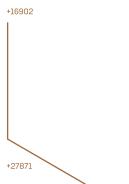


guardtime.com

GUARDTIME HEALTH

WHITEPAPER APRIL 2019





HEALTHCARE

There has been unprecedented scientific progress in understanding systems biology and the true cause of diseases in recent years, leading to a new era in precision medicine. Whilst still in its infancy, this new era of understanding coupled with the rapidly evolving capabilities around data processing (big data analytics) and data capture (smartphones, wearables...), patient outcomes can be greatly improved as long as health care systems are able to adapt in line with these innovations.

However, we still face the non-trivial challenge of integrating multiple care providers across the broader healthcare ecosystem in order to facilitate a much needed sea-change in health provision, one that revolves around patients and their needs; patients who today, more than ever, are demanding the right to be in control of their personal health data.

Finally, there are significant technological drivers behind the disruption in healthcare as **machine learning is rapidly evolving to** enable large scale analysis of medical data. The benefits of machine learning will accelerate over the years to come, as we discover new treatments or optimize existing practices, facilitating better, more cost-effective outcomes.

The promise these innovations bring, not to mention the challenges that must be met to deliver them, is driving rapid **increases in healthcare costs;** the global health spend is expected to reach \$8.7 trillion by 2020.





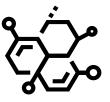
MAKE DATA USABLE

The healthcare industry is facing many unique challenges that must be addressed simultaneously in order for all stakeholders in the care pathway to benefit fully from the promise of precision medicine and technology.

Health data, alongside the related stakeholders' ability to analyse it with a focus on better or more cost-effective outcomes is critical to advancing both basic and clinical research, fostering new health delivery mechanisms and the payment models necessary to support these innovations.

In pursuing these goals, healthcare providers must overcome the inherent lack of interoperability systems, while embracing between legacy new avenues for patient-reported and patientcontrolled data. This new "data economy", requires a single version of truth, a truth with immutable integrity, veracity and provenance such that medical data becomes undisputed/respected by all the ecosystems' participants. Furthermore, healthcare providers face the additional challenge of incorporating patient consent dynamically into the ecosystem allowing patients to be in charge of their medical data and how it's consumed by third parties. This is as much a moral obligation as it is regulatory in many of the worlds' leading economies where privacy regulations are enforced by law.

To successfully address these challenges the health and life sciences sector needs new tools for data visibility (ie data can be analyzed without sharing) and data liquidity (seamless transfer of data between systems) which don't compromise a patients' or citizens' control of their data.





A COLLABORATIVE HEALTH ECOSYSTEM

All health system stakeholders are aware of the need for a re-imagined ecosystem. One which takes new advances in technology into account yet doesn't lose sight of moving towards a truly patient centric approach.

/ PATIENTS

I need my longitudinal medical record available, at all times, with the right to consent to share my data, regardless of whether it benefits me personally, or the causes I care about. Consent must be transparent, so that I can see my health data, who I have authorized to view or use it with an audit trail clearly showing when and who consumed it. Moreover, I should be able to withdraw my consent at any time.

/ RESEARCHERS

I need simplified source data verification and secure data management for the current gold standard: randomized controlled trials. I also want to use more real-world data and move towards decentralized (site-less) clinical trials, where I can identify patients through population health data sets and use patient-generated data or data provided by remote service providers. Prerequisites then are that patients must have consented to be "visible", and that the authenticity and integrity of the data, regardless of its source, is verifiable.

/ HEALTHCARE PROVIDERS

I need to have the same trust in telemedicine and homecare as I do with on-premise visits. I also want to be paid for outcomes, as opposed to the current fee for service model. I want tools for clinical surveillance, in order to optimize patient outcomes.

/ TECH AND PHARMA COMPANIES

I need a model where I get paid for the value of the products or services I provide, taking into account the long-term economic value for society. I want the ability to agree value (outcomes) based deals, and these require access to, or visibility of, patient-level data.

/ REGULATORS

I need a single version of truth which is independent from the industry. I need automation tools for compliance and audit, whether for manufacturing; pre-clinical or clinical development; or postapproval studies/monitoring. I want to shorten the time for drug development and thereby bring innovation faster to patients while lowering drug prices.

/ PAYERS

I need access to immutable patient records, whether in legacy systems or new patient-centred solutions, to agree outcomesbased contracts with pharma or tech companies and clinical guideline adherence schemes with providers and contractors.

/ POLICYMAKERS

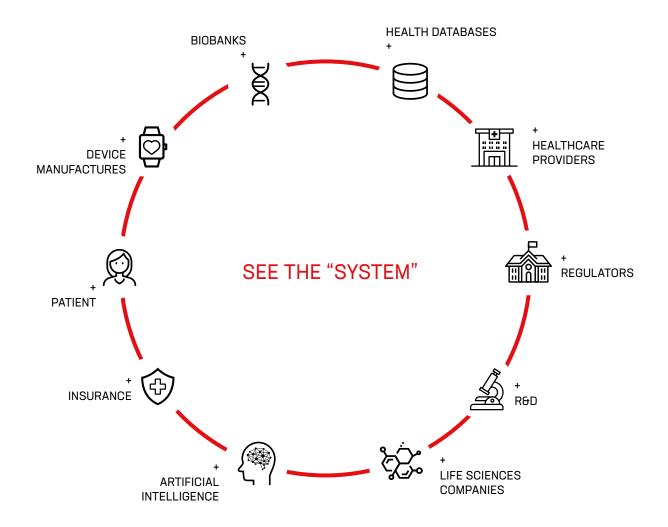
I need the interests of citizens, commercial entities and society well balanced in terms of privacy protection, innovation advances and fiscal sustainability. I must protect individuals with the right to control how their health data is being used and for what purpose.

/ BIOBANKS AND DATABASES

I need to maintain effective and efficient control of data reliability, access and audit complex data processing by internal and external entities in order to be trusted by individuals, regulators, partners and society at large while pursuing public health innovation or new business opportunities. Most of these inefficiencies exist because **a single version of trusted information** is lacking; this prevents the stakeholders agreeing on more efficient workflows and business arrangements.

The idea of pooling all data into single cloud solutions or sharing between everyone is neither practical nor advisable for routine healthcare. Instead, Guardtime uses the federated/decentralized data management principles and technology stack to **bridge the data gaps** across the entire health ecosystem while maintaining the integrity of data and legitimacy / autonomy guarantees for every system participant. We enable every stakeholder to **see the necessary information across the whole healthcare system** while preserving the **privacy and integrity** for everyone.

By enabling the relevant information to be used by every system participant without unnecessary centralisation of data, HSX creates **the brain and connecting nervous tissue** for complex healthcare system operations.



HSX: SOLVING HEALTH DATA CHALLENGES

Guardtime's HSX creates a trusted data and information ecosystem for patients, providers, payers, regulators and pharma to collaborate, allowing each stakeholder to have or see (subject to consent) the information they need to provide more effective patient care. Data privacy is a major concern across all actors in the ecosystem and to address this, HSX is capable of summarizing (from various stakeholders & sources) and presenting only the necessary or agreed patient information without the need to reveal all the underlying data.

Sometimes, data does need to travel, for example between providers for elective interventions, or if consent has been given for data to be used for research purposes, Guardtime's HSX delivers unparalleled protection for authenticity, integrity, secure transfer and provenance of any shared data, including safeguarding patient privacy.

In this way it is possible to seamlessly provide data liquidity and visibility, integrated directly across traditional workflows and boundaries. Given the complexity of this task, automation (where possible) is a must, as HSX provides a single source of truth, both existing and new **processes can be automated**, supported by independent digital security services. This ensures all stakeholders have immutable assurance that every participant in the system is operating based on a **single, truthful version of the required health data**.

HSX acts like a global brain and nervous system that assures trustworthy, regulatory compliant health data across the health ecosystem.





GUARDTIME HEALTH HSX FACILITATES

+ INTEGRITY

Efficient blockchain-based (KSI® Blockchain) transparency and auditability of immutable data assets

+ **PROVENANCE**

Time-stamped sequence of data transactions with audit trail verifiable to all stakeholders

+ CONSENT

Personal control of data access guaranteeing compliance with privacy regulations

+ SECURE DATA **EXCHANGE**

Seamless transmission and integration with major EHR systems on need-be basis

+ AGGREGATED/SECURE ANALYTICAL **REPORTING**

Decentralised computing of aggregated reports & analytics with minimal transit of original data

+ **IDENTITY** MAPPING

Collaboration across multiple trusted stakeholders with the data from a single individual

+ AUTOMATED AUDITING

Automated monitoring and control of data processing throughout the whole system with reports and smart triggers

+ AUTOMATED PROCESS VERIFICATION

Verification and automation of multidimensional integrated workflows within complex systems

GUARDTIME'S BLOCKCHAIN-BACKED HSX PROVIDES SOLUTIONS FOR

- 1 Intelligent data visibility and liquidity management
- 2 Decentralised data access for **outcome based contracting**
- 3 Managing pharma supply-chain accountability and visibility
- 4 **Innovative clinical trials** patient recruitment, follow-up and data management
- 5 Managing care quality with digital infrastructure

SOLUTIONS 1. INTELLIGENT DATA ACCESS AND VISIBILITY

Access to data is key for delivering on the new scientific advances. Access to patient-level genomic information, coupled with phenotypic information in health records, will aid understanding disease and the new taxonomy that is emerging. Data on healthcare and social care consumption, plus information from society at large, will help understand the socioeconomic burden of disease and the value of prevention and/or intervention. Meeting the challenge of population health and disease interception requires access to vast amounts of information. However, the notion of data **access** has been understood based on yesterday's technology, where data had to be physically shared to make use of it.

Data liquidity (where data travels) is needed for the transmission of health records between providers (family physicians / general practitioners / hospitals) and payers / insurers who are engaged in everyday healthcare. Moreover, this same set of data is needed for most research purposes, whether genome-wide association studies or for pooling multiple data sets to provide a more robust database. **Data visibility** (where data does not travel) is a recent concept enabled by new cryptography-based technologies. By allowing data to be analyzed without it leaving the owners environment coupled with a cryptographic audit trail, many data sources that have traditionally been closed can now be made available.

In view of recent data misuse scandals, data owners require new tools to be confident what recipients do with the data. Private entities, such as pharma companies, need to protect their business interests and public data holders, such as biobanks, must provide assurance to politicians, citizens and stakeholders, that private sector access to data is legitimate and abides by the necessary privacy and governance restrictions. Whether private or public, all data holders must ensure compliance with patient privacy provisions (eg EU GDPR), which are also likely to be strengthened in the years to come. To use data with confidence the latest technology, combining access and liquidity where appropriate, is required to secure authenticity, integrity, encrypted transport and provide protection for privacy and business confidentiality.



HSX FOR DATA LIQUIDITY AND ACCESS

MANAGEMENT is a data management platform that any data processor or custodian can sign up for to get independent verification of data assets and how they've been processed. Outside partners are able to access data in real time through an API for a third-party AI solution according to predefined rules. The rules can be defined from legal or contractual obligations or managed dynamically via an individual consent service. The solution supports integration to and secure transport between the various databases and IT systems used in healthcare, for example: providers, biobanks, CROs and pharma companies as well as mobile solutions serving individuals; combining these sources into a single holistic and trusted information space.

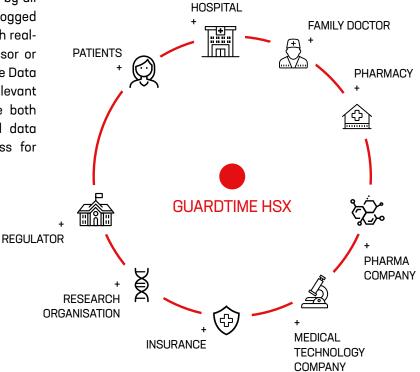
Assurance of integrity and authenticity of data, while guaranteeing non-repudiation will be provided via reporting as well as automated triggers for compliance or business process verification. By keeping the data transport at minimum and only in aggregated form in a decentralised architecture the visibility of data for high intensity analytics and complex workflow management is well balanced with the strongest guarantee of privacy.

HSX FOR DATA VISIBILITY is a data integrity solution / application / platform that facilitates, within a trusted ecosystem, processing of data in decentralised locations without transporting the data, but ensuring that the computational results can be verified by all stakeholders. Data processing activities are logged with an immutable audit trail accompanied with realtime oversight for the individual, data processor or outside auditors. This can be combined with the Data Liquidity solution in accordance with all relevant regulations and patient consent to preserve both privacy and security within a decentralised data ecosystem, while still unlocking data access for analytics with patient controls.

KEY BENEFITS OF KSI BLOCKCHAIN BASED HSX PLATFORM



Involved stakeholders:



SOLUTIONS 2. DECENTRALISED DATA ACCESS FOR OUTCOME BASED CONTRACTING

The idea of paying based on the performance / results of a drug is not new, having been used widely for over two decades in healthcare. However, the uptake in the pharma sector has been slow and difficult; although pharma companies and payers, particularly in Europe, have experimented with managed entry (or risk sharing) agreements. Most often, such market access agreements have been simple price-volume contracts, but in many countries the ambition is to base payments on performance, to more effectively manage and represent the uncertainty around patient selection, adherence, and effectiveness in real life.

In the US, CMS and a few private payers have experimented with CED (coverage with evidence development) to deal with these real-life uncertainties. In Europe, institutions to assess theoretical values in the form of health technology assessments (HTA) and cost-effectiveness reports have created an appetite for linking payments (or rebates) to actual real-world results. Outcomes-based contracts (OBC) will also be required for novel and very expensive products and services that are in the pipeline, for example: gene therapy, curative treatments, and treatments for progressive diseases where long-term outcomes are not certain. In the US, it is possible that the step of institutional HTA could be skipped, enabling an immediate move to paying for outcomes.

There are several hurdles preventing a major shift towards agreeing outcomes-based deals, such as lack of overall trust between payers and pharma and difficulty in agreeing what to measure and how. In addition, payers are reluctant to set up companyspecific solutions and health data owners are reluctant to share the necessary data, especially with big pharma. All the above-mentioned challenges for OBC are directly linked to the single biggest barrier, namely secure access to a single version of data/truth which maintains data autonomy for the ecosystem participants and delivers the necessary trust between parties needed for these newer flexible business models.

Commercial market access arrangements between pharma and payers have been held by back the lack of access to data in legacy health records, reimbursement and claims management systems.



HSX FOR DECENTRALIZED DATA ACCESS FOR

OUTCOME BASED CONTRACTING links all participants in the healthcare ecosystem to a single trusted environment where all independent data assets can be independently verified, directly from their original legacy records and/or claims systems. For longitudinal contract management, HSX enables the data to be visible/usable for computation of composite outputs or the sharing of aggregated information with role-based authorization; no unnecessary pooling of individual data is necessary as original patient information is never transmitted (origins of data and its authenticity can be independently verified at any time).

HSX is also capable of managing interoperability between the various healthcare information systems by supporting standardisation of original medical data, including EMRs, patient reported outcome measurement applications, ERPs etc. All activities by the users as well as provenance of any data exchange between them are independently verifiable via the KSI blockchain enabling full transparency for patients as well as other data custodians or regulators.

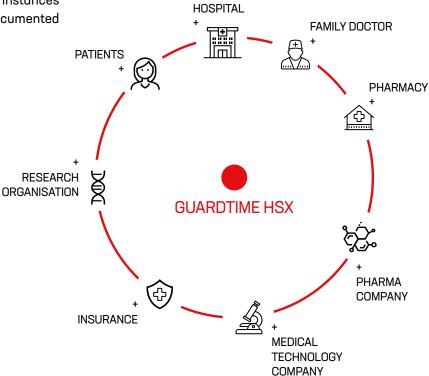
HSX supports various outcome-oriented contract and payment management solutions, complete with full data and process integrity guarantees. This ensures that patient reported outcomes are delivered in realtime based on clinician led care pathways - with the ability to identify, report and resolve instances where patient outcomes and or risk is documented inaccurately.

KEY BENEFITS OF KSI BLOCKCHAIN BASED HSX PLATFORM

- + **INTEGRITY** transparency and auditability of medical data
- + **PROVENANCE AND AUDITING** compliance with privacy regulations
- + **REPORTING** making data "visible" for secondary use in RWE research
- + **EXCHANGE** seamless portability of health data from multiple sources and platforms
 - **CONSENT** personal control of health data access by various entities

Involved stakeholders:

+



SOLUTIONS 3. PHARMA SUPPLY-CHAIN ACCOUNTABILITY AND VISIBILITY

In recent years stakeholders have acknowledged that the pharma supply chain does not meet today's expectations in respect to visibility and accountability. The increasing problem with drug shortages (ADD references AHPA, FDA and EMA) plus the risk of counterfeit medicines have made supply chain one of the top priorities for pharma executives and associated regulators. It should be noted the gradual roll-out of serialization, most often, with the support of the pharma industry, is a sign of the willingness to work collaboratively on a solutions.

However, the upstream supply of active substances (active pharmaceutical ingredients, APIs) has not been addressed, even though this is where the compliance issues are of the greatest concern. Beyond shortages, caused by lack of allocation/ planning efficiency, there are examples where API suppliers or key contract manufacturers of finished products discontinue or limit production (accident at a factory or closed down by local regulators). In many cases this information is not being passed on, in the supply chain, or shared between the multisource suppliers which is necessary to avert these problems.

In downstream supply-chain, wholesalers distributors and pharmacies are reluctant to share stock level information as purchasing and inventory management is a critical component of their business models, over and above which, arbitrage is dependent on maintaining business confidentiality. Moreover, pharma companies are typically unwilling to share internal stock levels (either in-house or at 3rd party logistics providers / pre-wholesalers) and or their future production plans. This is most often the case in the off-patent/generic space, where the products in many countries are commodities, traded on spot-markets. The lack of transparency and coordination between supply chain operators result in inefficient/unwanted fluctuations in available stocks (colloquially known as the "bull-whip effect").

Regulators, hospitals and other stakeholders have long desired a way to be informed about the status of a pharmaceuticals' supply chain, while preserving their individual business autonomy and confidentiality requirements.

Similarly, supply chain transparency, for example to avoid shortages, has been hampered by concern about sharing stock levels and manufacturing planning.



HSX FOR PHARMA SUPPLY-CHAIN ACCOUNTABILITY

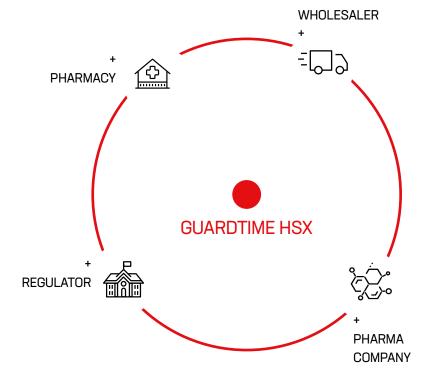
can verify upstream production processes (in-process controls), quality control results (analytics) and provenance of materials to guarantee compliance with contracts and regulatory approvals. Specifically, sensitive steps in manufacturing (such as environmental controls, waste water management etc) can be monitored and logs can be audited through a provenance chain of KSI signatures. This provenance chain can be combined with meta-data, for example existing GPS-tracking device information so the manufacturing and quality control sites can also be verified.

HSX FOR PHARMA SUPPLY-CHAIN VISIBILITY enables the generation of summary/aggregated overviews of finished product (drug product) stock levels and production plans for pharmaceuticals across different supply chain levels (pharma production planning, pre-wholesalers, wholesalers, pharmacies) without revealing an individual companies' proprietary business information. Regulators or other system participants, if agreed by the ecosystem participants, can monitor realtime and historical supplies to plan or execute preventive actions to avoid shortages and or rapid fluctuations of medicines.

KEY BENEFITS OF KSI BLOCKCHAIN BASED HSX PLATFORM



Involved stakeholders:



SOLUTIONS 4. INNOVATIVE CLINICAL TRIALS

High costs and an improved understanding of diseases call for radical advancements in clinical development models; this is addition to the current challenges of timely patient enrolment and engagement (adherence) for traditional site-based trials.

Regulators are calling for more collaborative trials and precision medicine also requires new ways to find patients that match particular treatments, disease history and inclusion criteria. There is growing interest in identifying patients from population health data sets (EHRs/EMRs), claims databases, disease registries etc. There are also private companies and patient communities (eg patient organizations and on social media) that make patients "findable".

In parallel, and not necessarily linked, companies are increasingly interested in running clinical trials in a more decentralized manner, not having to rely on sites, investigators and other study personnel. Automated source data authentication and verification from multiple, off-site, data sources (smartphones, sensors, wearables, decentralized examinations and lab work etc) can save money and shorten clinical trial duration.

Keeping patients engaged also beyond the completion of a clinical trial is growing in importance: Regulators require risk-management plans and more formal post-approval safety and efficacy studies. Payers require evidence of effectiveness and economic value in everyday clinical practice, often referred to as real-world data or real-world evidence (RWD/RWE). Longitudinal post-trial data from patients is a very good source of such data but hinges on the patient's commitment and trust to continue to share data.

The increasingly integrated workflows they require beyond traditional borders warrant new approaches for patient engagement. So new tools for finding patients and engaging with them is hence of value for existing and future clinical trial models. All the above also leads to complex and high-volume processing of health-data for which citizens will require tighter, more user-friendly ways to preserve their privacy. As a direct connection between pharma and patients is very sensitive and, in many geographies, prohibited outright, improving patient data visibility and liquidity without breaching these sensitivities or regulations is a must.



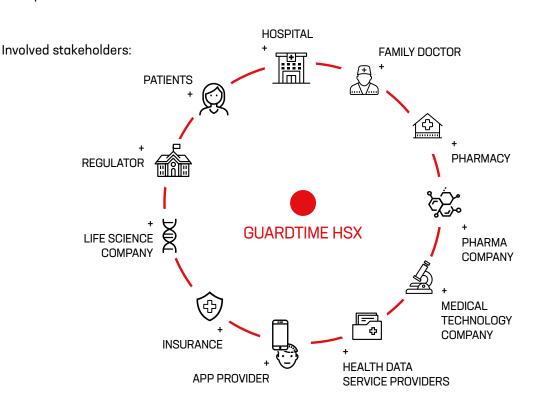
HSX FOR INNOVATIVE CLINICAL TRIALS supports mobile or web-based applications that facilitate interaction with citizens in clinical trial settings to build and manage secure and GDPR-compliant workflows between various independent health system stakeholders with the citizen/ patient in control of their data (eg trial recruitment, management and follow-up etc).

HSX provides state-of-the art, dynamic consent management together with proof of identity and data provenance. This enables providers and other ecosystem actors who are in contact with patients to recruit them for clinical trials, connecting directly to patients taking specific drugs for adherence and monitoring of safety, efficacy and value underpinned with a security and privacy layer. With this model stakeholder engagement with the citizens can be independent from any single party within the ecosystem.

HSX supports a seamless experience for patients with the ability to integrate with existing legacy systems and pull data from multiple sources to provide one portal for patients with instant access to their primary care information, their personal care pathways and medication adherence support direct through their smartphone.

KEY BENEFITS OF KSI BLOCKCHAIN BASED HSX PLATFORM

- INTEGRITY transparency and auditability of medical data
 CONSENT - personal control of health data access by various entities
 EXCHANGE - seamless portability of health data from multiple sources and
 - + PROVENANCE AND AUDITING compliance with privacy
 - regulations
 REPORTING making data
 - "visible" for secondary use in RWE research and outcomes-based contracting



SOLUTIONS 5. PATIENT ENGAGEMENT FOR CARE QUALITY

Patients and payers expect high quality and costeffective care from all healthcare providers and the associated systems they need to interact with to deliver it. For example, patient medication adherence, for continuous monitoring of patients enrolled to a specific, personalized treatment plan has been shown to provide significant cost efficiencies whilst delivering a more robust and patient friendly engagement model, ensuring patients are continuously updated on their treatment path, with 360-degree feedback of their progress to their doctor.

Medical adherence platforms in support of health systems delivering "the right services to the right person at the right time" should be considered the best way to ensure positive health outcomes for patients at the earliest opportunity and an essential tool in combating rising medical costs. Equally important are clinical surveillance services and products for health care providers as well as new approaches to population health management, such as disease interception and vaccination or eradication programs (eg Hepatitis C).

This is why delivering on the promise of outcomesbased treatments has been, increasingly, recognized as the most powerful lever for, not only, reducing costs but improving the value delivered to patients and payers by the healthcare industry. However, without a proper digital infrastructure, one which enables complete and immutable oversight of all actions/transactions, it would be easy to view this as 'mission impossible' in such a complex environment, as without it, the actual quality of care, privacy or process integrity could not be measured or verified to an acceptable level.

The last example especially holds true for those environments with limited resources (or for fiscally responsible systems), where multiple layers of management have put in place cost-control measures where such heavy investment into centralized infrastructure is not a feasible or fiscally responsible solution. Consequently, it's becoming self-evident that modern, highly secure decentralized digital infrastructures are much more efficient at meeting these requirements; delivered in a fiscally sustainable, high quality manner.



HSX FOR PATIENT ENGAGEMENT AND CARE QUALITY

is a federated health information exchange platform which combines secure clinical workflows, patient care pathways and supply-chain transactions (from the necessary participants) into a single, holistic and trusted information space which all parties can rely on. It supports bespoke or commercially available end-user applications (such as patient mobile apps), in conjunction with resource management support systems enabling every ecosystem participant to enforce and monitor compliance of the clinical standards employed by field-workers as well as creating supply-chain visibility throughout the lifecycle.

As such HSX provides an outcome-oriented health management solution that scales alongside existing (embedded) systems, whether this is for an individual or the population as a whole inter alia in line with the Paris Declaration components of foreign aid effectiveness: ownership, alignment, harmonization, managing for results and mutual accountability.

KEY BENEFITS OF KSI BLOCKCHAIN BASED HSX PLATFORM

- + **INTEGRITY** transparency and auditability of health care data
- + **PROVENANCE AND AUDITING** compliance with privacy and health regulations
- + **EXCHANGE** seamless portability of health data from multiple sources and platforms
- + **AUTOMATION** digital data and process management with reports and smart triggers
- + **IDENTIFICATION** integrated workflow for any individual across multiple stakeholders
- + **CONSENT** personal control of health data access by various entities

Involved stakeholders:



GUARDTIME HSX IS PURPOSE BUILT TO DELIVER THE FUTURE OF HEALTH

/ BUILD

STANDARD APIs

Single Source of Truth -Data Immutability

+ KSI Blockchain

Regulatory Compliance

- + On-Demand Patient Consent
- + Derived Consent for Children / Infirm Patients
- + Dynamic Consent for Emergencies
- + Anonymization of Patient Data

Digital Twins

- + Petient Identity Mapping (Cross Platforms)
- + Medication Tracking (Physical to Digital)
- + Clinical Trials Concierge Services

Provenance

 Visualize the who, where and what for every interaction across the health ecosystem

/ CONNECT

Universal Data Transport

 End to End Secure, Encrypted, Blockchain backed transport layer for 'consent based' real time sharing of patient data

Directory Services

+ Advertise or consume HSX enabled services on demand

Supported EHR Systems

- + Center
- + EPIC
- + AllScripts
- + Any third party HL7 / FHIR enabled system

Other Supported Systems

- + Oracle Clinical Trials
- + Apple iHealth
- + Partner Smart Apps (Apple / Android)
- + Big Data Solutions

/ DEPLOY

STANDARD APPLICATIONS

- + Medical Adherence Tracking (Per Patient)
- + Clinical Trial P1-P4 Regulatory Assurance
- + Clinical Trial P2/P3 Patient Acquisition
- + Clinical Trial P3 Patient Smart Apps
- + FDA Pre-Approval Clinical Trial Submission Check
- + Concierge Services
- + Smart Contracts

CUSTOM APPLICATIONS

GUARDTIME HEALTH -BRINGING DATA TO LIFE

If Google organizes the world's information and makes it universally available, then Guardtime validates that information and makes it universally reliable. We are a team of over 150 cryptographers, developers and security architects, with decades of experience defending networks from nation-state attack.

TEAM



GLEN OGDEN General Manager at Guardtime Health

Having successfully driven sales of multiple technology products and services in over 40 countries with a key focus on emerging markets, Glen brings Guardtime's KSI technology to healthcare markets, by designing, building and selling the next generation of blockchain based data driven health care, encompassing an immutable patient care record with GDPR compliant patient consent and seamless secure data exchange between EHR systems.



RICHARD BERGSTRÖM VP Life Sciences at Guardtime Health

Richard has over 30 years of experience in the global life sciences industry and is helping to fit Guardtime Health product portfolio with the practical problems in the sector. He is the former Director General of the Swedish Pharmaceutical Industry Association and former Director General of the European Federation of Pharmaceutical Industries and Associations (EFPIA). In addition, he has ten years of practical drug development experience from global pharma headquarters in Switzerland.



AIN AAVIKSOO Chief Medical Officer at Guardtime Health

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