

DIGITAL STATE-OF-A-NATION

FINLAND AND AI IN THE ERA OF PLATFORM ECONOMY

PEKKA SIVONEN

NOVEMBER 2ND 2017

Tekes



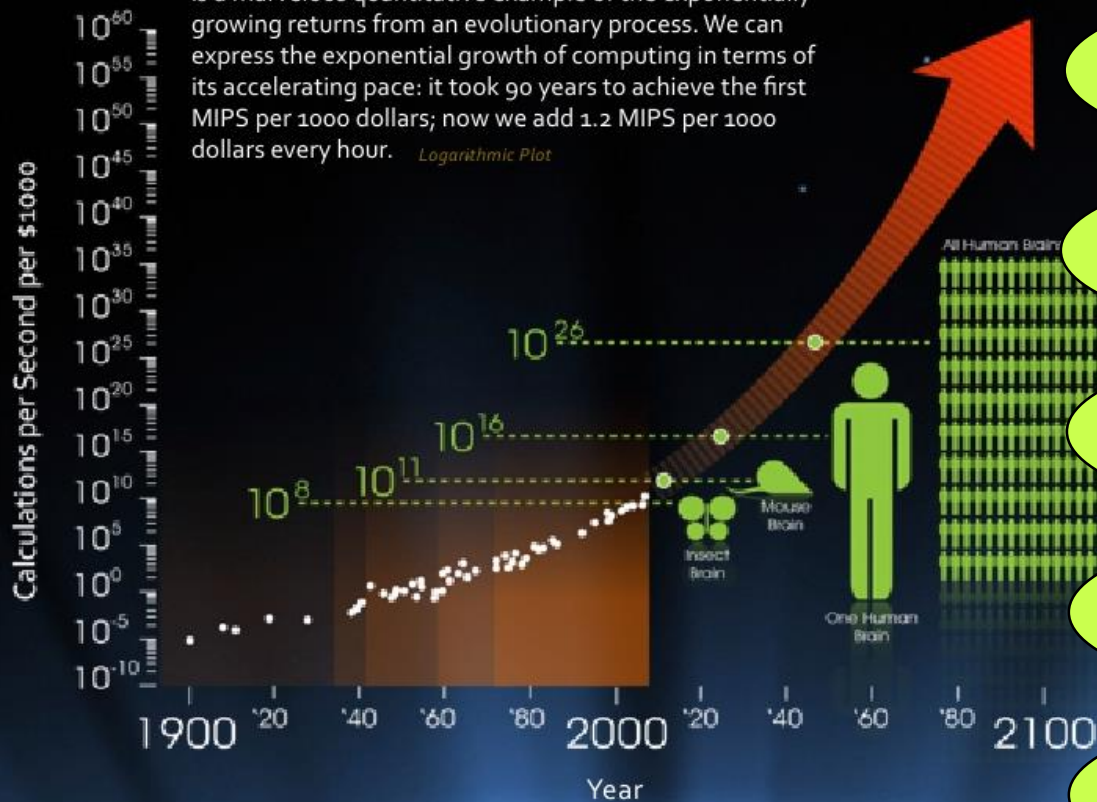
FINNISH
GOVERNMENT



Ministry of Economic Affairs
and Employment of Finland

The exponential growth of computing

is a marvelous quantitative example of the exponentially growing returns from an evolutionary process. We can express the exponential growth of computing in terms of its accelerating pace: it took 90 years to achieve the first MIPS per 1000 dollars; now we add 1.2 MIPS per 1000 dollars every hour. *Logarithmic Plot*



AI

AR/VR

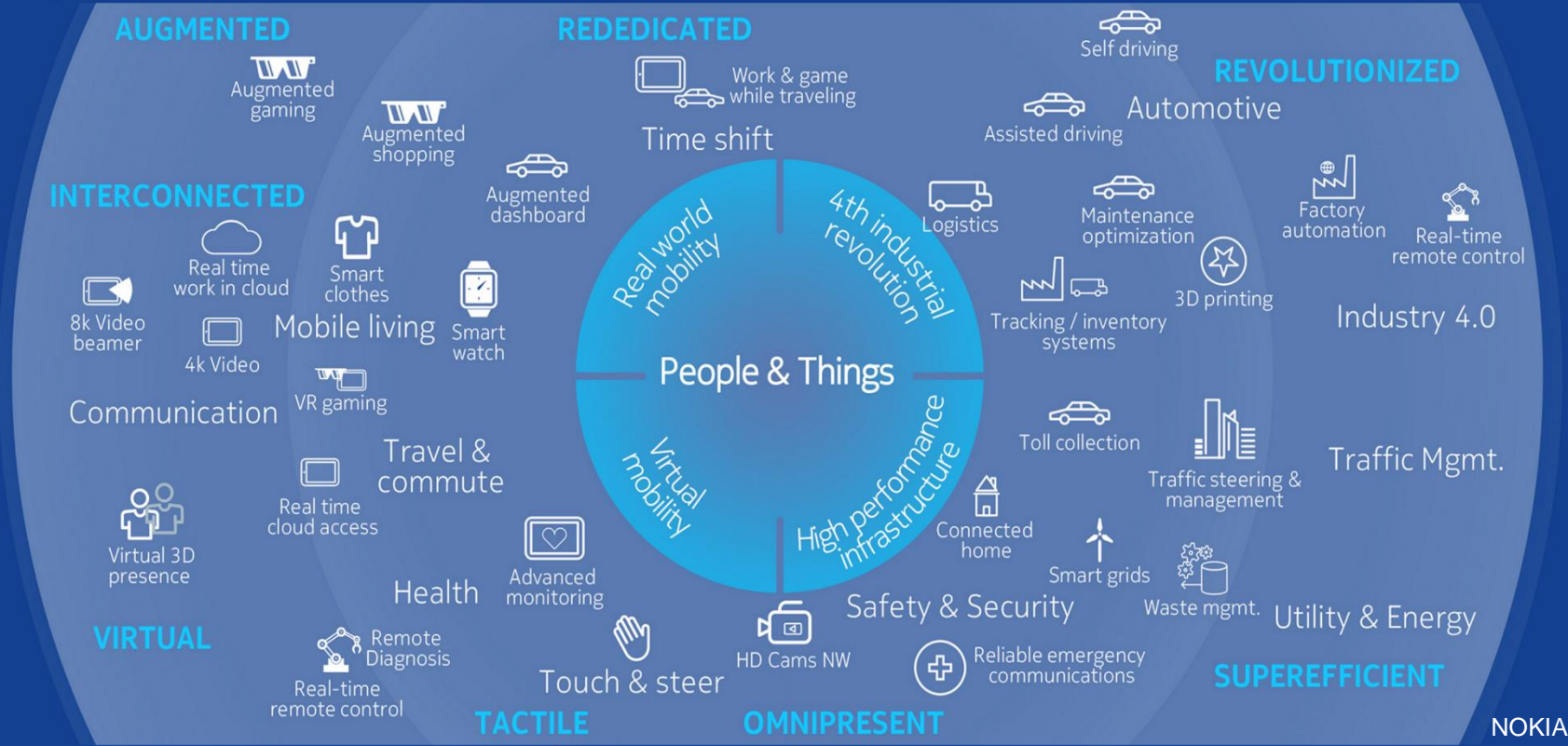
BIG DATA

5G

BLOCKCHAIN

IoT

Explosion of possibilities, enabled by 5G



Platform is... Tetris of The Economy

This is a big picture change

Traditional Value-Chain Business Models

Platform-Driven Business Models



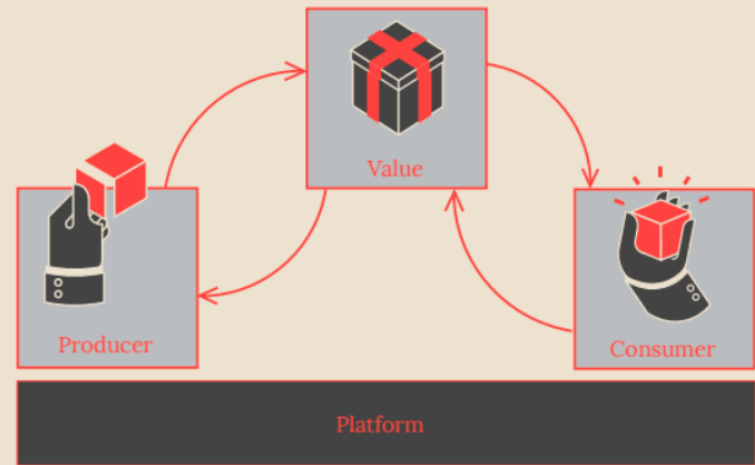
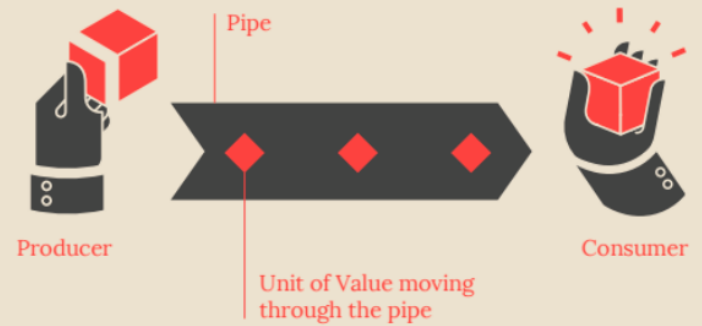
Value creation is linear and one-way

Value creation is two-way and continuous

3 Trillion euros year 2017 out from Europe!

PIPES vs. PLATFORMS

1. **The ecosystem** is the new warehouse & supply chain
2. **The network effect** is the new economy of scale
3. **Data** is the new currency
4. **Community management** is the new customer service
5. **Curation and reputation** are the new quality control
6. **User experiences** are the new sales funnels
7. **Distribution** is the new destination
8. **Engagement** is the new loyalty program
9. **Data science** is the new process optimization
10. **Algorithms** are the new decision makers



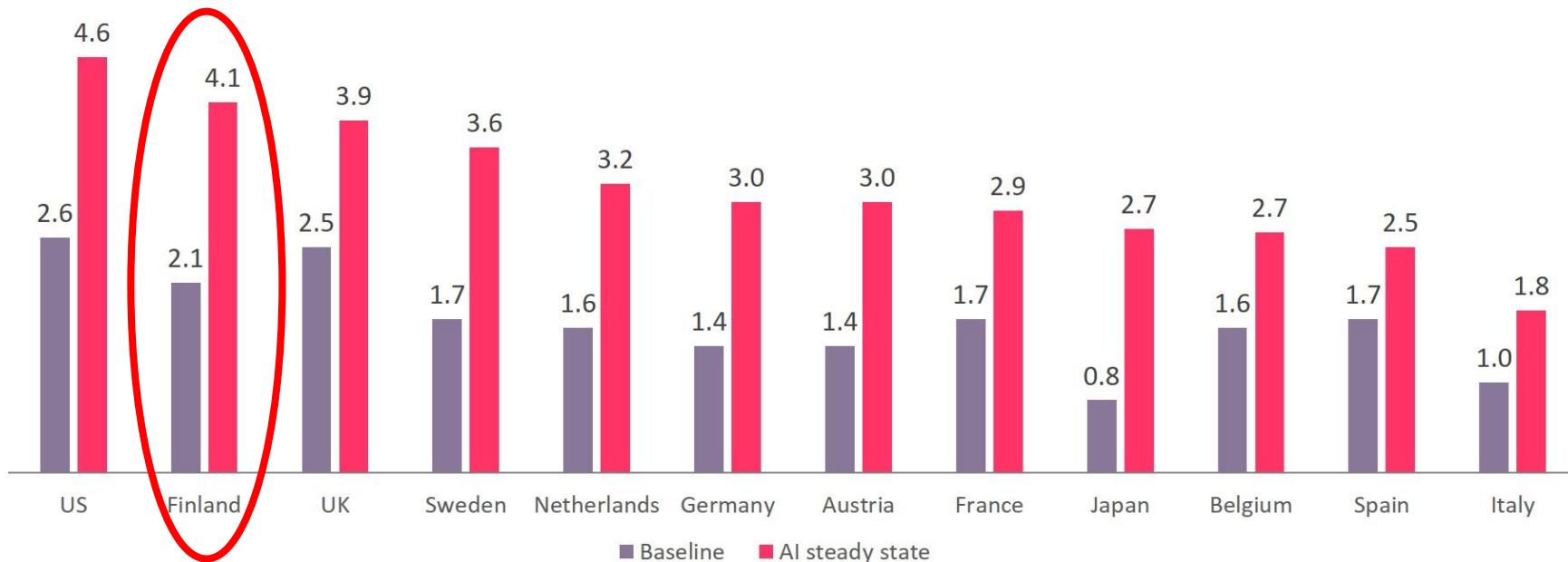
Copyright Teemu Arina

The background features a dynamic, abstract composition of light trails. On the left, a bright, multi-colored light source (red, orange, yellow, green, blue) creates a lens flare effect, with rays of light extending across the frame. The trails themselves are curved and layered, with a color gradient from deep blue on the right to bright yellow and white on the left. The overall effect is one of motion and energy.

WHAT TO DO ABOUT IT ?

Finland with and without Artificial Intelligence

Annual growth rates by 2035 of gross value added (a close approximation of GDP), comparing baseline growth by 2035 to an artificial intelligence scenario where AI has been absorbed into the economy



Source: Accenture and Frontier Economics

OUR VISION

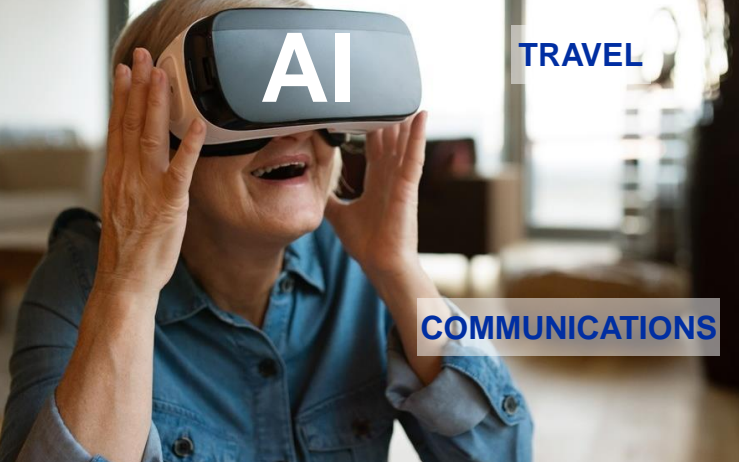
AI is actively used by **every Finn daily** in the future.

Finland benefits from the **brave and ethical forerunner** position of AI -deployment starting **from healthcare to manufacturing industries**.

At the Age of AI Finland is **safe**,
democratic society providing best services in the world.

Finnish Citizens lead a **good life** and companies have a **meaningful development and growth**.

AI renews work and creates prosperity by **growth and productivity**.



TRAVEL

COMMUNICATIONS



ELDERLY CARE

HEALTHCARE



RESEARCH

INDUSTRIES



HEMOCARE



TRANSPORT



PLAY

EDUCATION

ENTERTAINMENT



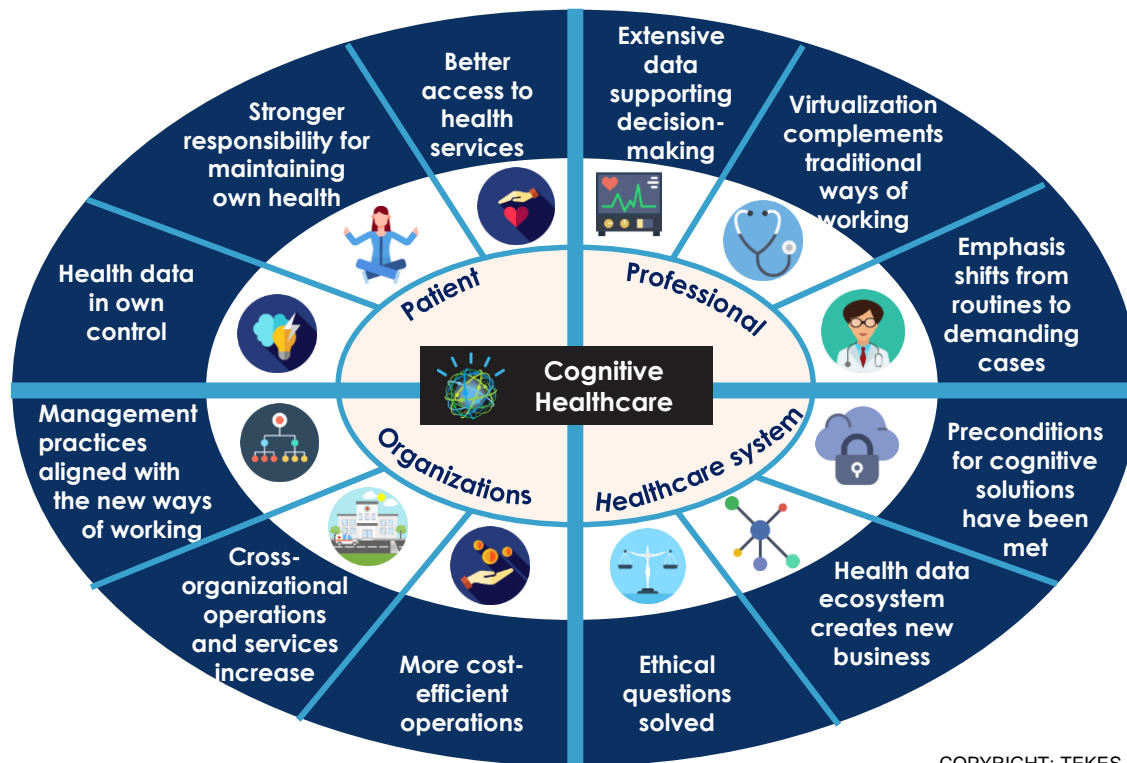
LEARNING

FINNISH APPROACH ON AI

1. Increasing **competitiveness** of Finnish Businesses
2. Leveraging **data** extensively in **all sectors**
3. **Speeding and easing** up use of AI
4. Securing top-talent and attracting new **talent**
5. **Courageous** selections and investments
6. Building **best Public Services** worldwide with the help of AI
7. Creating new models for **global collaboration**
8. Positioning Finland as a **role-model** for the Age of AI

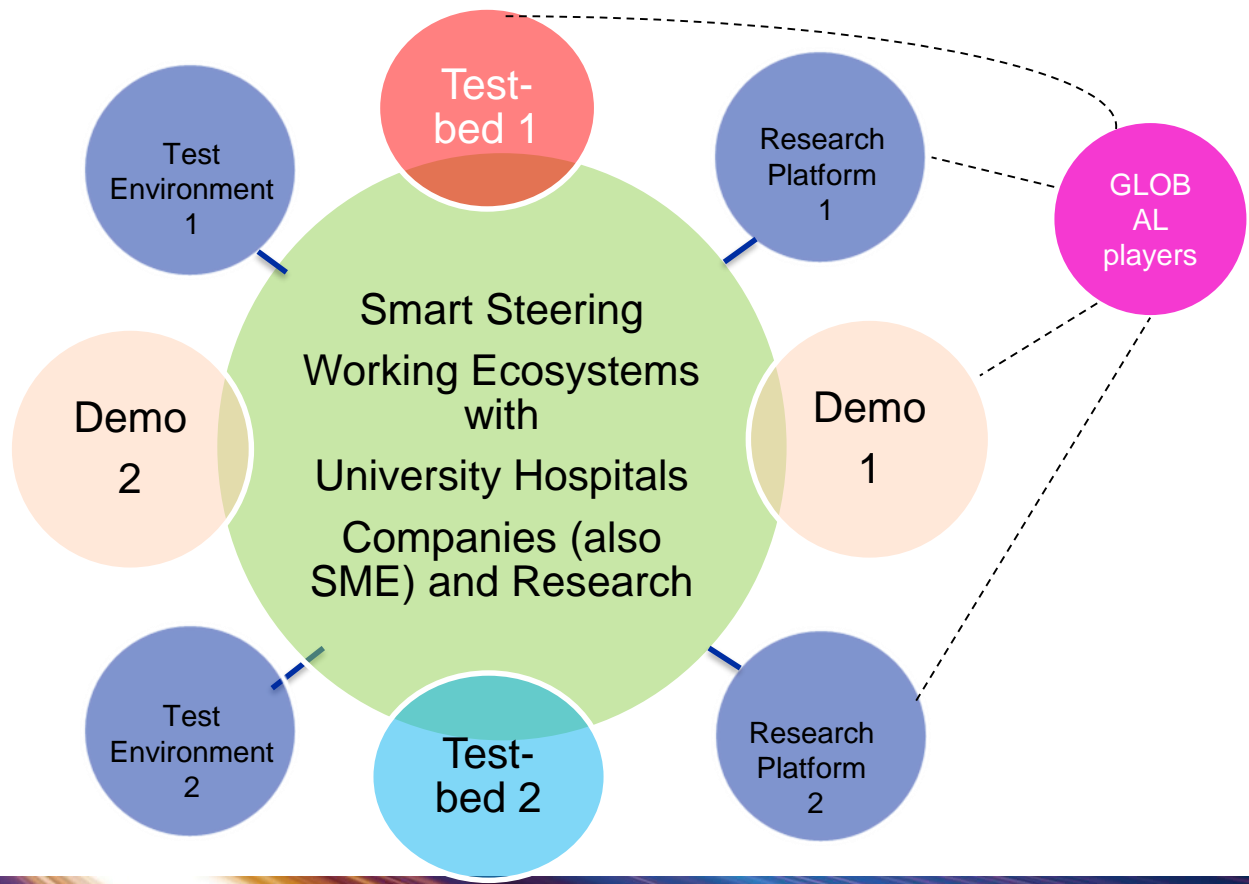
Cognitive Healthcare Vision with AI

What Does Cognitive Healthcare Look Like in Finland in Five Years?



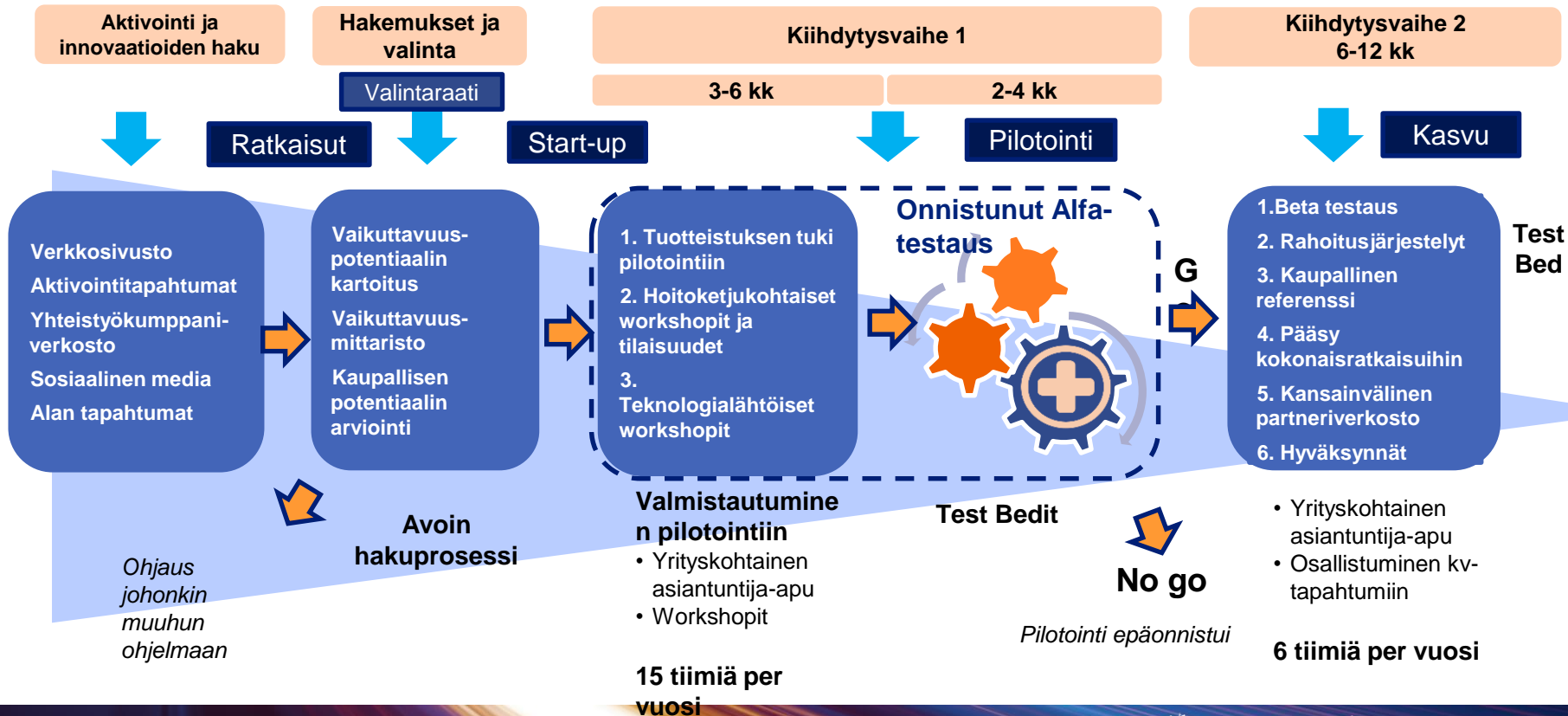
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International Wellbeing and Health test-beds and LivingLabs



Terveysalan kiihdytysmalli: Kiihdytys- ja testbed -palvelut

Ohjelman ohjausryhmä (ohjaus, valvonta ja mittaus)

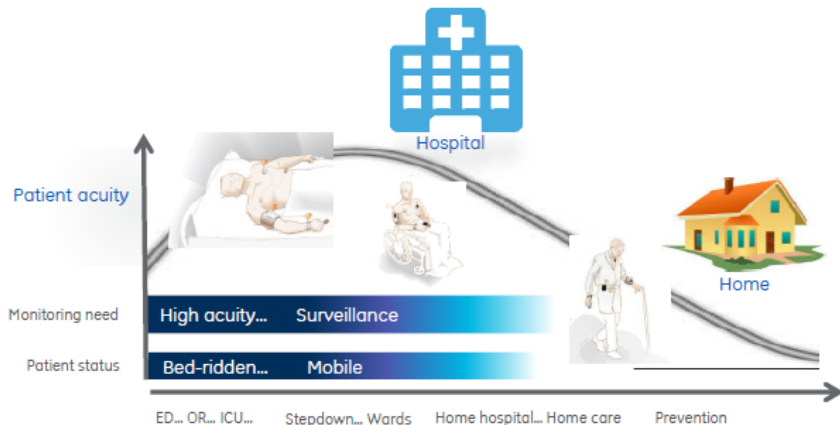


Mobile Digital Health – Care Pathway

Wireless devices & sensors



- Scalability, Flexibility
- Patient comfort & mobility



Intelligent data networks



- Full fidelity data, real time
- Analytics, Clinical Decision Support

Transitioning patients faster & safely throughout the hospital care pathway

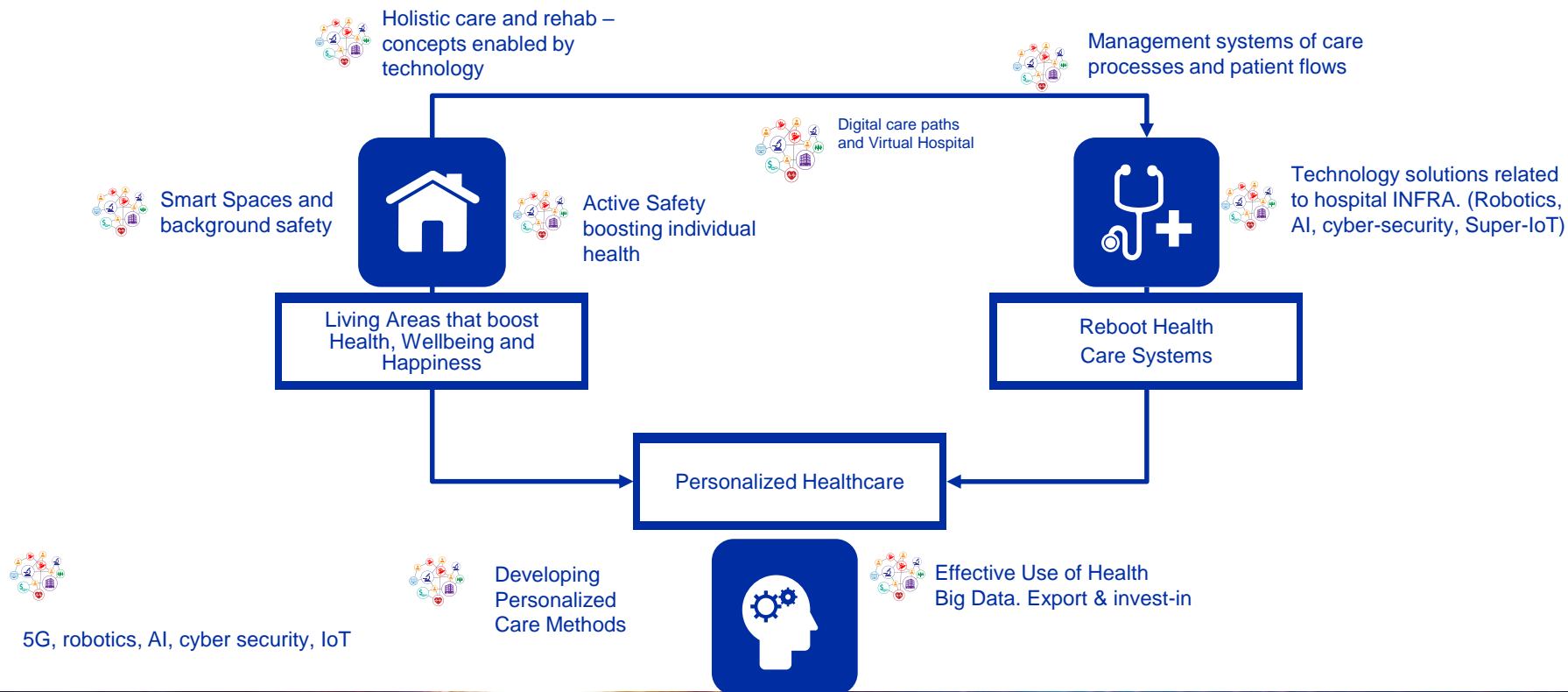
TECHNOLOGY ENABLING CLINICAL INNOVATION

750
PEOPLE



GE HEALTHCARE RUNS THEIR GLOBAL PATIENT MONITORING BUSINESS OUT OF HELSINKI

Wellbeing and Health – Strategy 2025



The background features a dynamic, abstract composition of light trails. On the left, a bright, multi-colored light source (red, orange, yellow, green, blue) creates a lens flare effect, with rays of light extending across the frame. The trails themselves are composed of numerous thin, overlapping lines that curve and swirl, creating a sense of motion and depth. The color palette is dominated by deep blues and purples, with accents of red and orange near the light source. The overall effect is futuristic and energetic.

PLATFORM ECONOMY
-THE NEW NORMAL



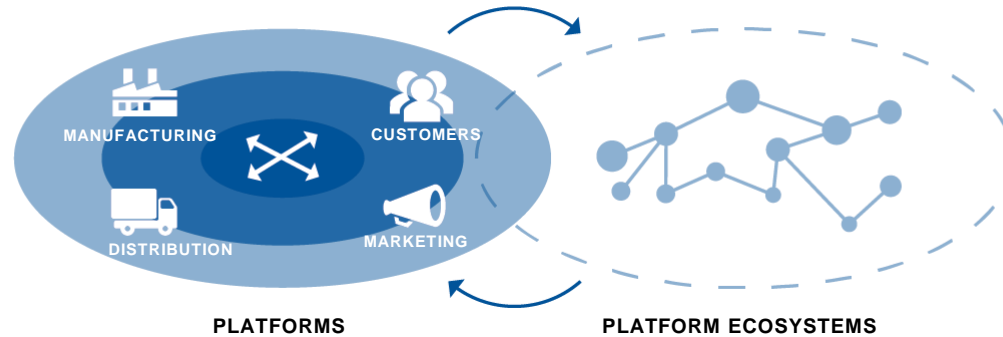
AI

FROM VALUE-CHAINS TO PLATFORM BUSINESSES

VALUE-CHAINS

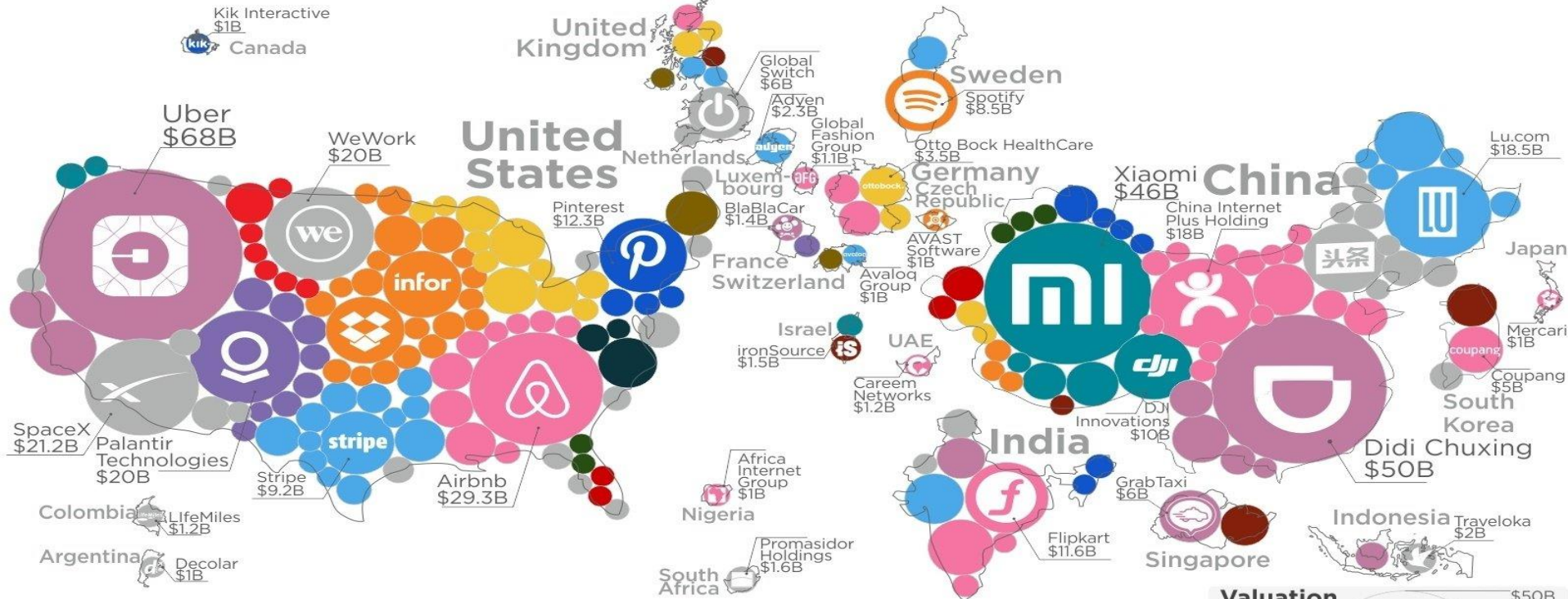


PLATFORM ECONOMY



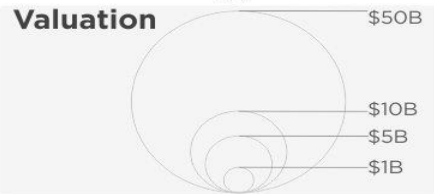
The World's Unicorn Companies 2017

All Private Companies Valued At \$1B+

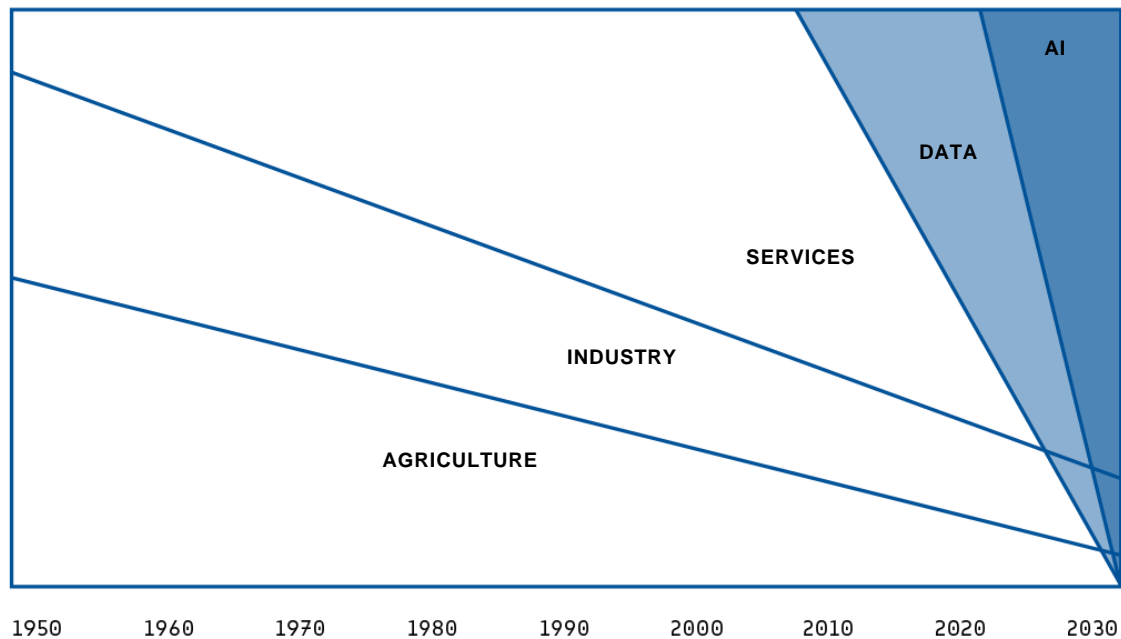


Industry

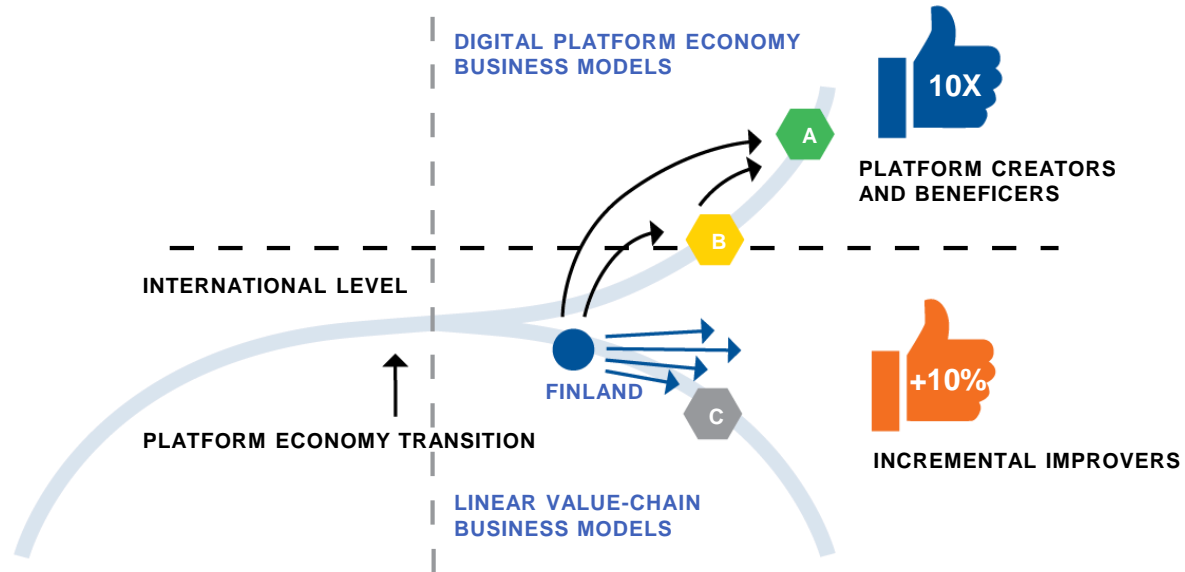
Big Data	Ed Tech	Healthcare	Mobile Software & Services	Social
Cybersecurity	Fin Tech	Internet Software & Services	On Demand	VR/AR
eCommerce/Marketplace	Hardware	Media	Real Estate	Other



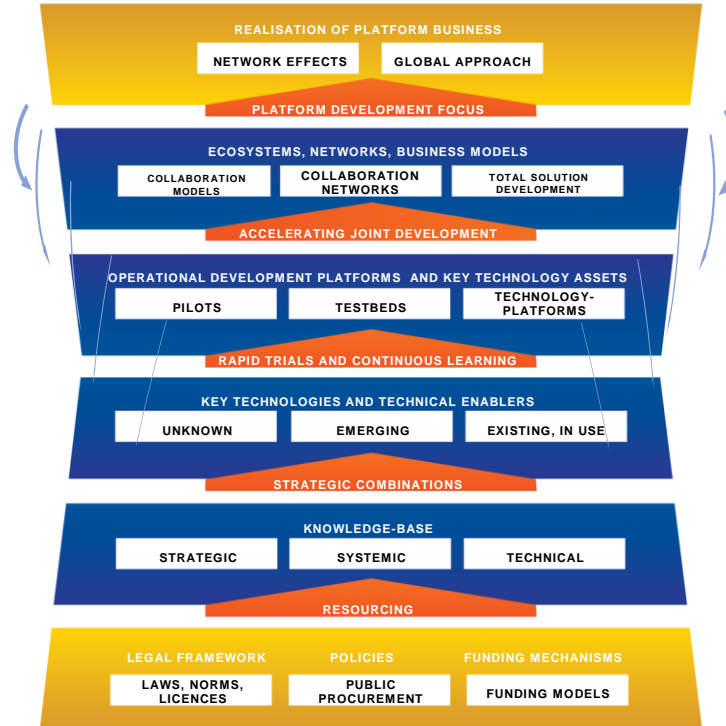
STRUCTURAL CHANGE OF ECONOMY FINLAND 1950-2030 (FORECAST)



GROWTH LEAP OF PLATFORM ECONOMY



PLATFORM ECONOMY DEVELOPMENT -STACK NEW GROWTH ENGINE



ASIAKASARVON LUOMINEN / KYSYNTÄ

Asiakkaat / palvelunkäyttäjät / omaiset / huoltajat

- Hyvinvointitieto
- Tietopalvelut
- Riskiarviot
- Ennaltaehkäisy
- Terveystieto
- My Data (oma tieto)
- Elämäntapaseuranta
- Palvelutieto (tarjonta ja käyttö)

Hoito-, sosiaali- ja hyvinvointialan ammattilaiset

- Hyvinvointitieto
- Terveystieto
- Kotona selviytyminen
- Saumaton moniosaajatiimien palvelukokonaisuus
- Hoito- ja hoivatieto
- Palveluprosessien tehokkuus
- Päätöksenteon tukijärjestelmät

Yritykset / palveluntarjoajat / vapaaehtoisjärjestöt

- Asiakastieto
- T&K tieto
- Käyttäytymistieto
- Laitekehitystieto
- Palvelu- ja palveluprosessitieto
- Koulutus ja kasvatustieto
- Vaikutus- ja tulostieto
- Palvelumuotoilu ja -räätälöinti

Tutkijat

- Lääketieteen ratkaisut
- Hoitotieteen ratkaisut
- Kansanterveystutkimus
- Laite- ja ratkaisukehitys
- Palvelumuotoilu
- Prosessikehitys
- Vaikuttavuusanalyysit
- Kansainvälinen yhteistyö

Julkisen sektorin toimijat (kustannukset, laatu)

- Tietokannat ja rekisterit
- Päätöksenteon tuki
- Asiointin prosessit
- Kansalaispalvelut
- Kansanterveystieto
- Rahoitusohjelmatuki
- Tehokkuuslaskenta
- Terveysturvallisuus

Terveyden ja hyvinvoinnin ALUSTAEKOSYSTEEMI



KESKEISET MUUTOSAJURIT

Saumattomat palvelu- ja hoitoketjut

Yksilölliset hoito-suunnitelmat

Ennakoiva terveyden-huolto

Hyvinvointi-trendit

TUOTANNONTEKIJÄT

Avainteknologiat ja tekniset mahdollistajat

- Datakeskukset ja palvelinfarmit
- Pilvet
- Arkistoalustat
- Botit ja agentit
- Tekoäly
- Blockchain
- AR/VR - Analytiikka- ja laskentateho
- Tietomallit/avoimet rajapinnat
- Palveluarkkitehtuurit
- Arkkitehtuurit ja verkot (5G)
- Robotiikka
- Visualisointityökalut



Data-aineistot, -virrat ja -varannot

- Potilas/asiakastiedot
- Kuvatietokannat
- Kansalliset rekisterit
- Biopankit
- Genomipankit
- Lääketietokannat
- Kartat ja osoitteet
- Palvelutietokannat
- Sensoridata (= wearables, monitorointi)
- Sopimukset
- Terveystietokannat
- Valmennusdata ja -tieto
- Liikuntadata ja -tieto
- Ravintodata ja -tieto
- EBM tietokannat
- Paikannustieto
- Asiakkaiden oma data



Reaalimaailman ja digivarantojen yhdistelmät

- Tietokoneet
- Triage toiminta
- Laboratoriot
- Wearables
- Robotit
- Tutkimusympäristöt
- Potilastietojärjestelmät
- Sairaalat, hoivakodit, kodit
- Laitteet (sairaala, koti)
- Kamerateerit (kuvat ja videot)
- Hoito- ja hoivaympäristöt
- EBM arviointitulokset

ANALYTICS

API

DATA

Finland defining the Next 100 years

<https://www.youtube.com/watch?v=IhSUjnX0qKY>

THANK YOU!

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