

Tekoällyn valkoinen kirja ja katsaus Suomen tekoälytoimiin

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Datatalousfoorumi 12.6.2020



Työ- ja elinkeinoministeriö
Arbets- och näringsministeriet

Tekoälyaika- ohjelma 2017-2019

- kohti ihmiskeskeistä tekoälyä



11 avainta tekoälyaikaan

- 1 Kasvatamme tekoälyn avulla yritysten kilpailukykyä
- 2 Hyödynnämme dataa kaikilla sektoreilla
- 3 Nopeutamme ja helpotamme tekoälyn käyttöönottoa
- 4 Varmistamme huippu-osaamisen ja houkuttelemme huippuosaajia
- 5 Teemme rohkeita valintoja ja investointeja
- 6 Rakennamme maailman parhaat julkiset palvelut
- 7 Luomme uudenlaisia yhteistyömalleja
- 8 Nostamme Suomen tekoälyajan suunnannäyttäjäksi
- 9 Tekoäly muuttaa työn luonnetta
- 10 Ohjaamme tekoälykehityksen luottamukseen perustuvalla ja ihmislähtöisellä uralla
- 11 Valmistaudumme turvallisuuden haasteisiin

AI Finland is active on EU level.

We are shaping the shared European AI agenda.

Digitizing European Industries working group

-
Drafts European strategy on AI

AI High-Level Expert Group

-
Creates ethical guidelines on AI and recommendations on competitiveness

Finland's EU presidency

-
H2/2019



Valkoinen kirja tekoälystä 19.2.2020



- **Hahmottelee EU:n sääntelykehikkoa ja politiikkakeinoja, joilla**
 - Edistetään investointeja AI-tutkimukseen ja innovaatioihin
 - Vahvistetaan osaamista
 - Edistetään tekoälyn hyödyntämistä pk-yrityksissä

Huippuosaamisen ja käytön edistäminen



- Tarkistettu tekoälyn koordinoitu toimintasuunnitelma
- Tutkimus ja innovaatiot: DEP:n huippuosaamis- ja testauskeskittymät ja Horisontti Eurooppa-toimenpiteet
- Kyvykkyyksien vahvistaminen: johtavien yliopistojen ja korkeakoulujen verkoston tukeminen
- Pk-yritysten toimintaedellytykset: AI-erikoistuneet EDIH -keskukset
- Investointien edistäminen: pääomarahoitusta AI-kehitykseen
- Julkisen ja yksityisen sektorin yhteistyö: tutkimus- ja innovaatiokumppanuudet
- Käytön edistäminen julkisella sektorilla
- Datat saatavuuden ja siirrettävyyden turvaaminen

Säätelykehikko



- **Uutta sitovaa sääntelyä sovellettaisiin riskiperusteisesti, kun kyseessä on sekä korkean riskin sektori että korkean riskin tekoälyjärjestelmä. Molempien ehtojen tulee täytyä.**
- **Mahdollisia sääntelyalueita korkean riskin sovelluksille**
 - tekoälyn kouluttamiseen käytetty data
 - datan ja tietojen säilyttäminen
 - tietojen antaminen
 - varmuus ja tarkkuus
 - ihmisen suorittama valvonta
 - erityisvaatimukset tietyille tekoälysovelluksille, kuten biometriseen
 - etätunnistukseen käytetyille sovelluksille.

Tekoälyn valkoisen kirjan kuuleminen – Suomen vastaus E-kirjeen [E-kirje E 24/2020 vp](#) pohjalta



- **Section 1: An ecosystem of excellence**

- Suomelta voimakas tuki AI- osaamisen, -innovaatioiden ja -investointien vahvalle ja laaja-alaiselle kehittämiselle

- **Section 2 - An ecosystem of trust**

- Suomi tukee AI-järjestelmien luotettavuuden ja turvallisuuden lisäämistä ja korostaa ihmiskeskeistä lähestymistapaa
- Suomi asettaa mahdolliselle uudelle sääntelylle runsaasti ehtoja ja suhtautuu varauksellisesti korkean riskin sektoreiden tyhjentävään nimeämiseen ja siihen perustuvaan sääntelyyn
- Suomi korostaa riskiperusteista ja soveltamisaluekohtaista lähestymistapaa sekä soveltamisalueiden olemassaolevien sääntelymekanismien soveltamista ja niiden mahdollista kehittämistä todellisen tarpeen mukaan

- **Section 3 – Safety and liability implications of AI, IoT and robotics**

- Ei vastauksia

Suomi tukee osaamisen, innovaatioiden ja investointien lisäämisen toimenpiteitä



In your opinion, how important is it in each of these areas to align policies and strengthen coordination as described in section 4.A of the White Paper (1-5: 1 is not important at all, 5 is very important)?

In your opinion how important are the three actions proposed in sections 4.B, 4.C and 4.E of the White Paper on AI (1-5: 1 is not important at all, 5 is very important)?

In your opinion, how important are the six actions proposed in section 4 of the White Paper on AI (1-5: 1 is not important at all, 5 is very important)?

	1 - Not important at all	2 - Not important	3 - Neutral	4 - Important	5 - Very important	No opinion
Working with Member states	☐	☐	☐	☐	☒	☐
Focussing the efforts of the research and innovation community	☐	☐	☐	☐	☒	☐
Skills	☐	☐	☐	☐	☒	☐
Focus on SMEs	☐	☐	☐	☐	☒	☐
Partnership with the private sector	☐	☐	☐	☐	☒	☐

	1 - Not important at all	2 - Not important	3 - Neutral	4 - Important	5 - Very important	No opinion
Alignment with research and innovation policy	☐	☐	☐	☐	☒	☐
AI centres	☐	☐	☐	☐	☒	☐
Industrial	☐	☐	☐	☐	☒	☐

	1 - Not important at all	2 - Not important	3 - Neutral	4 - Important	5 - Very important	No opinion
	☐	☐	☐	☐	☒	☐
	☐	☐	☐	☐	☒	☐
	☐	☐	☐	☐	☒	☐
	☐	☐	☐	☐	☒	☐
	☐	☐	☐	☐	☒	☐
	☐	☐	☐	☐	☒	☐

Promoting the adoption of AI by the public sector	☐	☐	☐	☐	☒	☐
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Suomi tukee osaamisen, innovaatioiden ja investointien lisäämisen toimenpiteitä



Are there other actions that should be considered?

500 character(s) maximum

Finland supports the Commission's human-centred approach which emphasises trust, in which European artificial intelligence is based on the values of freedom, human dignity and privacy. Finland attaches importance to competitiveness and broad-based competence development, as demonstrated by the Elements of AI online course and AuroraAI program. Due attention should be given to risks associated with fundamental rights, such as protection of personal data and discrimination.

Are there any other tasks that you consider important for specialised Digital Innovations Hubs?

500 character(s) maximum

In addition to technological innovation, the DIHs should be able to promote business model innovation

Are there other areas that that should be considered?

500 character(s) maximum

Finland supports the Commission's objective of defining a common European approach that takes into account the interests of citizens, companies, municipalities and society, with the aim of avoiding the fragmentation of the internal market.

Finland supports the policy instruments presented in the White Paper promoting investments in research and innovation and strengthening expertise. European data spaces should provide solid background for ethical and secured AI development.

Suomi yhtyy AI-järjestelmien toimintaa koskeviin huolenaiheisiin



In your opinion, how important are the following concerns about AI (1-5: 1 is not important at all, 5 is very important)?

	1 - Not important at all	2 - Not important	3 - Neutral	4 - Important	5 - Very important	No opinion
AI may endanger safety	☐	☐	☐	☐	☒	☐

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AI may breach fundamental rights (such as human dignity, privacy, data protection, freedom of expression, workers' rights etc.)	☐	☐	☐	☐	☒	
The use of AI may lead to discriminatory outcomes	☐	☐	☐	☐	☒	
AI may take actions for which the rationale cannot be explained	☐	☐	☐	☐	☒	
AI may make it more difficult for persons having suffered harm to obtain compensation	☐	☐	☐	☐	☒	☐
AI is not always accurate	☐	☐	☐	☐	☒	☐

**Do you have any other concerns about AI that are not mentioned above?
Please specify:**

500 character(s) maximum

AI systems must be developed and deployed in a human-centric manner. Equality of rights and prevention of exclusion has to be taken into consideration. It is important to take into account national security, national defence and the role of the Defence Administration in society as well as the special needs related to this role with regard to data management and production. The main differences and the links between the military and civilian sectors must be taken into account.

Suomen esitti yleiset vaatimukset uudelle sääntelylle



Do you think that the concerns expressed above can be addressed by applicable EU legislation? If not, do you think that there should be specific new rules for AI systems?

- ☐ Current legislation is fully sufficient
- ☐ Current legislation may have some gaps
- ☐ There is a need for a new legislation
- ☒ Other
- ☐ No opinion

Other, please specify

500 character(s) maximum

Current legislation may have some gaps;Regulatory environment must encourage innovations,support development and application of new technologies,business and services,comply with principles of human rights,rule of law and democracy,principle of better regulation and proportionality,ensure up to date, needbased,predictable and technology-neutral,top down approach,must define the roles,accountability and responsibilities and must not impose unnecessary regulatory burden on businesses and consumers

Suomi esitti varauman koskien korkean riskin sektoreitten tyhjentävää nimeämistä



Do you agree with the approach to determine “high-risk” AI applications proposed in Section 5.B of the White Paper?

- ☐ Yes
- ☐ No
- ☒ Other
- ☐ No opinion

Other, please specify:

500 character(s) maximum

Finland supports in general the idea of defining the possible risks related to AI applications and managing those risks accordingly. Finland has reservations about the plan to appoint sectors that apply high risk artificial intelligence (such as transport and health) in advance. Neutral criteria should be drawn up for taking risks into account. Comprehensive framework should be established to address these risks, regarding the principle of proportionality and other principles of good governance

Suomen kanta kasvojen tunnistukseen julkisilla paikoilla ehdollinen



requirements foreseen above (see question above), do you think that the use of remote biometric identification systems (e.g. face recognition) and other technologies which may be used in public spaces need to be subject to further EU-level guidelines or regulation:

- ☐ No further guidelines or regulations are needed
- ☒ Biometric identification systems should be allowed in publicly accessible spaces only in certain cases or if certain conditions are fulfilled (please specify)
- ☐ Other special requirements in addition to those mentioned in the question above should be imposed (please specify)
- ☐ Use of Biometric identification systems in publicly accessible spaces, by way of exception to the current general prohibition, should not take place until a specific guideline or legislation at EU level is in place.
- ☐ Biometric identification systems should never be allowed in publicly accessible spaces
- ☐ No opinion

Please specify your answer:

The scope of possible new regulation must be clear. Responsibilities and requirements of different actors, powers of the authorities and adequate means for preventing and combating threats must be guaranteed. It is necessary to carefully examine the operating area of artificial intelligence and to specify requirements, for example as regards facial recognition. Investigation of crimes and cyber security of critical functions in society must be secured.

Suomi suhtautuu positiivisesti vapaaehtoiseen sertifiointiin



Do you believe that a voluntary labelling system (Section 5.G of the White Paper) would be useful for AI systems that are not considered high-risk in addition to existing legislation?

- ☐ Very much
- ☒ Much
- ☐ Rather not
- ☐ Not at all
- ☐ No opinion

Do you have any further suggestion on a voluntary labelling system?

500 character(s) maximum

Finland welcomes the possibility of using self-regulation and sharing best practices such as voluntary labelling system.

AI-järjestelmien tarjoajien on varmistettava luotettavuus ja turvallisuus etukäteen. Toteutettavissa pääosin olemassa olevien mekanismien avulla, kehittämisen varauduttava



What is the best way to ensure that AI is trustworthy, secure and in respect of European values and rules?

- ☒ Compliance of high-risk applications with the identified requirements should be self-assessed ex-ante (prior to putting the system on the market)
- ☐ Compliance of high-risk applications should be assessed ex-ante by means of an external conformity assessment procedure
- ☐ Ex-post market surveillance after the AI-enabled high-risk product or service has been put on the market and, where needed, enforcement by relevant competent authorities
- ☐ A combination of ex-ante compliance and ex-post enforcement mechanisms
- ☐ Other enforcement system
- ☐ No opinion

Do you have any further suggestion on the assessment of compliance?

500 character(s) maximum

The global competitive situation requires that EU regulation is favourable and promotes the responsible development and application and investment of AI. It is likely that there already exists basic necessary procedures for many systems/applications that apply AI. New regimes for technical requirements might be needed, as well as testing and evaluation procedures



Ajankohtaista AI-politiikan suunnittelupöydällä

- European digital innovation hubs (DEP)
- AI testing and experimentation facilities, TEFs (DEP)
- GAIA-X (Saksa+Ranska →)
- Global partnership for artificial intelligence (Ranska+Kanada →)
- AI Finland 2020 30.9.2020 @Tampere-talo

Kohti uutta digiohjelmaa: tilannekuva



- **Suomen digi-investoinnit ovat selvästi alemmalla tasolla kuin verrokkimaissa, mikä heikentää tuottavuuskehitystä ja työllisyyden edellytyksiä**
- **Covid-19-kriisin jälkeinen jälleenrakennus ja kestävä kasvu edellyttävät digitalisaation kiihdyttämistä ja laaja-alaista hyödyntämistä**
 - Green Deal + Europe Fit for Digital = Twin Transition → Green and Digital Recovery
- **Osaaminen ja infrastruktuuri ovat Suomen digivahvuuksia, yritysten arvonaluonnin uudistuminen digiheikkous**
- **Suomelta on puuttunut kokoava strategia neljännen teollisen vallankumoksen toteuttamiseksi.**

DESI 2020



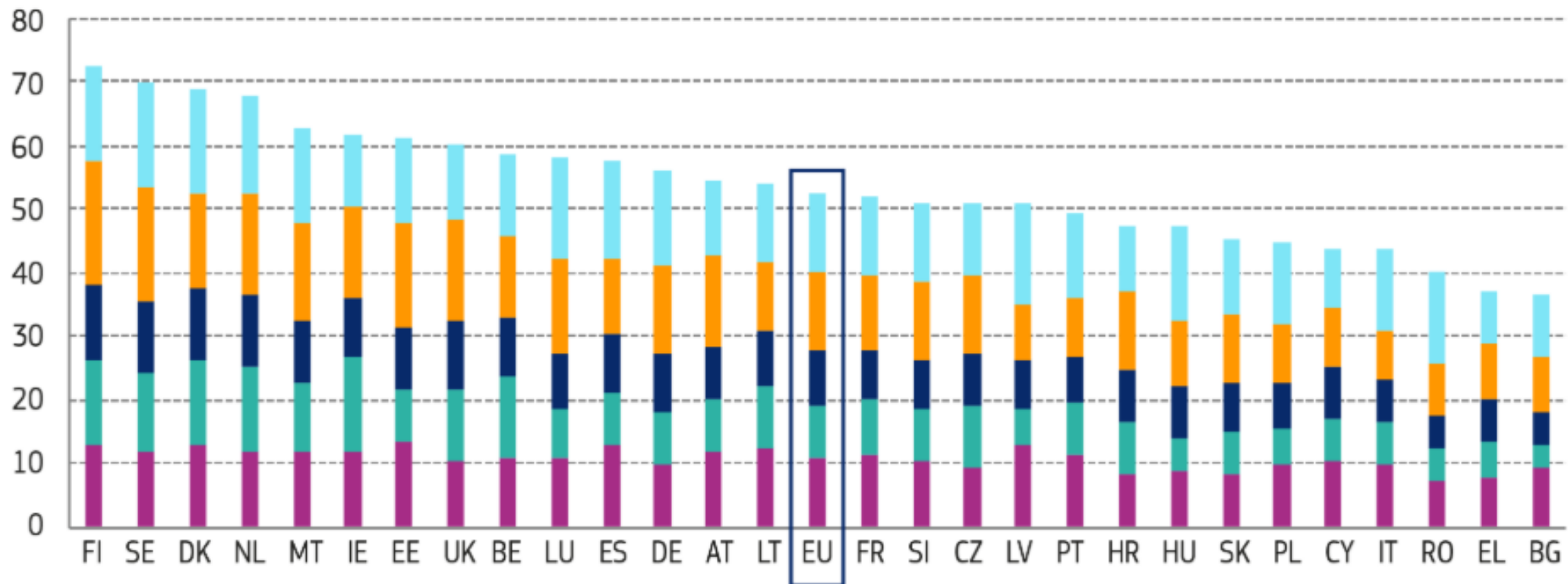

CONNECTIVITY


HUMAN CAPITAL


USE OF INTERNET
SERVICES


INTEGRATION OF
DIGITAL TECHNOLOGY


DIGITAL PUBLIC
SERVICES



ICT investment as a percentage of GDP

ICT investment as a percentage share of GDP. This indicator provides a measure of ICT diffusion throughout the economy. ICT investment refers to gross fixed capital formation (GFCF) of "information and communication equipment" and "computer software and databases", as defined by the System of National Accounts 2008 (SNA08).

For more information on this indicator visit <https://goingdigital.oecd.org/en/indicator/30/>



Source: OECD, National Accounts Statistics; Eurostat, National Accounts Statistics and national sources.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.







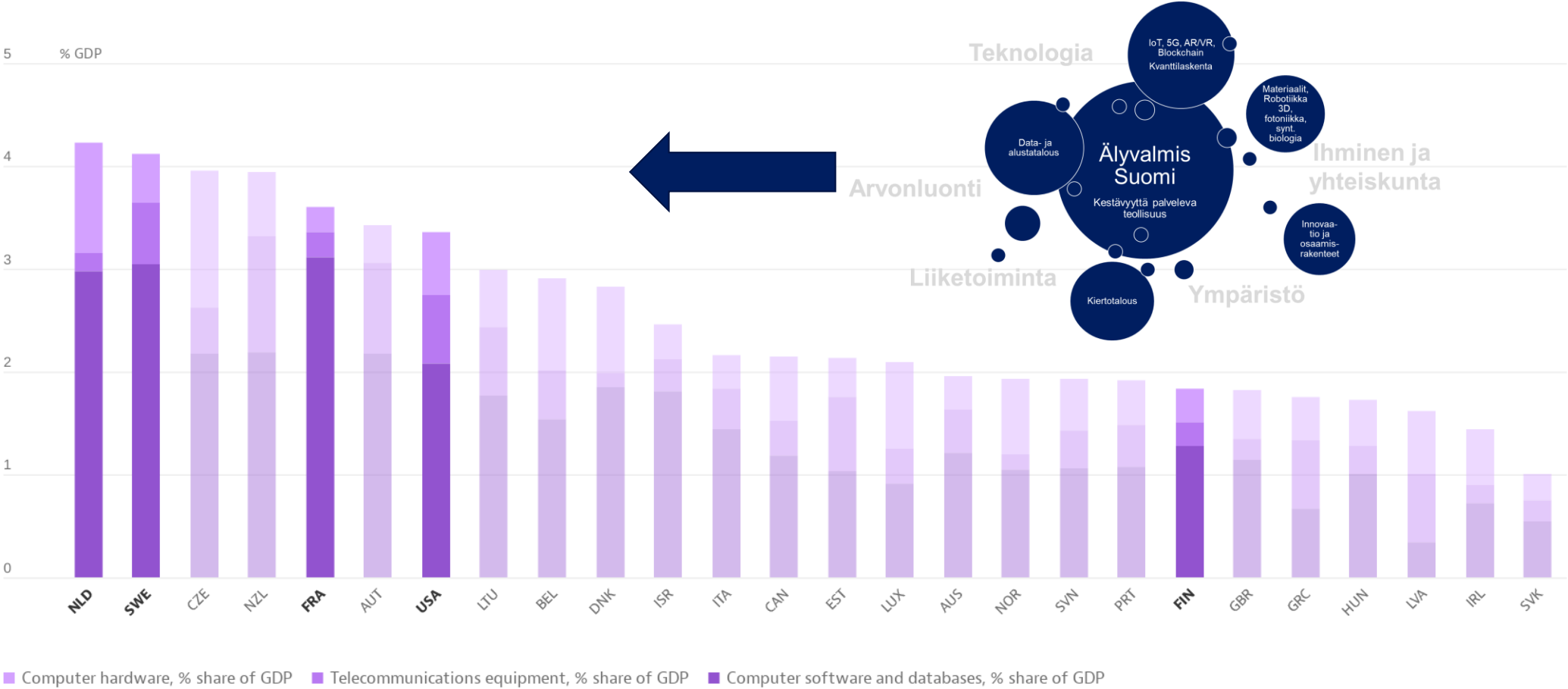


Toimenpidekokonaisuus	Hyöty
Kestävän digitalisaation strategiat	Vahvistunut luottamus kestävään kasvuun Parantunut vetovoima osaamiselle ja investoinneille Vaikuttavampi kehittämisverkosto
Yritysten tekoälykyky	Digi-aktiivisempi yrityskenttä Uusia investointi- ja kehityshankkeita Kasvavat digi-investoinnit
Älyvalmis Suomi	EU-rahoituksen parempi hyödyntäminen ja vivutus Poolatut julkiset resurssit - järkevämpi digipolitiikka

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Kiitos!