

eHealth trip to Estland

Digital by default

A group of 7 BITMARCKern, organized by the AOK publishing house with 19 other colleagues from the branch and two tour guides, travelled to Tallinn, the capital of Estonia. The reason for the trip was to get to know the digital system of the state of Tallinn and the resulting challenges and opportunities. The focus was on the topic of health.

Tallinn is the capital of Estonia, the easternmost country of the EU. Estonia belongs to the euro area and has about 1.3 million inhabitants. On an area comparable to Switzerland there is a lot of forest, the northeastern location brings Estonia into the circle of countries celebrating the solstice with Midsummer Night in June. Tallinn lies directly on the Baltic Sea, in winter it is cold and austere and in summer it has a great attitude towards life.

The Estonian language is one of the languages of Hungarian-Finnish origin. However, all Estonians we met speak good English.

Below I have summarized the main program items.

"e-Health in Estonia: Introduction to Concept and Origin"- Tobias Koch (a German who has lived in Estonia for a few years) shows us the digital basics of the Estonian state. A few principles are laid down in the constitution.

Digital by default applies to all state organs and authorities. Here the data are stored maximally once and must be exchanged then among themselves. Data exchange takes place via a state-defined X-road incl. logging. <https://www.ria.ee/en/state-information-system/x-tee.html> The basics of the x-road and e-estonia are freely available on GITHUB <https://github.com/ria-ee/X-Road>

The X-Road is a blockchain-based data hub through which all government agencies and the healthcare system communicate with each other. <https://e-estonia.com/solutions/security-and-safety/ksi-blockchain/>

Private individuals can also join the x-Road to use the digital signature and electronic identification for their business purposes. <https://e-estonia.com/solutions/interoperability-services/x-road/>

Here you can see how many single requests are processed on the X-Road per month: <https://www.x-tee.ee/factsheets/EE/#eng>

Nortal - Discussion with Taavi Einaste, Partner & Director e-Health Nortal AS - eHealth in context - The digital universe e-Estonia - <https://nortal.com/>

Nortal, as one of the largest and most important IT companies in Estonia, has supported major parts of the e-Estonia network through technical development and Nortal is a major player in the eHealth network.

The electronic health record (eHR) has developed much better than other usecases, e.g. the supply of prescriptions can be handled completely digitally.

Finland has taken over the x-Road from Estonia and is thus the first country that can fully interoperably exchange health data with Estonia, e.g. the prescription issued in Finland can be collected in an Estonian pharmacy.

In 2017 Taavi signed a (!) physical signature because he got married. In 2018 also only one (!) was added because he bought a house. All business transactions are digitally signed, simply on the computer, by drag and drop with a 2FA without friction. For this the Estonians use the Smarten identity card, which corresponds to the European standard (card sized identity card) known to us, supplemented by NFC for the Estonians. Alternatively, a special SIM or SIM-less smartphones can be used to sign with the Smart-ID.

"e-Health Stakeholders #1: Estonian Health Insurance Fund" - Rain Laane, Chairman
<https://www.haigekassa.ee/en>

The data belongs to the insured person. It is possible to close the file at any time and then only the creator can still see his data. The answers of requested doctors must always be given within 4 days. All ambulances are networked and can call up the insured person's data directly during the journey to the accident site or the patient's place of residence. These are just a few of the things that play a role in eHealth in Estonia. The billing of health services is 100% digital, prescriptions are 99% digital and the patient file is used by 97% of the population.

To get there, it was a long way, Estonia also had a hard time with these techniques and took more than 10 years.

Data protection is created through trust: I can see who is accessing my data, every access is logged and I can question why, for example, an authority has accessed it. Here again are the advantages of the X-Road and the KSI blockchain. More about that later.

The system doesn't look so good, but it works very well.

"e-Health Stakeholders #2: Estonian Association of Family Doctors" - Presentation and discussion with Dr. Reet Laidoja, Chairman of the Board of Estonian Association of Family Doctors and Andres Lasn, Chairman of the Board of the Young Family Physicians Association

Very interesting insight into the reality of the health care system. Two family doctors present us with the main challenges in the system from the user's point of view. Here questions come to bear that did not come out so clearly from yesterday's lectures. I have read: Latvia is similarly digital, but does much less marketing than Estonia and is sometimes annoyed about it. So not everything is the way the doctors imagine it to be, but it doesn't change the idea that the system in Estonia is still 10 to 20 years further developed than in Germany.

"Regulatory Framework and the Future of e-Health in Estonia"- Presentation and discussion with Dr. Kalle Killar, Deputy Secretary General for e-Services Development and Innovation at the Ministry of Social Affairs of the Republic of Estonia and Priit Tohver, Adviser on E-services Development and Innovation Policy Ministry of Social Affairs

Estonians are generally open to accepting digital services. However, the confidence of the population must be strengthened again and again.

Important when it comes to use and the demands placed on the system: the system doesn't always look so good, but it works very well. That is the focus of Estonians, Form follows function!

The X-Road itself does not store any data, but only offers an exchange platform with which I can connect other partners and sources extremely quickly. We have heard this several times in the last lectures, so that the data can be kept economical and at the creator. Only the data logs are processed and stored, never the data that is processed.

"e-Health Stakeholders #3: National Institute for Health Development" - Presentation and discussion with Natalja Eigo, Head of the Centre for Health Statistics and Register at the National Institute for Health Development <https://www.tai.ee/en/>

The use of data, and in particular the merging of data from different sources, is also difficult in digital Estonia. Natalja has shown us a few examples where the data cannot yet be generated or retrieved well enough. For the National Institute of Health Development, access to the x-Road is also a backbone for data collection. Data from the eHealth system is only transferred very insufficiently. Some numbers of participation: Dentists only 61%, general practitioners 100%, hospitals 97%, specialists only 74%.

Problem of Understanding of Data and Definitions - Data is not easy to use. For this reason, the data is not yet used extensively enough.

To advance medical research, Estonia is currently building a genome database. The aim is to collect 200,000 genome data records of Estonians and make them available for research.

<https://geenidoonor.ee/>

Here one is reminded of the data donation from the discussion around the electronic patient file, only that the Estonians do it simply times. The trust in the state is there, so the Estonians are taking part.

Opt-out to get traffic on the system

Interactive Workshop "e-Health" - Ain Aaviksoo, Managing Director Guardtime Estonia & Chief Medical Officer (CMO) Guardtime Health <https://guardtime.com/>

Pille Kadakas, Group Manager at Development Department Central Hospital Tallinn East <https://www.tehnopol.ee/en/> , Piret Hirv, Health Technology Manager Tallinn Science Park Tehnopol, Dr. Eero Merilind, Family Doctor Nõmme Kliinik

There is not one entry point into the healthcare system, the patient enters the system via different routes, e.g. hospital or general practitioner. This also means that there is no single path for all patients. Here the Estonians are working on a digitised solution.

<https://guardtime.com/health>

Estonia has already since 2004 a data protection guideline that does not differ clearly from GDPR. With the introduction of GDPR almost no changes had to be made. The confidence is here available that it functions and everyone can dispose of his data.

Data retention and principles for the Estonian digitalization way:

- Once-only
- digital-by-default
- turkey by design
- open internet

Truth by design e.g.: Any professional while working at any provider to see/exchange any data about any individual at any situation. For each category rule-based limitations will apply and can be managed!

Smart People are present in Germany, but there is a lack of confidence in systems. The doctor system in Estonia is an opt-out system, everyone has to participate, but can be solved. This will immediately lead to greater development and digitalisation at once. Create very convenience services, but not forcing the people!

Summary

- If you take digitization seriously, you need a plan and you need the peace of mind to follow that plan.
- Technology is by no means the limiting factor, but at best the particular interests of the various parties involved. If the state sets clear targets here, implementation is possible.
- Trust in a technical system is not a limiting factor in Estonia, but a basis for the X-Road. Fascinating implementation of a blockchain solution to ensure that all participants and data owners can see which data is being processed and how.
- Data economy and simultaneous availability anywhere and anytime via a central data highway are the most valuable and best possible asset that Estonians have built.

We can learn a lot and have to stop saying that it was only possible in this small country and not in Germany. The technology is completely independent of the number of users available and does not limit this use!

Usage figures realtime: <https://www.x-tee.ee/factsheets/EE/#eng>

Estonia - I will return to get inspired once again in the near future!

#Tallinn #eHealthreise #GKV #eHealth #digitisation #transformation #BITMARCK #network #disruption #dasistBITMARCK

We also made a city tour: "The Hanseatic City of Tallinn between Tradition and Future" - city tour with bus with Thea Karin, journalist and tourist guide.

A really interesting city with a great history and great corners. The lack of integration of the Russians is a problem and can be seen in some places. Here the Estonians are self-critical and changing.