medifakt

White Paper

Blockchain based Healthcare Ecosystem

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01 EXECUTIVE SUMMARY

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Medifakt will use a combination of IoT + Blockchain + AI, the combination of these technologies will enhance the security of the collected data through IoT devices. Feeding them to a decentralized network built on the Polkadot network. This will ensure the real-world data collected through these medical devices will solve the transparency in healthcare costs in drug development, payments, and insurance premiums. Along with that, Medifakt will aim to use advanced machine learning capabilities to support patient healthcare outcomes and provide a more secure and compliant operation.

Medifakt is a project developed by AKTHealth (www.akthealth.com), a Healthcare Consulting firm with capabilities in Clinical Research, Commercial Strategies, and Consulting & Interakt (www.interakt.jp). A Blockchain-based Technology firm building multiple projects in the Decentralized space including CeFi, DeFi Exchanges, Dapps, and gaming. A combination of Functional and Technology experts in their respective fields form the core of this development.

Medifakt platform, unlike any other, permits and supports the transfer, transmission, storage, interpretation, second opinion, and evaluation by artificial intelligence of medical data and medical images across all subtherapeutic areas and medical specialties. The Medifakt is not limited to one medical specialty or subspecialty. The network can support any remote consultation between a patient, physician, institution, or sponsor. The internet has matured, enabling patients to seek online consultations at their convenience from a geographic and timing perspective. The advent of over-the-counter tests to analyze your blood, sequence your genome, or check on the bacteria in your gut is shifting the ability to obtain care into the patient's hands. The development of technology is causing a shift in the retrieval of patients' information. The growth of various technologies such as the smartphone and wearables are allowing patients to monitor and treat their own health. These technologies amplify and exponentially increase the empowerment of the patient and their provider. When coupled with access to your own medical records and the ability to share this information with those you trust. Technology allows a patient to reduce inefficiencies in their treatment and also provide data to help train medical algorithms.

The Medifakt project has 4 key modules covering the main aspects of the Healthcare Journey. From data collection using advanced IoT devices to wellness delivery taking care of the highest aspects of Security. In addition to servicing the patients with the best technology available.

Executive Summary
Key Modules

Key Modules for the project are mainly divided into Data, Asset, Service and Security layers

Real-World Data - DATA LATER

- Electronic Medical Records
- Clinical Trials
- Patient Reported Outcomes
- Health Economics Data
- Healthcare App Data
- Drug Supply Chain Data

Insurance & Payments - ASSET LAYER

- Insurance Premium Calculation
- Payments at Hospitals
- Insurance Premium payments based on engagement (like validator - stake but through data)

Analytics & Support - SERVICE LAYER

- ChatBots
- E-Patient Reported Outcomes
- Telemedicine
- Outcomes Research (HEOR)
- Clinical Analytics
- Marketplace

Security, Audit & Compliance - SECURITY LAYER

- Data Audits
- Compliance

A patient concerned about their heart can now buy a watch that contains a medical-grade monitor, enabling the patient to detect arrhythmias. There are apps that can diagnose skin cancer, assess concussions, and even diagnose Parkinson's disease. There is significant medical data being generated minute by minute which needs to be transferred, stored, and analyzed at medical grade standards. Although health records and imaging are evolving to be electronic, they are still generally inaccessible and hard to manage. In addition, most health records are in a format that machines cannot read. Medifakt empowers future AI technology to, for example, provide automated medical evaluation and diagnosis from medical imagery and data provided through the network.

DATA LAYER - INTEGRATION OF REAL-WORLD DATA

Internet of Medical things or IoMT is a branch of IoT in the Medical Industry through which telediagnostics, or remote diagnostic services are achievable. This is especially evident in medical specialties that rely heavily on imaging such as radiology, dermatology, ophthalmology, and pathology. Where the diagnosis of illness is based on quantitative and qualitative interpretation of imaging. The shortage of doctors has resulted in the growth of technology providing services to telemedicine or remote care. The manpower shortage and the need for technology have seen the consolidation of groups, for example, in the U.S. with the largest groups having over 1000 physicians on staff. These groups have the ability to invest in technology to provide remote telemedicine as well as staffing to support the endeavor. As the volume of care has increased, providers are seeking the interpretation of images both by outsourced low-cost, distributed workers around the world as well as by artificial intelligence. In contrast, patients are looking for second opinions or opportunities to get an evaluation of their conditions via a more secure, rapid, and cheaper methodology. This trend isn't in imaging-based medical specialties alone. But also in the general care of patients as the combination of the progression of information technology, and modern medical imaging. Which has transformed the management of nearly all significant medical specialties.

ASSET LAYER - MEDIFAKT BLOCKCHAIN

With the decentralization of diagnostic services, there is an opportunity and a true need for a new kind of platform. One which focuses on trust, speed, and cost-efficiencies for patients and providers. The current systems are slow, inefficient, and expensive for patients. Blockchain technology provides a highly secure, decentralized framework for sharing medical images. Smart contracts enable us to run automated computer programs to enforce the validity of those medical images and provide an audit trail with no third-party intermediary involved. In typical telemedicine, clinical trial transfer, or second opinion services. When patients share their medical images with a physician online, the process requires the involvement of parties. Such as telemedicine or another intermediary company whose job is to transfer the medical imaging data, verify the transaction, and keep a register in their servers. This adds cost, insecurity, and unnecessary overhead to the process. With the use of the blockchain, there is no requirement to reimburse a third-party intermediary company a percentage of transaction fees for essentially only transmitting images. Thanks to cryptography, all medical imaging data transfers can be secured and signed while smart contracts can provide additional verification and analysis.

SERVICE LAYER - CONSUMER LAYER

Electronic Health Records

An Electronic Health Record (EHR) is an electronic version of a patient's medical history. Which is maintained by the provider over time, and may include all of the key administrative clinical data relevant to that person's care under a particular provider. Including a patient's medical history, diagnoses, medications, treatment plans, immunization dates, allergies, radiology images, laboratory and test results. EHR helps in access to evidence-based tools that providers can use to make decisions about a patient's care. EHR also helps in reducing medical errors by improving the accuracy and clarity of medical records. Medifakt is a modular architecture delivering high degrees of confidentiality, resilience, flexibility, and scalability. EHR data is private and also highly sensitive, which is why it must be handled with care.

Patient-Centric Cross Chain Identity Management

A patient-centric approach is a way healthcare systems can establish a partnership among practitioners, patients, and their families. In order to align decisions with patients' wants, needs, and preferences. Real patient-centricity reflects a deep understanding of a person's life and experiences with a health condition. It extends beyond the treatment, and consistently considers that perspective through the treatment experience.

Supply Chain Management

The supply chain generally refers to the resources needed to deliver goods or services to a consumer. Healthcare supply chain management involves obtaining resources, managing supplies, and delivering goods. Additionally providing certain services to providers and patients. Healthcare supply chain management is unique because each stakeholder has their own interests to protect.

Clinical Data Management

Clinical data management (CDM) is the process of collecting and managing research data in accordance with regulatory standards. In order to obtain quality information that is complete and error-free. The goal is to gather as much of such data for analysis as possible that adheres to federal, state, and local regulations. Clinical data management (CDM) is a critical process in clinical research. Which leads to the generation of high-quality, reliable, and statistically sound data from clinical trials. Clinical data management ensures the collection, integration, and availability of data at appropriate quality and cost.

Medical Chatbots

Medical chatbots are AI-powered conversational solutions that help patients, insurance companies, and healthcare providers easily connect with each other. Chatbots, computer programs, or smart algorithms, conduct conversations via auditory or textual methods. They are becoming more popular and gaining widespread reputability. Chatbots possess the necessary technologies needed to revolutionize healthcare. It is likely chatbots will become the first line of primary care within the near future.

Medicine has seen explosive growth in imaging across multiple disciplines including Radiology, Dermatology, Ophthalmology, and Pathology. As these specialties grow, there is a natural increasing need for more quantitative parameters in the care of the patient. The ability to implement these evaluations on imaging is well suited due to the data-driven nature of this analysis method. The methodologies in some segments, however, are approaching the limits of human interpretation. The ability to create man-machine symbiosis in an initial phase with a long-term evolution to complete computer-based evaluation is the current state of the environment. The benefits of computer-based interpretation as both an adjunct to human evaluation as well as for more quantitative tasks are significant. With both a reduction in error rate as well as the introduction of novel findings not humanly possible. The reduction in error is important in current health care systems as the error is often cited as a leading cause of morbidity and mortality.

Recently, artificial intelligence with the advancements in deep neural networks has allowed the progression of the computer vision approach. In some cases even surpasses human capabilities in complex image-based recognition tasks. The current iteration of computer-aided diagnosis (CAD) involves machines doing image analysis and identifying potential abnormalities in images. For example, lung cancer on an x-ray study for the physician (Radiologist). In the past five years, we have seen the advent of machine learning and deep learning with convolutional neural nets and other sophisticated algorithms. Which are pushing past CAD and now providing insights that go beyond human capabilities. This is seen for example in the ability of algorithms to predict the probability of breast cancer on a mammogram.

Medifakt was established to apply this revolutionary technology across all visual-based medical specialties. We have assembled a team of physicians, medical imaging AI experts, blockchain experts, and healthcare industry leaders. Over the past 4 years, Medifakt has developed and demonstrated repeated excellence in machine vision, deep learning, and algorithms for image recognition and diagnosis. Our algorithms surpass the accuracy, specificity, and sensitivity of other available offerings on the market. We have demonstrated our technology across various medical imaging applications. This more broad excellence allows Medifakt to develop algorithms that span across precision medicine including genetics, radionics, and other novel diagnostics. By coupling these diagnostics with imaging and machine learning, Medifakt is able to provide exceptional care for patients not only on diagnosis but managing the longitudinal span of disease.

Technology developed in the Medifakt labs currently is able to provide assistance to physicians in imaging. Such as Computed Tomography (CT), Magnetic resonance imaging (MRI), X-ray, Ultrasound, Mammography, Fundoscopy, Skin images, endoscopy, and Nuclear medicine. Applications include detecting breast cancer, diabetic retinopathy, lung nodules, reading chest X-rays, and detecting malaria. Our products are deployed to an international base across the globe. These AI-powered diagnostics are applied automatically to all the data on the Medifakt by hosting algorithms in our smart contracts.

Telemedicine and blockchain share a common philosophy of empowering the individual. Medifakt achieves this by combining two transformative technologies. Using deep learning and blockchain, we empower patients, providers, and sponsors by enhancing workflows all while reducing costs. In addition to providing better quantitative and qualitative analysis by leveraging AI diagnostics.

SECURITY LAYER - STORAGE ON THE MEDIFAKT NETWORK

The use of blockchain for medical records provides significant security benefits that can serve to reduce data breaches. As well as aid in sharing health care records between providers and patients. Currently, the way health records are stored and shared leaves much to be desired. The system is not efficient, fully secure, or user-friendly. There are many issues that prevent the sharing of data primarily centered around the lack of secure centralized storage. The patient's data is typically spread out over multiple providers' systems. This leads to limited access for both caregivers as well as patients. But also leads to significant wastage in healthcare costs as imaging studies are often repeated. From a security standpoint, when data is disparate across multiple providers, there is ample opportunity for security breaches. The Health Insurance Portability and Accountability Act (HIPAA) was developed for the security of health records. As well as mandates all HIPAA-covered entities to maintain technical safeguards to ensure the confidentiality, integrity, and availability of protected health information. However, in the current iteration, each healthcare entity implements its own security controls, which may vary from vendor to vendor.

By employing the blockchain for medical data storage, Medifakt does not store the data in a single location. The blockchain keeps data in an encrypted ledger, which is distributed across redundant, replicated, and synchronized databases. The decentralization of the data ensures security. With blockchain, each data block in the chain is encrypted via public cryptography. Which is unlocked with the use of private keys or passwords which are held by the patient in the Medifakt.
With the Medifakt blockchain, any healthcare provider or sponsor is able to access the patient's imaging data as the patient grants each access via their private key. The security in the key means that without the key, the data is secure and inaccessible. Each time new data is obtained, the Medifakt validates the data and adds the data to the blockchain in chronological order with the blockchain ultimately comprising the patient's entire medical history.

The use of the blockchain allows both benefits for the patient as well as the provider. There is no necessity for providers to fax or send records between consultants or when a patient moves to a new physician. The new office could simply access the patient's medical records from the Medifakt blockchain. From the patient's perspective, the blockchain makes it easier to access healthcare records. Instead of submitting an electronic or written request for copies of their health data across a set of different healthcare providers, the patient needs only to make one request and the full healthcare record is accessible. As any patient can attest to, the current process is complicated, time-consuming, and often very costly for the patient as each provider is permitted under HIPAA to charge a fee for providing copies of data to the patient.

02 MARKET

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As of 2012, the total healthcare cost is market to exceed 6.5 trillion US dollars with medical imaging representing 10% or 650 billion USD. The United States remains the leader in this segment of global spending, representing nearly half of this spending. There are several segments within the imaging chain that account for this spend including acquisition and infrastructure to interpretation. The interpretation segment typically represents 25% of the overall spend and thus represents approximately 80 billion USD in the United States. and 160 billion USD worldwide.

The global telemedicine market is expected to cost 113.1 billion USD by 2025, according to a report by Grand View Research, Inc.

The key drivers of the telemedicine market include the increasing prevalence of chronic conditions and a clear rising demand for self-care. In addition, the ubiquity of the internet, virtual care provision, and the rising demand for centralization of healthcare. Which are all expected to allow cost savings over the existing model which is where the key growth of the telemedicine market will lie.

Telemedicine is benefiting multiple medical specialties allowing for remote care and reducing care episodes from emergency room visits to hospitalizations. The telemedicine market is primarily segmented on the basis of products. The telemedicine products are distributed by direct supply contract amongst the manufacturers and end-users through a third-party supplier.

Within the discussed segments of growth identified in the Telemedicine market, connectivity & networking are anticipated to be the fastest growing product segment. This is primarily driven by increasing demand for automation and synchronization across the system, which is the solution Medifakt provides. Despite the growth of telemedicine has been centered in North America, the Asia Pacific region is predicted to also have significant growth. The evolution of economic reform, a growing IT industry, and low functioning costs are the key factors attracting market players to offer solutions in this region. The Medifakt due to the use of the blockchain is truly a global solution poised to capitalize on all of these regions of growth.

03 INTERNET OF MEDICAL DEVICES

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The concept of telemedicine has evolved today due to the desire to provide care in a more efficient, cost-effective, and geographically disparate fashion. The shortage of providers, the distribution of expertise, and the need for availability have driven the development of new technology. This permits distributed care at multiple locations on a 24/7 basis. Integral to the evaluation of the patient's condition is the use of imaging to arrive at a diagnosis. The quantitative and qualitative features of medical imaging surpass the accuracy of physical exams or simple symptom synthesis. The use of imaging spans multiple disciplines in medicine today. These include, but are not limited to, Radiology, Dermatology, Pathology, and Ophthalmology. The use of imaging has revolutionized medicine and plays a critical role in the diagnosis and management of essentially all disease processes.

Due to the invaluable contribution imaging makes to diagnosis, the usage of medical imaging has naturally increased. Coupled with increased use, the technology of acquisition and interpretation continues to improve. The improvement in the acquisition technology has also led to increasing complexity of interpretation once the physician obtains the imaging. The growing dependence on these techniques due to their inherent improvement over less quantitative and qualitative methodologies has to lead to significant growth in infrastructure needs. This trend in the increase in medical imaging is not expected to decrease due to the rapidly aging population in the U.S and worldwide. This utilization concern has also served to fuel the desire to create more automated methods for image interpretation across various medical specialties. The Medifakt supports all forms of imaging across every medical specialty. The incredible growth in imaging in medicine is calling for a solution such as the Medifakt today.

Resource Utilization

The necessity for a human physician to interpret the study is becoming increasingly difficult and expensive. The advent of machine learning can make the human imaging physician not only more efficient and productive but in many cases more accurate. The decrease in error rate is well demonstrated with man-machine symbiosis. The Medifakt integrates Artificial Intelligence into the interpretation of images to not only aid in the growing manpower shortage of human physicians. But to serve patients in improving the accuracy, sensitivity, and specificity of interpretation.

Costs

Medical imaging is often cited as the fastest growing segment in the cost of delivering healthcare. Healthcare, overall as a discipline is reaching unsustainable levels of cost, and methodologies to decrease cost are at the forefront of interest. The development of machine learning serves to curb these escalating costs. The Medifakt serves to decrease costs by decentralizing the transfer, storage, and interpretation of imaging. The network allows a decrease in storage costs and network costs by eliminating unnecessary third-party companies currently performing this function and charging both providers and patients for the use of their services. By making the patient's data available across the decentralized network, any provider can access the patient's data without significant cost.

04 ML, AI & DEEP LEARNING

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Artificial intelligence (AI) enables computers to learn and make decisions without being explicitly programmed. AI algorithms use statistics instead of neurons to analyze and compare patterns in data. Given enough examples of inputs with desired outputs, these systems can learn to accurately make decisions and predict outputs from new inputs. Machine learning, computer vision, and deep learning are all different fields within AI.

Deep learning is a faster, more configurable, and far more powerful version of AI than machine learning. Making it well suited to make sense of exabytes of complex, unstructured data the kind modern medicine depends on. Everyone, from tech giants to brand new start-ups, is racing to leverage the analytical and predictive capabilities of deep learning for healthcare applications. The primary advantage of deep learning over other forms of AI is that deep learning algorithms when run on a powerful enough computer (e.g. GPU), automatically extract relevant features from raw data. This means that even the efforts to create AI algorithms are now minimized using deep learning methods. With the advent of deep learning, computers can be taught visual recognition tasks that allow feature recognition in imaging data sets that can exceed human performance.

The most significant breakthrough used deep convolutional neural networks (CNNs) for object recognition to classify 1.2 million images from the Internet and spurred widespread adoption of this technology throughout the machine learning and computer vision communities. The evolution in algorithm development is being further supported by GPU hardware advances as well with application-specific hardware that allows higher levels of processing and could be dedicated to machine vision.

In some respect, biomedical images are substantially different from images in typical computer vision problems (e.g. self-driving cars). The very obvious difference is that the 90-degree edges which are very common for computer vision algorithms to leverage because they are used in man-made objects are very atypical for medical images. This is an important distinction because the majority of filters and detectors used in computer vision rely on these assumptions. Also, recent medical imaging modalities generate a huge amount of 3D (i.e. true volumetric) images which can be represented as a dense point cloud and not as an optical illusion of 3D which is often the case with computer graphics and what is in fact, only 2D. Finally, „similarity“ for medical images can rarely be defined based on the visual appearance of images alone. Instead, it is based on the similarity of cases of a disease. We are able to take into account these differences in the design of our neural network architectures, due to a deep understanding of the scientific and structural aspects of medical images.

It is also clear that while current machine learning systems are not sufficient to replace physician interpretation. The current iteration is well positioned to supplement a human reader. By identifying, stratifying, and evaluating various imaging findings, the system is able to augment the human reader to improve diagnosis or follow-up. The future of medical imaging relies on automated systems using AI to provide an initial diagnosis which improves the quality of care and reduces time and cost for patients. We already see examples of this being deployed in medical imaging devices such as ultrasound machines that can highlight breast lesions or teleradiology companies using AI to prioritize at-risk patients (e.g. stroke).

05 COMPANY

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Medifakt Ltd. is a Company established in the UK and the Project Medifakt is developed by AKT Health Analytics Pvt. Limited and Interkat Techsol Pvt. Limited., together with an India-based entity with Offices in Japan, Hongkong, UK, US, and Estonia. With deep experience at the intersection of IoT development, medical imaging, and deep learning across various platforms, modalities, and disciplines. The core competency and capabilities of Medifakt are centered around solving and deploying commercial solutions using artificial intelligence/deep learning methods in medical imaging and clinical environments.

We also created key partnerships with Global Healthcare Companies, hospitals, and imaging centers around the world. By helping these organizations develop data repositories and algorithm testing facilities. We have developed the most effective full-service development platform for all elements of medical image management and analysis.

Our long-term goal is to provide cost-effective solutions that provide better diagnosis and care to patients globally.

06 MEDIFAKT TECHNOLOGY

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Medifakt will be next generation healthcare blockchain build on Polkadot parachain, it will solve the Interoperability issues with other blockchain.

Overview

Medifakt services three key stakeholders: patients, providers, and AI companies. The basis for Medifakt is a network for remotely storing and sharing medical imaging data. Typically, medical images are stored by providers or third party hosts such as telemedicine companies.

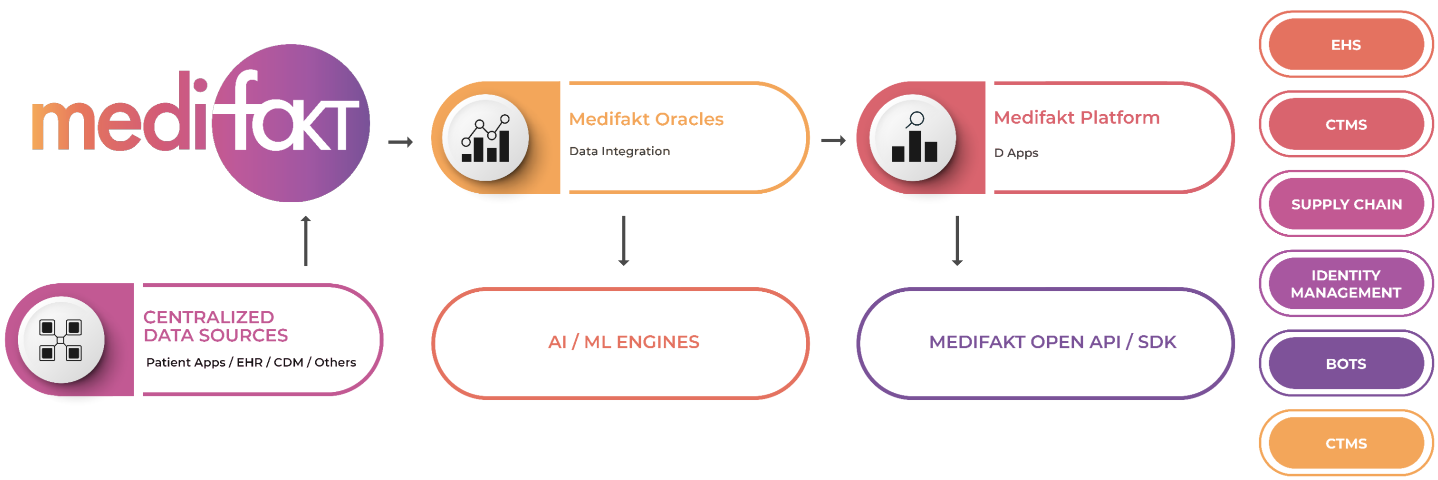
Medifakt will be able to safely store medical imaging data and doesn't have these negative properties. We employ four strategies to ensure the safety and reliability of medical imaging data storage :

- Encryption of data in transit and at rest. Hosts cannot view decrypted data.
- Redundancy where data is given not just to one host but a myriad of hosts distributed globally.
- Integrity of the data by using block-based error correcting codes (e.g. Reed-Solomon) so that a decoder processes each block of data transferred and attempts to recover the original images.
- Incentivize hosts to store medical imaging data by guaranteeing a payment (i.e. smart contract).

On top of this blockchain-based store layer, we provide additional broker APIs which really differentiate our platform in its ability to become the best storage product for medical imaging data. Without this API layer, there would be no way for existing healthcare providers and IT systems to communicate with blockchain-based storage systems.

Finally, given the blockchain-based store layer and broker APIs anyone can create web and mobile applications for telemedicine, medical image sharing, clinical trials, and AI diagnostics that are decentralized, secure and easy to develop.

SYSTEM ARCHITECTURE



Utility Token

We are developing all of our technology on top of Ethereum. Using the Ethereum blockchain, we make it easy for developers to build distributed applications (Dapps). This also makes it easy for consumers to use existing web and mobile Ethereum wallets to interact with Medifakt.

Crypto Token

The blockchain will both serve as a payment escrow for medical imaging services and as a medical image storage protocol.

Decentralized medical data storage

We are planning to build on top of the IPFS and libp2p protocols. Given the use cases for telemedicine and medical image storage around the world, having a decentralized storage and transmission service is crucial for both security and reliability especially in remote, underserved areas. For example, for reliability, you may care that your medical imaging data is backed up on IPFS nodes in at least 3 geographically isolated regions. IPFS makes the distribution and storage in these nodes easy to implement and the team behind it has already developed many successful projects such as Filecoin.

AI Algorithms

As AI becomes more integrated into the clinical workflow for medical imaging specialists, we want to make it easy to include AI algorithms with our data storage. While conventionally we think of AI in medical imaging as drawing boxes around cancer tumors, there is also a great need in clinical trials to automatically redact patient information burned into images and videos. As AI becomes more commonplace, we expect to include AI as part of the blockchain implementation. We already have a prototype that can analyze chest X-rays for tuberculosis and the smart contract implementing the AI can run on both GPU and CPU nodes.

Host Verification

We want to put in place provisions that not only identify hosts but ensure that they are incentivized to behave as reliable IPFS nodes. For example, if a provider wants to store their large pathology images (>5 GB per image), the storage payments would be made into a smart contract. The data host will also make payments into this contract as collateral which would be forfeited if the contract is not completed. When the term of the storage contract is over or completed by the provider, the data host must provide a proof of storage. If the proof of storage is not provided in time or completely, the data host's payment is forfeited and the next (redundant) data host is contacted.

Broker APIs

Data Encryption

In order to ensure compatibility with HIPAA and other healthcare privacy laws, we add our own encryption layer on top of the storage. We plan to use AES256 standards.

DICOM/HL7 Connectivity

One of the key challenges in developing medical imaging software is interfacing with existing healthcare IT systems. No matter how sophisticated a storage protocol may be, if it cannot communicate with a hospital's PACS and EHR, it will never have widespread usage. We experienced these problems first hand developing software at SemanticMD and in addition to supporting DICOM, HL7 and FHIR protocols for sharing data, we plan to structure partnerships with cloud-based EHR and PACS providers so we will have tighter in product integrations.

Host Selection

We are developing an internal machine learning algorithm to rate data hosts so that providers and patients only upload data to a small percentage of reliable data hosts. We are considering several different implementations for the host rating algorithm by leveraging successful strategies from other blockchain applications. For example, hosts will be rated on uptime, pricing, and amount of collateral provided on the data (favoring larger more established data hosts). This rating system will be separate from the blockchain protocol so that we can adapt it for different applications (e.g. teleradiology, image sharing) and geographic regulations (e.g. EU GDPR).

Protocols

The ultimate goal of Medifakt is to replace existing Proof-of-Work protocols with that which is considered more useful work. The current protocols in bitcoin and several other coins require solving computationally difficult problems that ultimately utilize a significant amount of computing power. The end result is wasteful energy use. Over development of the network, Medifakt is aiming to ultimately create a useful work consensus protocol that is centered around our storage network. In this paradigm, the probability that the network elects for the miner to create a new block is proportional to their storage in use in relation to the rest of the network. The system is designed so that miners would rather invest in storage than in computing power to parallelize the mining computation. Our constituent miners are incentivized to offer storage and re-use the computation for proof that data that is being stored to participate in the consensus.

AI Overview

The Medifakt platform leverages advances in Artificial Intelligence and Blockchain technologies.

Recently, due to a number of demonstrated top-ranked achievements in deep learning, convolutional neural networks (CNNs) are of high interest for the medical image analysis community. The basis for the unreasonable effectiveness of CNNs is predicated on large volumes of quality annotated data. ImageNet, a 4M+ image database of real life images, has been used for many of the advancements in consumer facing computer vision applications. At Medifakt, we have collected a similar database of millions of medical images carefully curated, anonymized and annotated globally by experts in their respective fields.

The benefit of AI is easier to determine and demonstrate as deep learning algorithms are trained from collated, organized longitudinal data. At Medifakt, we have partner access to large curated collections of imaging around the world across the various disciplines that allow us to train our neural networks to cover many indications. By localizing AI for differing patient populations, we can ensure that our deployed algorithms are effective for the local patients.

Token Design

Medifakt token is an ERC20 token used for both payment and medical imaging data host/provider verification on the network. On a protocol level, nodes on the network will verify data storage transactions and any other transaction rules defined in the smart contract (e.g. run AI diagnoses). These nodes will then be rewarded in MEDNTWRK. MEDNTWRK will also be the payment used for telemedicine transactions and other medical services developed on the Medifakt.

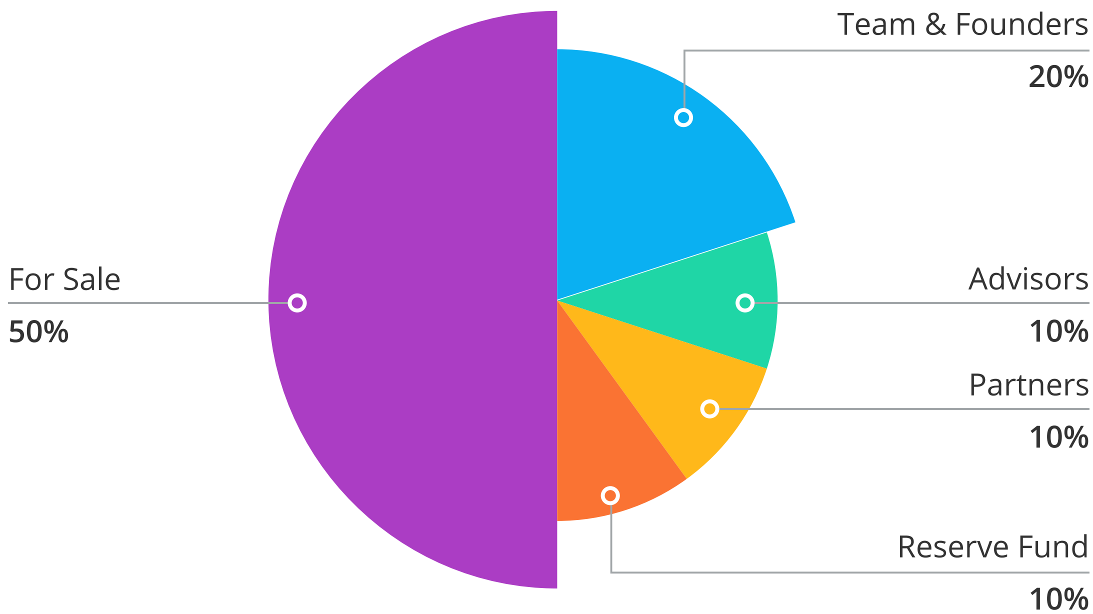
Token Sale Logistics

The MEDIFAKT token creation process will be issued by Medifakt. Ltd., a UK based company, and will be organized around smart contracts running on Ethereum.

Company also has offices in India and Estonia

Details Overview

Total token supply: 999 million
Initial price: 1 FAKT Token = USDT 0.09
Type: ERC-20 / BEP 20
Minimum ETH purchase: None
Pre-sale Tokens: 50M Tokens
Pre-sale discount: 20%
Whitelist: yes, start date TBA
KYC: basic



Lock-up Period

Partners and Advisors - 10% of tokens will have a 1 year vesting and 3 months cliff

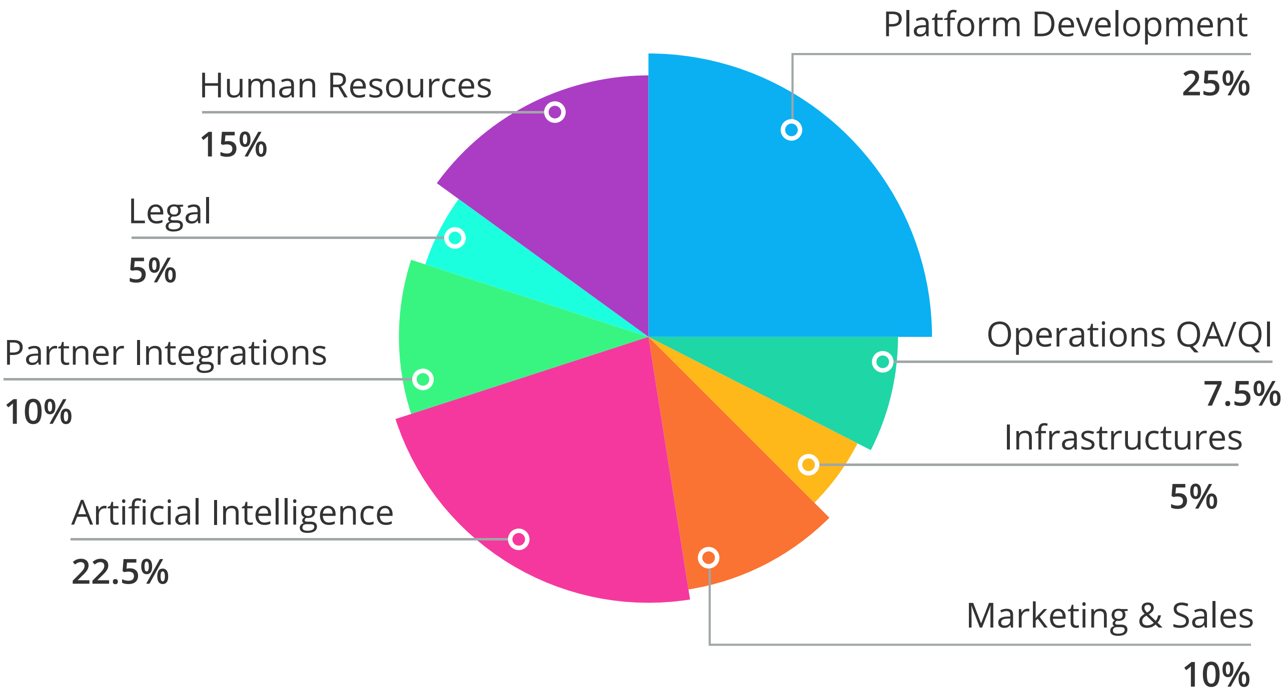
Team and Founders - 3 years vesting with 6 months cliff

Funds Raised

The intent of Medifakt is to raise the minimum needed funds to launch the network and platform (5.6M). We are committed to being impeccable stewards of capital raised and to ensure that the funds are used optimally and efficiently with no waste. Each dollar raised has been earmarked for a particular need. This fundraise provides the absolute minimum required to get to our 1 year milestones and continue to develop out the platform. The remainder of the funds between the soft cap and the hard cap allows the company to scale larger faster as well as more efficiently. It allows us to deploy and develop more AI algorithms at a faster pace and provide them out to the network. It provides a longer runway and ability to fund the company over time without needing to distract the core team from more fundraising in the current pipeline and roadmap. We have outlined a detailed use of funds below.

UTILIZATION OF FUNDS

INITIAL TOTAL BUDGET: $4.1MM



Development (Platform development and deployment)	25.0%
Operations (QA/QI)	07.5%
Infrastructure (Cloud services, ISO certification, infrastructure and equipment)	05.0%
Marketing & sales (Marketing, Advertising and Promotion)	10.0%
Artificial Intelligence (Algorithm Development)	22.5%
Partner integrations (Platform deployment and app sales)	10.0%
Legal (Compliance and Regulation)	05.0%
Human resources (Growth of Machine Learning teams)	05.0%

Human Resources

15% of the raise will be allocated and used to continue to grow the organization with qualified and experienced team members. Through our experience with other companies, we have the ability to source, identify, recruit and hire the optimal experts for our purpose.

Development

25% of the raise will be allocated and used for the development team to further develop the Medifakt ecosystem. This includes developing new products, features, API integrations and continue to develop out blockchain application.

Operations

7.5% of the raise will be allocated and used to run the quality assurance and quality improvement team to monitor our real-time live activities. If applicable, we would like to pursue a portfolio of ISO certifications for the platform as well as for cloud security.

Infrastructure

5% of the raise will be allocated and used for continuing to develop the technical infrastructure on which the ecosystem operates as well as the costs of units for running artificial learning algorithms while the platform grows. These include, but are not limited to bandwidth, server capacity, cloud services, server licenses and computer and network equipment.

Marketing & Sales

10% of the raise will be allocated and used for our marketing and sales functions.

Artificial Intelligence Algorithm

22.5% of the raise will be allocated for the development, curation, promotion and implementation of AI algorithms across the various applications and platform. This is a key component of our architecture.

Partner Integrations

10% of the raised budget will be allocated and used to work with other companies offering online through custom integrations based on APIs.

Legal

5% of the raise will be allocated and used for legal and compliance matters.

An investment in knowledge pays the best interest

– Benjamin Franklin

medifakt