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**BUSINESS
FINLAND**



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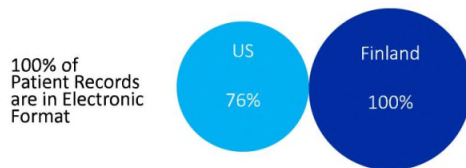
https://www.youtube.com/watch?v=o5CSZK_6UFM&list=PLqCc81_UezcKEmaSP7kmpDcnnW8SpJYVy

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Most Efficient Healthcare System at the Forefront of Digitization

- 9.7% of GDP is spent on healthcare
- Predictive and preventive driven by digital – bedside genomics 2020



- Paperless referrals at 95%
- EHR information exchange capability has reached 90%
- First in the world with a national digital patient data repository (Kanta)
- First and only Epic based EHR system where SDH are layered over clinical EMR
 - Full citizen access and input
 - Each citizen will have access to their EMR
 - HUS Digital Village



Reform - The Healthcare Ecosystem of the Future

- ❑ Enabling legislation and growth strategies
 - Biobank Act (2013)
 - National Genome Strategy
 - Health Sector Growth Strategy for Research and Innovation
 - National Finnish eHealth and eSocial Strategy
 - Over 144 new laws being written and passed since 2012
- ❑ Concrete action: Established
 - National Genome Center
 - Comprehensive Cancer Center
 - Neuro Center
 - "Living Labs"
- ❑ Government incentives for foreign companies establishing operation in Finland
 - Up to 35% for R&D projects
 - Up to 80% support for workforce and labor training

Genomic Data and Biobanks

- ❑ 8 national and regional biobanks
- ❑ Disease specific and population centric
- ❑ National social and welfare registries since the 1950's:
 - ❑ Cancer
 - ❑ Hospital discharge
 - ❑ Cause of death
 - ❑ Drug reimbursement
 - ❑ Sickness (social benefit)



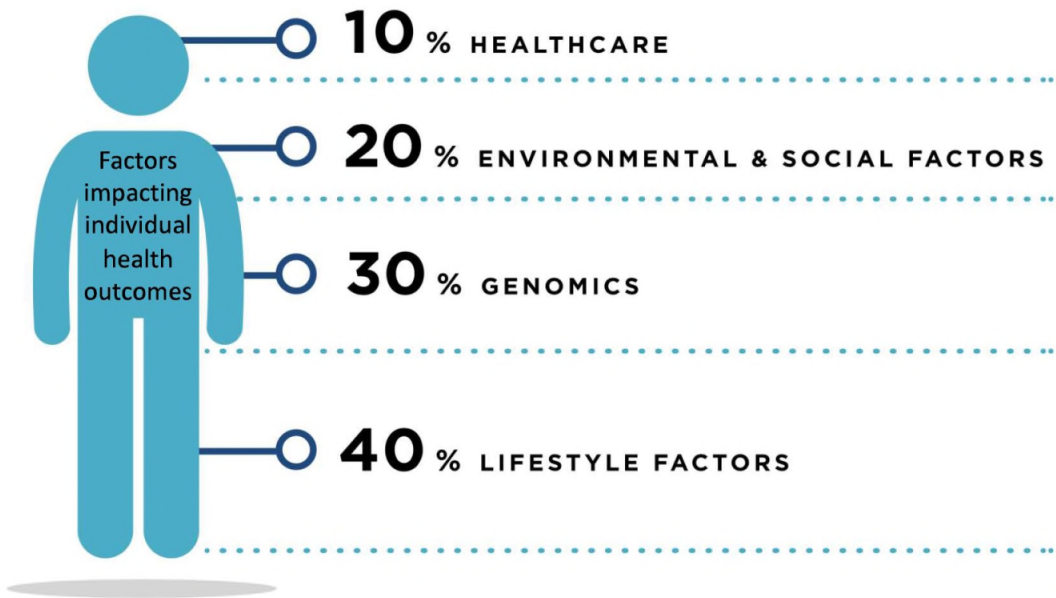
Established Digital Health, Social, and Welfare Registries

NAME OF REGISTER	DATA INCLUDED IN REGISTER	KEEPER	ESTABLISHED IN COMPUTER FORMAT
Hospital Discharge Register (HILMO)	Homes and institutions for the mentally disabled, including information on treatment	THL	1967
Finnish Registry for Kidney Diseases	Diseases, type of treatment, and laboratory tests	ETK	1964
Cancer Register	Cancer patient information from hospitals, pathology, laboratory measurements etc.	THL	1953
Finnish Register of Visual Impairment	Patient's visual ability	THL	1983
National Infectious Diseases Register	Detailed information on cases in infectious diseases	THL	1989
Register of Congenital Malformations	Infants and fetuses	THL	1963
Drug Reimbursement Registers	Disease that is being treated and medication used	KELA	1967
Medical Birth Register	Information on all births in Finland, from gestation week 22+0 or birthweight 500g	THL	1987
Cause-of-Death Register	Intermediate case of death and contributing causes of death	STAT	1969
Register on Occupational Disease	Diagnosis of occupational disease	FIOH	1964
Drug Surveillance Register		FIMEA	1982
National Sickness Insurance	Social benefit information	KELA	1967
Register on Pensions	Work pension information, age of individual, type of pension	ETK	1962
Finnish Employment Register	Work in private sector, work as entrepreneur and work without pay	ETK	
Central Population Register	Relations (stillbirths are not registered)	VRK	1973
Register on Social Assistance		THL	1985
Child Welfare Register	Individual-level information on children taken into custody	THL	1991

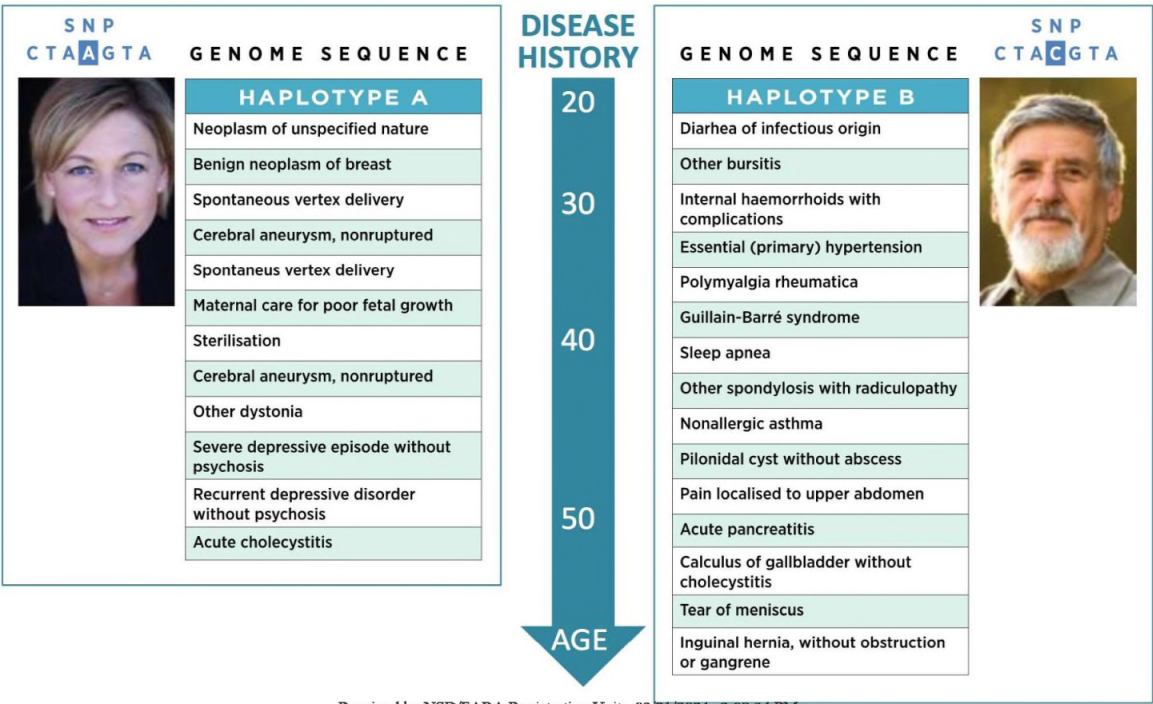
THL = National Institute of Health and Welfare
ETK = The Finnish Kidney and Liver Association
KELA = Social Insurance Institution

STAT = Statistics Finland
FIOH = Finnish Institute of Occupational Health
FIMEA = National Agency for Medicine

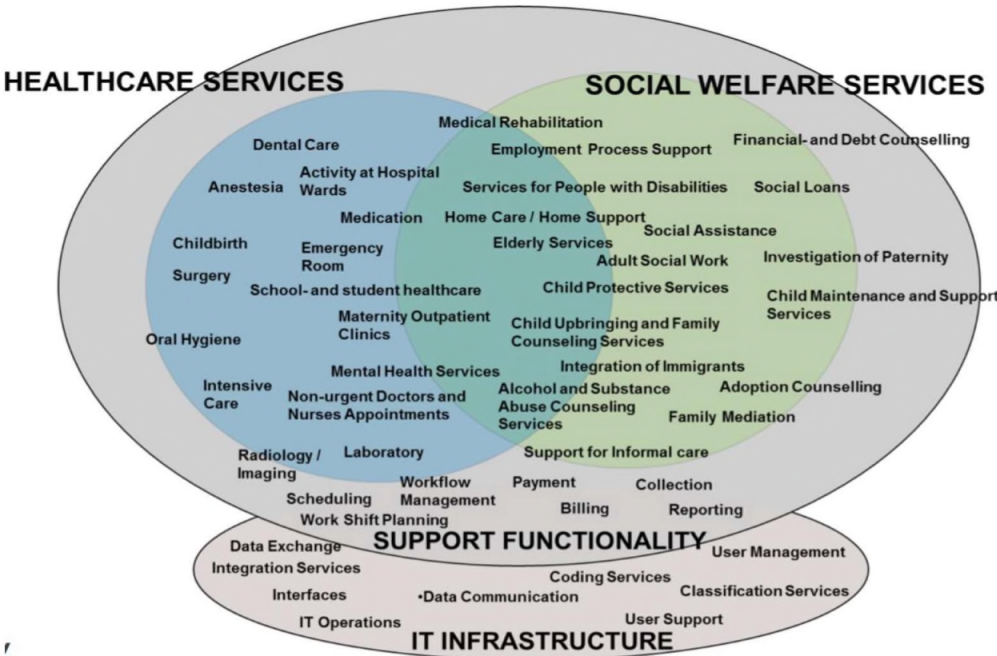
ETK = Finnish Centre for Pensions
VRK = Central Population Register



Case: National Biobank – 2 patients, 40 year follow-up



Only Live EMR Integrating Social and Health Services
PLUS Patient Reported Outcomes



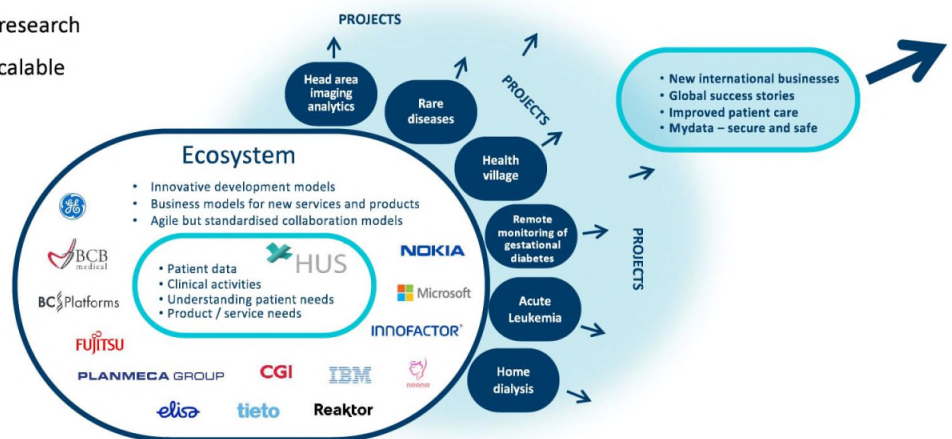
Unified Citizen View
One person. One Data. One Life.

- 30 hospitals
- 40 public health stations
- 50 social services offices
- 1.6 million citizens
- Seamless pathway 1° & 2° care
- Better support for services
- Open interfaces for sharing
- Modular & flexible ecosystem
- Enables knowledge based management
- Collaboration with external services

HUS Data Lake & CleverHealth Network

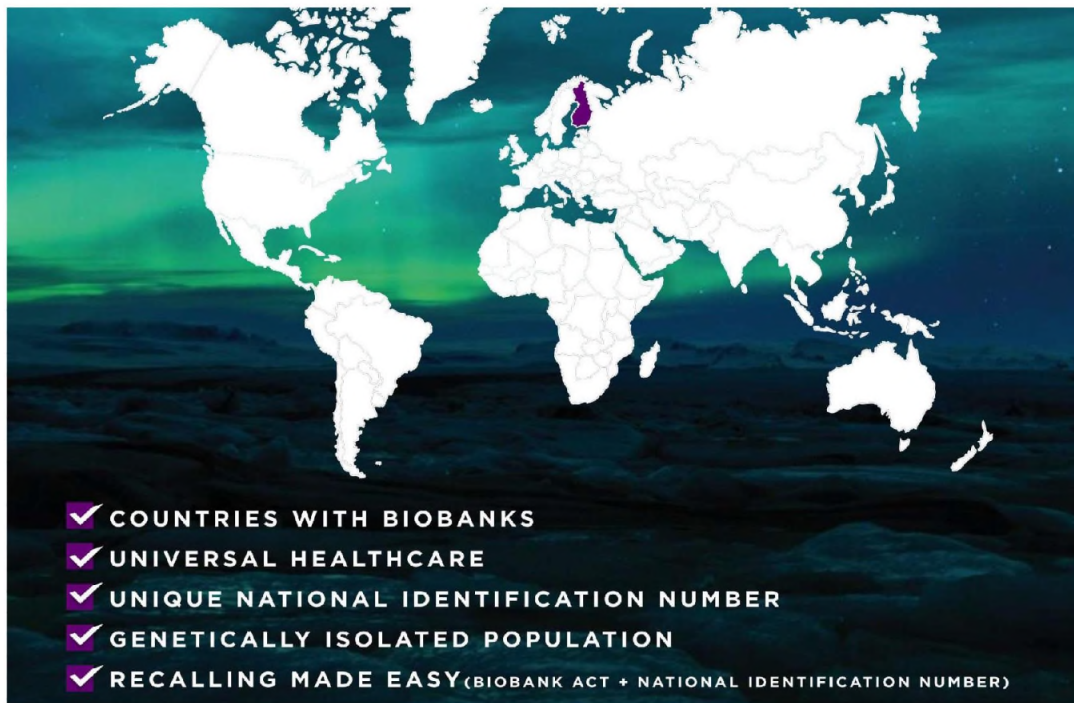
"The world's fastest track for digital health and wellbeing innovations"

- **Gartner: Data Warehouse or Data Lake?**
- **IDEA:** HUS Data Lake is not one lake but a system of data lakes
- Main data lake (Päätietoallas) takes care of data integration and common data enrichment processes and permanent storage
- Research mini clusters (Tutkijan tietoaallas) are for specific research
- HUS Data Lake is based on Azure, which offers a modern scalable minicluster environment



Why Finland Works for You.

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The Real Secret of Finnish Success



Thank You!
Kiitos!

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