to approximately 1.64 trillion U.S. dollars. The debt market is the part of the capital market on which interest securities are traded. These securities include, for example, government, municipal, corporate or mortgage bonds.



TYPES OF BONDS



The general bond market has a wide range of market bonds. These bonds can be segmented into the following bond classifications, each having its own set of attributes. Below are the more common bonds in the Bond market.



Corporate Bonds

Companies can issue corporate bonds to raise money for several reasons. It may include financing current operations, expanding product lines, or opening up a new facility. Corporate bonds are long-term debt instruments that provide a maturity period of at least one year. These bonds can be classed as either Investment Bonds or Junk Bonds. Investment Bonds are based on the credit rating assigned to the Bond by a rating agency to identify a bond's credit quality. In contrast, Junk bonds, also called high-yield bonds, carry a higher risk of default but offer higher yields to offset any risk of default.



Government Bonds

The Central Government of a country raises funds by issuing Government Bonds or Sovereign Bonds. These Bonds pay out the face value of the bond certificate on the agreed maturity date while still giving periodic interest payments along the way. Most Government Bonds offer a fixed interest rate and a maturity between one and ten years. Therefore, these bonds are considered to be low-risk investments. Examples of Government bonds include Treasury Bills, Municipal Bonds, Zero-coupon Bonds, etc.



Municipal Bonds

Municipal bonds are locally issued by local government (councils), states and districts. They can also include public utilities, public schools, publicly owned airports and seaports, and other government-owned entities that seek to raise cash to fund various projects. Municipal bonds are commonly tax-free at the federal level. In addition, they can be tax-exempt at state or local tax levels, making them attractive to qualified tax-conscious investors. Some municipal bonds are general obligation bonds, revenue bonds, anticipation notes, insured municipal bonds and others.



Mortgage-backed bonds

Mortgage-backed Bonds consist of pooled mortgages on real estate properties that are collateralised. Banks or Financial Institutions issue these types of bonds. Investors who buy mortgage-backed security bonds are essentially lending money to homebuyers through their lenders. These bonds attract monthly, quarterly, or semi-annual interest payments. Mortgage bonds tend to be safer than corporate bonds and, therefore, typically have a lower rate of return.



Emerging Market Bonds

These bonds are issued by governments and companies located in emerging market economies. They provide more significant growth opportunities with higher interest but carry greater risks. The risks of investing in emerging market bonds are riskier. The greater risk is sovereign risk emanating from developing nations' potential political and economic volatility. Emerging markets also pose other cross-border risks, including exchange rate fluctuations and currency devaluations.



Other types of Bonds

While the above represents the five more common bonds, there are various other bonds, including convertible, non-conventional, zero-coupon, deferred coupon, floating-rate, participatory, and perpetual bonds, exchangeable bonds, callable bonds, puttable bonds and more. It seems that a bond can be created where an entity with an enterprise can offer a specific rate of interest for a definite period and repaid on maturity. Unlike loans, a bond is usually tradeable and can change many hands before it matures.

As can be seen, there are such a variety of bonds. There is an estimate of 21 different types of bonds issued to the bond market. With the ever-changing economy, there will undoubtedly be additional Bonds open to the market. The following section will look at the trends in new bonds.

TRENDS IN BONDS



The past five years have seen increased investor interest in ESG (environmental, social and governance) investments. One model which has gained significant attention has been the growth of green bonds. While many investors are now familiar with these bonds, they are not the only way to gain exposure to ESG-labelled bonds. Lately, corporate issuers have sought innovative ways to access the increasing ESG-conscious capital market with new models such as transition bonds and sustainability-linked bonds. The arrival of COVID-19 has also created a need for governments and enterprises to mitigate social risks. As a result, it has led to the rapid rise of social bonds in 2020. Below we explore the various forms of ESG bonds which taking up the bond market share.



Green bonds

Green bonds are the most established in the ESG bond market. The funds derived from these bonds are used to finance environmentally-friendly projects such as renewable energy, including solar and wind farms, hydrogen energy or electric vehicle charging stations.



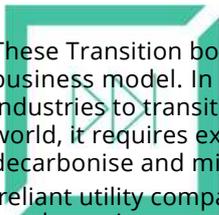
Social bonds.

Proceeds of social bonds go to projects that create positive social outcomes. These outcomes can include providing access to education, affordable housing or improving food security. According to the ICMA (International Capital Market Association) principles, these social projects can consist of COVID-19-related healthcare and medical research, vaccine development and medical equipment investment.



Sustainability bonds.

Sustainability bonds can be used to finance a combination of green and social projects. These bonds are used for environmental projects, such as making data centres more energy-efficient, mitigating carbon emissions linked to transportation or maximising the reuse of finite resources across operations, products and supply chains.



Transition bonds

These Transition bonds are securities issued to assist a shift towards a greener business model. In essence, they are an instrument that allows so-called brown industries to transition towards a future greener model. In achieving a low-carbon world, it requires existing businesses, and in particular brown industries, to decarbonise and mitigate climate change. While it would be difficult for a coal-reliant utility company to issue a green bond, a transition bond can help to accelerate investments towards a low carbon emission future.

Blue bonds

A blue bond is a subset of a green bond. These bonds are explicitly used to finance projects related to ocean and water conservation. It includes managing water pollution and plastic waste but also promoting marine biodiversity by ensuring sustainable, clean and ecologically friendly developments. Similarly, blue bonds follow the associated ICMA principles and are probably the most niche of the ESG bonds.

Sustainability-linked bonds

Sustainability-linked bonds work differently from green bonds. There is no restriction on the use of the proceeds. What matters is that the company issuing the bonds must meet specific predefined sustainability targets, which can be related to environmental or social impacts. It moves away from particular activities and focuses on the sustainability performance of an issuer. These sustainability-linked bonds are tied to some sustainability performance indicators which, if not met, could result in a coupon step-up.

It is important to note that most ESG bonds are characterised by issuers targeting ESG-friendly projects. The Issuer does not necessarily need to have high ESG credentials. However, it is becoming increasingly difficult for bond Issuers to access the market with ESG-labelled bonds when their corporate strategy is misaligned with these objectives. An Issuer with ESG policies who are promoting ESG related investments or projects will have more credibility in the market.

THE PROS AND CONS OF BONDS



A bond's market price, apart from its face value, is affected by current interest rates. It is because bond prices have an inverse relationship with interest rates. As interest rates increase, prices fall as investors have more opportunities to invest in higher-yielding products. On the other hand, bond prices increase as interest rates fall as the Bond's coupon rate becomes more attractive than interest rates offered elsewhere.

PROS



One of the significant advantages of bonds includes fixed returns and regular interests. Some of the more common benefits of purchasing bonds are listed below.

Investment returns are fixed. Fixed investment in Bonds yields regular interest at timely intervals. Besides, once a bond matures, investors receive the original principal amount invested. The best advantage of investing in Bonds is that investors know exactly how much return on investment can be expected.

Less risky compared to stocks. Although Bonds and shares are both securities, the distinct difference is that bonds mature in a specific period, while shares remain outstanding indefinitely. Also, bondholders are paid first over shareholders in the case of liquidity.

Less volatile. Investing in the bond market is safer than the share market, which carries inherent risks. Although a bond's value can fluctuate according to current interest rates or inflation rates, bonds are generally more stable compared when compared to shares.

Bonds have explicit ratings. Unlike shares, bonds are universally rated by credit rating agencies like

Standard & Poor's or Moody's. As a result, it provides investors with a degree of assurance when selecting a bond. However, caution should still prevail by conducting due diligence before investing.

Investor protection: Bondholders are also secured against failures. Legal protection is something investors can benefit from by investing in bonds. In addition, if a company goes into liquidation, bondholders will often receive some money back in a recovery amount.

CONS

As with any investment, there will also be disadvantages when it comes to investing in bonds. For example, bankruptcy is among the commonly talked of disadvantages of bonds. Listed here are some other cons.

Investment returns are fixed. While this offers a degree of safety for investors, it can also be a disadvantage as investing in equity may be better potential gains

A more considerable sum of investment is needed. While some bonds can be purchased for relatively low sums (\$1,000), some bonds may require more significant amounts, putting them out of reach for some investors.

Less liquid compared to stocks. For example, most major corporations may have high liquidity. Still, bonds issued by a smaller or less financially stable company may be less liquid as fewer investors are willing to buy them.

Direct exposure to interest rate risk. Interest rates affect the value of bonds more directly compared to shares. If you plan on just receiving interest payments and holding the Bond to maturity, this might not concern you. But otherwise, bondholders are more exposed to interest rate risk.

Bankruptcy. Bondholders may lose some or all their investment should a company goes bankrupt. In some countries, bondholders are given protection in case of insolvency. It means investors are expected to receive some or all of the invested money. But in many countries, there is no protection for investors.

Other Risks Involved. Besides interest rate risk, their market prices will decrease in value when the generally prevailing interest rates rise. In addition, many other risks are involved with bonds, namely, credit risk, inflation risk, liquidity risk, and call risk.

Bonds are a practical option for those who are seeking a steady and dependable source of income. Investing in bonds is what most elderly investors do in their retirement. Selecting bonds carefully, purchasing them at the right time, and knowing the Pros and Cons of Bonds can be excellent assistance for investors.

BLOCKCHAIN AND THE BOND MARKET



Blockchain is disrupting the entire finance and investment sector, and the bond market is no different. Applications of distributed ledgers, artificial intelligence and big data analytics can potentially change the bonds market, from issuance, trading to settlement, and impact traditional financial markets. This technology has caught the eye of financial institutions and investors, and governments across the globe. These parties are interested in blockchain's decentralisation, immutability, and transparency. Compared to traditional practices of bond record keeping, the blockchain-driven solution offers many advantages, incorporating the Distributed Ledger Technology (DLT). Shared records ensure market data consistency, reduce complexity and opacity, and secure sensitive information that cannot be altered.

Why a Blockchain Bond Market?

The bond market presents one of the most significant opportunities for modernisation, particularly the opportunity to transition to open decentralised blockchain networks. In comparison to the equities market, the corporate bond market is highly fragmented, illiquid and opaque. Only 26% of the \$41 trillion U.S. corporate bonds are traded electronically.

Lack of standardisation and the use of appropriate modern technology in the primary markets leads subsequently to information asymmetry, inefficient pricing, expensive transactional costs, lengthy settlement times, and intensive administrative work in the secondary markets. In addition, the high cost of issuance prevents corporates from acquiring cost-efficient capital.

Many parties make up today's bond market, including Issuers, Underwriters, Transfer Agents,

Payment

Agents, Registration Agents, Broker-Dealers/ Investment Banks, Auditors, Rating Agencies etc. This bloated chain of intermediaries that add high cost to a bond issue is no longer required under a Blockchain Protocol.

By implementing the blockchain, the bond lifecycle can be significantly streamlined, eliminating many of the steps in a traditional issuance, reducing the number of intermediaries required and making required interactions with intermediaries more efficient. In addition, blockchain outlines opportunities

to

improve the liquidity of both the primary and secondary bond markets. Cost savings could be significant. The potential reduction in underwriting costs and settlement and counterparty risk could be an essential funding advantage for issuers using the blockchain under this proposed protocol.

Compared to the traditional bond market, here are several reasons why blockchain technology can improve the Bond Marketplace.

Blockchain bonds are more efficient.

The typical blockchain bond issuing process is simpler and looks like this:

- o Issuance: Issuer creates a bond
 - o Offering: The public has the opportunity to buy the Bond
- o Trading: These bonds are bought and sold on the "secondary market." Especially where bonds move into this secondary market, it's far simpler just to let investors buy and sell their blockchain-based "bond tokens" directly (like we buy and sell bitcoin and other digital assets).

Blockchain bonds are more transparent.

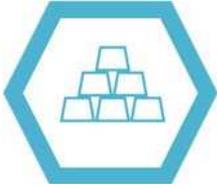
All the information about the Bond is stored on the blockchain, bringing transparency to an otherwise dark and closed system. It also improves bond ratings, which have been criticised for having a closed system, or (at worst) a "pay to play" system where issuers can use rating agencies to buy better ratings. With blockchain bonds, investors can see the information themselves (though they may still need experts to help them make sense of it).

Blockchain bonds are more trusted.

Given the unique advantage of blockchain in transparency and immutability, blockchain bonds offer a higher level of trust. With its distributed ledger technology (DLT), data is available to all parties and is duplicated across a network of computers. New transactions are encrypted, where the parties agree to legitimate transactions. It creates a permanent, chronological record of every transaction and makes it difficult to hack the system or tamper with the information.

Blockchain Bonds cuts out the middlemen.

Blockchain establishes a synergy between stakeholders, eliminating middlemen, such as lawyers, accountants, notaries, government institutions. A smart contract includes all the necessary information where businesses streamline their processes by making the complex trading procedure less time-consuming, cost-efficient, and risk-free. There are several reasons governments are looking at using blockchain bonds over traditional bonds.



Blockchain Bonds can be tokenised.

Traditional bond issuance is a long process involving multiple intermediaries, high costs, and human error risk. Bond tokenisation aims to lower the various costs associated with bond issuance. The concept of bond tokenisation has risen in popularity over the last few years. Today, transactions have to undergo a three- step clearing and settlement process. The cycle involves complex processes and requires the convergence of the parties involved across the global trading system. Blockchain can transform this process and make it automated and smooth.



Bond size and liquidity

The high price for traditional bonds generally excludes smaller investors who may be partly responsible for the lack of liquidity. However, through tokenisation, these bonds can be fractionalised into smaller increments and as low as \$100,00, allowing smaller investors to participate and increase transaction activity on the secondary market.



Lower Issuing Cost

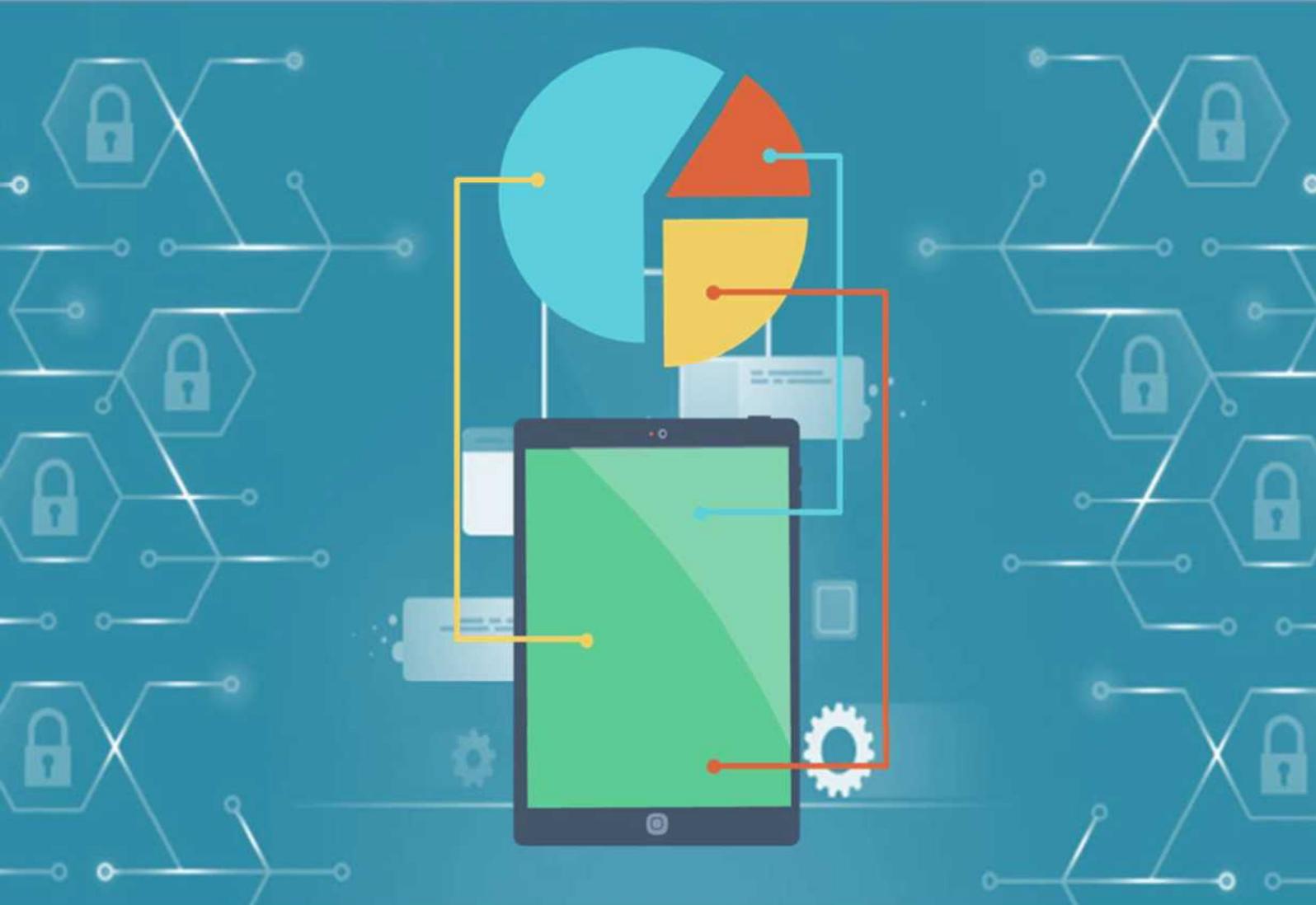
Efficiency improvement comes as an essential aspect of cost reduction. Blockchain can help reduce the number of actors involved in the bond process. Not only does it facilitate immediate distribution, but it can also reduce reconciliation activities (e.g., cryptographic signatures remove the need for anti-fraud or error checks) and improved settlements (e.g., from 2-3 days settlement period to instant).

Process	Traditional Process	Blockchain Process
Structuring, price setting, risk taking	\$1,000,000	\$20,000
Legal review	\$100,000	\$40,000
Investor whitelisting and matchmaking	\$500,000	n/a
Internal review and classification	\$50,000	\$20,000
Third party validation and benchmarking	\$50,000	\$5,000
Registration and listing	\$15,000	n/a
Brokerage and sales	\$1,500,000	\$40,000
Payment and settlement	\$84,000	0
Custodianship	\$350,000	\$2,000
Data gathering (full cycle)	\$1,200,000	\$250,000
Data aggregation (full cycle)	\$400,000	\$115,000
Reporting (full cycle)	\$1,200,000	\$100,000
TOTAL	\$6,449,000	\$692,000

Source: [Blockchain: Gateway for sustainability-linked bonds](#), HSBC and Sustainable Digital Finance Alliance 2019

Blockchain is capable of revolutionising the financial industry as it opens new opportunities for investing in blockchain-based developments. The technology enables financial organisations to achieve a high speed of settlements, enhance peer-to-peer transactions, reduce counterparty risks, increase the overall transparency of operations, and mitigate human error. Traditional finance institutions readily support research centres and innovative in-house labs to embrace and develop the blockchain platform.

PHAETON ESG BOND EXCHANGE



While apps and platforms are being developed for DeFi automation, there is no unifying Exchange Platform for the digital bond market. Phaeton aims to unify technical and business logic frameworks for blockchain-based bonds focused on ESG. Our goal is to make it open source and democratise the fixed income market, making it more accessible, transparent, and efficient with the use of our technology. We aim to develop a Phaeton Smart Bond Platform, which will be natively built on one of the Phaeton Sidechains to serve bond issuers and investors.

Primarily, the scope of the Phaeton Bond Exchange platform is a marketplace where new blockchain bonds can be issued and traded conveniently and fluidly. It will provide access to both primary and secondary markets with bonds issued at an affordable level, allowing Millennials to enter the market. The platform will focus primarily on Green Bonds. It ties into Phaeton's policy of creating a positive social impact and drive toward creating an ecologically sustainable planet for future generations.

Key Objectives

- Design the solution of a Blockchain ESG Bond Exchange Platform
- The web interfaces will be built using responsive User Interface (U.I.), and the platform will be accessible across different devices like desktop, mobile and tablets. The platform will be tested across other popular and latest browsers and resolutions. Intuitive menu-based navigation will be designed for easy navigation.
- Act as a bridge between the database and User Interface for seamlessly capturing requisite data
- Manage Blockchain-based Digital Format Bonds
- Generate regular reports for improvement
- Updating & generating correctness of the given data

Phaeton protocol is built with the following values in mind:

Comply with regulatory and legal framework throughout the bond lifecycle, including primary and secondary market transactions

Automation and disintermediation of administrative processes

Decentralised collaboration among stakeholders

Transparency and Privacy

Core flexibility — the protocol needs to adapt to changing market structure.

Protocol of Phaeton Bond Exchange Platform

The protocol is built for and operates on the Phaeton Blockchain, though it considers interoperability with other public and permissioned blockchain networks. This document has four main parts:

Phaeton Blockchain

Phaeton has created its own native blockchain. It has a decentralised ledger system with a 250KB block size (potential of one million transactions) and five-second creation time. Phaeton Blockchain is based upon the Delegated Proof of Stake plus Delegated Byzantine Fault Tolerance (DPoS+dBFT) consensus algorithm, improving energy efficiency. Phaeton remains an independent blockchain that focuses on providing a platform for enterprises to use, whether for monetary, transaction, data or smart contracts. The ability for individuals to host a node is critical to increasing the speed, scalability and security of the blockchain.

Phaeton Sidechains

The Phaeton Blockchain platform is built on the consensus of a dPoS model (delegate proof of stake), unlike the norm of PoW (proof of work) models used by Ethereum and others. Phaeton's Sidechain model is designed to allow projects or subsidiaries to create a sidechain on the Phaeton Blockchain. A Sidechain is a type of blockchain that exists alongside its parent chain (Phaeton Blockchain). Thus, the Sidechain can be defined as the "child chain."

Phaeton Coin - PHAE

The Phaeton Coin (PHAE) transaction model is like the Ethereum ETH Coin, which is applied when any ERC-20 tokens are used within its ecosystem. In addition, Phaeton Coins are also used for staking and reward each delegate hosting a Phaeton Blockchain node. Phaeton has pre-mined 500 million coins with approximately 250 million Phaeton Coins in circulation and around 250 million Phaeton Coins in reserve. PHAE can be utilised as a currency to purchase and trade bonds on the Phaeton Bond Exchange Platform.

Phaeton Identity

Phaeton Identity provides a trusted digital network where identity transactions are designed and executed with guaranteed levels of privacy and confidentiality using the Phaeton Blockchain. A trusted identity layer protocol enables any organisation to use Phaeton distributed identity network between businesses or consumers. Phaeton Identity can create a distributed governance system around KYC, delivering paramount confidentiality and privacy. Phaeton Identity provides a platform for personal users and organisations to carry out transactions through the digital medium safely and verifiable using Phaeton Blockchain, supporting various scenarios deployed in today's modern digital economies.

Bond Stakeholders

The Blockchain Stakeholder with a Phaeton Bond Exchange Platform includes the following:
Issuers – Companies, Governments and other entities wanting to raise capital through the Bond market.

Investors – Investors can range from institutions to small everyday investors (Moms and Dads and Millennials)

Custodian – The Custodian will hold and control the issuance of the bonds

Rating Agency – Although covered by Smart Contracts, a Rating Agency will be necessary to build trust early in the platform's roll-out.

Phaeton Bond Exchange Platform

The Phaeton Bond Exchange Platform is a facilitator where third parties can market and raise capital for their projects in a regulated and formal process.

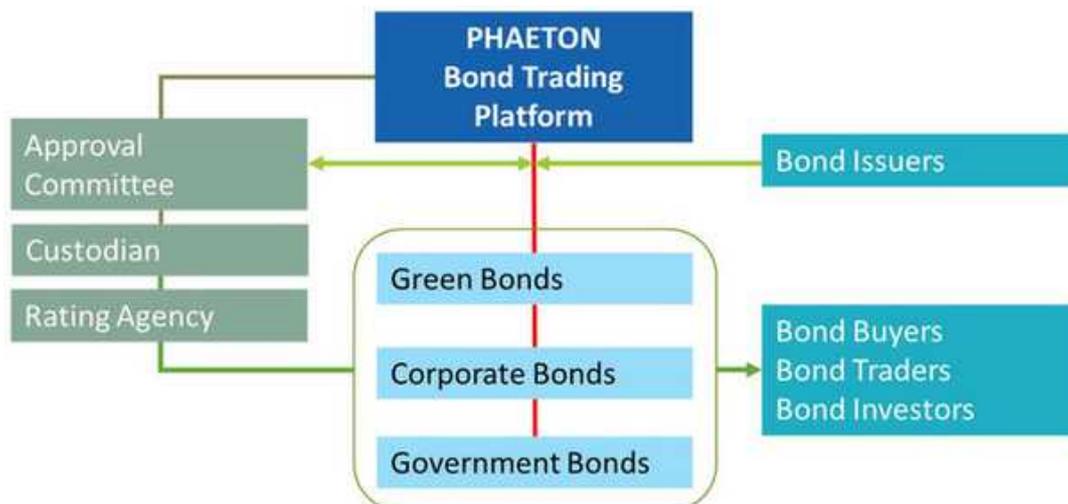
The first step is for issuers to submit their proposed project, outlining details of their project together with a feasibility or financial study. A small fee will be charged.

Phaeton's Bond Approval Committee will then review their project before placing it on the Exchange Platform.

A formal agreement or contract will be signed between Phaeton and Issuer outlining the terms and conditions before the launch of their Bonds.

Phaeton offers Custodial service, where all funds raised, whether through cryptocurrency or Fiat, will be held. The Custodian will issue the Bonds and transfer the funds to the Issuer. Transaction fees will apply for this process.

A Rating Agency service will be offered to issuers. It is voluntary but recommended especially for new issuers who do not have a track record.



Regulations and compliance

As the Exchange Platform will be initially rolled out in Australia, the platform must comply with all financial regulations imposed by the Australian Securities and Investment Commission. To meet these requirements, Phaeton is currently establishing an Australian Retail Financial License to target retail investors and traders.

PHAETON BONDS



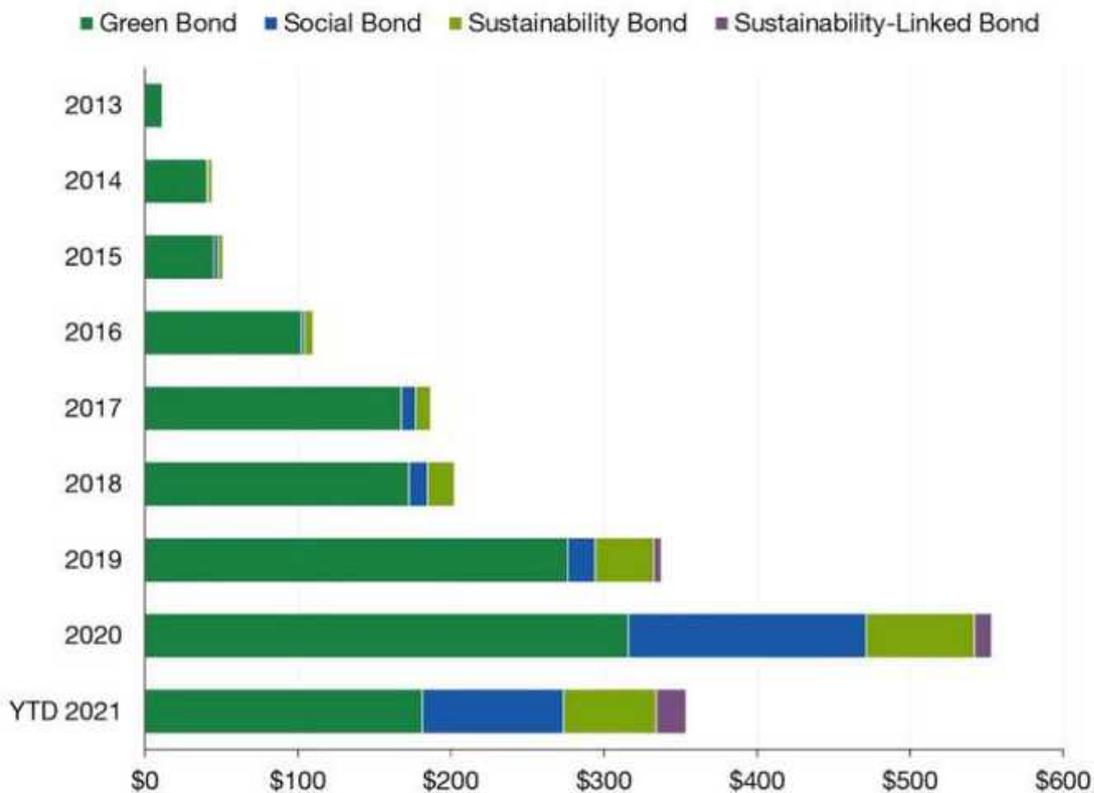
Although the Exchange Platform will be open to entities looking at issuing bonds for their projects, Phaeton will also specifically issue bonds for their projects. In line with Phaeton's philosophy of social impact and sustainable, tangible assets, the Phaeton Bonds will predominantly be ESG-labelled bonds described earlier under Bond Trends. Although the platform will focus on Bonds promoting ESG, it will be open to other issuers interested in launching Corporate and Government Bonds.

Why ESG-labelled bonds?

The issuance of ESG-labelled bonds explicitly tied to environmental, social, and governance investment criteria is a rapidly growing market. It is due to investor demand, issuer interest, regulatory evolution and the rise of governments adopting a net-zero carbon emission target by 2050,

A recent report by Morgan Stanley established that there is approximately US\$1.6 trillion in ESG-labelled bonds globally, with US\$353 billion issued through April 2021 alone (see Figure below). A small but increasingly relevant segment of the ESG-labelled bonds market is sustainability-linked bonds (SLBs). SLBs issuance totalled US\$19.7 billion year-to-date through the end of April, already surpassing the US\$11.3 billion issued in calendar 2020.

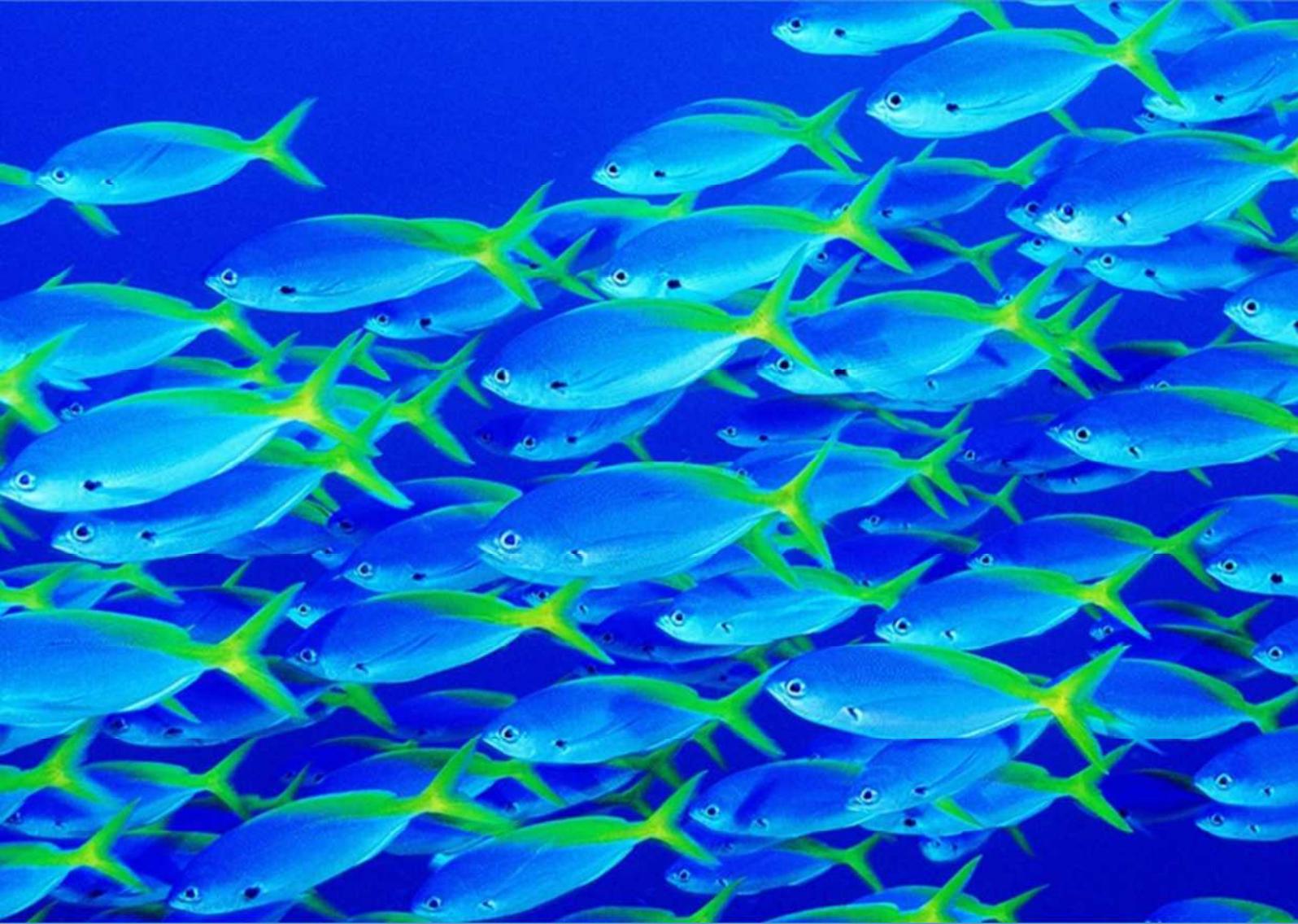
Figure 1. ESG-Labeled Debt Issuance (US\$ billion)



Source: Bloomberg. Data as of 5/14/2021. The historical data shown in the chart above is for illustrative purposes only and do not represent any specific portfolio managed by Lord Abbett or any particular investment.

ESG-conscious investing is now well embedded in the fixed income environment. While the rise of ESG-labelled bonds is a testament to this, the overwhelming supply and demand forces have created an environment that can be exploited by issuers looking to undermine the moral aims of climate-conscious investing. However, in the long term, as the market matures, it will reward issuers who present credible and ambitious green projects building credibility and trust amongst savvy investors.

PHAETON PROJECTS



Listed below are several Phaeton projects that fall under the ESG label. By issuing bonds for the projects, Phaeton creates debt and not an equity instrument that benefits Phaeton's shareholders.



Phaeton Network is a series of Modular Off-grid Data Centres aimed at reducing carbon emissions. These modular, scalable data centres are powered by three levels of renewable energy, namely solar, hydro, and geothermal. In addition, these Off-grid Modular Data (OMD) Centres are integrated with Blockchain Technology. Datacentres are a trillion-dollar industry, and Phaeton is the first to deliver an Off-Grid Modular concept. The capital requirement for its Stage 1 roll - out would be in the order of \$100million plus.



With climate change and Governments around the globe aiming for zero-carbon emissions by 2050, the demand for renewable energy will grow significantly over the next ten years. Phaeton has built a team of renewable energy engineers looking at projects such as solar farms, hydrogen-energy plants, biomass-energy plants and wind farms. In addition, Phaeton will be looking at raising capital through Sustainable Bonds as each of these projects are rolled out.



Phaeton Real Estate Tangible Non-Fungible Tokens (TNFTs) Marketplace is a "Sidechain" of Phaeton Blockchain. It is a marketplace where real estate enthusiasts and investors can trade TNFTs. It is also a form of "crowdfunding" where sponsors and developers can mint tokens of the real estate projects and sell them on the marketplace.



Supply Chain Management (SCM) is the approach to managing the flow of resources, goods, information, and services through converting raw inputs into complete outputs for end consumers. The entire process holds seven crucial elements: information, source, planning, production, inventory, goods return, and Transportation. The components are used to build the fundamental structure of a supplier or manufacturer. The use of blockchain can provide a number of benefits.



Phaeton Blockchain Identity offers a decentralised and secure solution that gives users total control through a distributed trust model. Our blockchain technology benefits several industries with transparency, security, and trust adding value to our clients. We have the ideal technology to transform the current workings of identity management in a highly secure manner.



Phaeton has been approached to investigate setting up a Carbon Credit Marketplace where Australian Carbon Credit Units (ACCUs) can be tokenised and traded. It is a joint venture arrangement between three parties: the founder, corporate advisor, and Phaeton. By tokenising Carbon Credit Units into TNFT, we can accelerate the trade of emission- reduction credits.



Compared to other Blockchain platforms that facilitate staking, Phaeton offers a sustainable alternative for staking and generating a passive income. The use of DPoS makes Phaeton an energy efficient Blockchain as well as an infinitely scalable platform. Furthermore, the Phaeton Blockchain is structured to support a sidechain architecture. Sidechains can be used to create separate small Blockchains that is connected to the main Blockchain. Therefore, the transactions or activity on the Blockchain can be segregated among these sidechains, allowing the network to be free from congestion.

REVENUE STREAMS



As stated earlier, the Bond market is a trillion-dollar industry with significant revenue streams for establishing an online Bond Exchange Platform. Besides transaction fees, there are multiple service fees charged to issuers of bonds. The following is a range of potential fees and the ongoing expenses of operating an Exchange Platform.



REVENUE STREAMS

Application Submission Fee

Each Issuer will be required to submit their proposal to be reviewed by a Bond Approval Committee. A fee may be charged if the documentation is not compliant and the sponsor requires assistance. The fee charged will be dependent upon size of funds to be raised.

Initial set-up fees

Should the Issuer's application be approved, an initial set-up fee will be imposed on the Issuer planning to list their proposal on Phaeton's Bond Exchange. These fees include (a) creating the digital

Bond, (b) smart contracts, (c) listing fee, and (d) any gas charges. This fee will be variable and dependent on the proposal's scale but can be estimated at 0.5% of the funds to be raised.

Custodial services fees

Where an issuer requires a custodian to monitor and hold their bonds, a custodial service can be offered for a fee. The fee will vary according to the number and size of the Issuer's bonds. It is also monthly recurring if the service is required during the term of the Bond.

Rating fee

Where an issuer requires their digital Bond to be rated by a recognised rating agency, Phaeton will arrange and match an agency for a fee. It will be a one-off fee charged to the Issuer.

Transaction processing charges

Peer-to-peer transactions are executed while buying and selling any bonds on the platform. The investors can pay through the leading cryptocurrencies, stable tokens, and PHAE Coins. A transaction fee for each payment processed will be 2.5% of the sale price.



EXPENSES

Maintenance of the blockchain network

To handle millions of trades and transactions, the Phaeton Bond Exchange has to spend gas fees for computing energy consumption. The majority of this cost will be recouped by Issuers when setting up their digital bonds.

Auditing the smart contract

The self-executing program is the backbone of every blockchain network and functions based on predefined terms and conditions. Therefore, the Phaeton Bond Exchange has to regularly audit the smart contracts to keep them in good working order and prevent interruption of business operations due to technical bugs and vulnerabilities.

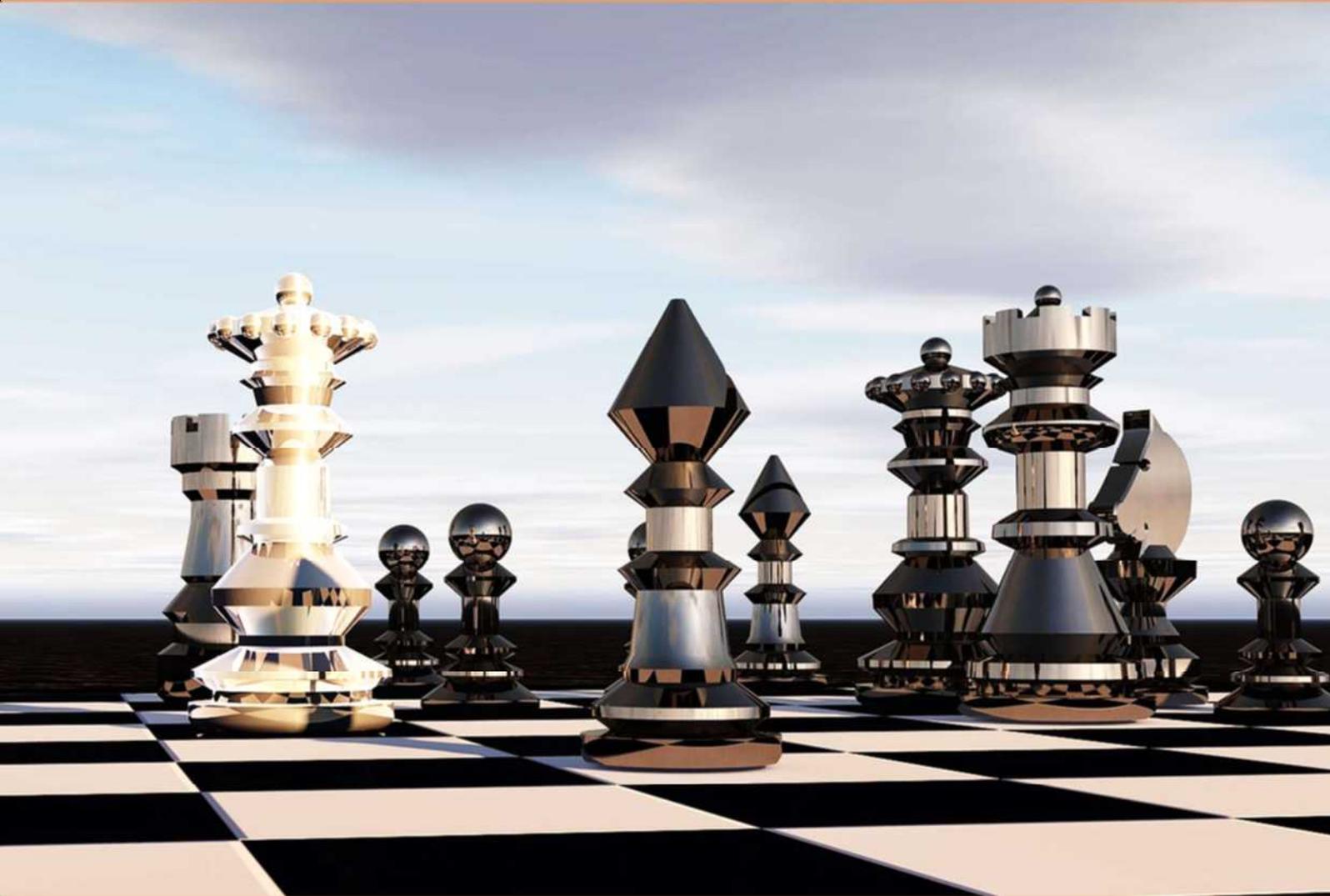
Safeguarding the unique Bond

Each Bond is distinct, and the Phaeton Bond Exchange have to comply with different laws related to copyrights, intellectual property, and trademarks issued by regulatory authorities. Legal expenses will help in eliminating issues like copyright infringement and counterfeiting.

Administration

Administering an exchange will require substantial skill, experience, and expertise to monitor the efficiency and performance of the Exchange. In addition, Phaeton will require significant capital to attract the best person for the business. This cost will have to be recouped from the issuers and ongoing transactions.

COMPETITIVE ANALYSIS



While there are significant competitor exchanges with the traditional bond market, there are very few players in the blockchain bond market. It, therefore, creates an important opportunity to create one of the early blockchain bond exchanges to capture a significant share of the market. Below are two exchanges that have started in the last few years.

BOND-I



In August 2018, the World Bank and CommBank (Australia) successfully launched bond-i (blockchain operated new debt instrument). It's the world's first Bond to be created, allocated, transferred, and managed through its life cycle using blockchain technology. In addition, the World Bank chose CommBank to work with on its first Australian dollar-denominated blockchain bond.

CommBank has been exploring potential applications of blockchain technology for three years. It's completed more than 20 blockchain pilots across various industries in collaboration with clients, FinTechs, banks and the Government. The launch of bond-i formed part of the World Bank's broader strategic focus to harness the potential of disruptive technologies across all of its operations, in order to accelerate progress towards the Sustainable Development Goals. The World Bank issues between US\$50-US\$60 billion annually in bonds for sustainable development as part of its mandate to reduce poverty and promote ongoing development.

The platform utilises blockchain technology for issuance, including launch, bookbuild, allocation and the management of bond holdings throughout the bond lifecycle. It features:

- Automated bond auction, bookbuild and allocation
- Electronic bid capture
- Real-time updates and enhanced visibility according to participant's permissions
- Auditable and immutable transaction record for probity and operational risk management
- Permissioned network of authorised participants

BANDBLOX



In August 2020, Singapore financial technology firm BondEvalue launched BondbloX Bond Exchange (BBX), which allows investors to trade bonds in smaller denominations of US\$1,000. The first trade was made on August 12, involving US\$8,000 of BondbloX representing underlying Olam 4.375% bond maturing in 2023 for 100.25%. The trade between a Singapore citizen and a buyer who is a Singapore permanent resident was executed through Taurus Wealth Advisors, the first member of BBX.

BondEvalue signed up one of Singapore's largest brokerages, UOB Kay Hian, as its initial launch partner, Northern Trust of the United States as designated Custodian, and multi-family office Taurus Wealth Advisors, one of the first members of the Exchange. More partners are in the pipeline and will come on board in the coming months. BondEvalue targets the so-called HENRYs or "high-earners not rich yet". The Exchange says it will initially list 100 most liquid bonds out of the eight million or so bonds issued worldwide. BBX will charge a flat fee of S\$2 (US\$1.45) per trade, irrespective of size, and a platform fee of 20 basis points annually, while its partners can opt to charge a commission for each transaction.

The Exchange is built on permission blockchain by Hyperledger Sawtooth, an open-source enterprise system for creating and operating a digital ledger of transactions that can be duplicated and distributed across an entire network of computer systems on the blockchain. In addition, the blockchain network is secure while the records are immutable and time-stamped. BondEvalue attributes the quick launch of the Exchange to the Monetary Authority of Singapore's Sandbox Express, which provided the company with a faster option for testing its innovation.

MARKETING



Like any new business, a new Blockchain Bond Exchange platform requires significant time, energy and a clever marketing and branding strategy. The critical challenge is to convince the market to change from the traditional Exchange to a new transparent, immutable, and trustworthy format. The marketing strategy would be.



Focus on our Target Audience.

The power of a new brand relies on the ability to focus. That is why defining a target market will help to strengthen your brand's effectiveness. For example, in setting up Phaeton Bond Exchange, there are two target markets, namely (a) Issuers and (b) Investors.

Issuers

The first step in promoting the platform to bond issuers is to sell them the benefit of tokenising their bonds.

Investors

Sophisticated and institutional investors dominate the traditional bond market.

However, tokenising bonds opens the field to a new generation of Millennial investors. Therefore, education on the benefits of Bond investing will be paramount.



Build a community.

For most blockchain projects, building a community is vital. A Phaeton Bond Exchange is no exception. Our primary community is the people who will support us, spread the word about us, invest and use our Exchange. Therefore, we need to create an interest in our Exchange utilising various community platforms. It is beneficial not only for promotion but also for getting adequate feedback from the community. Community platforms include Reddit, Telegram, Twitter, and more. Often, such a strategy, in addition to a fresh look, can also bring new participants to the community.



Social Media Marketing

It is also essential to work on our social networks. It would be ideal for conducting them in such a style that some posts become viral. The Exchange is not only about people who are well versed in blockchain but also for a general audience. It would be good to introduce explanatory posts and explain the benefits of investing in bonds. Social media platforms include Facebook, Twitter, Medium, Reddit and LinkedIn.



Influencers

Marketing with thought leaders and influencers is essential, but it does not always bring instant results. Often, the audience of any influencer needs to hear about our Exchange somewhere else before becoming part of our community. Sometimes the influencer may not bring a significant number of new audiences, but they create awareness of our Exchange, endorse our platform. Therefore, we must find the best option between the influencer's price and the number of views/comments under their video or blog.



Public Relations

Of course, the more media writes about Phaeton Bond Exchange, the better. Therefore, we should get into different publications and outlets, from full articles about our Exchange to mention interviews and quotes. In addition to blockchain media, we should also work with the general press, depending on the project's specifics. Instead, it is a necessary measure to maintain the reputation and only then to attract a new additional community.

While Phaeton Bond Exchange will endeavour to market its platform, bond issuers must also play their part. Therefore, a marketing program will be provided to Issuers to guide them and selling their bonds.



Phaeton
ESG Bond Exchange

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