Nodex®

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Context

The trend of decentralisation represents a wave of innovation that is reshaping society. It is an evolution; a paradigm shift that reflects a change in our collective consciousness. Although individuals and organisations worldwide are beginning to understand blockchain and the associated benefits, blockchain is by no means ever-present in our daily lives. Businesses are struggling to implement blockchain into their operations. Like any new technology, blockchain must endure growing pains along the path to widespread adoption. The present lack of usability and trust correlate with the relative immaturity of this emergent technology.

Blockchain has demonstrated its ability to streamline operations and significantly boost efficiency across each segment of B2B operations. Fortune 5000 Enterprise CTOs are looking to recommend blockchain solutions to CEOs without being bogged down by CSOs. But as an emerging technology, blockchain still hasn't fully matured, creating several obstacles and challenges that must be addressed in order to facilitate seamless implementation.

Modex innovates in order to solve the last mile adoption problem of the blockchain thanks to our highly skilled core team of >70 members with +100 years of cumulative experience at reputable global companies in banking software, IT security & infrastructure, database engines. With a lean management & dynamic structuring through a "team of teams" approach that enables velocity in tackling challenges & high scalability for internal teams, Modex offers services for the entire blockchain technology ecosystem: Blockchain Database Solutions for the Enterprise, a Marketplace for Smart Contracts, Community Tools for Developers, and a Blockchain Academy - for those who want to gain an understanding of blockchain and how it works.



Abstract

Modex Blockchain Database (BCDB) is a software product that enables businesses to bring the benefits of blockchain into their systems. Our novel solution with a massive market potential addresses the biggest challenges companies face in deploying blockchain solutions - the cost and time of implementation.

With our product, customers can access all the advantages of blockchain, without needing to concern themselves with its technical intricacies. With an agnostic approach to databases and blockchain engines, Modex BCDB is the ideal platform for B2B collaboration.

We started with a simple question: what if using blockchain was as easy as using an API? The result is a platform that gets projects up and running in days and old projects get migrated in a few weeks at most, maintaining existing databases and infrastructure setups.

Our product is built for businesses frustrated with expensive consulting contracts and prolonged development timelines. In the context of the European Digital Single Market, we are aiming to develop a common approach to blockchain for the EU, transforming blockchain so it can be used as a utility whenever and wherever companies need it.

Our goal is to revolutionize the adoption of blockchain solutions around the world for medium and large businesses. By facilitating the technology's adoption, we contribute to cutting operational costs and creating additional revenue streams.

We offer full-cycle custom BCDB implementation services at all levels: PoC, MVP, production-grade, etc. and a deep expertise in delivering enterprise blockchain services, tools, and frameworks that allow us to address a variety of industry-specific needs. We help organizations gain a competitive advantage in the market, along with releasing a new type of product and ensuring enhanced customer experience.

Modex BCDB is the central part of our strategy and it is highly disruptive, aiming to influence the large and growing blockchain global market, with strong and defensible barriers to entry ensured through patenting, high scalability and cutting-edge technology, responding to clear market need, pain points and perfect market timing.



Market Overview and Growth Rate

Modern businesses recognize the value of decentralized networks, and the advantage that blockchain technologies can offer. Corporate giants including IBM, JP Morgan Chase, Ernst & Young have concluded, after extensive research, that decentralized forms of organization have moved from research to application, even among leading global corporations. The market is proving that decentralization is of considerable value not only to the financial and business industries, but across every business sector and process.

Blockchain technology provides the main vehicle to help businesses transition from a centralized model to a decentralized one. Blockchain has already started to gain considerable momentum in industries such as supply chain, healthcare, retail, financial services, telecommunications, transportation, logistics, energy and identity management.

This is because, in our digital world, data has become more valuable than gold. Decentralization allows industries to ensure that their data is protected and trustworthy.

Global revenues from enterprise blockchain applications are expected to rise from €2.7 billion to €17.7 billion by 2025. By 2025, the business value added by blockchain will grow to slightly more than €157 billion, then surge to exceed €2.7 trillion by 2030.

The blockchain industry is expected to grow with a CAGR of 60% between 2018-2023. In 2019, global spending on blockchain solutions was estimated at \leq 2.7 billion. Increasingly used within businesses around the world, annual spending on blockchain solutions has nearly tripled since 2017.¹

Forecasts suggest that spending on blockchain solutions will continue to grow in the coming years, reaching nearly \leq 14.5 billion annually by 2023. Although the market is dominated by infrastructure providers (>65% in 2017), application providers are expected to record the highest growth (>85% 2019-2024 CAGR) generated by the increased demand for blockchain enterprise solutions. While North America is the leading region (>50% market share in 2019)², a noteworthy growth of >87% CAGR is expected in the Asia region in 2019-2024.

¹ https://www.idc.com/getdoc.jsp?containerId=prUS45429719 ² https://www.idc.com/getdoc.jsp?containerId=prUS44898819



Problem

We are currently living in the pen and paper state of the blockchain. There's no guideline on how to write a complex app, there are only fragmented tools available. It is like trying to write a complex web app today with the tools of 1995, and that drives away the only thing that this technology cherishes most - the developers.

The blockchain industry has evolved from the stage of Proof Of Concept into tangible business opportunities. However, those opportunities are being explored and built in isolation by large enterprises. SME's and consumers are currently excluded from this revolution, despite the clear benefits of expanding the network to everyone.

Furthermore, blockchain technology alone is not the perfect answer to current data protection challenges, for the following reasons:

Missing key database features.

- Blockchain itself is only a transactional ledger
- It does not store files and cannot act as a database
- It does not provide permission- based access to datasets or governance rights

Cumbersome implementation with legacy structures

- Transitioning to a blockchain infrastructure often entails building a new framework from scratch
- Transitioning to a blockchain infrastructure is a disruptive and large scale IT project at an organization level

Interoperability challenges

- Current IT systems are often composed of a collection of technologies
- Blockchain and database compatibility across the Enterprise is a must have, yet requires significant investments in custom connectors

Incumbents' technologies lacking adoption

- Database and infrastructure incumbents have all developed their own blockchain solutions and infrastructure
- However, these solutions are costly and limited to their ecosystem, limiting adoption at scale



Shortage of talent

- Small expert pools creating fierce competition for talent
- Limited training resources today address market needs and adoption challenges

ROI uncertainty

- Costly implementation
- Most market solutions are currently custom and expensive to implement
- Skilled developers are in short supply and high market demand, blockchain experts charge considerable fees for their services



Solution

What is Modex Blockchain Database?

Modex BCDB is a game-changing hybrid remote data storage system enabling blockchain adoption in enterprise software development and deployment without eliminating the database component, but by mixing standard database engines with blockchain features, while allowing software developers to work within the systems they are already using.

Why should companies use it?

This service helps build a secure and stable blockchain environment, saves on operations and maintenance costs, and facilitates business development. It enables blockchain adoption in enterprise software development by ensuring **decentralization**, **data integrity assurance**, **high availability** and **scalability**, and **improved security**, giving organizations **a new way to manage business-relevant data records**.

Where does it fit in? Will companies need to change their entire infrastructure?

Modex BCDB is designed as a middleware that is installed between clients' software and their existing databases, connecting them to the blockchain with minimal effort and without requiring additional training for software developers working in clients' companies, as the platform has a similar interface as traditional databases. Modex BCDB modifies a set of connectors in order to link the database to a blockchain network, thus significantly enhancing storage capabilities.

When do companies need it?

Before jumping into a blockchain initiative, companies need to ask themselves a few questions: What am I strategically trying to get done? This starts with pain points that are tested against key criteria, to determine if blockchain is a good fit and whether other technologies might be better suited. If blockchain turns out to be the best solution, it's time to ask, which other stakeholders share this pain point? How would we fund such an initiative? How might it be governed?

Modex BCDB addresses some of the main challenges in blockchain adoption:



Cost & time

Modex BCDB will significantly help speed up the adoption of blockchain at enterprise level, with a high rate of cost/time efficiency, having core functionalities that add value to new and existing products, making them blockchain-ready in a matter of weeks. The ready-made functionalities (data encryption, data ownership, data sync rules, record history, data integrity checks, data distribution, data storage policies) are available at the back-end/storage level and won't require developers to write them into the client's source code.

Trust & public policy

Modex is actively involved in the <u>development of a new legislative framework, via</u> <u>the association that it is a part of</u>, that could promote the use of blockchain technology in various industries, by hosting and taking part in debates to identify the most important issues and use cases of blockchain.

Lack of knowledge

Modex BCDB doesn't require users to learn something completely new as it looks like a regular database engine whose operating mechanisms are widely known by software developers. BCDB allows developers to work on formats they already know, acting like an API or a traditional database connection. To further address this challenge, we've developed a comprehensive tool, <u>Modex Academy</u>, to help enterprises and developers understand what blockchain is and how it works, so they can broaden their tech horizon even further.

Transitioning from legacy structures

Modex BCDB mixes blockchain and traditional databases in an agnostic way to allow easy integration of existing products with the blockchain offered by big players like IBM/Intel (e.g. HyperLedger), and comes with an additional set of innovations. This high degree of novelty allows the mixing of blockchain engines with existing infrastructures and databases in a quick, affordable manner that is easy to understand by developers and executives, without the need to spend time to train and create database vs. blockchain interactions. On a technical level, integration between blockchain and ERP platforms should also be addressed, as the connection needs to be able to function with a variety of ERP versions as well as handle the potential volume of transactions. Modex BCDB is exploring the technical requirements to integrate with the most common existing ERPs on the

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market, like Microsoft Dynamics 365, SAP ERP or Eclipse ERP.

Uniqueness of the Product

Modex is the only "productized" enterprise-grade middleware ready to be deployed at scale. The innovation addresses the biggest challenges companies face in deploying blockchain solutions - the cost and time of implementation. Modex BCDB is a game-changing platform that simplifies blockchain adoption to minimize both cost and time. The uniqueness of the product comes from the following aspects:

- Mixing blockchain and traditional databases in an agnostic way to allow easy integration of existing products with the blockchain.
- Providing a series of ready-made functionalities (data encryption, data ownership, data sync rules, record history, data integrity checks, data distribution, data storage policies) that are available at the back-end/storage level and won't require developers to write them into the client's source code
- Allowing developers to work in the formats they already know, acting like an API or traditional database connection.

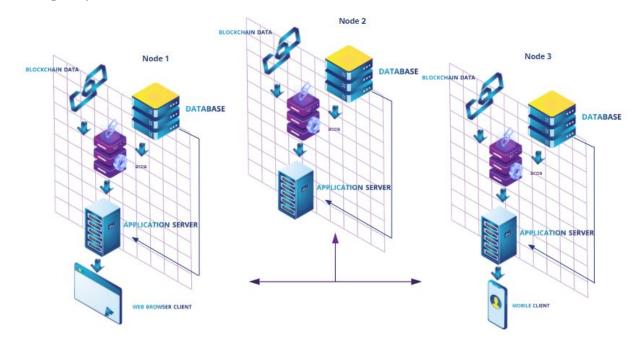
Creating New Markets

Many customers don't actively seek out blockchain technologies, mainly because they can't verbalize the need for this kind of technology. Modex BCDB has the potential to change the dynamics of the blockchain market within a few years by creating a middleware product which can be positioned at half the distance between products offered by tech giants like IBM, AWS, Google or Oracle and those offered by small startups that are just entering the market and have the need to promote themselves as blockchain solution providers. Modex BCDB offers not only a blockchain solution, but the exact outcome that companies have been trying to achieve for years - a new way to make their data immutable and secure, the ideal agnostic framework which migrates existing infrastructures on blockchain, a framework that address a variety of industry-specific needs and an efficient way for enterprises to shorten time-to-market for their initiatives and products, as well as decrease the number of lost opportunities.



Modex BCDB design

Modex BCDB is designed as a middleware that is installed between clients' software and their existing databases, connecting them to the blockchain with minimal effort and without requiring additional training for software developers working in clients' companies, as the platform has a similar interface to traditional databases. Modex BCDB modifies a set of connectors in order to link the database to a blockchain network, significantly enhancing storage capabilities.



Node Infrastructure

Each node is composed of several software modules, and each module serves a different purpose in the data processing life cycle. The figure above presents core functionality modules which deal with data processing, database connectivity, read/write to the blockchain, data sync over the network, permissions, and many others. The software application client implementing Modex BCDB provides the business functionality component.

Modex BCDB can receive REST API calls directly, can be called using GraphQL or by using our SDKs for Java, Go lang, JS. After the call is made, we take the input and extract the hash information and compute the relevant metadata for each piece of data. The hash of

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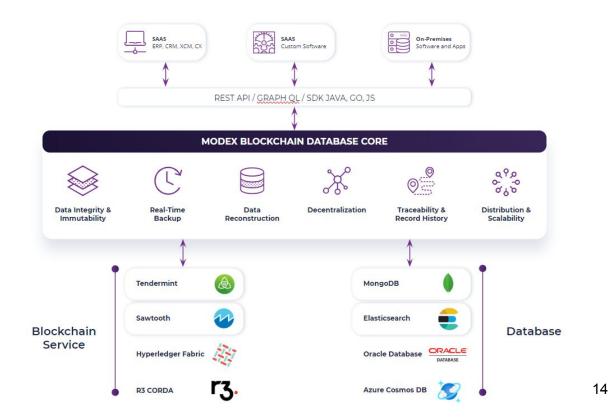
the data is stored in the Blockchain Service component, and the unmodified data stays in the Database Service component, together with the computed metadata.

The blockchain service and the database service are designed to be agnostic and can connect to multiple types of blockchain solutions (Tendermint, Hyperledger Sawtooth, Hyperledger Fabric, Ethereum, etc.) as well as multiple types of database solutions, either SQL or NoSQL (MongoDB, SQL Server, Elastic Search or Oracle DB). MongoDB and Tendermint are set as defaults.

Using the Core API Interface, the Modex BCDB Service Processor receives all CRUD operation commands from the business services, and based on configured instructions and security permissions, provides access to the data from the database and the blockchain ledger.

Our system provides Data Integrity and Immutability distributing the data across multiple nodes and matching the data in the database with its hash in the blockchain. Because Modex BCDB synchronizes the data using blockchain technology, the data is being backed up on multiple machines in real time, with each insert.

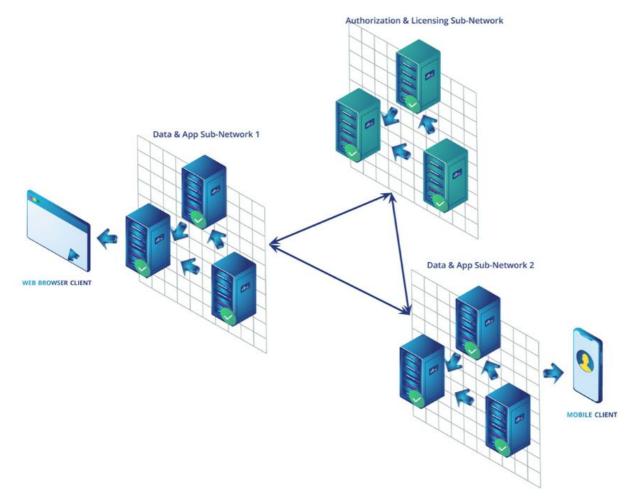
In case of data corruption - if the hash in the blockchain no longer matches the data in the database - the data can be reconstructed from another node where the hash still matches the data. By using blockchain technology we have traceability and record history, as well as data distribution and decentralization.





Network Architecture

At the architectural level, Modex BCDB takes the form of a network of nodes. This computer network is grouped into subnetworks, and each subnetwork contains one or several nodes. The subnetwork type depends on the type of data stored on the nodes it contains. In the security subnetwork, all nodes contain information regarding user security keys, operating licenses, access policies, and other information related to the licensing, authentication, and authorization mechanism of users accessing the system. A data subnetwork can be divided into several subnetworks, based on geographical areas or other relevant logical groupings.





Modex Blockchain Database Features

• Multiple blockchain frameworks support

The blockchain component (Blockchain Ledger framework) can be swapped at any time with other supported blockchain frameworks (like Ethereum); Modex BCDB is currently implementing HyperLedger Sawtooth and Tendermint. HyperLedger Fabric and Ethereum integrations are in the testing phase.

• Data Synchronization Policies

Each group of nodes or network can be configured separately in terms of data synchronization rules within the entire Modex BCDB network. This way, a network can be either restricted or open. A restricted network will collect data received from any open network but will not send any data of its own. An open network will fully synchronize all the data available in the system (Send and Receive everything).

• Security Permissions & Data Sharing

The possibility to encrypt recorded data implies the existence of a decryption mechanism. Every system user who writes data in the system can encrypt and decrypt it by using their private key, which is generated at the user creation stage. The system administrator can also access this private key to unlock/decrypt system user data in case of emergency.

• Record Versioning & Record Monitoring

All data records are stored together with their historical versions since their creation time. Every read operation can be done with a version parameter attached. This instructs the system regarding which record version to retrieve to its caller. Record deletion happens only at the database level; the actual blockchain references to records and record hashes are never lost. The delete operation is also marked in the blockchain trail of historical versions.

• Multiple databases support

MongoDB is the default database engine for data storage. The database component can be changed with a different remote database engine, whether traditional or NoSQL.

• Multiple Database Replication



Data sharing across different databases. Easy maintenance of legacy BI tools in the same time that we adopt more performant data acceptance technologies (noSql)

• Administration Interface

The Workbench is an administration user-agent which supports the Modex BCDB beneficiary to maintain the system. From the workbench interface, the beneficiary can monitor all network nodes, review data sharing operations, define data synchronization policies, view reports on system activity and audit trails, overwrite data access for special use cases, view blockchain records, and access administration dashboard.

• Smart Data Access

Modex BCDB read operations can be done by accessing the database components directly. They can also be performed through optimized blockchain core queries to obtain records with confirmed and valid integrity check. All write operations are blockchain transactions which store references to database records location and payload hashes for integrity checks.

• Data Storage Management Policies

A node can be full, partial or private. A full node will collect all the data circulating in the entire network and it will make it available to any node if a request is submitted. A partial node will only collect data which was introduced within its own exposed APIs and other nodes' data will be collected and stored when required, but it will provide data to any nodes requesting it. A private node will collect data from its own exposed APIs, will also collect data from other nodes when required, but will never provide any data from its storage.

• Data Encryption

Data stored within network nodes can be encrypted or unencrypted. It is a matter of configuration and business requirements which data makes sense to be encrypted and which data should remain unencrypted. The encryption mechanism allows configurations to instruct the system to encrypt entire entity records or just particular fields within a record.

• GraphQL Gateway & Interface

GraphQL is a query language for API Interface, and a server-side runtime for executing queries by using a type system clients define for their data. GraphQL isn't tied to



any specific database or storage engine and is instead backed by Modex BCDB API Interface. It offers web developers a great interface to manage data access operations and help them easily understand front end query results. The GraphQL endpoints are secured by the Modex BCDB OAuth2 service. Modex BCDB provides the GraphQL, with a graphical interactive in-browser GraphQL IDE to design data queries.

• File Storage - File AP

Modex BCDB accepts regular file uploads and offers developer interfaces for file retrieval as well. The data storage mechanism is designed to split the files into chunks and distribute them all over the network to ensure file availability and increase data retrieval speeds.

Real world use cases: Modex BCDB

Healthcare

Blockchain can be used for several purposes in the healthcare industry. First of all, it can help hospitals and clinics mitigate the effects of cyber-attacks and system failures with its high data availability, real time backup, and distributed structure. Patients can manage their own digital medical files and allow others to access their data when necessary, and always be aware of who can see the data and can establish new permissions and/or restrictions. Furthermore, with a blockchain infrastructure, insurance providers can speed up usually time-consuming paperwork and data verification processes.

Government & Public Services

Using blockchain technology in the public sector can enhance the efficiency of processes and the credibility of public data, increasing citizens' level of trust in public institutions. Blockchain could also improve citizens' and businesses' experiences in interacting with government as more processes are moved online in a secure environment. The data structure enabled by blockchain can reduce operational risks and transaction costs and improve regulatory compliance.



Banking and Financial Services

In the banking industry, blockchain technology enables real-time settlement and streamlines auditing and reporting. It can also reduce processing times, the potential for error and delay, and the number of steps and intermediaries required to achieve the same levels of confidence as in traditional processes. Furthermore, blockchain can improve KYC and AML systems by ensuring data immutability and enhancing processing capabilities.

Log Management

Business processes are driving toward immutability, which is a critical need nowadays. Given space to store data for a long time, immutability is affordable. Versioning provides a changing view, while the underlying data is expressed with new contents bound to a unique identifier. Modex BCDB doesn't allow any audit trail changes or deletion, which means your logs are kept safe.

Regulatory Compliance

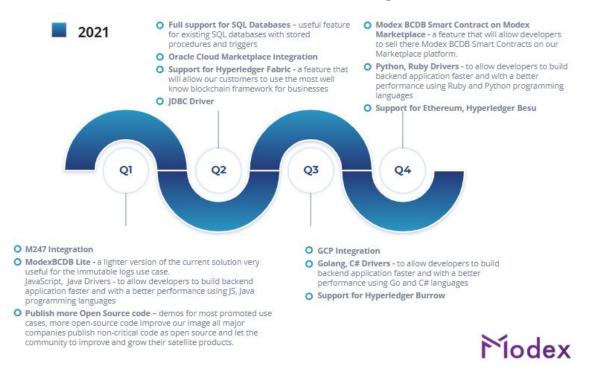
Through the use of advanced encryption mechanisms, Modex BCDB assists companies in implementing GDPR-compliant solutions. Every stored data record comes with independent proof that the data is in its original state and has not been manipulated, so it provides an independent forensic quality audit trail for the lifecycle of user records, helping companies prove compliance with data protection regulations.

Incident Response

Modex BCDB can help mitigate the effects of ransomware attacks by eliminating the single point of failure through its decentralized and distributed structure. Even if a node in the blockchain network is compromised by an attack or other type of security incident, the data can be immediately restored from another node. It is virtually impossible for an incident to affect every node in the network.

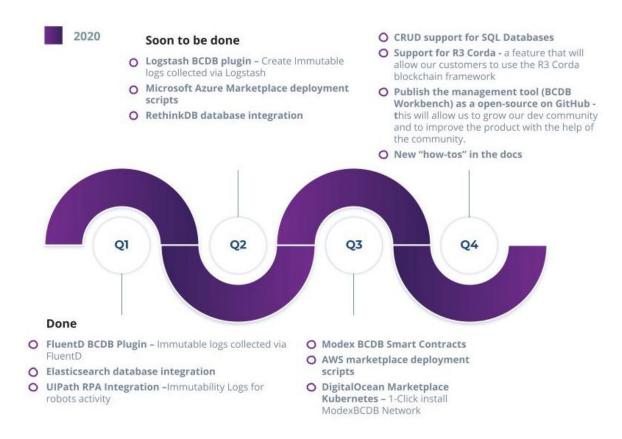
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Modex BCDB Product Roadmap



The roadmap which contains the next features that we have planned to develop in 2020 is in line with the go-to-market strategy which is based on 4 pillars:





1. Co-Selling Agreements: getting free access to millions of monthly active users; launching promotions, demand generation, joint sales and marketing; customers can discover, test and deploy Modex BCDB; access to onboarding and technical support;

2. Custom integrations: Integrations with major software players will validate our solution on a large scale; Integrations with custom software providers offering a ready-made solution that saves them hundreds of hours of development;

3. Partnership Opportunity Program (Reseller and Referral): variable revenue share fee providing training and technical resources to partners; growing our pipeline by generating leads; opportunity to scale up geographically and across different industries;

4. Digital Marketing campaign: bottom-up approach to attract early adopters; SEO optimization on the Modex website to grow the organic reach; targeting developers and companies with early adoption potential through ads on Google/social media; generating online buzz through social media & press coverage of new partnerships/integrations.

All of the above are in progress to validate our products on the platforms of the big tech companies and to develop our business with their partners and customers. The next



step will be to attract them to our market (Modex Platform) and to give them the possibility to buy the BCDB license with the token, thus we will create an important utility of the MODEX Tokens.

Go-to-Market Strategy

Our plan is to utilize the internal and external resources (e.g. sales force and distributors) to deliver our unique value proposition to our customers and achieve a competitive advantage comprises the following activities:

1. Co-Selling Agreements - we aim to build strong partnerships with big tech companies and get featured in their marketplaces. Based on this strategy, we will get free access to millions of monthly active users, launch promotions, demand generation, joint sales and marketing, get access to onboarding and technical support, and our customers can discover, test and deploy Modex BCDB much easier.

2. Partnership Opportunity Program - reaching customers indirectly through reseller/referral partnerships with companies that will get a variable revenue share fee when they bring new customers, a strategy that will give us the opportunity to expand geographically and across different industries. We will provide training and technical resources to all reseller/referral partners.

3. Digital Marketing Campaigns - a bottom-up approach to attract developers and early adopters using targeted ads on Google/social media and boosting organic reach through SEO optimization of the Modex website. Furthermore, we aim to generate online buzz around our product through social media and press coverage of new partnerships/integrations.

4. Custom Integrations - There are several types of custom integrations we can pursue: those with major software players which will allow us to validate our solution on a large scale; with companies that provide custom software and are interested in blockchain solutions, to whom we can offer a ready-made product that will save them hundreds of development hours; with mainstream database providers allowing us to increase our product's database agnosticity and thus reach more customers. Every custom blockchain implementation designed and integrated by Modex is unique to each client's needs. We take on our clients' goals and ensure delivery of enterprise-grade products on-time and on-budget to minimize time-to-market and maximize ROI.



Our stakeholders

Protocol layer

Developers - are involved with setting up blockchain protocols that serve networks.

Researchers and Academia - Blockchain research aids in educating others on the implications of blockchain technology, especially considering this is a fairly new software platform. Having academics involved in the blockchain strategy system ensures blockchain is continually challenged and researched in varying disciplines like political, behavioral, economic, and psychological. This new knowledge is then used to inform all other stakeholders involved in the other layers of the process.

Networking layer

Industry Bodies - Various industry bodies are involved in defining the rules of engagement and interaction for all stakeholders involved. They will often be led by a common goal defined by a mission statement or be values-based, but in some cases, the motive will be profit-driven.

Application layer

Startups - these stakeholders are the people who build the applications, products, or services utilizing the blockchain protocols and networks. Entrepreneurs and start-ups will obviously have an end-goal of making a profit, but entrepreneurs specifically in the blockchain strategy system are often motivated by passion and a desire to infiltrate traditional, age-old systems and make them better with blockchain technologies.

End-users - the end-user will be the person who uses the application, product, or service. These stakeholders are very important for the entire blockchain strategy system, as what they deem valuable informs a lot of the other stakeholders' decision-making. The end-user's response will, therefore, impact business strategy in the blockchain strategy system. The end-user exists because the traditional financial methods were not meeting consumers' needs.

SMEs - these stakeholders are on a mission to utilize blockchain technology when creating business strategies to solve problems within the institution. These SMEs will often push new technologies to a large group of customers of end-users to solve or address a



blockchain problem. These SMEs may exist to meet a need in the entire blockchain strategy system like regulation or compliance.

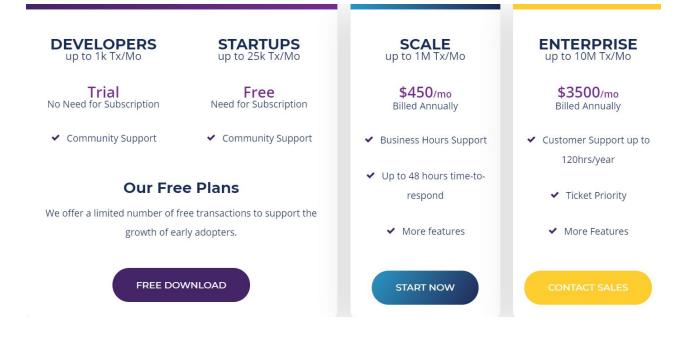
Venture Capitalists or Investors - The people or organizations that provide capital to create the blockchain infrastructure. These stakeholders are motivated by profit but are also values-based and mission-based. Many venture capitalists aim to help solve social and economic issues by funding others to create solutions using blockchain technology.

Pricing

Blockchain Database (B2C) - In terms of pricing, our product is similar to a Software-as-a-Service (SaaS) model, being <u>license-based</u>, with an annual/monthly recurring revenue model and a certain number of free transactions to support the growth of new adopters.

Custom Blockchain Implementations - When creating a custom development offer, we start with a business analysis in which we understand what features need to be built. We then analyze each feature and estimate the human resource effort needed to develop that specific feature. We do this for all the features needed for the development and this way we gather the development timeline, the number of human resources needed, and can offer an estimate. The final offer is released once the business requirements document is finalized. **Prices can vary depending on the project magnitude and complexity.**

Modex



Competition

As blockchain is a new technology, the market is in constant flux, but Modex BCDB has some conceptual advantages as well as specific feature advantages over major competitors. During the feasibility study we identified 3 major categories of competitors, as listed below:

Direct competitors

Companies with similar services, commercial approach, and target market: <u>BigchainDB</u>, <u>Fluree</u>, <u>Bluzelle</u>, <u>Web3Labs</u>.

• Companies such as <u>Nxxtech</u>, <u>Mantle Technology</u>, <u>BlockBase</u>, <u>Cypherium</u>, <u>Telos</u> <u>Foundation</u> could also be placed in the same category.

Big Service Providers

Companies with similar services provided as features of one of their core products usually linked to the hosting or server components. Although these features offered to customers can attract revenue and compete with our solution, such products have significant limitations because they are linked only to the providers' databases and any new product built on these platforms will by design be encapsulated by the respective service

Modex

providers. Modex BCDB has little ability to compete with these providers among their core client cohort because they will trust their existing providers more than they would a completely new provider, therefore the clients are very likely to use the competing solution offered in the ecosystem in which they're already enrolled: <u>Oracle Blockchain Platform</u>, <u>AWS Blockchain</u>, <u>Microsoft Azure Blockchain Service</u>, <u>IBM Blockchain</u>.

• <u>SettleMint</u>, <u>Tangany</u>, <u>Web3Labs</u>, <u>Kadena</u>, <u>LogSentinel</u> will compete with Modex BCDB on one of our go-to-market funnels, namely the AWS and Azure marketplaces - in the race to be successful on this funnel toward big service providers, companies must make their product available to AWS and Azure clients as quickly as possible through the marketplaces, in order to be the first ones to gain trust from clients for the complementary products sold to enterprises through Azure/AWS. The first-mover advantage is critical as clients will be unlikely to subsequently switch to another provider of similar services on the same marketplace.

Blockchain Networks

Companies that may offer some similar features while claiming that their offer is much more extensive in the custom development area, but do not provide complete information about their functionalities (they may partially hide them because they have proprietary blockchains or a modified version of an existing product and they are unwilling to expose their core technology because they consider it to be a competitive advantage: Insolar, Cypherium, SettleMint, Tangany, Kadena, LogSentinel, Kaleido

Offerings	Modex Ltd.	Direct Competitors	Big Service Providers	Blockchain Networks	Other blockchain
demonstrating value for money vs our competition		BIGCHAIN® Buckhare Fluree	Microsoft BLOCKCHAIN	INSOLAR	SettleMint K Kadena Skaleida
Multiple Blockchain and Database Support (Agnostic)	YES	Mantle Technology	IBM Blockchain	Tangany	SettleMint, Kaleido, Web3Labs
GDPR Compliant	YES	Nxxtech	Amazon QLB	Insolar, Tangany	LogSentinel
High Scalability	YES	YES	YES	YES	YES
High Availability	YES	YES	YES	YES	YES
Open Source	NO	BigchainDB, Bluzelle	Oracle Blockchain Platform, IBM Blockchain	NO	NO
Native Support of Multi Assets	NO	BigchainDB, Nxxtech, Telos Foundation, Mantle Tech	Oracle Blockchain Platform, IBM Blockchain	Cypherium, Tangany	SettleMint, Web3Labs, Kadena, LogSentinel
Node Licensing (ARR)	YES	NO	YES	NO	YES
Products available on Marketplaces (e.g.AWS, Microsoft, UiPath)	YES	NO	N/A	NO	YES



MODEX Token Utility and Model

Modex is a token-driven blockchain ecosystem that intends to increase the accessibility and reliability of blockchain-enabled solutions on both the enterprise and developer level. Having an agnostic infrastructure, it empowers rapid adoption for companies to integrate Modex BCDB with their current legacy systems.

Modex's token is an ERC20 utility token, built on the Ethereum blockchain. Using the MODEX Token, companies can pay for the BCDB license at a discounted rate compared with the acquisition in FIAT. The tokens can also be used to purchase smart contracts from Modex's Smart Contract Marketplace. While the prices can be seen by buyers in currencies like USD, EUR, ETH, and BTC, they will be traded in MODEX Tokens.

The MODEX Token intends to empower the following functions:

- Pay for BCDB licenses at a discounted rate
- Make smart contract purchases

The utility token generated through the Token Sale by the Modex-Ltd is an ERC20 compliant token and is divisible up to 18 decimals. It is available for sale to contributors in exchange for other accepted currencies, like ETH, BTC, and EUR. MODEX Tokens are fully convertible to other listed currencies on external exchanges, such as <u>Hotbit</u> and <u>LAToken</u>.



Token Sale Use of Funds

Overview:

Our token offering has funded so far the growth of cryptocurrency adoption and blockchain solutions deployment, first and foremost. We have designed a robust innovation hub and bounty pool program to reward developers and users for participating in the adoption process. A major component is allocated to a marketing pool for a grassroots cryptocurrency "giveaway" program, to help communities around the world bring crypto into their daily lives. On top of this, in order to facilitate the adoption of blockchain technology, we support SME, startups, and developers by offering grants in MODEX Tokens. Anybody can start building on top of the BCDB right away and for those who need more transactions (surpassing the free license we offer), the grant will go a long way in helping them get the product off the ground.

Our fund allocation plan below outlines how we handle the funds raised in more detail. The minimum contribution was 0.1 ETH with no maximum contribution. Participants in the Seed and Early Bird stages received their tokens once the Initial Token Offering had been completed as a means of lock-up.

Lock-Up Mechanics

For employees of the Company, the MODEX Tokens will vest as follows:

- 20% on the issuance of MODEX Tokens to employees, at the same time that the pre-sale contributors received their tokens;
- 20% after 3 months;
- 20% after 6 months;
- 20% after 9 months; and
- 20% after 12 months.



Token Allocations

We are putting approximately 111.8 million (M) MODEX Tokens on the market and over the next four years we expect MODEX Tokens to be allocated as follows:

Token Allocation Purpose Number of Tokens (over 4 years)			
1.Kept	in Token form		
a.	Adoption push: developer and / or company sign-up to the platform, bounty, etc.	26.7M	
b.	Market development & Education: Purchasing partner blockchain tokens to incentivize developers building for those protocols and sponsor hackathons, education campaigns, etc.	17.8M	
C.	Market movement incentive: if there is a shortage of available tokens for companies to buy in order to pay the platform and smart contract fees	2.7M	
Total l	Total kept in MODEX Tokens (not including Reserve Tokens)47.		
	red to FIAT or other Crypto to support Operational Expenses, Business opment, Marketing, etc.	64.6M	



Use of Funds Details:

The Modex ITO funding was allocated across our primary segments of business activity in a time span of 2 years. This is how we spent the proceeds from the sale of the 10M MODEX Tokens.

ITO proceeds breakdown	
1. Software Development	44.24%
2. Operational - Accounting, Legal, Travel	16.24%
3. Marketing	35.37%
4. PR & News	4.15%
Total	100%

Team

Pioneering the development of new applications and adopting blockchain technology requires different perspectives. We firmly believe that in order to succeed we need to diversify and build on each other's strengths and knowledge. We have all the required resources (personnel, facilities, networks, etc.) to develop project activities in the most suitable conditions.

Our team of almost 100 people includes experienced professionals who have worked across numerous industries. Our core expertise includes banking and financial software with employees who combined have over 40 years of experience from Oracle, Unisoft, Temenos, and Deloitte. Members of the team and advisors have built and exited various successful startups, held senior positions in Fortune 100 companies, in a variety of industries including (but not limited to): telecom, tech, retail, wholesale, mobile & eCommerce, entertainment, marketing services, and of course the blockchain industry.



Partners

Modex Partner Network comprises the companies in our ecosystem which build innovative products and solutions for a wide range of business needs.

UiPath

The UiPath Technology Alliance Program is a framework for innovation that brings together technology vendors and UiPath in order to deliver end-to-end technology and business solutions for our joint customers.

Challenge & Opportunity

UiPath identified a significant market opportunity in the fact that its customers were asking for RPA auditing and log tampering prevention solutions, and found Modex BCDB to be the perfect match for the UiPath Orchestrator as it can guarantee the immutability of RPA log files.

Solution

Modex BCDB provides the right alternative for data security and data protection, as well as the right argument for data integrity against any possible litigation. We guarantee the security of UiPath RPA logs by making them immutable, allowing log reconstruction when logs are altered by a third party, as well as a real-time log backup. We also provide secured access to logs using permission-based policies and advanced encryption.

Result

Modex joined forces with UiPath as Technology Partners to fast-track its product portfolio and enhance product capabilities with an Orchestrator plug-and-play immutable logs module, to address current and future customer needs an efficient and easy to adopt alternative for immutable and secure RPA activity tracking.



Microsoft for Startups

The Microsoft for Startups program helps startups leverage Microsoft's commercial marketplaces, its enterprise sales team, and its ever-expanding partner ecosystem to reach key global customers.

Challenge & Opportunity

Kubernetes is quickly becoming the operating system for the Cloud and has the potential for massive benefits for technology organizations and developers. With all major cloud providers now offering their own native Kubernetes service, and several container orchestration platforms rebuilding with Kubernetes as an underpinning, Modex was seeking a way to accelerate the development of scripts that enable rapid deployment of a blockchain node cluster in any customer's cloud infrastructure.

Solution

Modex looked for the right partner that could help it quickly and efficiently develop the Kubernetes scripts, while also allowing it to benefit from a stable technological partnership and an alignment of sales efforts.

Result

We were accepted in the Microsoft for Startups program, which gives Modex access to products and services as well as startup-focused resources to leverage Microsoft networks and expertise. Following our participation in the program, we will be eligible for IP co-selling and the solution we will build together with Microsoft will be featured in the Azure Marketplace.

AWS

The AWS Partner Network (APN) is the global partner program for technology and consulting businesses that leverage Amazon Web Services to build solutions and services for customers.



Challenge & Opportunity

A scaleup like Modex is always seeking the best market entry strategies that don't require it to make major investments in its own sales efforts but can still provide access to as many market opportunities as possible. Therefore, choosing the right partners – both from a technological and a market perspective – is one of the most important things Modex can do to carry out an efficient market expansion.

Solution

Modex aims to leverage the AWS Network and Marketplace among its enterprise sales team and ever-expanding partner ecosystem to reach key global customers.

Result

Modex has become an APN Blockchain Partner and is in the process of building AWS Scripts that will allow customers to quickly deploy Modex BCDB from the AWS Marketplace.

MongoDB

MongoDB partners with organisations that offer complementary technology solutions and services. Co-selling partners can enable the MongoDB field to be able to solve customer problems with their solutions.

Challenge & Opportunity

A scale-up like Modex is always seeking the best market entry strategies that don't require it to make major investments in its own sales efforts but can still provide access to as many market opportunities as possible. Therefore, choosing the right partners – both from a technological and a market perspective – is one of the most important things Modex can do to carry out an efficient market expansion.

Solution

We decided that one of the best ways to optimize our Go-To-Market strategy was through strong channel partners like MongoDB. Getting free access to millions of monthly

Modex

active users, launching promotions, demand generation, joint sales, and marketing. Through the partnership, MongoDB customers can discover, test, and deploy Modex BCDB and get access to onboarding and technical support.

Result

Modex partnered up with MongoDB to mutually boost sales. MongoDB has an established salesforce with abundant resources and a complimentary product. Its ecosystem saves Modex the time and expense of managing a large in-house sales team. At the same time, MongoDB will bring value to their current customers by providing them with a solution for data immutability, security, and integrity.

C5 Accelerate Advisory

C5 Accelerate Advisory is assisting Modex with its expansion into the U.S. market as the company seeks to help businesses secure their operations through blockchain technology.

Challenge & Opportunity

A scaleup like Modex is always seeking the best market entry strategies that don't require it to make major investments in its own sales efforts but can still provide access to as many market opportunities as possible. Therefore, choosing the right partners – both from a technological and a market perspective – is one of the most important things Modex can do to carry out efficient market expansion.

Elastic

The Elastic Partner Program offers assistance and incentives to companies delivering solutions based on the Elastic Stack — that's Elasticsearch, Kibana, Beats, and Logstash.

Challenge & Opportunity



Many of Modex's potential customers were already using products from the Elastic Stack. Therefore, we wanted to find a way to target these customers and expand our market reach by leveraging our product's compatibility with Elastic software.

Solution

Integrating with products from the Elastic stack allows Modex to validate its solution at a large scale and increase our product's database compatibility level, allowing us to reach more customers. Modex will provide customers with access to valuable premium features and world-class Elastic support.

Result

The partnership agreement between Modex and Elastic gives Modex access to ongoing consultative technical support from Elastic, distribution rights with reselling to end customers, production support, joint market opportunities, and field sales compensation alignment.



Modex Team Major Milestones & Accomplishments

2020

- Selected in C5 Accelerate (C5A) by C5 Capital
- Member of C5 Alliance for Healthcare
- CEO Monthly award Mihai Ivascu, named CEO of the Year 2020 in UK
- The Silicon Review award Modex in 50 Leading companies to watch 2020
- Industry Wired Magazine nominee: Modex selected in World's Top 10 Blockchain Companies to Watch in 2020
- Enterprise Security Magazine nominee: Modex as "Top 10 Blockchain Solution Providers in Europe 2020"
- Modex included in:
 - Top Revolutionary Tech Companies of The Year 2020 by GTO Magazine
 - Top Blockchain Companies 2020 by techreviewer.co

2019

- Modex wins BCR InnovX Accelerator selection
- Modex wins the Technological Innovation award at CCIFER Gala (French Chamber of Commerce)
- Moneymailme wins Future Banking's Fire pitch competition
- Mihai Ivascu CEO Modex Ernst & Young Entrepreneur of the Year



- Modex becomes full member of INATBA
- Modex Blockchain Labs, Best Hub in Central European Startup Awards
- Modex receive Seal of Excellence certificate from EU's Horizon 2020 (EIC Accelerator Phase 2 - Horizon2020 - IPA 4 SME)
- Modex has been recognized by CIOReview as one of the 10 most promising blockchain consulting/services companies to watch in 2019
- The Silicon Review Magazine award 10 Best IT Services companies to watch 2019
- Modex wins Trumpf Accelerator selections

2018

- Mihai Ivascu CEO Modex wins Forbes 30 Under 30
- Mihai Ivascu becomes the youngest member of the prestigious Monaco Impact
- Modex is awarded Best Blockchain Startup at How to Web event powered by Techcrunc



Modex Token Sale Overview

Token Sale Official Website:

Visit us at: <u>www.modex.tech</u>

Token Issuing Company:

The MODEX Token was issued by Modex (Gibraltar) Limited whose registered office is situated at 57/63 Line Wall Road, Gibraltar. The Company's directors are Mihai Ivascu, the CEO of Modex, and Alin Iftemi, Head of Modex.

Token Sale Schedule:

Modex Official Initial Token Offering "ITO" Announcement: **September 13th, 2017** Modex Pre-Sale: **Started on November 28th, 2017** Modex Initial Token Offering: **Started on 15th September 2018.**

Sale Process & Pricing:

During the token offering of Modex's MODEX Tokens, the community contributed with Ethereum or Bitcoin. During the Private Sale and Pre-Sale stages of the token offering Modex accepted fiat currency. Participants in the private sale were subject to a lock-up period, with their tokens being delivered after the ITO was completed.

The contributors sent ETH or BTC to Modex and, upon the funds being received in the Modex wallet, the spot price was taken from CoinMarketCap. The converted cryptocurrency value (at the spot price) in USD, decided the corresponding amount of MODEX Tokens to be allocated to the contributor's wallet.

Tokens were delivered to the purchaser upon completion of the ITO. All the unsold tokens, part of the Pre-Sale stage or the ITO, returned to the Company token reserve.

Modex

Tokens will be priced accordingly:

Round	Token Price	MODEX Token	Availability
Seed	closed	888,888	Private Sale
Early Bird	closed	8,888,888	Private Sale
Pre-Sale	\$.40	88,888,888	Private and Public on Request
ΙΤΟ	\$.80	13,221,333	Public 9 days
Treasury (Team and Reserve)	Not issued to participants	154,511,996	
		111,887,997	Total Issued To Participants
		266,399,993	Total Tokens

Community Support :

To learn more about Modex and engage with our community please join us in any of our following forums:

- Facebook
- Telegram

Please be sure to sign up HERE to get regular updates regarding our token sale.

Jurisdiction & Governance:

Modex has hired several independent legal and strategic advisors to ensure that Modex has put in place a strong governance policy, and has the appropriate legal structure in a robust jurisdiction with respect to international regulation of Modex's initial coin sale. Modex has formed a special purpose vehicle (SPV) to issue the tokens to participants and to collect and hold the participants' contributions until they are dispersed to the operating company executing the roadmap and plan.



The Gibraltar SPV know as the Token Issuance Company is the holder of the funds raised in the Modex presale(s) and token sale (in BTC, ETH, ERC20 tokens, or fiat currency). The release of funds to the operating company will be made in line with the roadmap and project deliverables and milestones being met.

MODEX Initial Token Offering: Cyber Security & Independent Auditing:

To ensure that the MODEX Token offering proceeded seamlessly, Modex had the MODEX Tokens smart contract audited by two independent parties prior to the token offering. Following the review, any issues that were discovered by the independent auditors were adequately addressed by Modex and Modex subsequently open sourced the token contract for a public audit, with a bug bounty in place for the discovery of any unresolved issues.

Additionally, the Modex Token sale webpage and all other pages owned by Modex or its partner organisations were fully audited by reputable cyber security professionals in order to reduce the risk of cyber-attacks such as hacking or phishing. (Please see Terms and Conditions).

Terms & Conditions:

All users of Modex's platform are required to review, understand and agree to our terms and conditions to be eligible to use Modex's products and services. These terms and conditions can be found below, and on our website at: <u>www.modex.tech/terms</u>, <u>www.modex.tech/privacy</u> and <u>www.modex.tech/legal-disclaimer</u>.

Closing Remarks:

We are deeply committed to the advancement of blockchain technology and cryptocurrency adoption worldwide. Focusing on real-world applications and the social behaviors that make our world turn, we know that the result of attaining our goals will redefine life on earth. The status quo of money, banking, trade and commerce needed a reset, and this wave of innovation is irreversible. The question is how fast and how smooth can we (humanity) be in our collective transition to this new system of money, value, and technological advancement?



With our broad expertise in delivering enterprise blockchain services, tools, and frameworks that address a variety of industry-specific needs, we help organizations gain a competitive advantage on the market.

Along with releasing a new type of product and ensuring enhanced customer experience, we help reveal brand new revenue streams. With blockchain-based projects, companies will be able to shorten time-to-market for their initiatives and products, as well as decrease the number of lost opportunities.

Thank You

We sincerely appreciate you taking the time to read our whitepaper and explore our vision. We welcome your feedback and look forward to connecting with you in our forums. Thank you for joining us this far! We hope you decide to get more involved with the user community and participate with us to move the entire blockchain world forward.