The biggest doctors-patient environment based on blockchain

Lightpaper

medicohealth

*Building bridges to better health.*

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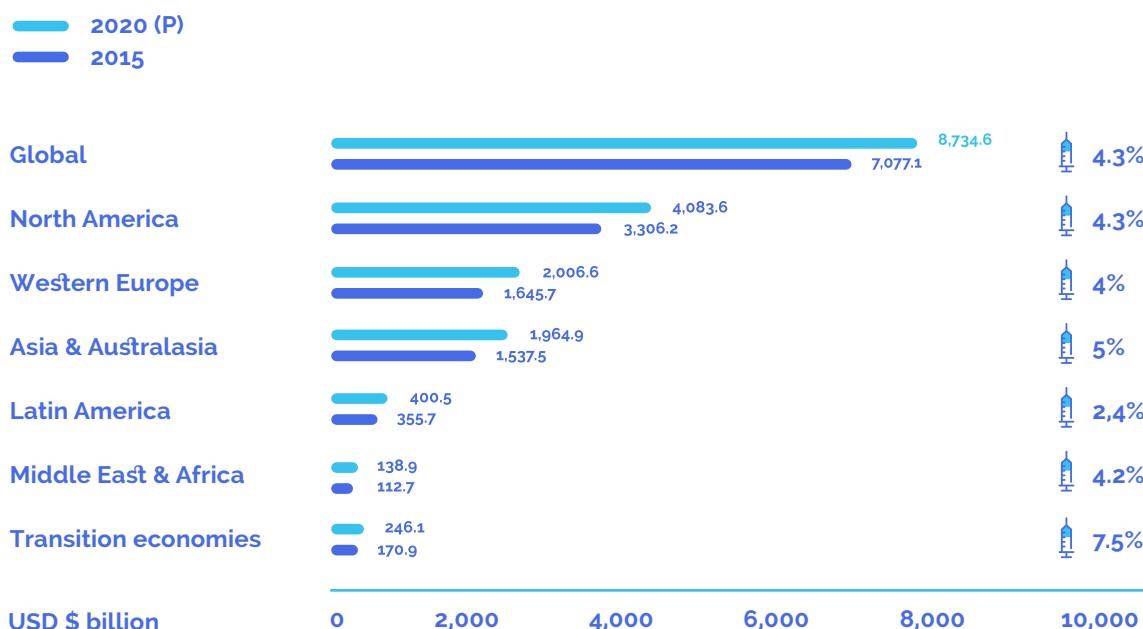
GLOBAL HEALTHCARE CHALLENGES

Global healthcare expenditure continues to increase. Overall healthcare spending is expected to grow from 7 trillion USD in 2015 to almost 9 trillion USD in 2020, with estimated CAGR of 4.3%. Long-term projections forecast a further increase to more than 18 trillion by 2040[1].

North America accounts for almost 50% of the global expenditure. In USA, this represented 16.9 % of GDP in 2016. Spending varies between countries from 5 % in Turkey to 11.5 % in Switzerland as for the OECD report for 2016, but significant growth in spending is predicted world wide[2].

HEALTH CARE SPENDING, 2015 - 2020 (CAGR)

——— 2020 (P)
——— 2015

Region	2020 (P)	2015	CAGR
Global	8,734.6	7,077.1	4.3%
North America	4,083.6	3,306.2	4.3%
Western Europe	2,006.6	1,645.7	4%
Asia & Australasia	1,964.9	1,537.5	5%
Latin America	400.5	355.7	2,4%
Middle East & Africa	138.9	112.7	4.2%
Transition economies	246.1	170.9	7.5%

USD $ billion — 0, 2,000, 4,000, 6,000, 8,000, 10,000

Drivers of expenditure growth (especially in the developed world, which accounts for most of the global spending) can be found in both **demographics** (the elderly population – over 65 years of age – is anticipated to increase by 8 percent from 559 million in 2015 to 604 million in 2023) and innovation bringing a growing number of treatment options[3].

Financial inefficiencies, **regulatory** (including cyber security) burdens and operational difficulties (including infrastructure and lack of talent) present the remaining pillars of global healthcare issues that are driving the costs.

Growing healthcare needs are not compensated by the increased expenditure. Even developed countries are experiencing decreased healthcare service accessibility.
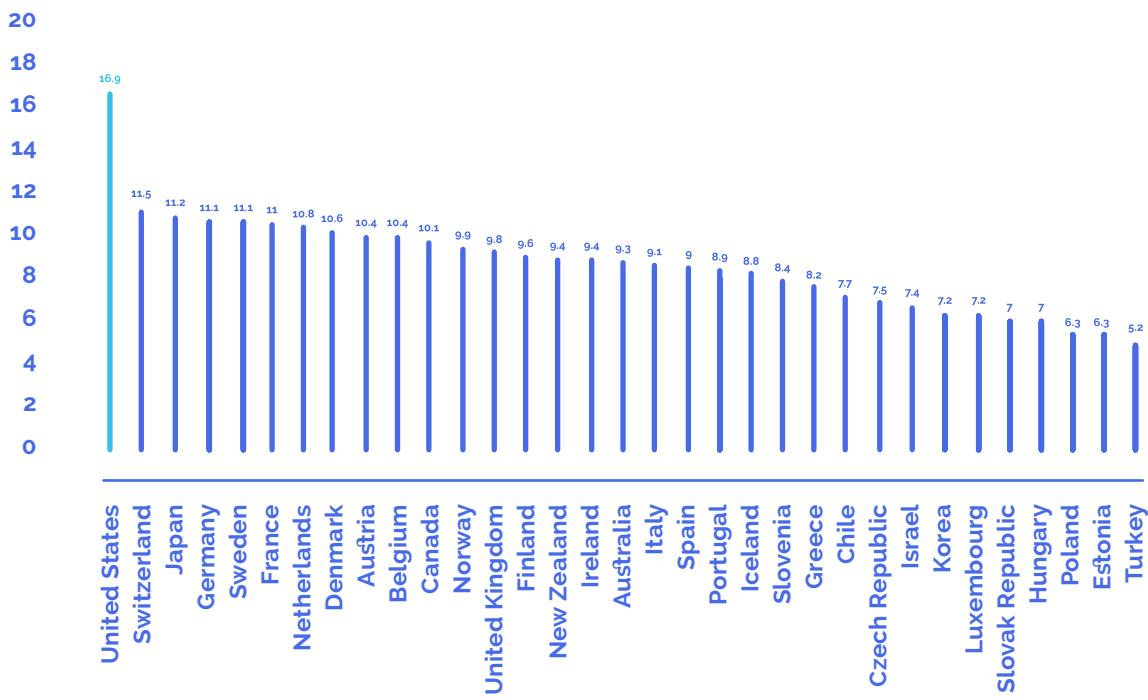
1 Joseph L Dieleman PhD et al, National spending on health by source for 184 countries between 2013 and 2040; The Lancet, 2016
2 Deloitte, 2018 Global health care outlook, The evolution of smart health care
3 Deloitte, 2016 Global health care outlook, Battling costs while improving care
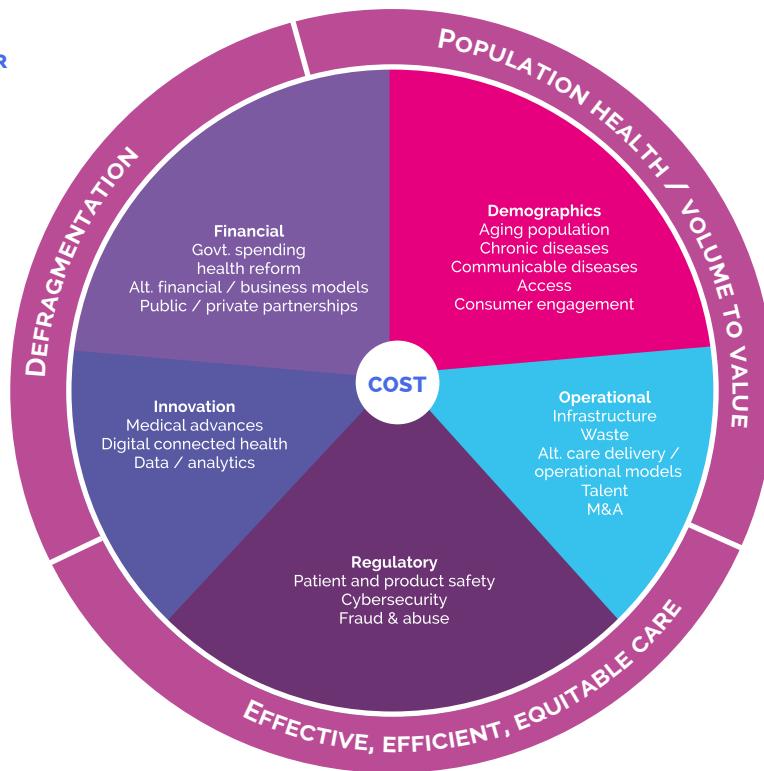
Health care spending by country
Health care expenditures as a share of GDP, 2016

United States	16.9
Switzerland	11.5
Japan	11.2
Germany	11.1
Sweden	11.1
France	11
Netherlands	10.8
Denmark	10.6
Austria	10.4
Belgium	10.4
Canada	10.1
Norway	9.9
United Kingdom	9.8
Finland	9.6
New Zealand	9.4
Ireland	9.4
Australia	9.3
Italy	9.1
Spain	9
Portugal	8.9
Iceland	8.8
Slovenia	8.4
Greece	8.2
Chile	7.7
Czech Republic	7.5
Israel	7.4
Korea	7.2
Luxembourg	7.2
Slovak Republic	7
Hungary	7
Poland	6.3
Estonia	6.3
Turkey	5.2

ISSUES IMPACTING THE GLOBAL HEALTH CARE SECTOR IN 2016

POPULATION HEALTH / VOLUME TO VALUE

DEFRAGMENTATION

Financial
Govt. spending
health reform
Alt. financial / business models
Public / private partnerships

Demographics
Aging population
Chronic diseases
Communicable diseases
Access
Consumer engagement

COST

Innovation
Medical advances
Digital connected health
Data / analytics

Operational
Infrastructure
Waste
Alt. care delivery /
operational models
Talent
M&A

Regulatory
Patient and product safety
Cybersecurity
Fraud & abuse

EFFECTIVE, EFFICIENT, EQUITABLE CARE

According to Merritt Hawkins, it took an average of 24 days for a patient to make an initial appointment with a physician in 15 large urban areas in the USA. Similarly, in the UK, GP appointment waiting times are expected to approach three weeks[4].

This is why **improving access to healthcare** remains the key challenge for healthcare: **"The global shortage of general and specialist staff is increasing patient waiting times and affecting their access to diagnosis and treatment." [5]**

Increasing the number of care workers presents a logical solution. For instance, Japanese government plans to train additional 250,000 care workers, just to satisfy the demand for elderly care by 2020. It remains to be seen whether the number of healthcare workers can start to catch up with the actual needs. But this is still a partial solution of a complex problem and **technology** (especially **telemedicine and mobile health**) can help in a major way.

IMPROVING ACCESS
CONTAINING COSTS
ADDING SOCIAL DETERMINANTS
TO THE CARE EQUATION
ADOPTION OF INNOVATION

^

IMPROVING HEALTHCARE

TELEMEDICINE

Telemedicine has a potential to critically improve physician access, by eliminating travel barriers and adding to flexibility and capacity of specific healthcare services.

The telemedicine market value was estimated at $18 billion in 2015 and is expected to increase to over $40 billion in 2021. But despite the market value and the urgent need for healthcare transformation, telemedicine continues to be hindered by legal and technological obstacles[6]:

· an absence of an international legal framework to allow health professionals to deliver services in different jurisdictions and countries,
· a lack of policies that govern patient privacy and confidentiality regarding data transfer, patient data storage,
· sharing between health professionals and jurisdictions,
· health professionals' authentication – license validity information
· risk of medical liability for the health professionals offering telemedicine services.

Using blockchain technology has a potential to efficiently address the above-mentioned obstacles. Medicohealth Platform can and will help close the gap in physician access, globally.

4 www.telegraph.co.uk/news/2017/06/01/gp-appointment- waiting-times- rocket-towards- three-weeks/amp/
5 Karen Taylor, Worldwide: 2017 Global Healthcare Outlook: Making Progress Against Persistent Challenges, 2017
6 World Health organization "Telemedicine-opportunities and development in member states, Global Observatory for eHealth series- Volume 2"

MEDICOHEALTH PLATFORM

The application of blockchain technology allows for a truly global and safe physician-patient (and/or physician to physician) interaction that can be integrated in MH or third-party apps.

Mediochealth Platform allows for a fully anonymous, safe, and efficient communication with world's leading physicians. Physician credentials, together with license validity information are updated in an immutable decentralized database. Patient data is anonymously stored and accessed only by selected physicians for a limited time.

Payments are fully tokenized and anonymous. MHP token runs the system and compensates the service provider, platform, underlying protocol, and blockchain layer use.

Medicohealth will implement strong privacy and security arrangements (data encryption and authentication mechanisms) and clear governance structures for sensitive data processing, which might include EHRs. Patients will be in control of their own data, grant the access to a physician (maintaining the right of not to share), while securing and limiting the period when data can be seen[7].

Protocol stack includes leading technological solutions that are to be adopted to comply with regulation and healthcare specifics.

The Platform will remain protocol and blockchain agnostic, as it is hard to predict which of the current solutions will prevail as industry standards.

MHP token functionality
In addition to being a service voucher, from an end user or APP developer perspective, MHP token serves the function of fueling all subsystems and delivering robust and safe interactions.
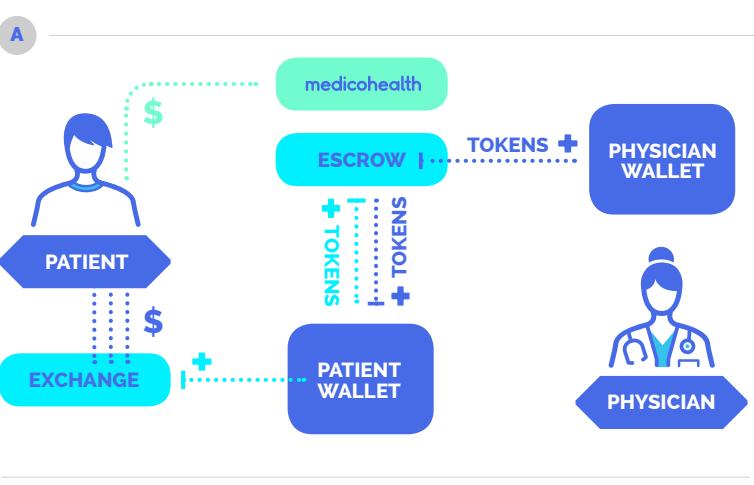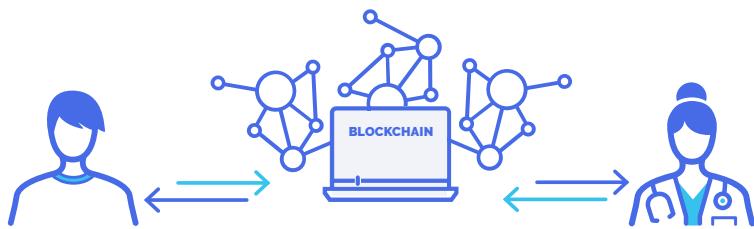
MHP token enables:
· **Secure payments**
· **Secure data storage and access management**
· **Physician identification and License validity checks**
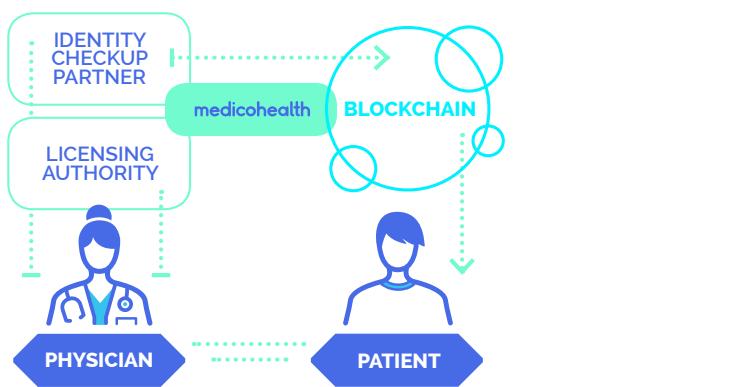
MEDICOHEALTH DAPP PLATFORM STACK

BLOCKCHAIN

A

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ESCROW | — **TOKENS** +

PHYSICIAN WALLET

$

PATIENT

+ **TOKENS**   + **TOKENS**

PHYSICIAN

$

EXCHANGE | — + **PATIENT WALLET**

B

IDENTITY CHECKUP PARTNER

medicohealth   **BLOCKCHAIN**

LICENSING AUTHORITY

PHYSICIAN   **PATIENT**

C

MH TOKEN IS USED TO FUEL THE SYSTEM; MH has no access to any of the data.

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COMPOUND IDENTITY PATIENT (OWNER) PHYSICIAN (GUEST) PHYSICIAN (GUEST)

PHYSICIAN 1

ACCESS MANAGEMENT

PHYSICIAN 2

K E Y   **BLOCKCHAIN**

PHYSICIAN 3

DECENTRALIZED DATA STORAGE

ENCRYPTED, ANONYMIZED DATA

A) Payment module (Bolt or similar structure)

B) Physican identity check/license validity
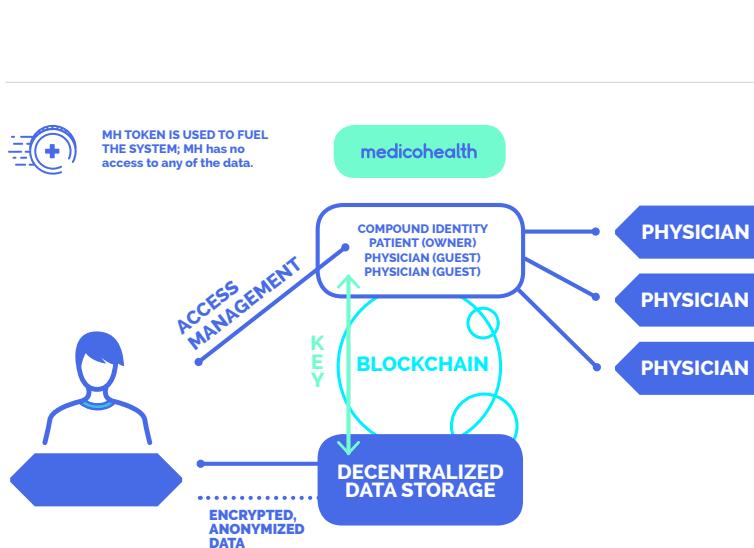
C) Access Management (Enigma), Decentralized Data storage

APP INTEGRATION:
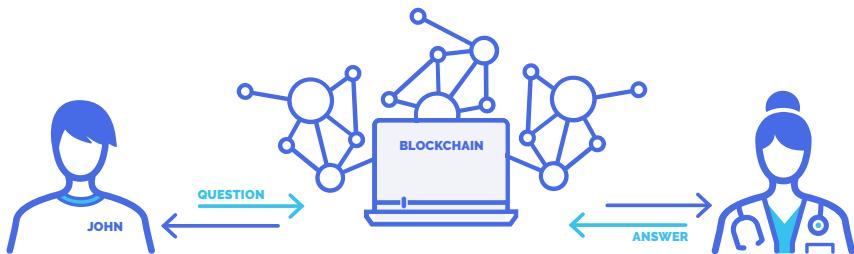
**Physician contact database
Booking services
Physician comments
Telemedicine
Diagnosis algorithms
Physician to Physician consultation**

MH DAPP can be integrated with a number of existing and future apps that aim to connect physicians and patients.
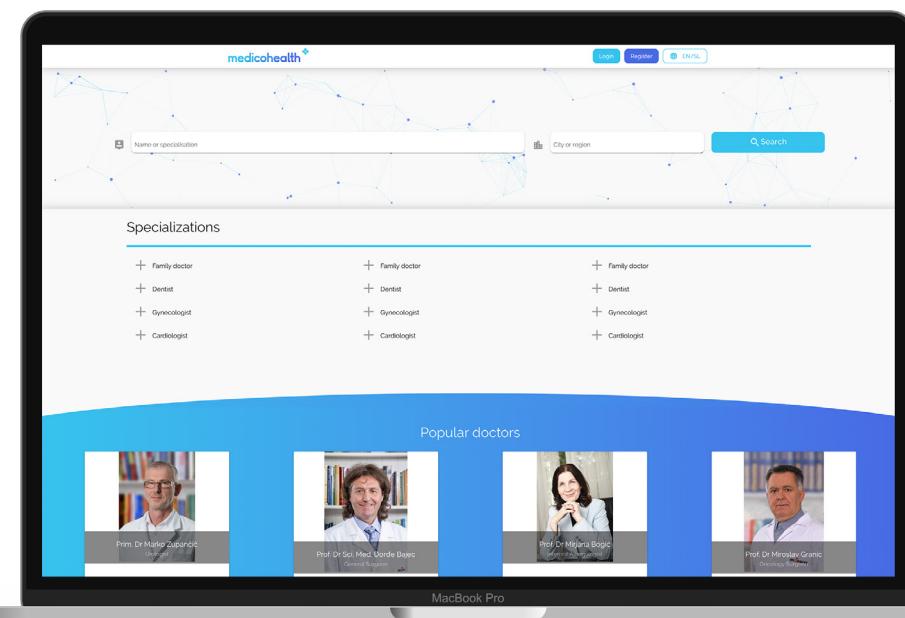
Underlying technology allows for safe payments, sensitive data access management and physician identity/license validation.
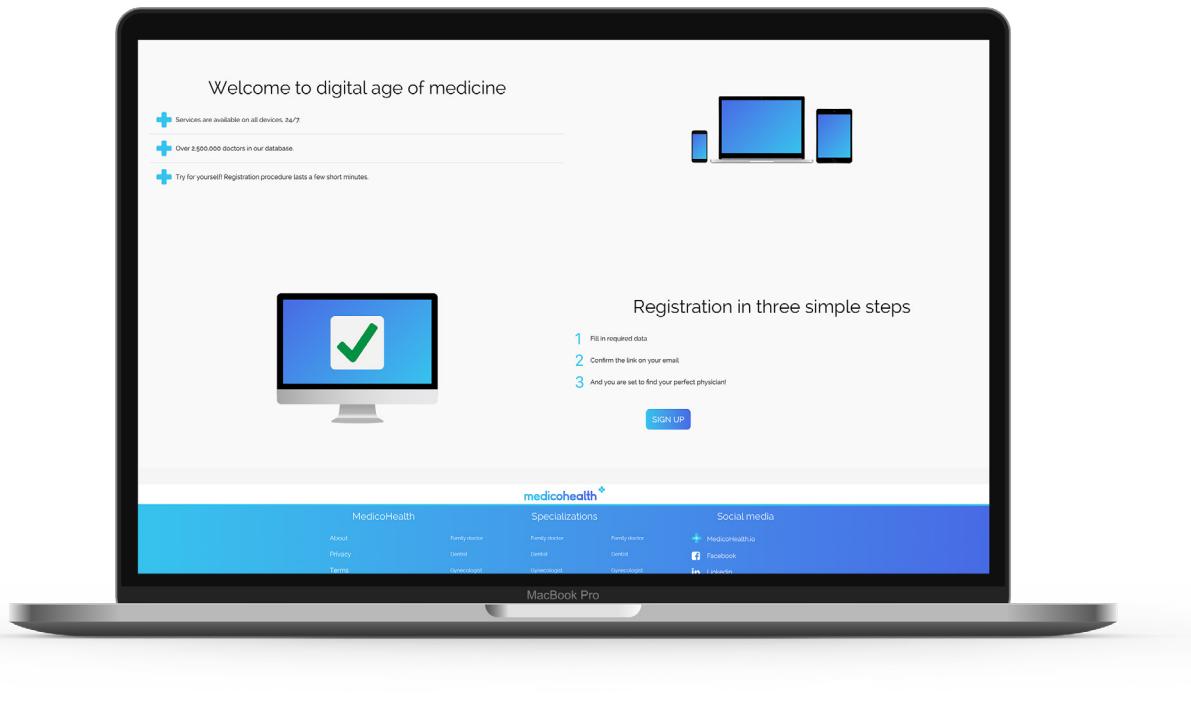
MEDICOHEALTH OWN APP CASE

Let's see how it works:

John has a medical concern and needs a quick guidance on how to approach his issue. John uses Medicohealth cross-device web portal to find the perfect physician for him based on their ratings, prices, availability, and specialization. John makes his ideal choice and contacts the physician. The physician obtains access to view John's medical information anonymously through a secure, decentralized data repository and comments on it through Medicohealth application. Physician's license can be checked through a regularly updated immutable database, linked to a licensing authority. Physicians can get compensated for their comments with our token that fuels the whole network.

Medicohealth already has a solution that can be integrated with our Platform. Our curated database of 2.5M physicians is ready to use. The database is integrated into web portal. When the currently developed application merges to full functionality with the MH Platform it will allow:

Patient-physician mode:
- anonymous questions to physicians (fast physician comments)
- telemedicine integration in-line with applicable local legislation
- booking physician appointments
- anonymous data storage and access approval
- secure and anonymous payment module
- physician identity/license validity check
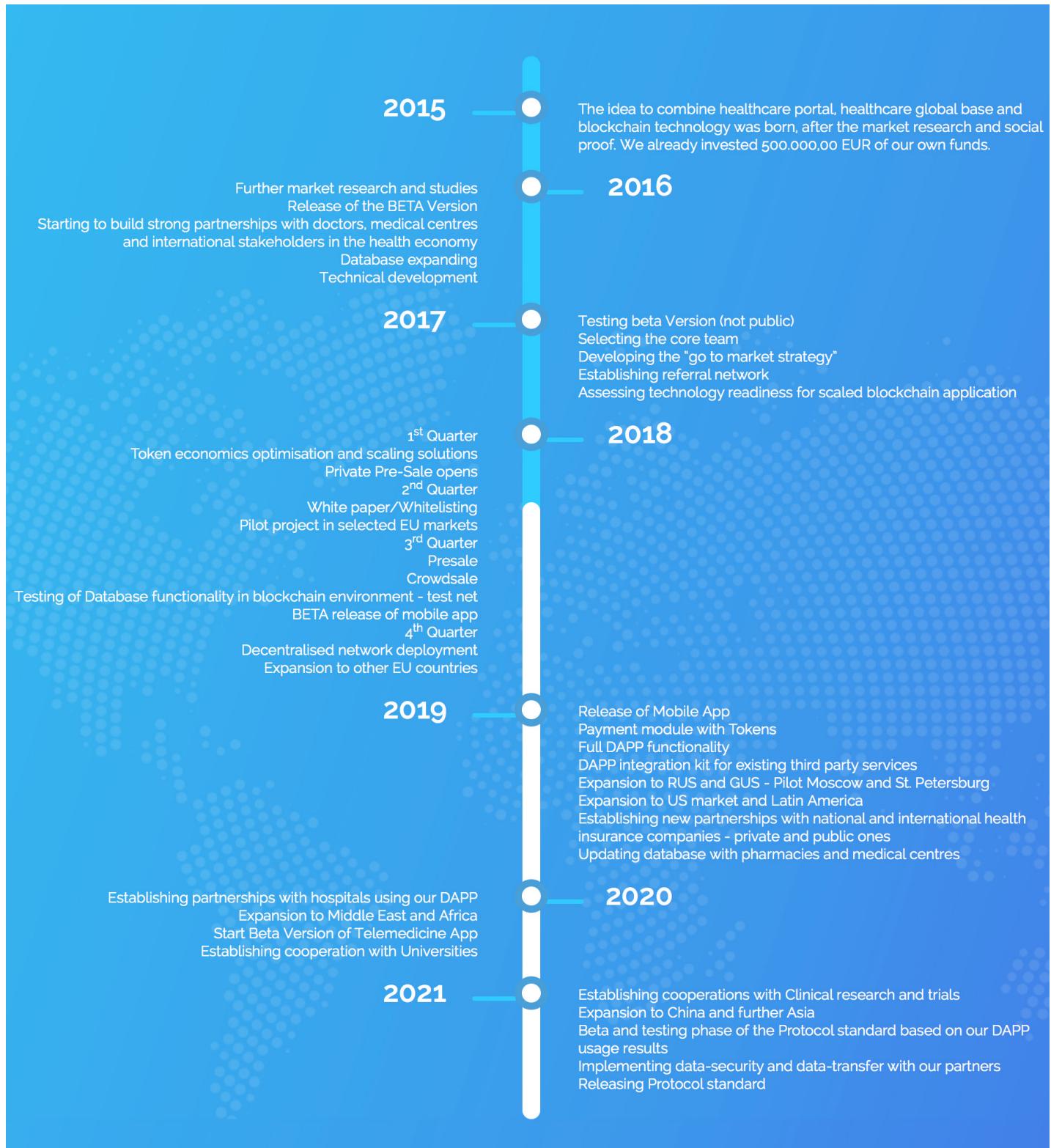
Physician-physician mode:
- physician-physician on-line consultation
- anonymous data storage and access approval
- secure and anonymous payment module
- physician identity/license validity check

Future implementation
The MH Platform will allow the inclusion of EHR within the platform. Safe storage with secure access management of individual health records will be enabled. A solution on a larger scale with healthcare records that are digital, real-time, and interoperable with adopted SNOMED CT clinical terminology presents a future perspective.

ROADMAP

medicohealth ✚

2015

The idea to combine healthcare portal, healthcare global base and blockchain technology was born, after the market research and social proof. We already invested 500.000,00 EUR of our own funds.

Further market research and studies
Release of the BETA Version
Starting to build strong partnerships with doctors, medical centres and international stakeholders in the health economy
Database expanding
Technical development

2016

2017

Testing beta Version (not public)
Selecting the core team
Developing the "go to market strategy"
Establishing referral network
Assessing technology readiness for scaled blockchain application

1st Quarter
Token economics optimisation and scaling solutions
Private Pre-Sale opens
2nd Quarter
White paper/Whitelisting
Pilot project in selected EU markets
3rd Quarter
Presale
Crowdsale
Testing of Database functionality in blockchain environment - test net
BETA release of mobile app
4th Quarter
Decentralised network deployment
Expansion to other EU countries

2018

2019

Release of Mobile App
Payment module with Tokens
Full DAPP functionality
DAPP integration kit for existing third party services
Expansion to RUS and GUS - Pilot Moscow and St. Petersburg
Expansion to US market and Latin America
Establishing new partnerships with national and international health insurance companies - private and public ones
Updating database with pharmacies and medical centres

Establishing partnerships with hospitals using our DAPP
Expansion to Middle East and Africa
Start Beta Version of Telemedicine App
Establishing cooperation with Universities

2020

2021

Establishing cooperations with Clinical research and trials
Expansion to China and further Asia
Beta and testing phase of the Protocol standard based on our DAPP usage results
Implementing data-security and data-transfer with our partners
Releasing Protocol standard

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THE TOKEN (MHP)

Token Distribution

Number of Tokens MHP

500.000.000

Price per Token MHP

0,08$

- Founders and team 12%
- Advisors and ambassadors 7%
- Contributors 6%
- Future partners 6%
- Investors 4%
- Crowdsale 65%

ICO

Private Investors 4.000.000 USD

Presale 16.500.000 USD

Goal 23.500.000 USD

Early contributors and private Investors get 20% Bonus
Presale 10% Bonus

ICO Crowdsale Bonus:
Day 1 10%
Day 2 to 4 7%
Day 4 to 10 5%
Day 10 to 30 3%

For all private investors and early contributors the 20% Bonus will be locked for 6 months. For them it is also possible to pay in EUR, USD, and BTC. For presale and crowdsale the ETH/USD exchange rate will be locked on the start of crowdsale and will be valid for the entire time of the crowdsale.

Hardcap for presale is 16.500.000 USD. Any unsold tokens will be transfered to the crowdsale. If the hardcap goal of 23.500.000 USD in crowdsale is not fulfilled by the end date of the crowdsale, the remaining unsold Medicohealth tokens shall go back to the Company.

Medicohealth token is fully ERC20 compliant and will be available for purchase with ETH. Symbol: (MHP). Token price is set to $ 0,08.

Medicohealth already received an angel investment, therefore token buyers are contributing to a project that already went through the scrutiny of due diligence made by VCs and angel investors.

Contributors contribute voluntarily and their participation cannot in any way be defined or treated as an equity investment into the company that owns the project and IP on the address www.medico.heath. Contributors agree with Terms of Service published on www.medicohealth.io.

The ownership of the token does not include the right to:
- ownership of the company
- ownership of the service's IP
- profits of the service
- participate in decision making, unless options are put up on voting to token holders

The founding team still owns the majority stake in the project (%) and has a majority vote, thus complete control over strategy as well as day-to-day decision making.

The company owns all intellectual property of the service, which includes:
- brand name and domain
- source code of the website
- ranking algorithm
- database of profiles
- design

Contributors / token owners do not get any ownership of the company's intellectual property.

Legal disclaimer

The ownership of Medicomealth tokens (MHP) does not represent any participation in Medicohealth capital nor any rights of payment, remuneration, profit distribution, or money reward of any kind.

This document has been prepared in good faith to provide a comprehensive overview of the Medicohealth Project and MHP Token Crowdsale and is for information purposes only. With the development of the MHP Platform and its services, it may be amended in the following, as the Crowdsale progresses.

MHP tokens are not intended to constitute securities in any jurisdiction. This document does not constitute a prospectus or offer document of any sort and is not intended to constitute an offer of securities or a solicitation for investments in securities in any jurisdiction. The contents of this document are not a financial promotion. Therefore, none of the contents of this document serves as an invitation or inducement to engage in any sort of investment activity.

For participation in this token crowdsale, do not contribute any money that you cannot afford to lose. Make sure you read and understand this document and TERMS AND CONDITIONS FOR PARTICIPATING IN THE MEDICOHEALTH TOKEN SALE (including all warnings regarding possible token value, technical, regulatory, and any other risks; as well as all disclaimers contained therein), as published on our website https://medicohealth.io/ (and as they may be amended from time to time).

For any questions regarding token crowdsale or Medicohealth services please contact us via e-mail at the address info@medicohealth.io