



About the problem we are solving:

The healthcare industry is in crisis. The system is fraught with friction and administrative waste, which has created a crisis of trust. The increasing regulatory burden has led to the physician's time being increasingly misappropriated to redundant non-care tasks, like credentialing and the maintenance of electronic records for patients. This takes physicians away from the bedside, and reduces quality of care. Physicians are frustrated, and many are leaving medicine, cutting back their hours, or retiring early.¹ Our healthcare system is expensive, and although physicians direct 80% of the \$3.6 trillion-dollar healthcare expenditure, through their consultation, prescribing and referral patterns, they have little say in how the system runs. An estimated 23% of every healthcare dollar is wasted unnecessarily much of it on administrative costs, and this does not include the cost of the physician's uncompensated administrative time.²

Billions of healthcare dollars are spent annually on physician identity, and credential data management, yet highly accurate physician directories remain a challenge.³ All current systems to address this issue are highly inaccurate, administratively wasteful, and have a critical dependence on the physician's volunteer participation. Until now it has been difficult to incentivize physicians to keep their data accurate. Blockchain enabled self-sovereign digital identities (SSID's) provide an opportunity for physicians to regularly and seamlessly update their information in an accurate and cryptographically secure way. Furthermore, SSID's provide opportunities that expand across potential future healthcare applications including electronic health record management, physician advertising, digital health, and telemedicine.

Importantly SSID's have the ability to provide many desired communications services that physicians need, which will incentivize them to participate in keeping the information accurate in exchange for these services. It would also reduce their administrative time so they could spend more time caring for patients, which is something physicians highly value. The HPEC platform also provides an opportunity for physicians to be paid directly for the services on the platform, and to have performance measured and rewarded. It allows them to communicate about patient care among each other directly without a third party EHR, providing an added layer of HIPAA protection.

Despite the HITECH act's promise of data sharing, our current systems also lack interoperability. As health systems grow, they collect and maintain more and more data from both physicians and patients, but the data is dirty and it is getting increasingly difficult to store that data, analyze it, and keep it secure. In accordance with the 21st Century Cures Act interoperability will be a requirement⁴, and decentralized identity solutions can provide that. Blockchain Distributed Ledger technology provides new opportunities for secure data storage, analysis and exchange. Identity solutions for physicians, other providers, health systems and patients allow for decentralized data collection and storage while eliminating unnecessary administrative waste.

Physician identity is unique, as the credentialing and onboarding is especially onerous due to the multiple steps needed to validate and authenticate their credentials. This is a big pain point for physicians, health systems and insurers alike, which is why the HPEC solution focuses on physician identity specifically. A digital identity solution like HPEC, will alleviate a lot of the redundant credentialing that private groups, insurers, and health systems go through, and will save many hours of the physician's time. HPEC aims to provide SSID's to the physician community in order to alleviate these pain points for physician's, insurance companies, and health systems and will alleviate much of the friction in this process for all parties involved.

¹ 2018 Physicians Foundation Survey. Survey conducted on behalf of The Physicians Foundation by Merritt Hawkins. Completed September, 2018, and available online at www.physiciansfoundation.org.

² Steffie Woolhandler and David U. Himmelstein, "Single-Payer Reform: The Only Way to Fulfill the President's Pledge of More Coverage, Better Benefits, and Lower Costs," *Annals of Internal Medicine* 166 (8) (2017): 587–588,

³ 1 "Online Provider Directory Review Report," US, Department of Health & Human Services, Centers for Medicare & Medicaid Services (January 2018). Retrieved April 10, 2018, from https://www.cms.gov/Medicare/Health-Plans/ManagedCareMarketing/Downloads/Provider_Directory_Review_Industry_Report_Round_2_Updated_1-31-18.pdf

⁴ 21st Century Cures Act: Interoperability, Information Blocking and the ONC Health IT Certification Program US Department of health and Human Services: 45 CFR Parts 170 and 171 RIN 0955-AA01 https://www.healthit.gov/sites/default/files/cures/2020-03/ONC_Cures_Act_Final_Rule_03092020.pdf Retrieved March 2020

About the platform:

HPEC is giving each physician and surgeon a self-sovereign digital identity on a distributed ledger. The identity will be attached to a digital asset wallet that holds the physician's credentials. The credentials will be portable, and validated and authenticated digitally as necessary by the respective credentialing institution, giving physicians instantaneous employment mobility. HPEC will give physicians sovereign control over their digital identity and professional brand along with the data that identity creates including;

Physicians Credentials –The current credentialing process is a laborious 2-4 month process fraught with administrative waste. It is a major pain point for physicians, hospitals and insurance companies. Physicians already own their credentials. HPEC will translate ownership of those credentials to a digital space, make them portable and streamline the process. When credentials are validated physicians can also set up a direct payment system so they can be paid any time they provide a service or their credentials are used. They can be paid at the time of service, eliminating the uncompensated administrative burden physicians carry with the current insurance reconciliation process.

Patient and Physician Data - The individual doctors generate data as part of their work and documentation on systems like electronic health records. That data is currently centralized to those siloed entities with unlimited access and ability for those third parties to capitalize on that data for their own interest. It also places those entities and the health system that contract with them at risk, for security breach and HIPAA violations. With the 21st century CURES act patients will need to have better access to their records, and the best way for them to have that access is through a self-sovereign medical records platform that the HPEC network can plug into. Through this technology the record will now be permissioned by the patient through the doctor that created it, giving the physician agency and the patient stewardship over their protected health information. The data will be anonymous and properly federated to ensure it is clean. Patient and physician data will be protected information and will be kept private and controlled by the end user, relieving the health system of that burden.

Physician Communication and Innovation. Physicians currently communicate largely via word of mouth. Hospital e-mail, social media groups, journal articles and conferences are all centralized and controlled by third parties. Those communication platforms are also not secure. With HPEC physicians will be able to communicate and democratize policy and practice guidelines on a secure confidential decentralized governance platform. The platform will allow for decision making to be democratized and organized. This will in effect create a decentralized digital physicians guild.

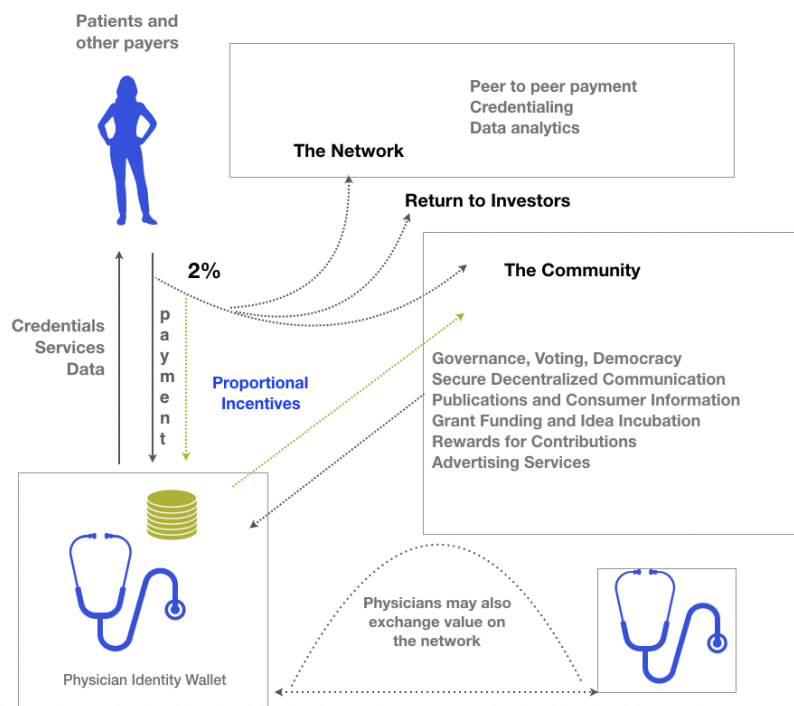
The reason blockchain is necessary is because it creates a secure and censorship resistant space for physicians to do their job and communicate with their patients and among each-other free from control of special interests including electronic records companies and insurance companies. HPEC will be designed to integrate with current platforms that enable

Peer to peer payments
Self-Sovereign Patient Records
Data analytics and sharing

How this will help patients:

- 1.) Patients often choose their physician based on insurance or where they got care last. When physicians have freedom to move patients will now have more choice in who they see- obtaining personalized care directly from the physician they choose.
- 2.) Patients will have immediate access to the records the physician creates, shortly after the time of service. After the note is signed, they can stay up to date informed and ask questions through the platform.
- 3.) The patients medical records and data will also be portable, permissioned, owned by them, and secured on a decentralized database, so moving forward they will not be at risk for redundant tests or missing information.

How it works:



Revenue Model:

- 2% transaction fee for every payment to a physician through the network

Retention Model:

- 50% of all revenue generated is invested back into the community

Users and Customer Base:

The physicians will be majority owners of the platform, and they will also be the customers. Eventually once the platform is built patients, industry, and enterprise will also be customers. Revenue will be generated by a proposed 2% transactional fee of anything the independent physician charges. Physicians be incentivized to utilized the platform for peer to peer payments, governance and credentialing and will receive services in exchange for their activity on the network. Those services will be paid for through a retention of 50% of the transactional fee monitored and kept secure by cryptography. Data generated on the platform can be shared directly only by the physician who generates that data.

Operation Expenses and Net Results:

Of the EBIDTA after cost 50% will be returned to the Founders, Initial Founding Partners , and investors who own the HPEC Network.

Estimated cost to maintain the platform will vary based on number of users and number of transactions, but will be proportional. It is estimated that the total cost will unlikely exceed \$5M annually.

The other 50% % will be returned to the Physician Members through the HPEC Community in the form of services.

Revenue Stream Example 1:

| | |
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| Average total annual physician income before taxes | \$250,000 |
| Lets assume only 20% flows through HPEC per physician user | x 20% = \$ 50,000 |
| Critical # of prospective physician members* | <u>x 70,000</u> |
| Total | 3,500,000,000 |
| Total Gross Annual Revenue | = \$3.5 Billion/year |
| Cost to maintain platform: | x 2% transactional fee |
| EBIDTA (total earnings after costs) | = \$70,000,000 |
| Divide by 2 (50% to investors and 50% back to the community) | <u>- \$5,000,000</u> |
| | = \$65,000,000 |
| | = \$32,500,000 Net Return to Investors |

* As of 12 Jan 2020, CMS NPI files identified exactly 1,021,864 active physicians (MD/DO) registered with a U.S. service address. 70,000 physicians, is approximately 7% of the physician population. As the platform grows we expect this number to increase.

Revenue Stream Further Examples

Lets consider the possibility of capturing 10% of each market below (2% transactional fee x 10% = 0.2%)*

If employer sponsored coverage paid physicians directly instead of paying an insurance carrier.

One example is Google- who spend approximately \$881M in 2017 on their insurance 0.2% = \$1.76M.

Physician Data Industry (physicians will own their data): \$2.1 Billion annually⁵ = \$4.2 M

Digital Health Industry: \$40 Billion annually projected to increase to 379 Billion by 2024⁶ = \$758 M

ex: Patient Data Industry: 2,000-200,000 per patient annually⁷

ex: One de-identified oncology record goes for up to \$2,000⁸

With only 50% going to investors = \$384 Million potential additional revenue

Value in Savings and Services for Physician Members:

Advertisement –The HPEC platform will provide advertisement services similar to:

ZocDoc® which costs physicians \$3,000 per year. Revenue generated in 2017: \$141M

Doctor.com another example costs physicians \$6000 per year.

Credentialing – Usually takes 10-20 hours of uncompensated time. Given that the average hourly rate for a physician is \$200 this platform will save \$3000 each credentialing event which happens every 2 years at minimum. Full service credentialing services also can also cost \$3500 one time and \$1200/year

Unclear Monetary Value:

Ability for physicians to incubate and own their ideas, and intellectual property. ✓

Ability for physicians to publish in a physician run journal free from hierarchy. ✓

Ability for physicians to be paid immediately at the time of service. ✓

Ability for industry to pay for and pool physician opinions and recommendations. ✓

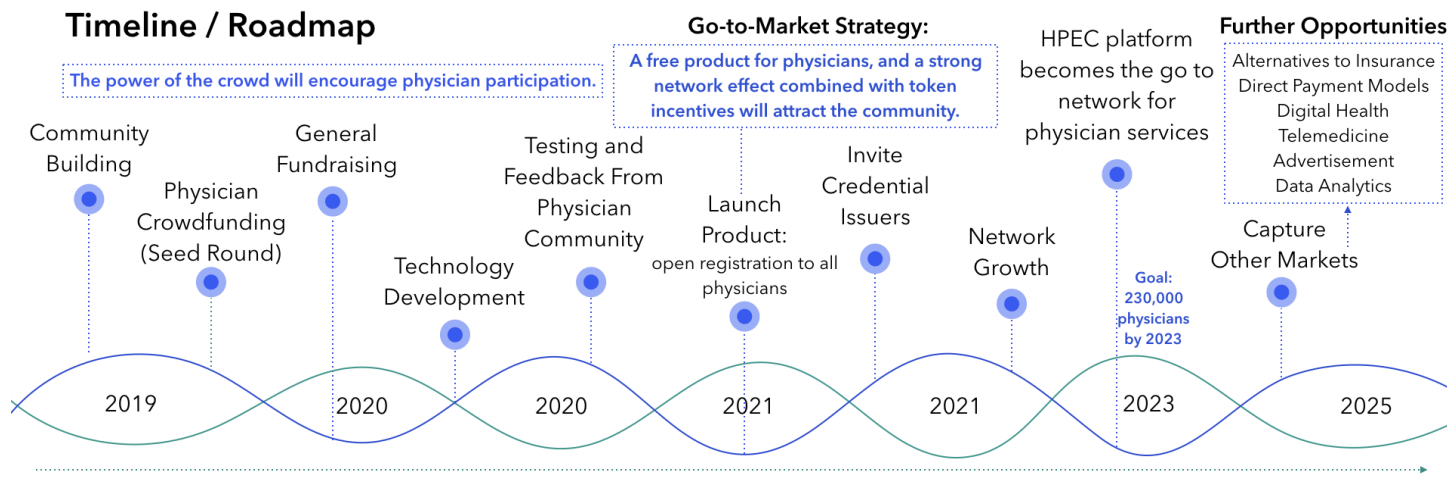
Ability for physicians communicate among each other and reward each other for efforts. ✓

⁵ Issue Brief: Administrative Provider Data. CAQH [Analysis completed by Booz & Co., now Strategy&, Inc.] (December 2011).

⁶ "Digital Health Market Poised to reach \$379 Billion by 2024" Marketers Media based on "Digital Health Market Size By Technology Oct 2019" Global Market Insights By U. Sumant, & A. Devgire

⁷ The Emerging Value of Patient Generated Health Data by Mark Johnson, MHA, RN-BC, CPHIMSBrad Tritle, CIPP, President, CEO April 26, 2016

⁸ Electronic Health Records Market Size | EHR Industry Report 2018-2025 Grand View Research avail online www.grandviewresearch.com



Competition and Market Analysis:

The healthcare system is slow to change and slow to adopt, however the physician community and the patients both want change. This puts HPEC at a competitive advantage from the start because any change that occurs outside the physician and patient community needs to comply with the desires of enterprise. Physicians already follow governmental regulations and will continue to do so on the HPEC platform.

When physicians and patients interact directly many of those hurdles are eliminated. Current laws such as the 21st century cures act, and the California Data Privacy and Protection act, as well as laws that mandate how credentials need to be validated are also in the favor of physicians and patients. HPEC aims to fix the user experience for physicians while also working with new solutions that are fixing the user experience for patients. We aim to dissolve the old healthcare system, and create a new open healthcare marketplace in order to replace the old model, rather than reform it.

Challenges include the need to create trust in the physician community. Having physician founders, and keeping it physician owned will create that trust. We will also need to properly message and market the platform as well as create an optimal user experience for all. Other challenges are technical and include difficulties in private key management and user experience, however those challenges will be overcome.

Competitive Landscape

ProCredEx and Axuall

The ProCredEx exchange will serve as a tool connecting previously disparate industry constituents enabling the request and receipt of verified credentials information in a highly secure, reliable, and economic manner. They are not building a *credentialing system*-- rather a network and transaction infrastructure that connects sources and consumers of credentials information across the healthcare industry.

Axuall provides a streamlined approach to the validation of facts whereby individuals and organizations can share and reliably verify assertions necessary for compliance, commerce, and employment related to high-stake roles and operations. Axuall creates a global network linking those that attest to facts, those that verify facts, and those that subscribe to facts to enable self-sovereign, portable, real-time, and up-to-date sharing of digital credentials across the expanding marketplace and digital economy.

HPEC offers a similar platform, however both are working with enterprise, neither are physician owned and only Axuall is integrated into a self-sovereign model. HPEC may choose to work with Axuall because of their self-sovereign interface. HPEC will also provide communications and governance and neither Axuall or ProCredEx include these important features.

Blockcerts

An open standard for creating, issuing, viewing, and verifying blockchain-based digital records. These records are registered on the blockchain, cryptographically signed, tamper-proof, and shareable. The goal is to provide individuals the capacity to possess and share their own official records of achievement.

Blockcerts provides self-sovereign credentials, but it does not provide a complete identity solution, and is not attached to governance. HPEC may work with Blockcerts, and has hopes to be interoperable, but Blockcerts only provides part of the functionality of HPEC.

CAQH and Synaptic Alliance

CAQH is non-profit alliance that creates shared initiatives to streamline the business of healthcare. Through collaboration and innovation, CAQH has the ability to accelerate the transformation of business processes, delivering value to providers, patients and health plans.

The Synaptic Alliance is a consortium of insurance companies and health plans that have come together to share physician and provider data among each other on a closed permissioned blockchain in order to avoid Medicare advantage penalties of up to \$25,000 per day for directories with high error rates.⁹

CAQH and Synaptic Alliance are both centralized platforms that are dependent on physician participation, unlike HPEC which is a decentralized platform. Although physicians contribute to these platforms for “free,” physicians are not incentivized or paid to be on the platform. In fact, you can be penalized for not using CAQH. Utilizing CAQH is also time consuming and not self-sovereign therefore not controlled by the end user.

Competitive Advantage:

Physicians are the product of healthcare, and there is high demand for physician services. HPEC is a physician owned and operated platform. Prior to the release of this document 1/3 of funding was already committed by leaders in the physician community. Physicians trust other physicians. This is an egalitarian physician owned organization, where decisions are made by the physicians on the network - an attractive model to the physician community. The low transactional fee, and services provided in exchange for participation will attract physicians as well. HPEC is the only platform that offers physicians a true opportunity to preserve their professional rights, while also maintaining independence in order to restore autonomy to the physician community

⁹ Susan Jaffe, “Obamacare, Private Medicare Plans Must Keep Updated Doctor Directories In 2016,” Kaiser Health News (March 2015). Retrieved April 10, 2018, from <https://khn.org/news/health-exchange-medicare-advantage-plans-must-keep-updated-doctor-directories-in-2016/>