

**Technology Industries
of Finland**



Technology industries' new normal – from COVID crisis to growth

22.9.2020

Jaakko Hirvola, CEO, Technology Industries of Finland

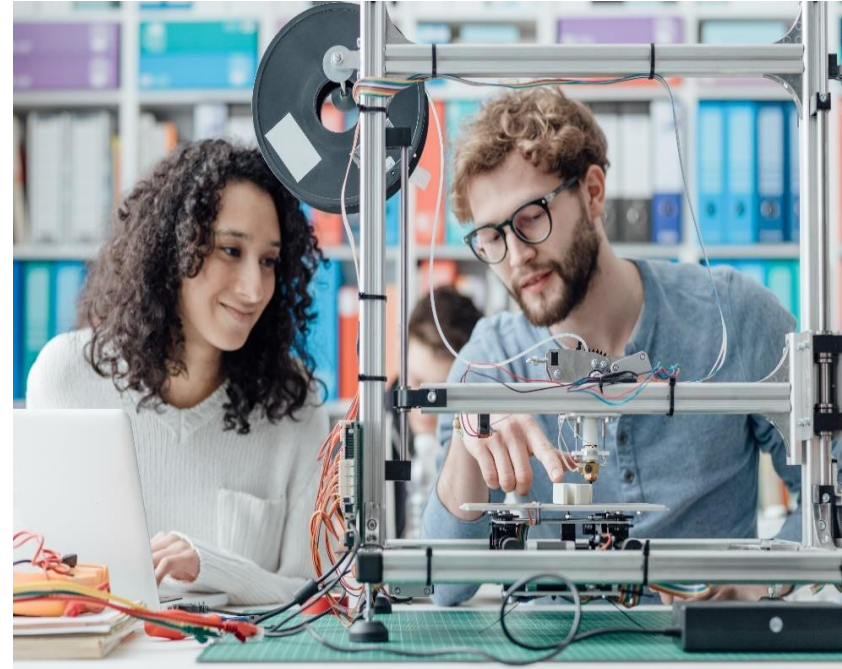
#aaltodigi #digivihreä

Technology industry in Finland



- **50 % of total Finnish exports**
- **70 %** of private-sector R&D investment.
- **320,000** employed directly,
675,000 in total

- Mechanical engineering (e.g. Kone),
Electrotechnical (Nokia),
Metals (Outokumpu),
IT (TietoEVRY),
Consulting engineering (AFRY)
- 1600 member companies, >90% SME's





Where are we now?



State of the Tech Industries before crisis



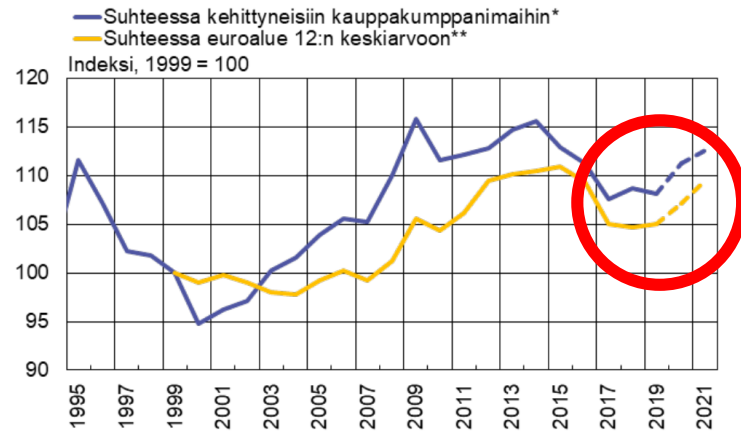


State of the Tech Industries before crisis

● Cost competitiveness getting worse again



Vaihtosuhteikorjatut yksikkötyökustannukset***



*) 14 perinteistä teollisuusmaata Suomen kauppapainoilla, samassa valuutassa.

**) Euroalueen 12 ensimmäistä jäsenmaata.

***) Työkustannukset suhteessa kansantulon määrään, koko talous.

Ennuste: Euroopan komissio.

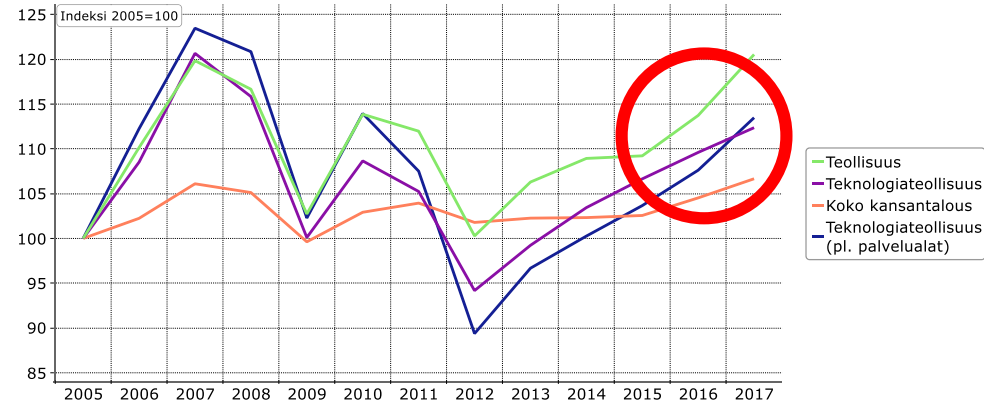
Lähteet: Euroopan komissio, OECD, Macrobond ja Suomen Pankin laskelmat.



State of the Tech Industries before crisis



● Cost competitiveness getting worse again

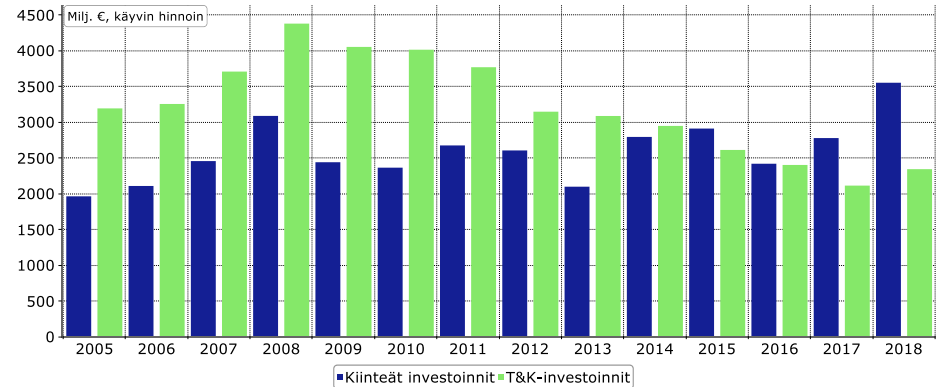
● Decent productivity development





State of the Tech Industries before crisis

- Cost competitiveness getting worse again
- Decent productivity development
- Long decrease in RDI investments 
- Flat trend in fixed investments 
-



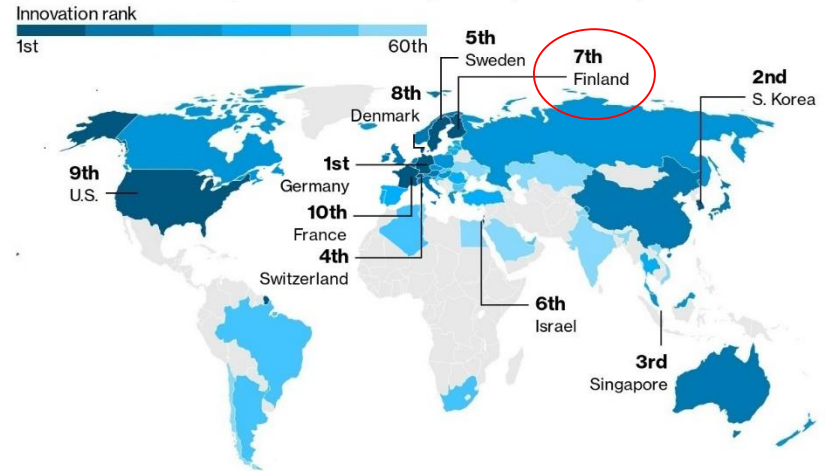


State of the Tech Industries before crisis

- Cost competitiveness getting worse again
- Decent productivity development
- Long decrease in RDI investments
- Flat trend in fixed investments
- Finland 7th most innovative economy (but moving down)

World's 60 Most Innovative Economies

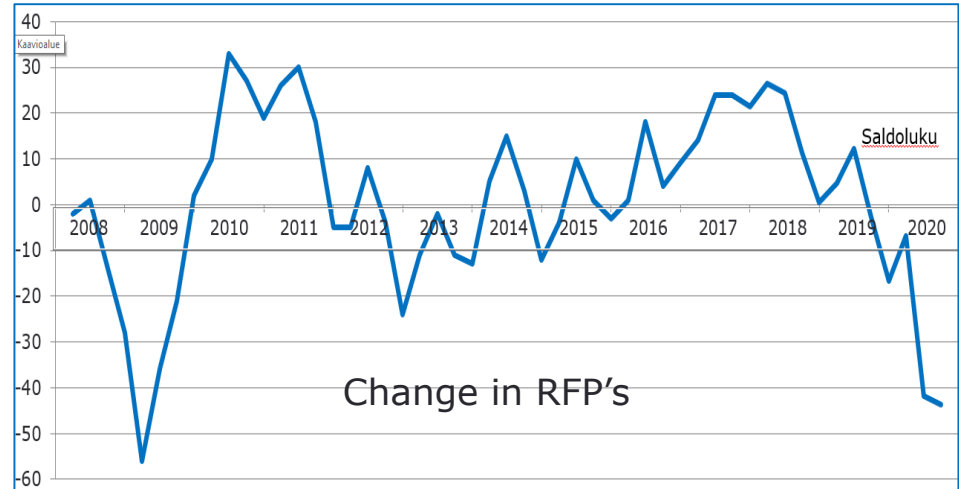
China inches into top 15 in 2020 as Japan drops out of top 10





Impact of COVID-19 on Finnish Tech Industry

- Demand collapsed across Europe and the globe
- 1/2 say worst is yet to come
- 1/3 laying off, losing 10k jobs
- Bankruptcies expected





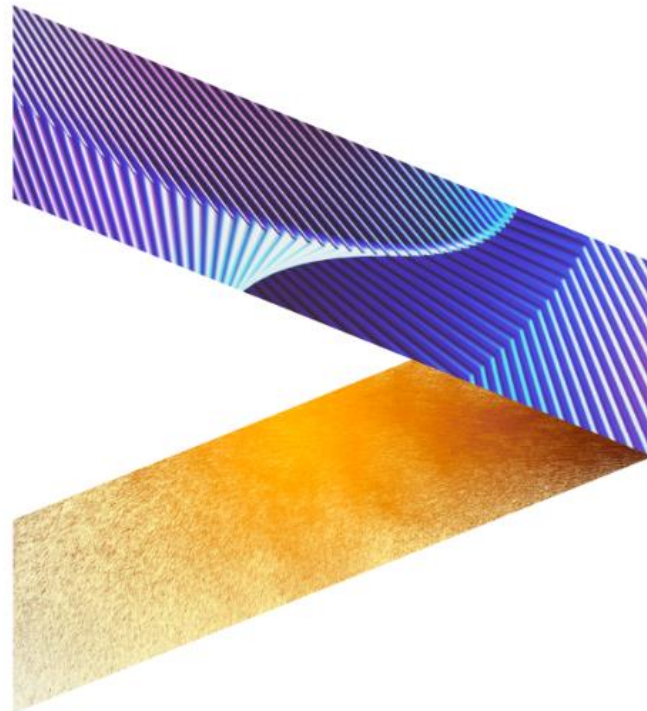
What options do we have?



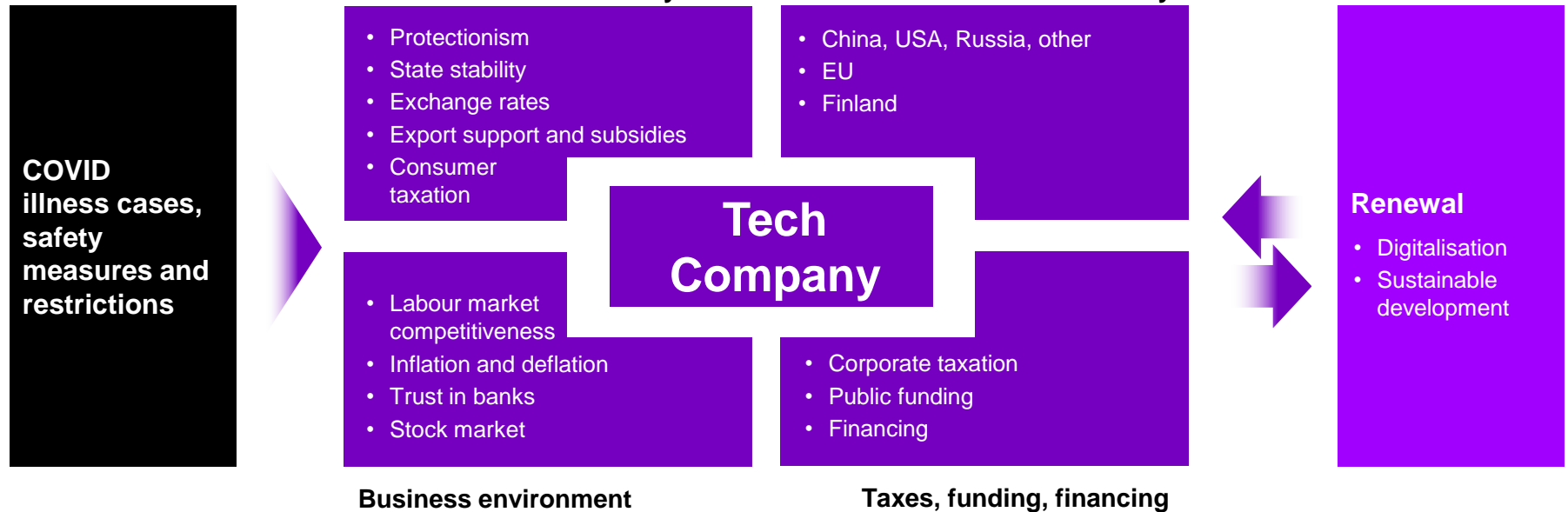
Teknologiateollisuus

Finland and Technology Industries in “new normal” scenarios

7.8.2020



A holistic Framework for analysing the COVID impact



Activities to manage COVID impact

- Company response
- Public / political decision making (lobbying)
- Risk mitigation

Drivers of renewal: digitalization and sustainable development



- COVID has already strengthened the **digitalisation** trend
- **Climate** change mitigation will stay high on the agenda despite lower short term focus due to the COVID crisis
- Both drivers strongly **supported by EU**
 - Green Deal
 - EU 7-year budget MFF
 - Next Generation EU (NGEU) resilience and recovery package (RRF)

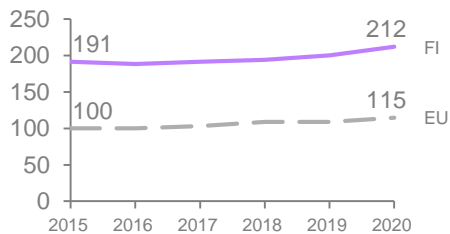
Drivers of renewal: digitalization and sustainable development



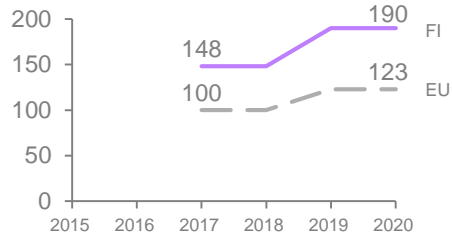
- Do we have a competitive edge?
- Finland again EU leader in DESI index – what does it mean for businesses?
And SME's?
- Forerunners in 5G/6G – can we leverage it? Combining it with industrial digitalisation?
- Digital B2C game lost to global giants, but how about B2B, G2C, M2M...?
- Industry commitment to carbon neutrality by 2035
- Low carbon roadmaps of industries – an EU best practice?

Business digitalisation index indicates strong development in Finland before COVID, and acceleration during the pandemia

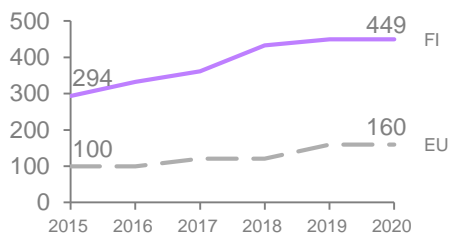
ICT-osajien osuus työvoimasta



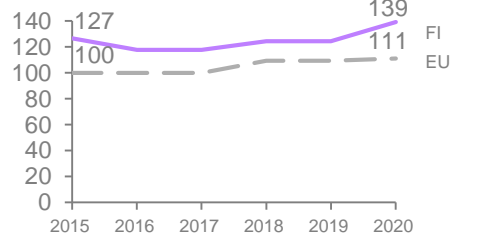
Big datan käyttö yrityksissä



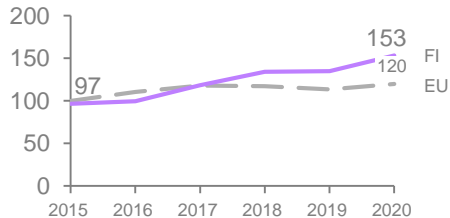
Pilvipalveluiden käyttö yrityksissä



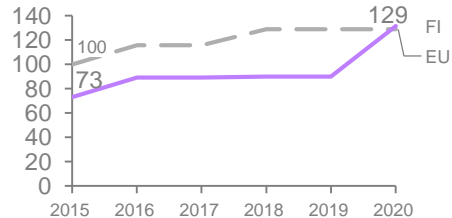
ERP:n käyttö yrityksissä läpinäkyvyyteen



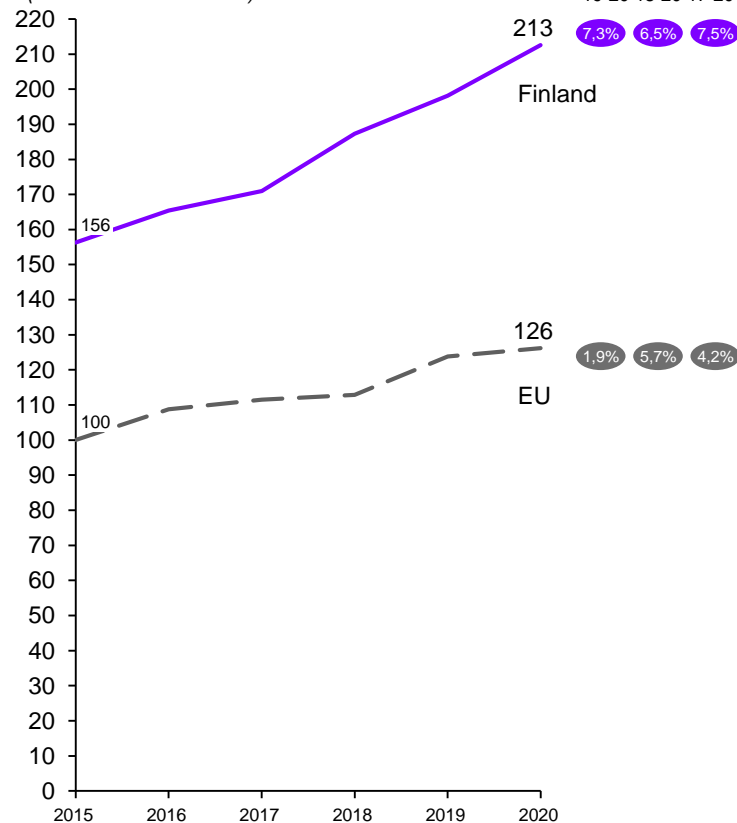
PK-yritysten myynti verkossa



PK-yritysten kv-myynti verkossa



Liiketoiminnan digitalisaatioindeksi
(EU:n vuosi 2015 = 100)



Liiketoiminnan digitalisaatioindeksi rakennettiin kuudesta Euroopan Unionin DESI-indeksin muuttujasta. Sekä EU:n että Suomen data on indeksoitu ilman painotuksia EU:n perusvuotta vasten (ensimmäinen vuosi jolloin data saatavissa)

The new normal scenarios introduce alternative futures for Finland



Multi-dimensional crisis

Prolonged COVID leads to parallel crises such as demand collapse, deflation, financial crisis, stock market shocks etc.



Localization

COVID, increasing protectionism, state instabilities and exchange rate fluctuation strengthen localisation across our export markets.



Stagnation

Cost competitiveness lost due to salary increases, leading to labour market crisis. Tax, funding and financing not competitive in Finland. Negative spiral locally.



Slow recovery

COVID calms down during 2021, but economic recovery takes another 2-4 years



DigiGreen acceleration

COVID boosts digitalisation, and low carbon technologies demand rises, leading to positive structural changes and massive investments.



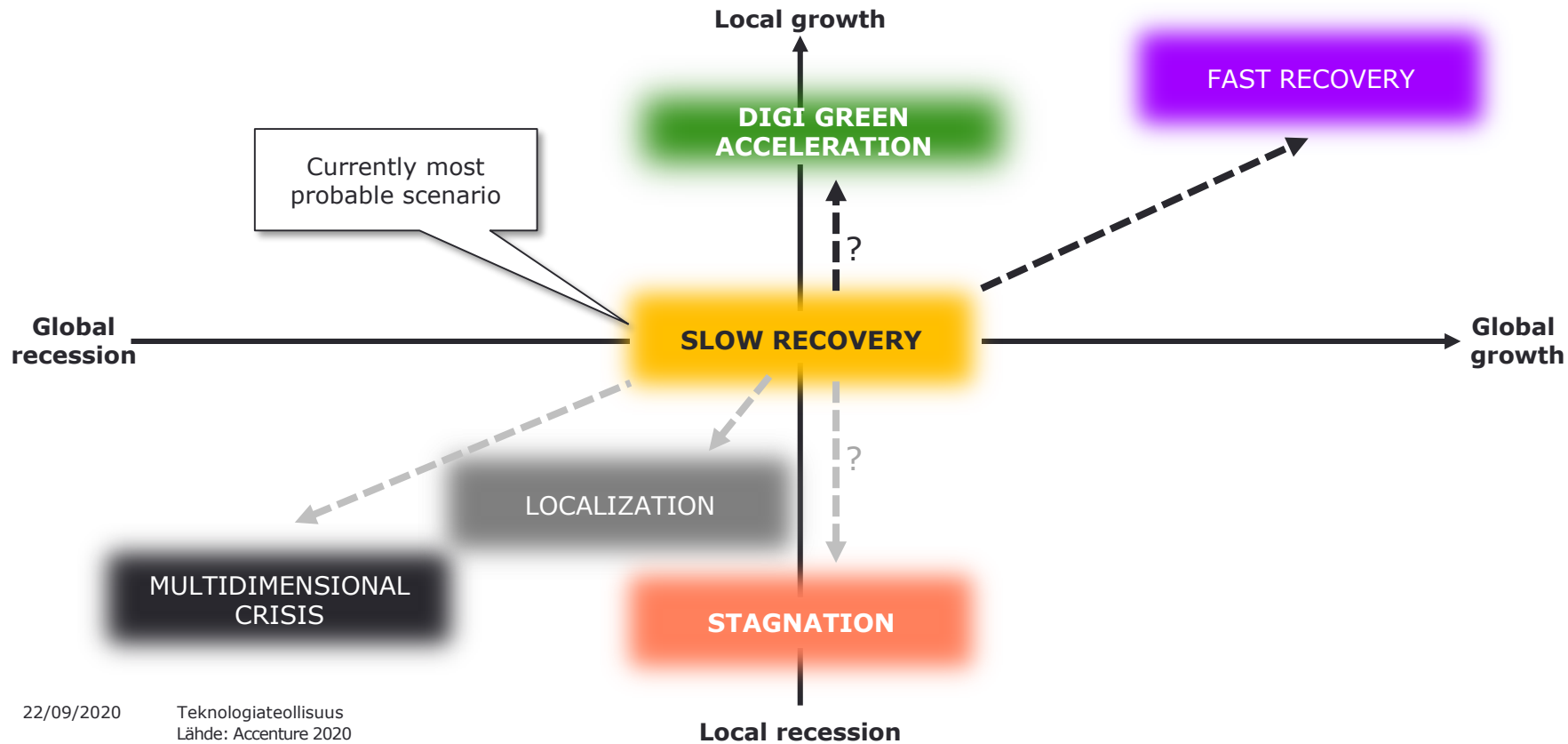
Fast recovery

COVID calms down by beginning of 2021, and the economy and businesses return to fast growth. Stabilising the economy after 2020 financial shock will take a long time though.

Recession

Growth

Local choices by public and private actors have an impact on our direction





So what is #digigreen (#digivihreä)?

“Digital” leverages “green” in many ways



More value through digitalizing business processes across the value chain

Digital

Digitalization, AI and smart use of data enable sustainable business

Digital enables green

Environmentally and socially sustainable business across the value chain

Green

“Digital” leverages “green” in many ways



More value through digitalizing business processes across the value chain

- Process automation, robotics, autonomous systems
- Analytics, algorithms and AI for optimization and forecasting
- Digital twins
- Remote work, VR/AR
- Etc.

Digital

Digitalization, AI and smart use of data enable sustainable business

- Smart energy solutions
- Smart materials management / circular economy
- Smart mobility
- Digital business models (sharing platforms, product as a service)
- Digital processes (public and private)
- Etc.

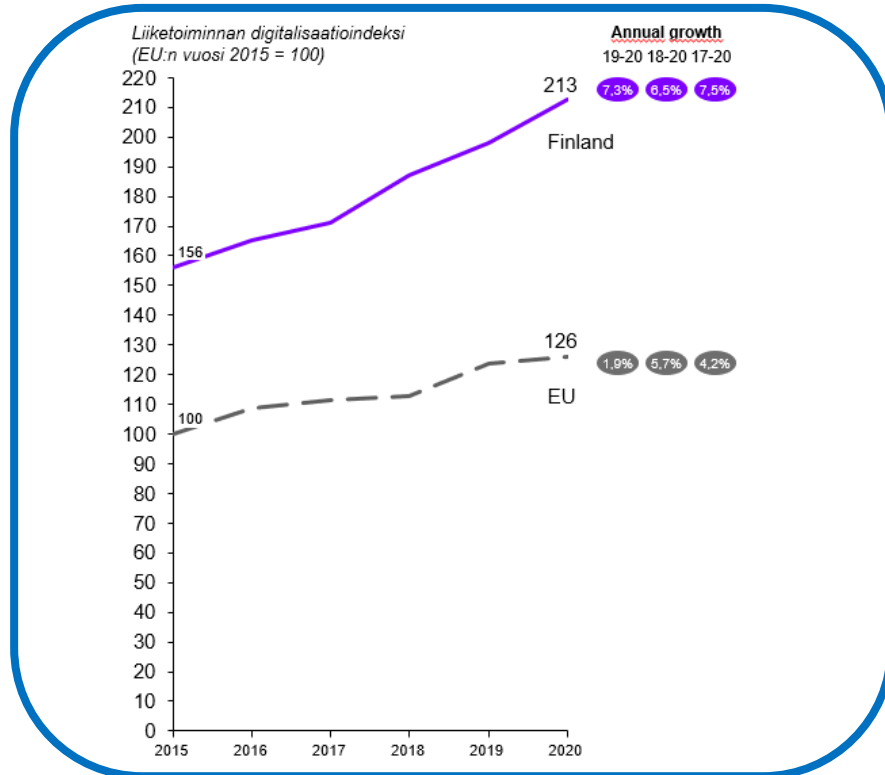
Digital enables green

Environmentally and socially sustainable business across the value chain

- Renewable energy solutions
- Energy efficiency
- Electrification
- Circular economy
- Material efficiency and reuse
- CCS / CCU
- Etc.

Green

Boosting industrial digitalization (Industry X.0)



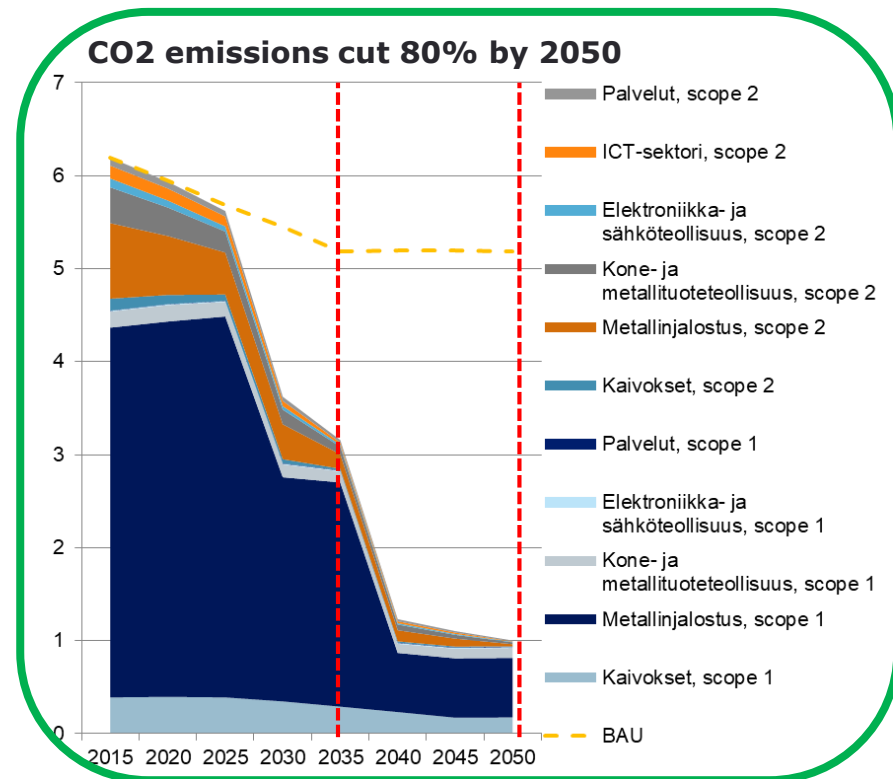
- Smart industry initiatives (TIF, DIMECC, BF, VTT, universities etc.)
- Techy stuff, smart automated manufacturing with IIoT, AM, 5G, AI...
- New services and business models on top of product manufacturing business
- Ecosystems play!
- Note: national industrial strategy required.

Minimizing the CO2 footprint



- Committed to Carbon neutral Finland 2035 target
- Low carbon roadmap published in June 2020
- Technology already exists / is under development

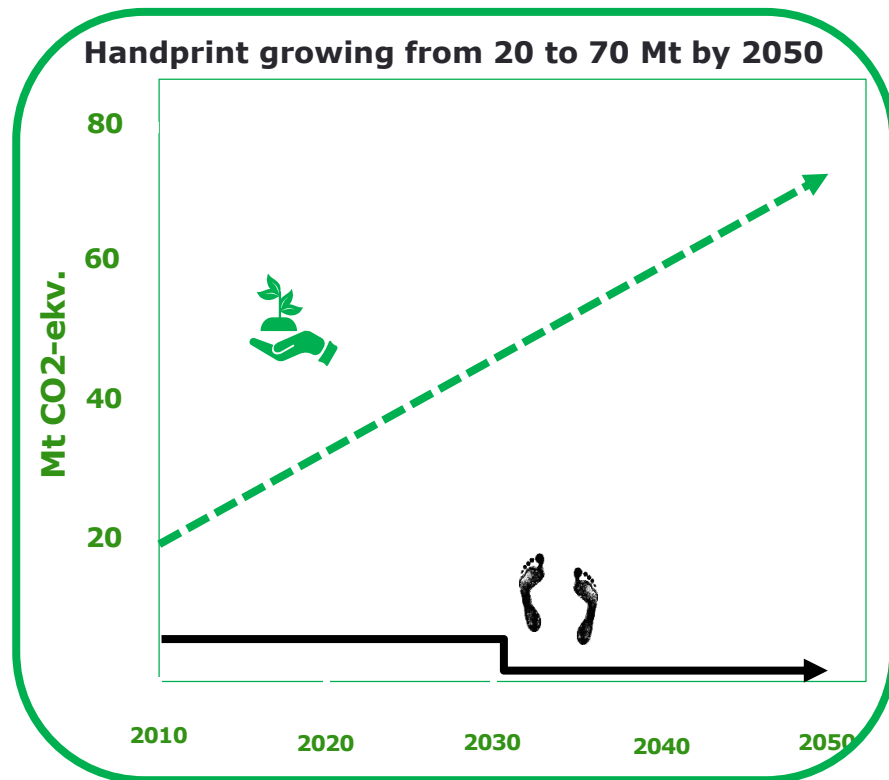
- Level playing field required
- Predictable cost of CO2



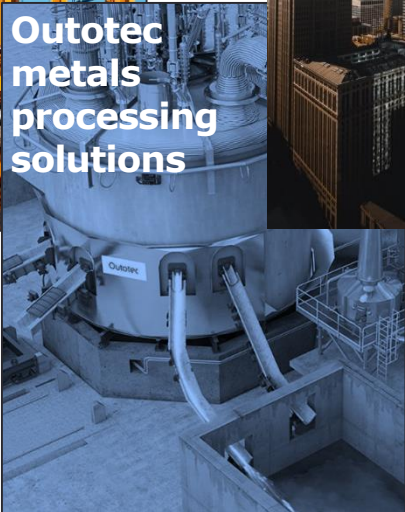
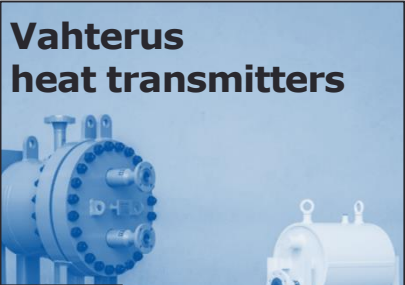
Maximizing the handprint is the real opportunity



- Handprint of current export products and technologies > 20 MtCO₂e/a
- Products under development > 50 MtCO₂e/a
- Massive technology export opportunity
- EU budget (MFF) and Recovery and Resilience Facility – ensure focus on digital and climate, and fair access to development programs



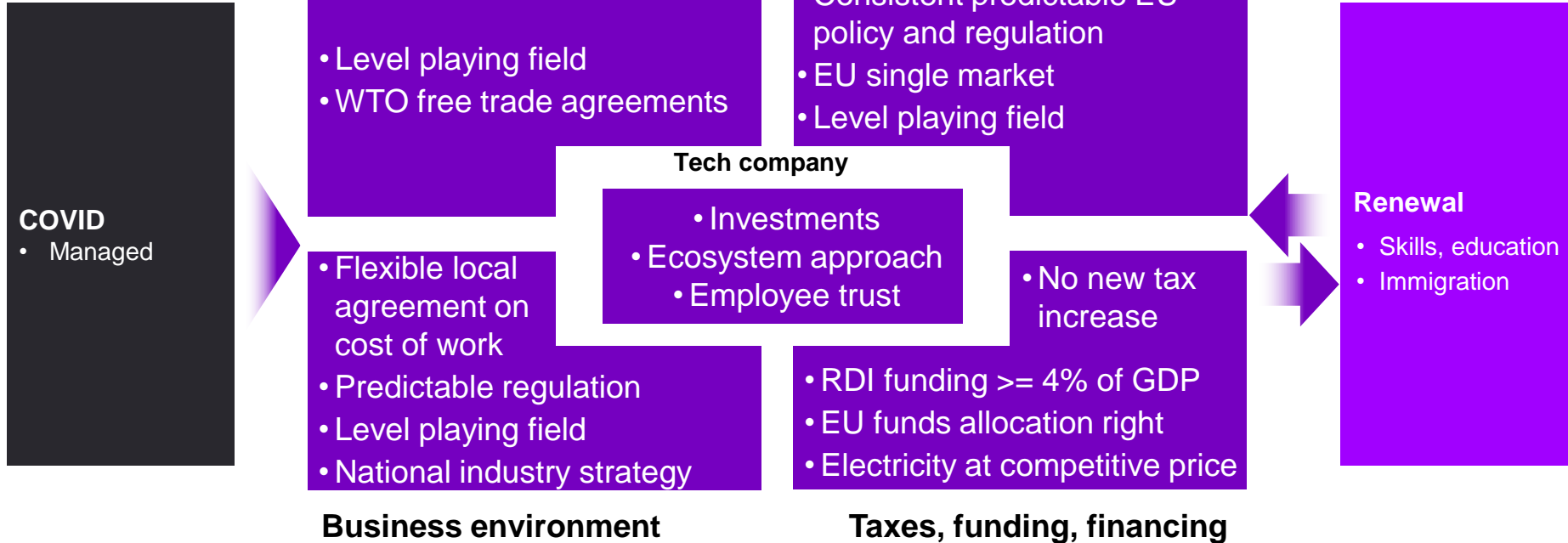
Some existing / future handprint technologies





Finally: what do we need to succeed?

What do we need to succeed?



PS. Where to invest for sustainable growth of a welfare state?



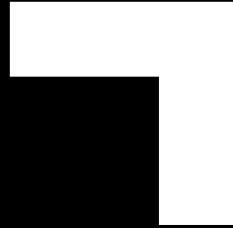


Thank you!

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