Ericsson Nikola Tesla Group

Ivan Lupić
Digital Society, Business Development

An associated member of Ericsson Corporation

Segments

Telco & Managed services

Trusted advisor to our customers
Market leader on our markets

Digital Society (DS)

Partner of choice that leads digital transformation in selected I&S verticals like e-Health, land registry, etc.

R&D

R&D Center is positioned as one of the best performing within the global R&D organization, reliable and competent in strategically important segments

Services

Highly competent and competitive service hub providing quality technical, consultative and innovation capabilities

Our experts - globally recognized for their excellence

3,490

of employees in Croatia, B&H, Kosovo

91%

of highly educated experts

31%

of employees younger than 32

38 years old

average employee age

73% : 27%

gender ratio male : female

24%

of women in managerial positions

**data for the Group*

We encourage new ideas

Hackathons

Innovation Days

Innovation Challenges

Ericsson Nikola Tesla Summer Camp

Ericsson Garage Croatia

Innovation culture

Digital Society

Partner of choice for selected industries, leading digital transformation together with our customers.

Digital Transformation of Society
Domains and key offerings

Digital Government
- Case management solutions
- Archiving solutions
- Learning solutions
- Geospatial analysis

Land Administration
- Land registry
- One stop shop
- Building registry
- Infrastructure registry
- Professional domain solutions

Transport
- National access point
- Traffic management
- Automatic fare collection
- Passenger information system
- Railway solutions

Healthcare
- 4 national informatization projects
- Electronic health record
- E-prescription, E-referral,
- E-booking
- Telemedicine

Smart Energy
- Smart Building
- Smart city lighting
- Energy infrastructure protection

Environment
- Water quality management
- Nature preservation solutions
- Industry environment
- Urban development

National security and public safety
- National infrastructure protection
- Border and Area security

Horizontal solutions
- Data Jedi (Data Management)
- OD Matrices (Big Data)
- WebGIS
- Virtual assistant
- Private 5G networks

Digital transformation

AI +

ICT

Social networks

Mobile technologies

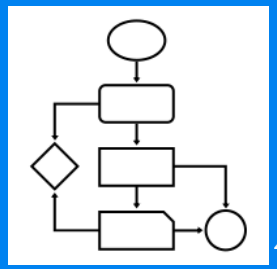
Cloud computing

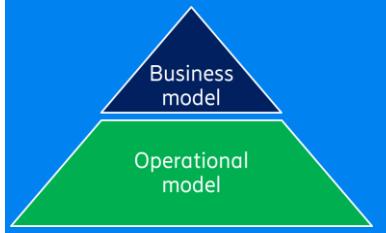
Internet of Things (IoT)

Data analytics

Challenging and changing:

- Business processes
- Business models
- Operational models





Imagine a complex system where:

Focus is on the process and the service provider and not the customer

Costs are mostly fragmented, isolated and not easily manageable

Processes are mostly fragmented and isolated

Decisions are often made upon individual knowledge and experience

Ordering process is mostly manual and paper based

Experience is mostly individual and not truly shared

Information for any participant in the process is mostly fragmented, isolated and not always available

Finance & economics | Ouch

Why health-care services are in

CNN World Africa Americas Asia Australia China Europe India Middle East More

The Observer
NHS

Sick man of Europe: why the crisis-ridden NHS is falling apart

Toby Helm, Shanti Das, Jon Henley *in Paris and* Kate Connolly *in Berlin*

Sun 8 Jan 2023 09.00 GMT

ChatGPT says:

Another question: can you please define eHealth?

eHealth is the use of digital technologies, such as the internet, mobile devices, and wearables, to improve health, healthcare, and wellness. This can include the use of online health information, telemedicine or virtual consultations, electronic health records, and mHealth (mobile health) applications for self-monitoring and self-management of health conditions. The goal of eHealth is to improve access to health information and services, enhance the quality of care, and support patient empowerment and self-care. It is also expected to play a key role in reducing healthcare costs, improving health outcomes, and addressing challenges such as the shortage of healthcare professionals in certain areas.

Challenges in healthcare today

Provide good care at an affordable cost

+

Increase availability of care for all

+

Help people stay healthy

+

Demographic shift

+

Rise in chronic diseases

= ?

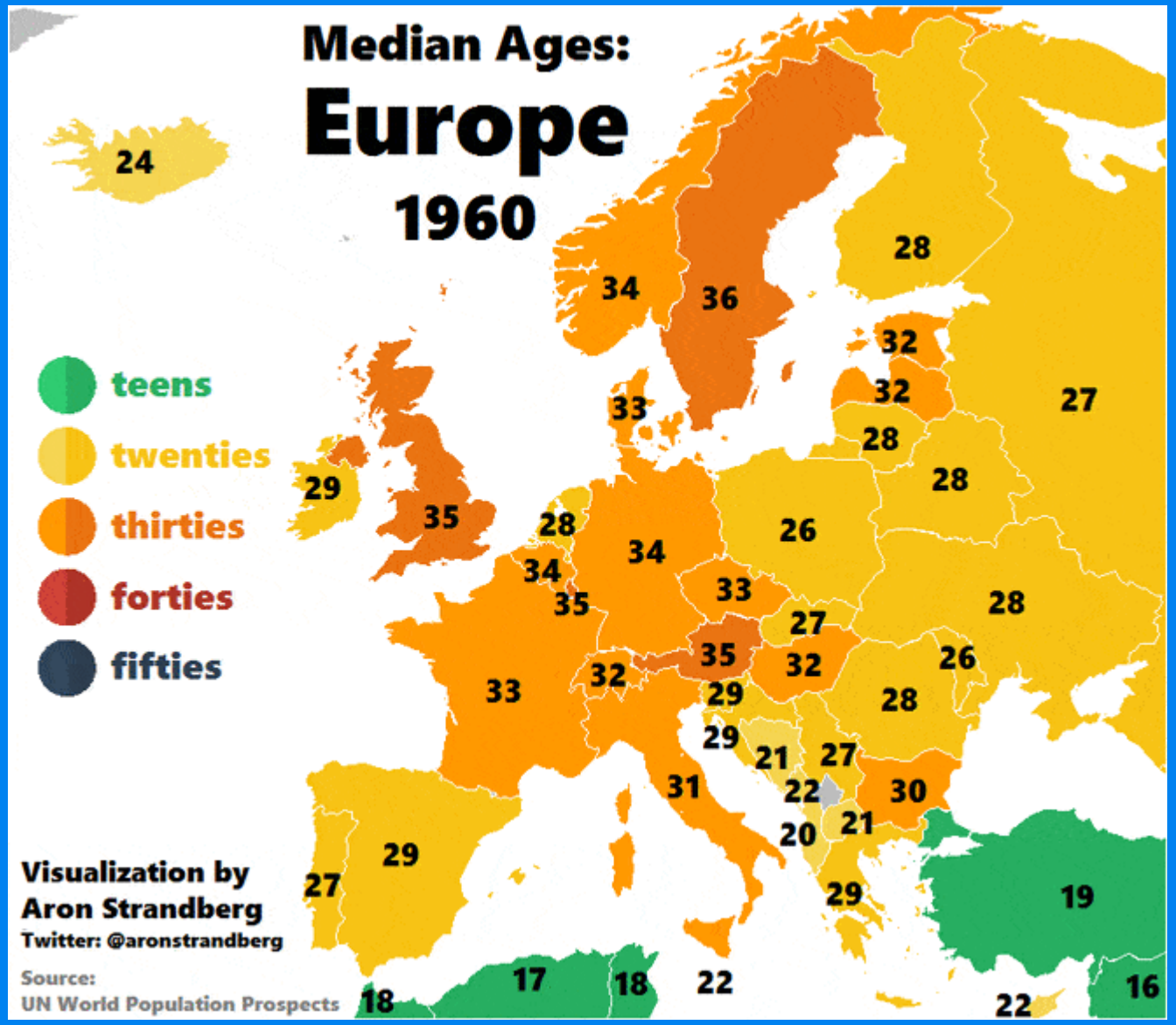
More developed parts of the world

- Rising healthcare expenditures
- Pressure on healthcare service delivery
- Care of aging populations

•••

Less developed parts of the world

- Poor healthcare delivery infrastructure
- Lack of trained personnel
- Managing non-communicable diseases in addition to communicable diseases



https://www.weforum.org/agenda/2017/11/these-animations-show-the-western-world-is-rapidly-ageing

Key types of healthcare system funding

Beveridge

- Government fund
- Free services av
- E.g. UK, Spain, S
  Veterans and N
- Challenge: long waiting lists, ageing population

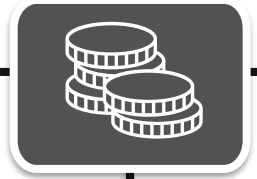
Bismarck

- employees
- Japan, France,
- Challenge: population not under employment, ageing population

Croatia

Beveridge ↔ Bismarck

Mandatory insurance system + state budget transfers

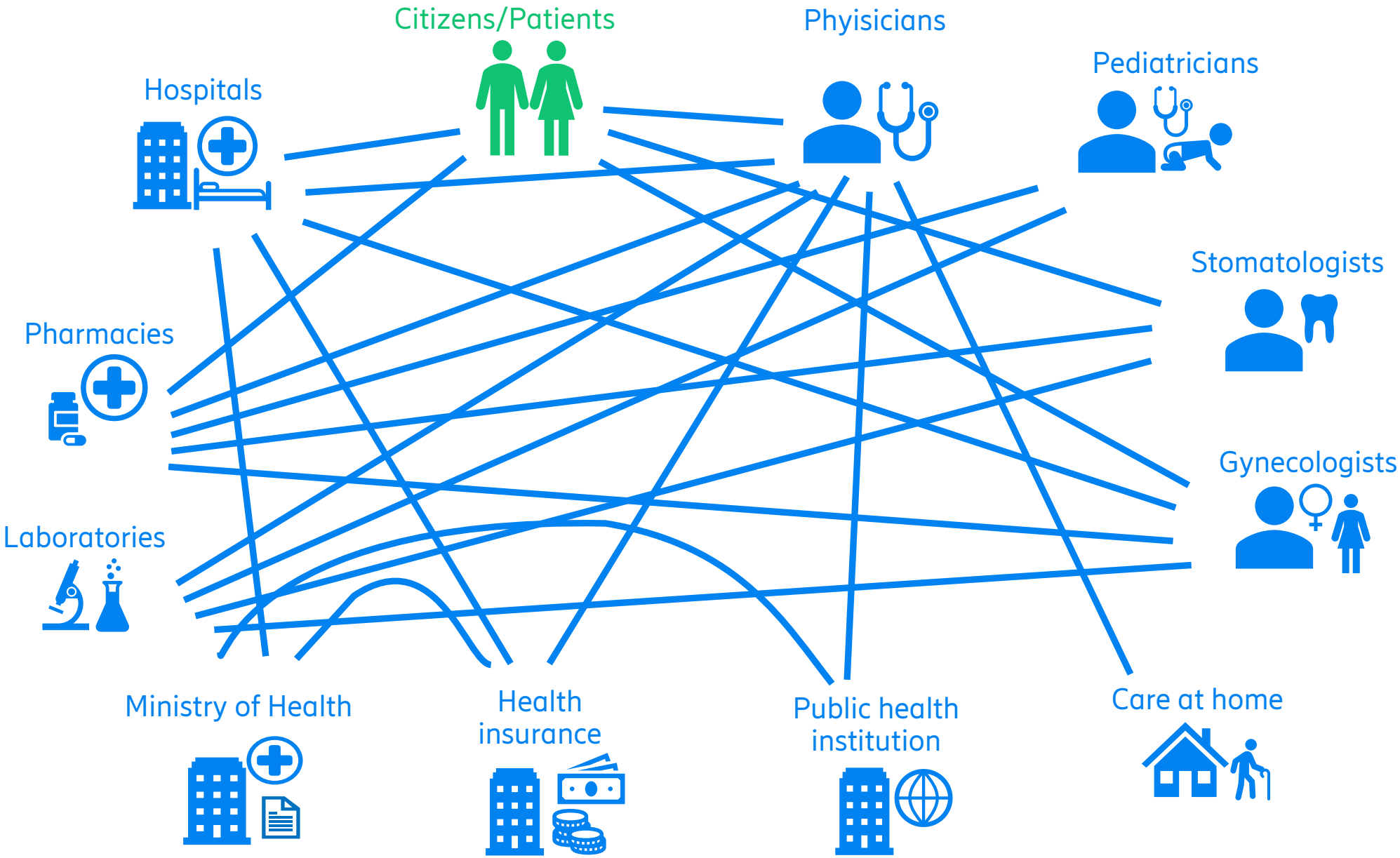


National Health Insurance

- Funding through a state-operated insurance scheme that every citizen pays into
- E.g. Canada, South Korea, Taiwan, (US: Medicare)
- Challenge: long waiting lists

Out-of-Pocket

- Individuals pay for own care
- E.g. rural areas of India and China, parts of Africa and South America, (US: uninsured individuals)
- Challenge: unavailable and unaffordable care, especially for the poorest citizens


Citizens/Patients
Phyisicians
Hospitals
Pediatricians
Stomatologists
Pharmacies
Gynecologists
Laboratories
Ministry of Health
Health insurance
Public health institution
Care at home

Citizens/Patients

Phyisicians

Pediatricians

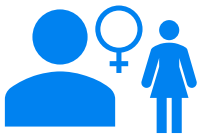
Hospitals

National Healthcare Integration Platform

Stomatologists

Pharmacies

Gynecologists



Laboratories

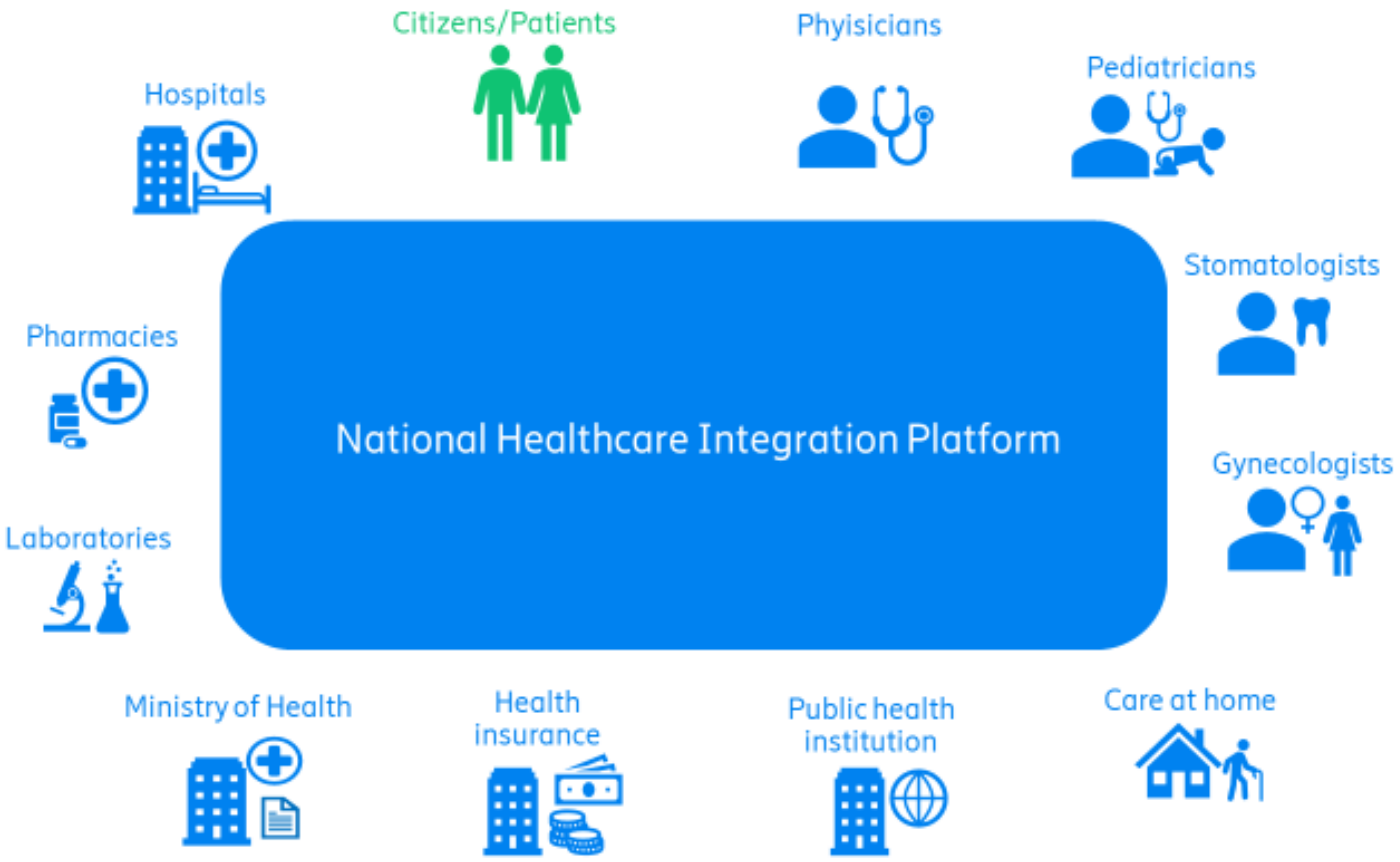
Ministry of Health

Health insurance

Public health institution

Care at home

eHealth in Croatia



Integrated healthcare applications / information systems (No.)

- Family doctors – 8
- Pediatricians – 7
- Gynecologist - 8
- Dentist– 7
- School medicine - 1
- Laboratory IS (within primary care) - 5
- Community pharmacy apps- 4
- Outpatient specialistic care – 20
- Home care apps– 13
- Physical therapy at home apps - 12
- Laboratory IS (microbilogy) – 5
- Apps for dispensation of medical aids – 10
- Hospital information system - >5

E-prescription

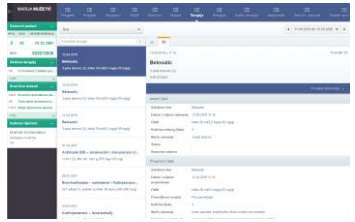
(connected to EU crossborder system for prescription exchange)

60+ millions prescriptions yearly

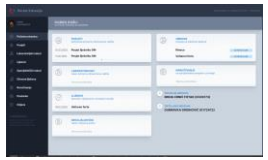
98,7% e-prescriptions

EHR

(connected to EU crossborder system for patient summary exchange)



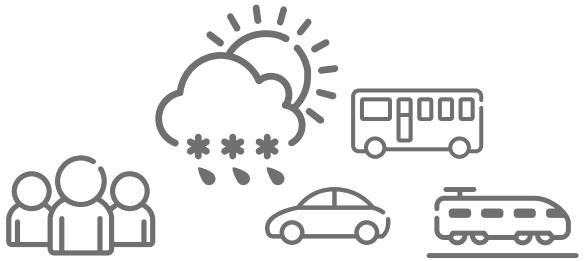
Patient access to data & services



Patient portal

(part of eGov infrastructure)

Mobile application



E-referral (PHC laboratory)

15.000 people do not have to travel

50+ millions individual patient summaries yearly (from PHC)

Diagnosis, status, procedures, medications, referrals...)

over 1.000.000 requests dayly on insurance status and other administrative patient data

National prevention programs

(Cervix, breast cancer, colon cancer / lung cancer)

E- referral (incl. specialist opinion/discharge letter)

15+ millions* referrals

*yearly

malignant and infectious diseases report sick-leave registration

"Communication msg."

(8 different ways of utilization)

- Teeth status registration
- procedures registration
- panel (different vital signs and measurements) registration...

E-medical aids

Prescribing, approval (information system or human), dispensing

Home care

Prescribing and reporting on performed home care

Teleradiology

Initially 4 locations connected (Hvar, Brač, Trogir i Vrgorac)

Instant access to radiology pictures created on any location

video communication for consultations and

Coordinated simultaneous access to pictures

Physical therapy at home

Prescribing, approval and reporting on performed therapy

Document registry/repository (HL7 CDA documents)

My EHR

Pharmacies across Croatia
EMR N

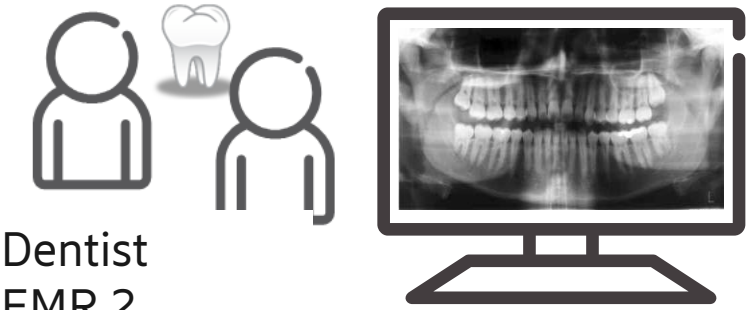
...

General Hospital Dubrovnik
EMR 4

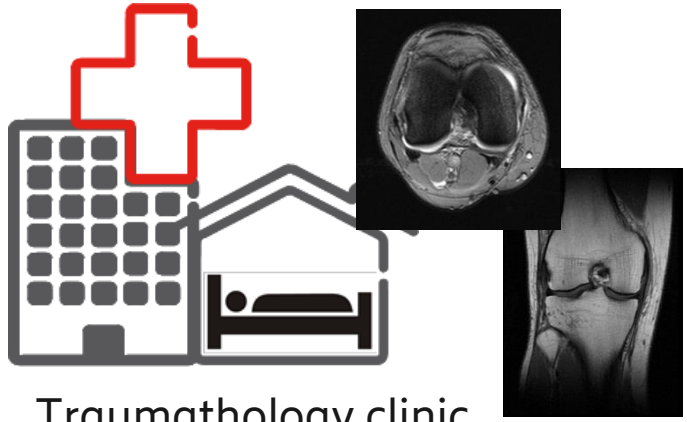
Doctors' application

Nurses' application

GP
Electronic medical record
EMR 1

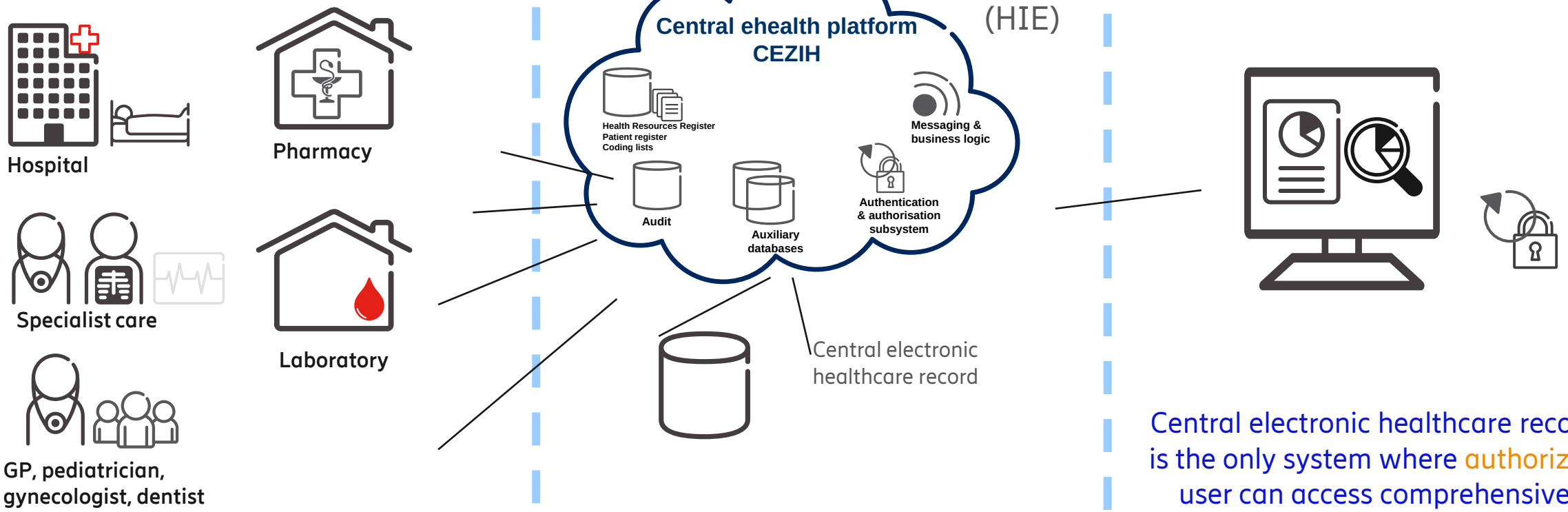


Dentist
EMR 2



Traumathology clinic
EMR 3

Electronic healthcare record - architecture



Healthcare professionals has locally stored medical data (but only these generated by themselves or those that are sent directly to them (e.g. discharge letter)

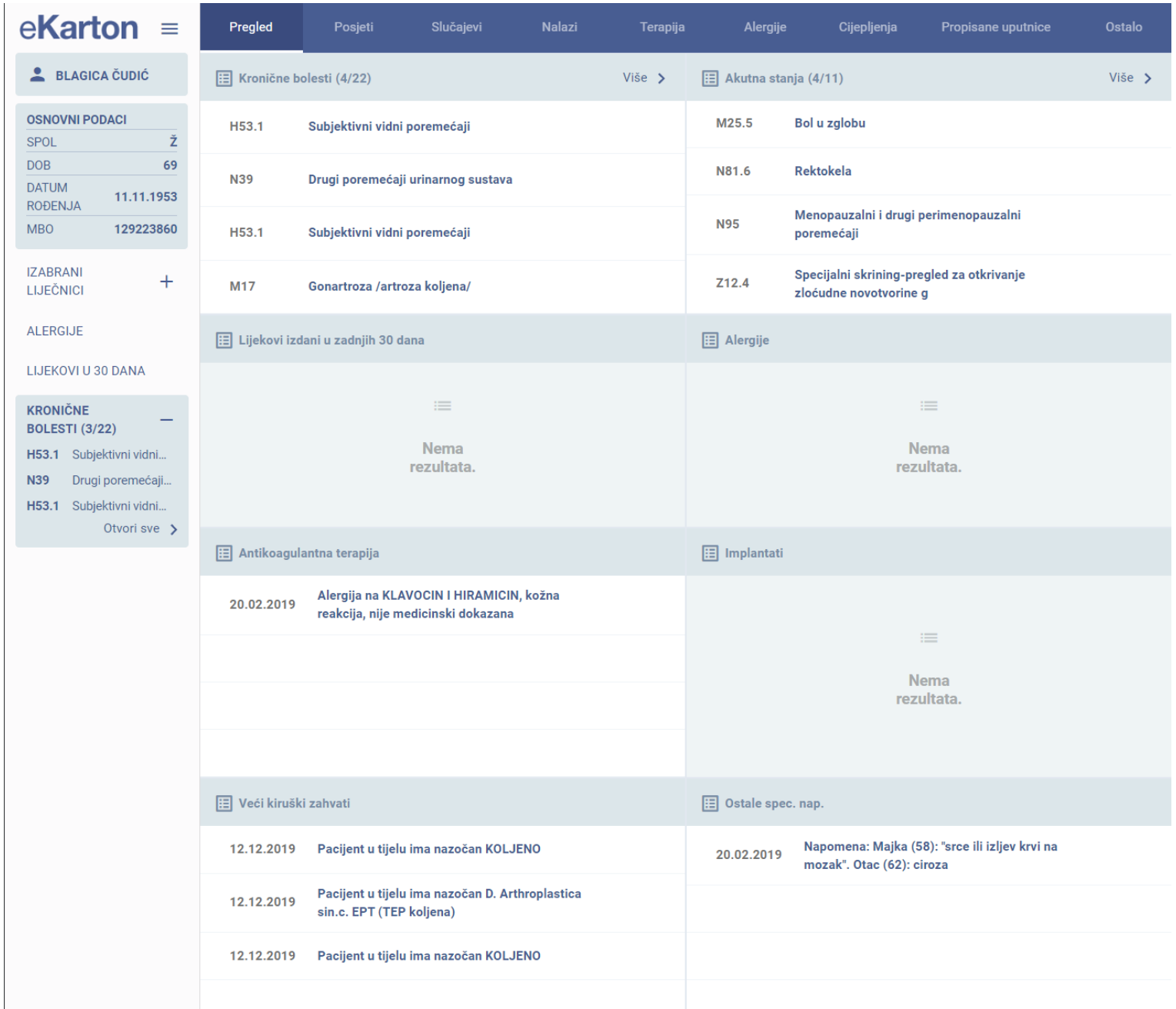
Huge amount of medical data is exchanged through cezih (e-Prescription, e-referal...)

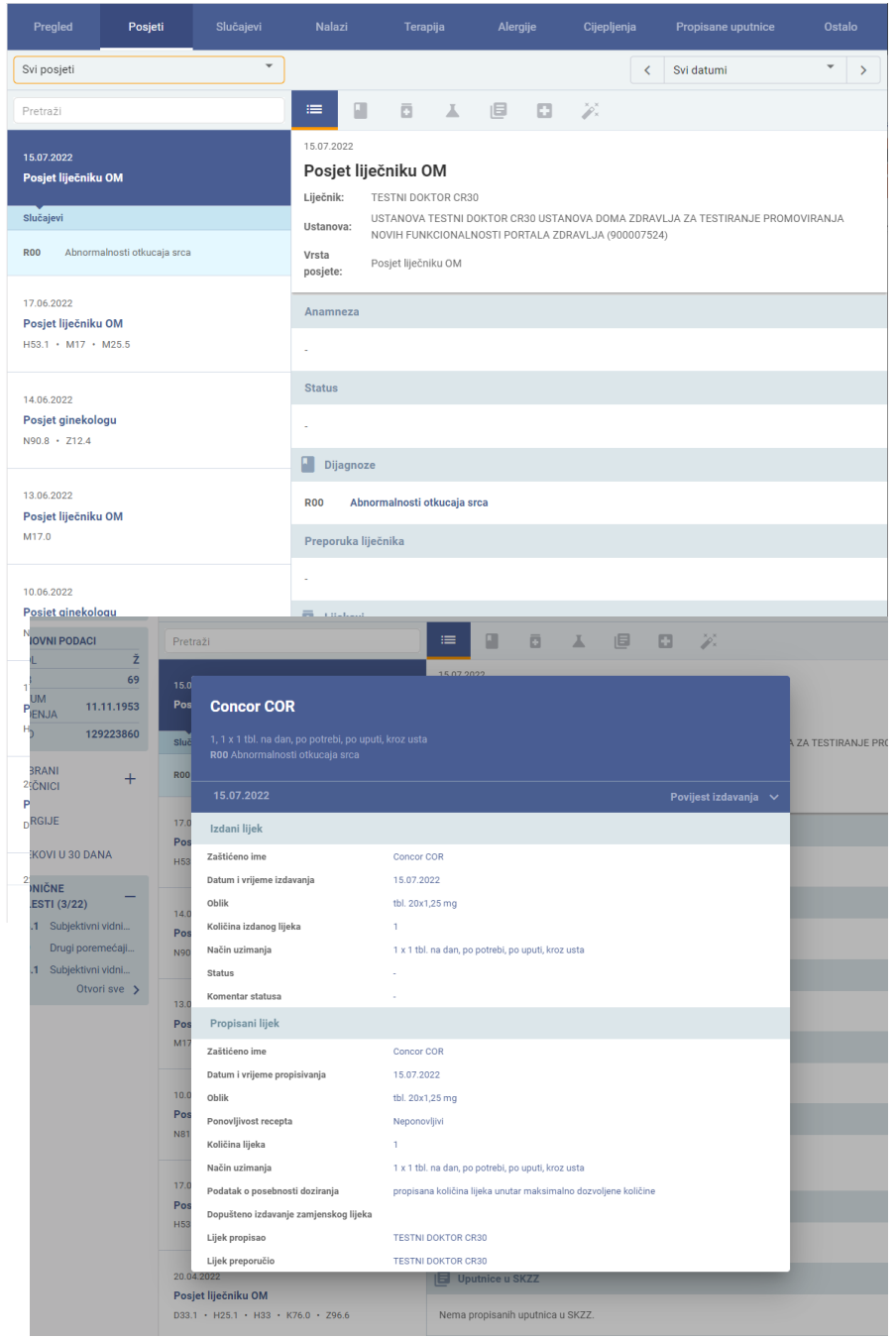
Centrally stored Medical data

Central electronic healthcare record is the only system where authorized user can access comprehensive lifelong patient medical record

Source of the data is any application/system connected to the cezih

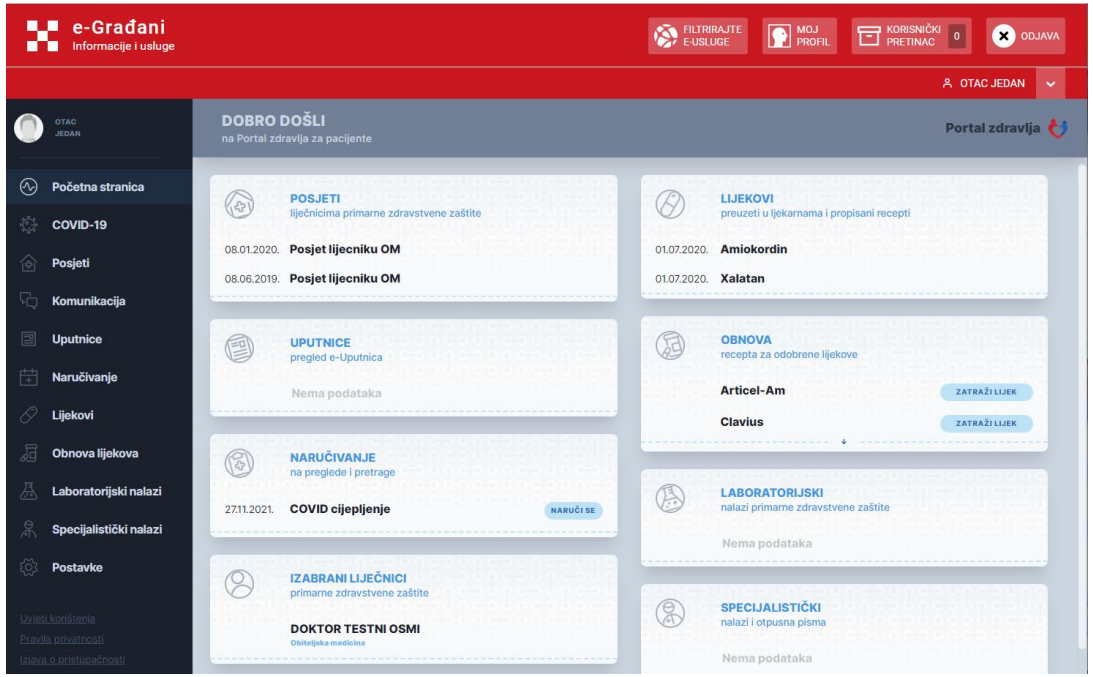
National EHR in Croatia

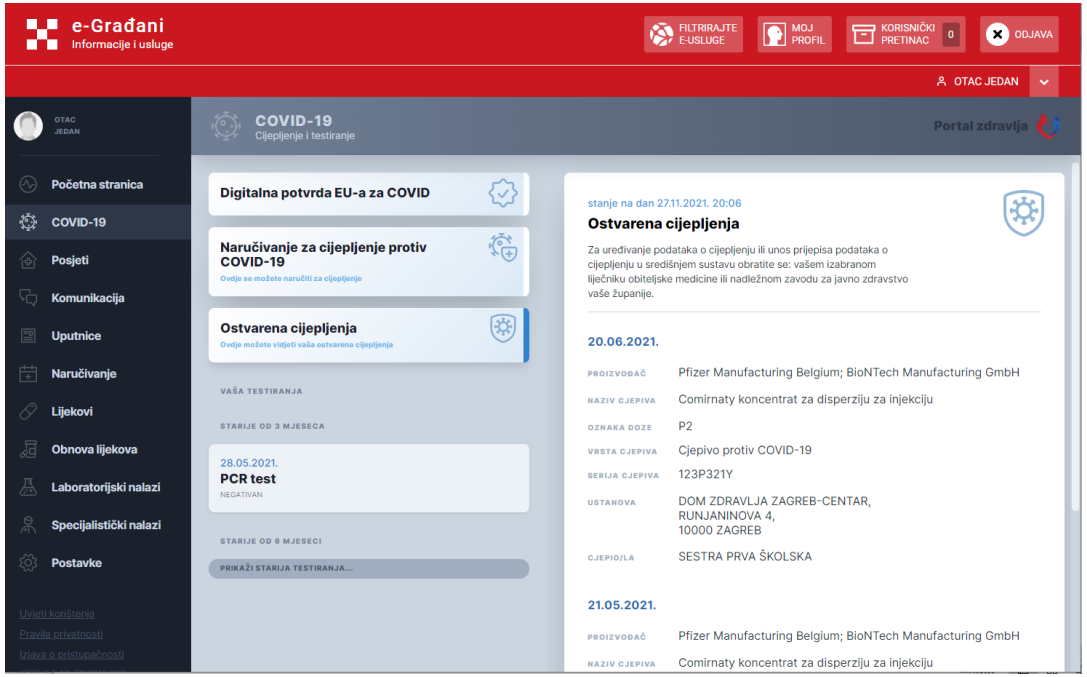


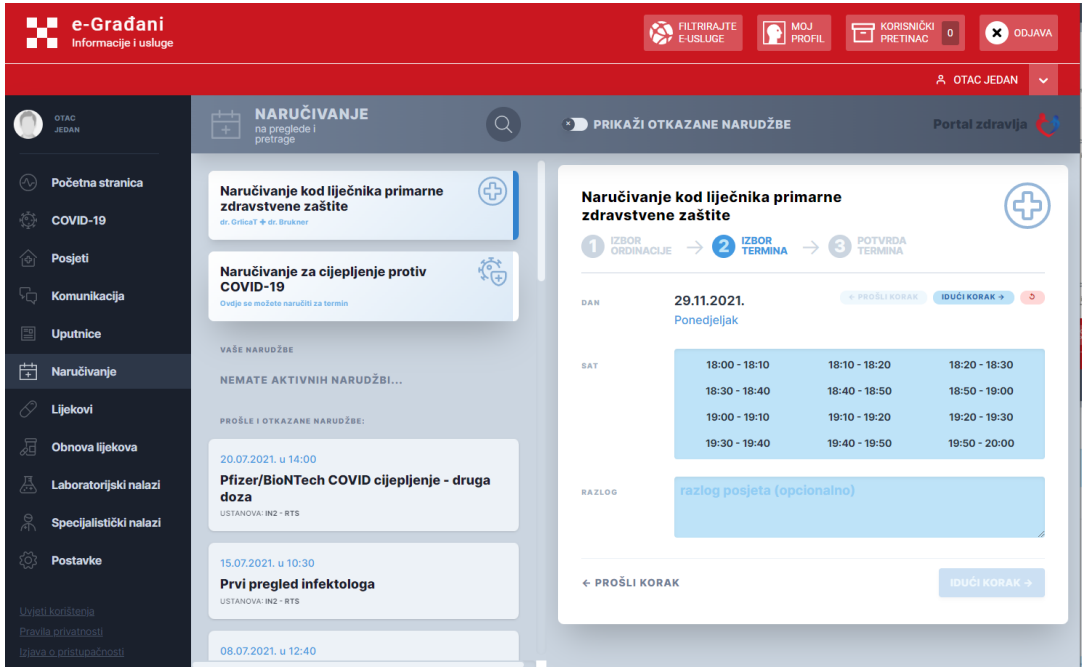


National patient portal in Croatia

Web portal (portal.zdravlje.hr)

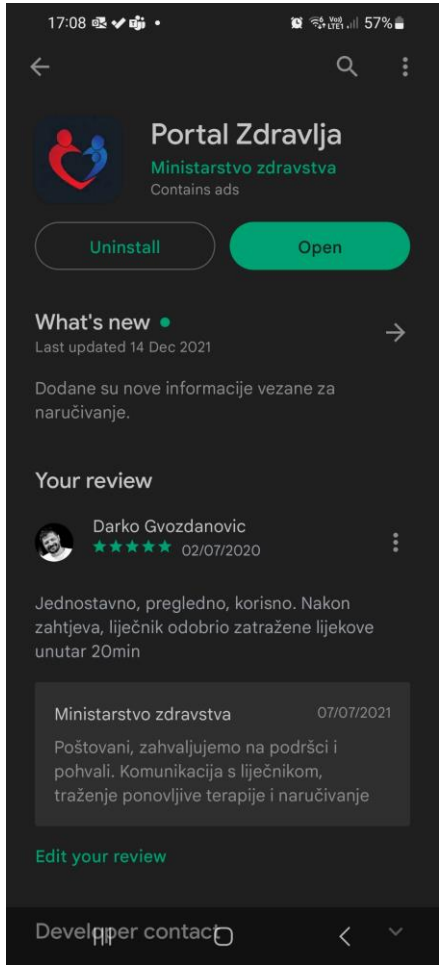


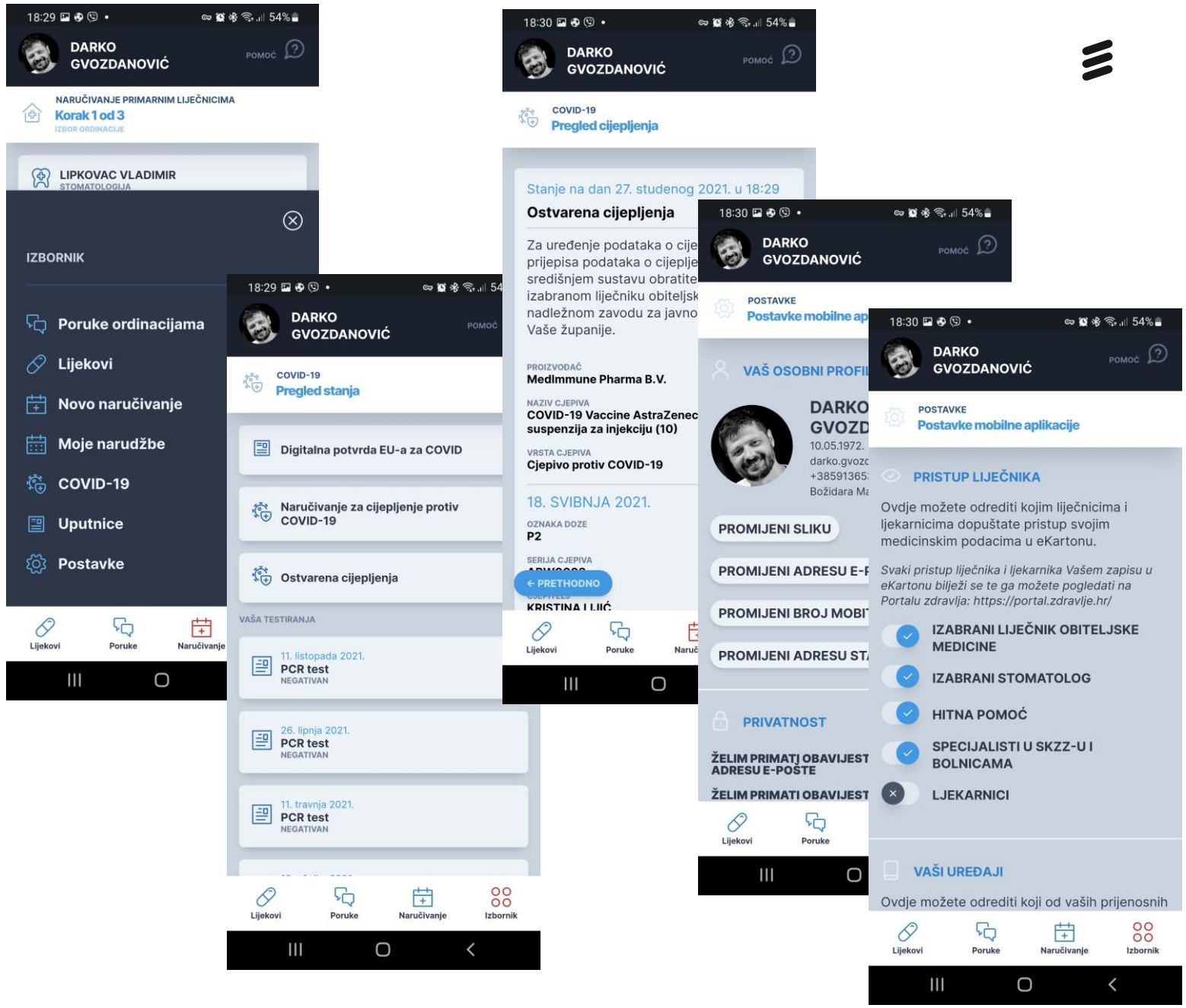




National patient portal in Croatia

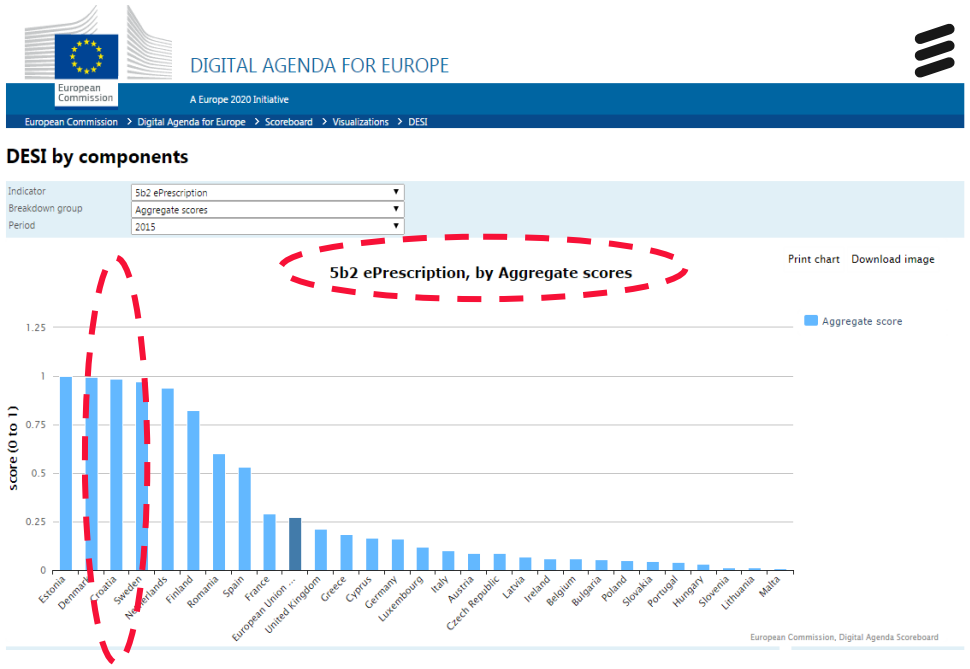
Mobile application

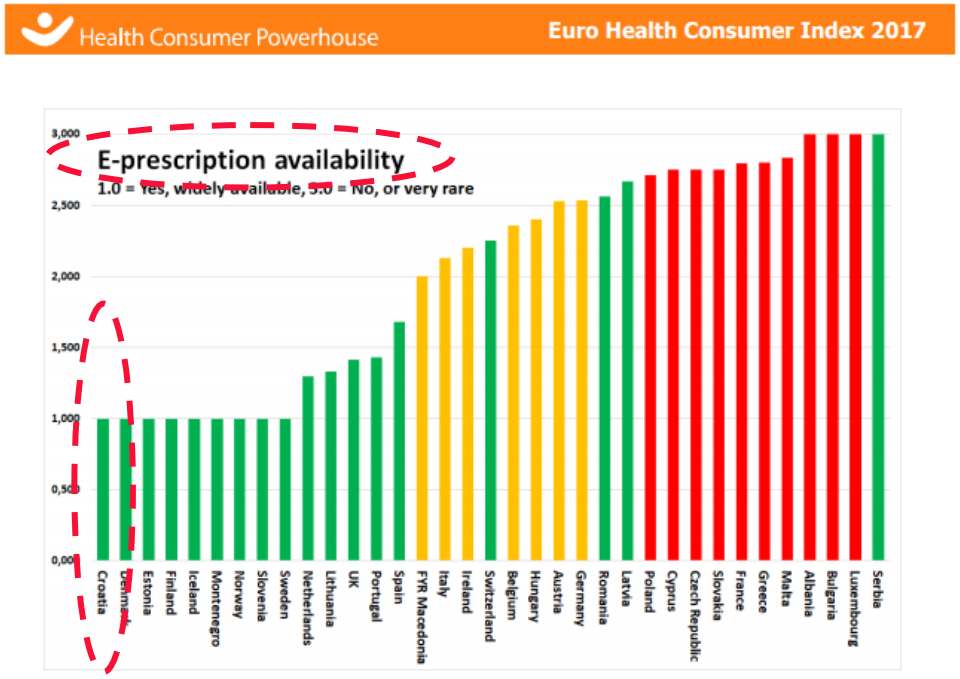


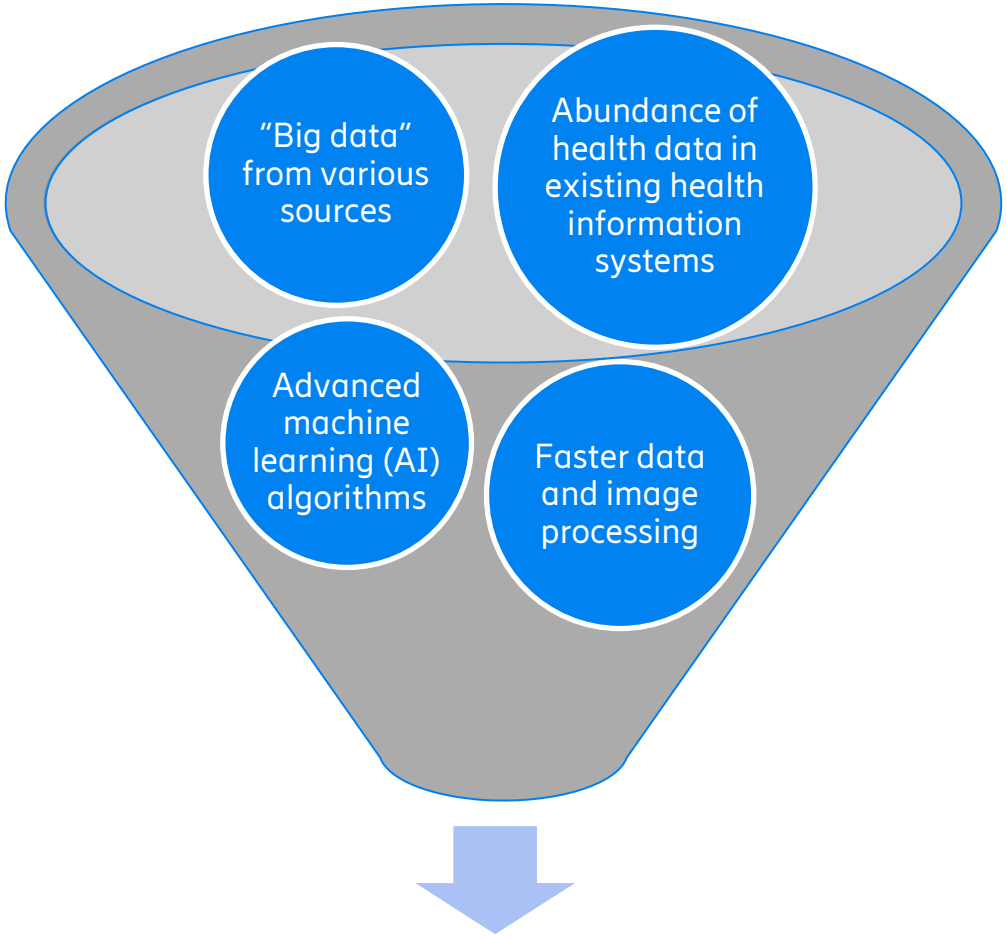


National eHealth information systems

Our experiences







Predictive health analytics

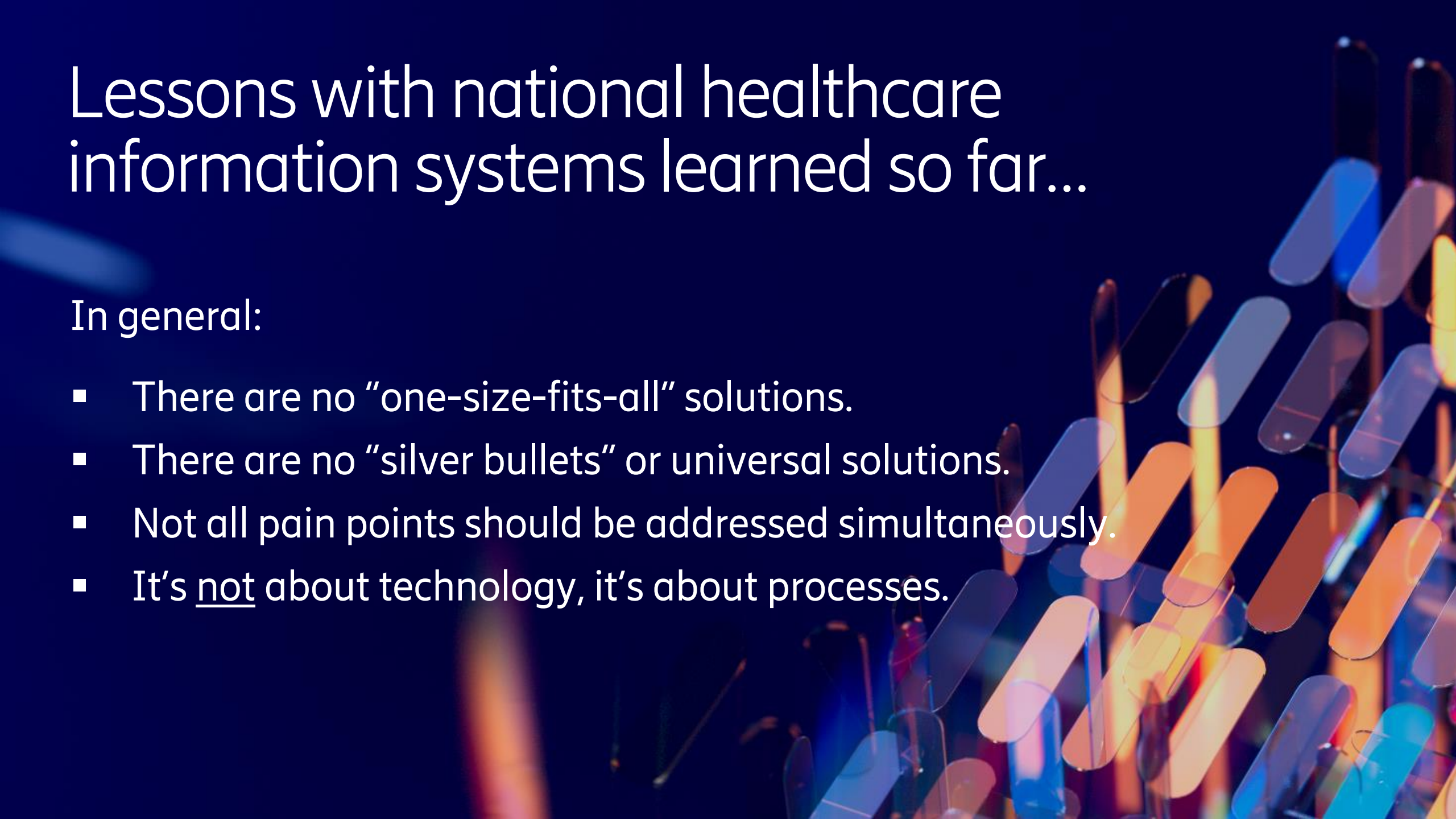
Improved healthcare decision support

Advanced clinical trials

Lessons with national healthcare information systems learned so far…

In general:

- There are no “one-size-fits-all” solutions.
- There are no “silver bullets” or universal solutions.
- Not all pain points should be addressed simultaneously.
- It’s not about technology, it’s about processes.

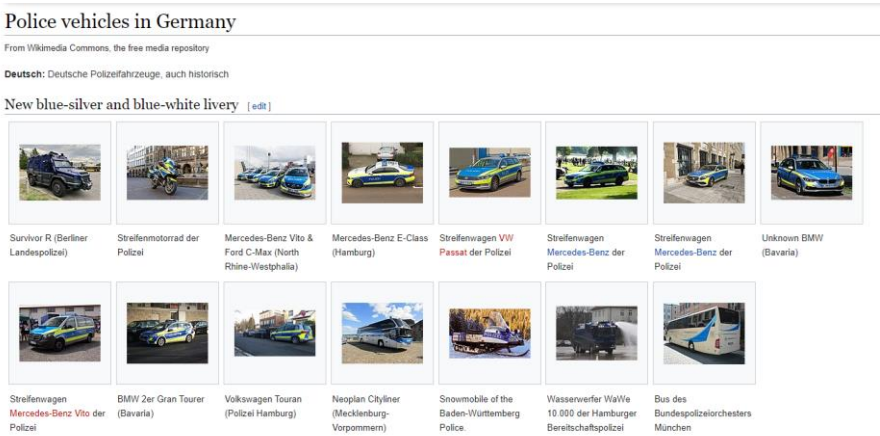


EU Single Market

More info at https://single-market-economy.ec.europa.eu

Public procurement is enormously formal but there are ways to deal with that fact....

EU Public Procurement is conducted within harmonized EU single market which makes it easy (or easier) to participate due to similar (or identical) basic rules and CPV (Common Procurement Vocabulary).



Neighbouring countries…

1. Some countries outside EU tend to harmonize their Public procurement systems with EU rules (Candidates countries + EU neighborhood policy) and that makes participation somewhat easier than in those markets/countries with rules completely different than in EU.

2. There is a need for standardization of rules in different markets outside EU in order to achieve benefits arising from healthy multinational/multiregional competition in Public Procurement.

3. Closed and restricted markets with isolated and specific rules can not expect best value for public money (barriers).
   - Overt: Tariffs, Set-aside programs, Buy-national provisions, Price preference for local, Direct to local
   - Covert: Obligation to supply products with local inputs, Obligation to have subsidiaries in the country to bid, Language barriers, Bureaucracy,

https://www.ericsson.hr/