



**TERVISE
TEADUS-
KIIRENDI**



**TAL
TECH**

Tervisetehnoloogia Teaduskiirendi ARENDSLAAGER

5.–6. mai, 2022

Tartu Ülikooli
Delta keskus



**SMART
CAP**

Tervisetehnoloogiate Teaduskiirendi *Teadlase ootused*

Prof Tõnu Esko

Genoomika instituut
Geenivaramu Arenduskeskus
Tartu Ülikool



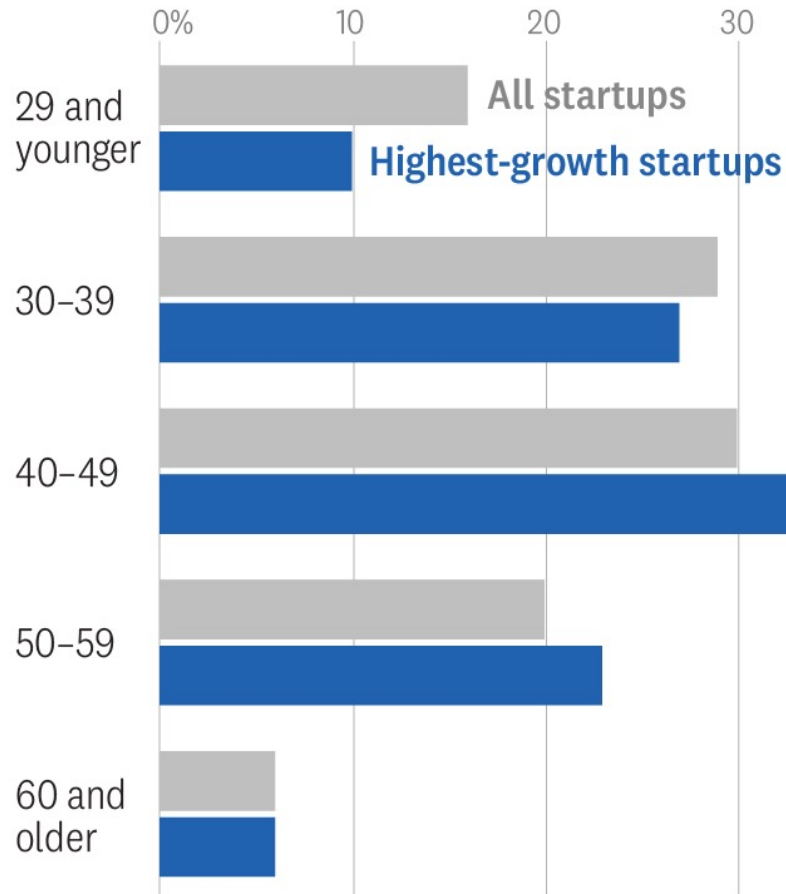
UNIVERSITY OF TARTU
Institute of Genomics



The Age of Startup Founders

The average age of people who founded the highest-growth startups is 45.

Percentage of founders by age group



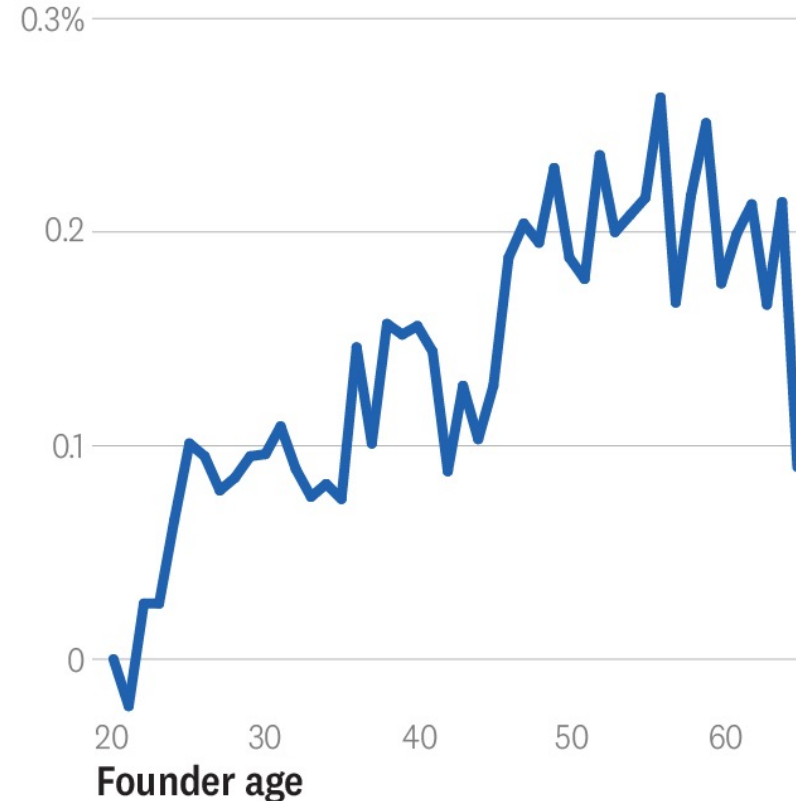
Note: The top 1% of startups by growth are considered “highest-growth.” Source: “Age and High-Growth Entrepreneurship,” by Pierre Azoulay et al., NBER, April 2018



Older Entrepreneurs Are More Likely to Succeed

The probability of extreme startup success rises with age, at least until the late 50s.

Change in the likelihood of success



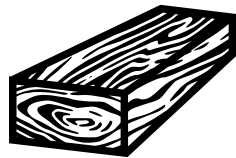
Note: Y-axis represents the OLS regression coefficient for age variables, relative to a 20-year-old founder. “Extreme startup success” is defined as the top 0.1% of startups in employment growth over five years. Source: “Age and High-Growth Entrepreneurship,” by Pierre Azoulay et al., NBER, April 2018



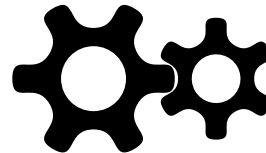
Health data as “natural resource”



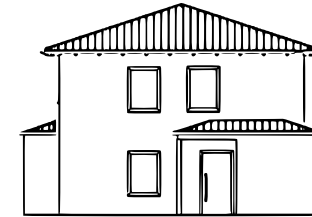
Carbon cycle



Wood



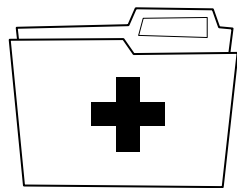
Pulp mill



Products etc.



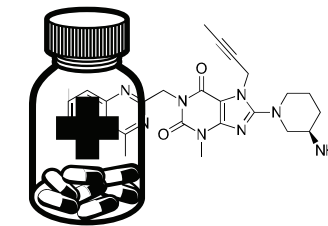
Health system



Health records



Data mining



Medicines

Personal contact
5€



Anonymized EHR
50€



Personal EHR
500€



Personal EHR + Gtype
5,000€



License Phase II drug
500M€

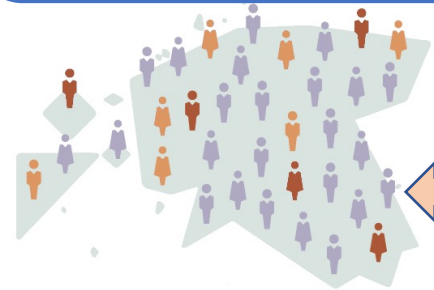


ERNST & YOUNG
CYBERNETICA

Borrowed from

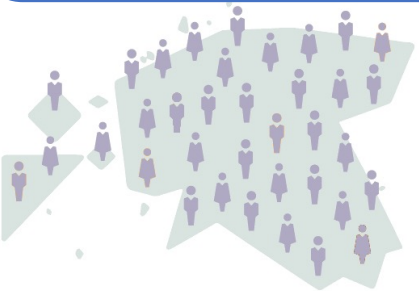
Genetic profiles in healthcare

Carrier screening
25% carry mutation
when matched, 25%
chance sick child

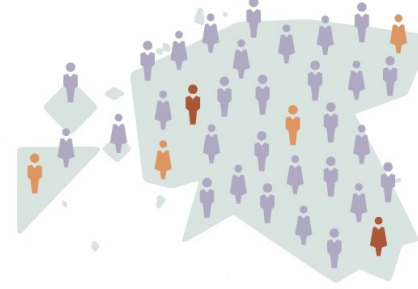


DNA
profile

1:500 new-borns
BAD mutation in
DNA > correct
treatment saves lives

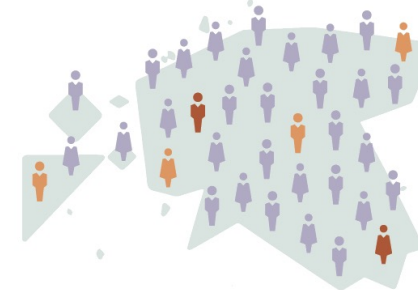


Rare
mutations



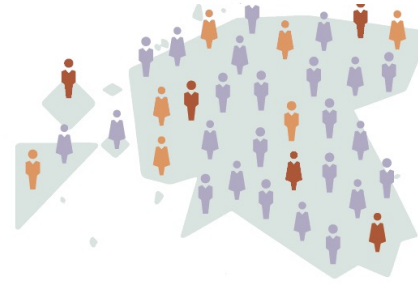
Cascade screening
7% carry mutation
that shortens life by
30 years

Cancer
mutations



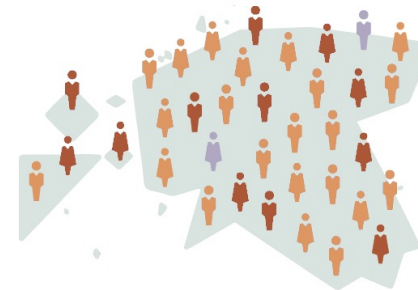
Precision diagnostic
20% tumors can
be targeted by
precision
therapy

Algorithm
G-Profile



Screening
25% people genetic
profile increases
disease risk by 10X

Algorithm
PGx



Prescriptions
98% carry variant that
affects drug tolerance
or optimal dosage



Estonian Biobank role in innovation acceleration –

Example *BioAgeLabs, Inc*

Contract I: 2 years, March 2016 – Feb 2018

Contract II: 2 years, May 2019 – April 2021

Contract III: *negotiation discussion*

In kind value added:

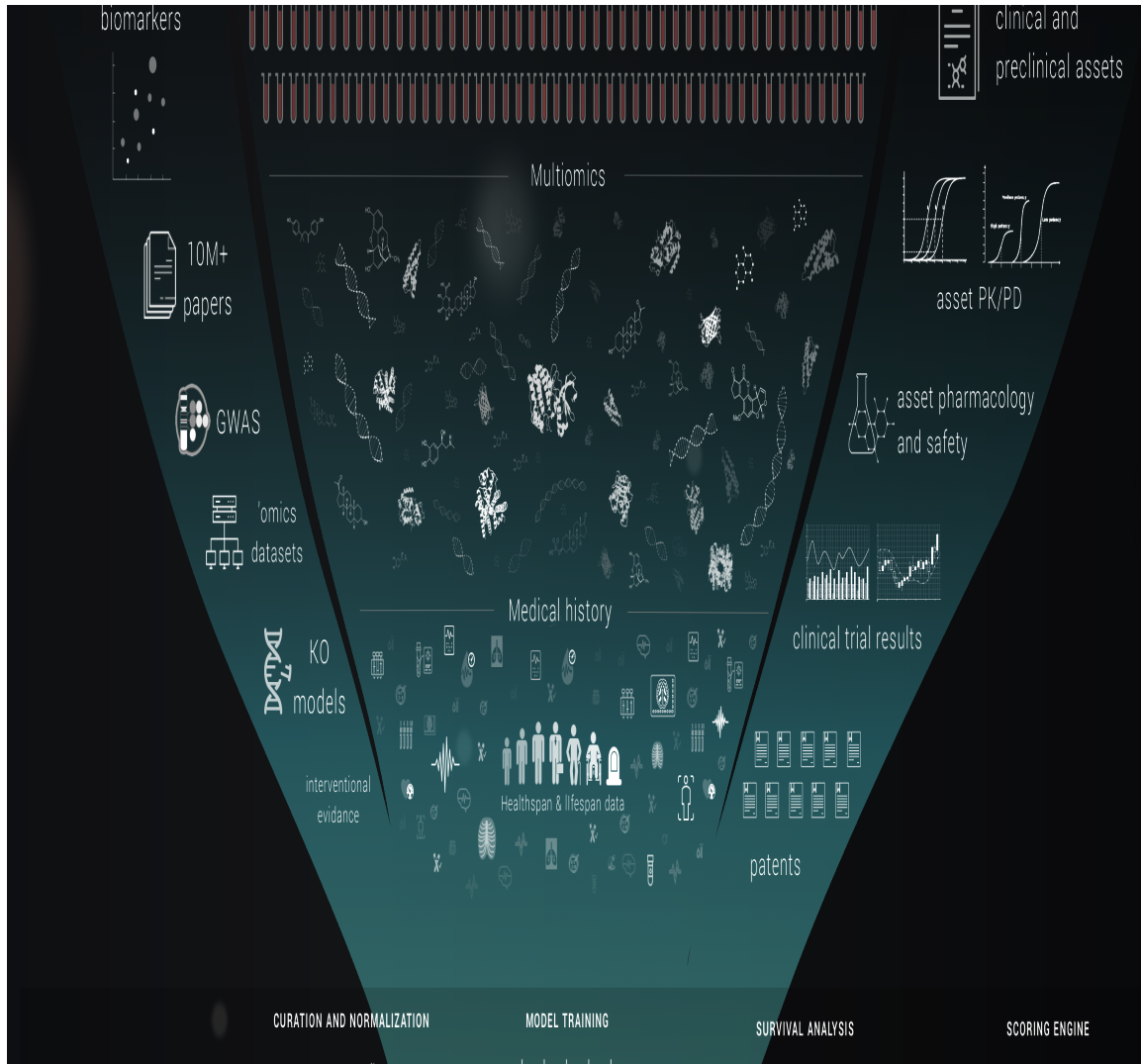
Profiling 576 biobank samples for >6000 metabolites

Seed	3M\$	(2015)
Round A	10.9M\$	(2017)
Round B	23 M\$	(2019)
Round C	92 M\$	(2020)



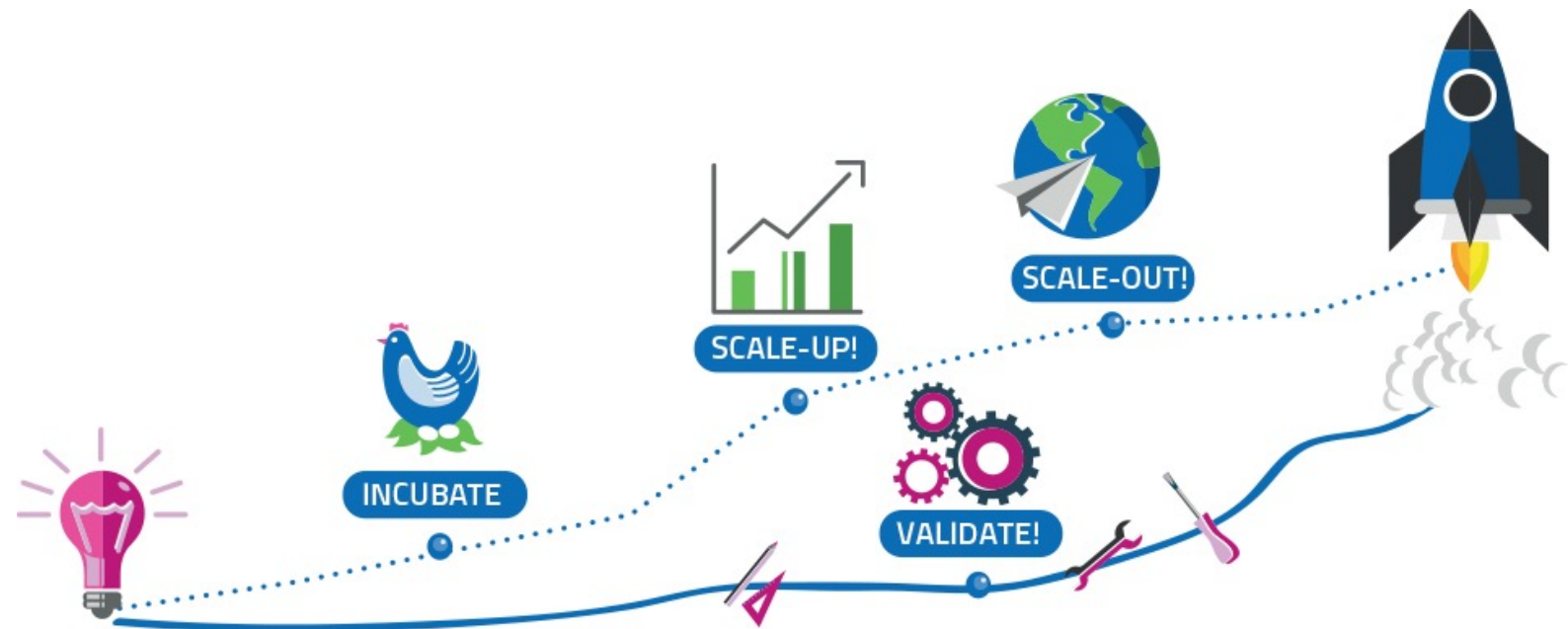
Estonian Biobank role in innovation acceleration –

Example *BioAgeLabs, Inc*



	MECHANISM	1st INDICATION	DISCOVERY	PHASE 1	PHASE 2	PHASE 3
Muscle Aging	HIF-PH inhibitor	Unexplained anemia of aging	BGE-117			
	APJ Agonist	Muscle atrophy	BGE-105			
Immune Aging	PGD ₂ DP1 inhibitor	COVID-19	BGE-175			
	(undisclosed)	(undisclosed)				

How to get insights participate!



Source: EIT Health