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Imagine 2029: Our data, our health, our care – 20th anniversary of EHTEL

09:30 – 10:45 [S7]



Aula 1
First Floor

Health Data in Use: People – to Services – and back to the People

Guided by the IHAN governance model on fair data use, this session – sponsored by the Finnish Innovation Fund Sitra - demonstrates how to “make data work for people’s health”.

Session Chair: Jaana Sinipuro, Finnish Innovation Fund Sitra, Helsinki, Finland

IHAN – Building Fair Data Economy in Europe

Hannu Hämäläinen, Finnish Innovation Fund Sitra, Helsinki, Finland

Consent Based Data Exchange for the Benefit of a Diabetic Child – IHAN/HUS Pilot

Birgit Paajanen, HUS Helsinki University Hospital, Helsinki, Finland

Citizens as Active Health Data Users and Givers

Henrique Martins, SPMS, Shared Services of the Ministry of Health, Lisbon, Portugal

MedMij - How to Cooperate in Data Ecosystems

Renske Trul, Netherlands Patients’ Federation, Utrecht, the Netherlands

The Need for a Common Rulebook for Data Sharing

Saara Malkamäki, Finnish Innovation Fund Sitra, Helsinki, Finland

Q&A and Conclusions by the Session Chair

Symposium
Gold
Sponsor

SITRA

Symposium
Silver
Sponsors



DM+
Coach

T...Systems-
Let's power higher performance



#EHTEL_Symposium



#EHTEL_BCN



@ehtel_eHealth

IHAN – Building Fair Data Economy in Europe

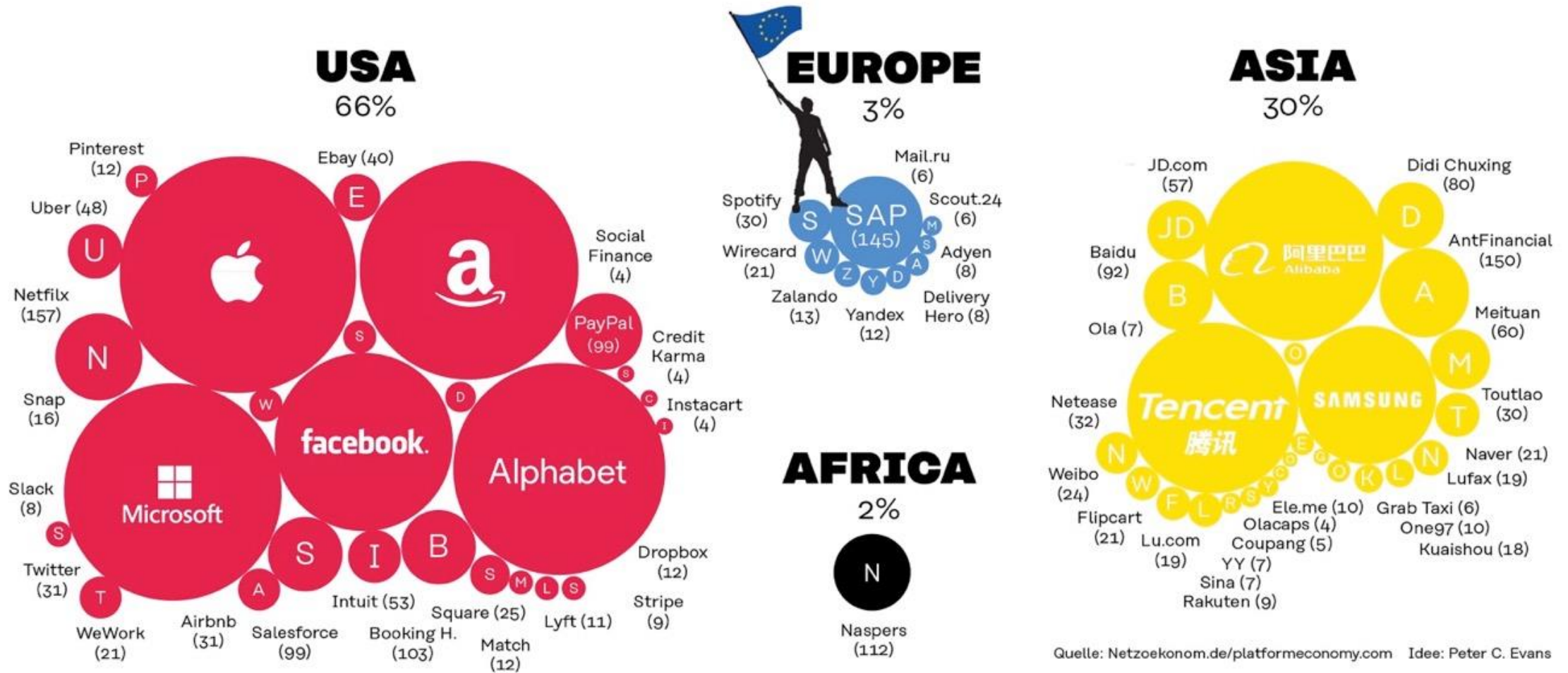
Hannu Hämäläinen

Senior Advisor

Finnish Innovation Fund - SITRA

Europe's role in data economy?

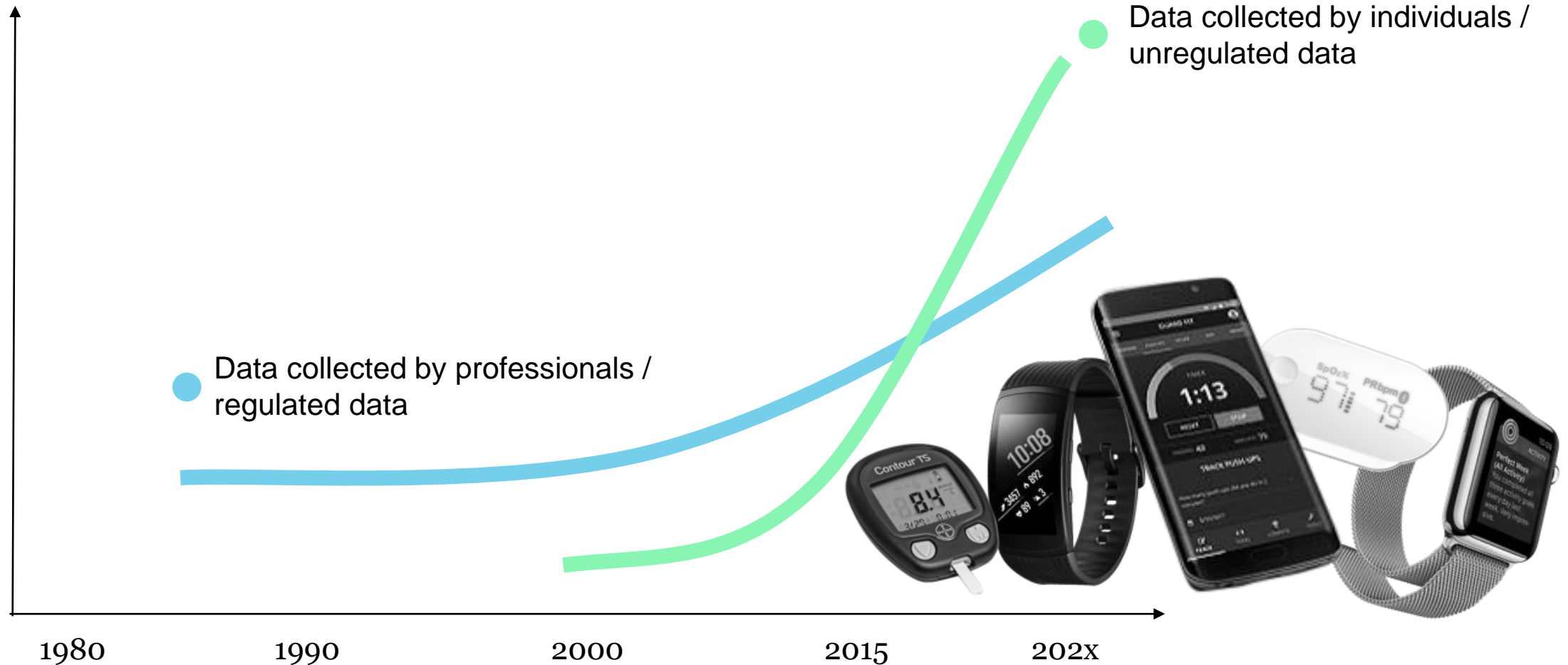
60 platform companies worth 7 trillion USD



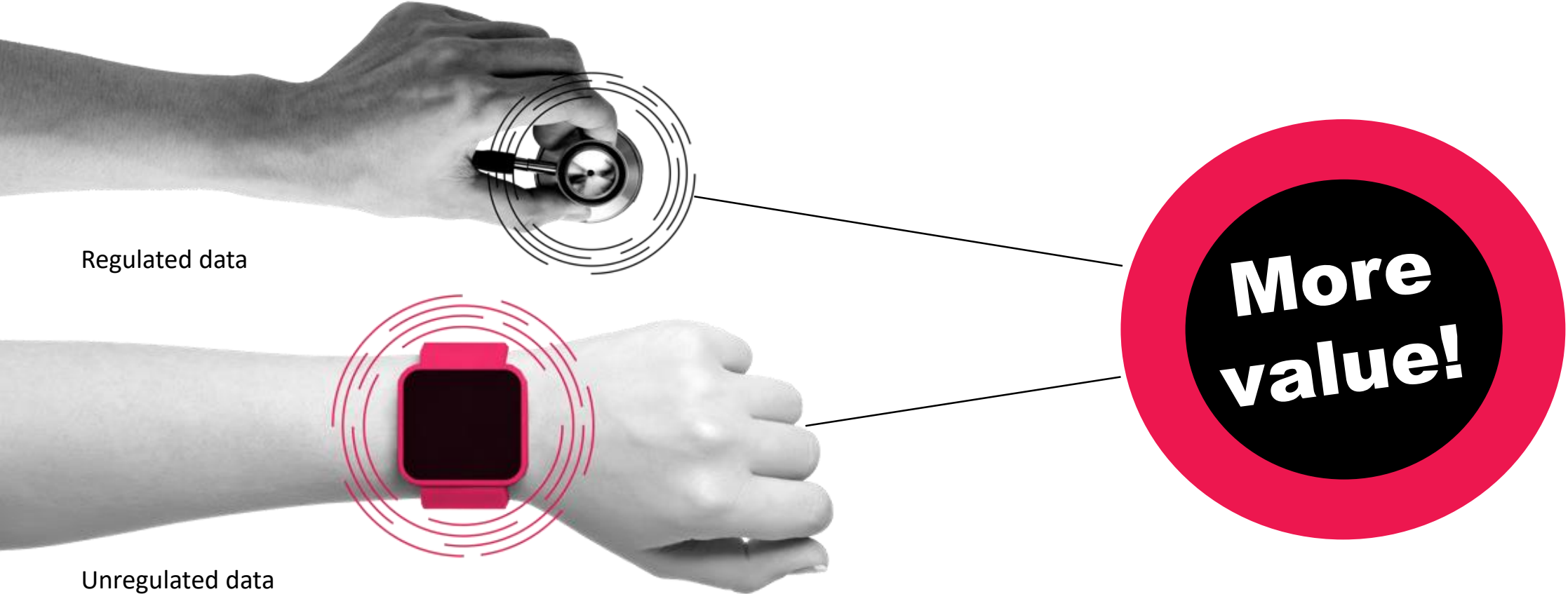
Quelle: Netzoekonom.de/platformeconomy.com Idee: Peter C. Evans

Lots of new data sources
– health data being one example

Who creates the data in the future?



Combining regulated data with data collected by individuals leads to next phase for value creation



**Great
timing!**



#GDPR

General Data Protection Regulation
and especially Article 20

#PSD2

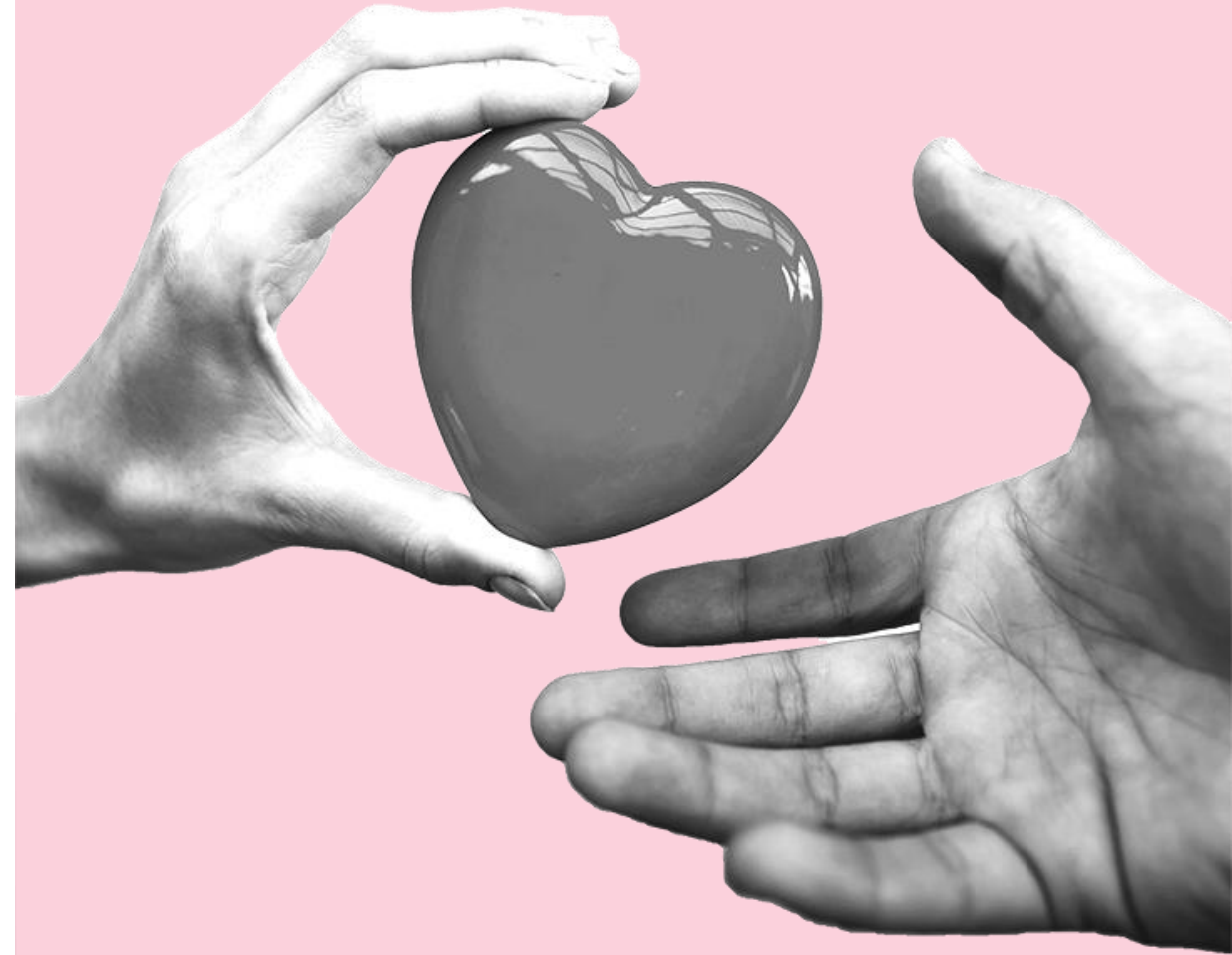
Payment Services Directive

#eIDAS

EU regulation on electronic
identification and trust services for
electronic transactions

Trust – Europe's
biggest opportunity?

The European Fair Data Economy Model Based
on Transparent Data-Sharing with Individuals'
Consent to Lead the New, Sustainable Way.



FAIR DATA ECONOMY

IHAN[®] project at Sitra 2018–(2021)

HIGHLIGHTS

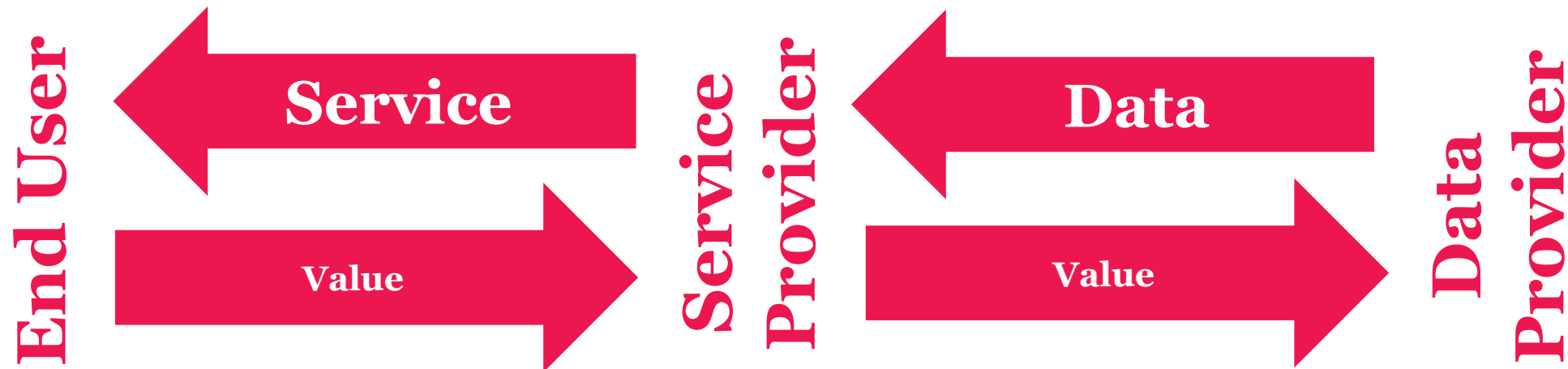
Europeans' attitudes towards the use of personal data survey



- **GDPR rights are quite well-known and the change of actions has already started.**
- **The lack of trust is an obstacle.** It prevents people from using digital services.
- **Data leaks have had a big effect on people's behaviour.** Approx. 1/3 have stopped using some services or changed their privacy settings because of misuse.
- **Two out of three respondents want fair digital services to be identifiable.**
- **Having the power to make decisions is important to people.**

Respondents aged 18-65 in Finland, the Netherlands, Germany and France.
8,004 responses. Finland 2,000, Netherlands 2,000, Germany 2,004, France 2,000.
Survey data was collected in November and December 2018.

**Data economy
must be FAIR for**
End User
Service Provider
Data Provider

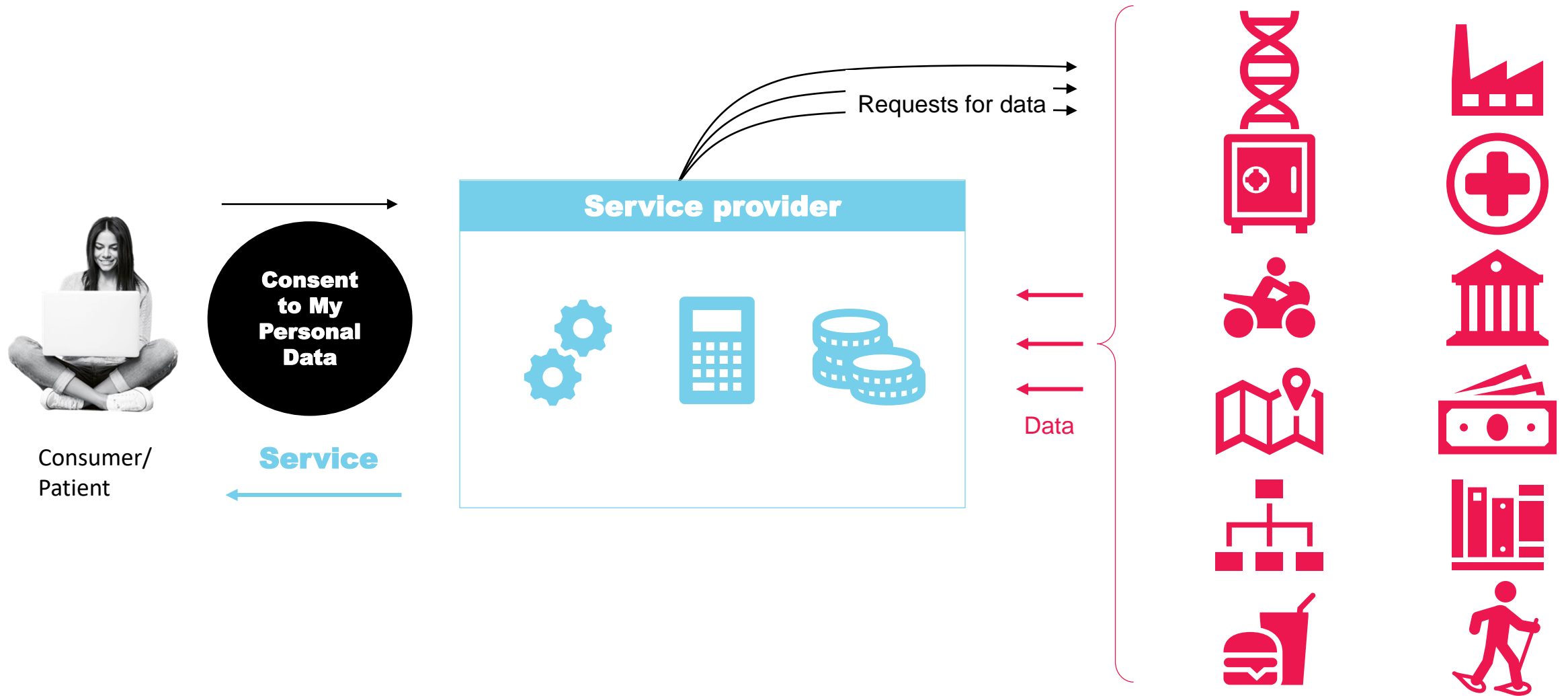


IHAN[®] project

- 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 runs until 6/2021

How IHAN[®] works

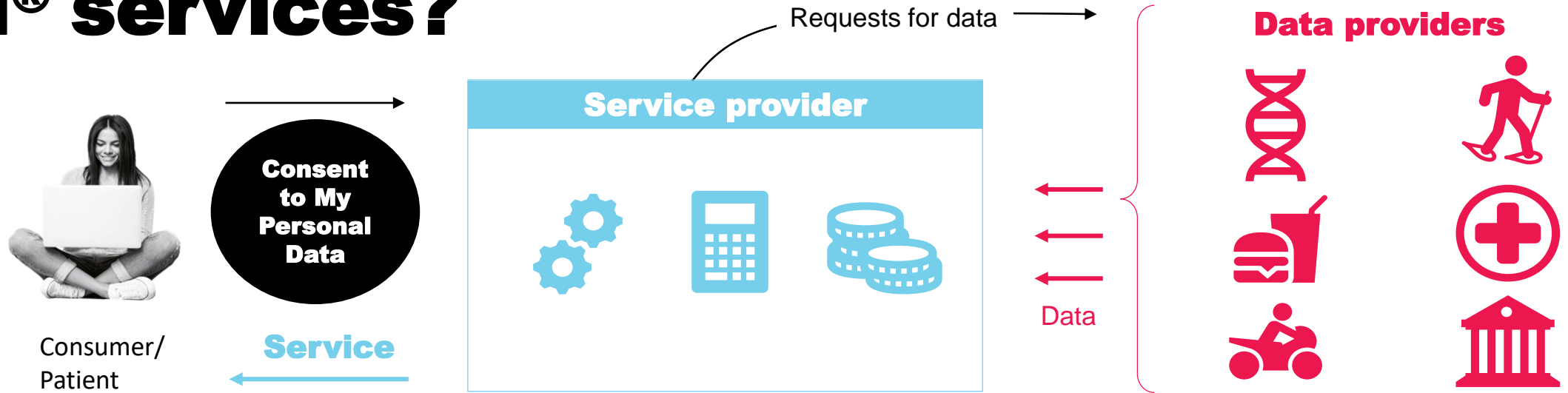


Main findings

1. Most businesses see possibilities in the data economy now or in the future 59 % (Finland 42 %)
2. SMEs have difficulty building competitive edge in data economy.
3. GDPR high achievers understand the value of their data repositories and are ready to create new data-based products and services.
4. One needs to be an ecosystem player to succeed in data economy – Dutch companies have the lead



How does the world look like with IHAN[®] services?



	End User	Service Provider	Data Provider
Identity	Personal Identity Wallet		
Data		Inbound Data Adapter	Outbound Data Adapter
Consent	Personal Consent Directory	Service Provider Consent Directory	Data Access Control
Services	Personal Service Directory	Service Provider Service Directory	
Log	Personal Log	Service Provider Log	Data Provider Log

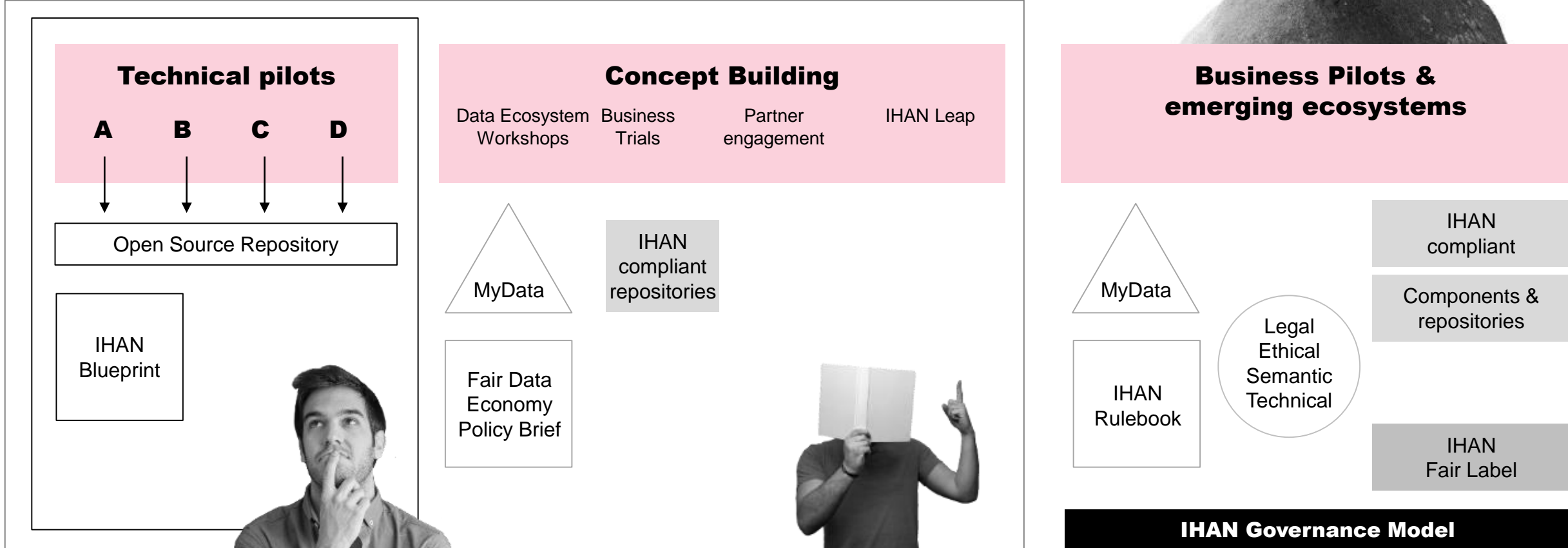
IHAN

Outside IHAN boundaries, to be agreed by providers:

Levels of authentication, semantics, data transportation, service delivery, security procedures, industry standards, best practices

SITRA

From IHAN components to fair data economy



**RISE TO
SHINE!**



sitra.fi

@sitrafund



SITRA



IHAN® - MEASURING A CHILD'S BLOOD SUGAR

EHTEL, BARCELONA
DEC. 4TH, 2019

Birgit Paajanen

Development Manager

HUS Development Group

WHERE IS YOUR PERSONAL DATA?



Figure 1.1: Personal data is everywhere. Businesses in all sectors as well as governmental organizations collect increasing amounts of data about us.

Ref.

Antti Poikola, Kai Kuikkaniemi, Harri Honko

MyData

— A Nordic Model for human-centered personal data management and processing



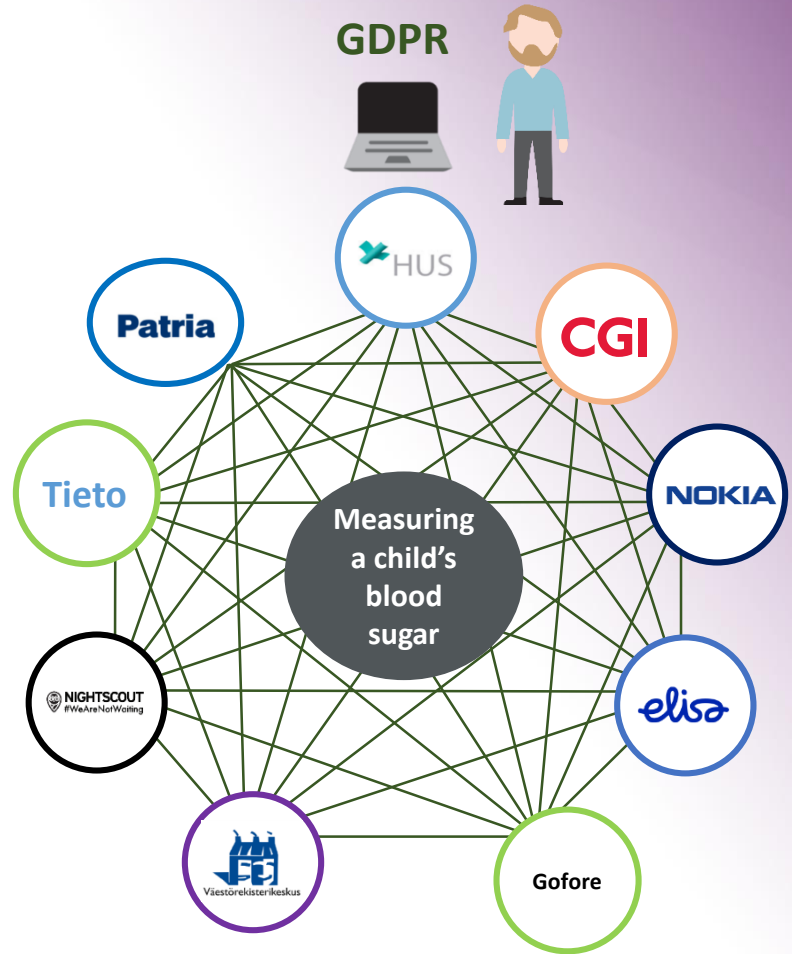
MEASURING CHILDREN'S BLOOD SUGAR WITH THE CONSENT BASED DATA USE

WHY IS THE CHANGE NEEDED?

- Current data flow
- Cost parameters
- Customer/patient support
- Data transparency
- Consent based data usage
- Service – just in time
- Quality decision making

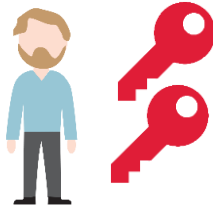


Distributed ledger technology,
a consensus of replicated,
shared, and synchronized
digital data spread
across multiple sites



KEY COMPONENTS OF THE SOLUTION ARCHITECTURE

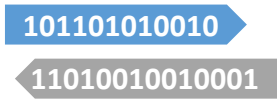
Identification



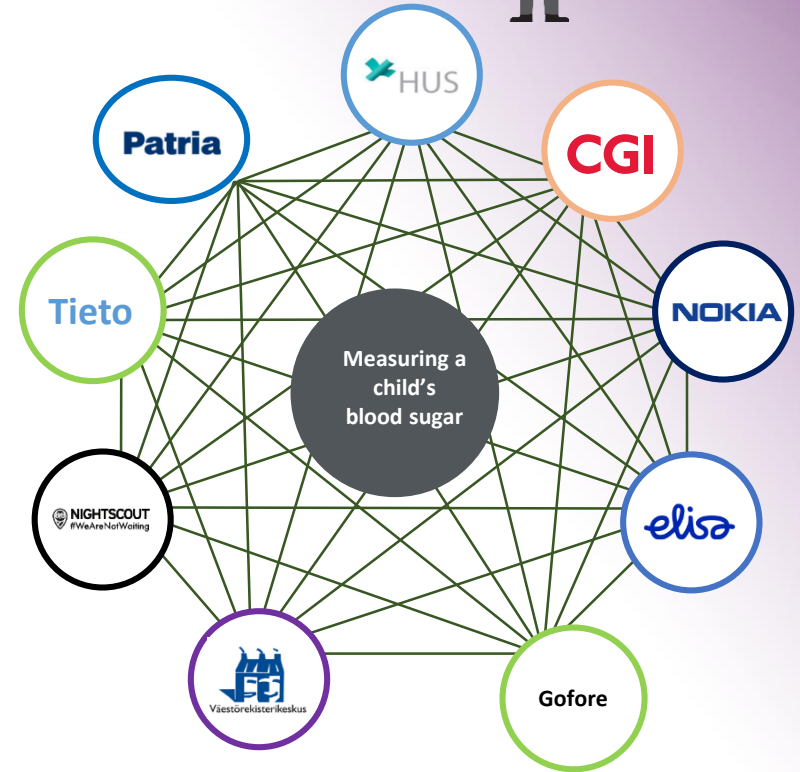
Agreements



Data flow



The first Open Source consent based code delivered 9/2019



KEY COMPONENTS OF THE SOLUTION ARCHITECTURE

Parents set up a patient engagement service, and connect it with the blood sugar monitoring service.

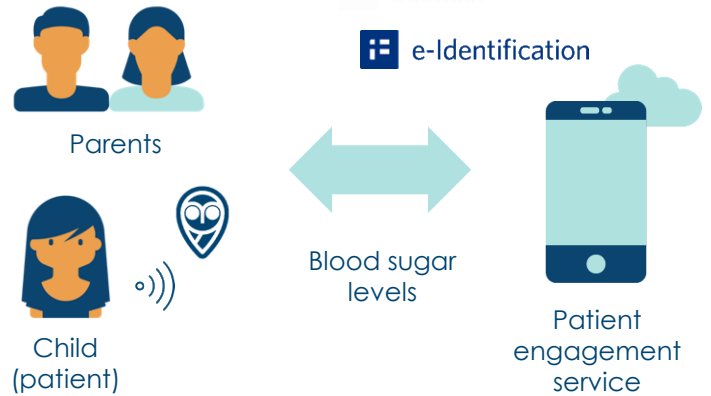
Using the service, a secure connection with HUS is formed and consent is given to retrieve the blood sugar data.

Child's data is streamed to HUS IT systems, and the family's diabetes doctor is able to request a consent to directly access the data.

The doctor has near real-time access to Child's blood sugar levels, and also a direct engagement channel with the parents.

1

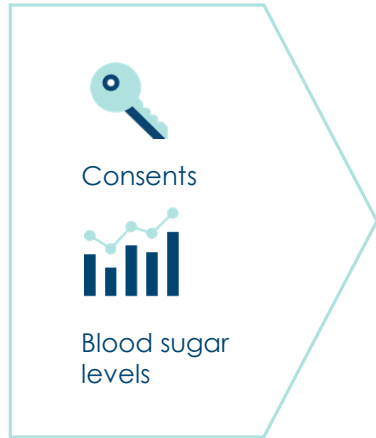
On boarding



2

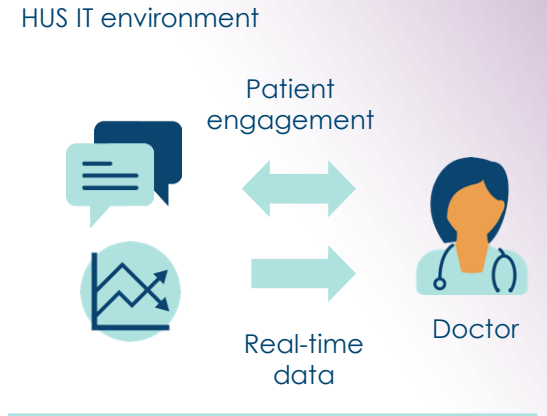
Consenting

Testing the Open Source code



3

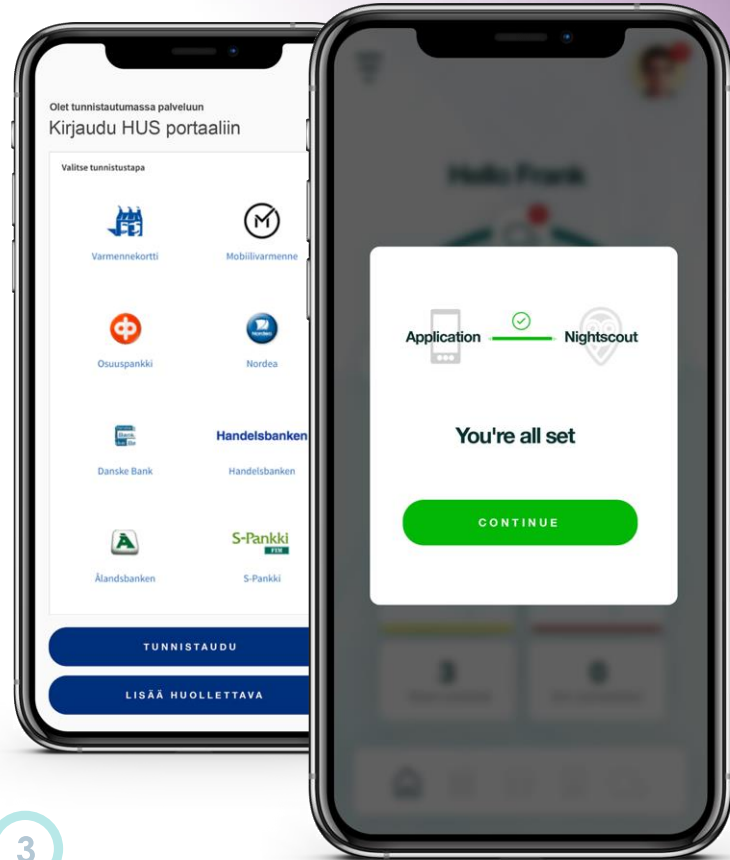
Data Access



Setting up the patient engagement service

John authenticates to the system, sets up the patient engagement service and links it to blood sugar monitoring system.

Now John is ready to connect with HUS and other data providers.



1

On boarding

2

Consenting

3

Data access

On boarding

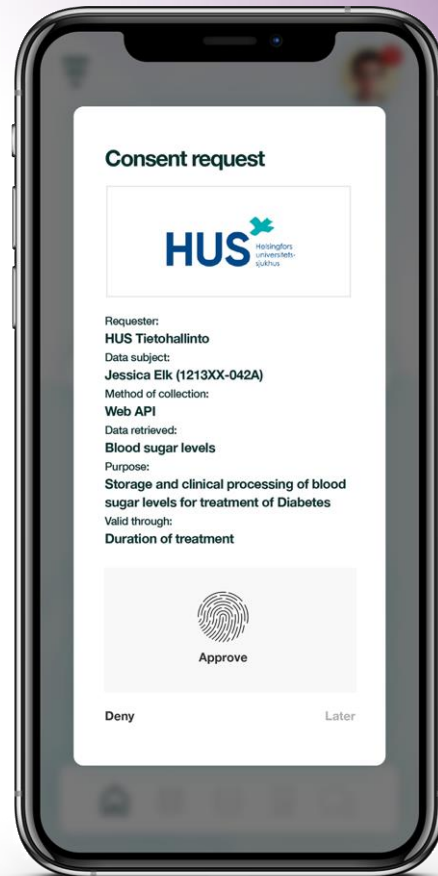
After connecting, John gets a consent request from HUS.

He gives consent to retrieve Jessica's blood sugar levels from her monitoring system.

Consent parties

Data type

Biometric authentication



1

On boarding

2

Consenting

3

Data access

Requesting consent

Doctor gets a notification that Jessica's blood sugar data is available, but requires separate consent to access the data at HUS IT systems.

Doctor sends a consent request to John for getting access to Jessica's data.

1

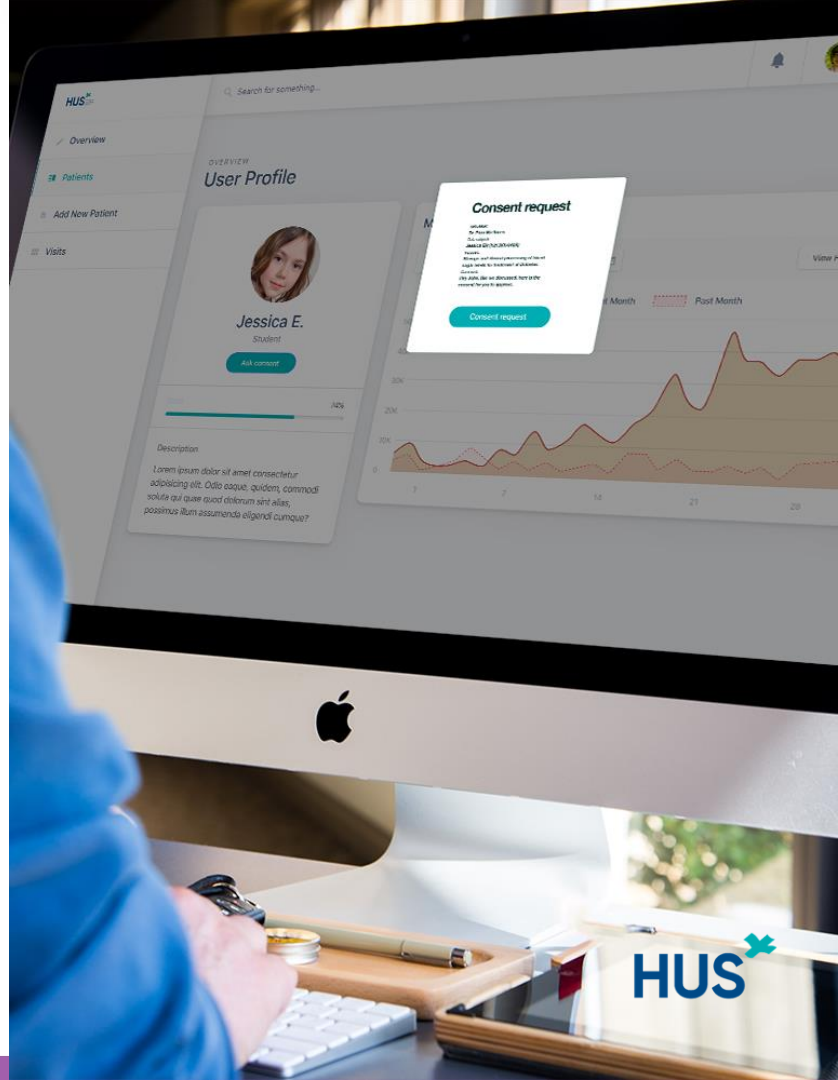
On boarding

2

Consenting

3

Data access



HUS

Giving consent

John receives the consent request and approves it.

Now the doctor has access to Jessica's data.

1

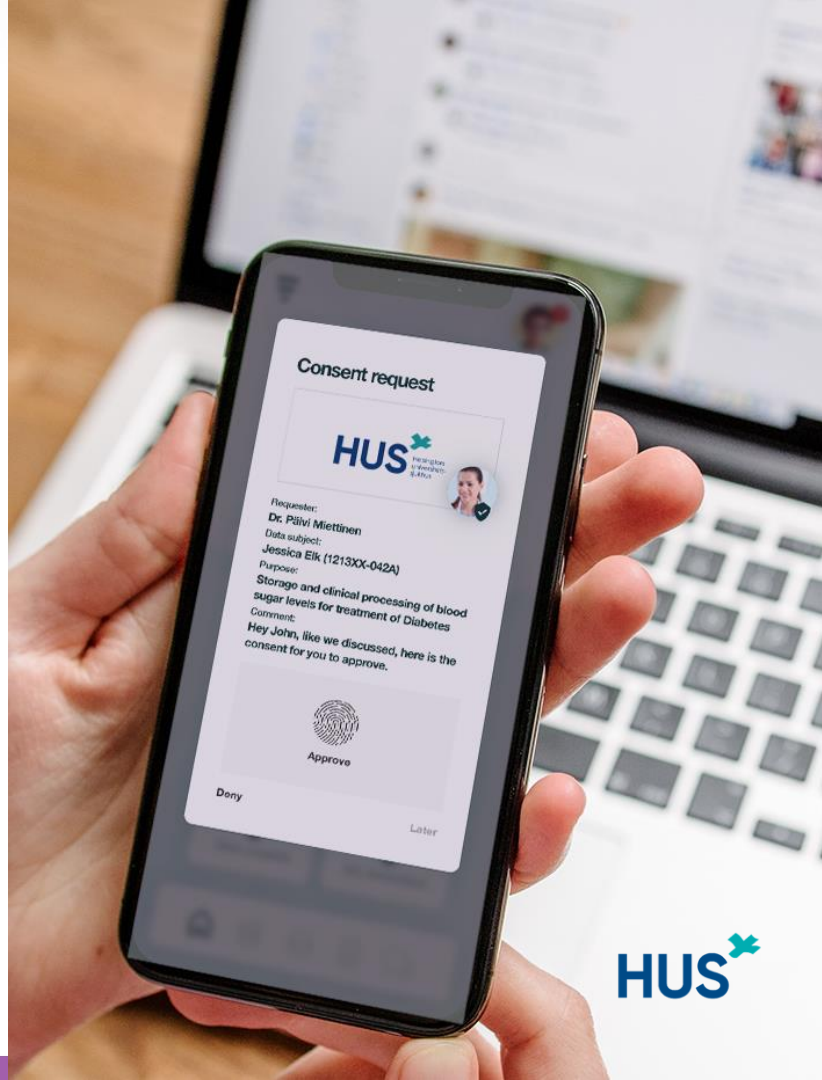
On boarding

2

Consenting

3

Data access



HUS

The connection is working

Jessica's blood sugar data is now available to the doctor and she can support John better with Jessica's treatment.

1

On boarding

2

Consenting

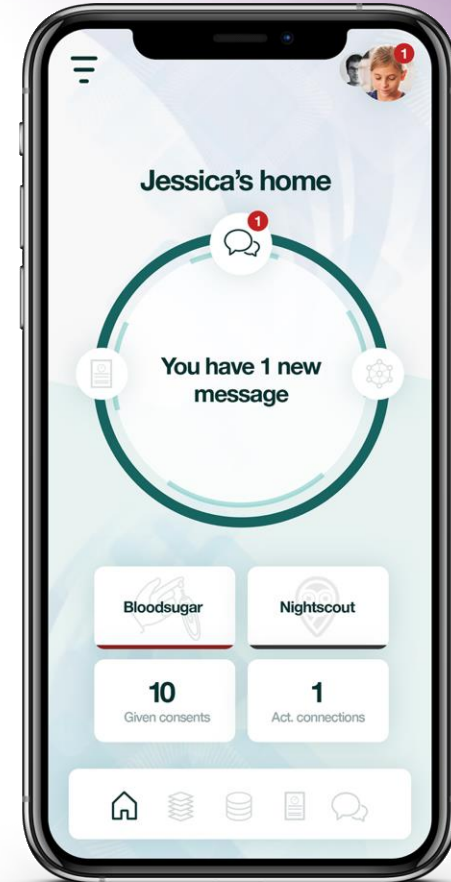
3

Data access

Messages

Health dashboard

Consents



Patient engagement

The doctor monitors Jessica's blood sugar levels and notices that her blood sugar keeps crossing the threshold levels.

She wants to check if John needs any additional support.

1

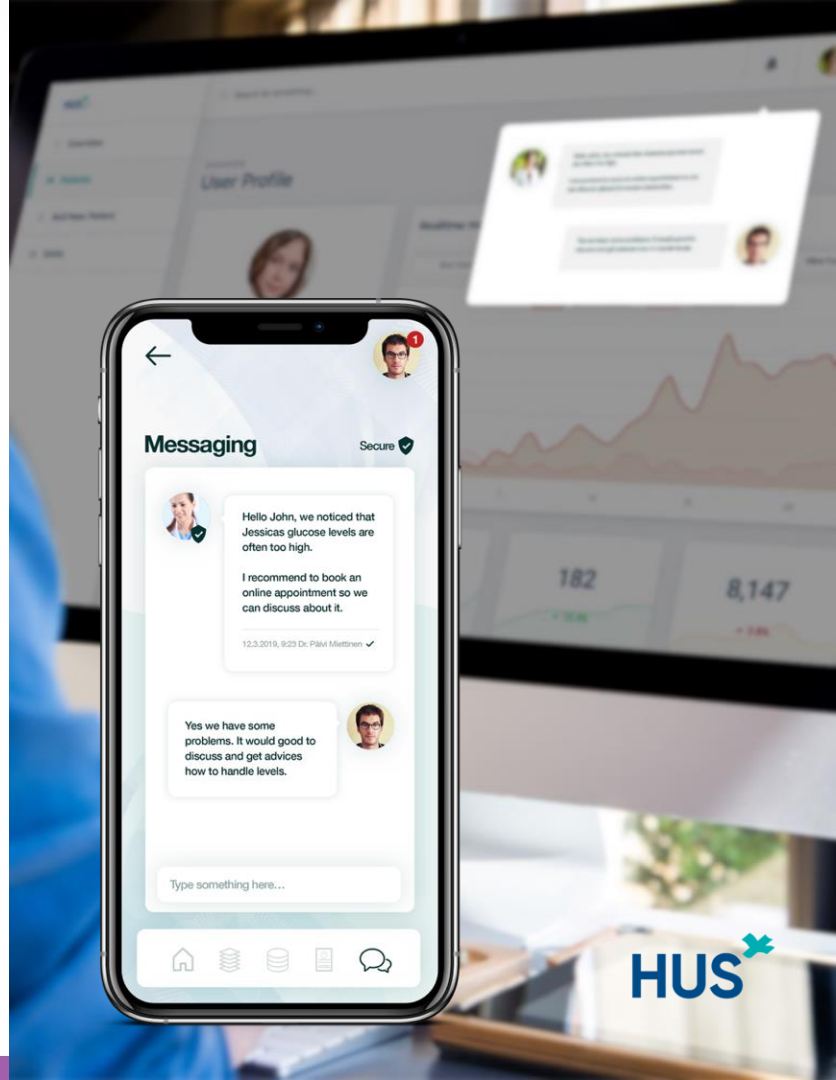
On boarding

2

Consenting

3

Data access



Dream catchers



SITRA

HUS*

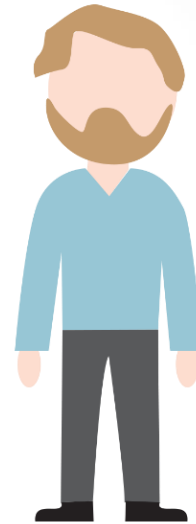


Measuring
child's blood
sugar

WHAT IS NEEDED

in order to change the status quo?

- EA and service architecture
- Service paths
- Data lake
- Consent based data usage
- Platforms
- Scalability
- Partners
 - pre competitive collaboration
- Partnering concept



SERVICE MAP PROVISION AND INFORMATION FLOW PROCESSES



Patient's personal path connected with unique services

Service selection



Service selection



Professional's profile connected with services to support patient's personal path

Service architecture connects service operation and information flow

HUSMAP[®] SERVICE PLATFORM



PROACTIVE SERVICES *MY CARE*

My wellness support

My health risk follow up services

My care personalized
consultation service

MEDICAL CARE DEFINITION

Screening

Care planning services

Assessment of care needs

Diagnostics services

SERVICES FOR UNIQUE TREATMENT

Planning service for unique
treatment

Unique care consultation service

Psychiatric therapy care

Surgery care service

Pharmaceutical care service

Palliative care service

Radiotherapy service

Supporting care service

Research care service

Care measure service

Fertilisation care service

Obstetric care service

Symptomatic care treatment

MONITORING SERVICES

Monitoring service for the
effectiveness of treatment

Referral to care service

Follow up care planning service

Discharging service

REHABILITATION, THERAPY AND AID SERVICES

Physiotherapy service

Occupational therapy service

Aid service

Physiatry service

Psychosocial support service

Play therapy service

Nutritional therapy service

Peer support service

Work integration service

Speech therapy service

Social service

Interpretation service



PATIENT SUPPORT SERVICES

PATIENT CARE SERVICES

Nutrition service

Transportation service

Clothing service

Laundry service

APPOINTMENT SERVICES

Appointment service

ACCOMODATION SERVICES

Patient hotel service

ADVISORY SERVICES

Advisory service

Information service

SERVICES FOR EXPERT

Research service

Expert service

First aid on-duty physician service

Education service

Partnership service

Consultation service

Preparation and preparedness
planning

SUPPORT SERVICES FOR PATIENT'S FAMILY

Accommodation services for relatives

Psychological support service for
relatives

Peer support for relatives



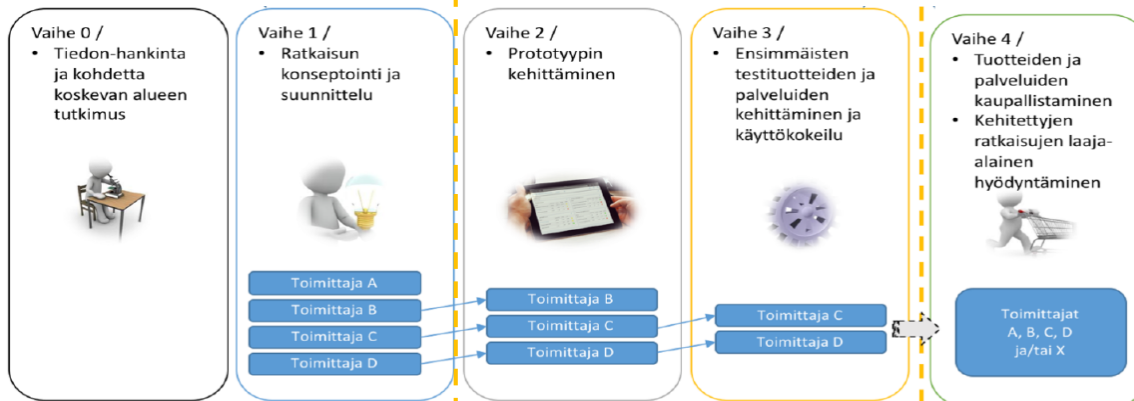
HUSMAP[®]
Palveluarkkitehtuuri



PRE COMPETITIVE COLLABORATION AND HUSMAP PLATFORM PILOT

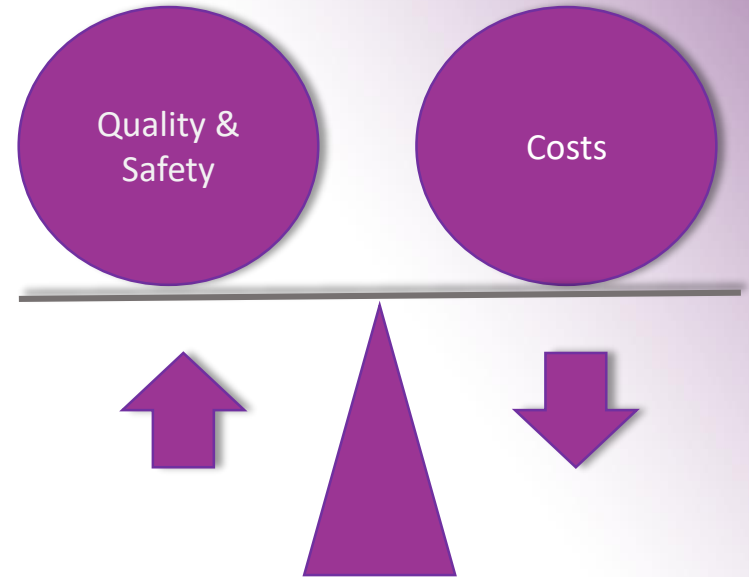
DEVELOPMENT PLATFORM FOR PRE COMPETITIVE COLLABORATION

Business modelling	Before calling for bids an option to develop the solution at the HUSMAP-platform is offered. The platform architecture is owned by HUS.	After the testing and the bidding phases HUS can by the solution created according of the HUS architectural principles
Environment	Sandbox / environment	Production environment (Patient information systems)
Data	Synthetic data	Consent based real patient data



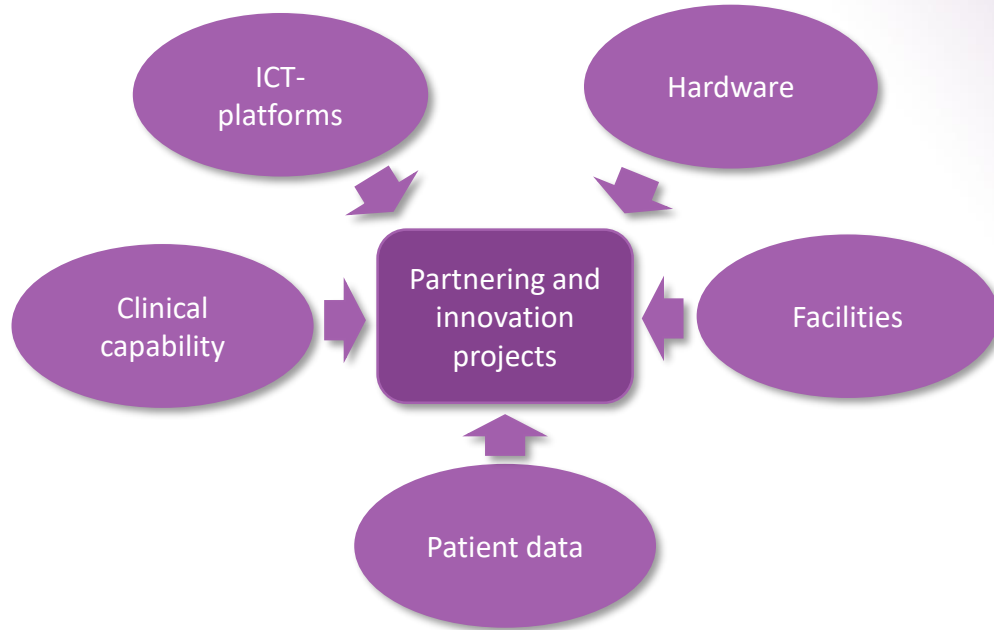
HUS PILOT AND PRE COMPETITIVE COLLABORATION

- HUS collaboration model rules apply
- Funding parties conditions apply e.g. Sitra
- Public sourcing and mandatory regulation apply
- Access to collaborate first restricted due to focus and time to deliverables pressure -> goal to open this in later phases
- Deliverables after finishing open to all
 - Open source code
 - API's and their descriptions
 - IHAN specific architecture and code
 - IPR policy created by HUS

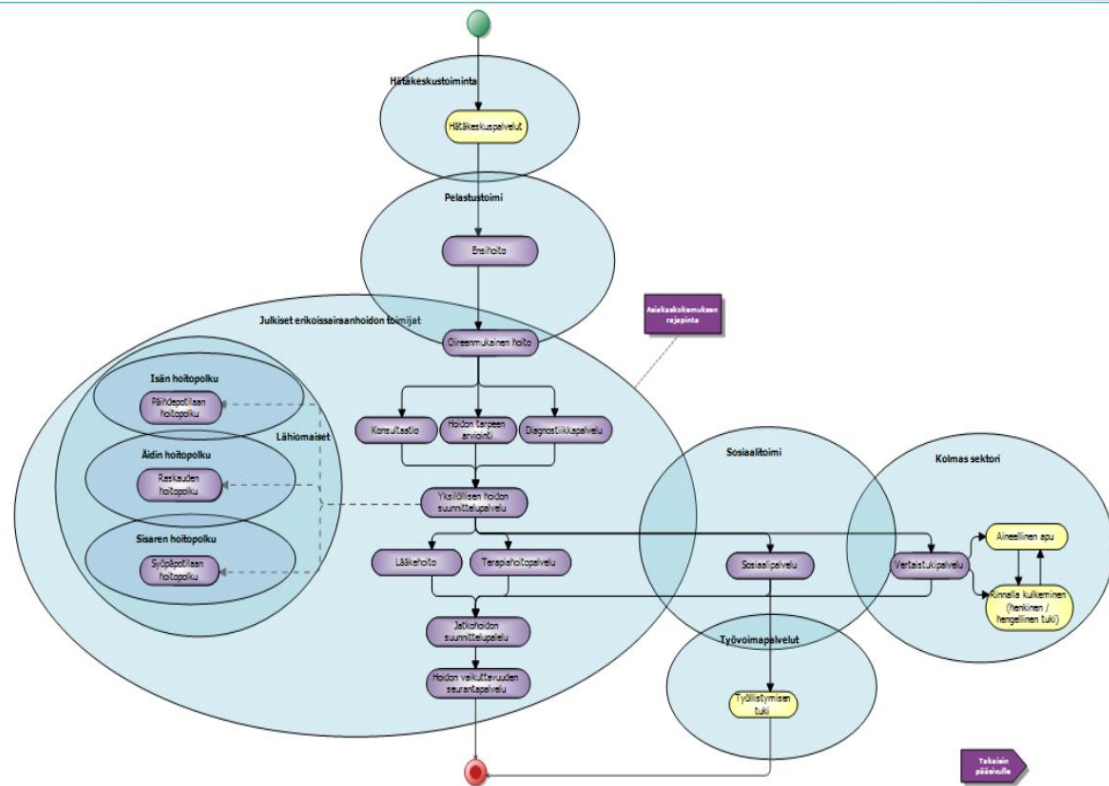


HUS ECOSYSTEM RESOURCES TO IHAN[®]

Measuring
child's
blood sugar



Measuring child's blood sugar



HUSMAP® AND IHAN® SOLUTION AIM

- *The whole development concept is aiming to build a sustainable development platform to carry the critical and authorized information like blood sugar level between different parties e.g. the patients' families, health professionals and schools and sport clubs to support daily life's safety of diabetic children.*



THANK YOU

**Imagine 2029: Our data, our health,
our care – 20th anniversary of EHTEL**
EHTEL 2019 Symposium

Henrique Martins

President of the Portuguese Shared Services for the Ministry for Health



SHARED SERVICES

FOR MINISTRY OF HEALTH

(SPMS)

SPMS
EPE

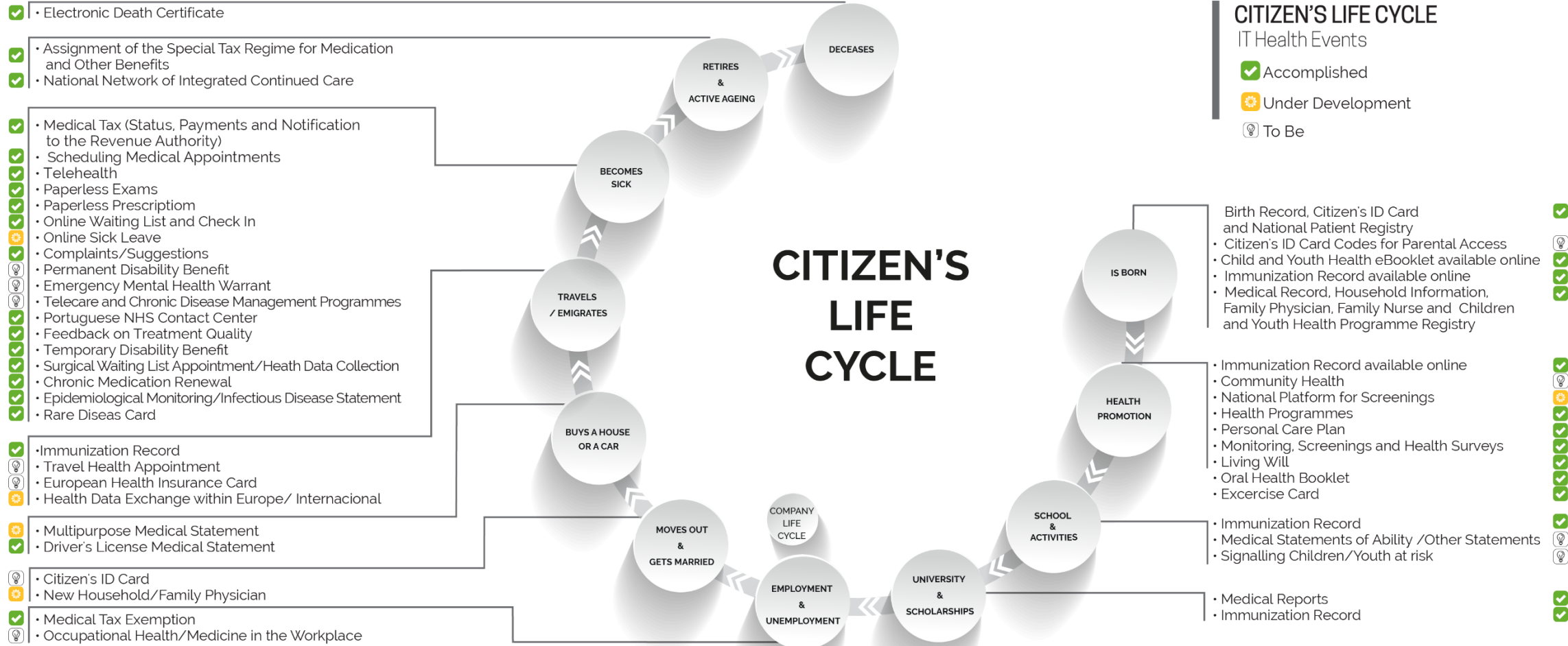
Serviços Partilhados do Ministério da Saúde

A SOLUÇÃO ESTÁ NA PARTILHA!

SPMS



Electronic Health Record (EHR)



Electronic Health Record (EHR)



Electronic Health Record (EHR)

CITIZEN'S AREA



PROFESSIONAL'S
AREA



INSTITUTIONAL
AREA



ADMINISTRATIVE
AREA



Electronic Health Record (EHR) – Citizen's Area



The image shows a laptop displaying the 'Área do Cidadão do Portal SNS' website. The page features the SNS (Serviço Nacional de Saúde) and RSE (Área do Cidadão) logos at the top. The main heading is 'Área do Cidadão do Portal SNS'. Below this, there is a section for 'Iniciar sessão' (Log in) with instructions: 'Faça a sua autenticação com Chave Móvel Digital ou Cartão de Cidadão através de Autenticação.Gov:'. Two buttons are provided: 'Chave Móvel Digital' and 'Cartão de Cidadão'. To the right, a message states: 'Sabia que toda a família já pode ter a Chave Móvel Digital? Inclui menores de 16 anos desde 1 de janeiro de 2019'. Below the login section, there is a section for 'Ainda não tem acesso à sua área?' (You still don't have access to your area?) with a 'Registe-se agora' (Register now) button. At the bottom, there are links for 'Como autenticar com Chave Móvel Digital?', 'Como autenticar com Cartão do Cidadão?', and 'Como ativar Chave Móvel Digital?'. A hand is holding a smartphone in the foreground, displaying a text message from 'CMD' with the content: '06ab2015 17:48b - Para confirmar a autenticação na entidade PDS - Portal do Utente introduza o código de segurança: 423825'. To the left of the laptop, there is a physical digital key and a Portuguese Citizen Card (Cartão de Cidadão).

Electronic Health Record (EHR) – Citizen’s Area



Electronic Health Record (EHR) – Citizen’s Area

- Citizen Portal - @RISK (Diabetes risk calculator)



The screenshot displays the SNS RSE Citizen Area interface. A central pop-up dialog box titled "Avaliação de Risco da Diabetes Tipo 2" is overlaid on the main content. The dialog contains the following text:

Avaliação de Risco da Diabetes Tipo 2

Tem em conta o resultado que obteve na Calculadora de Risco de Diabetes Tipo II, solicitamos autorização para partilhar estes dados com o seu Centro de Saúde para que possamos agendar uma consulta. Se concordar, será contactado pelo Centro de Saúde para informar a data da sua consulta.

Em caso de dúvida ou pedido de esclarecimento adicional, contacte o Centro de Contacto do SNS, através do número 808 24 24 24.

At the bottom of the dialog, there are two buttons: "Concordo" (green) and "Não Concordo" (white with grey border).

The background interface shows the SNS RSE logo, a navigation menu on the left with items like "Identificação", "Contactos de Emergência", "Autorizações", and "Histórico de Acessos", and a main content area with a "Calcular" button and several dropdown menus for data entry.

Electronic Health Record (EHR) – Citizen’s Area

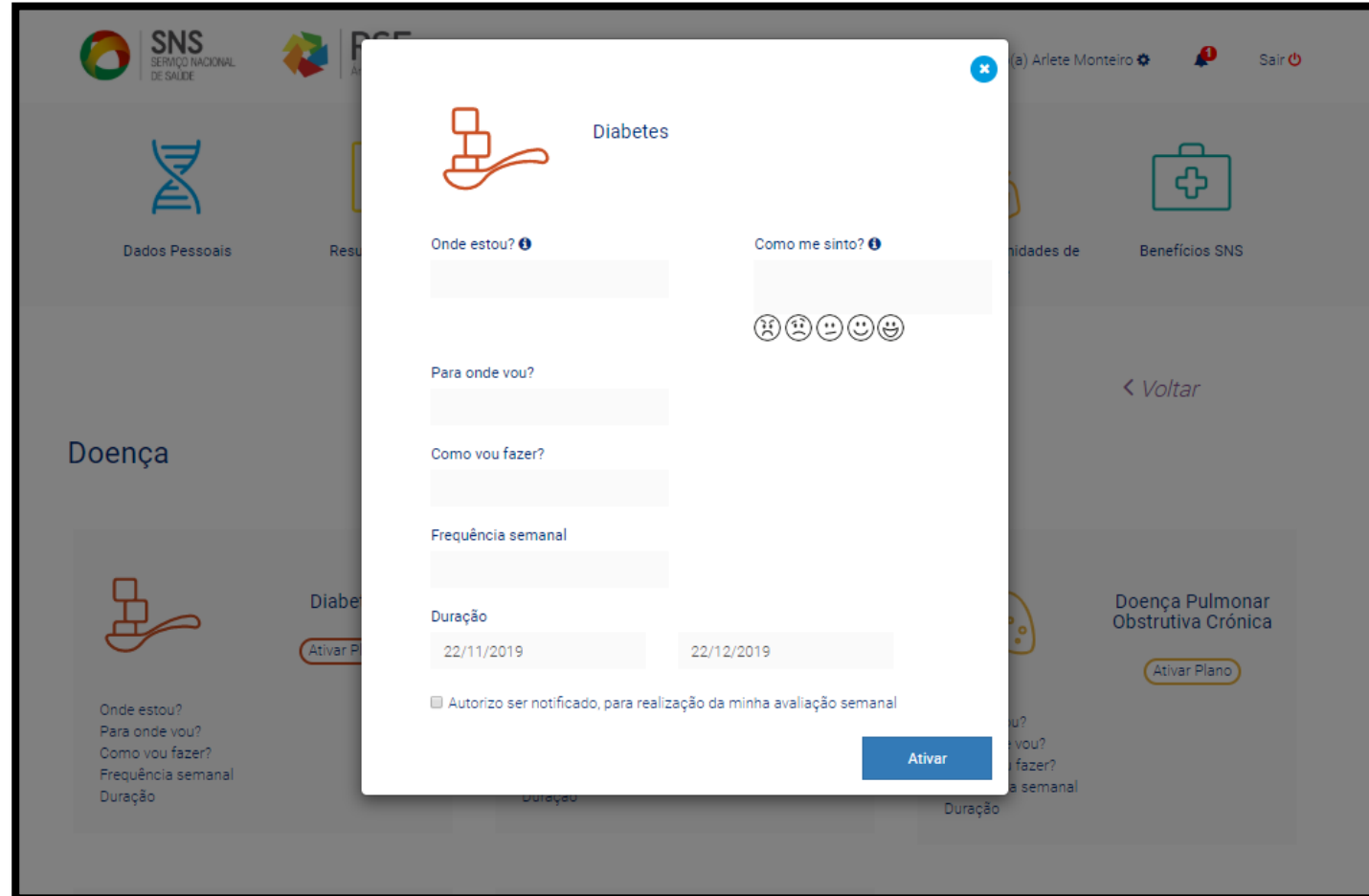
- Citizen Portal - @RISK (Diabetes risk calculator)

From **01/01/2019** to **31/10/2019**:

- **6.160 Citizens** used the @RISK Tool through the SNS Citizen Portal to evaluate their Diabetes type II Risk;
- **3.122 Citizens** got a Severe, High or Very High test result;
- Those 3.122 Citizens were invited to be contacted by their Primary Care Unit to book an appointment for a diabetes screening: only **900 Citizens** accepted.
- Until now, **713** of those 900 Citizens already went to the appointment for diabetes screening at their Primary Care Unit;
- **26 Citizens** were diagnosed with diabetes;
- At this point, **10** of those 26 Citizens are medicated with an oral antidiabetic, with an average cost of 12,00€ per person, per month = (10x12x12euros= 1240 Euros)
 - (the cost of a 3 days hospital stay for inaugural diabetes varies between 1.320,00€ and 4.630,00€ (with or without coma).

Electronic Health Record (EHR) – Citizen’s Area

Citizen’s Area – Individual Care Plan

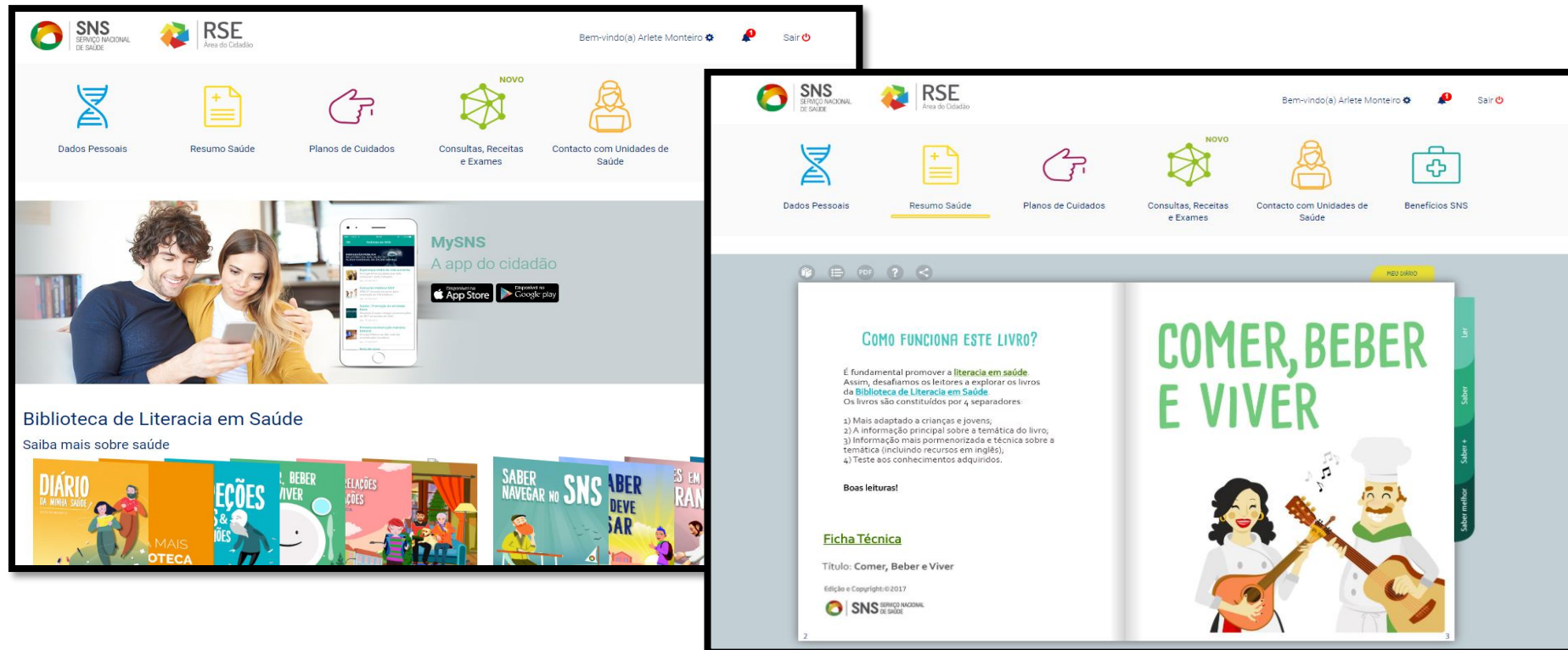


The screenshot shows a web interface for creating an Individual Care Plan (ICP) for Diabetes. The background is a blurred dashboard with various health-related icons and text. A white modal window is centered on the screen, titled "Diabetes" with a blue close button in the top right corner. The form contains the following fields and options:

- Diabetes** (Title)
- Onde estou?** (Where am I?) - Text input field
- Como me sinto?** (How do I feel?) - Text input field with a smiley icon and five emoji options (sad, neutral, happy)
- Para onde vou?** (Where am I going?) - Text input field
- Como vou fazer?** (How will I do it?) - Text input field
- Frequência semanal** (Weekly frequency) - Text input field
- Duração** (Duration) - Two date input fields: 22/11/2019 and 22/12/2019
- Autorizo ser notificado, para realização da minha avaliação semanal (I authorize to be notified for the realization of my weekly evaluation)
- Ativar** (Activate) - Blue button

Electronic Health Record (EHR) – Citizen’s Area

Citizen Portal – Literacy Resources



Electronic Health Record (EHR) – Citizen’s Area

Citizen’s Consent

Autorizações

Autorizo que os profissionais de saúde credenciados consultem os registos por mim inseridos na Área do Cidadão.

<input checked="" type="radio"/> Autorizo	<input type="radio"/> Não Autorizo
-------------------------------------------	------------------------------------

Autorizo que os profissionais de saúde credenciados consultem a minha informação clínica, registada nos diversos sistemas de informação do Serviço Nacional de Saúde, através da Plataforma de Dados de Saúde.

<input checked="" type="radio"/> Autorizo	<input type="radio"/> Não Autorizo
-------------------------------------------	------------------------------------

Concordo que parte do meu Resumo Clínico Único do Utente¹ (em particular, meus diagnósticos; minhas alergias; meus procedimentos; minha medicação crónica) possa ser transferida/apresentada a um profissional de saúde, um médico registado num dos países da União Europeia, no contexto em que me sejam prestados cuidados de saúde.

<input checked="" type="radio"/> Autorizo	<input type="radio"/> Não Autorizo
-------------------------------------------	------------------------------------

Quero ser notificado quando um profissional de saúde credenciado consultar a minha informação clínica registada, nos diversos sistemas de informação do Serviço Nacional de Saúde, através da Plataforma de Dados de Saúde.

<input checked="" type="radio"/> Sim	<input type="radio"/> Não
--------------------------------------	---------------------------

Autorização para receção dos emails institucionais da Área do Cidadão e do Ministério da Saúde

<input checked="" type="radio"/> Sim	<input type="radio"/> Não
--------------------------------------	---------------------------

- ✓ COMPLIANT WITH CNPD (AUTORIZAÇÃO N.º 940/2013)
- ✓ CITIZEN AUTHORIZATION ON DATA SHARING

Electronic Health Record (EHR) – Citizen’s Area

Health Summary

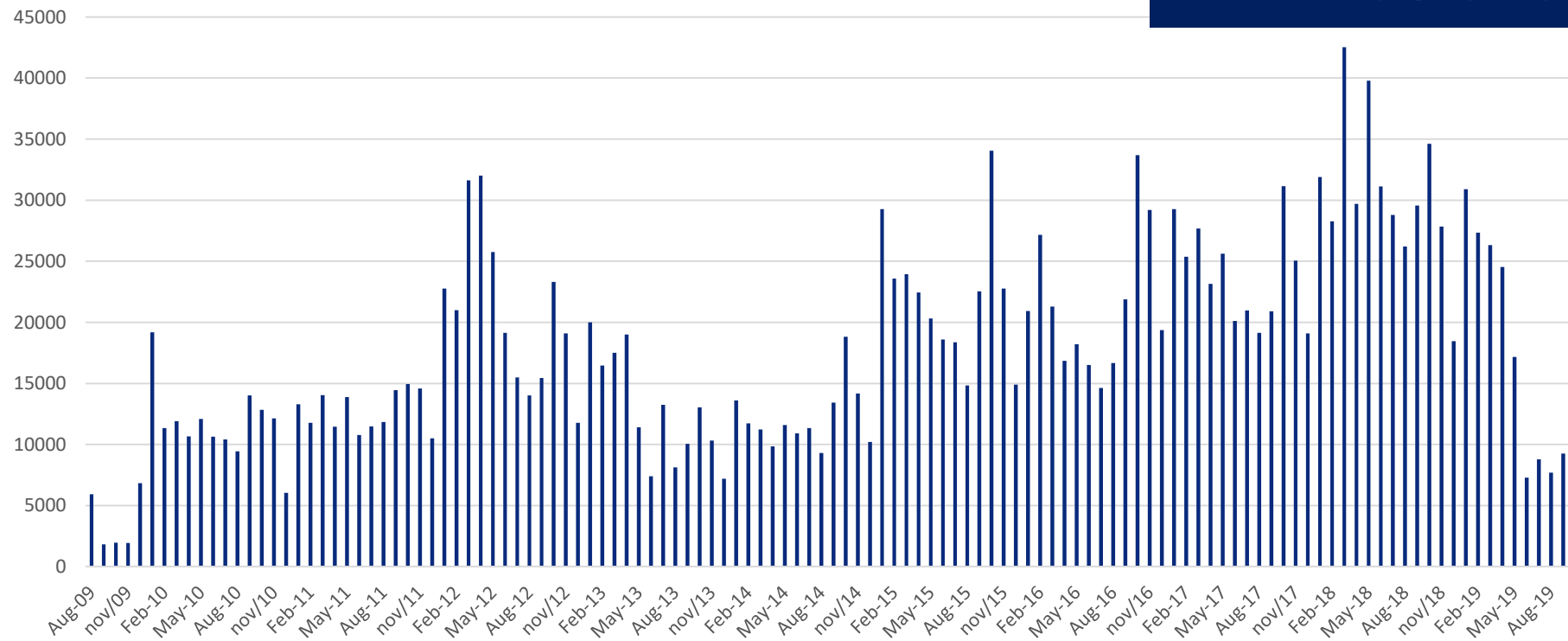
- ✓ HEALTH EPISODES
- ✓ MEDICATION
- ✓ RARE DISEASES
- ✓ VITAL WILL



Electronic Health Record (EHR) – Citizen’s Area

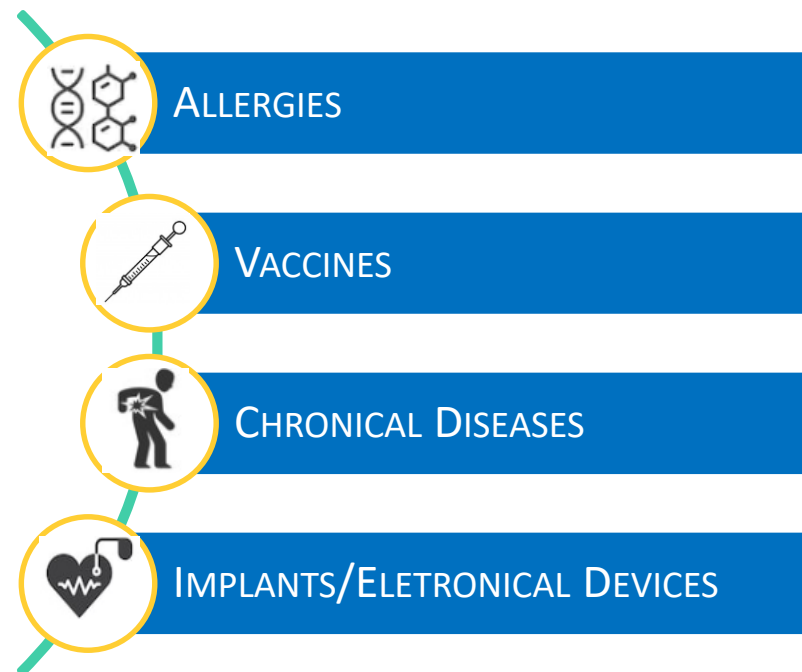
Number of citizen’s registrations

2 261 857
ecitizens



Electronic Health Record (EHR) – Citizen’s Area

The patient summary allows citizens of the member states can use and benefit from **cross-border health services**, thus ensuring **greater safety in health care**.





RSE | Citizen Area of the NHS Portal

The **Patient Summary** can be activated by the citizen anytime and anywhere, through the RSE | Citizen Area.

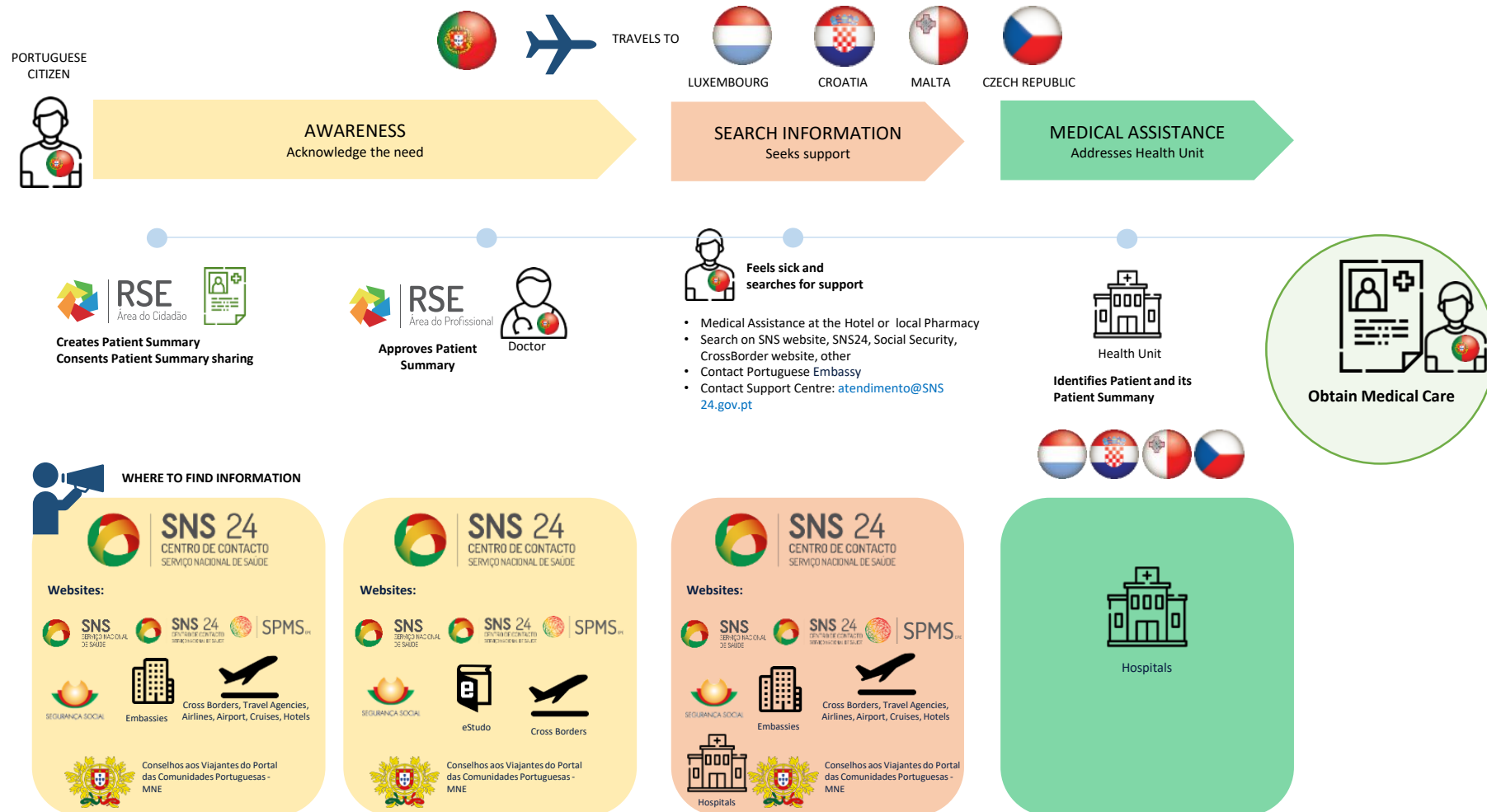
The citizen can authorize or withdraw the authorization for the viewing of their **Patient Summary** by health professionals in the **Citizen Area of the NHS Portal**. They can simply access their Citizen Area of the NHS Portal via **Digital Mobile Key** or Citizen Card, select “Patient Summary” and click on the “Click here to generate your Patient Summary” pop-up. The citizen will be notified that their Patient Summary has been successfully generated.



The screenshot shows the RSE Citizen Area interface. At the top, there are logos for SNS (Serviço Nacional de Saúde) and RSE (Registo de Saúde Eletrónico). The user is logged in as 'Bem-vindo(a) [nome]' with a 'Sair' button. The main navigation bar includes icons for: Dados Pessoais, Resumo Saúde, Planos de Cuidados, Consultas, Receitas e Exames (marked as 'NOVO'), Contacto com Unidades de Saúde, and Benefícios SNS. Below this, the 'Resumo de Saúde' section is highlighted, with a mouse cursor pointing to it. The text under 'Resumo de Saúde' explains that it is a set of data from SNS systems integrated with the Electronic Health Record, used for clinical care. Below this, there are sections for 'Medicação', 'Alergias', and 'Diagnósticos', each with a 'Permissão automática pelo profissional de saúde' status.

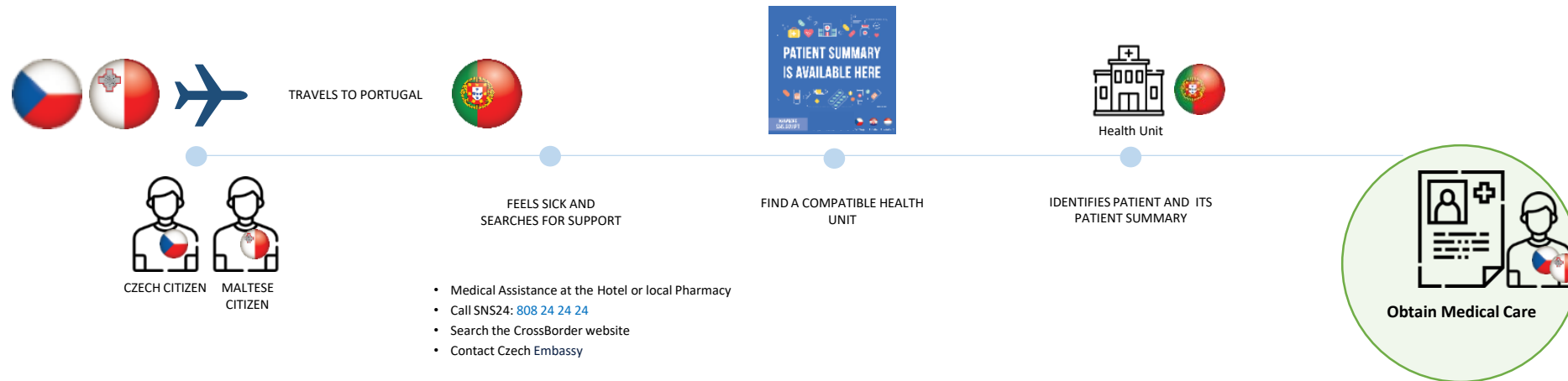
Patient Journey - Patient Summary Country A

SERVICE 1



Patient Journey - Patient Summary Country B

SERVICE 2



WHERE TO FIND INFORMATION

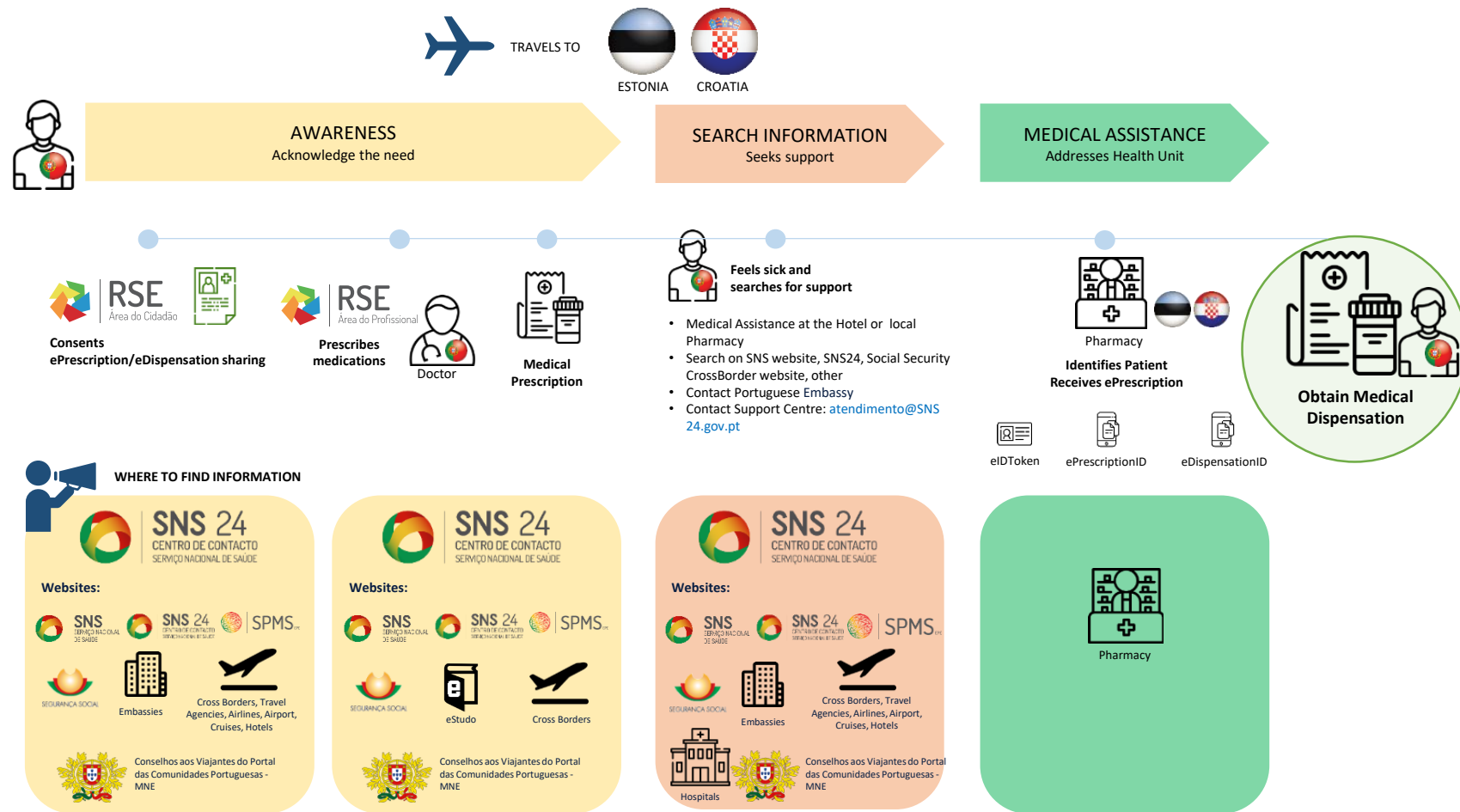
Websites:



Logos and icons for information sources: SNS 24 (CENTRO DE CONTACTO SERVIÇO NACIONAL DE SAÚDE), SNS (SERVIÇO NACIONAL DE SAÚDE), SPMS (Serviços Partilhados do Ministério da Saúde, E.P.E.), Segurança Social, anfp (Associação de Farmácias de Portugal), Pharmacies, Hospitals, Embassies, and Turismo de Portugal (Cross Borders, Travel Agencies, Airlines, Airport, Cruises, Hotels).

Patient Journey - ePrescription / eDispensation Country A

SERVICE 3



Patient Journey - ePrescription / eDispensation Country B

SERVICE 4



WHERE TO FIND INFORMATION

Websites:



SNS 24
CENTRO DE CONTACTO
SERVIÇO NACIONAL DE SAÚDE



SNS
SERVIÇO NACIONAL
DE SAÚDE



SPMS
EPE



SEGURANÇA SOCIAL



Associação
de Farmácias de Portugal



Pharmacies



Hospitals



Embassies









Cross Borders, Travel Agencies,
Airlines, Airport, Cruises, Hotels



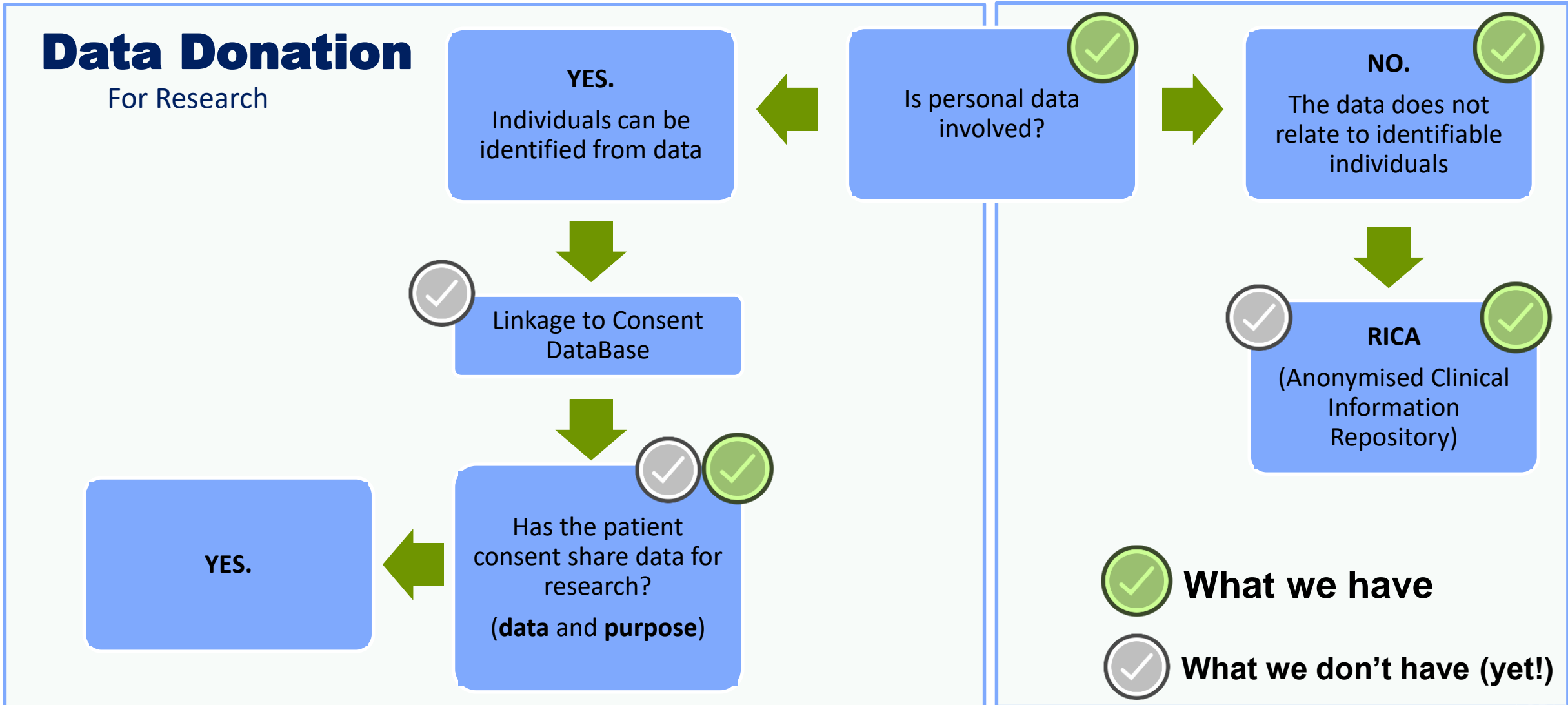
Data Donation

In which circumstances can patient's health data be processed?

-  **If the patient gives explicit and unambiguous consent to the use of their data**
-  If the patient makes the data public himself or herself
-  If it is in the patient's vital interest
-  For healthcare purposes
-  For public interest in the area of public health
-  To carry out the right of the person that controls patients' data in the field of employment, social security and social protection law

Data Donation

For Research



Data Donation

For Research

Full Anonymised data



Clinical Repository
(RICA)

Consent Information



Electronic consent information
(Portal's Citizens Area)

Raw Data for research purpose



Feedback to patient

Data Donation

Data Sharing Agreement

- Period of agreement
- Intended use of the data
- Constraints on use of the data
- Data confidentiality
- Data security
- Methods of data-sharing

Sempre que me dirigir a uma instituição do Serviço Nacional de Saúde, autorizo que os Profissionais de Saúde (Médicos e Enfermeiros) possam consultar a minha informação clínica registada nos diversos sistemas de informação do Serviço Nacional de Saúde.

 Autorizo Não Autorizo

Sempre que me dirigir a uma instituição do Serviço Nacional de Saúde, autorizo que os Profissionais de Saúde (Médicos e Enfermeiros) possam consultar a minha informação clínica registada nos diversos sistemas de informação dos Setores Privado e Social.

 Autorizo Não Autorizo

Sempre que me dirigir a uma instituição do Sector Privado e Social, autorizo que os Profissionais de Saúde (Médicos e Enfermeiros) possam consultar a minha informação clínica registada nos diversos sistemas de informação do Serviço Nacional de Saúde.

 Autorizo Não Autorizo

Concordo que parte do meu Resumo de Saúde (em particular, meus diagnósticos; minhas alergias; meus procedimentos; minha medicação crónica) possa ser transferida/apresentada a um profissional de saúde, um médico registado num dos países da União Europeia, no contexto em que me sejam prestados cuidados de saúde.

 Autorizo Não Autorizo

Quero ser notificado quando um profissional de saúde credenciado consultar a minha informação clínica registada, nos diversos sistemas de informação do Serviço Nacional de Saúde, através do Registo de Saúde Eletrónico.

 Sim Não

Autorizo que me enviem emails institucionais da Área do Cidadão e do Ministério da Saúde.

 Autorizo Não Autorizo

Autorizo ser notificado quando os resultados dos meus exames estiverem disponíveis para consulta na Área do Cidadão.

 Autorizo Não Autorizo

Autorizo que os profissionais de saúde credenciados, a partir de instituições do setor privado e social, consultem a minha informação clínica, registada nos diversos sistemas de informação do Serviço Nacional de Saúde e setores privado e social que a disponibilizem, através do Registo de Saúde Eletrónico.

 Autorizo Não Autorizo

Concordo que a minha Prescrição eletrónica possa ser transferida/apresentada a um profissional de saúde registado num dos países da União Europeia, para efeitos de dispensa de medicamentos.

 Autorizo Não Autorizo

Sempre que me dirigir a uma Farmácia, autorizo que os Farmacêuticos, portadores de carteira profissional ativa, possam consultar os meus medicamentos prescritos, as minhas medições, as minhas vacinas e as minhas alergias, que se encontrem registadas nos diversos sistemas de informação do Serviço Nacional de Saúde, através do Registo de Saúde Eletrónico.

 Autorizo Não Autorizo

Sempre que me dirigir a uma Farmácia, autorizo que os Farmacêuticos, portadores de carteira profissional ativa, possam disponibilizar aos outros profissionais de saúde credenciados (Médicos e Enfermeiros) os meus medicamentos sujeitos a receita médica dispensados, as minhas medições, as minhas vacinas e as minhas alergias, que se encontrem registadas no sistema de informação da Farmácia, através do Registo de Saúde Eletrónico.

 Autorizo Não Autorizo

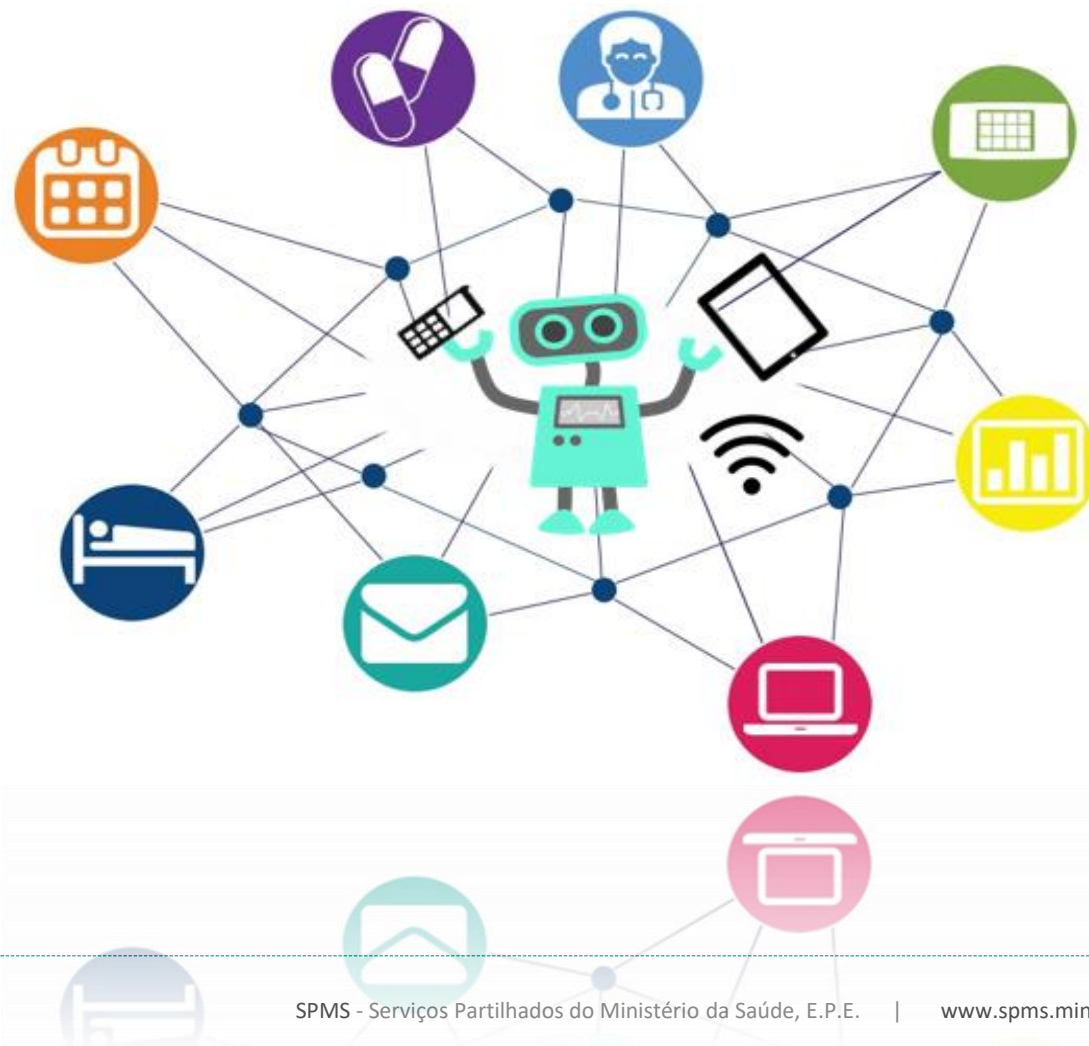
Data Donation

For Research

With patient consent, we feedback him about the purpose of using his data

- ✔ Inform the patient by e-mail
- ✔ Inform the patient that his data (medication, diagnosis, exams, ...) was used
- ✔ Inform the patient that his data was used for THIS research purpose
- ✔ Inform the patient research's results
- ✔ **All about giving FEEDBACK to the patient**

Mobile Applications



**THERE IS
AN APP
FOR THAT !**

Mobile Prescription - Overview

- Available since 20th February;
- Strong Authentication and digital signature thru Digital Mobile Key;
- Mobility for physicians and patients;
- Secure and fast prescription;

Interactive PRESCRIPTION AND DISPENSATION



96 953

Total of emitted paperless prescription

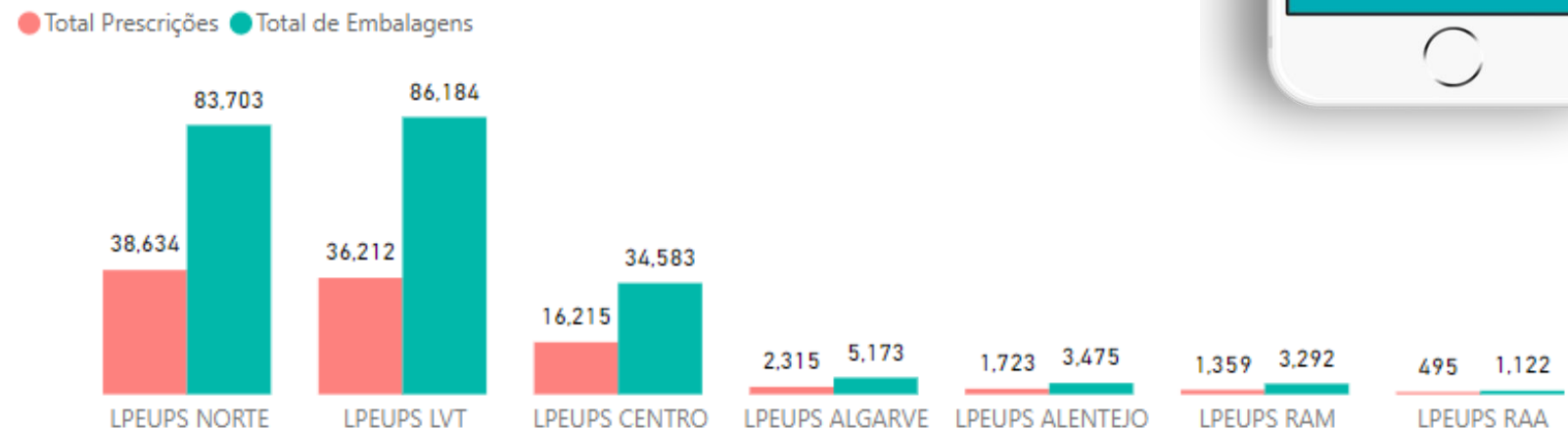


217 532

Total of medicine packages



Prescrições e Embalagens por Região





ePrescription - iPrescription



ePrescription



Paperless Prescription



iPrescription



YES

PEM Móvel
Prescrição Eletrónica Médica



PATIENT

Notification Patient

"Your medicine package is over in 5 days.
Do you want to ask for a new prescription?"



Electronic Dispensation of the medicines



"1 pill once a day during 3 months"

Prescription for Physical Exercise



PEM
Prescrição Eletrónica Médica

MEDICAMENTOS | DM | FORMAÇÃO | Notificações | Pesquisar utente

Dr(a). Médico 02, 90002
CIRURGIA GERAL | LPEUPS NORTE

UTENTE

Dados Pessoais: 175141021 - CELINA LUÍS FERREIRA DA COSTA LEITE | Nasc: 06-11-1984

Ent. Financeira: SNS

PESQUISAR MEDICAMENTOS

Qt	Nome medicamento	Tipo	Ren.	Docs
				

PORTAL DE REQUISIÇÃO DE VINHETAS E RECEITAS

Utilizador:

Palavra-chave:

Tipo de Prescritor: Médico

Entrar

Para entrar precisa:

- Do utilizador que usa no acesso ao Portal de Requisição de Vinhetas e Receitas;
- Da sua senha de acesso ao Portal de Requisição de Vinhetas e Receitas;

AUTENTICAÇÃO FORTE

Ler cartão

Para entrar precisa:

- Do seu Cartão de Cidadão ou Cartão da Ordem dos Médicos
- Do seu leitor de cartões ligado ao computador
- Do seu PIN de autenticação
- Colocar o cartão no leitor e selecionar a opção "Ler Cartão"

Prática de Atividade Física

Detetamos o(s) seguinte(s) factor(es) de risco:

- O(s) medicamento(s) prescrito(s).
- O sexo e idade do utente.

Pretende aconselhar o utente para a prática de atividade física?

Sim **Não**

Se precisar de ajuda contacte-nos: servicedesk@spms.min-saude.pt | TLF.: 220 129 818, disponível 24 horas/todos os dias

Publications:

Mendes, Romeu & Silva, Marlene & Silva, Catarina & Marques, Adilson & Tomás, Rita & Alexandre, António & Carvalho, Cristina & Nascimento, Nilton & Leite, Celina & Martins, Henrique & Teixeira, Pedro. (2018). **Primary health care digital tools for physical activity surveillance and brief advice in the Portuguese National Health Service.** *Journal of Physical Activity and Health.* 15. S246.

Mobile Applications – MyNHS Family



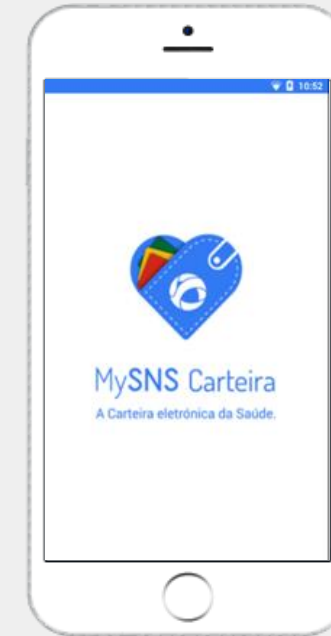
APP that allows to consult general information and news about the NHS.

MYNHS



APP that allows the consult of average waiting times in the NHS hospital institutions.

MYNHS TIMES

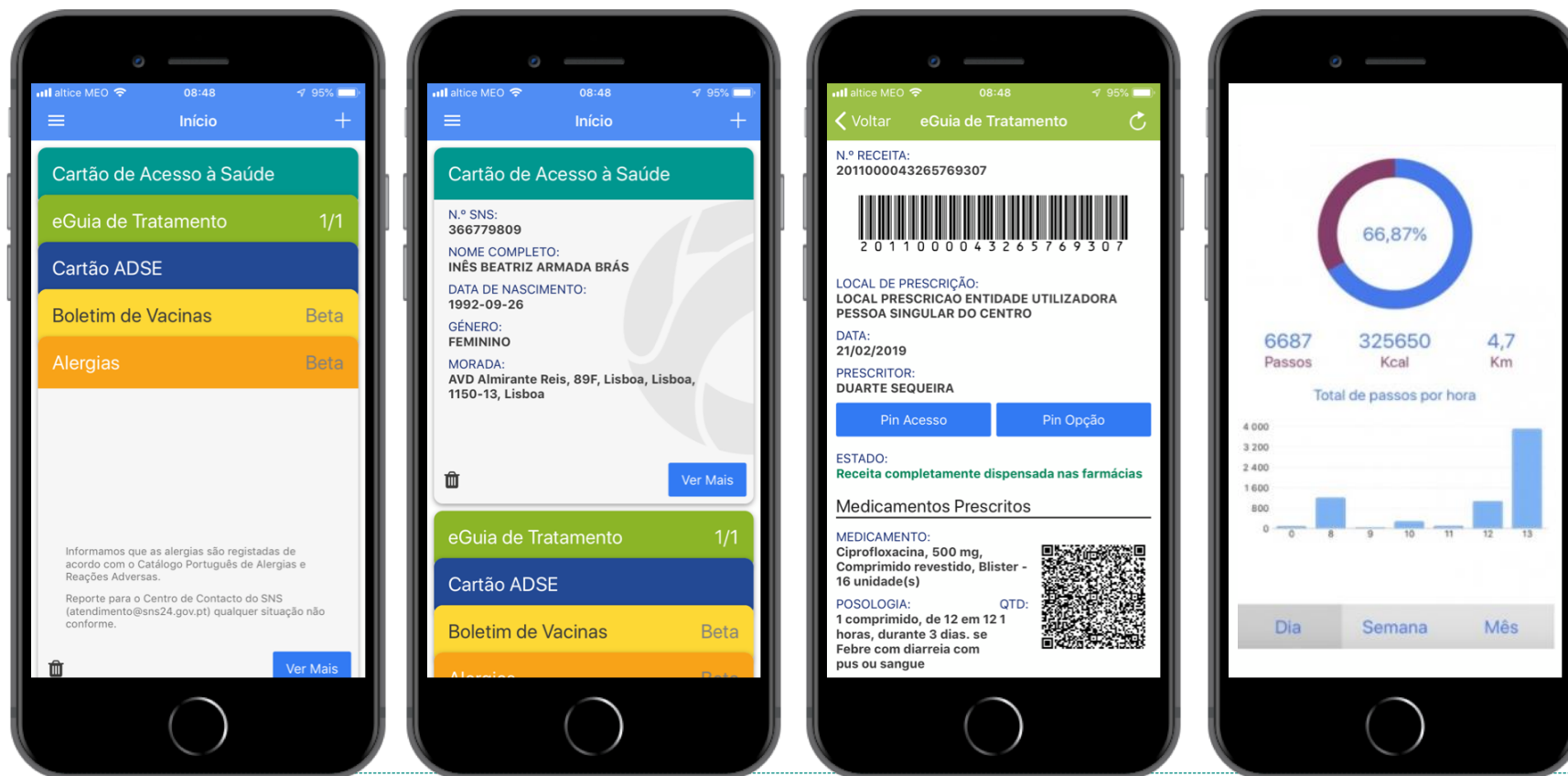


APP that gathers information about the patient data in the NHS.

MYNHS WALLET

Mobile Applications – MyNHS Family

MyNHS Wallet



- ✓ Health Access Data
- ✓ Treatment Guide
 - ✓ ADSE
- ✓ Living Will
- ✓ Vaccines
- ✓ Allergies
- ✓ Rare Diseases
- ✓ Physical Activity



MyNHS Wallet

Cards Downloads – TOP 5*

PRESCRIPTION AND TREATMENT GUIDE

Card with prescriptions and treatment guides.

HEALTH ACCESS CARD

Card with data that identifies the patient in the NHS.

VACCINATION CARD

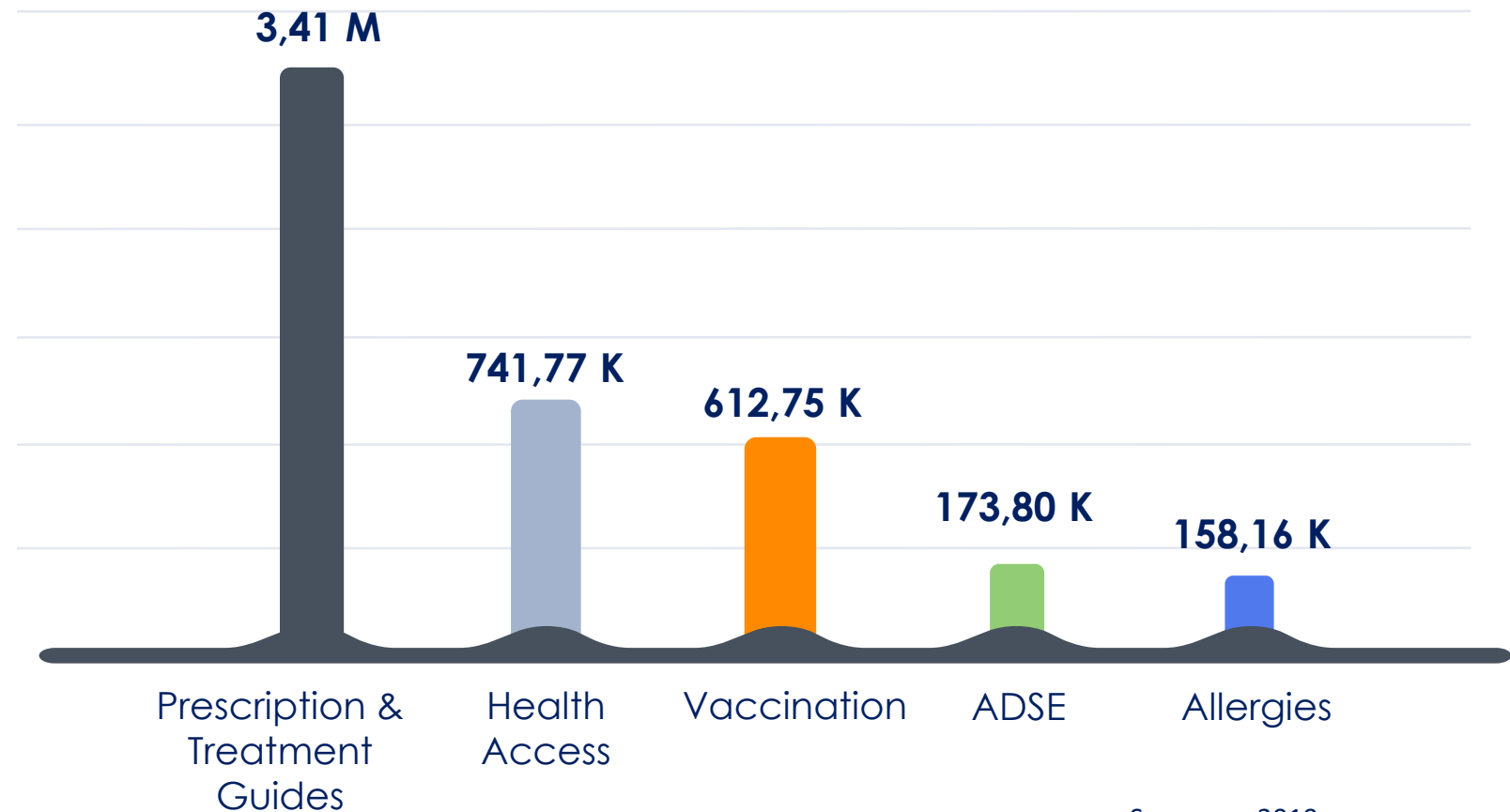
Card with the patient's vaccination record.

ADSE CARD

Card with information about subsystem data.

ALLERGIES CARD

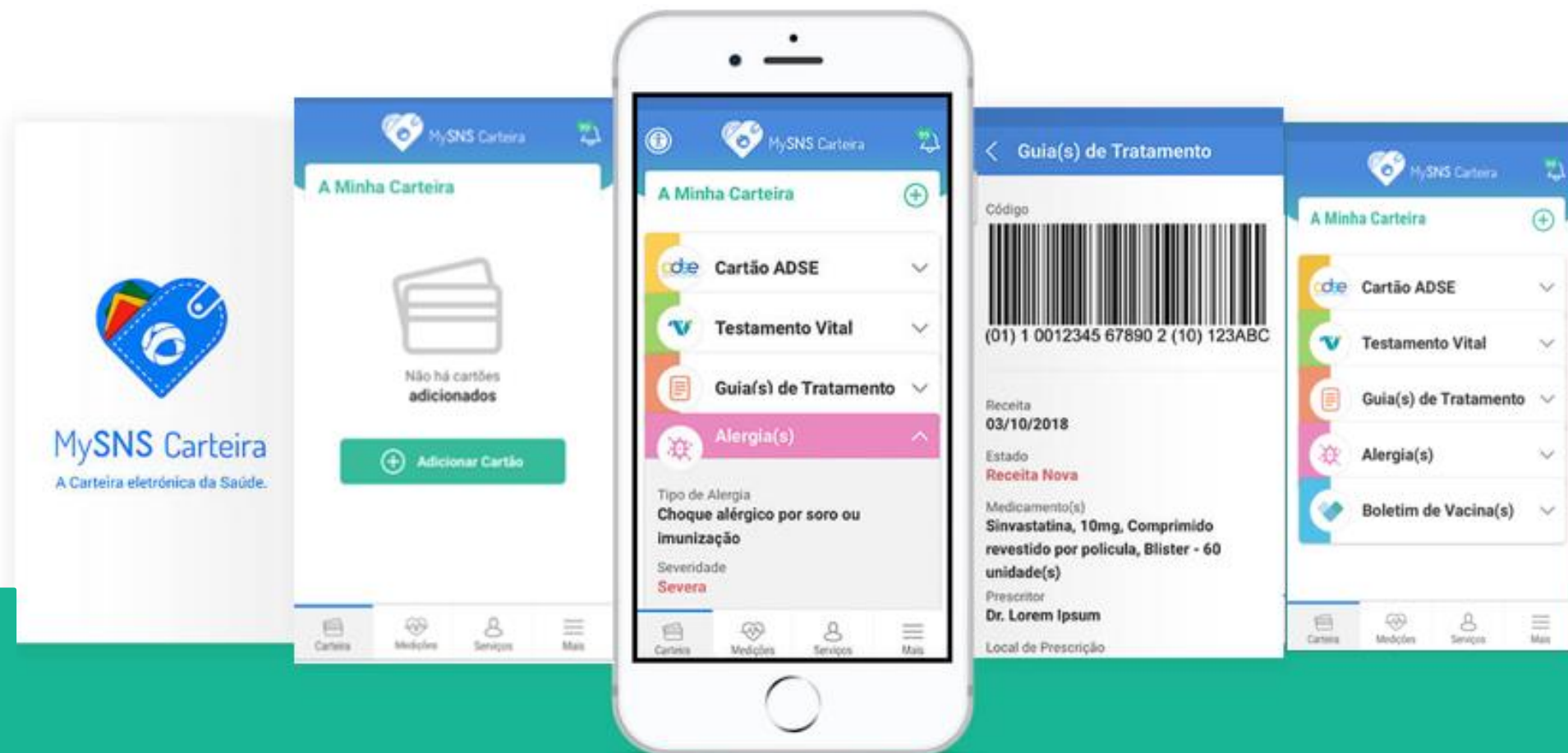
Card with information about the patient's registered allergies.



SEPTEMBER 2019

NEW EDITION!!

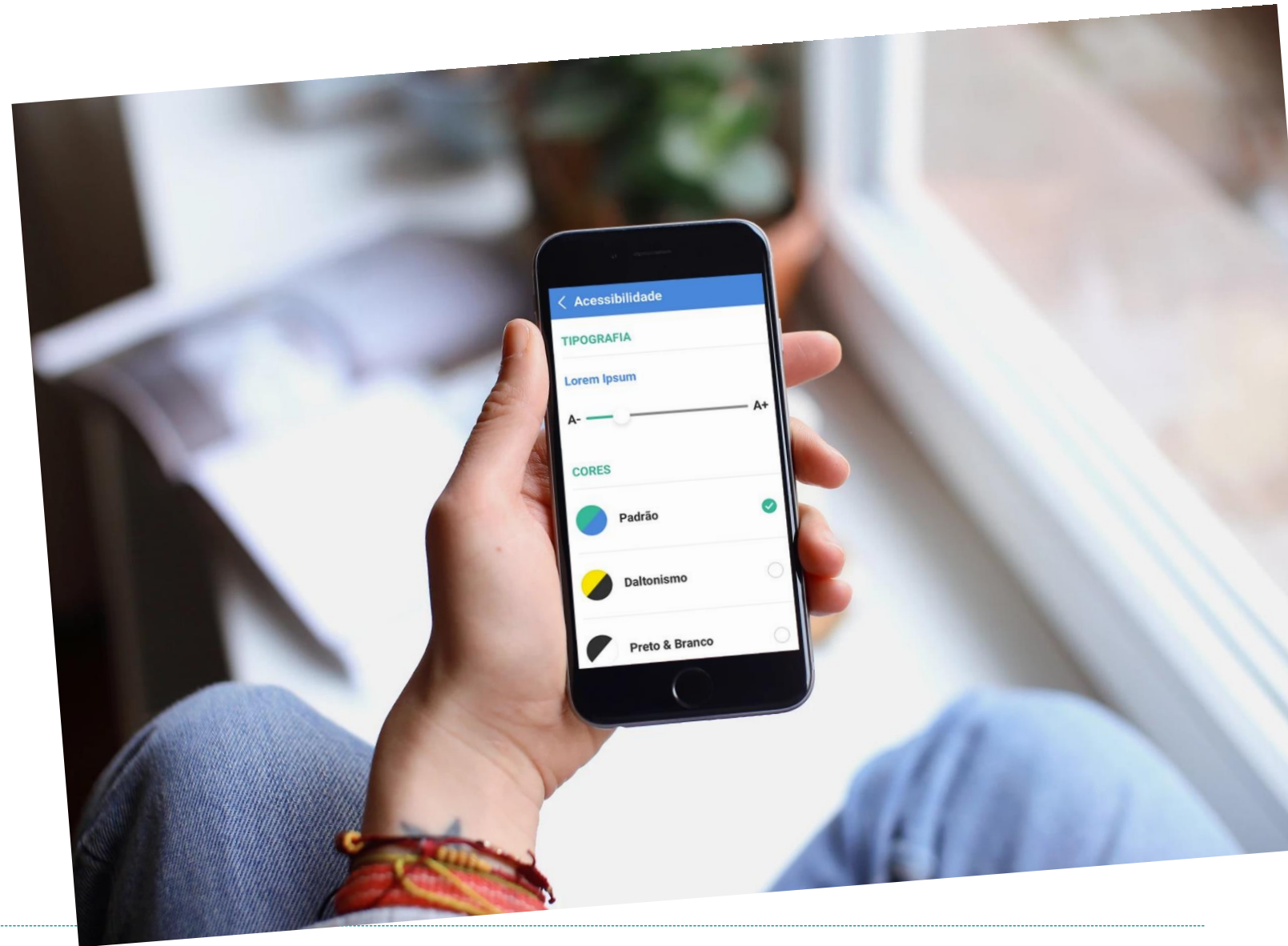
Awaiting store validation



Design | Usability and Experience | Performance |
New Features

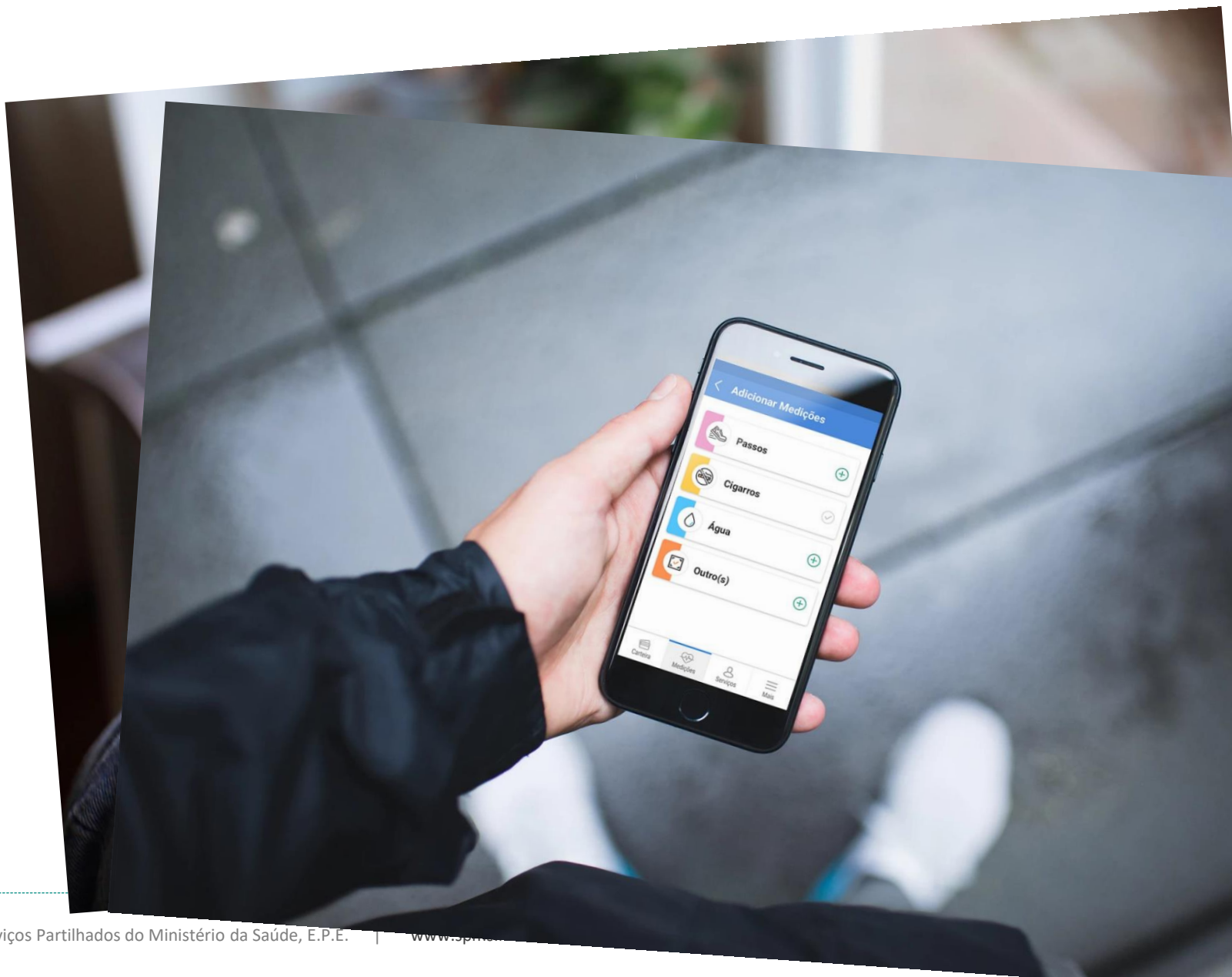
Accessibility

Inclusion of
Accessibility options
applicable to the
entire APP interface.



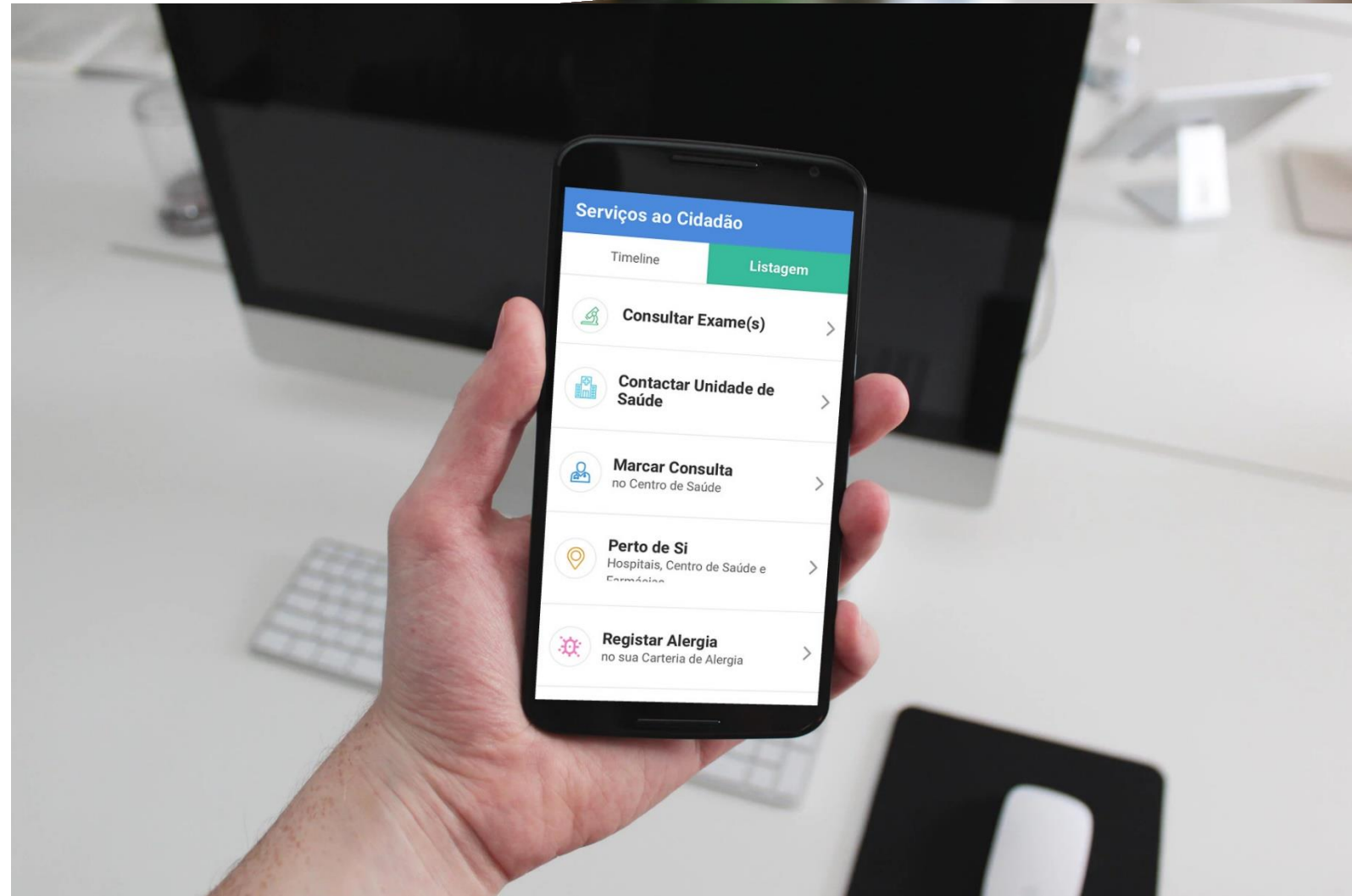
Health Measurements

Menu dedicated to promoting a healthy lifestyle, where citizens can record and track their health measurements.



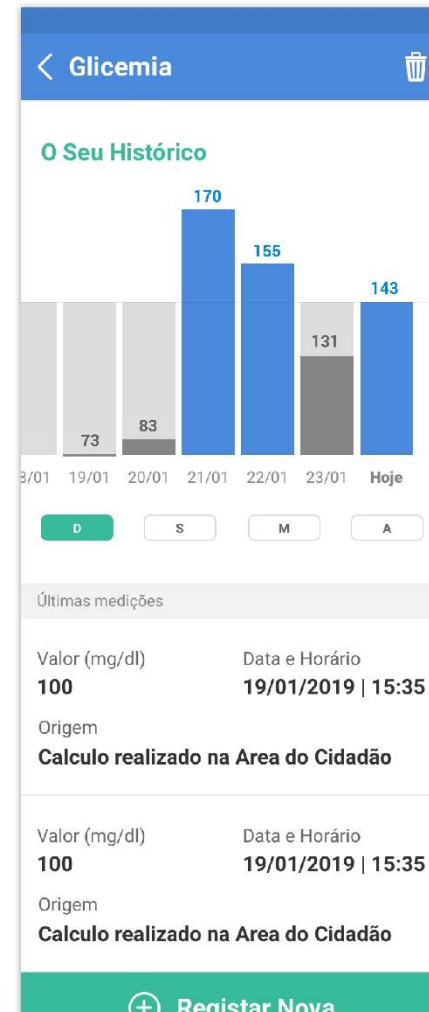
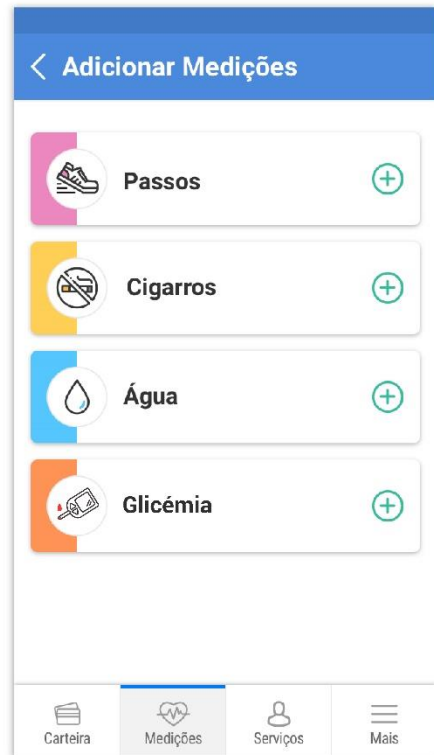
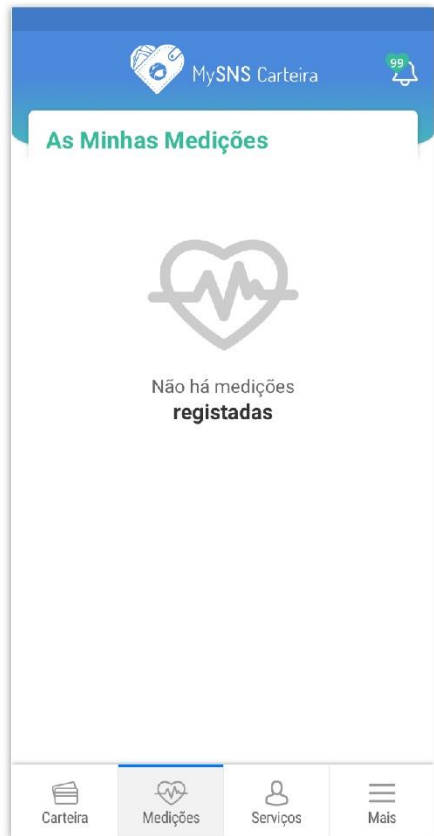
Services

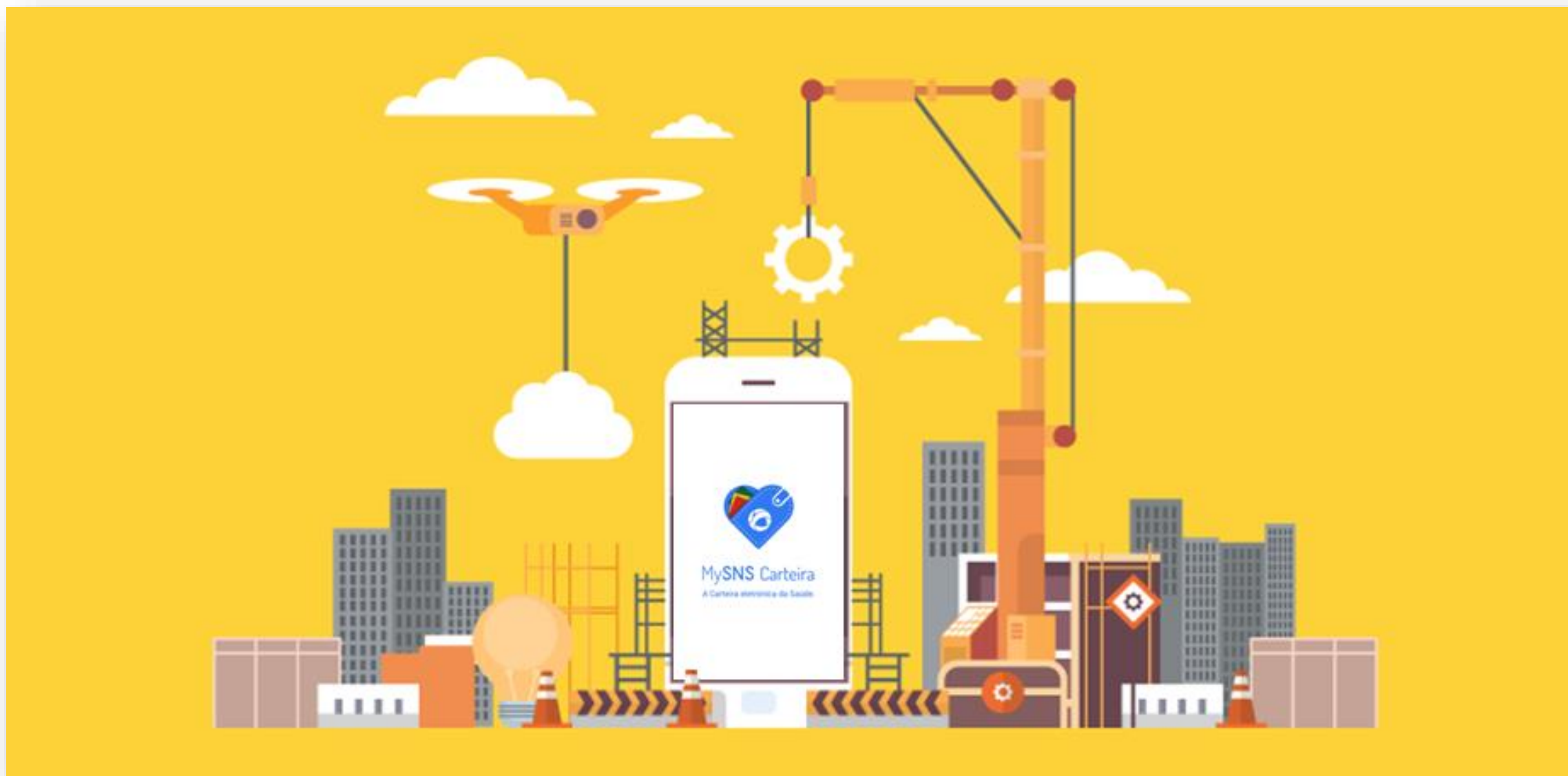
Menu where useful services are available to the citizen, such as Contact with Health Units or Make Appointments



MyNHS Wallet

A new way to manage your health

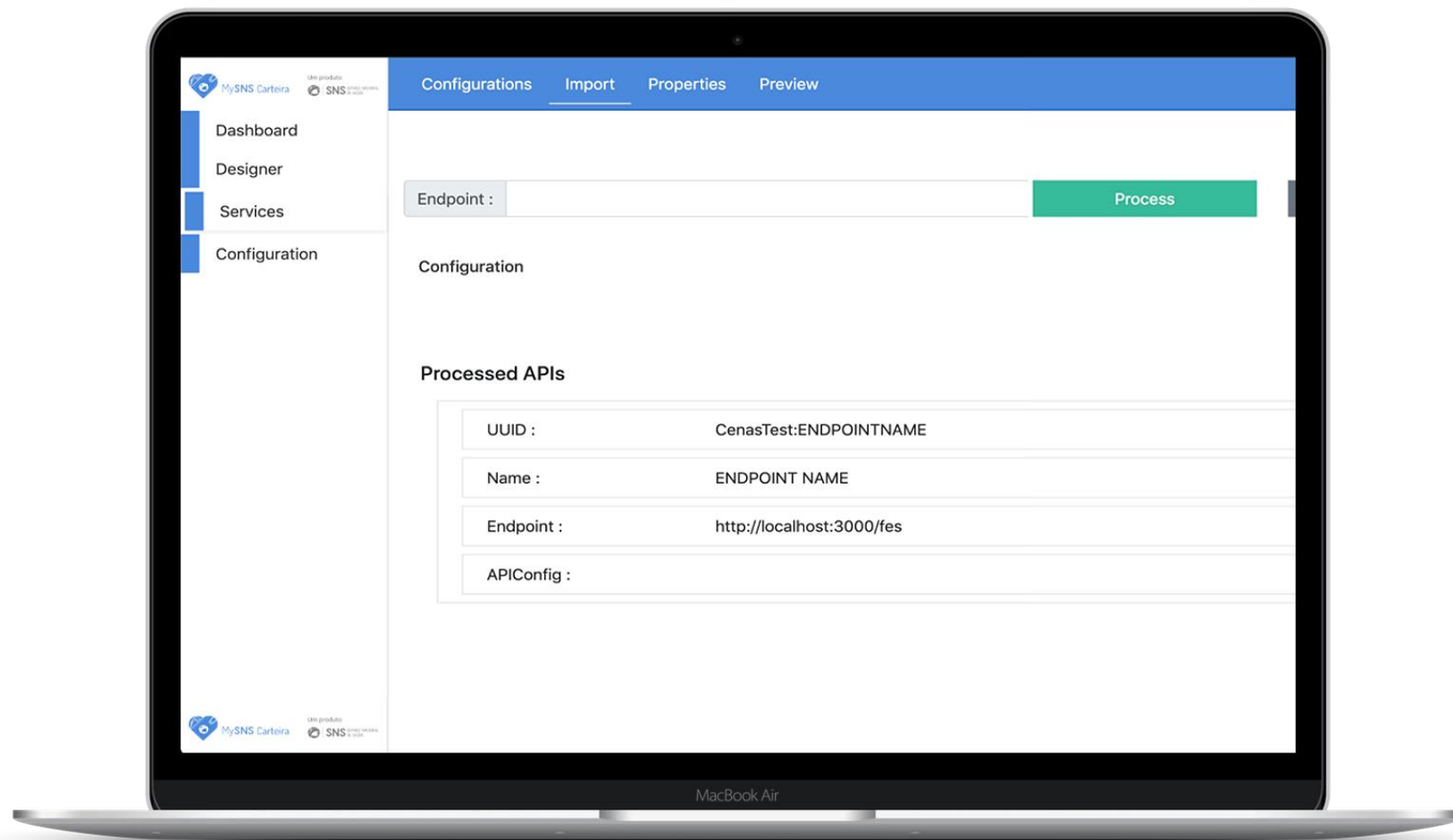




Mobile Applications

MyNHS Wallet - Software Development Kit (SDK)

Software that will allow
any Health entity to
develop cards for the
MyNHS Wallet

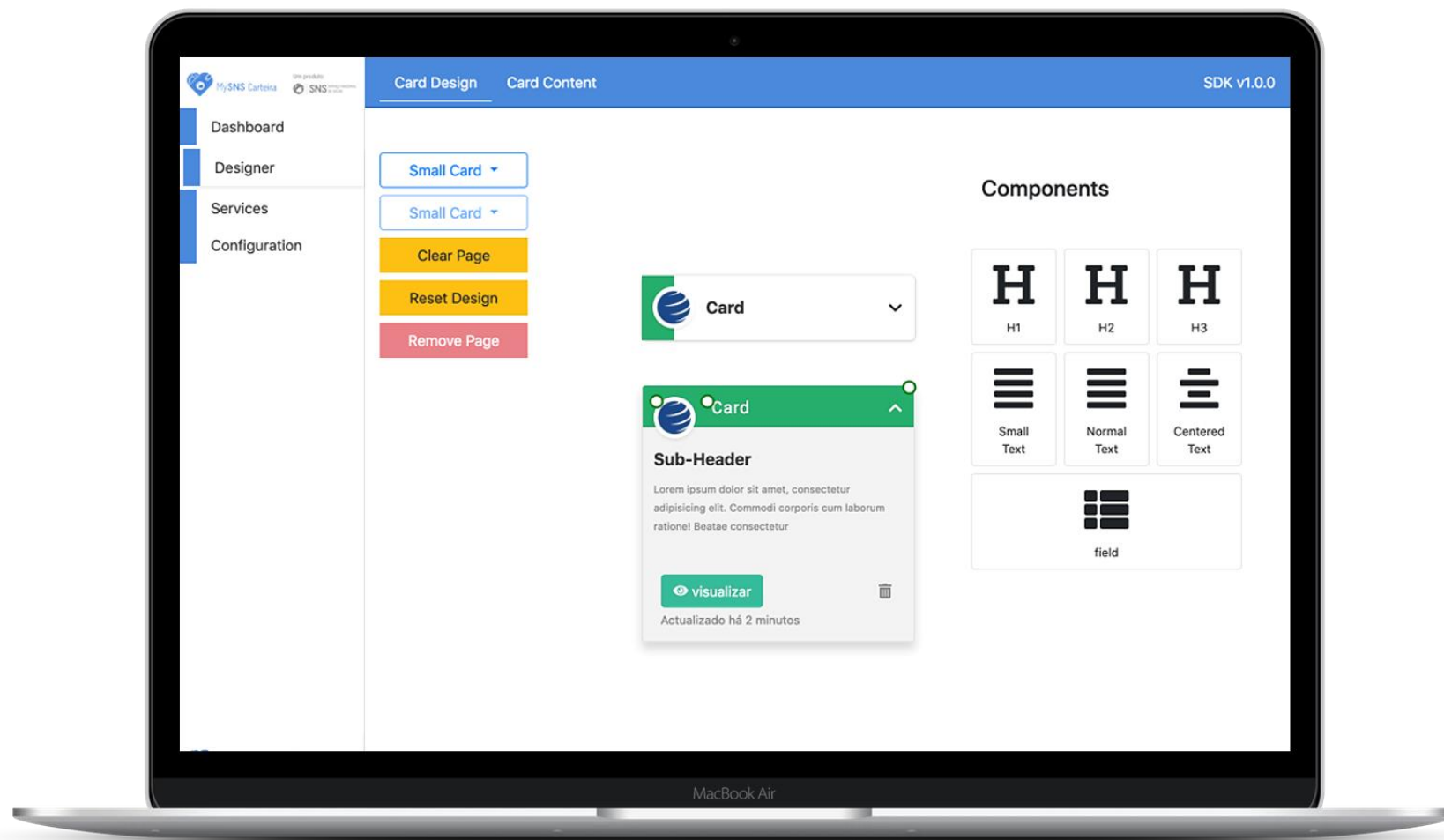


Mobile Applications

MyNHS Wallet - Software Development Kit (SDK)

All-in-one app:

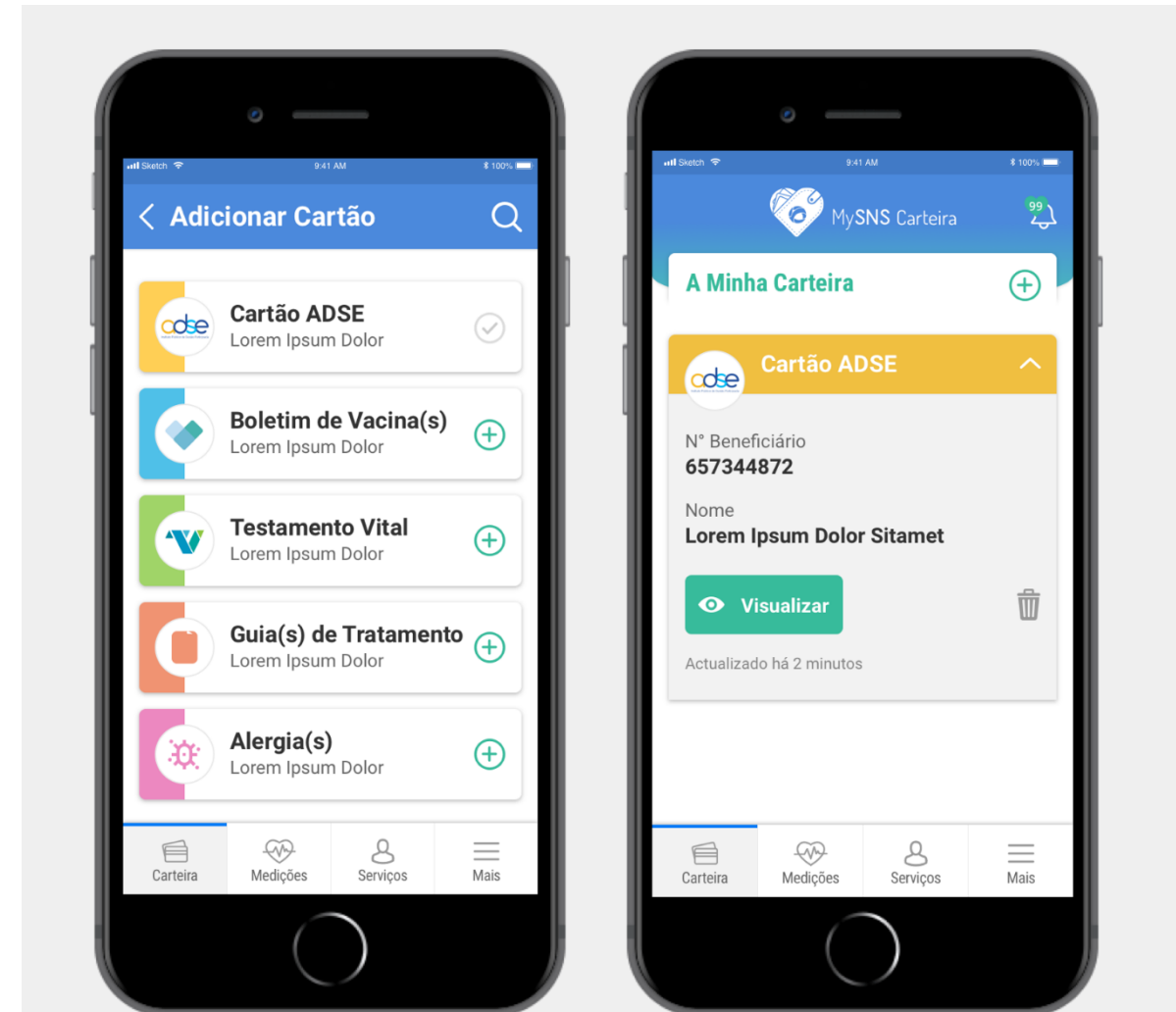
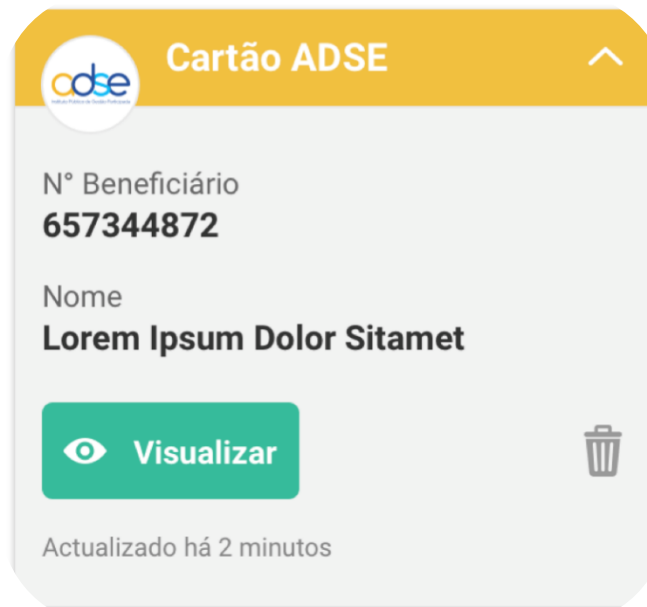
Design the cards (drag & drop), map the services and configure the metadata.



IMPROVING THE HEALTH OF THE PORTUGUESE, CARD BY CARD

Mobile Applications

From the SDK to MyNHS Wallet



SNS 24 – WEBSITE ANALYTICS



SNS 24
CENTRO DE CONTACTO
SERVIÇO NACIONAL DE SAÚDE



1 288 279 users



1 834 771 accesses



63,9%
Mobile



33,6%
Desktop



2,6%
Tablet



SNS 24 – WEBSITE SYMPTOM CHECKER



SNS 24
CENTRO DE CONTACTO
SERVIÇO NACIONAL DE SAÚDE

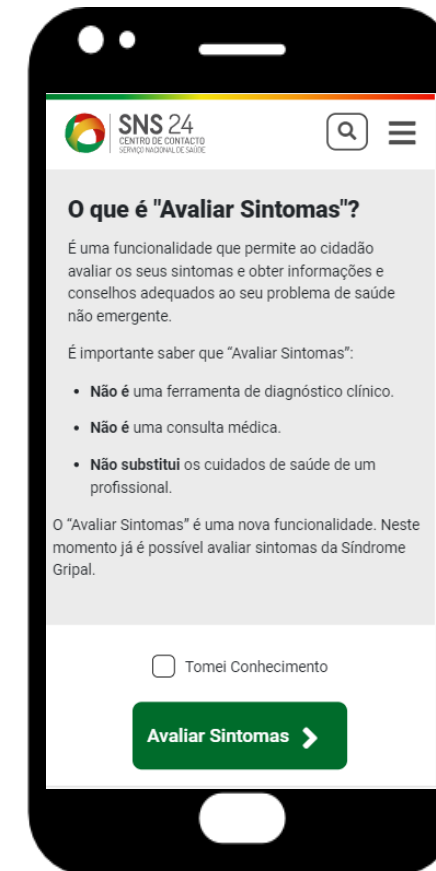
- Flu
- Nausea and vomiting
- Cough
- Skin allergies
- Respiratory allergies



237 646 users



28 969 concluded algorithms



*From 18/01/2019 until 02/12/2019



THANK YOU

Henrique Martins

Shared Services for Ministry of Health

Portugal

September 2019

How to Cooperate in Data Ecosystems

Renske Trul, MSc

EHTEL Conference
Barcelona, December 4th 2019



Personal health data
in the palm of your hand

The urgency for The Netherlands

- 75 people in hospital per day due to medication errors
- Ageing population: pressure on informal care
- Digital society



Timeline

2011

No EHR
National
EHR
rejected in
Parliament

2013

**Vision PHE
published**
Personal Health
Environment



2015

**Information
Council
Healthcare**
Make it happen!

2015

Madurodam
Now continue
with PHE



2016

Start MedMij
More control over
your health

medmij

Grip op je eigen
gezondheidsgegevens

Good climate



Everybody CEO of their own health

New treatments with big data and AI

Living at home longer, self sustainable

Self-measurements

Tele-health

Fertile ground

Sustainable healthinformation complex

Standards

Registers

Same language

Authentication

Monitoring

Basic infrastructure

Indicators

Safe communication

Financing

Payment models

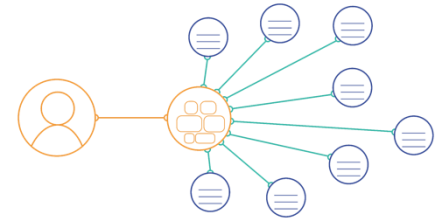
Patient access

Agreements

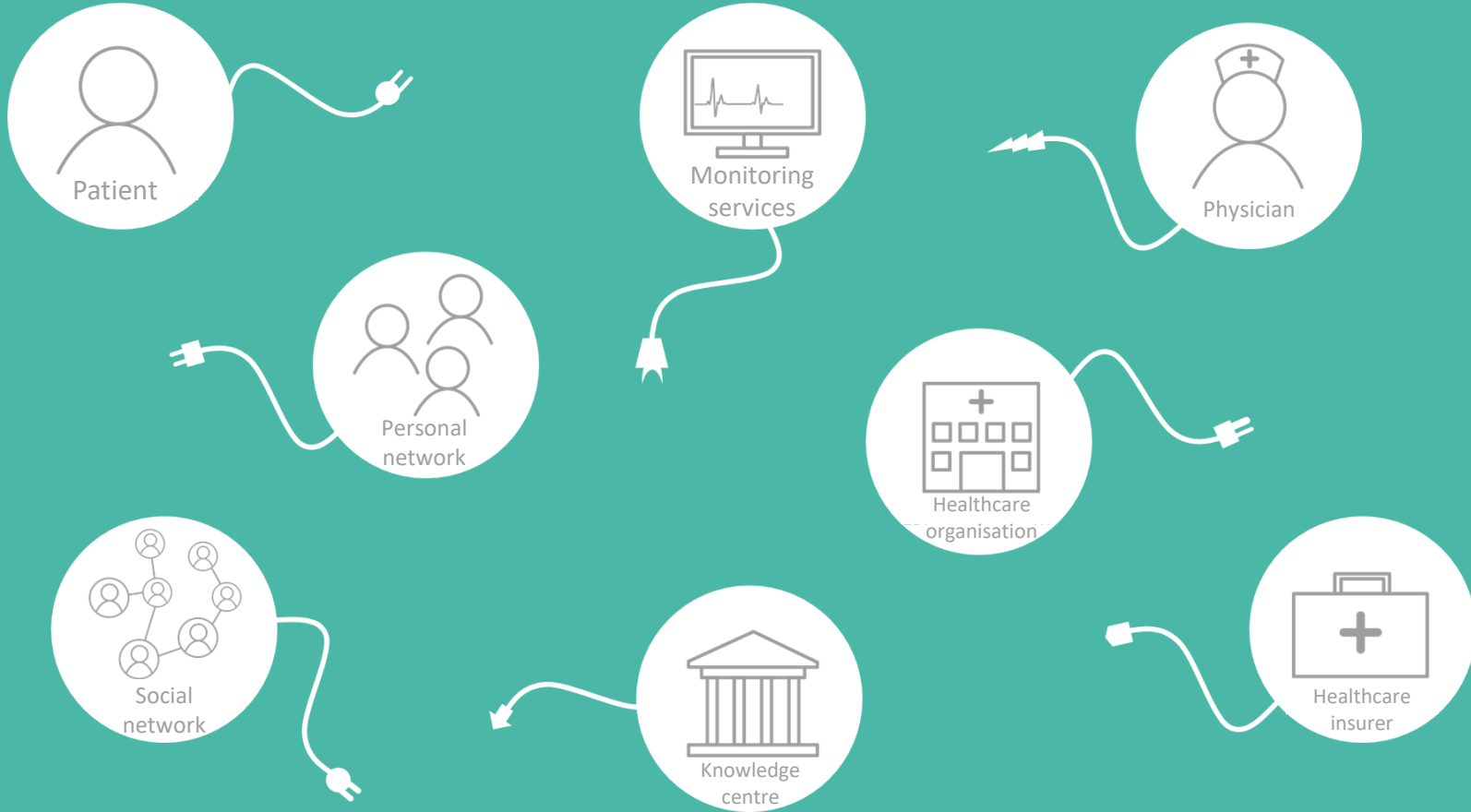




MedMij allows you to collect, share and manage your health data in your own **personal health environment**

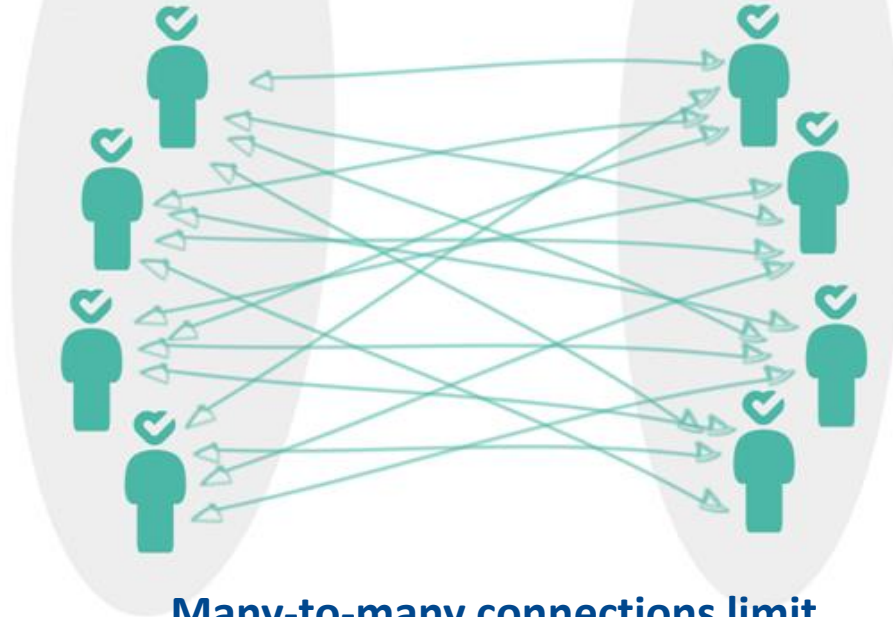


medmij 

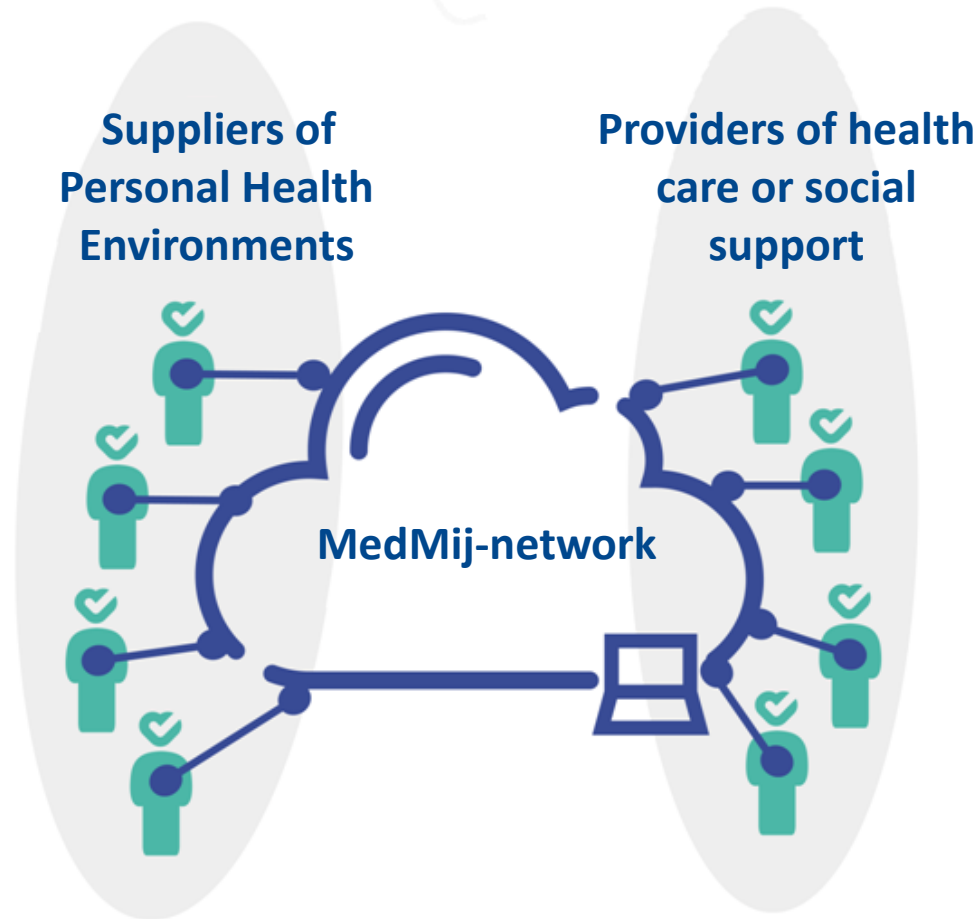


**Suppliers of
Personal Health
Environments**

**Providers of health
care or social support**

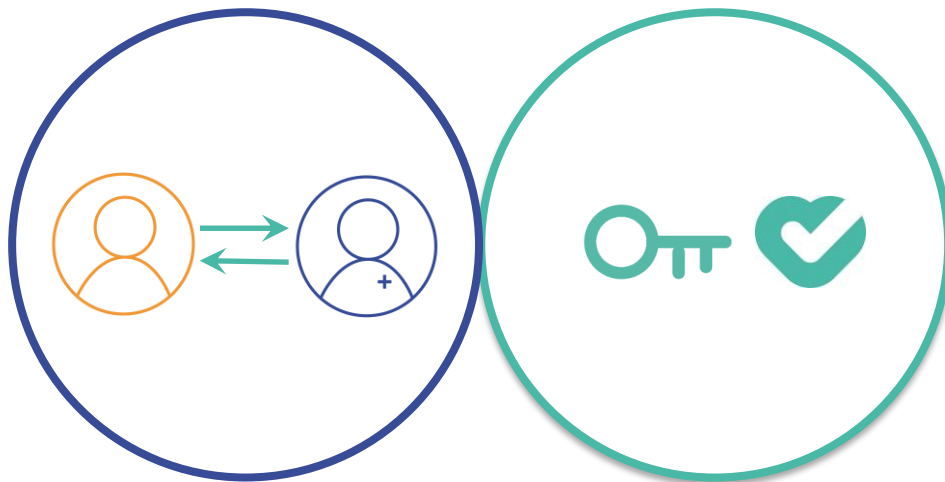


**Many-to-many connections limit
innovation, give higher costs**



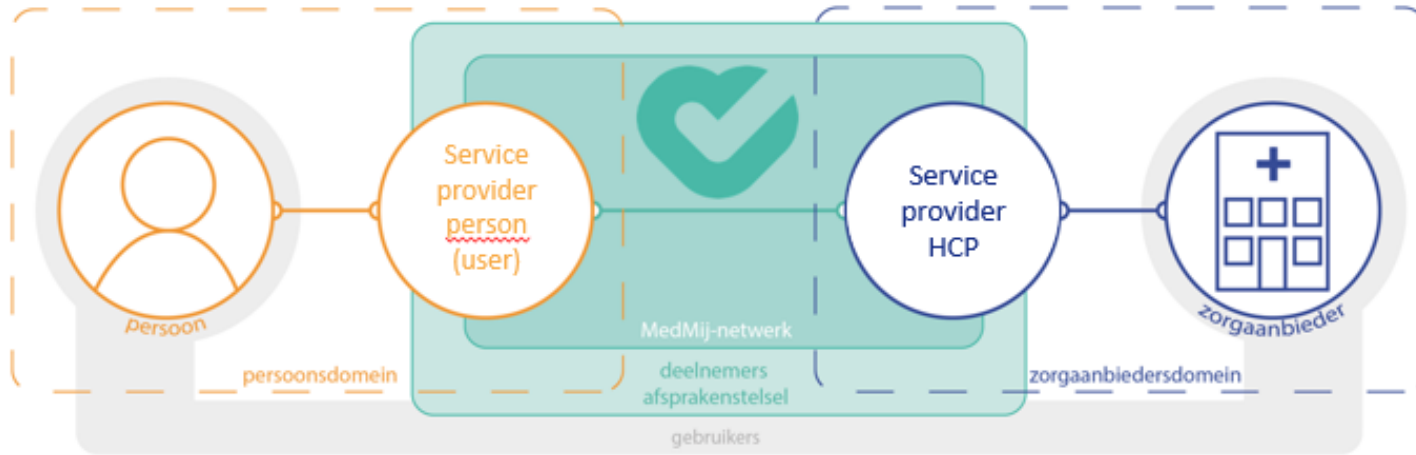
Core tasks of MedMij

Facilitate digital exchange of health data between residents of the Netherlands and their healthcare providers



Creating confidence that this is done in a safe, sustainable, affordable and user-friendly way

What does the framework do?



✓ It states which parties fulfill the roles of data exchange



✓ It has clear governance

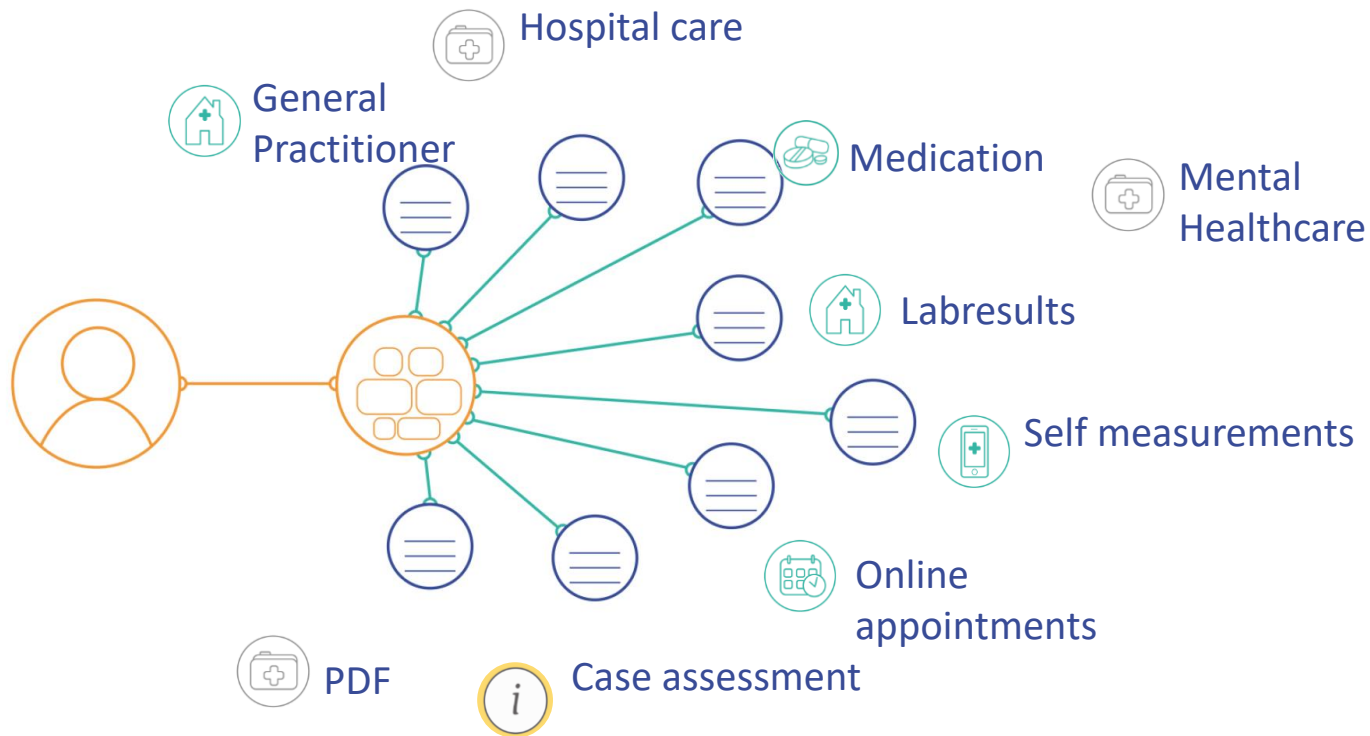


✓ Agreements between these parties about rights, obligations, incentives, sanctions, testing and objections



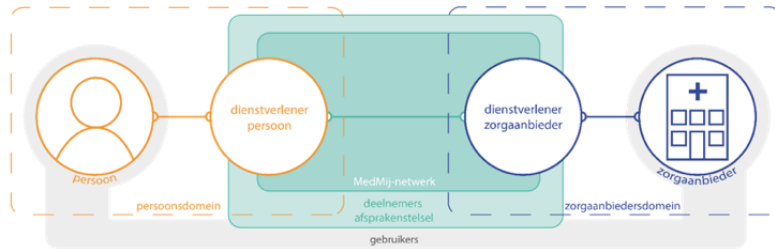
✓ It's maintained and secured

MedMij Information Standards

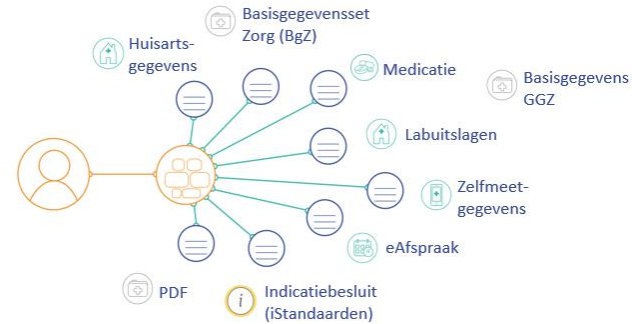


MedMij programme products

Framework



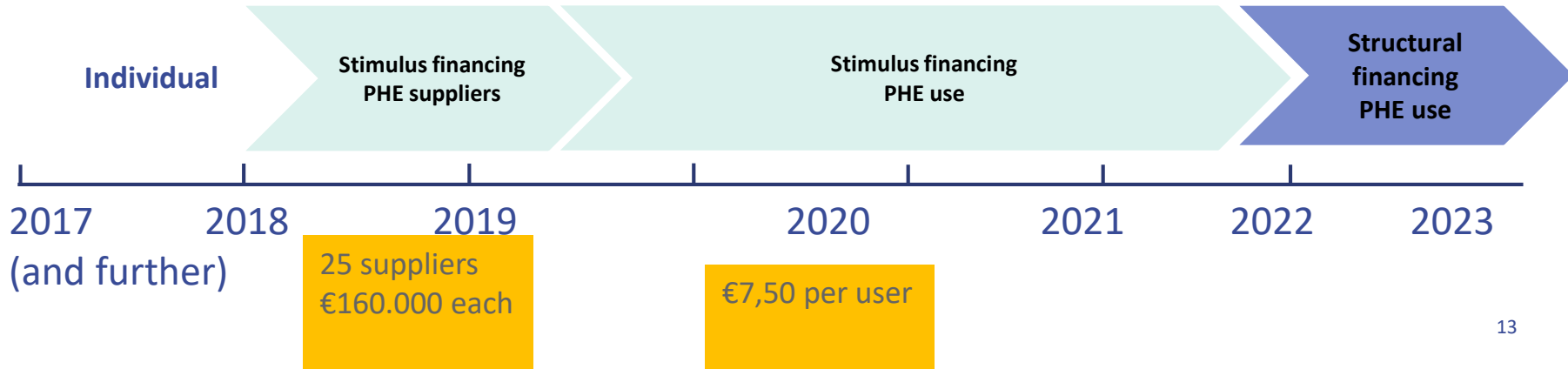
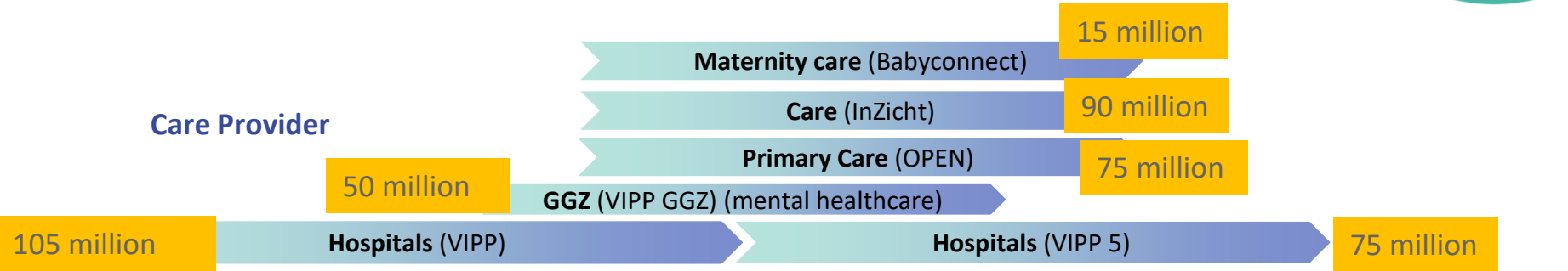
Standards



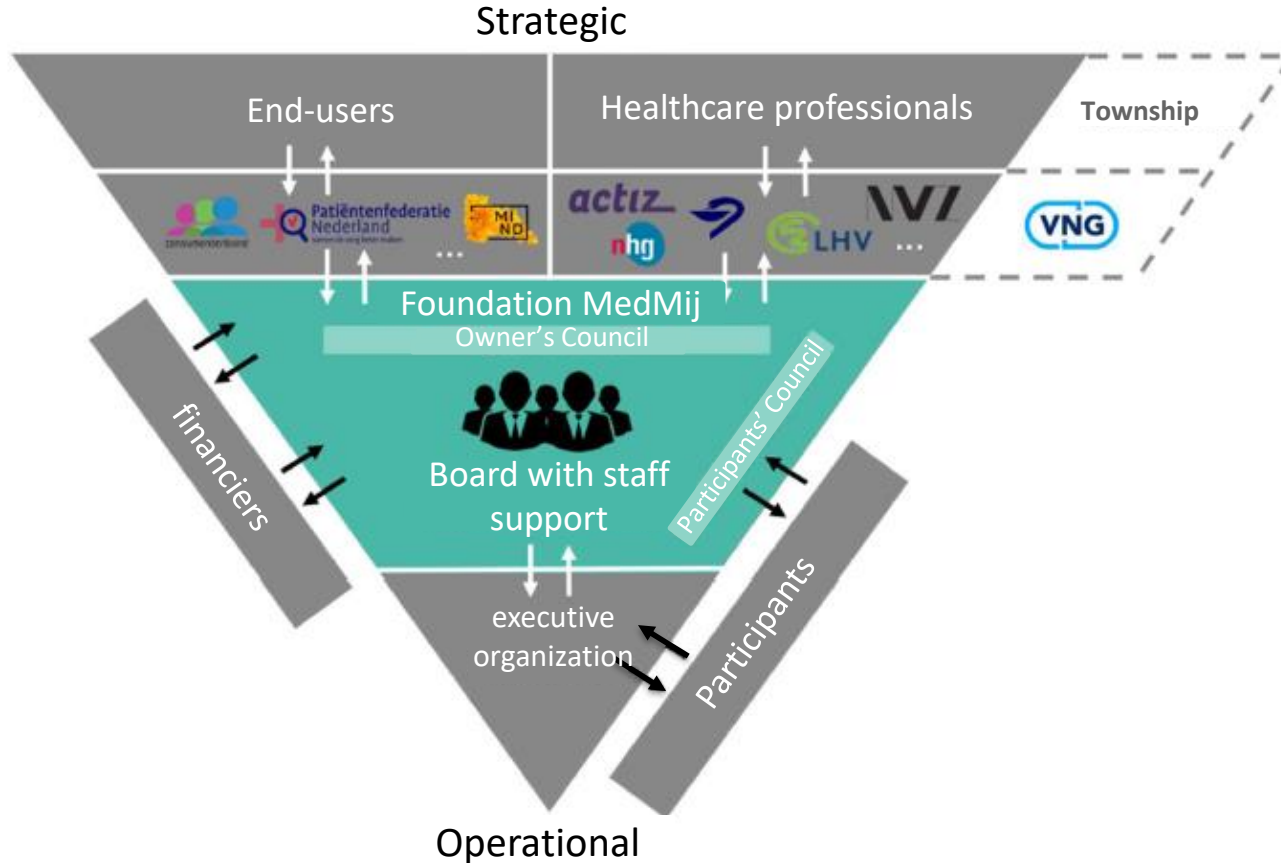
Financing



Financing system

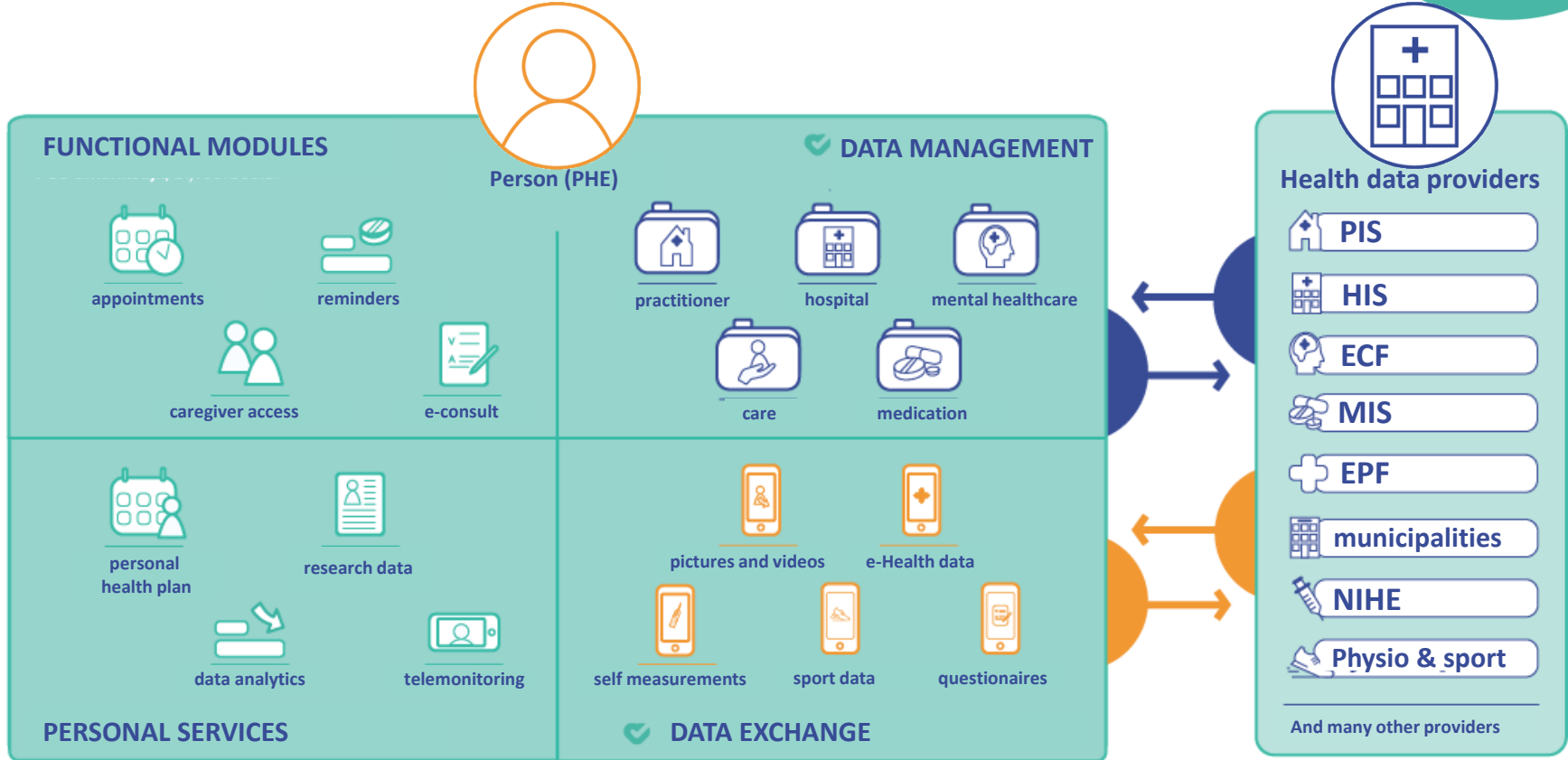


Governance of MedMij Foundation



Future plans

The PHE as a dashboard for healthcare



A silhouette of a person pushing a large ball up a hill, symbolizing a challenge or struggle. The person is on the left, pushing the ball up a curved slope that goes from the bottom left towards the top left. The background is a solid blue color.

Challenges

- User friendly Personal Health Environments
- Who owns the data?
- Change in healthcare

Thank you

Questions?

Email to r.trul@medmij.nl

The Need for a Common Rulebook for Data Sharing

Saara Malkamäki

Specialist, IHAN project

Sitra – the Finnish Innovation Fund

✉ saara.malkamaki@sitra.fi

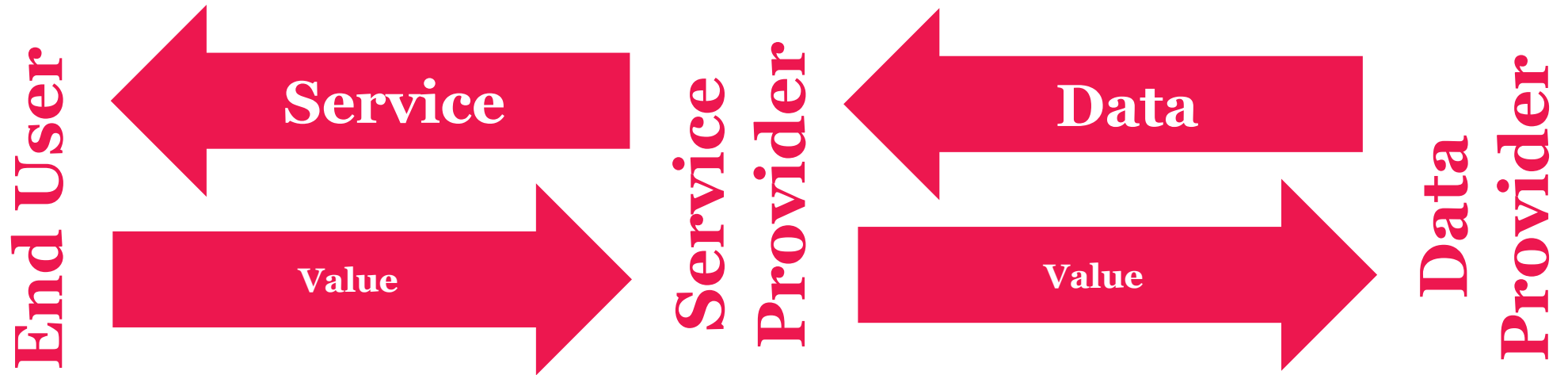
🐦 [@saara_malkamaki](https://twitter.com/saara_malkamaki)

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



+ Leader & external stakeholders

Subcontractor



Infrastructure Provider

Examples of value creation from a data ecosystem

- New collaboration and co-creation opportunities
- Trustworthy and reliable partners
- Increase in knowhow
- More data
- Faster and better use of data
- Opportunity to share data
- Permit to use data
- Comparative data
- Better analysis and further processing of data
- Euros €
- New business opportunities
- Increase in competitiveness
- Better targeting of the investment path

- Possibilities in preventive work
- More effective treatment process
- Products and services in wider use
- Launch for new products and services
- Feedback to service development
- Enhanced services development
- Comprehensive understanding of end user
- Happy end user
- Increase in trust
- Personalised services
- Right doer in the right place at the right time
- Valuable support
- Better knowledge management

- Wider well-being perspective
- Better impacts and impact measurement
- Reference and brand value
- Increase in industry expertise
- Access to a network
- Better API services

Value each entity receives from other entities in the data ecosystem

Arvo, mitä vaaka-akselilla pystytään saamaan	Organisation A	Organisation B	Organisation C	Organisation D	Organisation E	Organisation F
Organisation A		<ul style="list-style-type: none"> Yhteistyö ja tiedon jakaminen, yhteistyön mahdollisuus, yhteistyön mahdollisuus Yhteistyön mahdollisuus Yhteistyön mahdollisuus Yhteistyön mahdollisuus Yhteistyön mahdollisuus 	<ul style="list-style-type: none"> € Arvon ja tiedon jalostaminen rahaksi Hyviä vaikutuksia Yhteistyön mahdollisuus 	<ul style="list-style-type: none"> € Referenssiarvo Toimialaosaaminen Osallisuus Pääly verkoston Eräitä palvelukäytöksiä 	<ul style="list-style-type: none"> Data ja lupahyödyntäminen Yhteistyö 	<ul style="list-style-type: none"> Yhteistyö ja palvelut Parhaat työt Hyvätyökyky Yhteistyö Kokonaistilanne hyvien toimintojen lähtökohdilla
Organisation B	<ul style="list-style-type: none"> Parempi yhteistyö Data, vertailutieto € parhaiten suoritus tulos 		<ul style="list-style-type: none"> Vertailutieto Yhteistyön mahdollisuus ja Yhteistyön mahdollisuus 	<ul style="list-style-type: none"> € Referenssiarvo Toimialaosaaminen Osallisuus Pääly verkoston Eräitä palvelukäytöksiä 	<ul style="list-style-type: none"> Riskiprofiili/vertailutieto Yhteistyö ja yhteistyö 	<ul style="list-style-type: none"> Parhaat työt Vertailutieto - mitään konkreettisia toimintoja huomioon - miten pystyt hyvätyökyky
Organisation C	<ul style="list-style-type: none"> Tiedon jakaminen Laadun parantaminen Hyvätyökyky Yhteistyön mahdollisuus Yhteistyön mahdollisuus Yhteistyön mahdollisuus 	<ul style="list-style-type: none"> Kokonaistilanne hyvien toimintojen Eräitä palvelukäytöksiä Osallisuus 		<ul style="list-style-type: none"> Integrointi € Referenssiarvo Toimialaosaaminen Osallisuus Pääly verkoston Eräitä palvelukäytöksiä 	<ul style="list-style-type: none"> Toiminnan oppiminen Parhaat työt Yhteistyö ja yhteistyö Yhteistyö ja yhteistyö Yhteistyö ja yhteistyö Yhteistyö ja yhteistyö 	<ul style="list-style-type: none"> Parhaat työt Hyvätyökyky Yhteistyö ja yhteistyö Yhteistyö ja yhteistyö Yhteistyö ja yhteistyö Yhteistyö ja yhteistyö
Organisation D	<ul style="list-style-type: none"> Hyvätyökyky Yhteistyö ja yhteistyö Yhteistyö ja yhteistyö Yhteistyö ja yhteistyö Yhteistyö ja yhteistyö Yhteistyö ja yhteistyö 	<ul style="list-style-type: none"> Mahdollisuus hyödyntää dataa Yhteistyön mahdollisuus Yhteistyön mahdollisuus 	<ul style="list-style-type: none"> Mahdollisuus hyödyntää dataa Yhteistyön mahdollisuus Yhteistyön mahdollisuus 		<ul style="list-style-type: none"> Yhteistyö ja yhteistyö Yhteistyö ja yhteistyö Yhteistyö ja yhteistyö Yhteistyö ja yhteistyö Yhteistyö ja yhteistyö Yhteistyö ja yhteistyö 	<ul style="list-style-type: none"> Online-työ Selkeä ja helppo on antaa hyviä työtyökyky hyvätyökyky hyvätyökyky
Organisation E	<ul style="list-style-type: none"> Tiedon jakaminen Laadun parantaminen Hyvätyökyky Yhteistyön mahdollisuus Yhteistyön mahdollisuus Yhteistyön mahdollisuus 	<ul style="list-style-type: none"> Oppi ja laadun hyvien toimintojen dataa Yhteistyön mahdollisuus Yhteistyön mahdollisuus 	<ul style="list-style-type: none"> Tietojen integrointi ja Yhteistyön mahdollisuus Yhteistyön mahdollisuus Yhteistyön mahdollisuus Yhteistyön mahdollisuus 	<ul style="list-style-type: none"> Yhteistyö ja yhteistyö Yhteistyö ja yhteistyö Yhteistyö ja yhteistyö Yhteistyö ja yhteistyö Yhteistyö ja yhteistyö Yhteistyö ja yhteistyö 		<ul style="list-style-type: none"> Luottamus työsuojelun tuottamien palvelujen hyvätyökyky hyvätyökyky hyvätyökyky hyvätyökyky
Organisation F	<ul style="list-style-type: none"> Kokonaistilanne hyvien toimintojen Eräitä palvelukäytöksiä Osallisuus 	<ul style="list-style-type: none"> Pyynnön viivästyminen Yhteistyön mahdollisuus Yhteistyön mahdollisuus Yhteistyön mahdollisuus Yhteistyön mahdollisuus 	<ul style="list-style-type: none"> Data Eräitä palvelukäytöksiä Yhteistyön mahdollisuus Yhteistyön mahdollisuus Yhteistyön mahdollisuus 	<ul style="list-style-type: none"> Yhteistyö ja yhteistyö Yhteistyö ja yhteistyö Yhteistyö ja yhteistyö Yhteistyö ja yhteistyö Yhteistyö ja yhteistyö Yhteistyö ja yhteistyö 	<ul style="list-style-type: none"> Hyvien palvelujen hyvätyökyky hyvätyökyky hyvätyökyky hyvätyökyky hyvätyökyky 	<ul style="list-style-type: none"> Luottamus työsuojelun tuottamien palvelujen hyvätyökyky hyvätyökyky hyvätyökyky hyvätyökyky

Pathway to a fair data ecosystem

Self-regulation based on a common rulebook for data sharing ecosystems

1. Roles

- Common vision and objective
- Main roles
- Value matrix
- Data needed

2. Business Models

- Combined role based business models
- Data and cash flows
- Shared capabilities

3. Rulebook

- Data ecosystem business model in a contract format
- Entities' responsibilities, duties and roles in a contract

4. Technical Solutions

- Interfaces
- Data contents & formats
- Technical section of the rulebook

**RULEBOOK DESCRIBES ORGANISATIONS'
LEGAL, BUSINESS, TECHNICAL, ETHICAL AND
GOVERNANCE FRAMEWORK IN A DATA
ECOSYSTEM. IT IS A FOUNDING DOCUMENT
THAT MEMBERS SIGN TO ADHERE TO.**

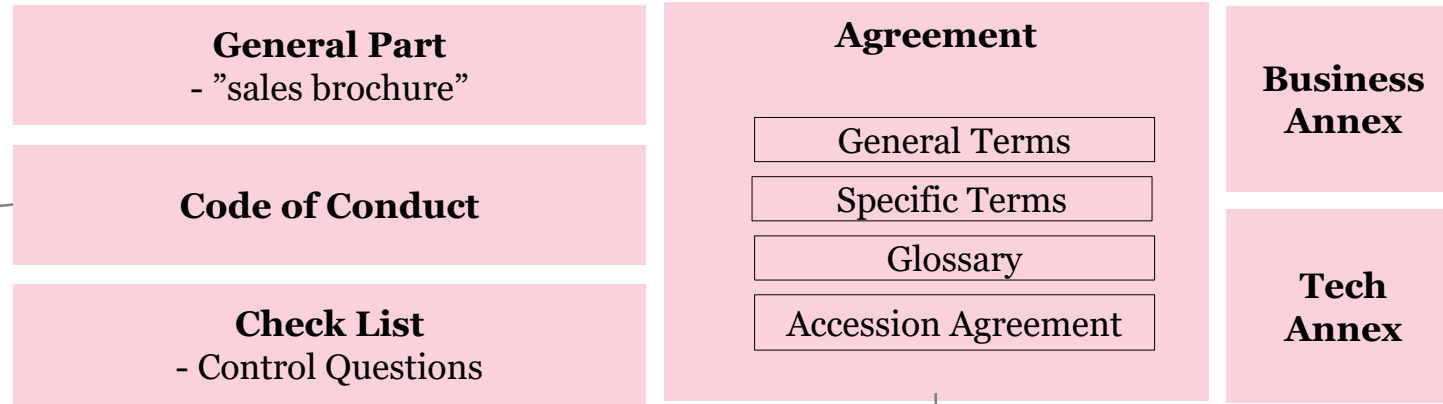
Data Ecosystem – Rulebook

Legal

Business

Technology

Ethics



Data Sets

Terms

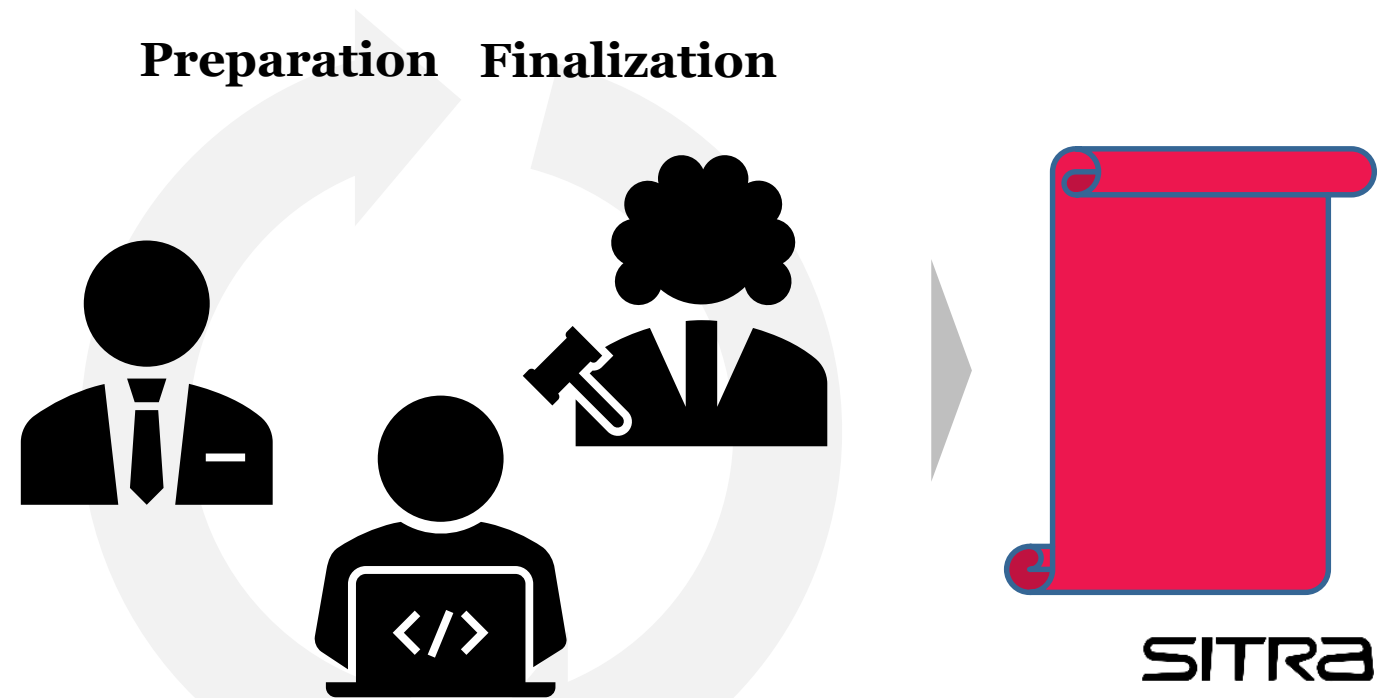
Parties - members

Roles

Externals: Individuals, legal entities, others

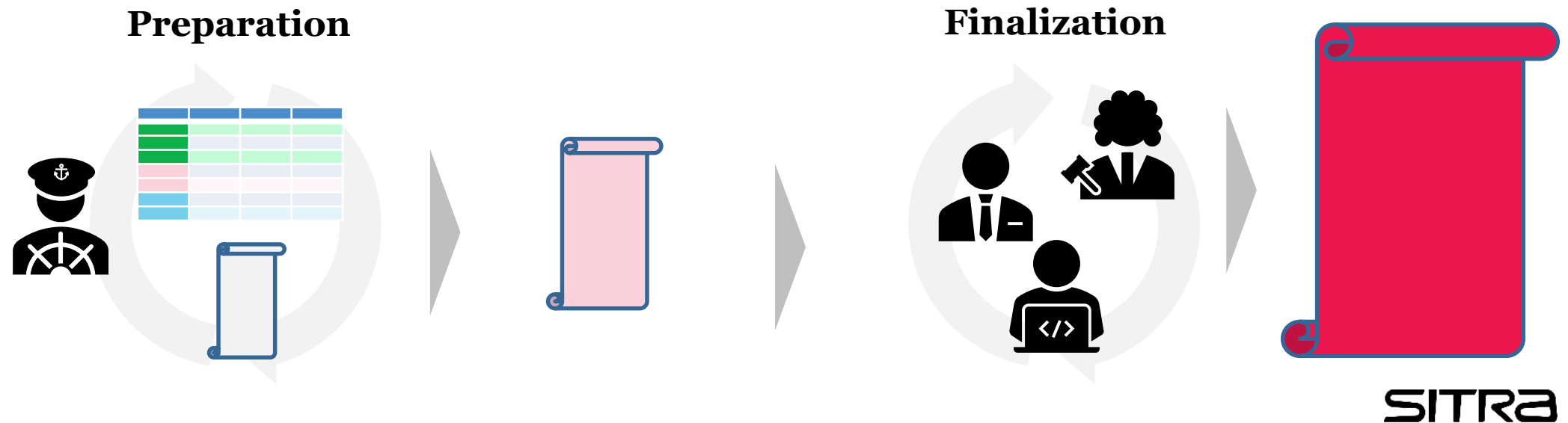
Current state

- Rulebooks are hand written by expensive experts – lawyers, business developers and IT architects - who start from scratch each time a new rulebook needs to be written
- Very little or no reuse
- Extra iterations are **costly** because these expensive experts are involved in both preparation and finalization phases



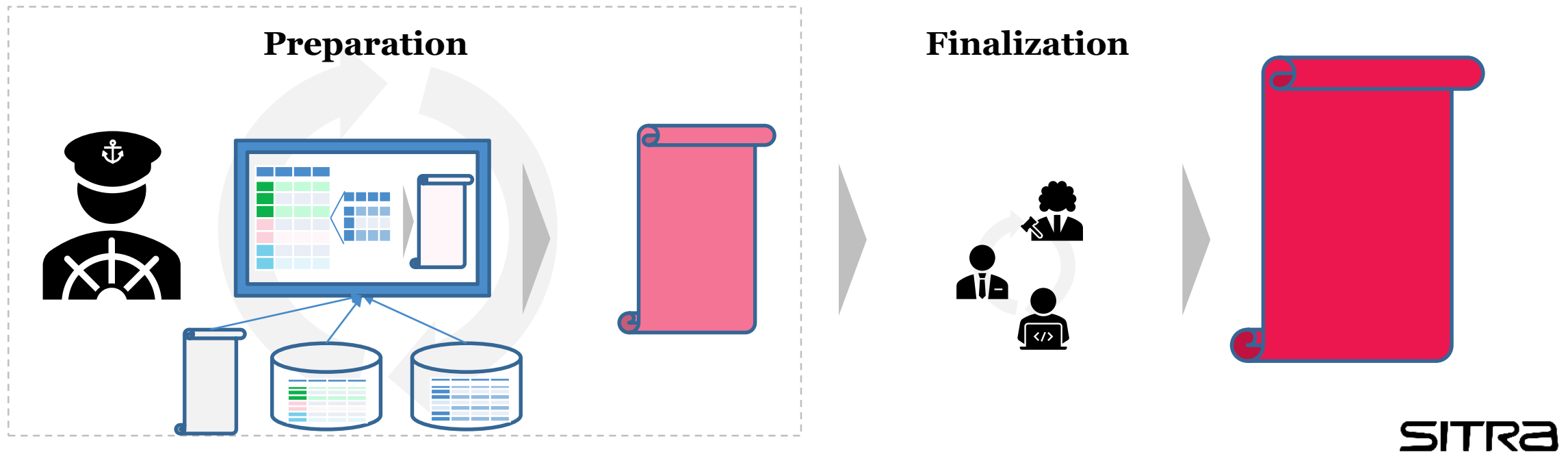
Near future state

- Preparation phase is separated from Finalization phase by creating an initial list of control questions
- By answering to these questions, respective sections in the rulebook template are filled
- This creates the initial rulebook which experts then finalize
- Iterations in the Finalization phase are **reduced**



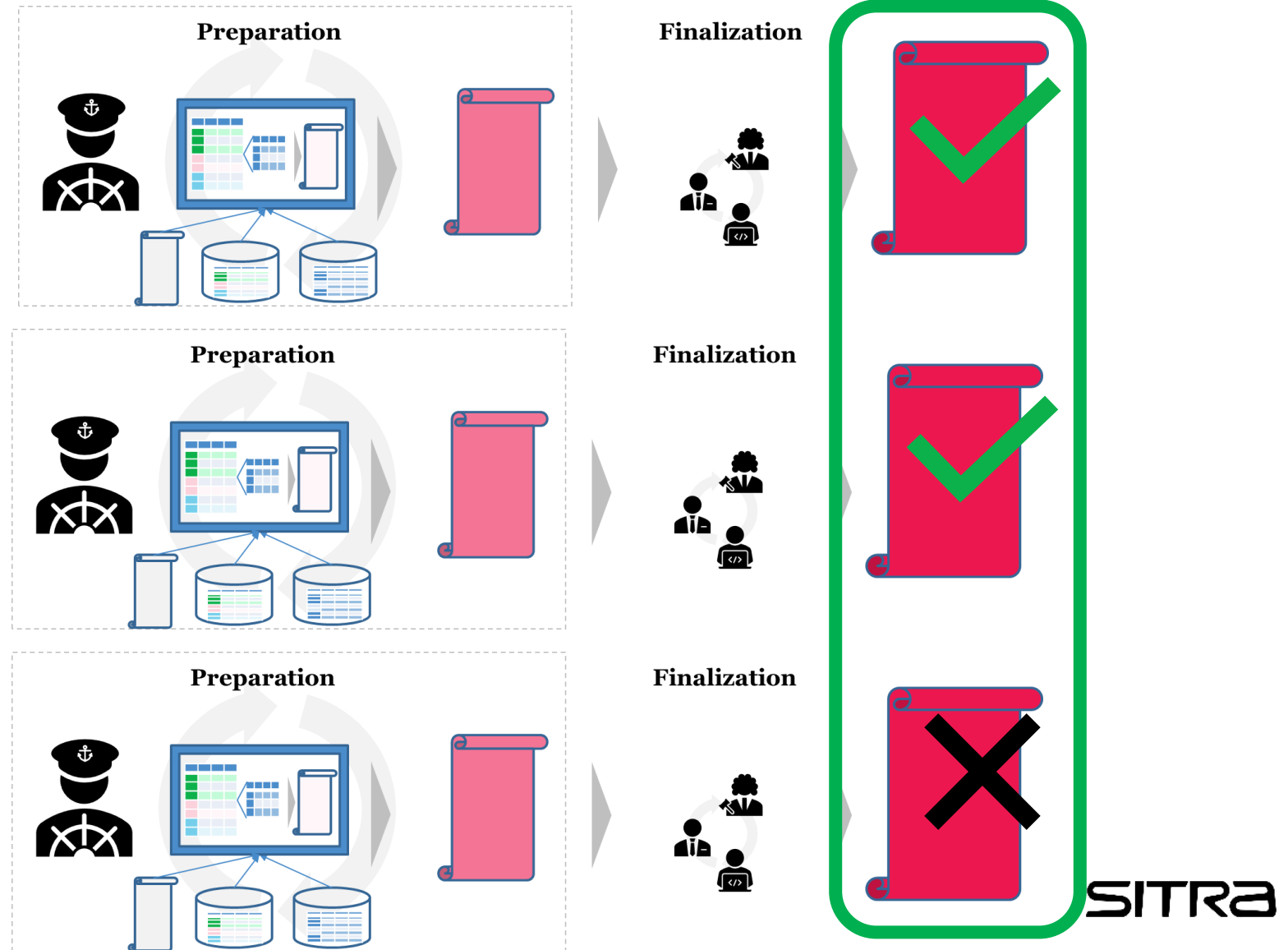
End state

- A tool which automates the creation of the initial rulebook as much as possible and guides the business leaders to go through the control questions
- Iterations in the Finalization phase are **minimized**
- Control questions and rulebook structure are stored in an updateable data repository



Rulebook interoperability validation process

- Ensures that the resulting rulebooks conform to set quality and content standards
- Also ensures interoperability between data ecosystems



Benefits

- Easier and cost-efficient creation of the ecosystem rulebook
- Possibility for organisations to join various data ecosystems more easily
- Increasing know-how, trust and common market practises
- Ensuring fair, sustainable and ethically business within the data ecosystems

Oh yeah!



Rulebook next steps

- The first version of the Rulebook is available on 3 December 2019
- A public seminar on the Rulebook will be held on Tuesday 21 January 2020
- Rulebook version 2.0 will be available by the end of 2020 including significant improvements from practical experience
- Tool creation will commence after baseline has been stabilized

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