

#Imaging2029



Collaborating for Digital Health and Care in Europe

Health data ecosystems for integrated care: A new blue ocean

Digital Integrated Care Task Force Virtual Workshop

22/06/2020

 @ehtel_ehealth

Digital Integrated Care Task Force Virtual Workshop

Health data ecosystems for integrated care: A new blue ocean

 **22 June 2020**  **15-16:30 CET**  **Online**



Welcome and introduction

Tino Martí and Diane Whitehouse – EHTEL

More than 100 registrations from more than 20 countries

Multistakeholder community

13% Health authorities and eHealth competence centres

21% Health and care providers

18% Technology industry

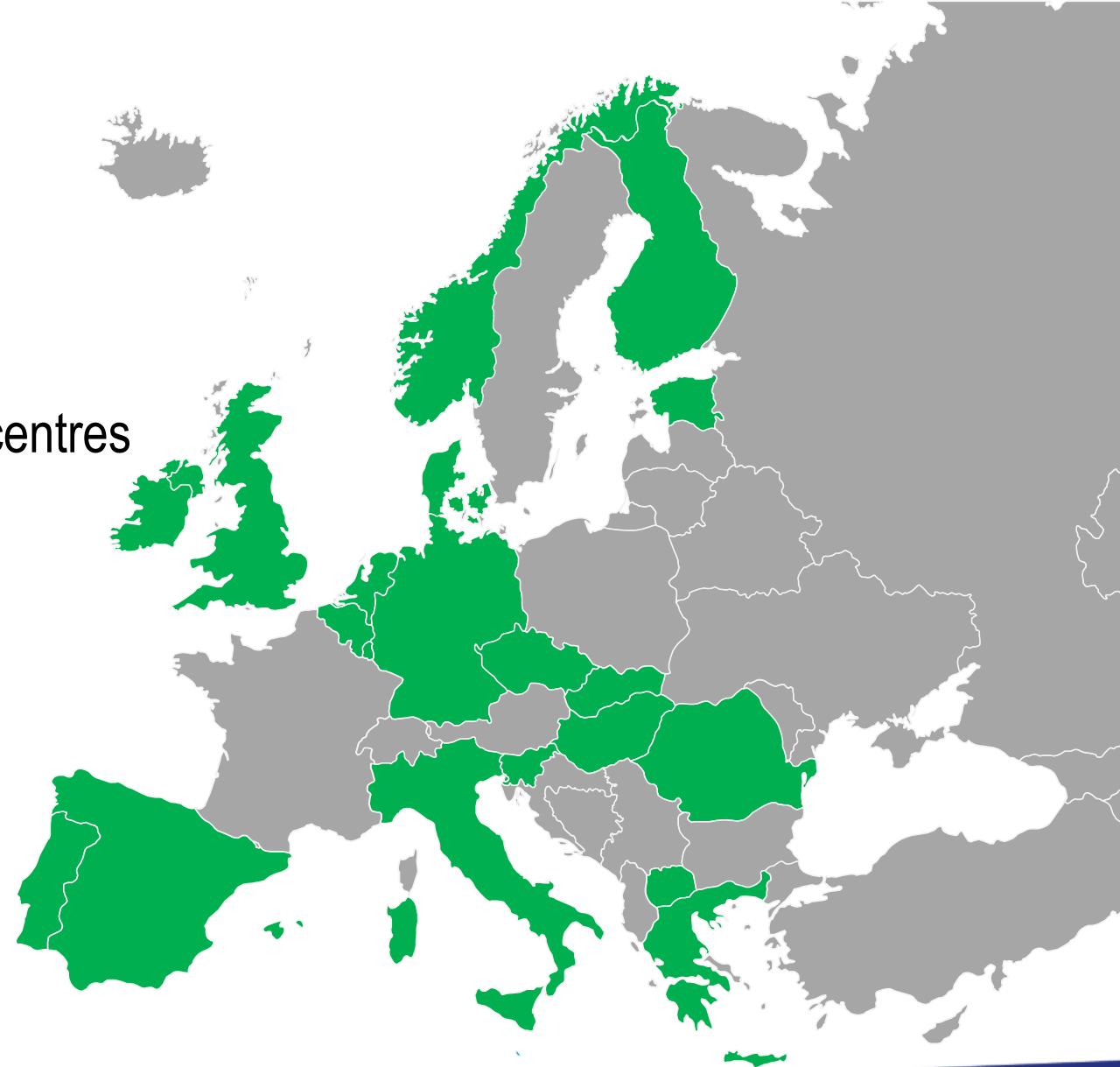
18% Universities and research centres

11% International networks and associations

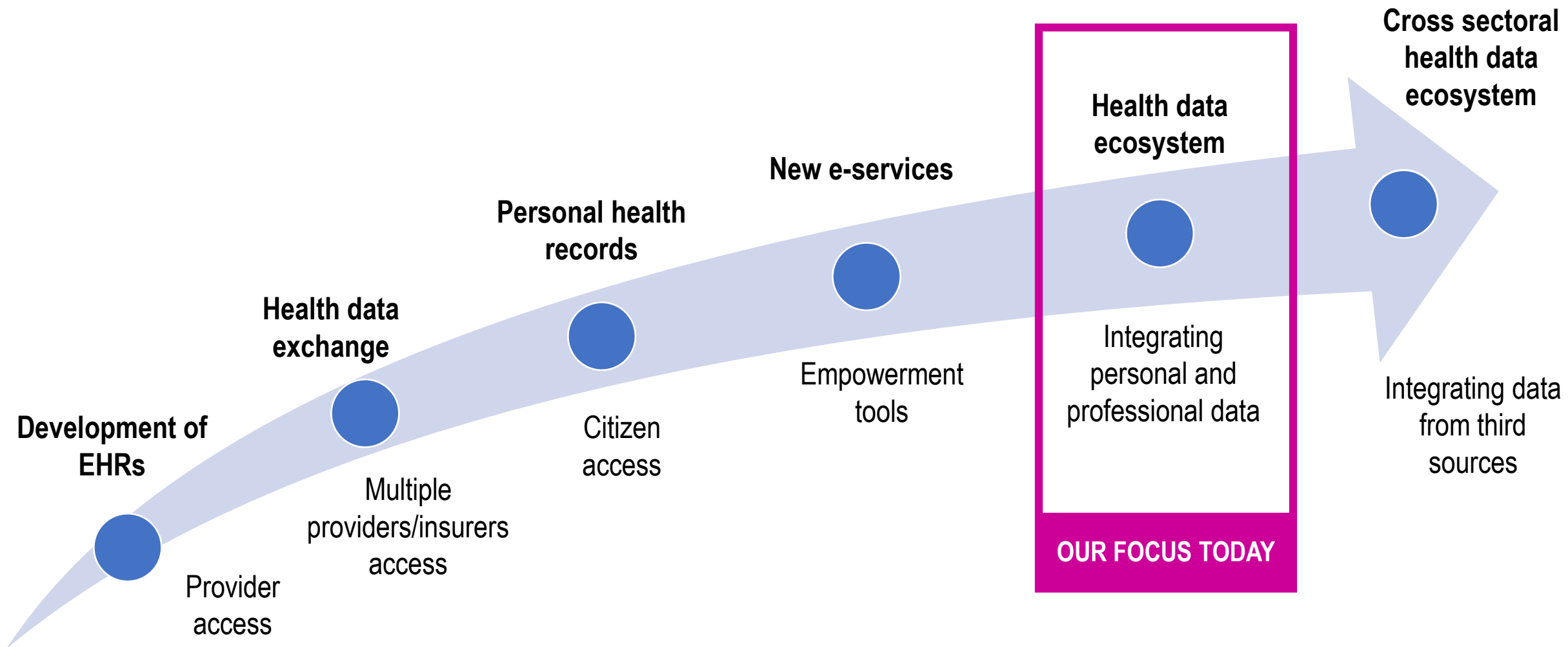
19% Others

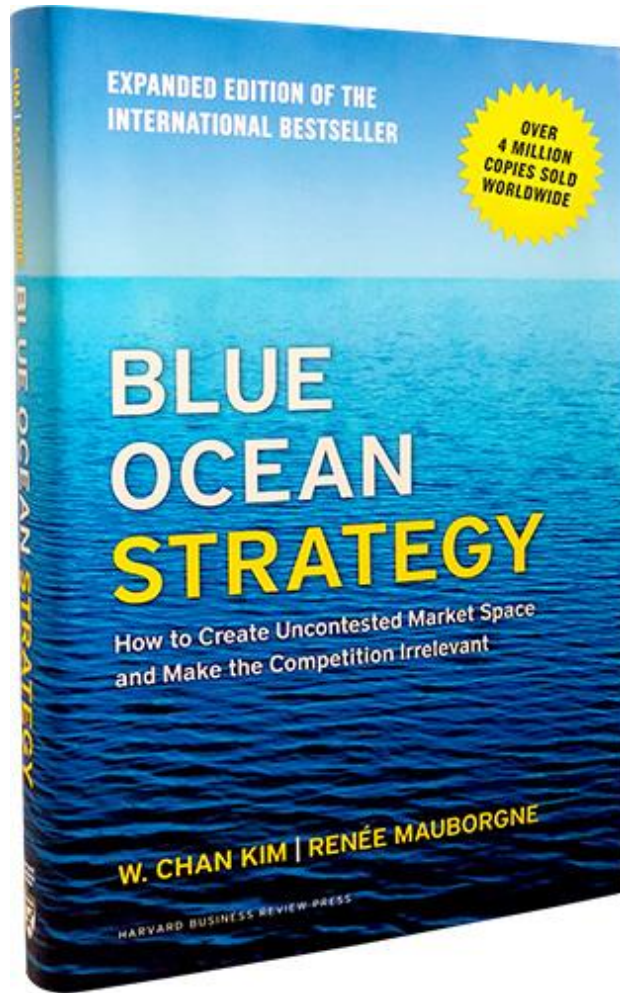


Collaborating for Digital Health and Care in Europe



BUILDING HEALTH DATA ECOSYSTEMS FOR INTEGRATED CARE





Red oceans are all the industries in existence today – the known market space.

In red oceans, industry boundaries are defined and accepted, and the competitive rules of the game are known.

As the market space gets crowded, profits and growth are reduced. Products become commodities, leading to cutthroat or ‘bloody’ competition.

Blue oceans denote all the industries not in existence today – the unknown market space.

In blue oceans, demand is created rather than fought over. There is ample opportunity for growth that is both profitable and rapid. Competition is irrelevant because the rules of the game are waiting to be set.

Goals

1. Explore what **health data ecosystems** are and how can be built to benefit health and care integration
2. Identify the **building blocks and steering elements that frame a health data ecosystem** (data protection, standards, business and governance models).

Agenda

Welcome and introduction

Presenter: Tino Martí and Diane Whitehouse (EHTEL)

Time: 5 minutes

Health data ecosystems as a new blue ocean

Presenter: Saara Malkamäki (SITRA, Finland)

Time: 15 minutes

Use cases of health data ecosystems in action

Presenter: Rachelle Kaye (ASSUTA Medical Centres, Israel)

Time: 20 minutes

Wrapping up for discussion

Live poll

Time: 5 minutes

Discussion

Time: 40 minutes

Conclusions

Key messages of the workshop and announcement of next sessions.

Time: 5 minutes

ML

TM

DW

 Marc Lange (EHTFI) Tino Marti Diane Whitehouse

PROJECT REVIEW

5. Recommendations concerning future work, if applicable

CR1.R04: Most of the deliverables follow a 3-iteration approach and there is no indication of what will be covered in each iteration. In that sense it is not easy to judge whether a deliverable version is complete. It is recommended that a matrix with these deliverables, iterations and expected advancements from one iteration to the next one, be delivered.

- D8.8 Governance model – V1 [M18 – June 2020]
- D8.9 Governance model – V2 [M36 – December 2021]



Health data ecosystems as a new blue ocean

Saara Malkamäki – SITRA, Finland

Health Data Ecosystems as a New Blue Ocean

Saara Malkamäki

Specialist, IHAN project

Sitra – the Finnish Innovation Fund

✉ saara.malkamaki@sitra.fi

🐦 [@saara_malkamaki](https://twitter.com/saara_malkamaki)

SITRA

Sitra in a nutshell

1. A gift from Parliament to the 50-year-old Finland 51 years ago. Under the direct control of the Finnish Parliament.
2. A think, do and connect tank. An independent future house.
3. Works towards a fair and sustainable future.
4. Funded by returns on endowment capital and capital investments.
5. The vision is implemented by three themes and hundreds of projects.

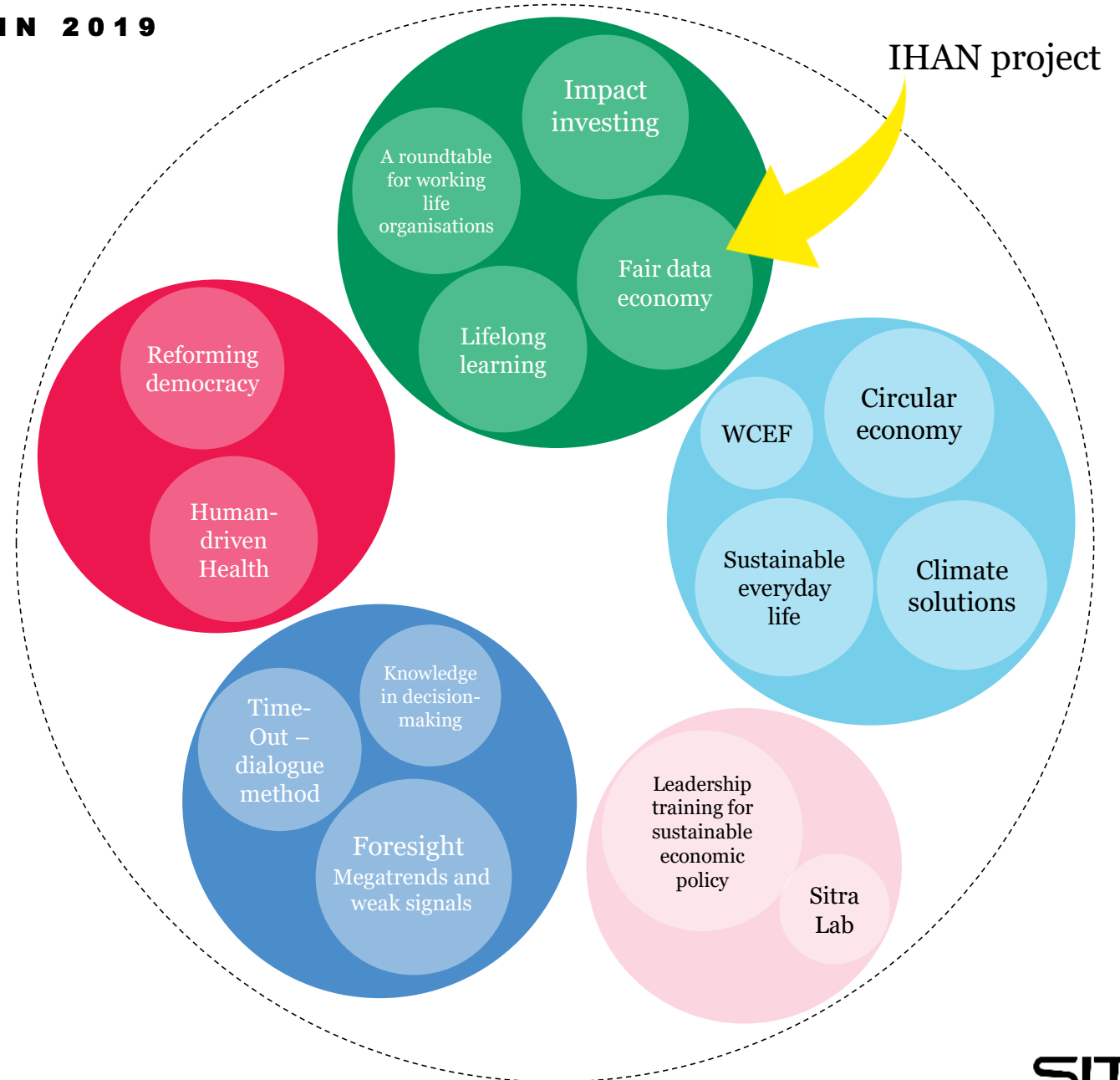
+ the most important of all

Building our future *together*.



SITRA'S FUTURE-ORIENTED WORK IN 2019

-  **FORESIGHT**
-  **SOCIETAL TRAINING**
-  **A CARBON-NEUTRAL CIRCULAR ECONOMY**
-  **CAPACITY FOR RENEWAL**
-  **NEW WORKING LIFE AND A SUSTAINABLE ECONOMY**



IHAN[®] project

- Building the foundation for a **fair** and functioning **data economy** and creating a common **concept for data sharing**.
- Setting up **European level rules and guidelines** for fair use of data.
- **Piloting** new concepts based on personal data in **collaboration** with pioneering **businesses**.
- Developing an easy way for **individuals** to **identify reliable services** that use their data in a fair way.
- Project started 4/2018 and it runs until (6/2021)

**ONE OF SITRA'S IHAN PROJECT OBJECTIVE IS
TO PROMOTE THE DEVELOPMENT OF DATA
ECOSYSTEMS AND PARTNERSHIPS AND TO
FIND ENTITIES WHO BUILD BUSINESS PILOTS
IN ACCORDANCE WITH IHAN PRINCIPLES.**

Content

1

- What is a data ecosystem?

2

- How value is created in a data ecosystem?

3

- An example of a data ecosystem

Content

1

- What is a data ecosystem?

2

- How value is created in a data ecosystem?

3

- An example of a data ecosystem



**ECOSYSTEM
DATA ECOSYSTEM
HEALTH DATA ECOSYSTEM**

Some definitions

There are probably almost as many definitions of an ecosystem as there are definers.

Ecosystem

A network of businesses thought to resemble an ecological ecosystem because of its complex interconnected components

Data ecosystem

A group of entities that want to create new business by sharing data with each other (IHAN)

Data is shared with the individual's permission and according to the rules set in the data ecosystem's rulebook.

Health data ecosystem

“Beyond traditional sources of data generated from health care and public health activities, we now have the ability to capture data for health through sensors, wearables and monitors of all kinds.” (WHO)

Global ecosystem perspective

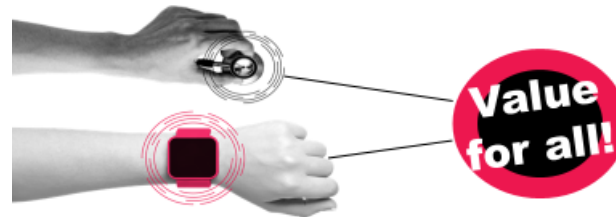
FROM EGOSYSTEM TO ECOSYSTEM

A successful ecosystem arises from a vision that all members want to achieve, but that no one can achieve alone

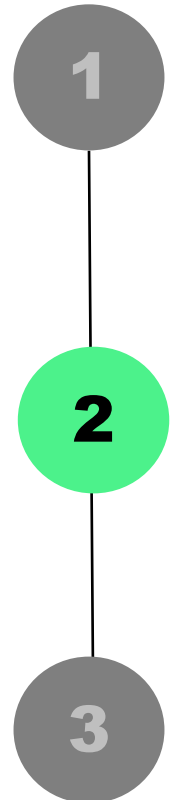
What makes an ecosystem successful?

- The criterion for success is that the members of the ecosystem understand the value produced jointly and agree to act according to common rules
- An ecosystem that follows fair rules creates value for all participants
- Participating organisations need to decide on the model and role they will participate in the ecosystem in order to get the most out of it

Everyone needs to get value in a **fair data ecosystem**



Content

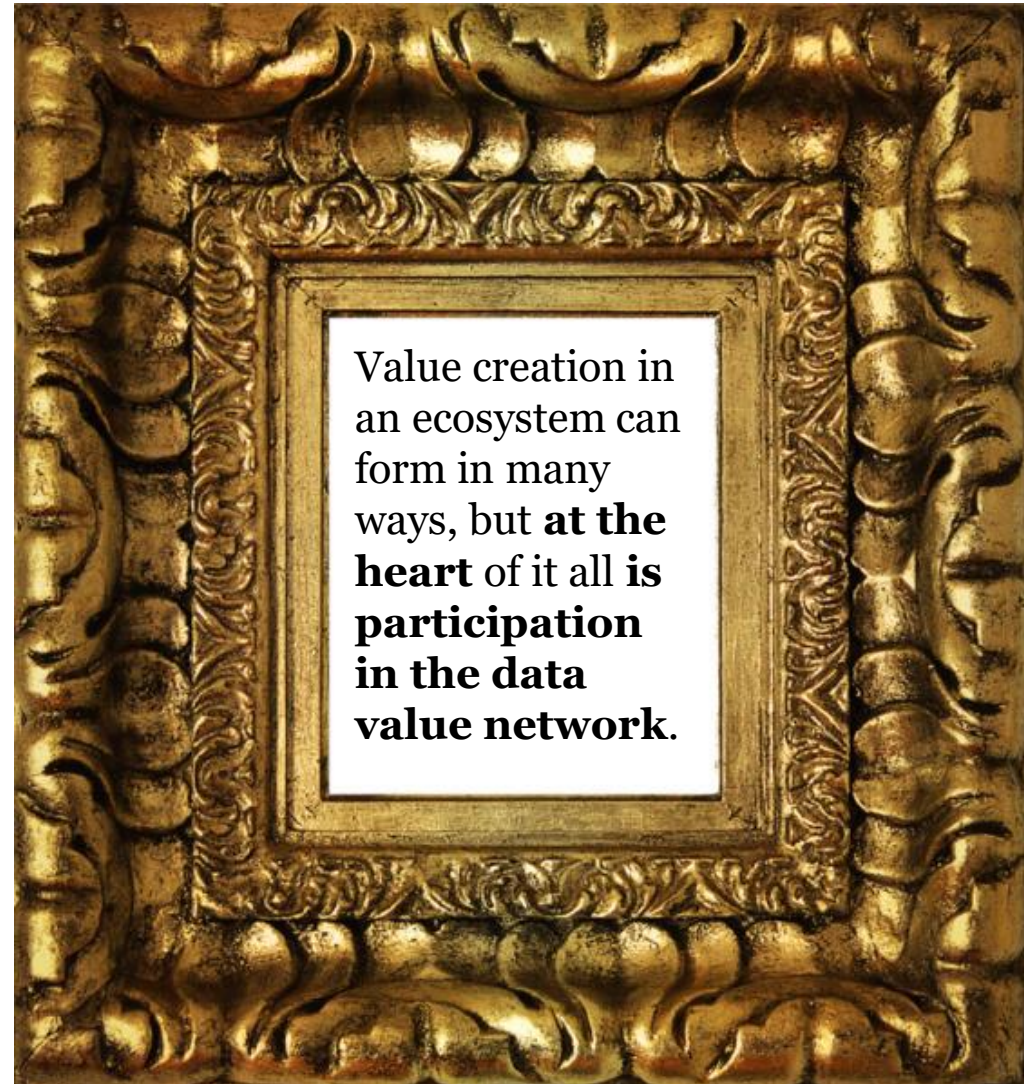
- 
- 1 - What is a data ecosystem?
 - 2 - How value is created in a data ecosystem?
 - 3 - An example of a data ecosystem

Value creation in an ecosystem can form in many ways

- The potential for value creation in the ecosystem business model is greater than in the traditional environment:
 - Access to a wider range of capabilities than a single organisation
 - Ability to scale activities quickly
 - Flexibility and resilience



NB! the complexity increases when moving from value chains to value networks



Data economy is evolving in two, partly contradictory directions

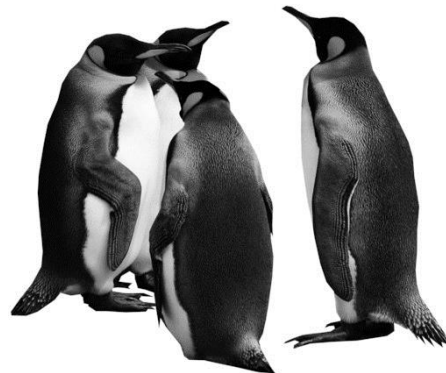
Data is a strategic resource that can be used to create significant value - **Data protection** needs are growing

Organisations increase collaboration and interdependence – **Data sharing** needs are growing

- The more information is shared and used, the more its value and the risks of sharing increase
- Data ecosystems provide a secure environment for sharing data
- Data can be shared more freely, transparently and safely

-
We are so much more together!

I don't want to share data.



The data ecosystem forms a strong link between its partners

- In the data ecosystem, the raw material = data, is processed into services
- There are many different reasons to form a data ecosystem, but most often the goal is to:
 - Reduce costs
 - Optimise operations
 - Create new services
 - Get access to limited information and/or expertise
- By sharing and processing data new innovations, business, collaboration opportunities and better services and products can be created
- Ecosystem partners need to
 - Have sufficient common goals and business models
 - Be reliable and willing to cooperate
 - Follow common rules

Check Sitra's data ecosystem [rulebook](#).



Roles in a data ecosystem

Leader (s)

Entities who drive the vision and realisation of the data ecosystem to function. Takes the lead role (can be temporary) in coordinating the data ecosystem.

External stakeholders

Entities that have a specific interest in the data ecosystem success.

Business enabler (s)

Entities providing services to the data ecosystem but do not share data in the ecosystem.

End-user (s)

Entities interested in consuming, utilizing, accessing the value that is created in the data ecosystem.



Service provider (s)

Entities interested in creating value by providing services to end users.

Partner (s)

Entities interested in creating value by providing services to service providers.

Data sources

Entities interested in creating value by providing data to the ecosystem.

Technical enabler (s)

Entities providing services for identity, consent management, logging, and service management for the data ecosystem. Can act as system integrators between ecosystem members if needed.

Content

- 1 - What is a data ecosystem?
- 2 - How value is created in a data ecosystem?
- 3 - An example of a data ecosystem**

iShare – Harbour Logistics

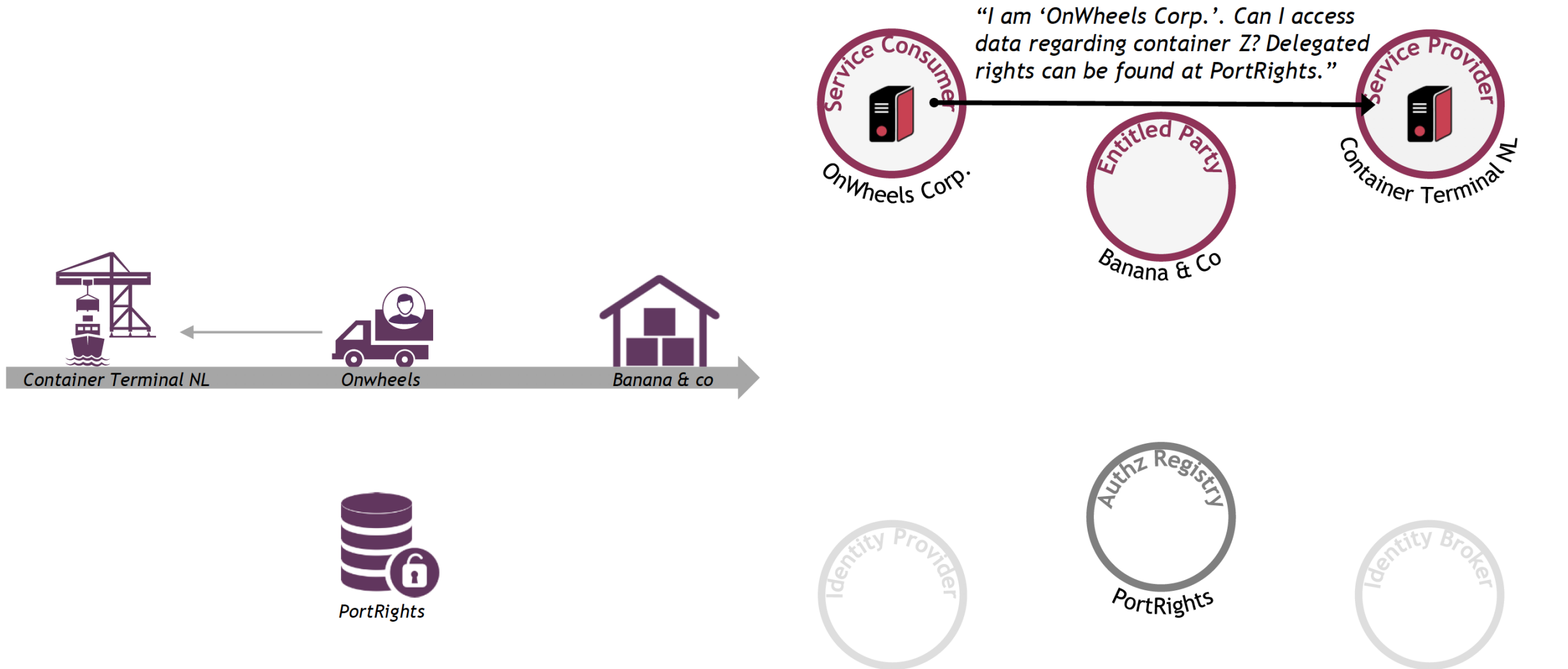
iSHARE is a uniform set of agreements or scheme that enables organisations in the logistics sector to give others access to their data, including new and previously unknown partners. In addition to reducing integration costs, iSHARE offers organisations new opportunities to monetise currently untapped data assets.



Harbour Logistics – accessing container data



Harbour Logistics – accessing container data



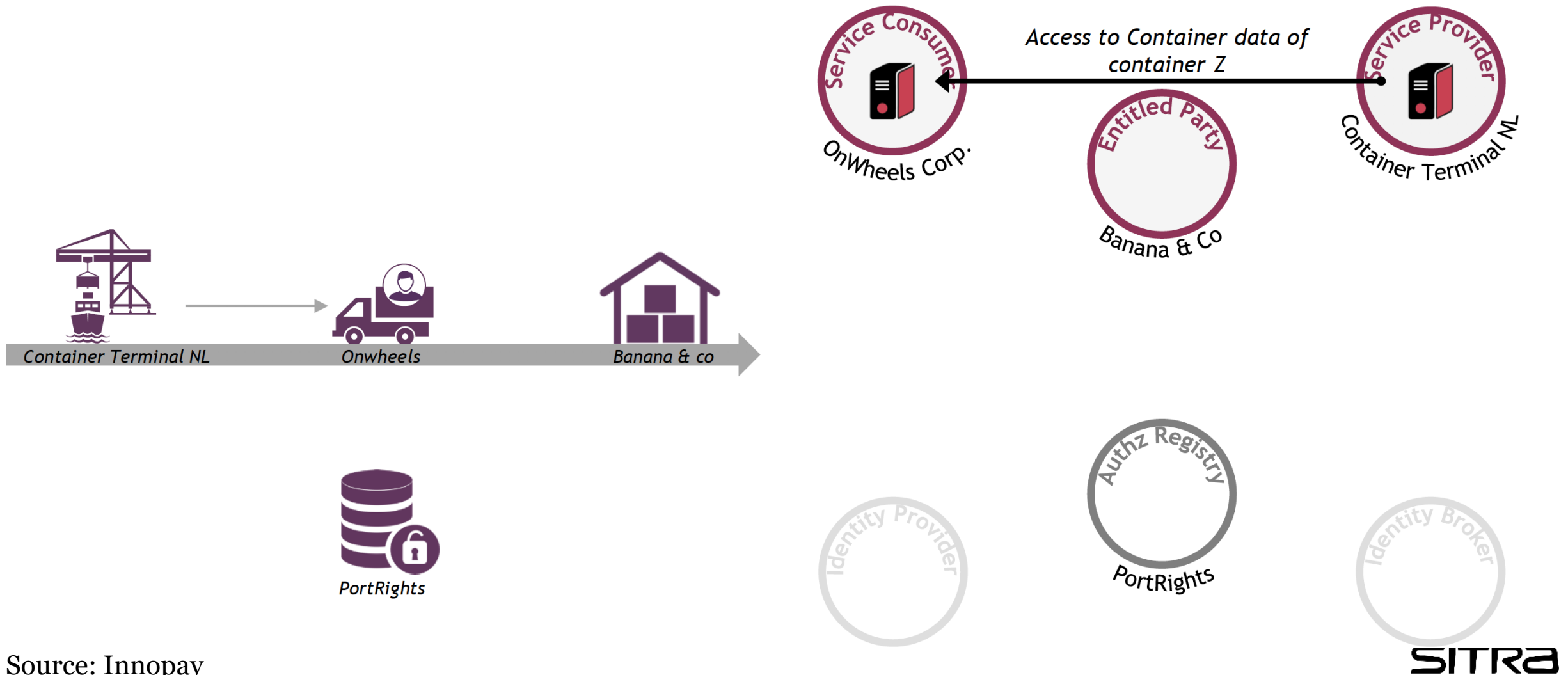
Harbour Logistics – accessing container data



Harbour Logistics – accessing container data



Harbour Logistics – accessing container data



Summary

- There are many definitions of an ecosystem
- A successful ecosystem arises from a vision that all members want to achieve, but that no one can achieve alone
- The potential for value creation in the ecosystem business model is greater than in the traditional environment
- Data economy is evolving in two, partly contradictory directions - the more information is shared and used, the more its value and the risks of sharing increase
- The data ecosystem forms a strong link between its partners and a secure environment for sharing data



RISE TO SHINE!



sitra.fi

@sitrafund



SITRa

PLEASE SIGN TO OUR IHAN **NEWSLETTER TO
GET INFORMATION ON OUR FAIR DATA
ECONOMY PROJECT:**

<https://www.sitra.fi/en/topics/fair-data-economy/#newsletter>

+ tick a box "IHAN® – Human-driven data economy"

Use cases of health data ecosystems in action

Rachelle Kaye – Assuta Medical Centres, Israel

An Israeli Data Ecosystem





ISRAELI DIGITAL HEALTH ECOSYSTEM IN 2018



537

innovative Digital Health companies



Over 25

years of digitalized accumulated EMR



Market players:

4 HMOs,

servicing the entire ~9M population



~100

active investors in the sector with an Israeli presence



Multinationals:

32

with exposure to Digital Health



Hubs, including hospitals & HMOs innovation platforms:

23

Digital Health hubs, including 11 accelerators



Incubators:

4

industry focused



Government:

~\$300M

National Digital Health Plan supports industry development

3



STORIES



Story 1

CONNECARE

Assuta and Maccabi – Partners in CONNECARE

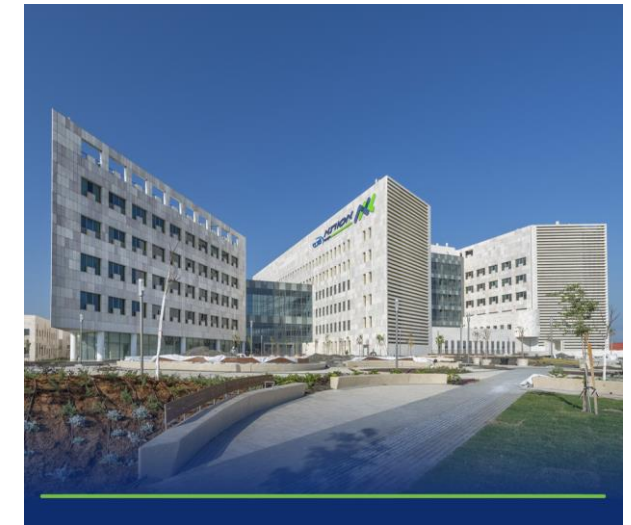
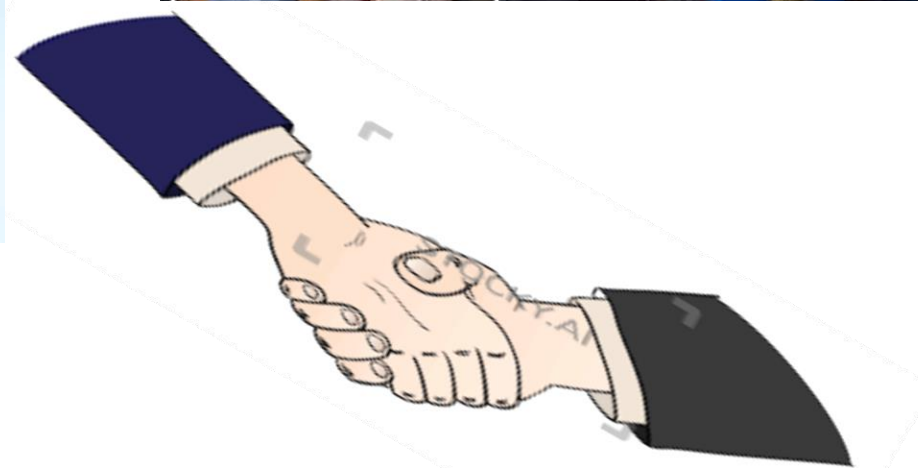


CONNECARE

an H2020 project on digitally supported integrated care
with a joint consortium of 9 partners from 5 European
countries

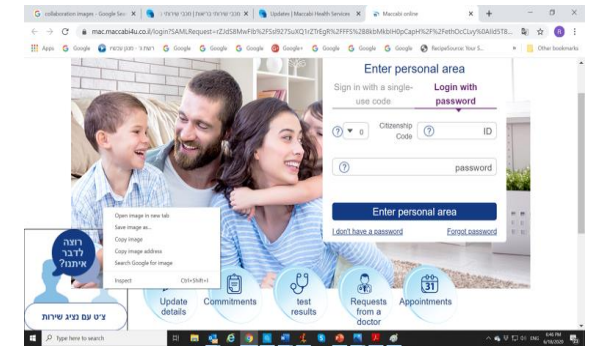


Collaboration for digitally enabled Integrated Care

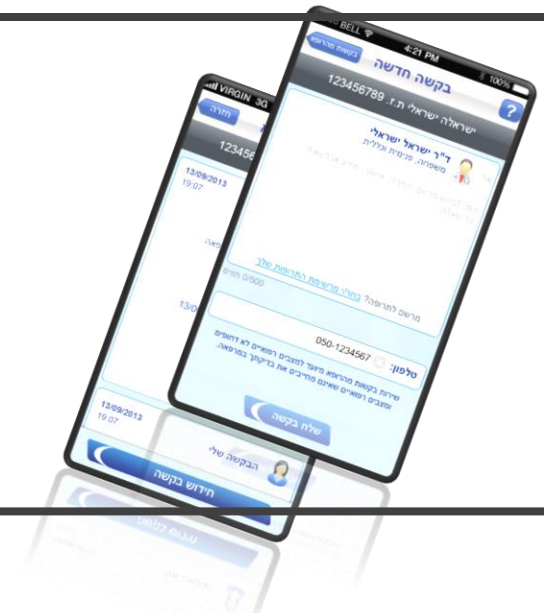


DIGITAL MATURITY

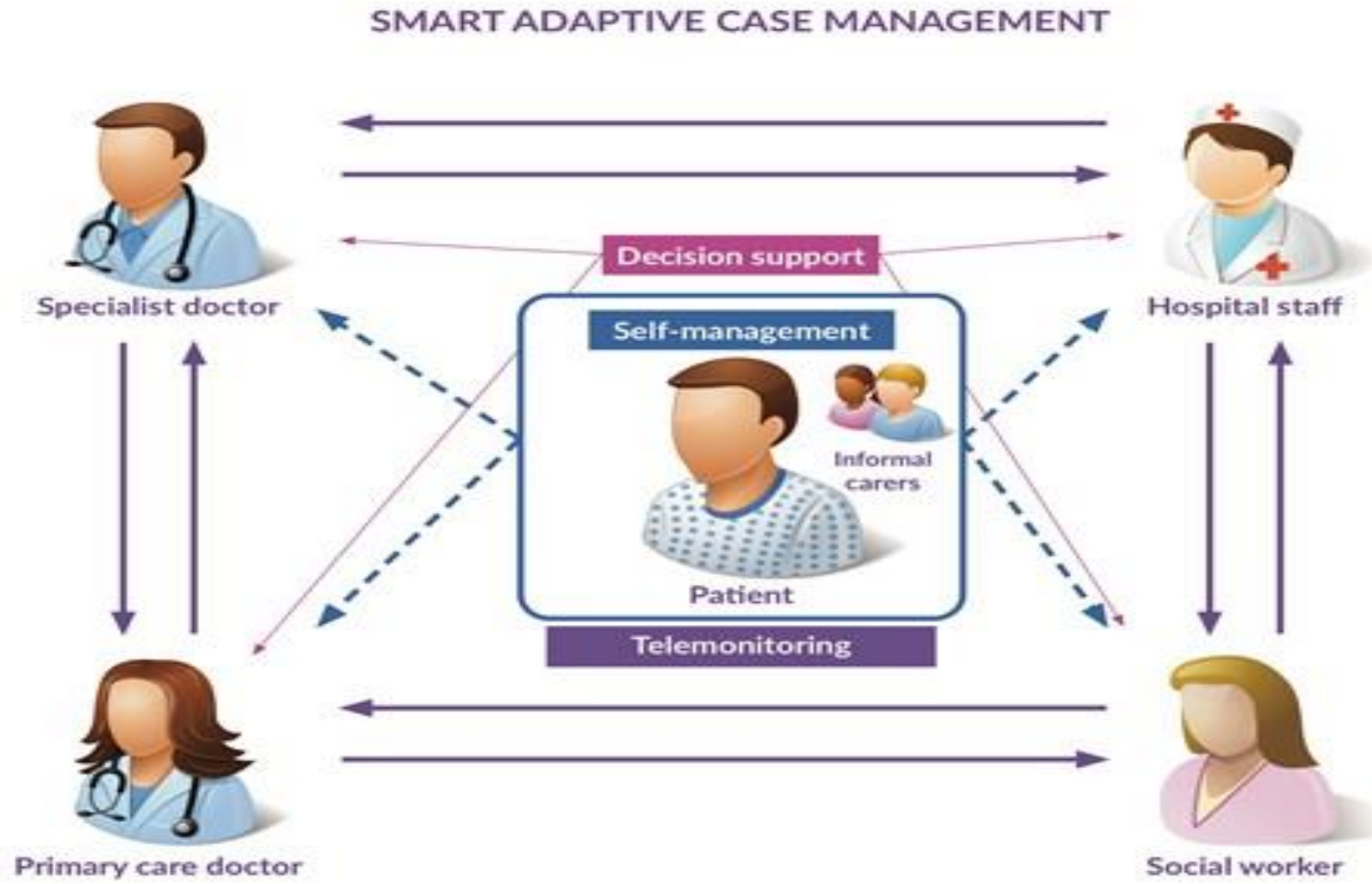
- Central Electronic Medical Record
Every transaction computerized
- E - Laboratory
- E - Prescription
- E - Consultation
- E - visits
- Decision support - Alerts and Reminders
- Registries
- Patient portal – access to information, interaction with doctors, alerts, reminders, appointments



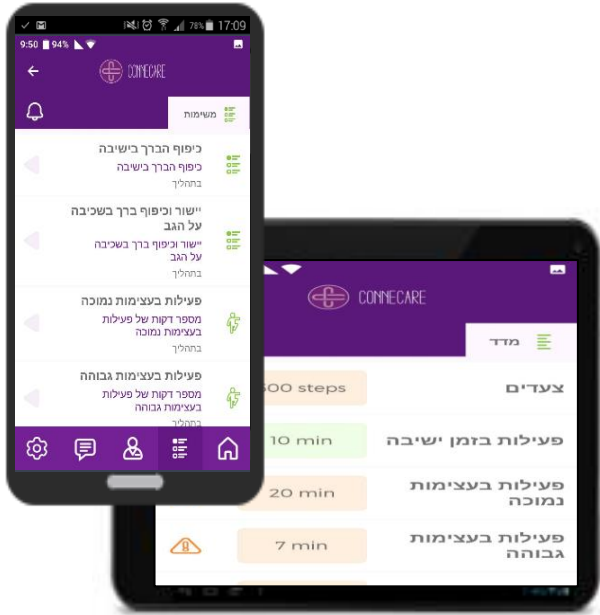
<https://www.medscape.com/viewarticle/882873>



THE CONNECARE INTEGRATED CARE MODEL



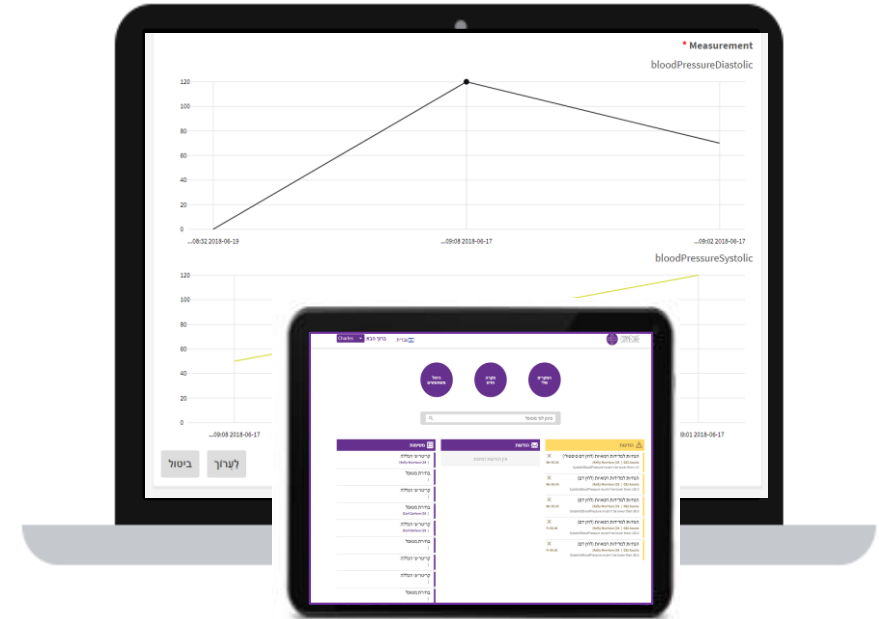
THREE MAJOR IT COMPONENTS



The patient's SMS
application on a cell
phone or tablet

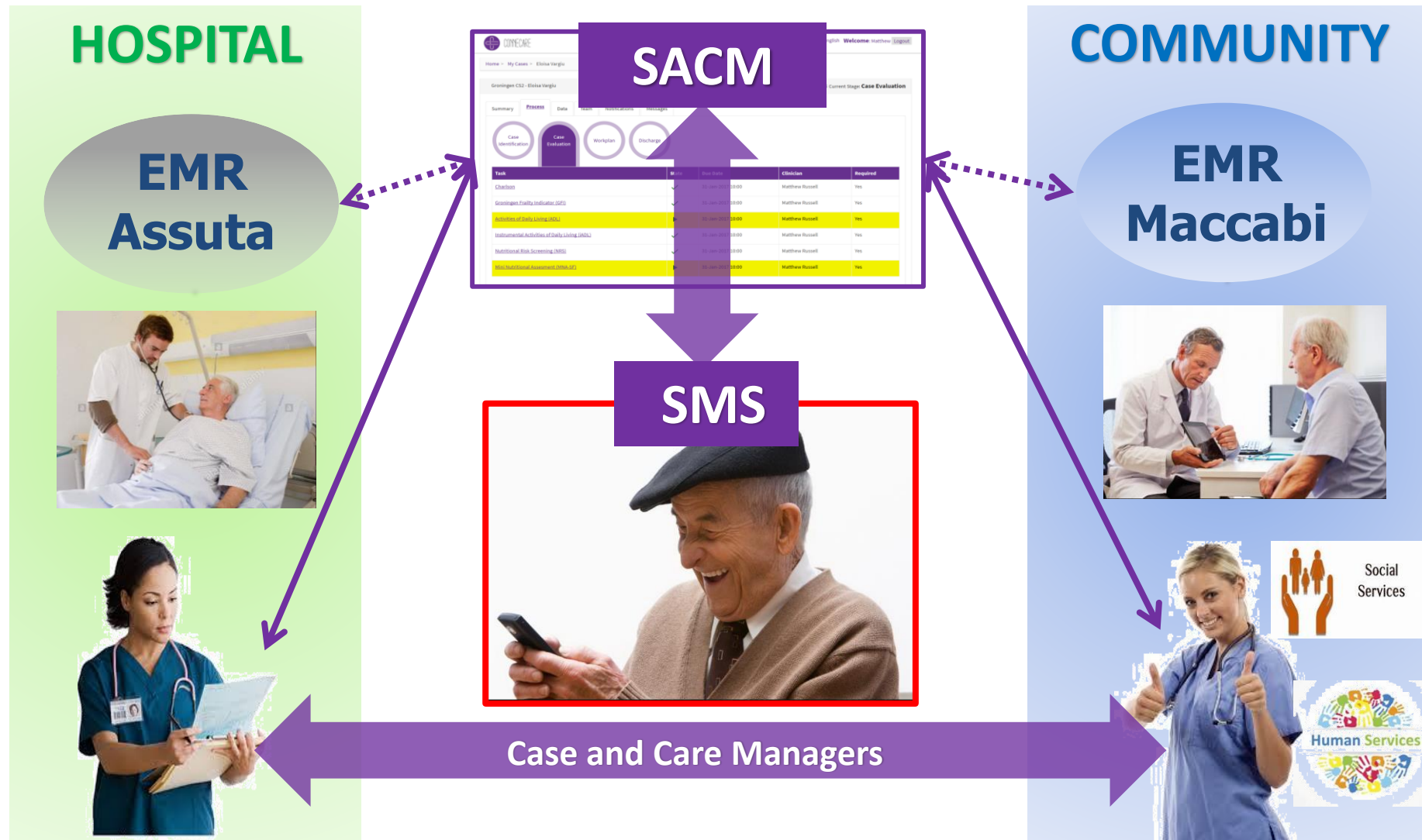


Fitbit for
measuring
steps, pulse
and sleep
quality

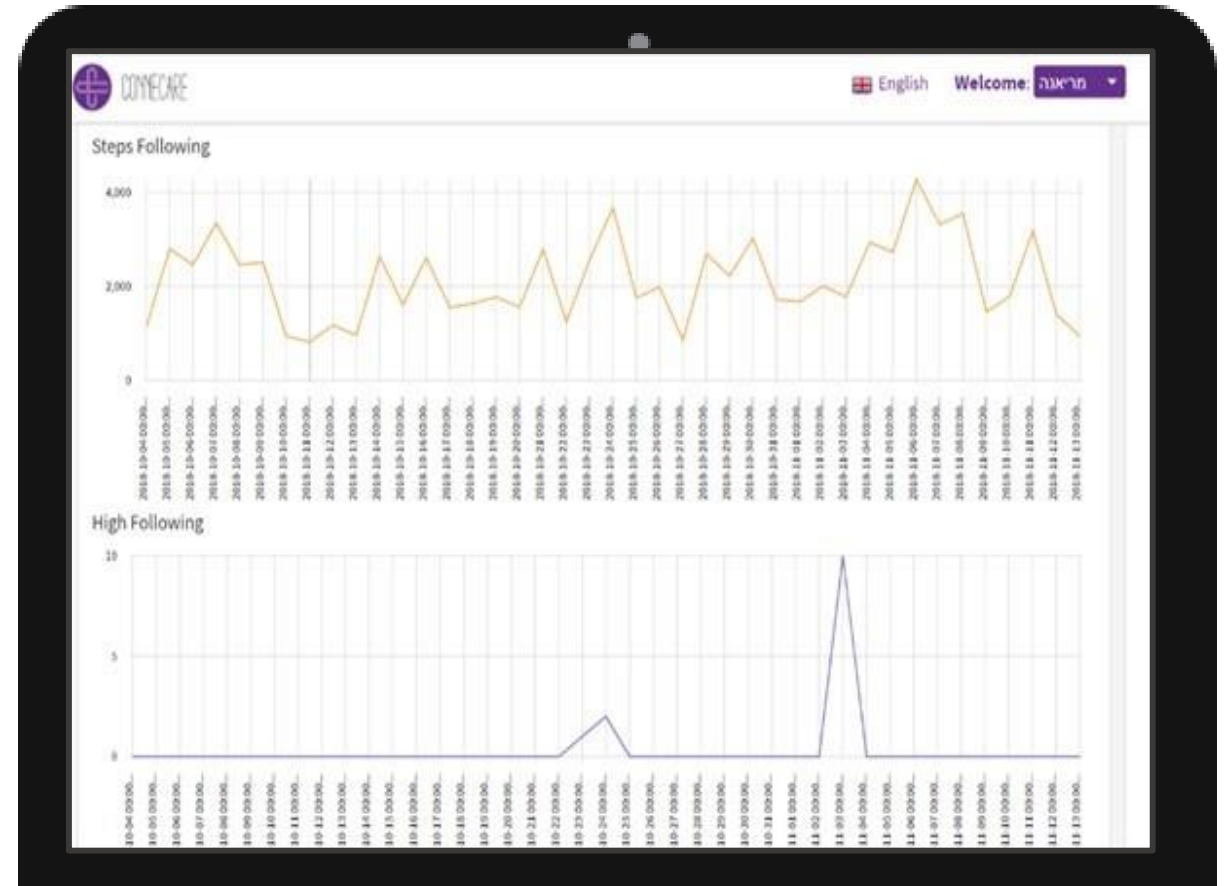


The SACM system
in which the nurse, the physician or the
physiotherapist will observe the data,
and prescribe the tasks for the patient

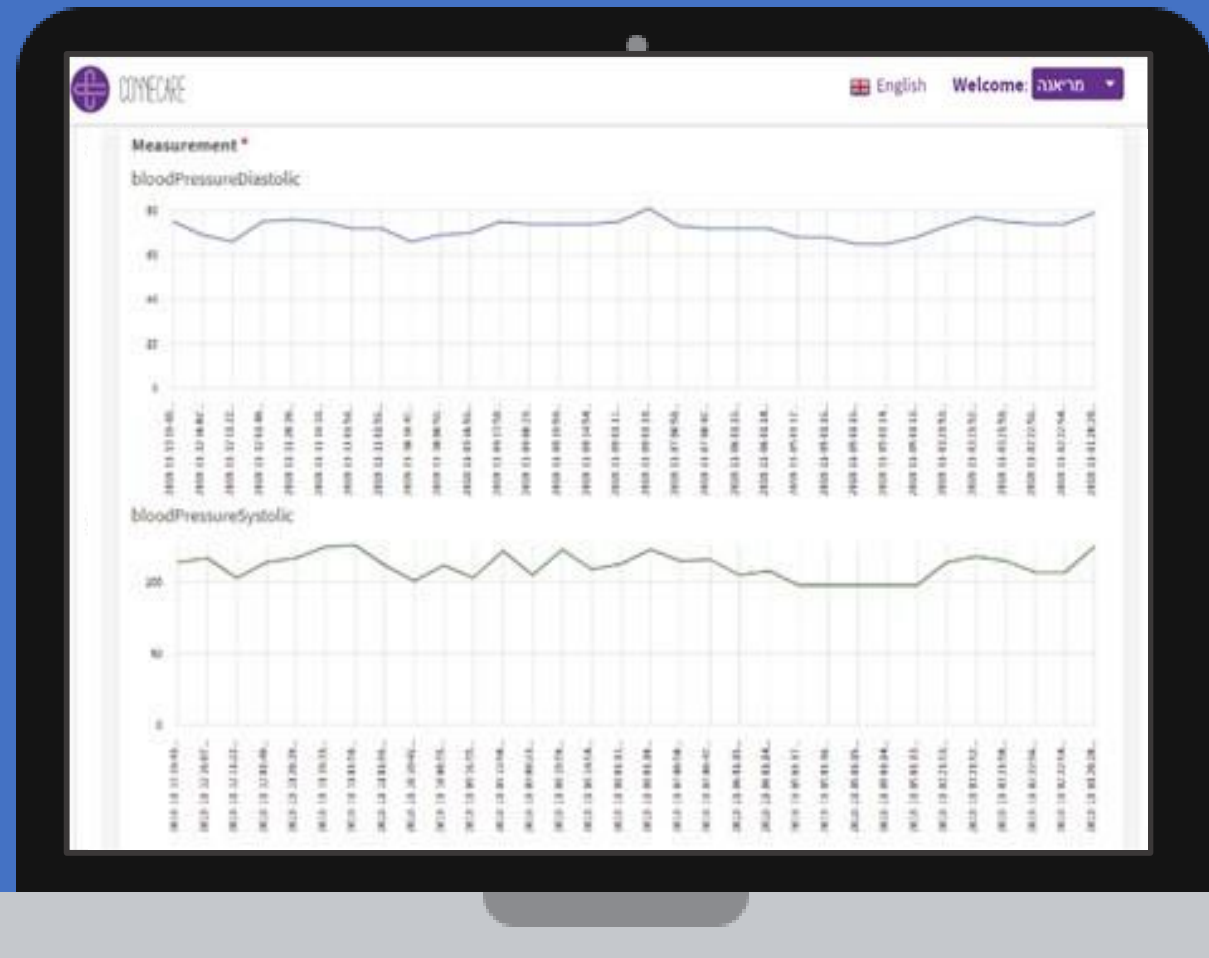
THE INTEGRATED CARE MODEL IN ISRAEL



Patient App transmitting steps



Blood Pressure Trends



INTEGRATION IN PRACTICE

HOSPITAL

- Pre-Habilitation program
- Responding to the patient's questions and needs prior to elective surgery
- Building treatment and discharge plans integrated with the community

COMMUNITY

- Patient's discharge summary
- Input from the GP to the patient's treatment plan during the project
- CM-GP communication in case of need (by email or phone)

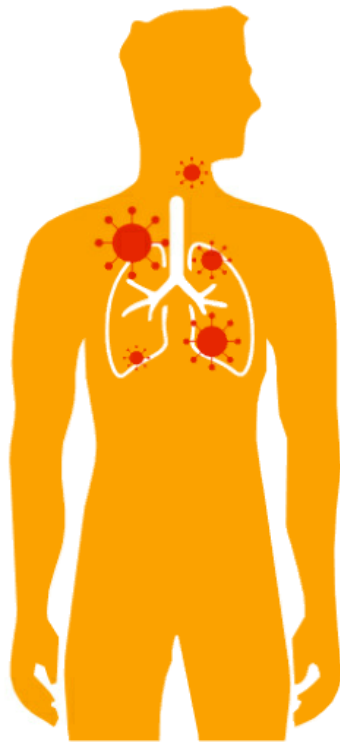
Patients

- Improving patients involvement and empowerment
- Continuing integrated care of a CM nurse for 3 months
- Facilitating timely appointments, reducing bureaucracy

Story 2

COVID-19 dashboard

COVID-19 Dashboard



Population
Management



Visits Dashboard



HR Dashboard



Corona Pandemic
Dashboard



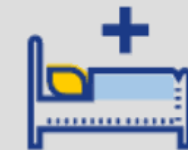
Reports



 GIS Map



Medical manager
Dashboard



Corona Manager
Dashboard





Telephone Visits for Family Physicians and Pediatricians

- New type of visit in the doctor's schedule
- Possibility to dial directly from the EMR

Additional Solutions

- The patient sees the option of a telephone visit when he is making an appointment
- Management of the telephone visits in QFLOW
- Patient can update his telephone number in the process of making the appointment
- The doctor automatically dials the updated phone number when he clicks on the “hidden dial” button
- The patient sees he is receiving a call from the doctor but the phone number is hidden



לצורך השלמת הזמנת התור יש לאשר את הפרטים הבאים:

ביקור טלפוני ביום ג' 31/03/20 בשעה 17:40
ד"ר ינאי עמית, מומחה ברפואת המשפחה



























הרופא יצור איתך קשר למספר/י הטלפון:

050

7777777

Maccabi "Hybrid"

- New Infrastructure for video visits between doctors and patients
- The solution enables the doctor to initiate a video call and to change a telephone visit to a video visit

צור ביקור וידאו יזום		התורים שלי להיום 19/03/2020		
מטופל	סטטוס שיחה	שעת ביקור	שיחת וידאו	חיוג מחסוי
ישראל ישראלי בן 55 123456789	 	08:00	 	
ישראל ישראלי בן 55 123456789		08:30	 	
ישראל ישראלי בן 55 123456789	 	09:00	 	
ישראל ישראלי בן 55 123456789		09:30	 	
ישראל ישראלי בן 55 123456789		10:00	 	
ישראל ישראלי בן 55 123456789		10:30	 	

Monitoring and Caring for COVID Patients at Home

- Regional Telemedicine Centers
- Patients are contacted daily
- Patients have an app – Proms and biomeasures
- App transmits to the Telemedicine Center monitoring system
- Care managers monitor and respond
- Saturation levels and fever automatically entered into the Family doctor's EMR



Story 3

K

Meet K – the game-changing new application that replaces health search engines

- The latest innovation by the MK&M (Morris Kahn & Maccabi) Big Data Science Institute. Cutting through a massive amount of data, collected during hundreds of millions of doctor visits over the last 25 years, it offers users a personalized and highly reliable reading of what their symptoms might be saying
- Based on a sophisticated algorithm developed by a wide team of mathematicians and physicians that has been fed information from millions upon millions of doctors visits, and as a smart system, it is learning and improving itself all the time
- With each additional use, it perfects its knowledge and further refines the questions to be presented to the next user

<https://www.maccabitech.com/big-data/k-app/>



English



Powered by



Get started

Already have an account? [Log in](#)

What I do

I show you how **people like you** are typically diagnosed and treated by doctors. Although I am not a doctor and do not provide a medical diagnosis, **I can connect you with a doctor** at the end of our chat.

You should not use me if you're having a medical emergency - please call an emergency number if so. You also should not use me if you are pregnant or under the age of 18. By using me, you agree that you are 18 or older.

My commitment to you

Accept



Login

Hi, I'm K.

I'm here to help you understand your symptoms.

First I'd like to get to know you a bit better.

What is your name?

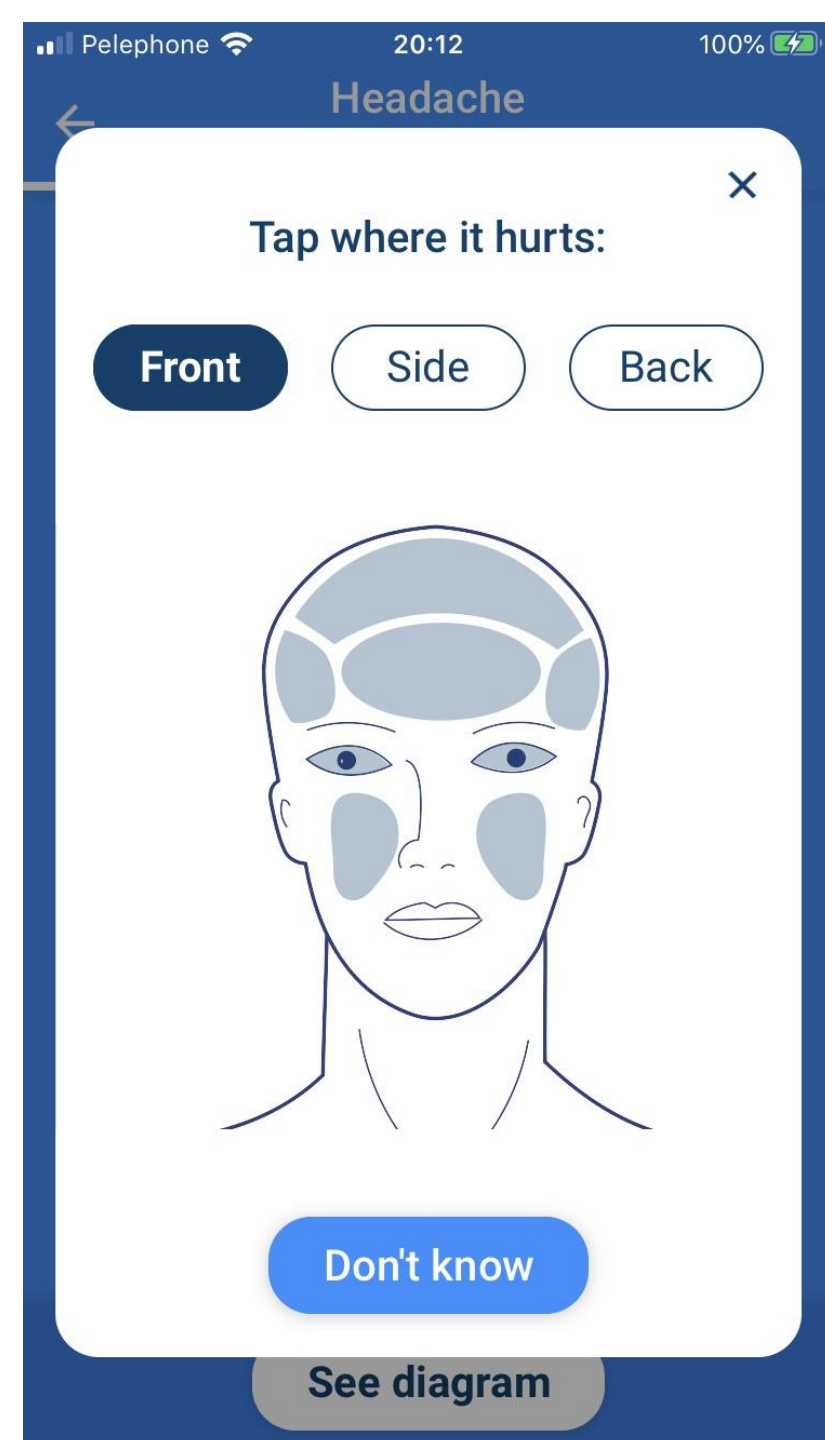
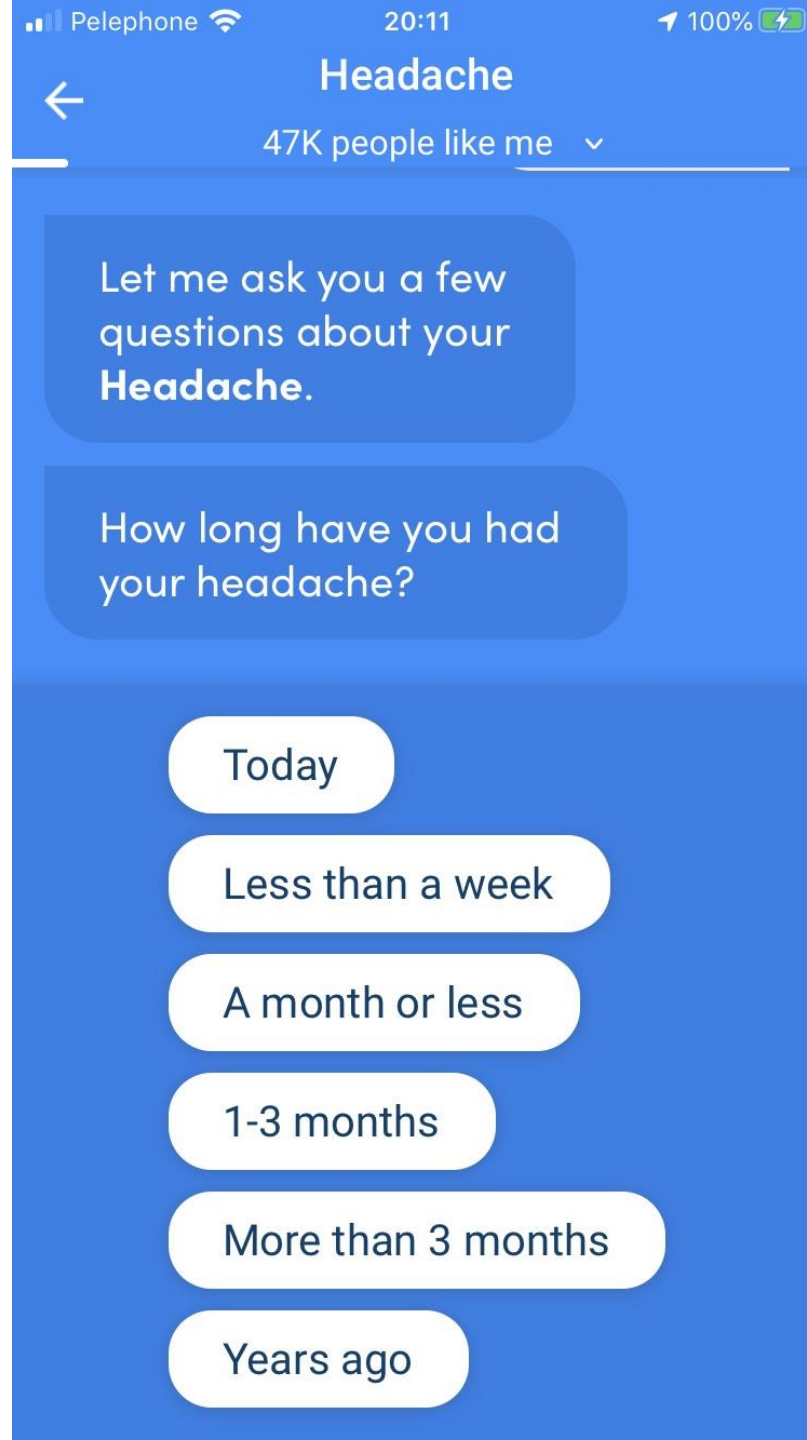
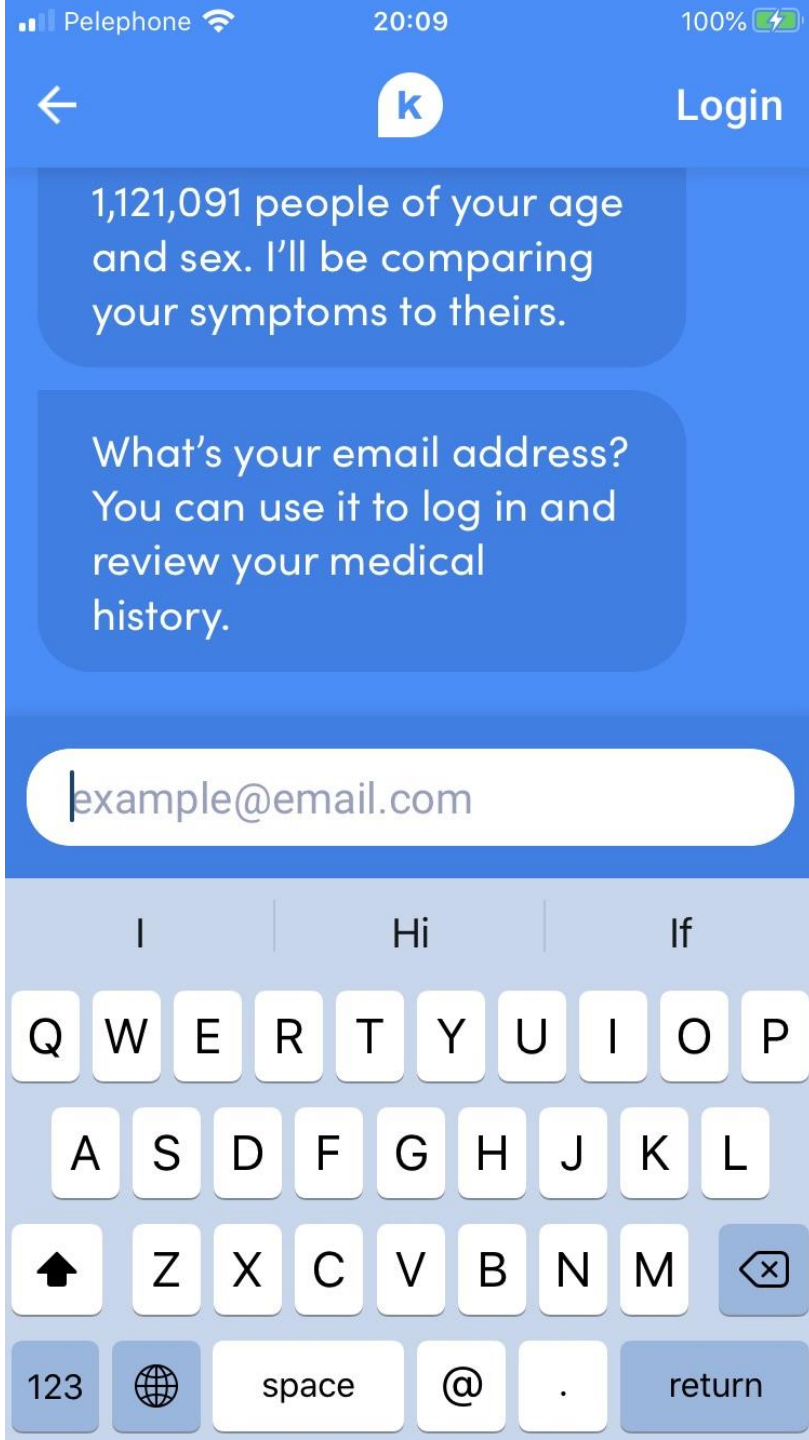
Tap an answer to edit



Rachelle

Rachelle, are you **female** or **male**?

Male



Headache

< 50 people like me ▾



Hoarseness, Post-nasal drip

Are you currently experiencing any of the following symptoms?



Jaw joint pain



Chills



Plugged ears

None of the above



Headache

No

Why are you telling me about these symptoms?



I don't know what I have and wanted to learn from K

Ok, the results I'm about to show you **are not a diagnosis or medical advice**. Please seek immediate medical care if your symptoms seem serious.

Ok, show me



Headache

Ok, show me

Based on what you told me, this is how **59,567** cases like yours turned out:

81%

Upper Respiratory Infection

< 50 people had this

19%

Acute Sinusitis

< 50 people had this

[Learn more](#)

Upper Respiratory Infection

223315 females age 75 ▾

Concerning symptoms

People like you seek medical care in person if:

- They develop shortness of breath or difficulty breathing
- They develop chest pain or chest pressure
- They begin to cough up blood
- They develop a fever over 100.4 F

Symptoms you reported

Keep an eye on your symptoms, which are common with Upper Respiratory Infection.

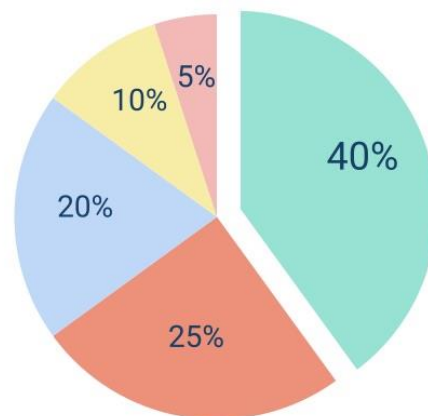


Cough

Acute Sinusitis

108867 females age 75 ▾

Of the **80%** of women who were **prescribed medicine**, here's what they took:



Brand Names: Advil, Adex, Nurofen
Category: NSAIDs

Relieves pain and reduces fevers by stopping the synthesis of chemicals in



K Health > K Primary Care > Getting Started

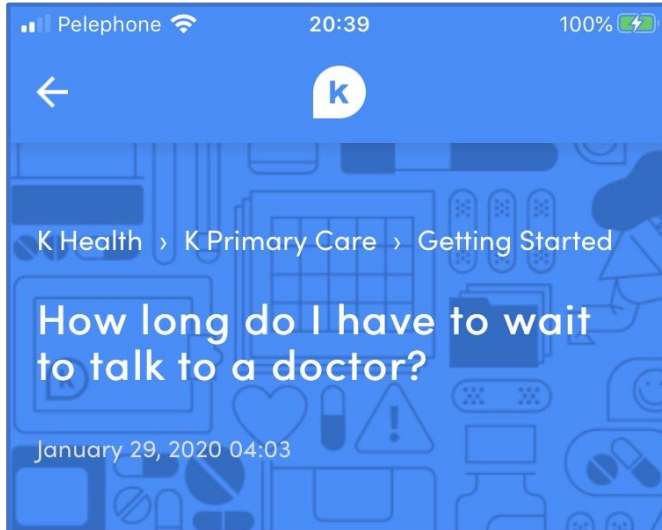
What hours are doctors available?

February 10, 2019 17:52

Chatting with a Doctor is available from 11am to 11pm ET, 7 days a week, in select states. Hours and availability may change, but the most up to date hours will always be presented in the app when you choose to share your report with a doctor.

Please note that cases that are submitted within 30 minutes of 11pm may not be addressed until the following morning depending on patient volumes.

The doctor sees all of the patients who have requested a chat in the “K” Portal



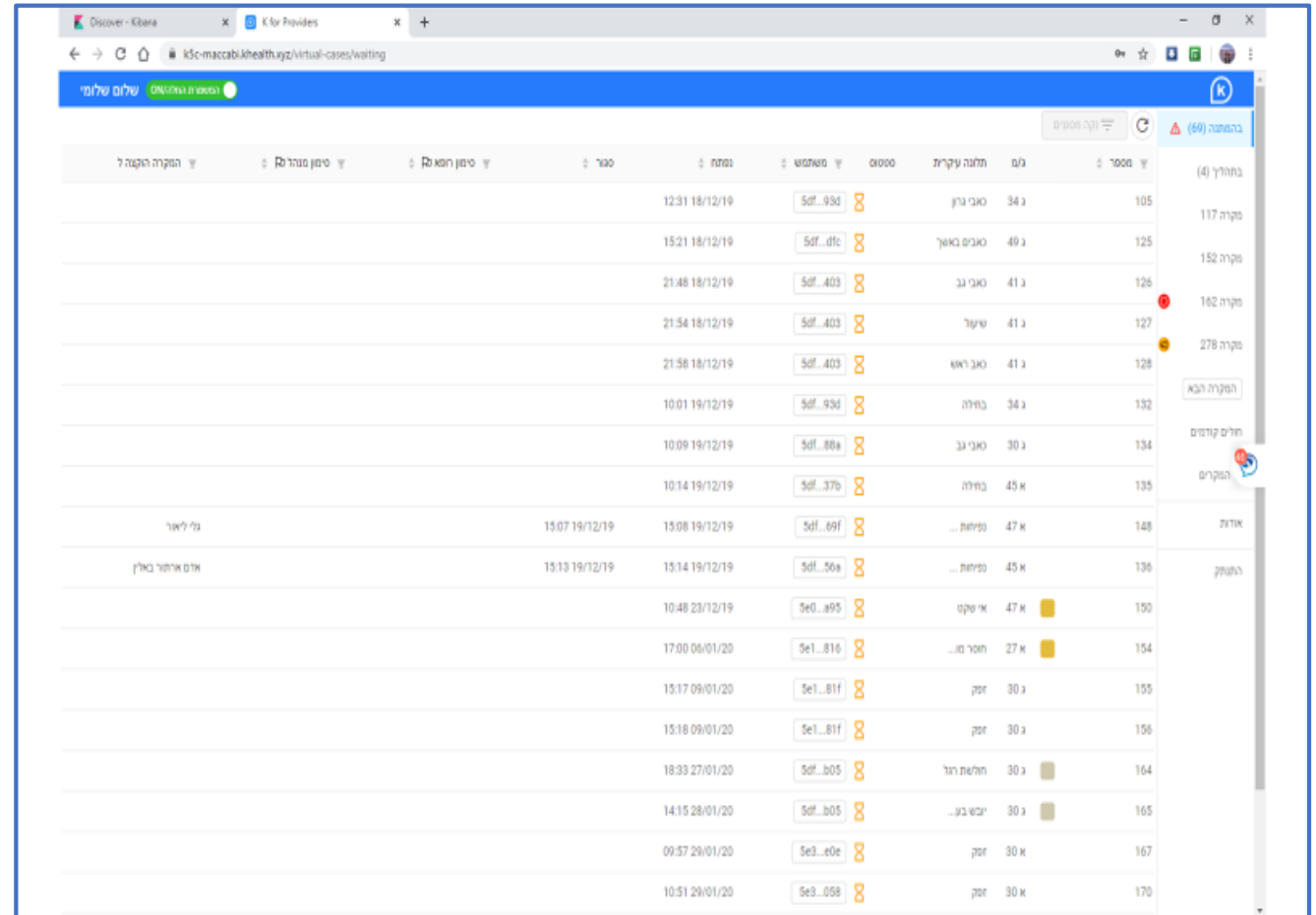
Phlephone 20:39 100%

K Health > K Primary Care > Getting Started

How long do I have to wait to talk to a doctor?

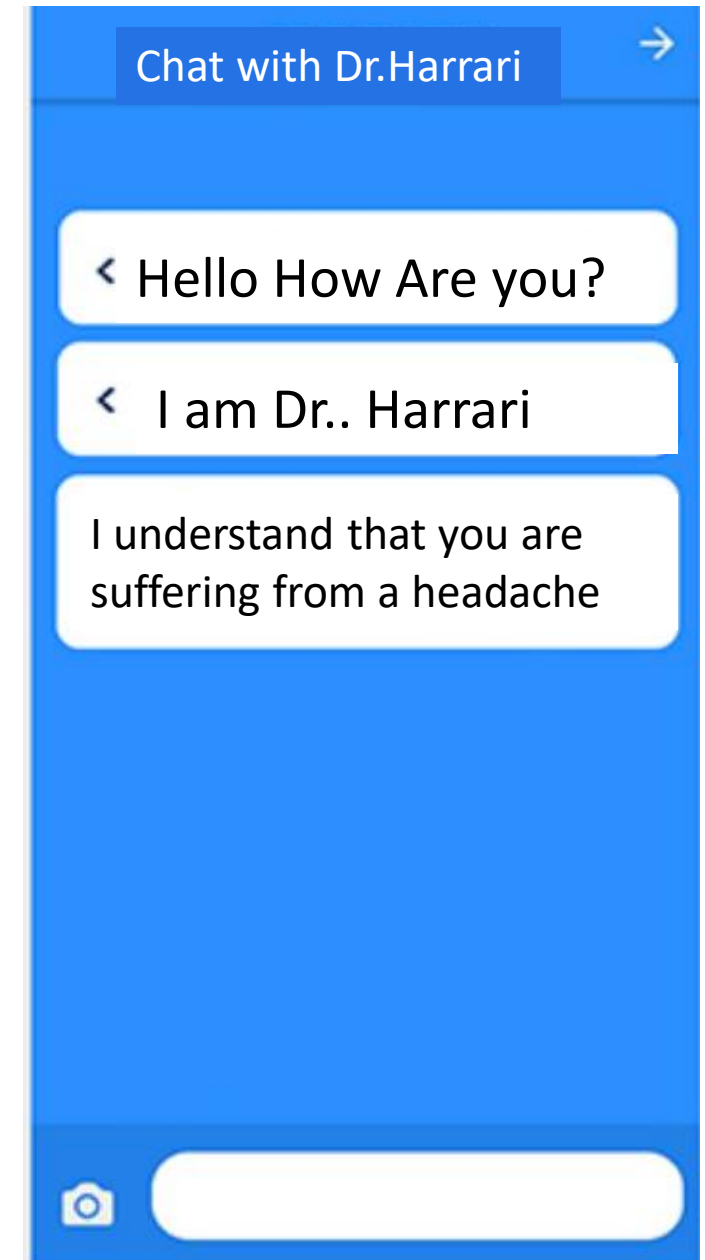
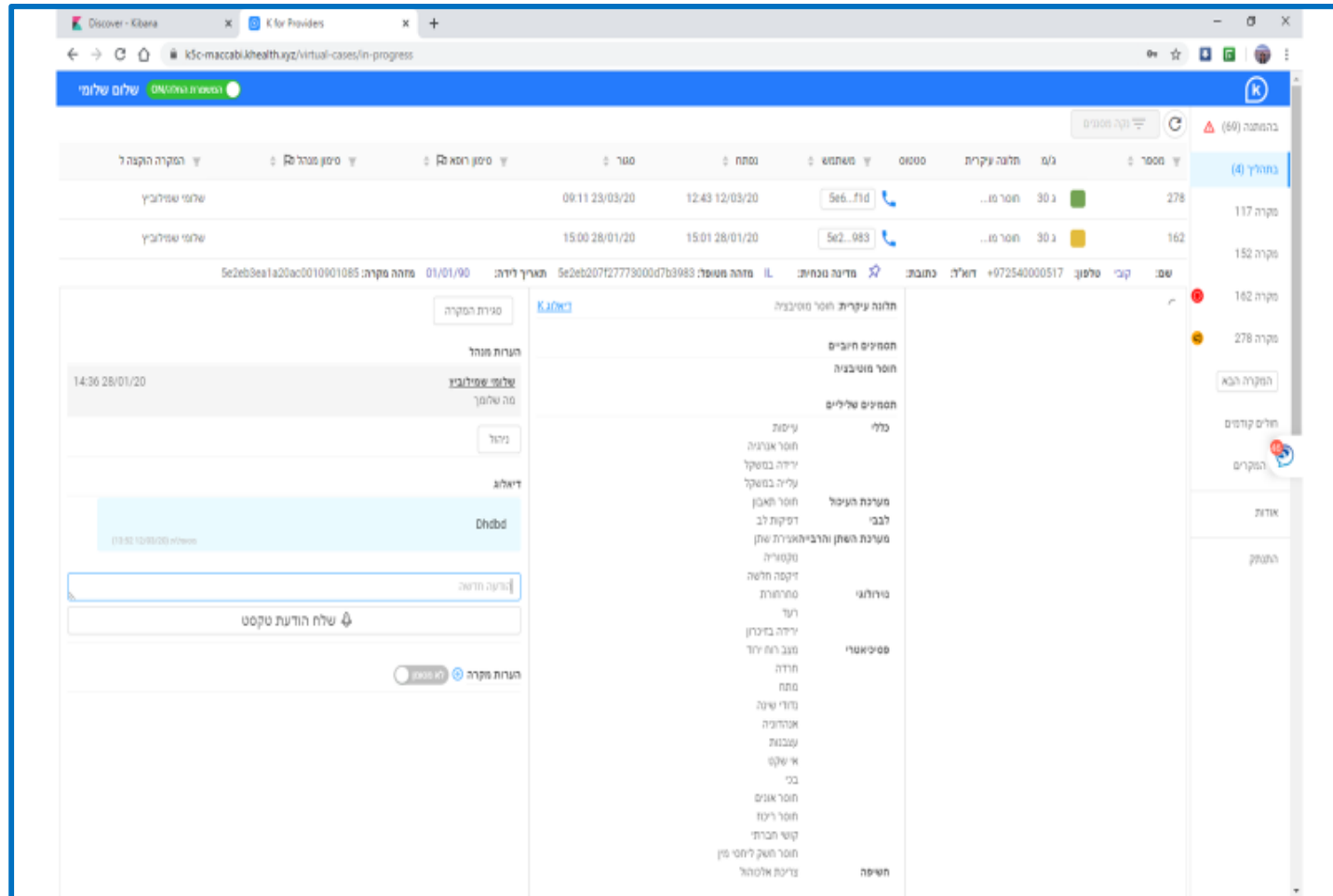
January 29, 2020 04:03

If you have clicked submit following your chat with K (our AI symptom checker), then you are in the waiting room and doctor will pick up your case soon. While most patients are contacted by a doctor within 30 minutes, wait times can vary depending on location and time of day. If you have not been contacted by a doctor within an hour then please let us know at support@khealth.ai and we would be glad to look into your case for you and help in anyway that we can.



המקרה הקודם ל	סימון מוגדר	סימון חמור	סוג	נמנה	מסמך	סטוס	תחנה עקרי	גיל	מספר	בחירת (4)
				12:31 18/12/19	Sdf...93d		אבי גרן	34 ג	105	מקרה 117
				15:21 18/12/19	Sdf...dfc		אביס באסר	49 ג	125	מקרה 152
				21:48 18/12/19	Sdf...403		אבי גב	41 ג	126	מקרה 162
				21:54 18/12/19	Sdf...403		יעיר	41 ג	127	מקרה 278
				21:58 18/12/19	Sdf...403		אבי ראש	41 ג	128	
				10:01 19/12/19	Sdf...93d		בניה	34 ג	132	
				10:09 19/12/19	Sdf...88a		אבי גב	30 ג	134	
				10:14 19/12/19	Sdf...37b		בניה	45 א	135	
גיל יואר				15:07 19/12/19	Sdf...69f		פנימית	47 א	148	אודות
אדם איתמר בארן				15:13 19/12/19	Sdf...56a		פנימית	45 א	136	התחנה
				10:48 23/12/19	Se0...a95		אי סקט	47 א	150	
				17:00 06/01/20	Se1...816		חומר מו...	27 א	154	
				15:17 09/01/20	Se1...81f		סקט	30 ג	155	
				15:18 09/01/20	Se1...81f		סקט	30 ג	156	
				18:33 27/01/20	Sdf...b05		חולשת רגל	30 ג	164	
				14:15 28/01/20	Sdf...b05		יבוס בג...	30 ג	165	
				09:57 29/01/20	Se3...e0e		סקט	30 א	167	
				10:51 29/01/20	Se3...058		סקט	30 א	170	

The doctor sees all of the problems and symptoms that the patient has chosen using the “K” app and initiates the chat with the patient



All of the information from the K portal is automatically transmitted to the Maccabi EMR for the patient including the doctor's decision for treatment/follow-up

Clicks® מערכת לניהול מידע רפואי / תיק אחד / אביטל בן בצלאל / gp_s 22433 / ראובן משיח 125 בת 69.10 / אור יהודה סניף - משפחה - כללי

Clicks-DB: CLICKS_Data - סכנאי ראשטוב

14:27 16/06/2020 רישום ביקורים: 2432342 מזהה חבר (טכני): 00140023137 מספר ביקור: 69.10 גיל:

שם רפואה: שלומי שמילוביץ תחום הטיפול: משפחה

הערות	מקור המידע
מועד התחלת שיחה: 16/06/2020 שעה: 14:25:43	ביקור מקוון (KMD)
מועד סיום שיחה: 16/06/2020 שעה: 14:28:59	

סיבת הפניה: תלונה עיקרית חוסר יכולת לדבר

תסמינים חיוביים: חוסר יכולת לדבר: זמן התחלה: היום

תסמינים שליליים: כללי: עייפות

אף אוזן גרון ועיניים: הפרעות ראייה, טישטוש ראייה

שריר ושלד: חולשת שרירים

גפיים: חולשת רגל, חולשת יד

נוירולוגי: סחרחורת, בלבול, פרנסים, חוסר שיווי משקל, קושי בדיבור, חוסר סימטריה בפנים, צניחת עפעף, סטיית מבט, שיתוק חצי גוף, נימול בפנים, נימול בכף היד

גורם משלם: 80 ביקור מקוון KMD

ממצאי הבדיקה: בדיקת מערכות מידע

מחק	הערה	מאפ	מאפ	אבחנה
				FILL OUT FORMS

מוזמן למעקב: ☒ על פי צורך

1456100 !

דיואלוג שיחה

דיואלוג שיחה: מועד התחלת שיחה: 16/06/2020 שעה: 14:25:43 מועד סיום שיחה: 16/06/2020 שעה: 14:28:59

K דיואלוג

[רפואה 16/06/20|11:28] שלום

[רפואה 16/06/20|11:28] ולהתראות

לוח הודעות

ans

משויך ליחידה לטיפול בית

חולה קורונה COVID19 מאושפז בבית חלון

רישום ביקורים

סיכום תיק - רופא משפחה

Some Observations

- We are progressing toward digitally enabled integrated care
- Technology is not really a barrier
- Organizational culture and processes, clinical staff attitudes and values, inter-organizational relationships, interpersonal relationships
- Crisis such as COVID- is a great accelerator
 - Telemedicine has flourished
 - The barrier between the EMR and Patient reported data is changing
- Will these changes continue and be sustainable post-COVID?

THANK YOU



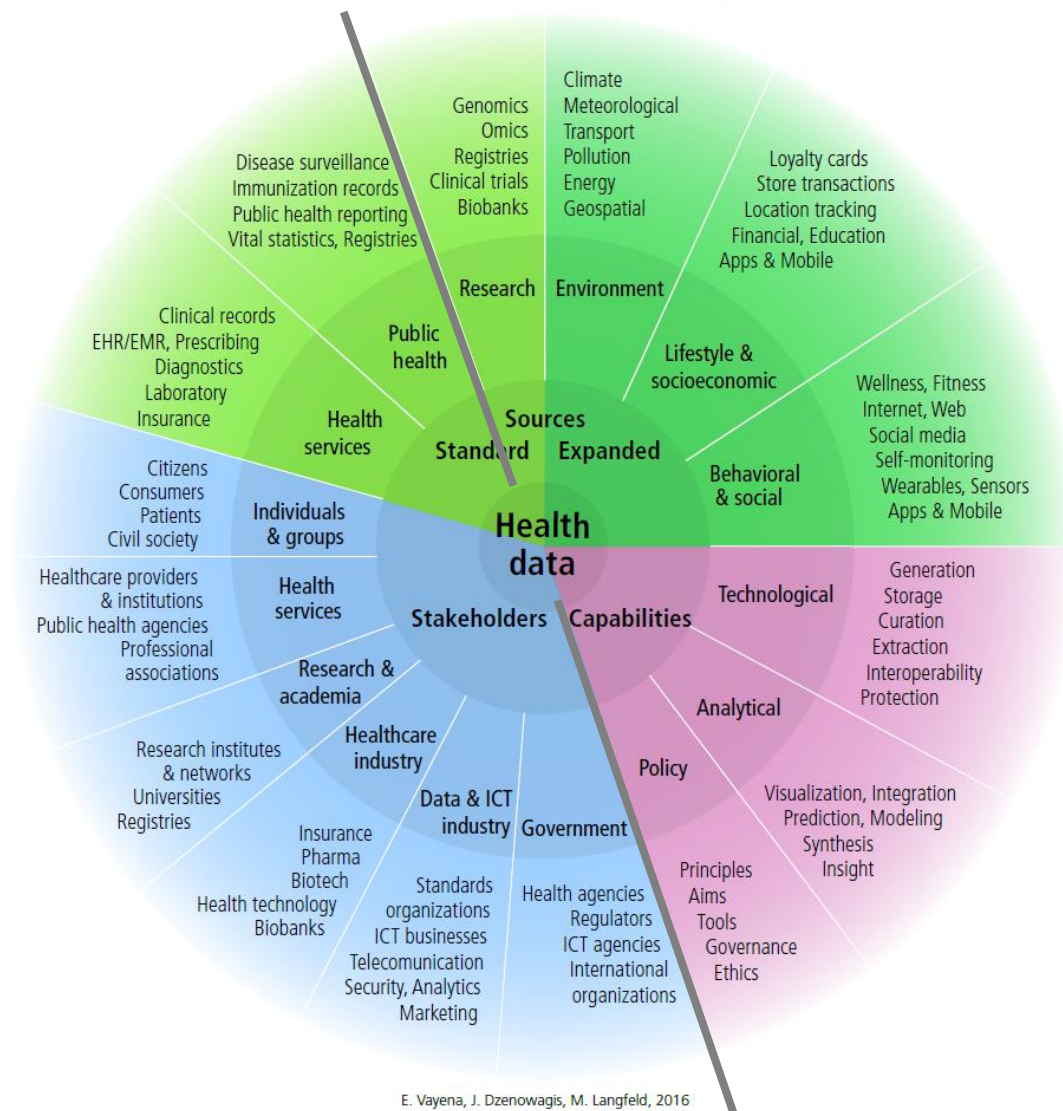
Wrapping up for discussion

**Core
elements**

Obstacles

Mobilisers

Evolving health data ecosystem



Front row

Esteban de Manuel – Kronikgune

Donna Henderson – Scottish Government

Zoi Kolitsi – Digital Health Europe

Andrea Pavlickova – Scottish Government – Scirocco Exchange

Carme Pratdepadua - TicSalutSocial

Go to www.menti.com and use the code 59 20 71

Are health data ecosystems for integrated care a red or a blue ocean?

☐ Blue ocean

☐ Red ocean

<https://www.menti.com/vhzrjx4ho4>

Conclusions

Next events

Webinar ELO Network

Making real-world data fit for EHDS: Architectures and processes enabling data re-use

Monday, 29 June 2020, 11:00 - 12:30 CET

DICT Virtual Workshop

Cross-sectoral health data ecosystems: business and governance models

EHTEL Innovation Initiative

Digital Therapeutics and interacting with human beings