KRIYA

With you always as your best companion

KRIYA INTRODUCES BLOCKCHAIN TECHNOLOGY INTO HEALTHCARE SERVICES AS IT PROVIDES TELE-CONSULTATION, GLOBAL MARKET PLACE AND HEALTH RECORD STORAGE

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1. Executive Summary

Kriya is a decentralised platform with the main goal of helping people who are traumatized, depressed, anxious, and need help with their mental state. Kriya uses blockchain technology to create a user-focused electronic health record, which ensures a tamper-proof system. Kriya makes its way to a global marketplace that can benefit all the users.

Users of Kriya will be able to grant conditional access to a variety of healthcare providers, including physicians, hospitals, and pharmacies. Every interaction a user has with the service providers associated with their mental health information is secure, transparent, and auditable, and it will be logged as a transaction on Kriya's distributed ledger. The patient's confidentiality is always maintained throughout this process.

Kriya will be a platform where users can join up for services that are powered by their mental health data and protected by smart contracts. **The Kriya platform has two applications: a practitioner-to-patient telehealth application and a health data and services marketplace.**

The telehealth application will allow users to pay a nominal fee directly to the mental health practitioner and consult a practitioner remotely. By using the Marketplace, Kriya users can trade their mental health data with third parties for alternate use. For instance, submitting their data for use in medical research.

Kriya's platform will be powered by "Kriya Tokens". In all, we are issuing 1 billion tokens, which will be distributed at a rate of up to 1 token to $0.01 USD in ETH and/or BTC.

2. Introduction to Today's Mental Health

2.1 Today's healthcare system

The healthcare industry is currently dealing with several difficult issues, including downsizing following the telehealth boom, adapting to changing clinical trial, and encouraging digital relationships that reduce the burdens on doctors. One of the biggest problems in the Indian healthcare industry is the shortage of trained human resources. This includes nurses, doctors, paramedics and primary healthcare staffs. The situation is worse in rural regions, where about 66 per cent of India's population inhabits[1].

Globally about 970 million people suffer from a mental illness or addiction. With 284 million cases worldwide occurs anxiety is the most prevalent mental ailment. Mental illness affects more women (11.9%) than men (9.3%) worldwide[2]. Prior to the pandemic, telemedicine has been utilised less frequently—in fewer than 1% of visits—to provide care for mental health and/or substance use disorders (MH/SUD). Current state on Telemedicine are while many patients find telemedicine an adequate or even preferable alternative for in-person care, not all do. There are some clinical characteristics for which in-person care, or a hybrid of in-person and telemedicine visits, would be better for the patient. For example, patients struggling with isolation may be better served by leaving their home to attend treatment. With a CAGR of 21%, the global market for digital health was estimated to be worth $80billion in US dollars in 2015 and is predicted to reach over $200 billion by 2020[3].
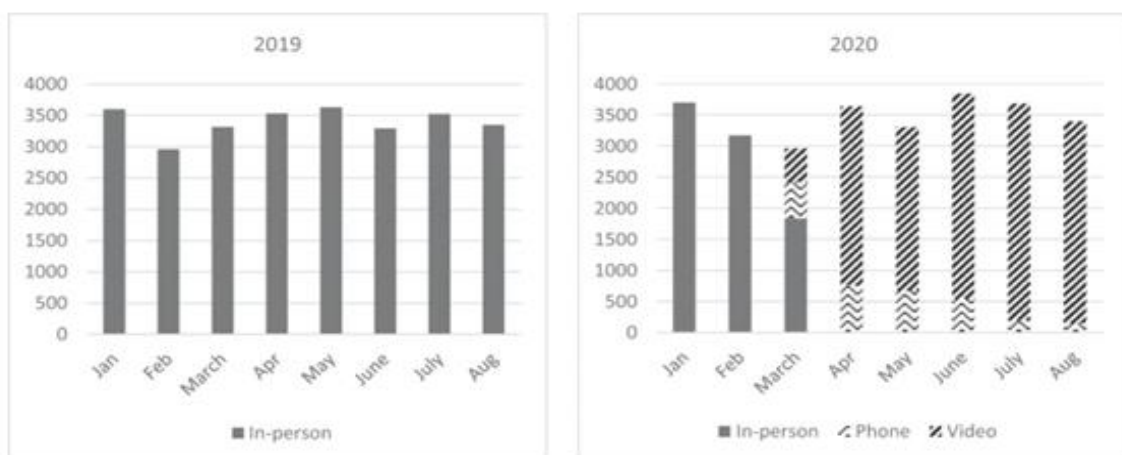
Telemedicine and other digital health technologies will be essential for increasing efficiency and lowering costs. Many patients find telemedicine an adequate or even preferable alternative for in person care, not all do. There are some clinical characteristics for which in-person care, or a hybrid of in-person and telemedicine visits, would be better for the patient.

Unfortunately, most current telehealth technologies are not linked with the vital clinical and financial platforms employed by healthcare organisations.

Providers need trustworthy ways to confirm and authenticate the identities of patients and practitioners in order to reduce the risk to privacy and security associated with telehealth engagements. Blockchain-based solutions are a fantastic tool for resolving these problems.

For example, patients struggling with depression who is in need of counselling has to check for the availability of service providers within their locality and to take treatment related to the cause.

Fig. 1: Monthly volume of behavioral health outpatient encounters January–August, 2019 and 2020.

2.2 Problem in Today's Mental Healthcare

Stress, anxiety, despair, and various mental health issues that are common today. Mental health includes our emotional, psychological, and social well-being. It affects how we think, feel, and act. It also helps determine how we handle stress, relate to others, and make choices. Mental health is important at every stage of life, from childhood and adolescence through adulthood. In general, about 1 out of every 6 adults will have depression at some time in their life[3].

Anyone can get depressed, and depression can happen at any age and in any type of person. Many people who experience depression also have other mental health conditions. Anxiety disorders often go hand in hand with depression. People who have anxiety disorders struggle with intense and uncontrollable feelings of anxiety, fear, worry, and/or panic. These feelings can interfere with daily activities and may last for a long time.

According to world health organization, there are a lot of people that suffer from mental health issues across the world. Most social health systems neglect mental health and do not give people the proper attention and support they require and deserve at the right time.

As a result, millions of individuals experience human rights violations, silent suffering, or other negative impacts on their daily lives like, depression is one of the leading causes of disability which affects 264 million people. Anxiety affects 284 million people in the world. Suicide is the fourth leading cause of death among 15-29-year-olds[3].

2.3 Security risk to patient data

Health records are now kept in centralised databases where the majority of the medical data is still immobile. Centralization

requires faith in a single authority and expands the security risk footprint. Furthermore, centralised databases are unable to guarantee security and data integrity, including requirements for de-identification and controlled access. Most nations throughout the world requires centralised health databases. It also needs an additional layer of technology to increase their mobility and security of mental healthcare data. Given the rising sensitivity of medical data, data security is of the utmost importance. This was brought to light at the beginning of 2017, when a cyberattack targeted medical facilities across the world[3].

This served as a sobering reminder to the public of the weakness of the present infrastructure and the susceptibility of our healthcare systems to possible threats. This problem has been addressed by many people, is high on governments' agendas, and is a cause of dissatisfaction for both medical professionals and patients.

2.4 Lack of transparency

Health care currently lacks almost all transparency, and little has been done to address this.

1.Increasing cost:

The current system is terribly inefficient, rigid, and opaque for both patients and professionals. These issues are equally apparent at every stage of the claims procedure. Health plans are used to calculate how much of the cost associated with providing services to patients (from a provider like a general practitioners, pharmacy, or nursing home) will be covered by the patient. The health plan must compare the services provided by the provider to the

terms of the patient's and the health plan's contract in order to calculate this cost, and it must then inform the provider of its findings.

The provider must be "in-network" with the health plan for this to happen. A complex arrangement must be made for a provider to be deemed in-network, significantly increasing the provider's administrative expenses.

2.Falsification on medical records:

Medical records should also be regarded as legal documents in addition to being medical ones. Retrospective changes must be legibly recorded, signed, and date them, and they must be accompanied by a clear explanation of why they were made. It is illegal to pass off a modified record as actual.

A healthcare professional runs the danger of healthcare consequences if they alter or add to existing medical records, remove information, or create fraudulent records.

3.Kriya Health Solutions

3.1 Kriya Hybrid Blockchain

Kriya uses a hybrid blockchain architecture. XinFin Blockchain is used for a private blockchain, that regulates who has access to medical records related to mental health. The public blockchain, which supports all of the applications and services on our platform, is powered by the XRC20 token on the XinFin Network.

3.2 XinFin and Smart Contract

XinFin is a hybrid blockchain platform that is built to modernize global trade and finance through efficient, accessible and decentralized structure. The public Ethereum (ETH) blockchain and the private Quorum blockchain are two well-known platforms from which XinFin has inherited much of its functionality.
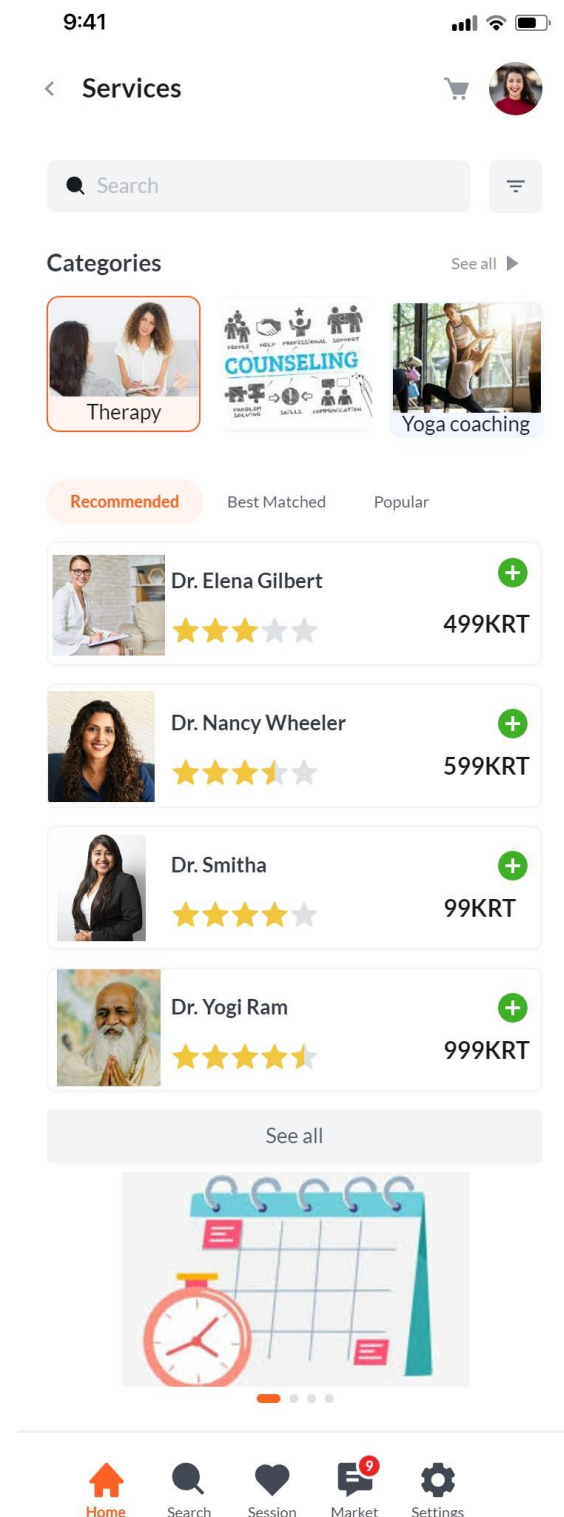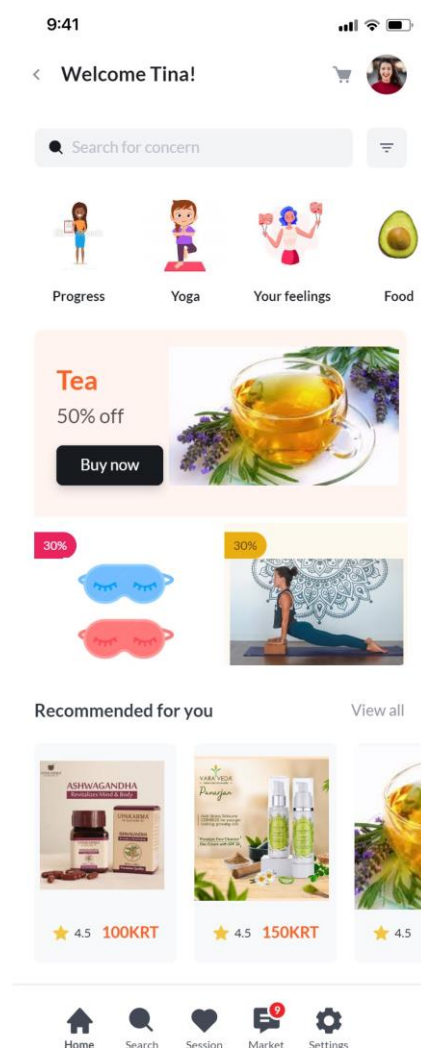
A smart contract is a computer program code that runs on top of a blockchain and contains a set of guidelines for how the parties to the contract are supposed to communicate with one another. It is the most basic type of decentralised automation. Briefly said, a smart contract enables conflict-free transactions of any kind of asset, including money and property, without the aid of an intermediary. As a result, it makes it possible for a smart contract to deliver on its important promise of trustless execution.

3.3 Kriya as a Mental Health Platform

The framework for digital mental health applications and services is provided by Kriya using blockchain technology and Smart Contracts. The Kriya platform provides a variety of services from both the western and eastern medical systems, mainly in the form of ayurveda, in order to democratise

psychotherapy, also called counselling, talk or talking therapy, or simply therapy, or

any form of treatment for psychological, emotional, or behavioural disorders in which a trained person establishes a relationship with one or several patients for the purpose of modifying and helping them with their mental obstacles and also improving their personality.

Kriya as a Mental Health Platform

Kriya serves as an **over the counter**, non-prescribed method of online consultation. Anyone from anywhere in the world can use the services at their own convenience in terms of the availability of therapists. For example, a person who is in an emergency where they face compulsion or mental disturbance can avail the services of the Kriya platform by selecting one of the services and service providers listed on the platform whenever they want. The **service providers** are classified on the basis of: Psychiatrist, Therapists, Counsellors, Health Coaches(Yoga and Meditation), Mental Health NGOs. Then the client can take their video consultation on the Kriya application. The entire consultation history with the observations made by the therapists is recorded as transactions in the ledger.

The **services** offered by the kriya platform include ayurvedic forms of mental healing, yoga, counselling, therapy, meditation, and nutrition to lead a healthy lifestyle which helps in behavioural growth. There are also recorded videos of the rated and verified mental health professionals regarding mindfulness and self-help, which bring out high motivation.

Kriya users will be **rewarded** with Kriya tokens for their activities on the platform, like reviewing and rating the experience with the service providers on the platform; writing about their experience and progress with the help of Kriya; sharing the application with their friends and family in exchange for referral coupons; watching advertisements on the platform; and sharing access to their mental health data to researchers for their use.
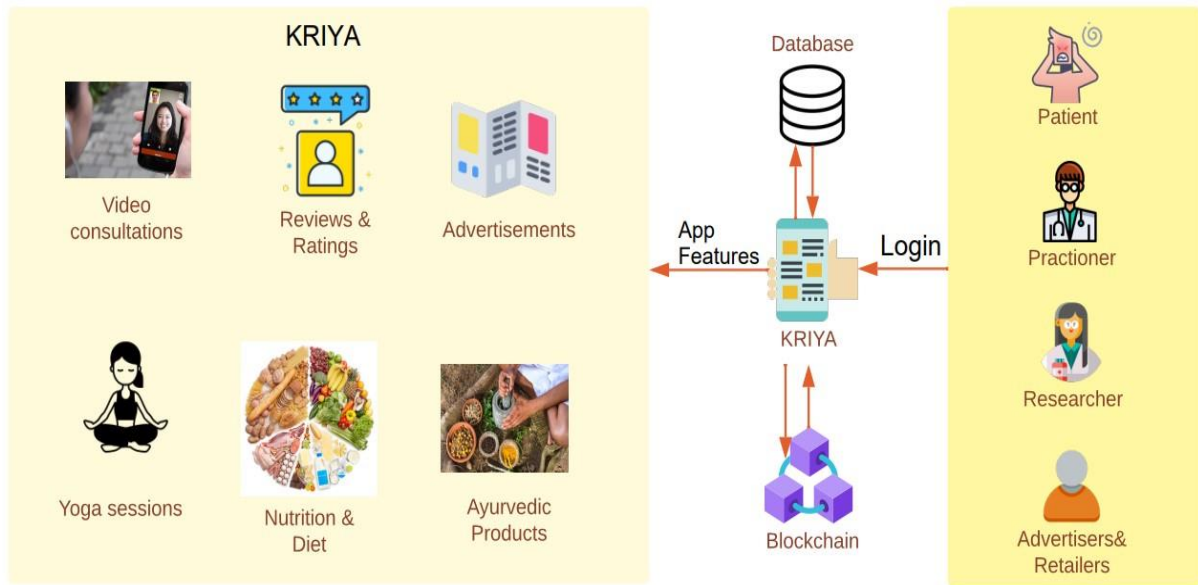
Figure: Kriya application Features.

4. An effective system for mental healthcare

4.1 User Control

In the current mental healthcare system, the patients' health records are stored by the practitioners either by physical or electronic records. These records of the patients will be stored a minimum of 7 years of time period and longer if the client is a child[4]. There are will different records from the same patient, if they are consulting with different therapists. So, the records of the patients will be added up with the current record of the patient.

Kriya will chronologically arrange all these records and filter them according to the

therapist list. Such categorisation would make the records more accessible and understandable for patients and it will also facilitate with the upcoming consultant and researchers who are in search for these information which are relevant to them.

Kriya provides the user with full access and control over their data. They are the owners of their own health records. The client will have the capability to provide access to various therapists by assigning a set of access permissions and designating who can query and write data to their blockchain, and for how long.

Approved practitioners on the Kriya platform will have the ability to "read and write" on the patient's records. Moreover, the Kriya platform will provide users with a full log of who has access to their health data, the time of access, and the types of data that can be accessed.

4.2 Data Security

The Kriya system operates on a private, permission-based blockchain and employs a double encryption method. Safer than any centralised data system, currently in use is the security of health records. The blockchain cannot be used to directly access patient data.

Anyone wanting to intercept patient data will be unable to do so with the ease required to obtain data present not in any central location but in blockchain, which acts as a pointer to where patient data is stored in an encrypted format[3].

4.3 Tele-health Communication

Along with increasing access to emergency information, Kriya makes it simpler for therapists to communicate with one another. When an authorised healthcare professional updates a patient health record, the system will update that record on Kriya. The modification will be visible in real time to any practitioner who has been granted access to that record by the patient. Patient data does not have to by the be manually transferred from system to system because health records are updated through this platform for all authorised parties. The client's shared documents will therefore be accessible to any therapist using this platform only when the client accept their request.

4.4 Borderless Health and Social Care

The user will have access to their records wherever they go, because of the deployment of data-compliant storage nodes and borderless blockchain technology. As telehealth services enable customers to communicate with therapists in other countries, healthcare services have surpassed national boundaries. Those who travel frequently or relocate abroad and wish to avoid the hassle of transferring their medical records to their new provider may find this to be especially helpful. Kriya has the vision of one day bringing its platform to developing nations around the world where there is less access to quality mental health care. We consider it useful to be able to carry your health information on a mobile phone.

4.5 Patients / Users

In present-day healthcare, there is a lack of transparency between all parties involved. Patients have no immediate access to health records written by professionals[3]. These professionals are only able to share data quickly within their own organisation or with other health professionals using an EHR system. Insurance companies are kept in the dark, unless they request patient data, which is required for a claim. Researchers are forced to seek anonymised data from multiple intermediaries, which is both costly and time-consuming. The lack of transparency in how patient data is handled also leaves the user unaware of how their data is currently being used. So Kriya will provide a way that those records can be accessible to the clients.

S.NO	Features	PRACTO	KRIYA	MFINE
1	Implementation of Blockchain technology	✗	✓	✗
2	Provide Online Consultation	✓	✓	✓
3	Global Market place	✗	✓	✗
4	Non-Prescriptive (Over the counter)	✗	✓	✗
5	Metaverse Infusion	✗	✓	✗

Figure: Comparison with the competetive apps.

5. Use Cases

5.1 Telehealth Consultations

Kriya not only provides this established and successful format of consultation but will accommodate the therapists by enabling them to interact with the patient's records during the consultation. Patients would grant access to their records during the consultations, allowing for a more in-depth, informative, and valuable experience for both the patient and therapist. Although there are currently telehealth systems accessible, they do not have access to international health records. Kriya offers this unique value and provides patients with privacy controls. Patients will be able to choose the level of detail visible and allocate viewing rights to their chosen therapist for as long as they feel necessary.
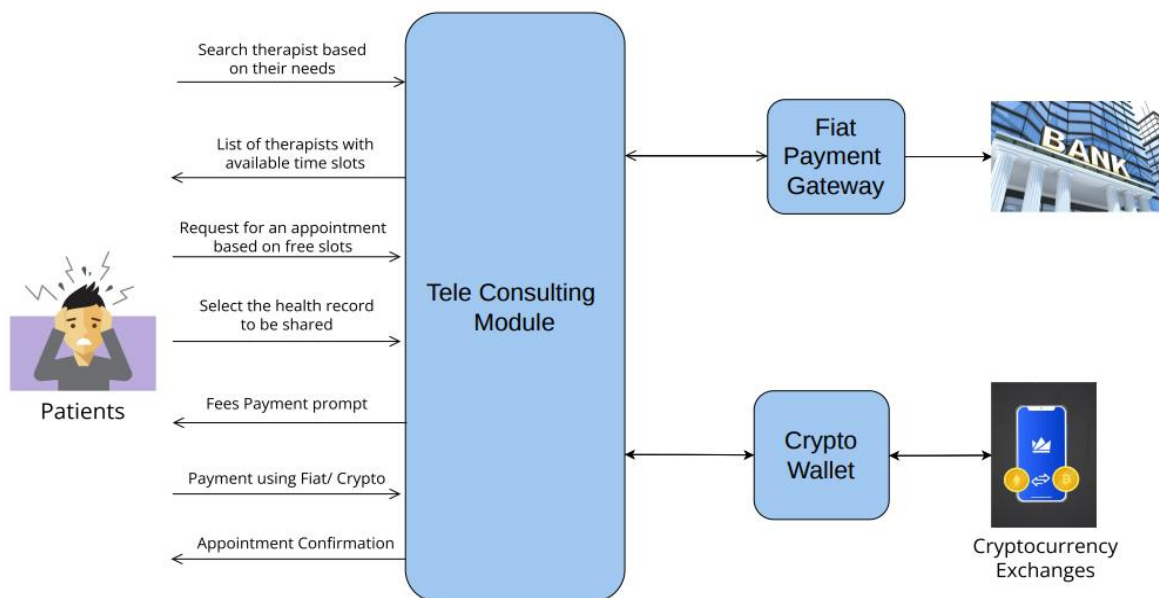

Figure: Telehealth Consultation Module

1. Patient Benefits

By removing the requirement to physically visit the therapist office, the time required for a consultation is drastically cut from the patient's perspective. Many minor illnesses are now treated over the phone, but by offering a telehealth component we can enhance the patient's experience by enabling a visual consultation that would be more in-depth and advantageous to both the therapist and the patient.

2.Health Practitioner Benefits

To attend a therapist appointment requires a patient to prioritize their work in advance for the appointment. There is then the waiting time at the clinic in order to see the therapist, often times for a simple request. Telehealth provides the patient with the opportunity to select a specific time to conduct the consultation at their convenience, encouraging patient choice and freedom. Further, patients are able to choose which therapist they would like to conduct their consultation with offering greater choice and building a relationship between that therapist and patient, whereas perhaps logistically it would not have been possible beforehand if they were based in different cities.

Additionally, people have more options and can establish a relationship with the therapist they choose to consult with, whereas formerly it may not have been logistically feasible if the therapist were located in separate locations. By giving the health practitioner a flexible work schedule that enables them to perform

consultations from any location with sufficient internet connectivity, telehealth also offers many advantages to the practitioner. During the telehealth consultation, Kriya will give the therapist access to the patient's medical history (with the patient's consent). Additionally, this will provide the therapist greater assurance during the consultation that they are receiving all the data they need to recommend relevant investigations and organise a treatment plan.

5.2 Health Data Marketplace

Patients can control their health records and get benefits from the potential value they hold. In a marketplace for health data, Kriya will link people who are willing to have their health data utilised in studies with research organisations. The usage of their data and the information that will be needed will be made very clear to users. Many times, it will be possible to access anonymized data, protecting the privacy of all parties.
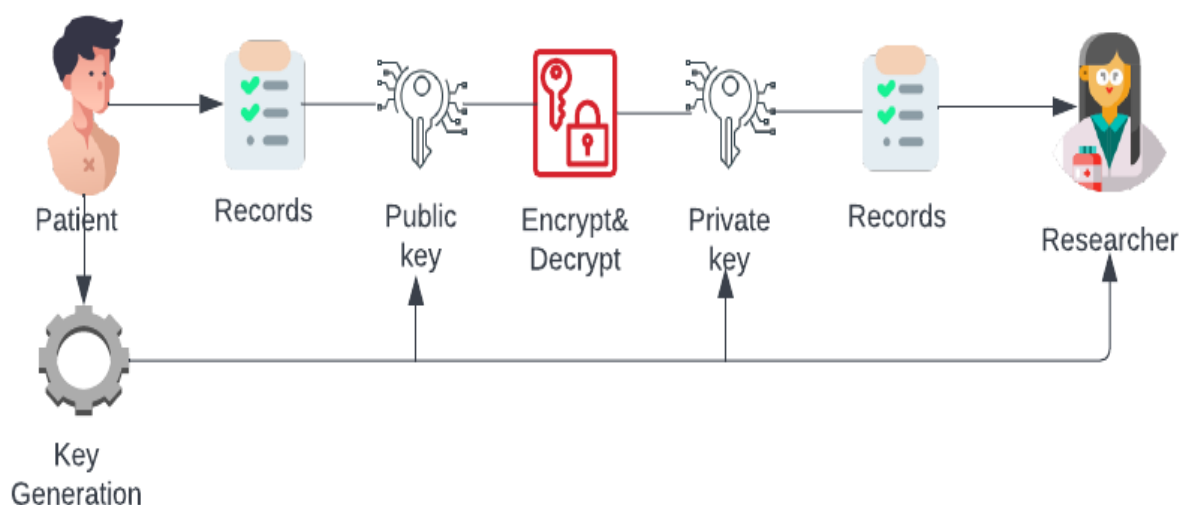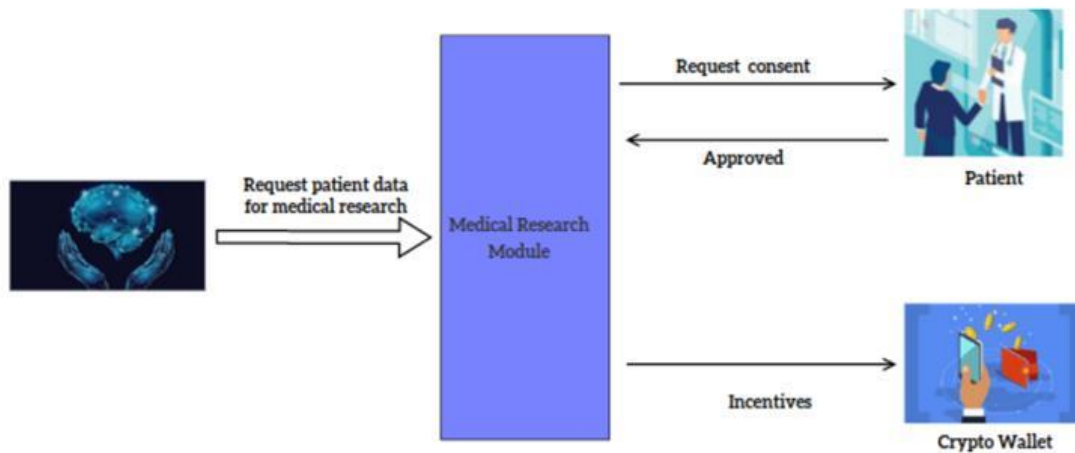

Figure: Health data marketplace

Figure: Clients receives the incentives as rewards

In return, participants will be compensated in Kriya with rewards. Patients will be given the ability to unlock the monetary value that their health data holds, they will be more engaged with their health conditions. Research companies will also benefit from the changes brought in by Kriya platform. They will be able to look for patients who have consented to researchers contacting them so that these institutions can communicate with the patient directly. By doing this, businesses will be able to contact individuals directly rather than having to go via a hospital or clinic first.

6. Cost Benefit Analysis

6.1 Patients

Whereas typically for a patient to gain access to their medical records, they would need to apply to their service provider and pay all associated administrative fees to have these released to them. With Kriya, the user would provide consent to have their data retrieved on their behalf, and stored free of charge on Blockchain nodes. Once this has been carried out, the patient would then use the Kriya application to have a standardised, single point of access to those records at their discretion, eliminating the need for additional administration fees. Should they lose this data, or need to send original, physical copies at any time, they would grant access to any requesting parties. With transportable personal data, the risk is significantly reduced if medical assistance is required away from a users healthcare provider. Utilising Kriya Teleconsultation platform, users would have dramatically decreased the waiting times and costs associated with travel.

6.2 Practitioner

Mental Health Practitioners using the Kriya platform would have immediate access to conduct Teleconsultations. This will provide an additional revenue stream, meaning they could practice without any overheads other than a computer with internet connection. This availability would decrease the chance of cancellations due to patients being unable to physically attend a consultation. Cutting this variable out saves on facility expenses, administration costs and the need for additional staff.

6.3 Researchers

Researchers would have the ability to reach a global audience of patients through Kriya's health data Marketplace. This would increase the potential sample size used in research and improve the accuracy of the results. Costs would be reduced by simply pulling the relevant information from a participant's health record, with their consent, instead of the burdensome process of forming research groups and going through health providers for access to health data.

7. Kriya Tokens

Kriya Token is a utility token built on the XRC-20 standard of the XinFin network.

7.1 Token's utility function:

To begin with, Kriya will produce a constrained amount of 1 billion Kriya Tokens to support its digital ecosystem. Most of these tokens will be sold to the public and distributed among the users, partners, and team members. If they don't have Kriya Tokens, they will be automatically purchased from the market on their behalf. The actual number of Kriya Tokens needed for services will vary depending on the Kriya Token value at the time of transaction.
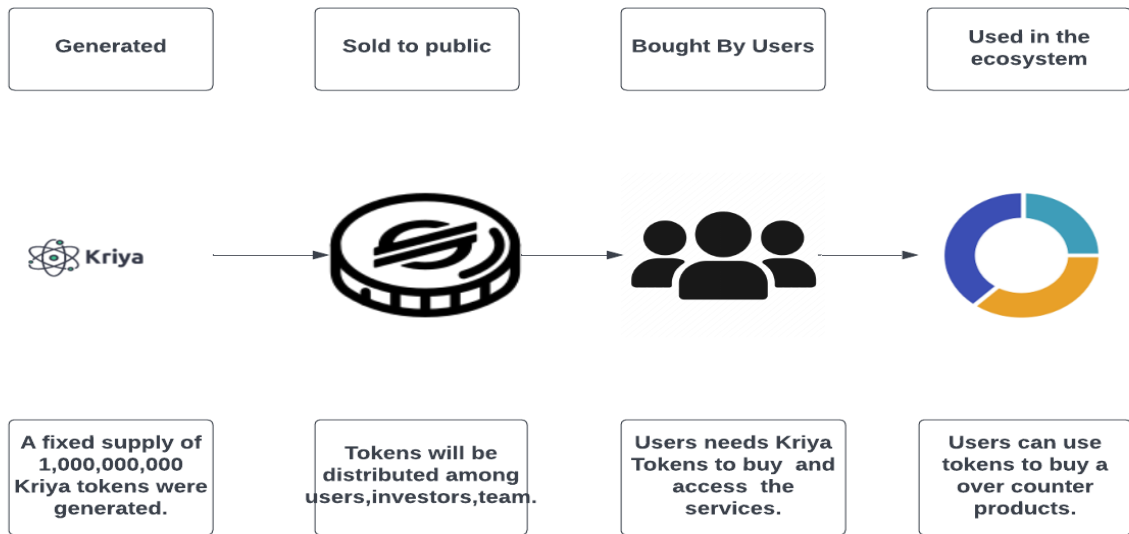
Figure: Lifecycle of Kriya Token
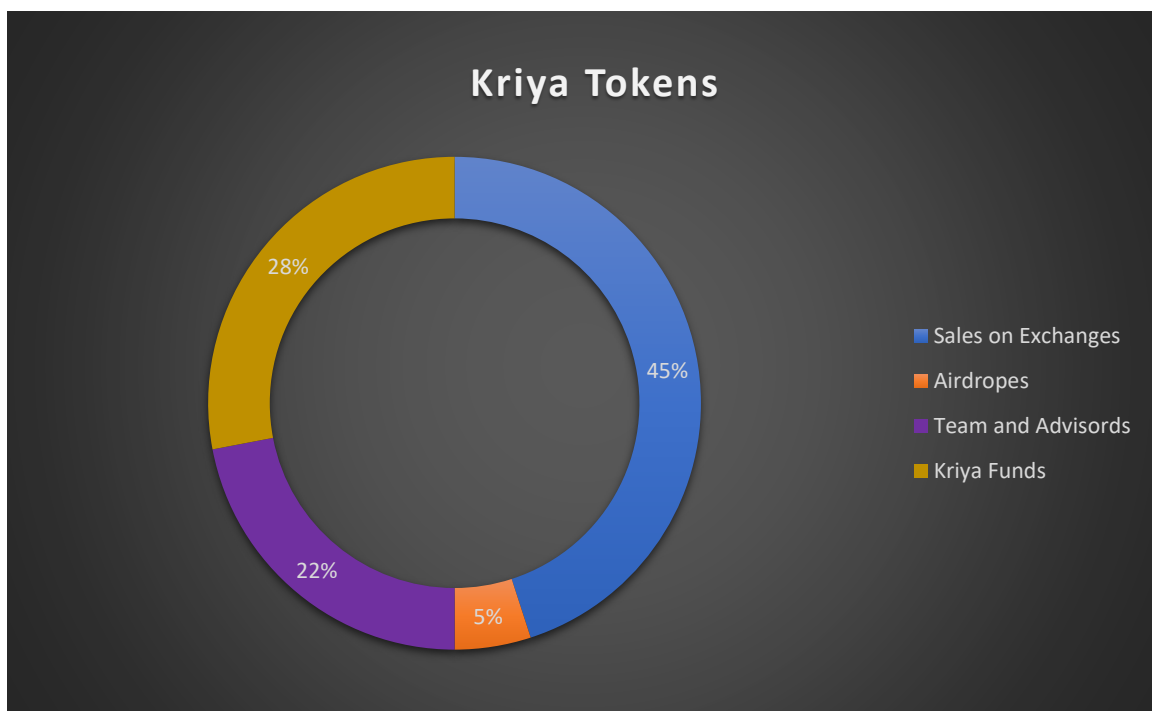
7.2 Token Initial Allocation

Figure: Token Allocation

- **Sales on Exchanges (45%):** Sold to private investors, mostly top-tier crypto funds, exchange users and strategic partners.
- **Airdrops (5%):** Free tokens with no lockup period distributed to Kriya users, users to cryptocurrency exchanges and blockchain communities.
- **Team and Advisors (22%):** Salary and bonuses of the project team and advisors. These tokens will be locked up for up to 2 years.
- **Kriya Fund (28%):** These tokens will be in the reserve period for over 2-3 years.

7.4 Token Legal Status

The Kriya Token does not have the legal qualification of a security, since it does not give any rights to dividends or interests. The sale of Kriya Tokens is final and non-refundable. They are not shares and do not entitle you to vote at the Kriya platform's general meeting. Kriya Token cannot have a performance or a specific value outside of the Kriya network. Kriya Token should not be used or purchased for speculative or investment purposes. The purchaser of Kriya Token is aware that national securities laws, which ensure that investors are sold investments that include all required disclosures and are subject to regulatory for the protection of investors, are not applicable.

Anyone purchasing Kriya Token expressly acknowledges and represents that she/he has carefully reviewed this whitepaper and fully understands the risks, costs and benefits associated with the purchase of Kriya Token. The purchaser of Kriya Token agrees that she/he fully understands and has significant experience

with cryptocurrencies, blockchain systems, and services, as well as the risks associated with the crowdsale, and the mechanism related to the use of cryptocurrencies (incl. storage). Kriya shall not be liable for any loss of Kriya Tokens or situations making access to Kriya Tokens impossible as a result of the user's or any other person undertaking to acquire Kriya Tokens' actions or omissions, or in the case of hacker attacks.

8. Token Information

8.1 Token Summary

Token Name	Kriya Token
Ticker	KRT
Blockchain	Ethereum, XinFin (XRC-20)
Token Listing Price	$0.01
Accepted Currencies	ETH, BTC, XDC

9. Business Plan

9.1 Pre-Sale ICO

Kriya Tokens will be generated with a supply of 1,000,000,000 tokens. Kriya's initial coin offering (ICO) will have contribution limits and be capped at $10 million (10,000,000) in ETH and/or BTC. Kriya will issue 1 billion (1,000,000,000) Kriya Tokens, which are XRC20 tokens, in order to establish a new healthcare ecosystem based on Xinfin blockchain technology. These tokens will be offered in a Crowdsale, allowing participants to purchase Kriya Tokens early as well as contribute to and support the further development of the Kriya Platform. The participants will have the ability to contribute and receive Kriya Tokens in exchange for their ETH and/or BTC by sending Ether to a designated address. KriyaTokens will be sold at a discount in a pre-sale before to the ICO, where they will be distributed at an exchange rate of 1 token = $0.01 equivalent.

ICO	DATE	PRICE	TOKEN	ALLOCATION (%)	SALE
1st ICO	TBD	$0.001	KRT	2%	20,000,000
2nd ICO	TBD	$0.004	KRT	2%	20,000,000
3rd ICO	TBD	$0.0050	KRT	3%	30,000,000

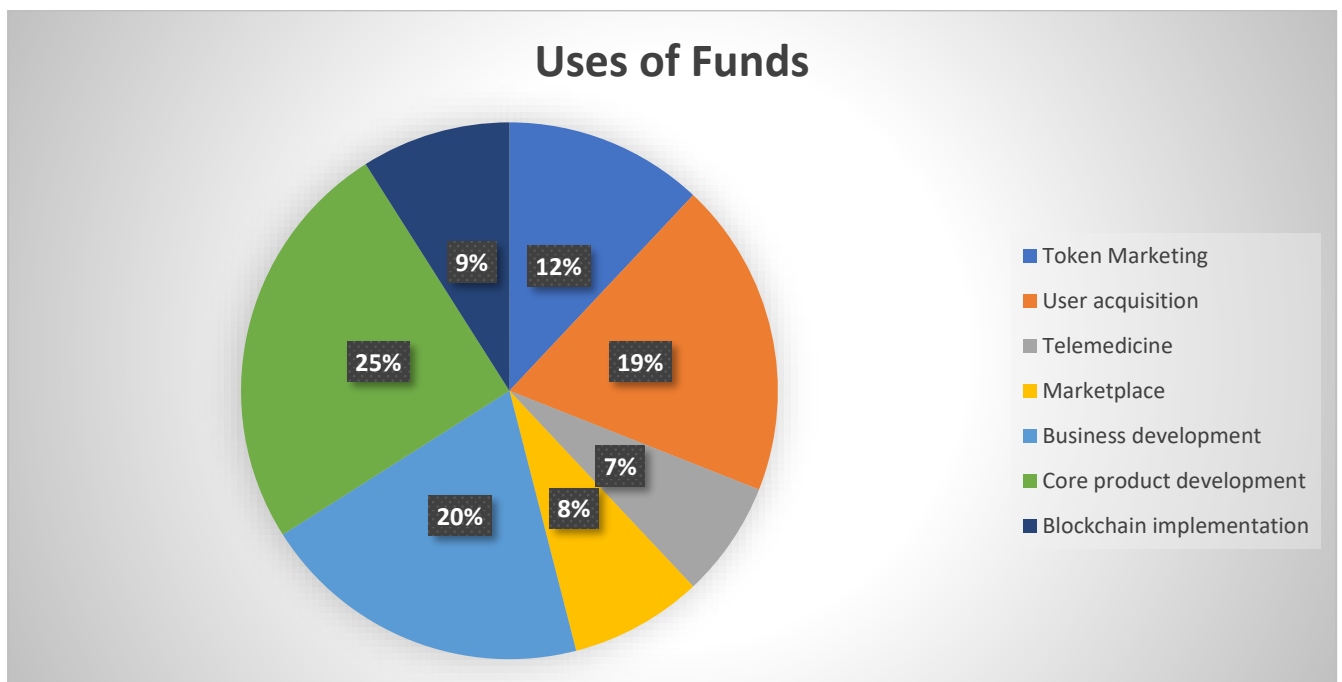Figure: Pre-Sale Allocation

9.2 Use of Funds

Figure: Use of funds from token sales.

9.3 Partners

9.4 Market

Our aim is to improve scaling of Kriya platform and to help user by sharing their mental health data in a secure manner. Hence the proposed whitepaper are going to be launched in the platform where people, opinion leaders and the brand ambassador can view what we been through the entire process. Platforms like: LinkedIn, Telegram, Discard, Events, Drone Expo's, Articles, YouTube, AngelList, Meetup, Xing and more. This whitepaper can prove the quality and importance of The Kriya platform and also create an awareness about mental healthcare application using blockchain. Our company has already created healthcare website called "Niyama" which is based on mental health. Our Company has a subsidiary called Healthcare Triangle Inc. which supports in enhancing of our Kriya Platform.

9.5 Risk Factors

There are risks associated with Kriya's operations and the token sale, some of which are beyond the company's control. Before making a choice, anyone who wishes to purchase Kriya Tokens should carefully read that part. Major risks that Kriya must deal with include:

1. Kriya's capacity to grow its user base and advertiser base may be impacted, harming Kriya's company and Kriya Token if it is unable to sustain its brand or if incidents happen that undermine Kriya's reputation and brand.

2. Kriya's industry is quite competitive. If Kriya is unable to compete effectively, its business, Kriya Token and financial results may be significantly and negatively affected.

3. Since many countries do not have regulations governing blockchain and cryptocurrency businesses, it will become a failure to obtain and maintain the necessary approvals, licences, or permits in the future or

any changes to governmental policies or regulations, including changes to the way cryptocurrencies are used, could have a serious and negative impact on Kriya's business, Kriya Token, and operational outcomes.

4. The business, operating results, and Kriya Token may all suffer if Kriya is unable to retain current users, attract new ones, or if current users become less engaged with the app.

5. The major challenges that telemedicine still faces in many countries, such as the non-reimbursement of fees by insurance companies, ambiguous regulation, and licencing requirements, may have a negative impact on Kriya's intentions to become a platform for telehealth services. Due to improper telemedicine services given by third parties, Kriya may be held liable.

6. If the app is considered as a provider of medical advice and is subject to medical liability claims, Kriya may face additional regulatory and reputational risks.

7. The risks associated with untrusted third-party vendors and delivery services exist in Kriya's online marketplace. For fraudulent or unauthorised products sold in the marketplace, Kriya may incur liability or face administrative penalties or product liability.

8. Third-party payment processing services, payment gateways, crypto-to-crypto and cryptocurrency-to-fiat exchange services that Kriya will use to buy, sell, and exchange cryptocurrencies all carry their own counterparty risk.

9. If Kriya Token is not accepted by any popular cryptocurrency exchanges, its liquidity outside of the app, trading volume, and price may all be restricted.
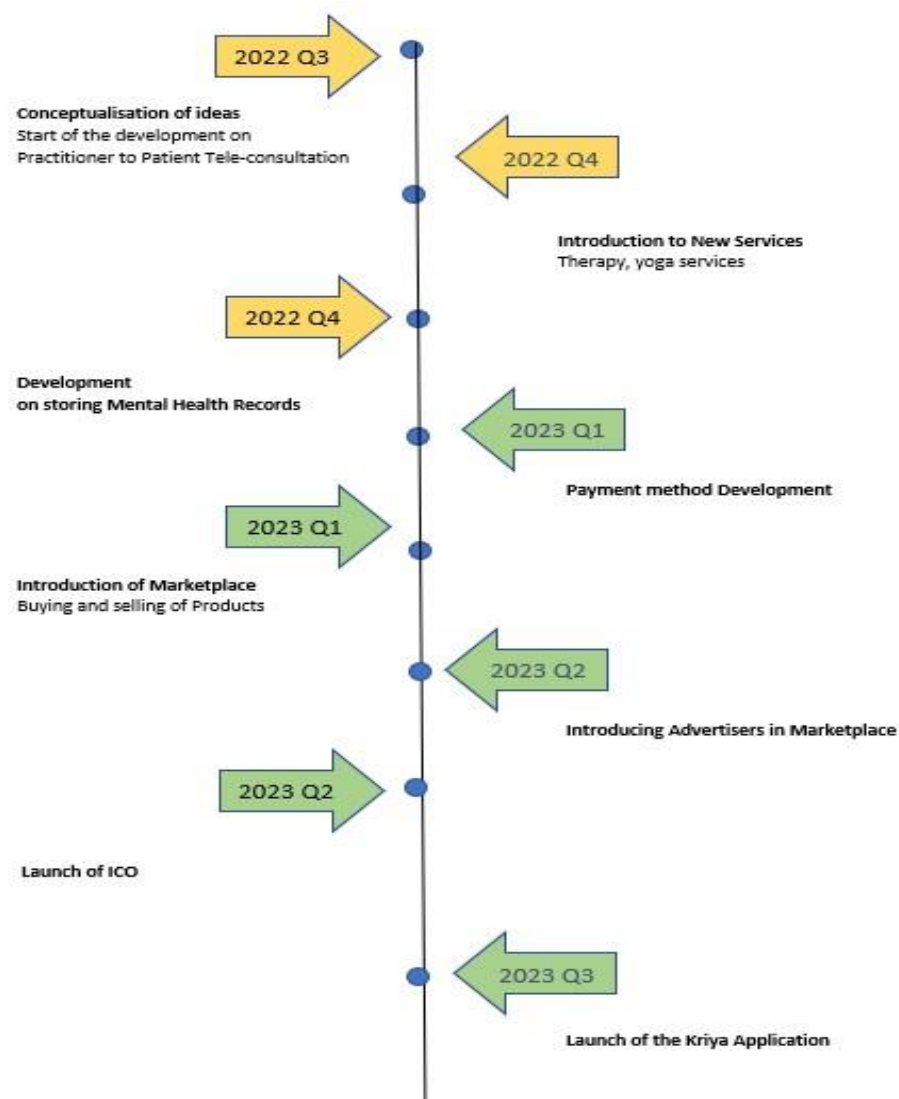
10. Changes in Internet search engine algorithms and dynamics, or search engine disintermediation, could reduce traffic to the Kriya mobile app and, ultimately slowdown its business and operations.

11. Kriya's brand and other intangible assets may lose its value, and its business may suffer if it is unable to safeguard its intellectual property.

12. Information shown, accessed through, or linked from the Kriya mobile app may be subject to liability for improper or unlawful content supplied by the users or service providers.

13. Kriya's business depends on the technological platform operating properly, and any decline in the mobile app and system's functionality might dramatically and negatively impact Kriya's operations, brand, and Kriya Token.

10.Roadmap

11. Disclaimer

The details provided below might not be full, and they do not imply the existence of any contractual terms. While we make every effort to ensure that all information in this whitepaper is accurate and current—including information about products, services, technical architecture, token distribution, and company timelines—it is possible that such information will change without notice and does not in any way represent a legally binding agreement or the giving of professional advice. The correctness, reliability, correctness, or completeness of any information in this whitepaper is not guaranteed, and kriya disclaims all duty in connection therewith. Prior to relying on or making any commitments or transactions based on information disclosed in this whitepaper, which information is only released for reference purposes, potential holders of Kriya Token should get appropriate independent professional advice. No jurisdiction will intend for Kriya Tokens to be considered a security.

This whitepaper is not meant to serve as a prospectus or other type of offer document, nor is it intended to be a solicitation to buy securities in any country. The fact that this whitepaper was presented does not constitute advise to buy, sell, or engage in other transactions using Kriya Tokens, and it shall not be the foundation for or be cited in support of any contract or investment decision. In relation to the sale and purchase of Kriya Tokens, no one is required to enter into any contracts or legally enforceable agreements, and no cryptocurrency or other kind of payment is to be accepted on the basis of this whitepaper.

12. Team

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13. References

1. https://www.businessworld.in/article/India-s-Fragmented-Healthcare-System-Filling-The-Cracks/03-09-2021-402985/

2. https://www.nature.com/articles/s41386-021-00960-4#ref-CR19

3. https://medicalchain.com/en/whitepaper

4. https://dtaa.org.au/wp-content/uploads/2020/07/Record-Keeping-Dr-King.pdf

5. https://www.who.int/health-topics/mental-health#tab=tab_2