DNATIX

THE GENETIC BLOCKCHAIN ECOSYSTEM

WHITE PAPER

A GENETIC ECOSYSTEM INVITING ALL PLAYERS IN THE GENETICS FIELD TO COLLABORATE AND ADVANCE GENETIC APPLICATIONS AND SOLUTIONS.
(B2B)

A CUTTING EDGE BLOCKCHAIN BASED GENETICS PLATFORM PROVIDING ANONYMOUS AND ENCRYPTED GENETIC SERVICES INCLUDING: ANALYSIS, STORAGE AND TRANSFER OF DIGITIZED DNA SEQUENCES THROUGH A DIRECT-TO-CONSUMER PLATFORM.
(D2C)

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Participation in the token sale carries substantial risk and may involve special risks that could lead to a loss of all or a substantial portion of your contribution. Further information about the risks of participating in the token sale is set out in the whitepaper and the Token Sale T&Cs that will apply at the tokens sale. Tokens should not be acquired for speculative or investment purposes with an expectation of making an investment return. Please ensure that you have read, understood and are prepared to accept the risks of participating in the token sale before sending a contribution to us.

The token sale and/or DNAtix tokens could be impacted by regulatory action, including potential restrictions on the ownership, use, or possession of such tokens. Regulators or other competent authorities may demand that we revise the mechanics of the Token Sale and/or the functionality of DNAtix' tokens in order to comply with regulatory requirements or other governmental or business obligations. Nevertheless, we believe we are taking commercially reasonable steps to ensure that the token sale mechanics and sale of DNAtix tokens do not violate applicable laws and regulations.

The proceeds of the tokens sale may be used by the Company to defend against any claims brought against Company, its affiliates and/or their respective officers, shareholders, directors, employees and/or agents.

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CAUTION REGARDING FORWARD-LOOKING STATEMENTS

This whitepaper contains forward-looking statements, estimates, forecasts, projections or information (collectively "forward-looking statements") that relate to our current expectations and assumptions of future events. In some cases, these forward-looking statements can be identified by words or phrases such as "may", "will", "expect", "anticipate", "aim", "estimate", "intend", "plan", "seek", "believe", "potential", "continue", "is/are likely to" or the negative of these terms, or other similar expressions intended to identify forward-looking statements. These forward-looking statements, estimates, forecasts and projections are based on assumptions and estimates developed by the [Company]'s management in good faith that are believed to be reasonable as of the date of this whitepaper. However, these forward-looking statements, estimates, forecasts and projections involve significant elements of subjective judgment and analysis and risks, uncertainties, assumptions, and other factors. Accordingly, it is likely that actual results will be different, perhaps materially, from the forward-looking statements, estimates, forecasts and projections and prospective participants in the token sale should not place undue reliance on these forward-looking statements.

In addition to statements relating to the matters set out here, this whitepaper contains forward-looking statements related to Company's proposed operating model. The model speaks to our objectives only, and is not a forecast, projection or prediction of future results of operations.

Forward-looking statements are based on certain assumptions and analysis made by Company in light of its experience and perception of historical trends, current conditions and expected future developments and other factors it believes are appropriate, and are subject to risks and uncertainties. Although the forward-looking statements contained in this whitepaper are based upon what we believe are reasonable assumptions, there are risks, uncertainties, assumptions, and other factors which could cause our actual results, performances, achievements and/or experiences to differ materially from the expectations expressed, implied, or perceived in forward-looking statements. Given such risks, prospective participants in the token sale should not place undue reliance on these forward-looking statements.

NOTE: THIS DOCUMENT PROVIDES AN INITIAL SUMMARY OF CERTAIN BUSINESS ESSENTIALS UNDERLYING THE COMPANY'S PROJECT. THIS DOCUMENT IS EXPECTED TO EVOLVE OVER TIME, AS THE PROJECT PROCEEDS, AND THE COMPANY TEAM MAY POST MODIFICATIONS, REVISIONS AND/OR UPDATED DRAFTS UNTIL THE FINAL DOCUMENT IS PRESENTED PRIOR TO THE DATE OF THE PUBLIC TOKEN SALE.

PURCHASE OF COMPANY TOKENS IS SUBJECT TO EXECUTION OF AN AGREEMENT WITH THE COMPANY OR TOKENS SALE TERMS AND CONDITIONS. CERTAIN OF THE TERMS AND CONDITIONS DESCRIBED HEREIN ARE SUBJECT TO QUALIFICATIONS, LIMITATIONS AND/OR EXCEPTIONS AS SET FORTH IN SUCH AGREEMENT AND/OR TERMS AND CONDITIONS. THE SUMMARY CONTAINED HEREIN IS QUALIFIED IN ITS ENTIRETY BY REFERENCE TO THE ACTUAL TEXT OF THE FORM OF AGREEMENT AND/OR TERMS AND CONDITIONS PROVIDED BY THE COMPANY AND PROSPECTIVE PURCHASERS ARE REQUESTED TO CAREFULLY REVIEW SUCH DOCUMENTS.

RISK FACTORS

You should carefully consider and evaluate each of the following risk factors and all other information contained in these Terms before deciding to participate in the Token Distribution Event. If any of the following considerations, uncertainties or material risks develops into actual events, the business, financial position and/or results of operations of the Company and the maintenance and level of usage of the Tokens could be materially and adversely affected and the Tokens may have no utility or value.

Definitions:

1.1 "Token Distribution Event" means the initial transfer by the Company or the Token Entity of Company Tokens, following the date hereof, to purchasers of Company Tokens who have paid consideration for such Company Tokens in the form of, including but not limited to, other types of Blockchain Tokens, such as ETH and BTC, or another cryptocurrency, cash or a combination thereof. Notwithstanding the foregoing: (a) any other future tokens agreements, pre-commitments and pre-sales of Company Tokens and (b) a transfer of Company Tokens for no consideration or in consideration for

work or services provided to the Company or the Token Entity or any affiliate, in each case, shall not be considered a Token Distribution Event.

1.2 "Blockchain Tokens" means digital cryptographic tokens, typically virtual currency (also known as "cryptocurrency" or "digital currency"), that are implemented on a Blockchain. Blockchain Tokens may, but are not required to be, (1) transferrable on peer-to-peer networks, such as a Blockchain network, and/or (2) governed by rules regarding an inflation schedule or any starting quantity of initial supply, as well as any programmed rights or obligations set forth prior to launch and widespread circulation of said Blockchain Tokens.

1.3 "Tokens" means the Blockchain Token that the Company intends to develop and referred to as the "DNAtix Token" or such other name that may be decided upon by the Company.

1.4 "Available Information" the whitepaper, referred to as the "Available Information".

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RISKS RELATING TO PARTICIPATION IN THE TOKEN DISTRIBUTION EVENT

There is no assurance of any success of the Company's Token Distribution Event or business platform that is yet to be fully developed as envisaged by the Available Information

The utility of the Tokens hinges heavily on the performance of the Company's Token Distribution Event and business platform that is yet to be developed and the continuous active engagement of its users and success of its contemplated business lines. There is no assurance that the Company's Token Distribution Event will be successful or that its business platform that is yet to be developed will gain or continue to gain traction. While the Company has made effort to provide a realistic estimate, there is also no assurance that the cryptocurrencies raised in the Token Distribution Event will be sufficient for the development of the Company's business platform. For the foregoing or any other reason, the development of the Company's business platform and launch of the anticipated Token functionality may not be completed and there is no assurance that it will be launched at all. As such, distributed Tokens may hold little or no worth or value.

The funds raised in the Token Distribution Event are exposed to risks of theft

The Company will make every effort to ensure that the funds received from the Token Distribution Event will be securely held. Further, the Company may make every effort to ensure that the funds received by it from Token Distribution Event will be securely held through the implementation of security measures. Notwithstanding such security measures, there is no assurance that there will be no theft of the cryptocurrencies as a result of hacks, sophisticated cyber-attacks, distributed denials of service or errors, vulnerabilities or defects on the Token Distribution Event website, in the smart contract(s) on which the Token Distribution Event relies, on the Ethereum blockchain or any other blockchain, or otherwise. Such events may include, for example, flaws in programming or source code leading to exploitation or abuse thereof. In such event, even if the Token Distribution Event is completed, the Company may not be able to receive the cryptocurrencies raised and the Company may not be able to use such funds for the development of the Company's business platform. In such case, the launch of the Company's business platform might be temporarily or permanently

curtailed. As such, distributed Tokens may hold little worth or value and this would impact their trading price.

RISKS RELATING TO THE COMPANY

The Company's business platform that is yet to be developed

Any events or circumstances which adversely affect the Company or any of its successor or affiliated operating entities may have a corresponding adverse effect on the Company's business platform that is yet to be developed, including but not limited to the development, structuring and launch of the Company's business platform. Such adverse effects would correspondingly have an impact on the utility, liquidity, and the trading price of the Tokens.

The Company may be materially and adversely affected if it fails to effectively manage its operations as its business develops and evolves, which would have a direct impact on its ability to develop, maintain or operate the Company's business platform and/or develop, structure and/or license any Token functionality

The financial technology and cryptocurrency industries in which the Company competes have grown rapidly over the past few years and continue to evolve in response to new technological advances, changing business models, shifting regulations and other factors. As a result of this constantly changing environment, the Company may face operational difficulties in adjusting to the changes, and the sustainability of the Company will depend on its ability to manage its operations, ensure that it hires qualified and competent employees, and provides proper training for its personnel. As its business evolves, the Company must also expand and adapt its operational infrastructure. The Company's business will in part rely on its blockchain-based software systems, cryptocurrency wallets or other related token storage mechanisms, blockchain technology and smart contract technology. All of these systems, tools, and skillsets represent complex, costly, and rapidly changing technical infrastructure. In order to demonstrate continued ability to effectively manage technical support infrastructure for the Company's business platform that

is yet to be developed and the future functionality of the Tokens, the Company will need to continue to upgrade and improve its data systems and other operational systems, procedures, and controls. These upgrades and improvements will require a dedication of resources and are likely to be complex and increasingly rely on hosted computer services from third parties that the Company does not or will not control. If the Company is unable to adapt its systems and organization in a timely, efficient, and cost-effective manner to accommodate changing circumstances, its business, financial condition and/or results of operations may be adversely affected. If the third parties whom the Company relies on are subject to a security breach or otherwise suffer disruptions that impact the services the Company uses, the integrity and availability of its internal information could be compromised, which may consequently cause the loss of confidential or proprietary information and/or economic loss. The loss of financial, labor or other resources, and any other adverse effect on the Company's business, financial condition and/or operations, would have a direct adverse effect on the Company's ability to develop maintain or operate the Company's business platform and/or to develop, structure and/or license the anticipated Token functionality. Any adverse effects affecting the Company business or technology are likely to also adversely impact the utility, liquidity, and trading price of the Tokens.

The Company may experience system failures, unplanned interruptions in its network or services, hardware or software defects, security breaches or other causes that could adversely affect the Company's infrastructure network, and/or the Company's business platform that is yet to be developed

The Company is not able to anticipate when there would be occurrences of hacks, cyber-attacks, distributed denials of service or errors, vulnerabilities or defects in: the Company's business platform that is yet to be developed, in the smart contracts on which the Company or the Company's business platform relies, or on the Ethereum or any other blockchain. Such events may include, for example, flaws in programming or source code leading to exploitation or abuse thereof. The Company may not be able to detect such hacks, cyber-attacks, distributed denials of service errors vulnerabilities or defects in a timely manner, and may not have sufficient resources to efficiently cope with multiple service incidents happening simultaneously or in rapid succession.

The Company's network or services, which would include the Company's business platform that is yet to be developed and, if successfully structured, developed, licensed and launched, the Token functionality, could be disrupted by numerous events, including natural disasters, equipment breakdown, network connectivity downtime, power losses, or even intentional disruptions of its services, such as disruptions caused by software viruses or attacks by unauthorized users, some of which are beyond the Company's control. There can be no assurance that cyber-attacks, such as distributed denials of service, will not be attempted in the future or that the Company's security measures will be effective. The Company may be prone to attacks on its infrastructure intended to steal information about its technology, financial data or user information or take other actions that would be damaging to the Company and/or holders of the Tokens. Any significant breach of the Company's security measures or other disruptions resulting in a compromise of the usability, stability, and security of the Company's business platform that is yet to be developed may adversely affect the utility, liquidity and/or trading price of the Tokens.

The Company may in the future be dependent in part on the location and data center facilities of third parties

The Company's future infrastructure network may be established in whole or in part through servers which it owns and/or houses at the location facilities of third parties, and/or servers that it rents at data center facilities of third parties. If the Company is unable to renew its data facility leases on commercially reasonable terms or at all, the Company may be required to transfer its servers to a new data center facility, and may incur significant costs and possible service interruption in connection with the relocation. These facilities are also vulnerable to damage or interruption from, among others, natural disasters, arson, terrorist attacks, power losses, and telecommunication failures.

Additionally, the third-party providers of such facilities may suffer a breach of security as a result of third-party action, employee error, malfeasance or otherwise, and a third party may obtain unauthorized access to the data in such servers. The Company and the providers of such facilities may be unable to anticipate these techniques or to implement adequate preventive measures.

The Company or the Tokens may be affected by newly implemented regulations

Distributed ledger technologies, businesses and activities as well as cryptocurrencies and cryptocurrency-related businesses and activities are generally unregulated worldwide, but numerous regulatory authorities across jurisdictions have been outspoken about considering the implementation of regulatory regimes which govern distributed ledger technologies, businesses and activities as well as cryptocurrencies and cryptocurrency-related businesses and activities. The Company or the Tokens may be affected by newly implemented regulations relating to distributed ledger technologies, businesses and activities as well as cryptocurrencies and cryptocurrency-related businesses and activities, including having to take measures to comply with such regulations, or having to deal with queries, notices, requests or enforcement actions by regulatory authorities, which may come at a substantial cost and may also require substantial modifications to the Company's business platform that is yet to be developed and/or the anticipated Token functionality. This may impact the appeal or practicality or functionality of the Company's business platform that is yet to be developed and/or the anticipated Token functionality for users and result in decreased usage of and demand for the Company's business platform and the Tokens. Further, should the costs (financial or otherwise) of complying with such newly implemented regulations exceed a certain threshold, maintaining the Company's business platform that is yet to be developed and/or developing, structuring, licensing and/or launching the Token functionality may no longer be commercially viable, and the Company may opt to discontinue the Company's business platform that is yet to be developed and/or the anticipated Token functionality, and/or the Tokens. Further, it is difficult to predict how or whether governments or regulatory authorities may implement any changes to laws and regulations affecting distributed ledger technology and its applications, including the Company's business platform that is yet to be developed and/or the anticipated Token functionality, and/or the Tokens.

The Company may also have to cease operations in a jurisdiction that makes it illegal to operate in such jurisdiction, or make it commercially unviable or undesirable to obtain the necessary regulatory approval(s) to operate in such jurisdiction. In scenarios such as the foregoing, the utility, liquidity, and/or trading price of Tokens will be adversely affected and/or Tokens may cease to be traded.

The Company's business may be impacted by regulatory approvals

The Company's anticipated business involves the use and storage of genetic information on a blockchain. The services proposed to be offered by the Company will be subject to obtaining applicable regulatory approvals. The Company's business would be adversely impacted if it is unable to obtain such approvals in one or more jurisdictions. In addition, the concept of storing sensitive medical information on a blockchain has not, to the Company's knowledge, been tested, and such proposed storage may be subject to various regulatory or other limitations, restrictions or prohibitions.

There may be unanticipated risks arising from the Tokens

Blockchain Tokens such as the Tokens are a relatively new and dynamic technology. In addition to the risks included in the above discussion of risk factors, there are other risks associated with your purchase, holding, and use of the Tokens, including those that the Company cannot anticipate. Such risks may further appear as unanticipated variations or combinations of the risks discussed above.

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DISCLAIMER

The presentation of the Available Information is solely for informational purposes. Anyone interested in purchasing Tokens and participating in the Token Distribution Event should consider the various risks prior to making any kind of decision in respect of the Token Distribution Event. The Available Information does not comprise any advice by the Company or by the Company Representatives, or any recommendation to any recipient of the Available Information, by the virtue of any participation in the Token Distribution Event or otherwise. The Available Information does not necessarily identify, or claim to identify, all the risk factors connected with the Company, the Company's business platform that is yet to be developed, the Tokens, the Token Distribution Event, any future Token functionality or the Available Information. All the participants must make their own independent evaluation, after making such investigations as they consider essential, of the merits of participating in the Token Distribution Event and after taking their own independent professional advice. Any participant in the Token Distribution Event should check with and rely upon their own investment, accounting, legal and tax representatives and consultants in respect of such matters concerning the Company, the Company's business platform that is yet to be developed, the Tokens, the Token Distribution Event, any future Token functionality and the Available Information and to assess separately the financial risks, consequences and appropriateness of the purchase of Tokens, or if in any doubt about the facts set out in the Available Information. A purchase of Tokens comprises considerable risk and might involve extraordinary risks that may lead to a loss of all or a significant portion of monies or monetary value utilised to acquire Tokens. Participants in the Token Distribution Event are urged to completely understand, be aware of and accept the characteristics of the Company, the Company's business platform that is yet to be developed, the Tokens, the Token Distribution Event, any future Token functionality and the Available Information. If you are not prepared to accept any or all of these Terms or the risks set out in these Terms then YOU ARE URGED NOT TO PARTICIPATE IN THE TOKEN DISTRIBUTION EVENT. No guarantee or assurance is given by the Company or by the Company Representatives that the Company's proposals, objectives and/or outcomes set out in the Available Information will be achieved in whole or in part. You are urged to consider whether participation in the Token Distribution Event is suitable for you having regard to your personal and financial circumstances and your financial resources.

No Offer of Securities or Registration

The whitepaper does not constitute a prospectus or offer document of any sort and is not intended to constitute an offer of securities or a solicitation for investment in securities in any jurisdiction. No person is bound to enter into any contract or binding legal commitment and no cryptocurrency or other form of payment is to be accepted on the basis of all or any part of the Available Information. Any agreement in relation to any sale and purchase of Tokens is to be governed by the terms and conditions of such agreement and no other document. In the event of any inconsistencies between the terms and conditions of that agreement and the Available Information, those terms and conditions shall prevail.

No regulatory authority has examined or approved of any of the Available Information. No such action has been or will be taken under the laws, regulatory requirements or rules of any jurisdiction. The publication, distribution or dissemination of the Available Information does not imply that the applicable laws, regulatory requirements or rules have been complied with. The Token Distribution Event and/or the Tokens could be impacted by regulatory action, including potential restrictions on the ownership, use, or possession of such Tokens. Regulators or other competent authorities may demand that we revise the mechanics of the Token Distribution Event and/or the functionality of the Tokens in order to comply with regulatory requirements or other governmental or business obligations.

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OVERVIEW

THE CRYPTOCURRENCY FOR GENETIC SERVICES

THE VISION

DNAtix intends to create a future ecosystem for Genetics where consumers, researchers, laboratories and clinics operate making Genetics more accessible, transparent and anonymous.

DNAtix intends to offer cutting-edge Genetics and Blockchain services which intends to be anonymous and encrypted and intends to include: analysis, storage and transfer of digitized DNA sequences through a Direct-to Consumer platform (D2C).

DNAtix intends to sell a crypto Token – DNAtix token, that intends to support future development and use of its DNAtix genetic platform. The DNAtix platform intends to enable users to upload partial or full genomic sequences in an easy and anonymous manner. It intends to allow genetic tests to be performed and intends to offer clients the opportunity to get referrals to an appropriate solution provider for tested genetic conditions. DNAtix intends to enable its users to take ownership of their genetic data, encouraging them to manage their health today, moving from Reactive to Preventative medicine.

THE RIGHT TECHNOLOGY AT THE RIGHT TIME

THE NEED

Direct-to-Consumer (D2C) genetic services hold huge promise for users with forecasted exponential growth. For many years D2C services remained in their infancy stage because of:

REGULATION
Worldwide health authorities have demonstrated indecision towards D2C
genetic services until now.

COSTS
The number one issue in modern genetic health for undertaking Full Genome Sequencing.
It has been a very expensive service, preventing it being accessible to all.

ANONYMITY
Genetic data is highly sensitive. Distribution of genetic data over the web ensuring privacy and integrity of data in the past was very limited. This has changed due to the development of the Blockchain technology and Smart Contracts that provide both security and anonymity.

We are standing at the threshold of a major disruption in the Genetic testing space. Different health fields are coming together to collaborate and enhance each other's activities and growth, thus making DNAtix services and the DNAtix token the right technology, at the right time and place.

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THE SOLUTION

DNAtix intends to be at the forefront with its technology:

REGULATION

The Food and Drug Administration (FDA) has recently allowed 23andMe to market 10 genetic tests direct to consumers. These tests include health related genetic tests for Parkinson, Celiac and Alzheimer's disease (1). This first approval will enable other companies including DNAtix, to offer genetic services directly to clients. DNAtix is currently the only company that offers a working platform performing digital analysis, storage, and transfer of DNA sequences soon to implement encrypted block-chain technology.

COSTS AND TIME

The costs of Full Genome Sequencing are dropping. What was once completed at a cost of $3.5 billion and required 13 years, will very soon be offered at the price of $100 and will be completed in just a few hours (2,3).

ANONYMITY

Up until now, there has been no way to provide anonymous, direct to consumer genetic services. The DNAtix token will enable, for the first time, an anonymous and secure method for analysis, transfer, storage and payment of DNA sequences.

This white paper presents our strategy for becoming the leading company in the D2C genetic services space.

DNATIX

Our goal is to become the brick and mortar genetics company operating in the Blockchain genetic ecosystem

DNAtix have a working prototype of the DNAtix genetic platform

We have a proof of concept for uploading genetic data onto the Blockchain securely

We intend to bring together two "hot" fields - genetics and Blockchain

DNAtix will enable anonymous and secured DNA storage, transfer and testing.

PART I

GENETICS

1.1 ABOUT DNA

DNA (short for Deoxyribonucleic acid) is the molecule that carries the genetic instructions for growth, development, functioning and reproduction of almost all known living organisms. Most DNA molecules consist of two biopolymer strands coiled around each other to form a double helix. The double helix is composed of long chains of four nucleotides: (cytosine [C], guanine [G], adenine [A] or thymine [T]). DNA is arranged in structures called chromosomes and humans carry 23 pairs of chromosomes. DNA is composed of coding and noncoding regions with the coding sequences storing biological information in genes that code for proteins - the building blocks of living organisms. Human DNA consists of about 3 billion bases, of which approximately 99 percent are the same in all people. The order, or sequence, of these bases determines the information available for building and maintaining an organism, similar to the way in which letters of the alphabet appear in a certain order to form words and sentences.

1.2 DNA SEQUENCING

DNA sequencing is the process of determining the precise order of the four bases—adenine, guanine, cytosine, and thymine within a DNA molecule. The rapid process attained with modern DNA sequencing technologies has made sequencing of the DNA genome inexpensive, fast and accurate.

Determination of the exact sequence of a human can assist in identification of genetic risks and subsequently be used in preventive medicine for the inhibition and sometimes complete prevention of the development of those genetic conditions. Since the completion of the Human Genome Project in 2003, resulting in the first full draft of a human DNA genome, sequencing speeds have increased and costs significantly reduced. Today individual genes can be sequenced routinely, and some labs can sequence well over 100,000 billion bases per year. Today an entire genome can be sequenced for just a few thousand dollars and it's predicted that within the next two years, human sequencing intends to cost as low as $100USD [2].
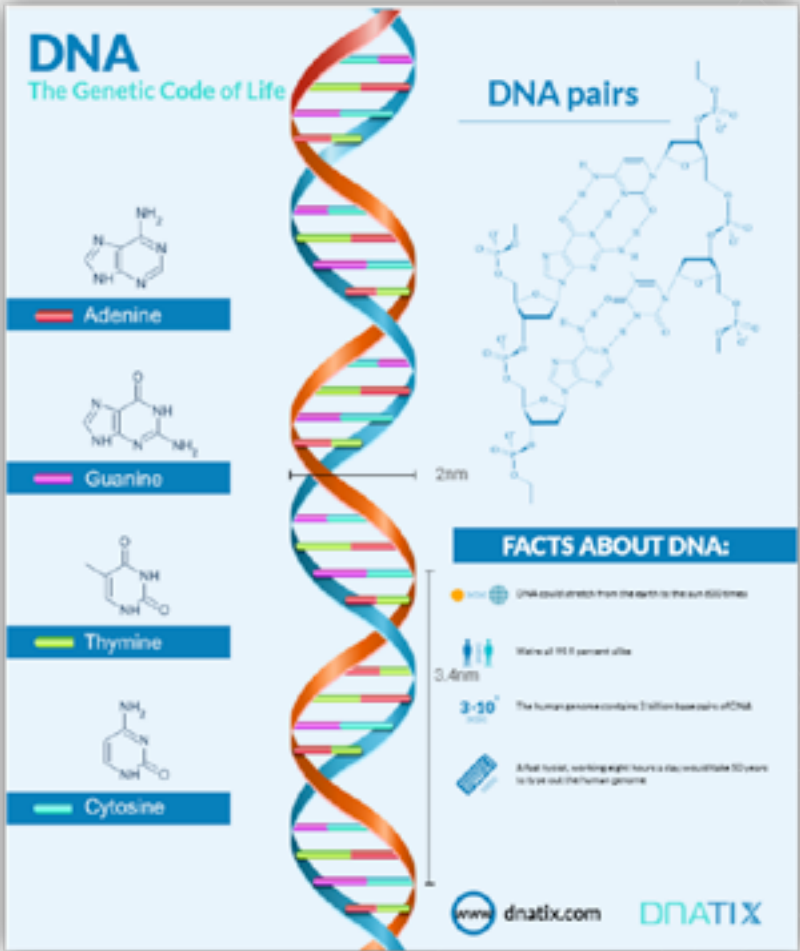
1.3 PERSONALIZED MEDICINE AND GENETICS

Personalized medicine is referred to as the medical doctrine for treating patients that belong to different groups and aims to tailor medical decisions, practices, interventions and pharmaceutical treatment to the individual patient. Personalized medicine today, is based on the development of several fields that include diagnostic, (Bio)informatics, big data analysis and genetic/genomics approaches that offer understanding of the molecular basis of disease and genetic conditions.

Every person has his own unique genomic sequence with minor differences between individuals. While most of the variations between individuals has little or no effect on their phenotypes (the composite of an organism's observable characteristics or traits) there are cases where such minor differences (e.g. mutations) could lead to significant variances between two people. In some cases, these variations can have a major impact on an individual's health. Personalized medicine relies on technologies which analyze the DNA, RNA, protein, microbiom and epigenetics make-up of a person, which eventually leads to tailoring specific medical solutions to a disease or condition. One of the tools frequently being used in personalized medicine is DNA sequencing which covers parts or the complete human genome. By revealing alterations such as mutations, deletions, repetitions and etc... in DNA that influence the diseases outbreak and progression, such diseases as sickle cell anemia, cystic fibrosis and cancer can be properly and effectively treated.

Personalized medicine that is genetics based is the basis of the shift from reactive (treatment) medicine to preventive medicine. Using predictive tools to assess health risks, one can design personalized health plans to help patients mitigate risks, prevent disease, treating it more precisely when it occurs.

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1.4 GENETIC TESTING PAST AND FUTURE

Genetic testing is the process through which DNA is examined and the relation between a specific part of the DNA (single nucleotide, DNA sequence, chromosome etc) and a genetic condition are determined. Genetic testing can assist in risk identification of genetic conditions or diseases that could later be translated into predictive and/or pro-active medical treatment.

The world of genetic testing is undergoing a revolution as reflected in the following areas:

I.   Transition from repeated "wet genetic tests" (based on biological sample such as saliva, blood or stool) to digital tests based on a digital sequence depended on one-time DNA sequencing).

II.   Transition from genetic tests conducted in hospitals or health care centers to tests that are marketed direct-to-consumer.

III.   Expansion of the scope of genetic testing from medical genetic test to tests in areas such as lifestyle and wellbeing, genealogy and forensics.

Genetic tests available today cover diverse fields:

HEALTH
'Personalized medicine' includes the identification of the risk for developing a genetic condition or disease and subsequently receiving a tailored medical treatment, as it becomes available.

LIFESTYLE
Administration of various aspect of a person's daily life including for example determination of personalized dietary needs (referred to 'Nutrigenetic and nutrigenomics'), management of hair loss, improved sports performance and more.
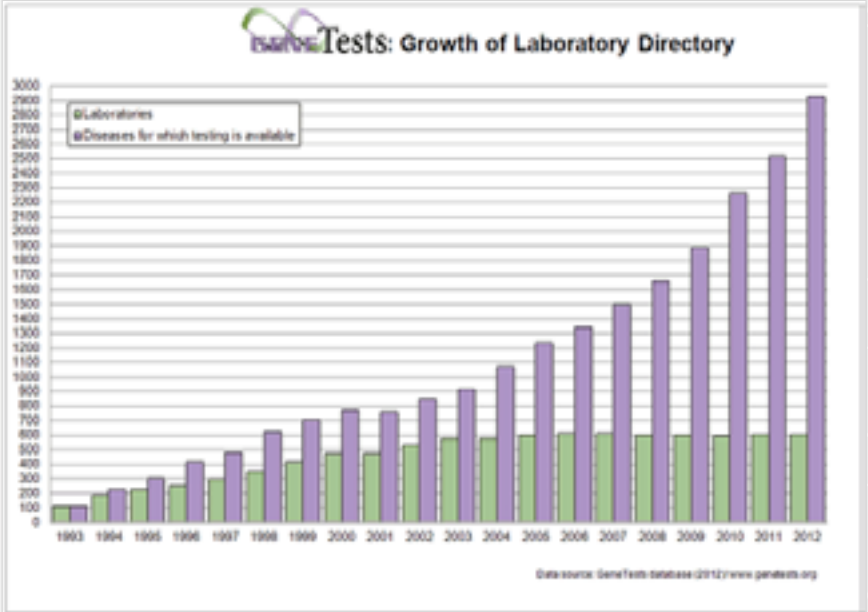
CRIME
Tests that supports CSI: Crime Scene Investigation.

ANCESTRY
Tests to support Genealogical analysis and related tests such as paternity.

We are witnessing a constant increase in the number and types of genetic tests being offered and performed each year.

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1.5 DIRECT-TO-CONSUMER GENETIC TESTING

Traditional genetic testing involves a health practitioner that retrieves a DNA sample (by collecting blood, saliva or buccal swabbing) that is sent to the genetic lab for analysis. The next step, is usually the meeting with the practitioner who could be a physician or a genetic counsel, to obtain the results and understand their meaning. In recent years a slightly different approach towards genetic testing has evolved in which the clients perform the sample collection at home usually via saliva or buccal swabbing kits. The sample is then delivered to the genetic service provider via courier and the results are sent back electronically to the client.
On-line counseling services or genetic counseling services over the phone replaces the traditional face to face meeting with the genetic counsel.

The regulations for performing DTC genetic testing varies from country to country so in some countries the DTC process is mediated by a physician that orders the test for a patient. For several years it was not clear whether or not DTC services could be offered in the US however in November 2013, the US Food and Drug Administration (FDA) sent a warning letter to 23andMe, Inc. ordering the company to discontinue marketing the 23andMe Personal Genome Service (PGS). On April 2017, 23andMe services were re-approved by the FDA now covering 10 genetic conditions including Alzheimer's disease, Celiac and more. It is clear that as more people have their full genomes available at hand, so the demand for DTC genetic tests intends to increase.

1.6 THE DNA SEQUENCING MARKET

The Genomic market covers several services including:

DNA MICROARRAY
In these arrays single nucleotides polymorphisms (SNPs) also referred to as mutations are analyzed. Different Arrays may cover varying numbers of SNPs ranging between hundreds to over 2 Million. A DNA array intends to typically cost between $100-500. There are three basic types of microarrays: (A) Spotted arrays on glass, (B) self-assembled arrays and (C) in-situ synthesized arrays.

GENES PANELS (SUCH AS AMPLICON-SEQ OR TARGETED HYBRIDIZATION METHODS)
These panels are pre-designed to focus on targeted gene sets and are ideal for analyzing specific mutations or genes that have suspected associations with disease. Typically, the cost of gene panels would range between: $200-2000. Pathway Genomics is an example of a service provider offering Gene panels.

EXOME SEQUENCING (ES)
Exome sequencing or whole exome sequencing is sequencing genomic analysis of the protein-coding genes in a genome (known as the exome). The human genome has roughly 20,000 genes and the cost for analyzing these genes by Exome sequencing, costs between: $200-2500. BGI (Beijing Genomics Institute) is one of the leaders in the field.

WHOLE GENOME SEQUENCING (WGS OR FGS)
The process of sequencing almost the entire DNA sequence of an organism and today costs: $900-1500 (depending on the number of reads and technology being used). A key player in the field of full genome sequencing is Illumina, a global key provider of sequencing equipment.

- The number of full human genome sequencing is expected to reach 500M by 2020.

- In 2016, the DNA sequencing market was estimated to be worth around $5.2 billion and is expected to reach $18 Billion by 2020. DNA sequencing is crucial for many applications such as in the preventive and personalized medical industries and the current trends of tests D2C. The personalized medicine market is estimated to reach $149+ billion by 2020 covering companion diagnostic and targeted therapeutics.

1.7 THE GENETIC TESTING MARKET

Human DNA stores immense amounts of data that define who we are. Through our DNA analysis we can learn about our physical traits, mental aptitudes, our ancestry as well as our genetic risks for developing genetic diseases. The personalized medicine market is estimated to reach $149+ billion by 2020 and Covering Companion Genome data sets can be used to identify associations between genetic variants and diseases. This increase in Genetic testing intends to enable a tailored approach to drug matching that intends to modify selected genes and produce more precise therapies.

"Big data" platforms applying Genomic data intends to enable personalized medical drugs to be tailored for patients with a particular genetic makeup. These opportunities are advancing the growth of the genomic market to become a multi-billion-dollar one. Several Biotech companies including for example "deCODE Genetics" have launched initiatives for privately held genome projects. DeCode, based in Reykjavík, Iceland was founded in 1996 by Kári Stefánsson[13] to identify human genes associated with common diseases using population studies. deCODE's approach was to identify genes combining genetic analysis with patients' data found in the Health Sector Database (HSD) holding medical records of all Icelanders.

In December 2012, deCODE genetics was purchased by Amgen for $415 million [14] which in October 2013 spun off deCODE genetics' systems and database to a new company called NextCODE Health [15]. The constitution of large collections of whole genomes or exomes held by private companies appears to be on the rise. AstraZeneca announced a 10-year partnership with J. Craig Venter's Human Longevity Inc., a StartUp Health company, to sequence 500,000 genomes, WuXi NextCODE announced an alliance with Abbvie and Genomics Medicine Ireland to sequence the genomes of 45,000 participants from across Ireland [16]

DNATIX

DNATIX

2.1 DNATIX

DNAtix intends to create the future ecosystem for Genetics where consumers, researchers, laboratories and clinics meet to use and make Genetics in a more transparent, accessible, applicable and secured manner.

DNAtix is a cutting-edge Genetics and Blockchain company that intends to provide anonymous and encrypted genetic services including: analysis, storage and transfer of digitized DNA sequences through a Direct-to Consumer platform (D2C). DNAtix intends to create a crypto Token – the DNAtix token, that intends to be integrated into the use of its DNAtix genetic platform. The DNAtix platform enables users to upload genomic sequences in an easy and manner that upon integration with the blockchain technologies intends to be also anonymous. It allows genetic tests to be performed and offers clients the opportunity to get referrals to an appropriate solution provider for the identified genetic condition. DNAtix enables its users to take ownership of their genetic data, encouraging them to manage their health today, moving from reactive to preventative medicine.

2.2 THE STORY

Friends since 1985, Ofer A. Lidsky and Dr. Tal Sines relationship begun at Elementary School, where they both shared a love and curiosity for technologies and science-related subjects. Through this interest, and eventual knowledge and experience, they launched a breakthrough scientific and technological venture - DNAtix. Their joint vision was to create a future ecosystem for Genetics where consumers, researchers, laboratories and clinics meet to use and make Genetics better. In 2008 when Tal finished his Ph.D. in Molecular Genetics at the world renown Weizmann Institute of Science, he and Ofer set up the first phase DNAtix, a direct-to-consumer genetic services company. An agreement was signed with a US company named HairDX that led to the distribution of genetic testing for diagnosis of, the risk of developing hereditary hair loss, "Androgenetic Alopecia". Parallel partnerships followed with companies in the field of personalized medicine in the context of nutrition and genetic diagnosis of diseases.

FROM THEN   **TO NOW**

The second phase of DNAtix begun in 2015, Ofer and Tal recognized that the world of genetics was undergoing the revolution of going digital. The genetic testing world was shifting from repeatedly taking samples (blood and saliva) and analyzing them in the laboratory, to a technology where DNA is sampled and extracted once and is then sequenced becoming a digital code that could be stored on the computer. Subsequently a prototype of the DNAtix genetic platform was developed and a genetic algorithmic language was created to enables users to upload and test DNA sequences.

Phase 3 of DNAtix occurred in August 2017 when Digital DNAtix decided to implement blockchain technologies into genetics, thus creating the new DNAtix ecosystem idea. Genetic data is extremely sensitive and contains information about the person's identity, origin, family ties and of course the risk for developing genetic conditions or diseases such as Alzheimer's, cancer, diabetes and more. The fear that this information would reach the wrong hands prevented many people from using advanced genetic services and performing genetic tests. Blockchain technologies intends to solve once and for all the lack of anonymity issues and the fear of depositing the user's personal genetic information in the hands of the service providers. By developing a distributed and secure genetic ledger system based on encrypted blocks of information and based on a peer-to-peer communications network it is possible to separate the identity of the paying consumer from his genetic information. With that in mind DNAtix is developing a dedicated crypto token for genetics.

2.3 THE GENETIC FOUNDATION

We in DNAtix believe that the blockchain technologies being developed by the company should become available to all players in the genetic ecosystem. This includes: Genetic counselors, genetic laboratories, hospitals, health care providers, research institutes and R&D companies. For that purpose, DNAtix's founders intends to establish a foundation which will develop and deploy the dedicated genetic blockchain. The foundation intends to promote the development of genetic decentralized and tools to the world. By empowering developers and researchers, we intend to produce next generation decentralized Genetic applications (GDAPPS).

The DNAtix Genetic ecosystem will invite other players to collaborate in advancing genetic applications and solutions.

2.4 DNATIX GENETIC ECOSYSTEM

DNAtix intend to build the genetic ecosystem of the future that will eventually bring to the world new possibilities in genetic preventive and personalized medicine. The ecosystem that will emerge will support different players participating in it. It will form new and exciting grounds for genetic research. DNAtix believes that by merging genetics and blockchain the next phase of genetics where people can stay anonymous but still have access to the important knowledge of genetics. Among potential participants making use of the DNAtix genetic ecosystem are genetic labs, genetic research institutes, genetic researchers, hospitals, companies that provide full genome sequencing, crypto-miners and etc..

-   Paying for Genetic Services

-   Transferring DNA/RNA Sequences – The possibility of giving rights to a third party to access a certain DNA/RNA sequences on the DNAtix Blockchain.

-   Storing DNA Sequences – The possibility of storing a DNA sequence on the DNAtix Blockchain. Full genome and partial sequences.

-   Participating in Genetic Research. Giving limited access to your DNA sequence.

-   Performing Genetic Counseling and providing advisory services.

-   Developing GDAPPS to earn Tokens.
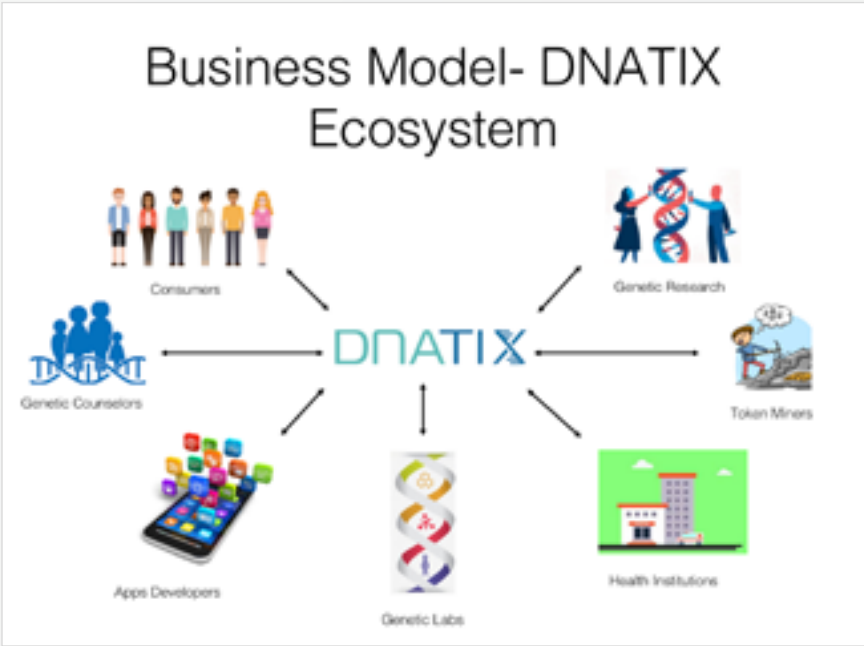
THE DNATIX ECOSYSTEM – CREATING A NEW ECONOMY FOR GENETICS!

DNATIX

2.5 LEADERSHIP TEAM

OFER LIDSKY
CEO, COFOUNDER

A serial Entrepreneur in the fields of Software Development, Cybersecurity, Virtual reality (VR) and Digital Health. Ofer was involved in development of innovative software in the VR, Neurofeedback, Genetics and Education fields. Ofer is a Cybersecurity & Cloud expert operating facilities in Israel, Europe and USA. He brings to DNAtix a wealth of entrepreneurial, organizational and leadership skills to scale and ensure the success of this venture. Ofer is also the founder of TerraSafe and Excellent Brain and contributes as a CTO at the Foresight Training Unit, Bar-Ilan University.

DR. TAL SINES
CSO, COFOUNDER

A molecular Biology expert and Patent Attorney, Tal received his PHD from the Weizmann Institute in Israel and has worked as IP Director at T3 at the Technion Research and Development Foundation and at Hadassah Ein Kerem and Hadassah Mount Scopus Hospitals.

DR. ICHAK IDIZES
BUSINESS CONSULTANT

Founder and CEO of the Adizes Institute, one of the world's leading management experts. Wrote 26 published books in 32 languages and awarded eighteen honorary doctorates in business management.

GALIT LIDSKY-RAIMAN
COO, VP MARKETING

As VP Marketing and CAO at Raiman Rocks and in different medical device startup companies, Galit brings diverse experience to her role as COO and cross marketing and development.

DAN FISHER
STRATEGIC PLANNING

As a Chief Superintendent of operations & Planning for the Strategic and Innovation department of the Israeli police, Dan brings to DNAtix extensive tactical expertise and business experience.

GALL RAIMAN
VP INVESTORS RELATIONS

Gall brings with him a rich background of entrepreneurial and business development skills. As the CEO of Raiman Rocks Gall is widely experienced in business development, finance and funding.

DNATIX

GILI KOPELEVICH
CAO

Gili oversees the daily operations and administration. Gili is also the COO at Excellent Brain bringing his business development and organizational skills to DNAtix.

DANIEL BARCHIEL
COMPUTER SECURITY SPECIALIST

As a computer expert and IT infrastructure expert, support and development at Terrasafe, Daniel brings with him cyber expertise and knowledge to his role in DNAtix.

MICHAEL KERN
COMMUNITY MANAGER

As a news writer, copywriter and editor at Safehaven. com, Oilprice.com, and Crypto Insider, with several years of covering cryptocurrencies, and participating in a number of Initial Coin Offerings, Michael brings extensive knowledge of the technology of cryptocurrencies and the geopolitical/economic implications of adoption.

SUSAN TOBY
INVESTOR RELATIONS ASIA/PACIFIC

As a startup strategic and operational level consultant for 20+ years to private enterprise and government, on initiatives In Education, Energy, Hospitality, Tourism & Retail, Susan brings with her an extensive network leading community development and investors engagement.

PETER WOLFGRUBER
BUSINESS DEVELOPMENT EUROPE

As a TV producer, development expert and writer, Peter brings to DNAtix his content development abilities and his vast network of diverse connections empowering the expansion of the DNAtix vision and platform.

DNATIX

2.6 ADVISORY BOARD

DR. PRATIBHA EASTWOOD

Dr. Pratibha Eastwood Ph.D.is a U. C. Berkley graduate and taught at the California State University Counseling Department. A licensed psychologist, certified therapist, and has developed a software program on numbers. Taught at the Jung Institute in Switzerland and currently conducts workshops and runs a successful private practice in Honolulu, Hawaii.

YEHUDA HANDELSMAN
MD, FACP, FNLA, MACE

Dr. Yehuda Handelsman is the Medical Director and Principal Investigator of the Metabolic Institute of America and an Endocrinologist in solo private practice in Tarzana, California.

RICHARD KASTELEIN

ICO adviser, publisher, writer, entrepreneur, Blockchain educator. Founder of industry publication Blockchain News (acquired in 2017) , partner at ICO services collective CryptoAssets Design Group, director of education company Blockchain Partners (Oracle Partner) Kastelein has spoken, (keynotes & panels), and is currently invited to speak at important Blockchain conventions around the globe.

EITAN KATZ

Blockchain & Tokenomics expert, HPE software incubator, Innovation management. Entrepreneurship. Lean startup. Corporate innovation. Product. Strategy planning and implementation. Market analysis. Business development. User advocacy. Team building. Hands-on technical and analytic skills.
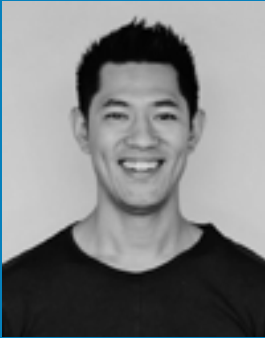
COOPER MARUYAMA

Blockchain & Tokenomics expert, blockchain developer, code & software developer, web developer, Tokenomic analysis, advisor.

HAGAR TALMOR

Experienced corporate & commercial lawyer skilled in Venture Capital, Joint Ventures, Capital Markets, Employment Law, and Corporate Law. Strong legal professional with focus in Banking, Corporate, Finance, and Securities Law. Dual Degree - B.A. in Business Administration & LL.B in Law from Interdisciplinary Center (IDC) Herzliya.

ALON KARNIEL

Graduated from law school at Tel Aviv University. Alon was a partner at Tulchisnky Stern Marciano Cohen Levtiski & Co. firm, representing companies in financing and M&A transactions. Alon advised private & public companies on corporate, financing and commercial matters.

INTEGRITY

ACCOUNTABILITY

PASSION

SIMPLICITY

RESULTS

2.7 OUR VALUES

Our values are part of our DNA. They guide the way we work with each other and the way we treat our customers.

We believe that through integrity, accountability, passion, simplicity and a focus on success, we are creating a revolution in the direct-to-consumer genetic services market, being a part of an evolutionary paradigm shift, providing people with an opportunity to discover more about themselves and take better care.

DNATIX

IN 1866 GREGOR MENDEL DISCOVERS THE BASIC
CONCEPTS OF GENETICS

IN 1869 FRIDRICH MIESCHER IDENTIFIES DNA

IN 1953 JAMES WATSON AND FRANCIS CRICK DISCOVER
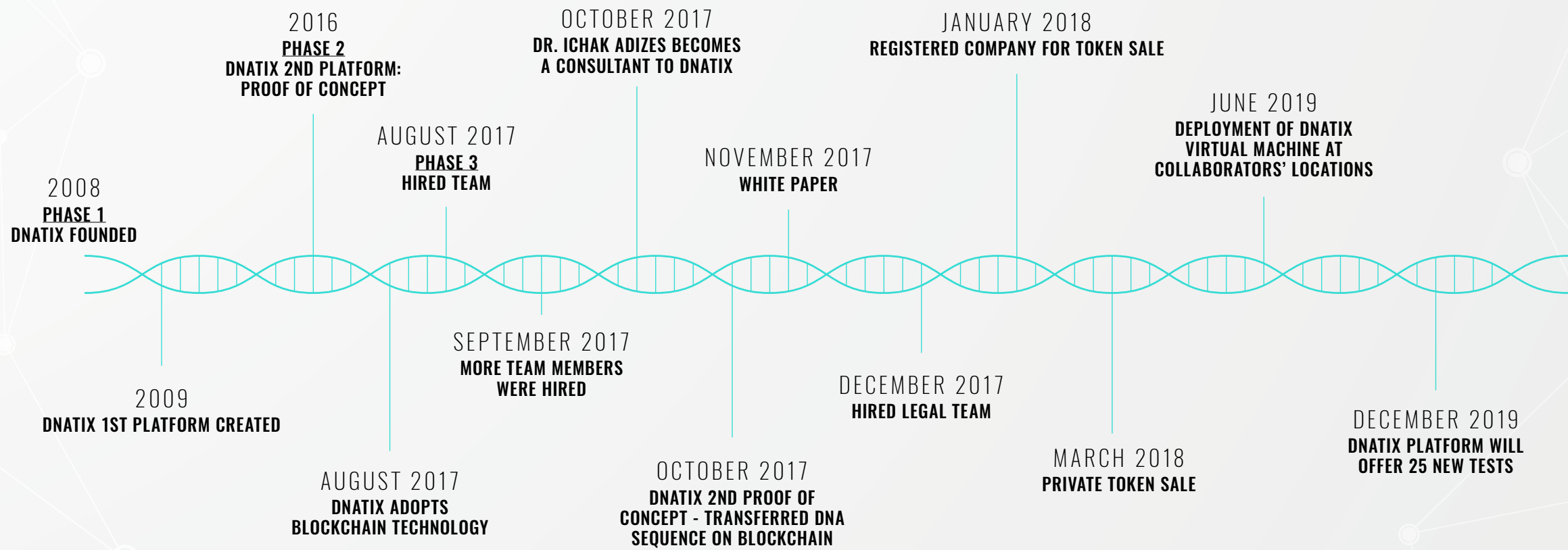THE DOUBLE HELIX

IN 1977 FREDRICK SANGER DEVELOPS FAST DNA
SEQUENCING TECHNOLOGY

IN 2003 THE HUMAN GENOME PROJECT
IS COMPLETED

**IN 2018 DNATIX IS BRINGING
GENETICS TO THE BLOCKCHAIN**

2.8 ROADMAP

We have set milestones for every significant phase of the development and implementation of the project that we intend to try and achieve. The road is intense and challenging, due to that, it is most likely the roadmap will be updated and changed.

2016
PHASE 2
DNATIX 2ND PLATFORM:
PROOF OF CONCEPT

OCTOBER 2017
DR. ICHAK ADIZES BECOMES
A CONSULTANT TO DNATIX

JANUARY 2018
REGISTERED COMPANY FOR TOKEN SALE

AUGUST 2017
PHASE 3
HIRED TEAM

JUNE 2019
DEPLOYMENT OF DNATIX
VIRTUAL MACHINE AT
COLLABORATORS' LOCATIONS

2008
PHASE 1
DNATIX FOUNDED

NOVEMBER 2017
WHITE PAPER

SEPTEMBER 2017
MORE TEAM MEMBERS
WERE HIRED

2009
DNATIX 1ST PLATFORM CREATED

DECEMBER 2017
HIRED LEGAL TEAM

DECEMBER 2019
DNATIX PLATFORM WILL
OFFER 25 NEW TESTS

AUGUST 2017
DNATIX ADOPTS
BLOCKCHAIN TECHNOLOGY

OCTOBER 2017
DNATIX 2ND PROOF OF
CONCEPT - TRANSFERRED DNA
SEQUENCE ON BLOCKCHAIN

MARCH 2018
PRIVATE TOKEN SALE

DNATIX

2.9 FUTURE PLANS

FOR DNATIX

DNAtix has already developed a working prototype that enables users to review the process of performing an array of genetic tests on DNA sequences using proprietary algorithms developed by the company.

DNAtix has already developed an algorithm for compressing DNA sequences as part of its strategy to advance the technology enabling uploading long DNA sequences on the Blockchain.

DNAtix performed a successful proof of concept for uploading a short virus DNA sequence on the Ethereum blockchain (Section 3.4).

MONTH: 0-12 POST TOKEN SALE

DNAtix intends to continue and develop the DNAtix Genetic platform so it intends to enable users to upload partial and full genomic sequences for genetic testing. DNAtix intends to incorporate in its genetic platform specific genetic tests for life style and/or healthcare. The company intends to focus on establishment of collaborations with solution providers for genetic conditions and with genetic services providers such as full genome sequencing parties.

DNAtix intends to continue and develop Genetic Blockchain technologies that to be deployed by the foundation.

MONTH: 12-36 POST TOKEN SALE

DNAtix intends to significantly increase the number of genetic tests that intends to be available to users of DNAtix Genetic platform and to increase volumes of registered users. The company would like to reach 100,000 registered users by end of yr3.

MONTH 36-60 POST TOKEN SALE

We cannot predict the future, however DNAtix intends to revolutionize the genetic world.
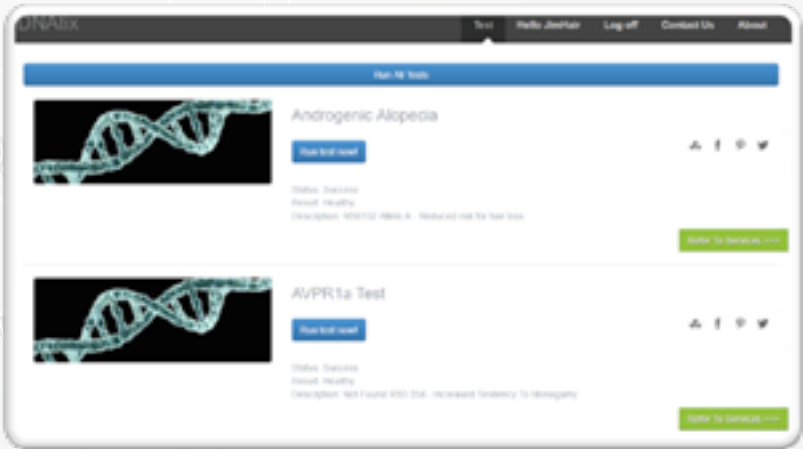
DNATIX

PART III
DNATIX TECHNOLOGY

3.1 THE DNATIX PLATFORM

The process of partial or full genome sequencing results in a digital DNA sequence that is provided to the user. This sequence has hardly any meaning for the private end-user as it is just an endless string of letters made of the four building blocks of the DNA - Cytosine [C], Guanine [G], Adenine [A] or Thymine [T]. Once fully developed, the DNAtix platform will enable users to upload genomic sequences in an easy manner. It will then enable the user to run genetic tests and will offer clients the opportunity to get referrals to an appropriate solution provider for many identified genetic conditions. DNAtix intend to enable its users to take ownership of their genetic data encouraging them to manage their health today, moving from reactive to preventative medicine.

Genetic tests will be offered through the DNAtix platform in areas such as: lifestyle and wellbeing, genealogy, forensics and of course medical genetic tests.

3.2 TECHNOLOGY OF BLOCKCHAIN TOKEN

BACKGROUND
Native tokens, like Bitcoin or Ethereum, are part of the incentive scheme to encourage a diverse group of people who don't know or trust each other to organize themselves around the purpose of a specific Blockchain. The native token of the Bitcoin network also referred to as Bitcoin, has token governance rules based on a crypto economic incentive mechanisms that determines under which circumstances Bitcoin transactions are validated and new blocks are created (Consensus mechanisms). The concept of decentralized ledger trustless systems which disrupts classic top down governances [5].

There are different types of tokens (Crypto Economics is so new, that we are still in the early stages of exploring different roles and types of tokens) [5].

USAGE TOKENS
A token that is required to use a service. Bitcoin and Ether are the best examples of usage tokens — token ownership does not give you any specialized rights within the network, but does give you access to the service (the Bitcoin payment network and the Ethereum Virtual Machine in the case of BTC and ETH). Scarce tokens combined with a useful service can create massive value for token holders and entrepreneurs.

WORK TOKENS
A token that gives users the right to contribute work to a decentralized network or DAO (whether on blockchain level or smart contract level) and earn in exchange for their work. That work can be serving as an oracle (in the case of Augur), being the backstop in a collateralized debt system (in

the case of Maker), or securing the network (in the case of Ethereum when it switches to proof of stake).

APPLICATION TOKENS
With Ethereum, tokens can now easily be sold on the application layer through smart contracts on the Ethereum Blockchain as so-called complex dApp tokens or complex DAO tokens.

ASSET-BACKED TOKENS
Sold by a party onto a Blockchain for redemption later. They are the digital equivalent to physical assets, (like the gold), that you need to claim from a specific person (the goldsmith). The transactions as tokens get passed between people and are recorded on the blockchain. [5]

3.3 THE DNATIX VIRTUAL MACHINE

BACKGROUND

In a similar concept to the Ethereum Virtual Machine ("EVM") - Ethereum is a programmable blockchain. The concept that differentiates Ethereum from Blockchain is that instead of providing users with a set of pre-defined operations Ethereum supports creation of any complex operation users wish to design. Ethereum can be envisioned as platform that can serve various types of decentralized Blockchain applications such as cryptocurrencies.

Ethereum includes a set of protocols that define a platform for decentralized applications. At the heart of it is the Ethereum Virtual Machine ("EVM"), which can execute code of arbitrary, algorithmic complexity. Developers can create applications that run on the EVM using friendly programming languages modelled on existing languages like JavaScript and Python [11].

DNATIX VIRTUAL MACHINE

DNAtixVM – The DNAtix Virtual Machine runs as a node on the DNAtix Blockchain.

DNAtix is developing its own Virtual Machine DNAtixVM – that operates as a node on the DNAtix Blockchain. The DNAtixVM will be distributed and deployed by the different players (service providers) in the Genetic Ecosystem – These are genetic labs, genetic research institutes, genetic researchers, hospitals, companies that provide full genome sequencing, crypto-miners and etc.

WHAT DO GENETIC SERVICE PROVIDERS GAIN?

A branded genetic portal that runs on the Virtual Machine that can provide their clients with genetic services that are anonymous and secured via the Blockchain.

WHAT DO THE CRYPTO-MINERS GAIN?

Crypto-miners would be rewarded for devoting their computer power to the network.

WHAT DOES DNATIX GAIN?

- Deployment of nodes that intends to support the DNAtix genetic blockchain.

- Increase in the use of the DNAtix token as new GDAPP's are developed and distributed.

WHAT DO DEVELOPERS GAIN?

The ability to develop and assimilate new GDAPPS (Genetic Distributed Applications) that could be offered to their clients.
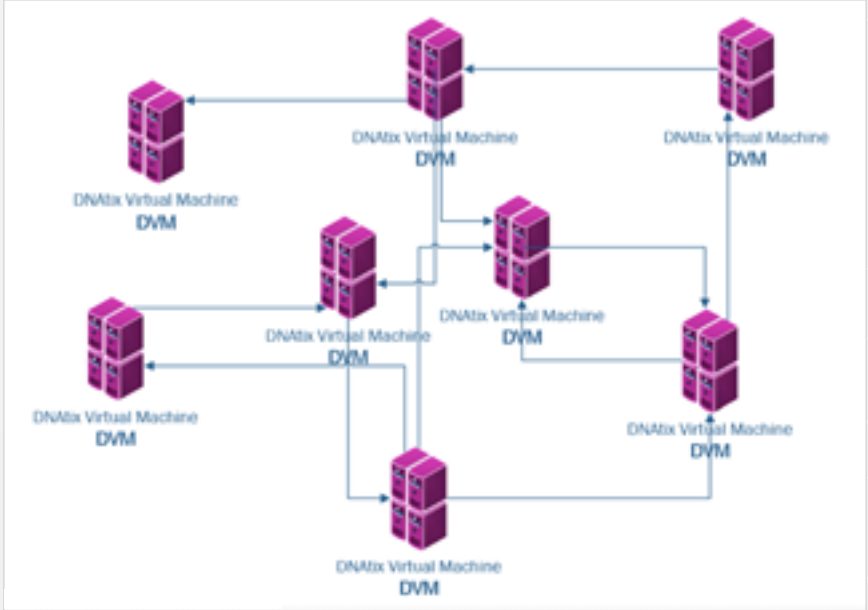
3.4   DNATIX POC (PROOF OF CONCEPT)

DNAtix has completed the first proof of concept test by uploading the sequence of the Enterobacteria phage phiX174 sensu lato, complete genome and transferring data through an Ethereum Blockchain using Transactions. The Enterobacteria phage phiX174 sensu lato is a single-stranded DNA (ssDNA) virus and the first DNA-based genome to be sequenced. This work was completed by Fred Sanger and his team in 1977.[6] Nobel prize winner Arthur Kornberg used ΦX174 as a model to first prove that DNA synthesized in a test tube by purified enzymes could produce all the features of a natural virus, ushering in the age of synthetic biology.[8][9][10]

The DNAtix development team conducted an internal test in order to perform a proof of concept and technical research on transferring DNA sequences on a Blockchain. The trial test was conducted during December 2017 using the Ethereum Blockchain infrastructure to store a full DNA sequence of a virus. As part of the research and development being done by the innovative development team at DNAtix, new technologies and solutions are being developed that will form part of the DNAtix Blockchain ecosystem.

Since the beginning of time, people have traded valuables for exchange of money or other valuables. Since the invention of credit cards, people have found a way to store large amounts of money. New technologies have been developed and improved to store and spend money however so have the tools and techniques to hack those technologies.

In some cases, people have been fired, companies have gone into bankruptcy, and money has been taken from hard working people by hackers. Because of these incidents, people know exactly who to blame – the organization that wasn't cautious enough to fix the vulnerabilities the hackers exploited, and this logic is understandable. One company

which holds all the passwords of all users as well as personal information regarding those users, on one or more servers, held on another server that coordinates their operations, has a potential attack path for hackers to obtain access and control over the servers.

To fix the centralized issue, blockchain was invented. To fix the issue, Ethereum has a Blockchain, which is basically a distributed ledger. The Blockchain logs all transactions of Ether and can provide the current balance of an Ethereum wallet based on its transactions history. A surprise with this Blockchain is the location on which it's stored – everywhere. Every Ethereum user must store a copy of the ledger on the Blockchain (as of December 2017 – more than 470GB of data).
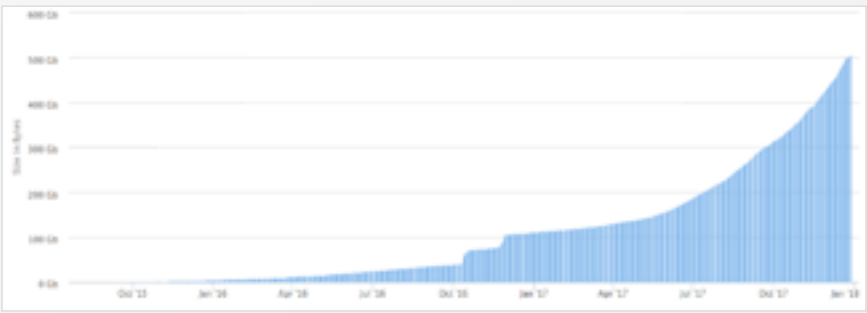
Forcing users to be part of the network will ensure that every user donates to the integrity of the ledger. With no specific address or target to attack, it is almost impossible to alter the Blockchain. With every transaction made and logged, the user can optionally add data to it. Imagine receiving money with a letter embedded in it. With an Ethereum transaction, money and data can change hands therefore theoretically we can send data through

the Ethereum network and it will be decentralized, broken into pieces and stored on many computers to ensure greater security. It sounds great but there are some limitations on moving data through that network:

- Maximum data length is limited and varies on every new block created

- A fee is paid for every Byte of data transferred through the Blockchain

Ethereum is a network, also known as a Blockchain. Ether (ETH) is the fuel for that network. When you send tokens, interact with a contract, send ETH, or do anything else on the Blockchain, you must pay for that computation

That payment is calculated in Gas and Gas is paid in ETH. Miners must validate the transaction. Whether the transaction succeeds or fails, you pay for the opportunity to transact. Gas is typically referred to Gas Limit or Gas Price and is measured in Wei, which is one quintillionth of ETH (1 Wei = $10\text{-}18$ ETH). The total cost of a transaction (the "TX fee") is the Gas Limit * Gas Price.

You must include enough Gas to cover the computational resources you use, or your transaction intends to fail due to an Out of Gas Error. If you want to spend less on a transaction, you can do so by lowering the amount you pay per unit of Gas. The price you pay for each unit increases or decreases depending on how quickly your transaction is mined.

DNATIX

The data (hex representation of bytes) changes the total TX fee as well.

(21000+68*LENGTH_OF_DATA_IN_BYTES)*GAS_PRICE =TX_COST

For our experiment, we had to find a way to send a 5390 Nucleotides long DNA sequence using a transaction while minimizing its TX fee. First, we found a way to compress and encrypt the DNA to a quarter of its length and then implement that to a Python script.

Using this script, we expressed the nucleotides as hex representing binary and attached it to the transaction.

Since the Blockchain is too large for a consumer to download (and very time consuming), an alternative that allowed us to perform actions on the Blockchain, was to connect a wallet endpoint. We used Etherscan.io to make the transaction. Using the easy-to-use UI and UX of MyEtherWallet. com, we imported a Keystore of an account with about 0.2 ETH. We created another Ethereum wallet to receive the money and data.

The Website uses Etherscan's API first to check balances, then to connect to a wallet, calculate the amount, estimate the Gas required to successfully pull off the transaction, then queue the request to the Blockchain.
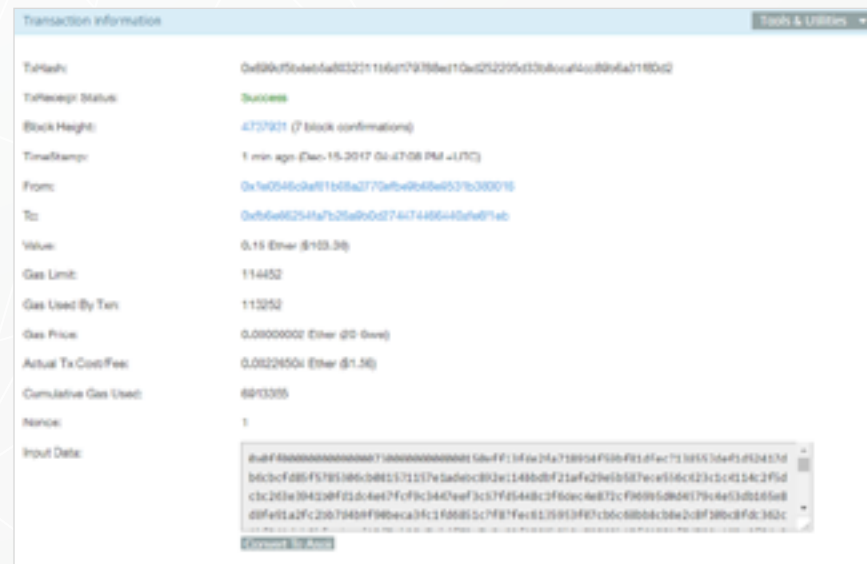

We estimated the Gas limit using the function above and added more Gas to have a leeway and prevent the Out of Gas Error. We sent most of the account's balance with the data of the virus.

When the transaction was performed, we waited and received a TX Hash on the Blockchain. Once the TX Hash is generated, EVERYONE has access to the data we sent.

3.5 THE DNATIX DNA COMPRESSION ALGORITHM

DNAtix has developed a dedicated compression algorithm for digital Partial or Full Genome Sequences. The idea is based on the conversion of 4 Genetic Code letters into a 2-bit code, which can then represent any of the 4 letters; C,G,T,A. The current working algorithm can compress any sequence to approximately 25% of its size.

All the DNA sequences that are being uploaded into the system intends to be converted to the compressed form in order to save space and make processing faster.

An important note regarding posting data on the Blockchain: the data is public and can be seen by everyone. It's crucial to encrypt your data before sending it through the Blockchain.

3.6 DNATIX INTELLECTUAL PROPERTY

DNAtix has filed a provisional patent application US 62/637,499

DNAtix is in the process for preparation and filing an additional provisional patent application.

DNAtix has filed for a US trademark US Serial Nos. 87/850,695 & 87/850,702.

DNATIX TOKENOMICS

4.1 THE INITIAL DNATIX TOKEN

The initial DNAtix Token is an Ethereum based token which will be used in the DNAtix Genetic Ecosystem.

The initial DNAtix Token is created on the basis of the ETH standard ERC-20. This standard guarantees that the token will work in the ETHEREUM blockchain in a predictable manner.

Based on this standard, more than 8,000 tokens have been released. For more information please look at this: https://etherscan.io/tokens

Our smart contract for token release will be available soon at:

www.github.com/dnatix

4.2 THE DNATIX GENETIC WALLET

DNAtix intends to develop the most innovative Genetic crypto-wallet that is intended to enable different kinds of users of the ecosystem to perform and pay for different Genetic services.

The DNAtix Genetic Wallet is intended to connect between the two worlds of Genetics and Blockchain. Through the wallet users can upload DNA sequences to the DNAtix Blockchain.

4.3 DNATIX TOKEN USABILITY

STORING DNA SEQUENCE

Storing DNA sequences on the DNAtix blockchain will be easy and secured. The task is performed by a specially designed Smart Contract embedded in the DNAtix token using the DNAtix Wallet allowing users to encrypt their DNA. As part of the proposed process the next step will use sophisticated compression and encryption algorithms designed by DNAtix team. Once compressed the data is then stored on the secure DNAtix Blockchain.

TRANSFER DNA SEQUENCE

Transferring a DNA sequence on the DNAtix blockchain simply means giving a third party specific and defined access rights to access certain DNA sequences that are stored on the DNAtix blockchain.

This ground-breaking concept was designed to allow high level Genetic research to be conducted within the DNAtix eco-system.

Utilizing a large database of DNA sequences, Genetic specialists will be able to study, perform tests, and find solutions to some of the most difficult-to-solve mysteries in the world of genetics, while simultaneously providing those who have volunteered their data worthwhile returns for their contributions. The transfer allows third parties to access the DNA sequence code based on the following options:

PARTIAL SEQUENCE ACCESS (PSA)
ONETIME ACCESS.
QUANTA ACCESS – 5,10,20…N TIMES.
LIFETIME ACCESS.

Once access is granted by the user (the owner of the DNA Sequence), he will be rewarded with DNAtix tokens. Reward mechanism will be based on type of access that was granted (E.g. giving limited access to only certain chromosomes).

TESTING DNA SEQUENCES

Each user in the system can perform analysis on the DNA sequences that he owns in a user-friendly manner. That means the users can run different genetic tests (GDAPPS) on their sequences and analyze them.

Computations on sequences will run on different nodes of the network run by miners and genetic service providers. The blockchain consensus mechanism ensures that the genetic data is maintained in high integrity which is crucial due to sensitivity of this type of data. The party who initiated the computation will be required to pay a transaction fee which will be proportional to the complexity of the computation initiated. This fee will be given to the miners who ran the computation as a mining fee.

The results from the different analysis that will be performed will be saved in the users DNAtix wallet for future use.

INHERIT DNA SEQUENCE

The DNAtix Token Smart Contracts will also have a useful and important feature that will allow users to choose who they wish to inherit their DNA sequences to. This smart contract will enable your heir to access the inherited DNA sequence.
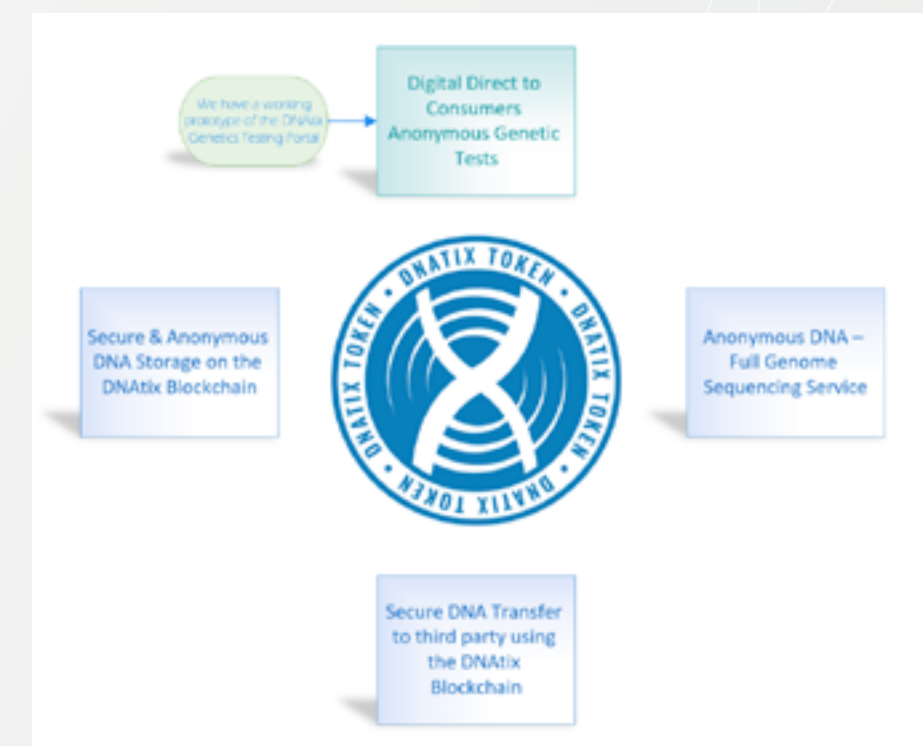
4.4 INTRODUCING: GDAPPS - GENETIC DISTRIBUTED APPS

DNAtix is going to develop the infrastructure for developing and deploying genetic applications on the DNAtix Blockchain, thereby enabling any participant in the DNAtix ecosystem to develop their own Genetic Applications such as:

- Genetic Tests

- Genetic Comparison

- Genetic Big Data Algorithms

And more...

Some examples of GDAPPS:

- Androgenetic Alopecia Genetic Test – A GDAPPS that scans your DNA for a point mutation (SNP) that has to do with hair growth and getting bald.

- VR GDAPP – a Virtual Reality Distributed Genetic Application

- Compare App – a GDAPP for comparing different DNA sequences.

- Dating

- Diet

- Fitness

- Learning

- Entertainment

- Self help

The business model behind the GDAPPS is that for every work that will be carried out in the network running the GDAPP code and performing DNA analysis, tokens will be distributed to the miner that used his computer power and the developer of the GDAPP. The DNAtix genetic ecosystem incentivizes developers to develop new and innovative GDAPPS and introduce them into the system.

4.5 DNATIX TOKEN USABILITY

- **Total DNTX Tokens to be issued:** 150,000,000

- **Initial Token Type:** Ethereum ERC-20

- **Token smallest portion:** 0.0000000001 DNAtix token = 1 NUCLEI

- 15% of tokens will be locked up for 12 months – a total of 22,500,000 Tokens. All locked up Tokens will be released to the Foundation for supporting the foundation activities.

- The company's goal is to sale up to $30,000,000 in total.

- Purchases will be available with cryptocurrencies such as BTC , ETH and more.

DNAtix will publish the different wallets addresses for the Pre-Sale and Public Token Sale at a later stage.

4.6 THE DNATIX TOKEN - SMART CONTRACTS

The DNAtix Token will incorporate specialized Smart Contracts for deployment of different Genetic services. Based on the ERC-20 Ethereum Token standard which includes the basic smart contracts for transactions, DNAtix intends to develope its own Genetic smart contracts. This will be enable to:

- Store DNA

- Transfer DNA

- Test DNA

- Inherit DNA

- Other DNA functions

- Revoke Access

- Update Access

GLOSSARY

- **Blockchain**: Cryptographically secured distributed ledgers that are the basis for all technology enabled by cryptocurrencies like Ether. A Blockchain is a public database of all transactions, tokens, technology, etc… Data on the Blockchain resides on computers globally rather than on a single server or a set of servers, enabling everyone to see all data publicly, but allowing only owners of a specific data set to add new data to the blockchain.

- **Bounty:** A form of token distribution in exchange for the performance of a specified action that involves such action as doing something for the benefit of the project.

- **DNA Sequences:** The Digital form of the DNA molecule which contains genetic code. One of the most important pillars in the data that makes the DNAtix Blockchain are the DNA sequences that can then be used for research in a new token rewarding model.

- **DNA Sequencers:** Different DNA sequencing service providers intends to join the ecosystem to provide the entry point to the digital genetic world. Full genome sequence service providers can earn tokens for providing their service to the ecosystem.

- **DNA Sequencing:** The process of decoding the long strand of nucleotides which converts the DNA molecule into a digital code.

- **DNAtix Blockchain:** A dedicated Blockchain created by DNAtix for Genetic services with a specialized purpose of storing large DNA sequences intended to be deployed by the foundation.

- **DNAtix Wallet:** A special software developed by DNAtix for conducting transactions and performing Genetic services in the DNAtix Genetic Ecosystem.

- **DNAtixVM:** The DNAtix Virtual Machine that runs as a node on the DNAtix Blockchain.

- **Ethereum:** A platform for creating decentralized online services based on Blockchain.

- **GDAPPS:** Genetic DAPPs (Distributed Applications) – a new kind of apps for performing different processes on DNA sequences. The DNAtix platform will enable the creation of GDAPPS which are pieces of specialized genetic script language that will be able to process DNA sequences and give output. This will enable participants in the ecosystem to create different kind of applications such as Genetic tests, Genetic Big Data Analysis and many other different applications.

- **Genetic Counselors:** Genetic professionals from the genetic ecosystem can use their knowledge to help users in the ecosystem and to further analyze their DNA. The DNAtix model will for the first time, the possibility of rewarding Genetic Professionals for different tasks they perform for the user.

- **Genetic Test:** An analysis process of a DNA Sequence in order to find certain conditions that reflects in the organism.

- **Initial DNAtix token:** DNAtix is now in the process od developing its initial token based on Ethereum ERC-20 standard. The Initial DNAtix token might not include all future functionalities (E.g. genetic smart contracts) and might be updated as development programs progress.

- **Fork:** When a cryptocurrency splits into two separate tokens as a result of a split in the Blockchain. This is typically the result of differing views in the original Blockchain system's governance for the right path forward for the Blockchain's technology.

- **Gas:** The amount of given cryptocurrency it takes to create a transaction based on the processing power required to complete it.

- **Miners (DNAtixVM Miners)**: The miners are running the DNAtixVM Miners Node which lets them get rewards for performing different tasks on the DNAtix blockchain.

- **Mining:** The process of using the computing power of high-powered "mining rigs" (i.e. powerful computers with heavy CPU and GPU processing power) to execute functions that complete portions of the next available block in the Blockchain. The return for using this processing power is a fraction of a cryptocurrency token.

- **Mutation:** Different kinds of alterations that occur in the DNA sequence for different reasons that changes the DNA sequence.

- **Node:** A computer on the Blockchain, that actively works to maintain the Blockchain and validates transactions, new blocks, etc…

- **Nucleic Acid:** The basic building block of the DNA. There are 4 different kinds of Nuclei Acids that makes the DNA (C,G,T,A).

- **Proof of Stake:** A proposed system that would remove work requirements and therefore massive amounts of computing power, by allowing individuals to mine or validate a block without having to actually produce a proof of work. This is based on the amount of a given cryptocurrency they have. The more tokens they have, the more validating power they have in this system.

- **Proof of Work:** The current system by which a block on the chain is validated. "In order for a block to be accepted by network participants, miners must complete a proof of work which covers all of the data in the block."

- **Service Providers (Genetic):** These are Genetic Labs, Genetic Research Institutes, Genetic Researchers that run the DNAtixVM Service Providers Node that lets them have their own branded portal for Genetic Services based on the DNAtix Platform. Service Providers are rewarded for different tasks being performed on the network.

- **Smart Contract:** A protocol that enables secure contracts to be signed, verified and enforced without middlemen (government, corporation, etc…) involved. A great explanation of smart contracts from Blockgeeks follows: "The best way to describe smart contracts is to compare the technology to a vending machine. Ordinarily, you would go to a lawyer or a notary, pay them, and wait while you get the document. With smart contracts, you simply drop a bitToken into the vending machine (i.e. ledger), and your escrow, driver's license, or whatever drops into your account. More so, smart contracts not only define the rules and penalties around an agreement in the same way that a traditional contract does, but also automatically enforces those obligations."

- **Tokenomics:** Token Economics.

- **Wallet:** Can come in software (Parity, MyEtherWallet) or hardware (encrypted drives) formats, a cryptocurrency wallet is a digital place where you store your tokens. It's critical to have high-grade security attached to these wallets to ensure hackers and thieves won't get access to your tokens.

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