

HealthHeart: Next Generation EHR Enabled by Blockchain Technology

October 2017

This document is intended for informational purposes only and does not constitute an offer or solicitation to sell shares or securities in HealthHeart or any related or associated company. Any such offer or solicitation will be made only by means of a confidential offering memorandum and in accordance with the terms of all applicable securities and other laws.

Abstract

A blockchain enabled electronic health record (EHR) can solve the growing interoperability, accessibility, and security issues of legacy EHR systems. Hospitals and large health systems are being held hostage by EHRs infected with ransomware and multi-million dollar lawsuits for breach of patient records. As costs continue to rise while reimbursements tighten, the additional financial exposure of inadequate EHRs is particularly untenable for small medical practices. A next generation EHR enabled by blockchain technology is the only viable solution. Developed by veterans of the EHR and network security industry, the HealthHeart EHR is designed from the bottom up for maximum security and steadfast stability. With input from actively practicing physicians, HealthHeart's purposeful design extends to a user-friendly interface that delivers intuitive usability and functional workflows. The open-source software platform known as Ethereum powers HealthHeart's EHR and ensures affordability and scalability for any size practice or health system.

1 Introduction

1.1 The Problem With EHRs

In 2015, Anthem Inc. disclosed the largest healthcare data breach in history, with nearly 80 million patients affected.¹ Hackers obtained patient names, addresses, and social security numbers. This problem continued into 2016, with the healthcare industry experiencing approximately four data breaches per week, resulting in more than 113 million medical records becoming compromised.² According to the Office for Civil Rights of the Department of Health and Human Services, there have been more than 200 data breaches thus far in 2017.

Hacking of EHRs has become an undeniable and costly epidemic. In the US, each healthcare organization can expect to pay \$380 on average per breached record at an organizational cost of \$7.35 million in 2017. This marks the seventh year in a row that the healthcare industry has “topped the list as the most expensive industry for data breaches”.³ With a single medical record fetching \$500 on the black market⁴, hackers have every incentive to continue. An EHR contains a significant amount of information – names, dates of birth, social security numbers, dependents, employer, and more – that can be used to open new lines of credit, file fraudulent tax refunds and other identity-related crimes. In an experiment conducted by security firm Bitglass, they created approximately 1,500 fake identities and openly transmitted the data through their network (with a persistent watermark for tracking). In less than two weeks, this

¹ Mathews, Anna Wilde. “Anthem: Hacked Database Included 78.8 Million People.” The Wall Street Journal, Dow Jones & Company, 24 Feb. 2015, www.wsj.com/articles/anthem-hacked-database-included-78-8-million-people-1424807364.

² “U.S. Department of Health and Human Services Office for Civil Rights Breach Portal: Notice to the Secretary of HHS Breach of Unsecured Protected Health Information.” U.S. Department of Health & Human Services - Office for Civil Rights, ocrportal.hhs.gov/ocr/breach/breach_report.jsf.

³ Ibm. “IBM & Ponemon Institute: Cost of a Data Breach Dropped 10 Percent Globally in 2017 Study.” PR Newswire: News Distribution, Targeting and Monitoring, 20 June 2017, www.prnewswire.com/news-releases/ibm--ponemon-institute-cost-of-a-data-breach-dropped-10-percent-globally-in-2017-study-300476378.html.

⁴ “Hackers Selling Healthcare Data in the Black Market.” InfoSec Resources, 10 Aug. 2015, resources.infosecinstitute.com/hackers-selling-healthcare-data-in-the-black-market/.

fake data traveled to more than 20 different countries on 5 continents and were accessed 1,081 times.⁵

Current EHR solutions (e.g., market share leaders Epic, Cerner, and McKesson) are clearly failing to protect the health data of the general public and the financial health of their clients. Why? Quite simply, their EHR technology is outdated in today's cyber risk world. For example, Epic, the market share leader, is built on a 50-year old backend (InterSystems Cache, a direct descendent of MUMPS), with the frontend coded using a programming language (Visual Basic 6) no longer supported by Microsoft (support ended in 2008).

If these security problems weren't enough, EHRs also remain chronically fragmented throughout the industry. These data silos have crippled meaningful interoperability and data sharing. What's needed is a next generation EHR capable of providing immutable security and seamless interoperability. Blockchain technology's distributed ledger and decentralized network can solve the EHR problem.

1.2 How Blockchain Technology Works

Similar to the "series of tubes"⁶ phrase used to describe the internet in its early years, blockchain technology is initially hard to conceptualize, but is poised for disruptive ubiquity.⁷

Blockchain is a type of "distributed ledger technology" that was originally invented to support the cryptocurrency known as Bitcoin. Conceptually, envision a blockchain as a digitally distributed ledger that chronologically records transactions creating an immutable chain across a network of participants, with each block representing different types of digital data (e.g., currency, identity, intellectual property, and so on).

Deloitte's *Perspectives* blog explains the original intent of blockchain in fewer than 100 words.

⁵ "CASB Cloud Security Software | Bitglass." CASB Cloud Security Software | Bitglass, https://pages.bitglass.com/rs/bitglass/images/BR-Bitglass_Wheres_Your_Data.pdf

⁶ Kliff, Sarah. "The Internet Is, in Fact, a Series of Tubes." The Washington Post, WP Company, 20 Sept. 2011, www.washingtonpost.com/blogs/wonkblog/post/the-internet-is-in-fact-a-series-of-tubes/2011/09/20/gIQALZwfiK_blog.html?utm_term=.529ae50e4788.

⁷ "Deloitte: Blockchain Will Become a Reality in 2016." CoinDesk, 11 Jan. 2016, www.coindesk.com/2016-blockchain-reality-deloitte/.

You (a "node") have a file of transactions on your computer (a "ledger"). Two government accountants (let's call them "miners") have the same file on theirs (so it's "distributed"). As you make a transaction, your computer sends an e-mail to each accountant to inform them.

Each accountant rushes to be the first to check whether you can afford it (and be paid their salary "Bitcoins"). The first to check and validate hits "REPLY ALL", attaching their logic for verifying the transaction ("Proof of Work"). If the other accountant agrees, everyone updates their file...

This concept is enabled by "Blockchain" technology⁸.

The result is a technology that enables consensus and correctness across multiple parties that's fully accessible, easy to verify, yet difficult to modify. It's no surprise, therefore, to see why blockchain technology has wide ranging applications and industry interest beyond currency.

Establishing an immutable "chain of trust" is particularly relevant for the healthcare industry generally and EHRs specifically. For example, when an EHR is breached, not only is a person's dignity affected, but there is also potential for tangible harm in the form of embarrassment, unemployability, and social stigmatization.

As *The Economist* frames the technology, blockchain is "the great chain of being sure about things".⁹ Arguably, there is no record more sensitive and the case for integrity more strongly felt than that of a person's medical record.

1.3 Why Ethereum Blockchain Technology

Blockchain technology has significantly more applications than digital currency. In fact, more than several hundred applications employ blockchain technology today.¹⁰ As an open source

⁸ Author Richard Bradley Director ribradley@deloitte.ch +41582798712 Richard is a Director with 11 years of str. "Blockchain Explained... in under 100 Words." Deloitte Switzerland, 9 Oct. 2017, www2.deloitte.com/ch/en/pages/strategy-operations/articles/blockchain-explained.html.

⁹ "The Trust Machine." *The Economist*, *The Economist Newspaper*, 31 Oct. 2015, www.economist.com/news/leaders/21677198-technology-behind-bitcoin-could-transform-how-economy-works-trust-machine.

¹⁰ What Is Ethereum? A Step-by-Step Beginners Guide [Ultimate Guide]." Blockgeeks, blockgeeks.com/guides/what-is-ethereum.

software platform, Ethereum has provided developers with a powerful tool to build and deploy decentralized applications.

Although Ethereum is a distributed public blockchain network like Bitcoin, there are two key advantages with this blockchain technology. Ether, the cryptocurrency token of Ethereum does more than just track ownership of digital currency and facilitate trade; it has the capability to both run programming code on decentralized applications and pay for transaction fees and services on the network.

This duality of capability allows for developers to program their own smart contracts that go beyond Bitcoin's limited cryptocurrency use. As a Turing-complete programming language, smart contracts can be created to meet any system in place today "as well as many others that we have not yet imagined, simply by writing up the logic in a few lines of code".¹¹ Conceptually, a smart contract is like a digital signature (with all of its inherent security and authentication) combined with self-executing contract enforcement, management, performance, and payment.

2 How HealthHeart Works

2.1 End-to-End Solution

Developed by veterans and leaders of the EHR and network security industry, the HealthHeart EHR is designed from the bottom up for maximum security and steadfast stability. With input from actively practicing physicians, HealthHeart's purposeful design extends to a user-friendly enterprise and mobile app interface that delivers intuitive usability and functional workflows. The open-source software platform known as Ethereum powers HealthHeart's EHR and ensures affordability and scalability for any size practice or health system.

Within an EHR context, the blockchain's ledger of transactions represents clinical events such as a recent prescription, diagnostic test, or outpatient visit that can be securely shared amongst a wide range of relevant third parties. Access to this shared ledger uses proven cryptography and requires validation of each and every transaction (i.e., clinical event or entry into the patient's medical record). As a result, protected health information is never disclosed inside

¹¹ Ethereum. "Ethereum/Wiki." GitHub, github.com/ethereum/wiki/wiki/White-Paper.

transactions or applications. HealthHeart’s use of the open source Ethereum platform allows for standardization of the underlying structure of the medical data and customizability of the user-interface.

By standardizing the underlying structure of the medical data, HealthHeart’s EHR has the ability to provide fully functional interoperability. This means that different technology systems and software applications will be able to communicate, share, and retrieve data with the EHR while retaining interoperability due to the customizability of the user interface and back end infrastructure.

2.2 EHR Components

Due to the proprietary nature of the HealthHeart EHR, this section will provide only a high-level overview.

The HealthHeart Token (HHT) represents services or units of service for purchase and is most comparable in function to a paid API key (application programming interface). Tokens also serve as a way to crowdfund a project through what’s called a crowdsale, which can have “100X improvement in the size of the buyer base relative to traditional means for US technology financing — like a Kickstarter on steroids”¹² and is the standard for initial coin offerings (ICOs). HHT is ERC-20 compliant and therefore follows a common set of rules for all Ethereum tokens in the marketplace. These rules are designed to ensure all smart contracts developed on the blockchain follow a set of criteria for optimal interoperability.¹³

As part of the authentication process for use of HealthHeart’s EHR, interested and engaged parties will be required to use HHT for execution of key functions in the smart contracts – which we call “EHR Components”.

¹² Srinivasan, Balaji S. “Thoughts on Tokens – News.21.Co.” News.21.Co, News.21.Co, 27 May 2017, news.21.co/thoughts-on-tokens-436109aabcbe.

¹³ Reiff, Nathan. “What Is ERC-20 and What Does It Mean for Ethereum?” Investopedia, 20 June 2017, www.investopedia.com/news/what-erc20-and-what-does-it-mean-ethereum/.

The Identifier Component (IC) is responsible for assigning participants to their unique Ethereum address. This is similar to public-key encryption (or cryptography). Further restrictions can be programmed into the IC that limits assignment to only those participants that should be authorized, such as medical providers, practices, and systems. As part of the assignment process, the IC also links to the History Component (HC), which provides the participant's full history of transactions on the blockchain.

The Relationship Component (RC) provides the connection between the consumer and care provider – most typically referred to as the patient-provider relationship. The connection is created when one node (consumer or provider) interacts in any way to modify the relationship of the other. For example, if the consumer is prescribed new medication by the provider, the relationship has been further defined by that interaction (i.e., clinical event). A recent patent application by Xerox¹⁴ for a blockchain-based system for creating and updating healthcare records further indicates how ripe the EHR market is for disruptive innovation.

The History Component (HC) creates the audit trail for all transactions within a medical record. This component supports consumer and provider reviews of past transactions as well as third party entities that have been granted access.

3 Opportunity for HealthHeart

3.1 US Market

Independent medical practices represent a key target audience for HealthHeart's EHR solution. Due to aggressive acquisitions by health systems and payment reform, this demographic dropped from 57 percent to 39 percent from 2000 to 2012. Since 2016, however, this trend has stalled due to hospitals becoming oversaturated with practices and saddled with unsustainable levels of physician compensation expenses.¹⁵

¹⁴ Althaus, Joshua. "Xerox Files Patent for Blockchain-Based Records System." Cointelegraph, 18 Aug. 2017, cointelegraph.com/news/xerox-files-patent-for-blockchain-based-records-system.

¹⁵ "For the First Time Ever, Less than Half of Physicians Are Independent." For the First Time Ever, Less than Half of Physicians Are Independent - Modern Healthcare Modern Healthcare Business News, Research, Data and Events, www.modernhealthcare.com/article/20170531/NEWS/170539971.

Increasingly on their own, independent practices face a new reality of cost containment and risk mitigation all while trying to vie for the business of discerning healthcare consumers demanding greater personalized care, price transparency, and digital health solutions. To make matters worse, independent physician practices are spending more than twice as much on healthcare IT than hospital-owned practices.¹⁶ This cost difference provides insight into the dramatic gap in EHR adoption, with 93% for hospital-owned practices and 70% for independent practices.¹⁷ Nonetheless, it is at this convergence of over-priced EHRs (with a history of costly privacy breaches) and significant lag in EHR adoption where HealthHeart's affordable and blockchain-secure EHR can capture this underserved and neglected demographic.

Within this demographic, there is also a growing segment that offer a concierge care model to affluent consumers willing to pay more for increased provider access, highly personalized care plans, lavish facilities, and enhanced privacy measures from the most modern information technology¹⁸ like HealthHeart's next generation EHR. In 2014, *The Atlantic* presented the case for concierge care, citing increased physician burnout and declining morale with an industry-rushed almost uncaring pace of 15-minute patient visits, followed by two to three hours of administrative tasks. One of the physicians interviewed summed up the growing sentiment, stating, "In my mind and the minds of many of my colleagues, the loss of time and attention has harmed the individual at the point of care."¹⁹ Private wealth industry expert, Russ Alan Prince, recently (October 2017) explained why the concierge care market is "going to boom" with exponential growth. Across all types of concierge healthcare – individual medical practices, physician networks, and connected care models – there is a "dramatic upswing of patients"

¹⁶ Sweeney, Evan. "Independent Physician Practices Spend More than Twice as Much on Health IT than Their Hospital-Owned Counterparts." *FierceHealthcare*, 4 Aug. 2017, www.fiercehealthcare.com/ehr/private-physician-practices-spend-more-than-twice-as-much-health-it-compared-to-their-hospital.

¹⁷ "Near Universal Outpatient PM & EHR Adoption...Now What?" *HIMSS Analytics*, 4 Aug. 2017, www.himssanalytics.org/news/near-universal-outpatient-pm-ehr-adoption%E2%80%A6now-what.

¹⁸ Pearl, M.D. Robert. "Concierge Medicine For \$10 A Month? Yes, It's Possible." *Forbes*, *Forbes Magazine*, 23 June 2017, www.forbes.com/sites/robertpearl/2017/06/22/concierge-medicine/#69b6b6c05eef.

¹⁹ Gunderman, Richard. "The Case for Concierge Medicine." *The Atlantic*, Atlantic Media Company, 16 July 2014, www.theatlantic.com/health/archive/2014/07/the-case-for-concierge-medicine/374296/.

seeking the best care money can buy so as to avoid the uncomfortable idea of “depending on the traditional healthcare system, which often practices assembly line medicine.”²⁰

EHRs such as Epic and Cerner enable this patient-trafficking of “assembly line medicine” by their inability to move beyond the diagnose/treatment model and are largely incapable of providing more personalized care support. Discerning healthcare consumers are increasingly redefining what “health” means to them and how integrated it is in every aspect of their lives; from daily decisions and purchases to wellness prevention and longevity planning. The growing trend of holistic wellness has led to a wider use of healthy products, apps, and wearable technology to facilitate this redefinition and integration into a well-lived life.²¹ As the *Harvard Gazette* reported in September 2017, “wearables” are becoming so ingrained in the healthy lifestyle culture that “smart tattoos” – which can change color to monitor dehydration and blood sugar of a diabetic for example – are quickly becoming the new norm.²² It is clear that EHRs need to have the level of interoperability necessary to meet the expectations of this expanding consumer base and why the American Hospital Association has framed interoperability as “among the most pressing issues facing health care stakeholders today.”²³

3.2 Global Market

The growth of EHRs worldwide is expected to grow at a compound annual growth rate of more than 5 percent from 2015 to 2023, representing a 57% increase in market value to \$30 billion.²⁴ Indicative of the demonstrable growth and scale, Estonia is ahead of the curve, becoming the first country to implement a nationwide EHR system in 2008 (the Estonian Health Information

²⁰ Prince, Russ Alan. “Why Concierge Medicine Is Going To Boom.” *Forbes*, Forbes Magazine, 9 Oct. 2017, www.forbes.com/sites/russalanprince/2017/10/09/why-concierge-medicine-is-going-to-boom/#1f8092b56a23.

²¹ “How Wellness Trends May Shape Health Industry in 2017.” Fox News, FOX News Network, www.foxnews.com/health/2017/02/23/how-wellness-trends-may-shape-health-industry-in-2017.html.

²² Alvin Powell, Harvard Staff Writer |, et al. “Harvard Researchers Help Develop ‘Smart’ Tattoos.” *Harvard Gazette*, 29 Sept. 2017, news.harvard.edu/gazette/story/2017/09/harvard-researchers-help-develop-smart-tattoos/.

²³ American Hospital Association, <http://www.aha.org/content/15/interoperabilitymatters.pdf>

²⁴ “Electronic Health Reporter.” Visit Scott Rupp’s Website, electronichealthreporter.com/hit-news/significant-advantages-of-ehr-systems-for-streamlining-operations-propel-growth-of-electronic-health-records-market/.

System) for nearly every citizen²⁵ and in 2016, implemented a blockchain-based framework to protect the electronic health records of its citizens.²⁶

HealthHeart's EHR solution can scale with relative ease into hospitals, health systems, and globally, thanks to the Ethereum blockchain technology and its ability to store fractions of patients records over hundreds of computers in different countries.

4 Proof of Concept

Mike Dawson is a discerning healthcare consumer focused on improving his overall health by eating less processed foods and increasing his daily steps as displayed on his Apple watch.

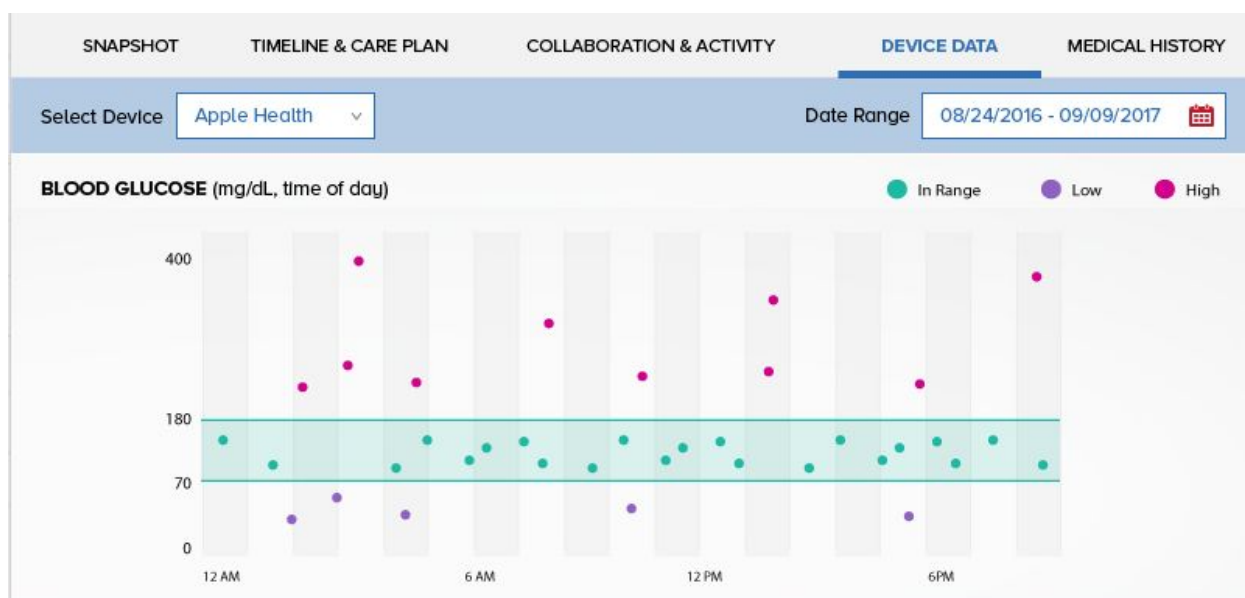
The screenshot displays the HealthHeart EHR interface. On the left is a navigation menu with options: CHART (selected), DEMOGRAPHICS, RESULTS REVIEW, CARE TEAM (with sub-options PHARMACISTS and SPECIALISTS), FLOWSHEETS & GRAPHS, and GROWTH CHART. The main content area shows a search bar with 'Search Patients' and a patient list with 'Mike Dawson' selected. Below this is a patient profile for Mike Dawson, including a photo, name, gender/age (Male • 63 years), address (1234 Example Way, Crowley, TX 76036), MRN# (25AFAWGZN), and language (English). At the bottom, there are tabs for SNAPSHOT (selected), TIMELINE & CARE PLAN, and COLLABORATI, and a 'PROBLEM LIST' section with a plus icon.

²⁵ Health Information System, www.e-tervis.ee/index.php/en/health-information-system.

²⁶ Green, Max. "What the US Can Learn from Estonia's Electronic Health Records." Becker's Hospital Review, www.beckershospitalreview.com/healthcare-information-technology/what-the-us-can-learn-from-estonia-s-electronic-health-records.html.

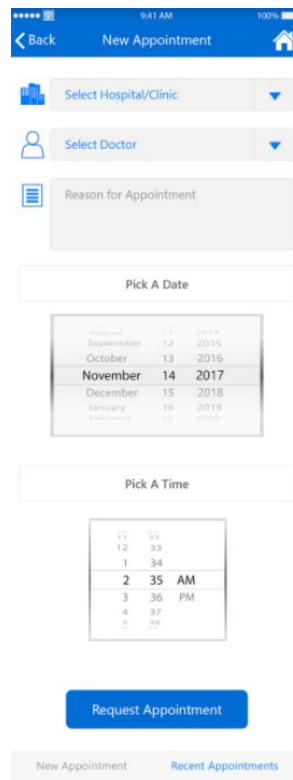
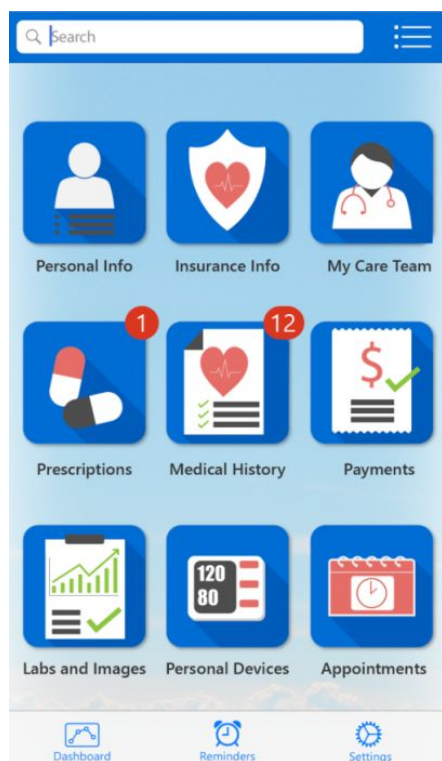
Lifestyle Changes	
SUBJECT	PRIORITY
Start exercise program for 10 minutes daily	Medium

During Mike's last visit, his physician noticed some irregularities in his blood glucose records. Although generally in the normal range, there were reoccurring periods of high blood sugar.



Thanks to the seamless interoperability of HealthHeart with Apple Health, Mike's physician didn't miss this critical data and was able to quickly run a few tests. No issues were found.

Feeling relieved, Mike launched the HealthHeart app on his phone to schedule his next visit.



[Visit <http://healthheart.io/> for more product details.]

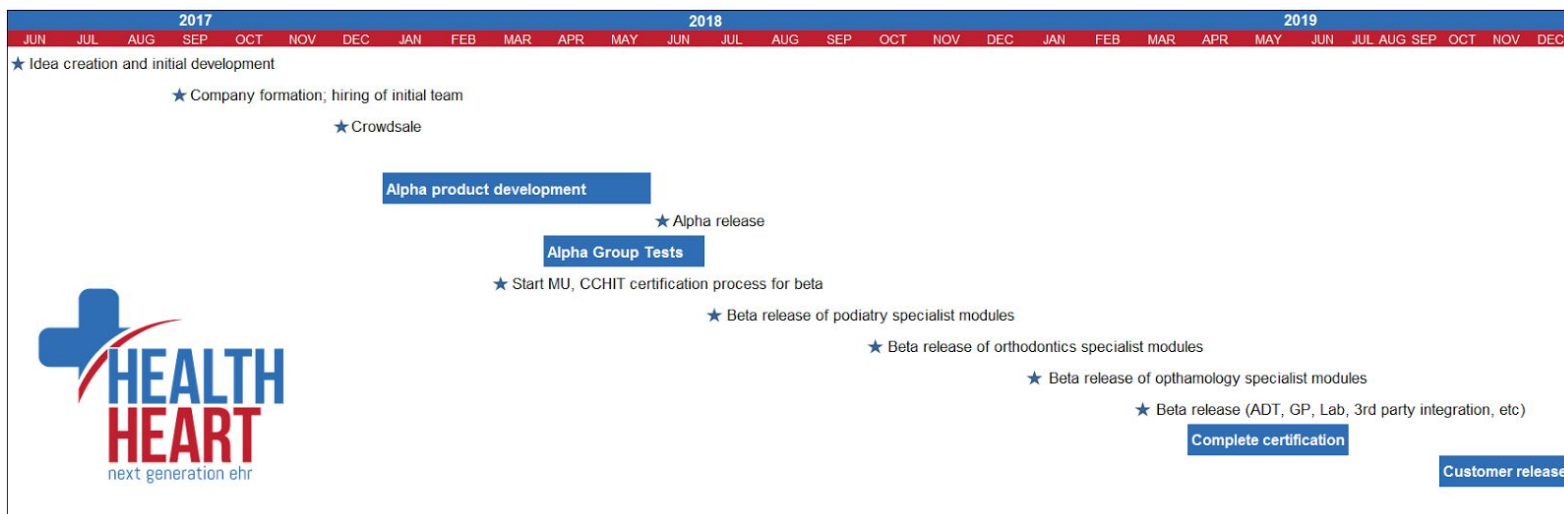
5 Roadmap

HealthHeart intends to abide by the following schedule for fundraising, product development, and customer testing and acquisition:

- 2017 / JUN: Idea creation and initial development
- 2017 / SEP: Company formation; hiring of initial team
- 2017 / DEC: Crowdsale

- 2018 / JUN: Alpha release
- 2018 / MAR: Start MU, CCHIT certification process for beta
- 2018 / APR – JUL: Testing by alpha group customers
- 2018 / JUL: Beta release of podiatry specialist modules
- 2018 / OCT: Beta release of orthodontics specialist modules

- 2019 / JAN: Beta release of ophthalmology specialist modules
- 2019 / MAR: Beta release (ADT, GP, Lab, 3rd party integration, etc)
- 2019 / Q2: Completion of certification processes
- 2019 / Q4: Full customer release



6 Conclusion

When an industry has just a few dominant companies (viz., Epic, Cerner, and McKesson) the incentive to innovate is severely stifled. And despite the attempt by the US government to incentivize innovation via the Health Information and Technology for Economic and Clinical Health (HITECH) Act of 2009, by subsidizing the purchase of new health information systems, usability and interoperability got left behind.²⁷ As a result of these market “leading” laggards, EHRs remain functionally and financially untenable for stakeholders at every level.

The ultimate purpose of technological progress is to solve problems, not create or perpetuate them. What’s needed today is an affordable, secure, and accessible EHR that makes it easier to diagnose patients, collect and share health information securely, and support the physician’s decision-making and treatment process.

The unique attributes (security, privacy, accessibility, and stability) of blockchain technology make it perfectly poised to deliver a knockout blow of disruptive innovation to the status quo of EHRs. These next generation EHR solutions will create new blockchain-enabled value networks and markets that will displace the current cohort of leading companies and their sunseting products. With the proper speed and level of support, the healing of an industry can begin anew.

²⁷ Ramsey, Lydia. “What's Working - and What's Not - in the Effort to Revolutionize Patient Record-Keeping.” Business Insider, Business Insider, 29 Aug. 2016, www.businessinsider.com/electronic-health-records-innovate-2016-8.

7 Team

Total years of experience in healthcare: 29

Name: Mark Rudnitsky

Title: Founder/CEO

LinkedIn Profile: <https://www.linkedin.com/in/mrudnitsky/>

Background: Mark started his career in tech at 14, when he hacked his family's wireless network while bored on summer vacation. Since then, he has earned a Master's degree in computer science, specializing in security. He worked for Epic, the nation's current premier EHR provider, for several years as a member of the Chronicles database team, before moving to the computer security space. Besides HealthHeart, Mark works as a computer security consultant in Chicago.

Name: Jennifer So

Title: Medical Consultant

LinkedIn Profile: <https://www.linkedin.com/in/jennifer-so-6751ab95/>

Background: Jennifer holds a BA in Biochemistry from Rollins College, with a thesis focusing on Epstein-Barr viral microRNAs. After graduation, she worked for several years in the CRO space as an analytical chemist for LabCorp, focusing on lipids research. Recently, she made another career transition to podiatry, where she is currently pursuing a DPM at Rosalind Franklin University in Chicago.

Name: Moe Pwint

Title: UI/UX Designer (Mobile)

LinkedIn Profile: <https://www.linkedin.com/in/moepwint/>

Background: Moe is a self-taught UI/UX designer with over 3 years of experience. She has devoted her career to projects that focus on positive changes in society. Her previous projects include the "Awaken" meditation and "Literacyapp" children's education mobile apps, as well as designing the GreenXprize UI.

Name: Gaurav Kashyap

Title: UI/UX Designer (Enterprise)

LinkedIn Profile: <https://www.linkedin.com/in/gaurav-kashyap-76839219/>

Background: Gaurav has worked for Cisco, HP, Disney, Stanford HCI, DHL, various agencies, and 50+ startups. Over the years he has had many titles: UX Designer, UI Designer, Graphic Designer, Web Designer, Mobile & App Designer, and, in the past 5 years, as the market became more aware of UX: UX Consultant. Gaurav has 12 years of experience in healthcare industry design, including web app design, software app design, and product website design.

Name: Jonathan Hoffsuemmer

Title: Strategy Consultant

LinkedIn Profile: <https://www.linkedin.com/in/jonathanhoffsuemmer>

Background: Jonathan is an innovative thinker with a history of successful program start-ups and value-driven transformations. He particularly focuses on healthcare delivery systems, kaizen, and digital health. He holds a BA from Washington University in St. Louis, a MPH in Behavioral Science and Health Education from St. Louis University, a MBA from Webster University, and Healthcare Executive Leadership and Marketing Strategy certificates from Cornell University.

Name: Lek Chun Hou

Title: Community Manager

LinkedIn Profile: <https://www.linkedin.com/in/chun-hou-lek-360835150/>

Background: Chun Hou is an experienced community manager, specializing in crowdsales. He has actively participated in the Privatix and Paragon ICOs; Paragon sold out its token presale and was backed by more than 65,000 participants.

8 Use of Funds

8.1 Legal

- CCHIT EHR certification: \$37,000.00 ([1](#), [2](#))
- Other [government regulations](#) to follow: expected \$50,000.00
- Attorney fees: [\\$400/hr](#)
 - Uses: small business consulting, healthcare regulations, taxes
 - Expected hours per week: 20 (1,040 hrs annually)
 - Total cost: \$416,000.00 annually

8.2 Administrative and Supplies

- Bills
 - Rent: [\\$15/sqft](#) * 2000 sqft annually = \$30,000.00
 - Utilities:
 - Internet: [\\$169.90](#) monthly = \$2,038.80 annually
 - Phones: \$0 (bought as package with internet)
 - Water: \$0 (rolled into rent costs)
 - [Electric](#): \$0.0902/kWh * 6,952 hrs = \$627.29 / mo = \$7,527.48 / yr
 - Government fees (LLC paperwork, etc): \$1,000 annually
 - Total cost annually: \$40,566.28
- Outstanding debts: \$75,000.00
- Supplies
 - Computers per person:
 - One Microsoft Surface ([\\$2,699.00](#)), one dock ([\\$199.00](#)), one keyboard ([\\$159.99](#)), two monitors ([\\$249.99](#) * 2), one mouse ([\\$6.99](#))
 - (\$3,564.96 + \$300 in taxes and fees) * 10 employees = \$38,649.60
 - Desk and chair per person:
 - Desk: [\\$73.95](#)
 - Chair: [\\$64.99](#)
 - Total: \$138.94 * 10 staff = \$1,389.40 + \$150.00 in taxes and fees = \$1,539.40
 - Conference table with chairs:
 - Table: [\\$211.50](#)
 - Chair: [\\$64.99](#) (6 chairs needed)
 - Total: \$601.44 + \$75.00 in taxes and fees = \$676.44
 - Phone per person: \$0 (free options exist, such as cell phones)

- Misc. Supplies (printer, software scanner, fridge, various networking equipment, etc): estimated \$10,000.00
- Total cost: \$50,865.44 (one time)

8.3 Employment

- Benefits (insurance, 401(k): [1.4x](#) the annual salary cost
- Total employees: 10
- Founder/CEO: \$53,855.98 in annual expenses
 - Cost with benefits: \$75,398.37
- Front end developer: [\\$75,646.00](#) annually
 - Total needed: two specialists
 - Cost with benefits: \$211,808.80
- Software engineer: [\\$91,272.00](#) annually
 - Total needed: four (one system architect, one database developer, one for integrating with frontend, one “float”)
 - Cost with benefits: \$511,123.20
- Mobile app developer: [\\$87,326.00](#) annually
 - Total needed: one specialist
 - Cost with benefits: \$122,256.40
- Community relations manager: [\\$55,422.00](#) annually
 - Total needed: one for monitoring social media, fielding press, customer inquiries
 - Cost with benefits: \$77,590.80
- Administrative assistant: [\\$39,750.00](#) annually
 - Total needed: one for office supply purchasing, scheduling, fielding calls
 - Cost with benefits: \$55,650.00
- Marketing: outsourced (see below): \$0 on retainer
- Total cost: \$1,053,827.57 annually

8.4 Marketing

- Social Media Management and Content Generation: \$2,100.00 monthly
- Advertising (banner ads, etc): \$1,200.00 monthly
- PR (posting on 3rd party PR, healthcare, and crypto sites): \$3,750.00 monthly
- Pitch deck/conference presentations: \$450 each (one estimated per month)

- Expected monthly fees for publications, conferences, etc: \$10,000.00
- Estimated annual cost: \$210,000.00

8.5 Sales & Implementation

- Average cost of EHR implementation: \$33,000.00 per physician (and associated staff) up front
- Additional costs:
 - Integration from old system: \$10,325.00 per physician
 - Implementation cost and troubleshooting: \$35,882.00 (first 60 days)
 - Additional unexpected cost estimate per implementation (hardware upgrades, IT consulting, backups, issues with installation): \$20,000.00 (first 60 days)
- Average size of target market customer: 10 clinicians, one office
- Expected customer acquisition rate: 6 offices per year
- Total physician acquisition per year: 60
- Total cost:
 - 6 implementations * \$55,882 = \$335,292.00 in one-time costs per year
 - 60 physicians * \$43,225 = \$2,599,500.00 per year
 - **Total: \$2,934,792.00 annually**

8.6 Total Cost Estimate

- One-time costs:
 - Legal: \$87,000.00
 - Bills: \$125,865.44
 - Total one-time: \$212,865.44
- Annual costs:
 - Legal: \$416,000.00
 - Bills: \$40,566.28
 - Salaries: \$1,053,827.57
 - Marketing: \$210,000.00
 - Sales and implementation cost: \$2,934,792.00
 - Total annually: \$4,655,185.85

This cost estimate holds true based on predictable revenue by year 3. Adding in a 20% margin of safety to account for taxes, additional certifications, and unforeseen expenses, we achieve:

$$(\$212,865.44 + (\$4,655,185.85 * 3)) * 1.2 = \mathbf{\$17,014,107.59}$$

[If you are interested in participating in this crowdsale, please register and create an account on our website; <http://www.healthheart.io>