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Analysis of the recovery and resilience plan of Finland

Accompanying the document

Proposal for a COUNCIL IMPLEMENTING DECISION

on the approval of the assessment of the recovery and resilience plan for Finland

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1. EXECUTIVE SUMMARY

The COVID-19 pandemic has had a major impact on Finland, albeit less severe in terms of output, jobs and public finances than in many other EU Member States. After a fall of 2.8% in 2020, economic activity is expected to recover robustly by 2.7% and 2.9% respectively in 2021 and 2022, on the back of a swiftly recovering domestic demand supported by favourable employment and wage growth developments. After a fall by 1.5% in 2020, employment is expected to rise by about 1% each year over 2021 and 2022 as the recovery gathers pace, even though employment growth is likely to remain more sluggish in sectors that were more affected by the crisis. While government finances have been negatively affected by the COVID-19 crisis (with a general government deficit of 5.4% in 2020), the situation has been improving faster than initially expected and in 2021 the deficit is forecast at about 4.7% of GDP.

Finland is expected to receive approximately EUR 2.1 billion in non-repayable support from the Recovery and Resilience Facility, with a magnitude equivalent to about 1% of 2019 GDP. Finland did not request any loans. Its recovery and resilience plan consists of 57 measures (18 reforms and 39 investments) within 13 components structured around four policy areas: (1) green transition, (2) digital transformation, (3) employment and skills, research, development and innovation, support to companiesand (4) social and healthcare.

The Finnish plan submitted on 27 May[1] pursues the general objective of the Facility to promote the Union's economic, social and territorial cohesion, with the green and digital dimension featuring prominently. The plan includes major reforms such as the implementation of the health care reform to improve access to social and health services and the reform of the public employment services (the so-called "Nordic model of public employment services") to increase the employment rate. Landmark investments include support schemes in energy transmission/distribution and in new energy technologies, in low-carbon hydrogen and in the decarbonisation of industry. This is coupled with a prominent focus on the digitalisation of public administration and businesses, with investments in key digital technologies, connectivity, and the digitalisation of the railways network (Digirail – Digirata project).

The structural challenges identified in the framework of the European Semester, including in the relevant country-specific recommendations, are addressed well. The plan is expected to contribute to effectively addressing a significant subset of challenges identified in the country-specific recommendations of 2019 and 2020 or in other relevant documents officially adopted by the Commission under the European Semester and is consistent with Council Recommendation on economic policy in the euro area adopted by the Council on 13 July 2021. Important reforms include the updated Climate Change Act and the ongoing continuous learning and social and healthcare reforms. Measures to boost employment, as well as measures to enforce anti-money laundering and to support the establishment of a positive credit registry are also included in the

[1] Finland submitted its National Reform Programme on 27.05.2021. The information provided in the National Reform Programme is being considered and jointly assessed in this Staff Working Document together with the Recovery and Resilience Plan.

plan. Furthermore, the plan includes the two planned Important Projects of Common European Interest (IPCEIs) on microelectronics and hydrogen.

Finland's recovery and resilience plan covers comprehensively the six pillars structuring the scope of application of the Recovery and Resilience Facility, with an appropriate overall balance across pillars. Finland's plan has a strategic focus on the challenges of the green (1) and digital transition (2), respecting the minimum allocations set in the Regulation. As regards, smart, sustainable, and inclusive growth (3), the measures proposed are consistent with the government's declared objective to raise the employment rate to 75%, while contributing to the implementation of the European Pillar of Social Rights, especially principles on gender equality, equal opportunities, active support to employment, inclusion of persons with disabilities, education, training and life-long learning and equal access to healthcare. As regard social and territorial cohesion (4), an area where Finland fares better than most of its EU peers, proposed measures are expected to positively contribute to cohesion and convergence by addressing existing regional differences in provision of public services, including digital public services. To promote wider coherence across instruments, notably with the European Cohesion Policy Funds, a balanced territorial allocation of resources is encouraged. Regarding health, and economic, social, and institutional resilience (5), the proposed measures address the specific challenges caused by the COVID-19 pandemic, but they also focus on more long-term structural reform of improving equal access to care with the aim of making Finland's social and healthcare system more cost-effective and resilient. Regarding policies for the next generation (6), another area where Finland fares better than many of its peers, the plan aims to increase the availability of study places to support reaching the government's new tertiary education attainment target. At the same time, the plan also supports the acquisition of labour market relevant skills, which is key to maintaining the employability of the labour force in an increasingly digital and green economy. This is expected to be achieved by supporting continuous learning, including through more integrated digital platforms and online services. The increase in higher education study places is also expected to contribute to employability, as those places are introduced mainly for sectors experiencing labour shortages.

The measures in Finland's recovery and resilience plan are expected to effectively contribute to the green transition and address the challenges resulting thereof. Green investments feature prominently in the plan. At 50.1%, the plan largely exceeds the 37% target, with investments focussing on clean energy technology and infrastructure, decarbonising industry, supporting the circular economy, electric vehicle charging and reducing emissions of the building stock. The plan is expected to significantly advance the decarbonisation and energy transition objectives as set out in its National Energy and Climate Plan, including Finland's ambitions to reach carbon neutrality by 2035. The recovery and resilience plan ensures for each reform and investment that no significant harm is done to any of the six environmental objectives within the meaning of Article 17 of Regulation (EU) No 2020/852.

With respect to digital transformation, even though Finland has become a world leader in digital transformation, continued efforts are needed to roll out high-speed broadband and to improve other digital infrastructure with a view to rationalise transport networks and maintaining economic activity in remote areas. The plan contains several measures that are expected to contribute to the digital transition and to address challenges resulting thereof in a

lasting manner. According to the Commission estimates, digital expenditure would reach 27% of the total plan, with an emphasis on digital infrastructure, developing the quality and availability of communications networks, on the digitalisation of rail services and on fostering innovation in advanced digital technologies and business take-up. Other investments support the ongoing reform efforts in the employment, social and healthcare domains, with a strong focus on the transformative potential of digitalisation (e.g. upskilling and re-skilling, the digitalisation of employment and social and healthcare services and in support of secure, interoperable information exchanges between competent authorities in the field of financial supervision and anti-money laundering). This is complemented by investments in key digital technologies such as 6G, AI and quantum computing.

In terms of lasting impact, the implementation of the envisaged reforms and investments is expected to bring about structural changes to the public administration that will improve its effectiveness and efficiency. With dedicated support to the green transition, new low-carbon solutions for the economy could accelerate the growth of emerging sectors, thus further creating opportunities for economic growth. The focus on digitalisation is expected to raise productivity in the long term. Reforms in active labour market policies, in accordance with the Nordic model of public employment services, are potentially strong drivers in raising both labour supply and improving the employability of jobseekers and under-represented groups in the labour market. The reform of social and healthcare services is expected to increase Finland's resilience in the long term.

Finland has established an adequate structure to implement the plan and to monitor and report on its progress. The proposed milestones are clear and realistic and reflect the lifecycle of the measures. The proposed indicators for measuring achievement of targets are relevant, acceptable and robust. With the proposed milestones and targets, the results stemming from the implementation of the plan can be satisfactorily monitored and tied to disbursements.

Finland has provided cost estimates for all concerned measures in the plan. The cost estimates and supporting documents broadly comply with the principles that costs must be justified, reasonable, plausible and commensurate. The cost breakdowns are generally satisfactory, yet they show varying degrees of detail and depth of calculation. Considering the economic and social impact of the plan, it is considered that the plan is in line with the principle of cost efficiency.

The audit and control systems, coordinated by the Ministry of Finance, are assessed as adequate. According to the plan, the Ministry of Finance (MoF) is responsible for coordination, control and audit, preparation of payment requests, and issuing the management declaration. Remaining gaps are addressed in two dedicated milestones to be completed by Finland before the submission of the first payment request under the recovery and resilience plan and at the latest by 31 December 2021.

Finally, Finland's recovery and resilience plan presents strong coherence. The structure within components is clear and meaningful. The link between reforms and investments is well established with measures supporting and reinforcing each other. Reforms and investments across components are well aligned. For example, under component P2C2, reforms and investments planned under the "Digital businesses – Real Time Economy programme", under "Virtual

Finland" and under "Accelerating key technologies (microelectronics, 6G, artificial intelligence and quantum computing)" share with RDI funding measures considered under P3C3 the same objective of increasing the country's productivity and competitiveness. Similarly, the digitalisation of the services under "Virtual Finland" pursues a very general objective of the Finnish plan to create new digital services and replacing existing processes, such as in several measures planned under policy areas 3, especially the "Streamlining of work- and education-based immigration and recruitment of international talents", and 4, in particular the development of digitalised social and healthcare services. The measures' objectives are also well embedded in European and national initiatives such as the government programme.

Table 1: Summary of the Finnish recovery and resilience plan assessment for the 11 criteria set by the Recovery and Resilience Facility regulation

(1) Balanced Response	(2) CSRs	(3) Growth, jobs…	(4) DNSH	(5) Green target	(6) Digital target	(7) Lasting impact	(8) Milestones and Targets	(9) Costing	(10) Control Systems	(11) Coherence
A	A	A	A	A	A	A	A	B	A	A

2. RECOVERY AND RESILIENCE CHALLENGES: SCENE-SETTER

2.1. Macroeconomic outlook and developments since the 2020 country report

The plan forecasts economic growth to rebound in 2021 following the COVID-19 triggered contraction in 2020. Real GDP is set to increase by 2.6% in 2021 after contracting by 3.3% in 2020. According to the plan, the rate of economic growth is expected to decelerate in the following years, first to 2.5% in 2022 and then to 1.5% in 2023. In this scenario, real GDP growth is expected to be mainly driven by a recovery in domestic demand. Finland's plan forecasts inflation to remain contained, below 2%, until 2023.

Against this backdrop, unemployment is expected to stay at 7.8% in 2021 before gradually falling to 6.9% by 2023. The crisis has mostly affected the young and the long-term unemployed. Once the economic recovery takes hold, the demand for labour is forecast to increase, especially in services sector. The employment rate is forecast to reach 73.2% in 2023, which is above its 2019 level of 72.5%. This increase is partly due to the economic recovery and the shrinking working age population.

In terms of fairness, Finland remains a relatively equal society, with inequality below both the EU average and the average in advanced economies. Overall, Finland performs relatively well in terms of social inclusion, ranking better than the average of the European Union for most of the indicators used for the principles of the European Pillar of Social Rights.[2] The gender

[2] Eurostat, https://ec.europa.eu/eurostat/web/european-pillar-of-social-rights/indicators.

employment gap and the share of early leavers from education and training remain below the EU average. The share of people at risk of poverty or social exclusion (11.6% in 2019) is well below the EU average (21.1%), but low-skilled workers, migrants and persons with disabilities are more likely to be at risk of poverty or social exclusion. While the Finnish social security system has cushioned relatively well the impact of the crisis so far, its continuation could accentuate the disparities.

Flagged as a vulnerability in the Alert Mechanism Report 2021, private-sector debt, already high before the crisis, is expected to increase further. As aggregate demand fell, companies increased their liquidity needs to bridge the crisis period. Household debt remains above its prudential level. The banking sector remains well capitalised and stable. Due to abundant liquidity, interest rates remain low and there is no immediate pressure to reduce the private-sector debt.

The economic slump due to the COVID-19 pandemic caused a marked fall in government revenue and a rise in government spending. Together with the cost of related fiscal measures, the crisis pushed the general government deficit to 5.4% of GDP in 2020. Measures adopted in seven supplementary budgets in 2020 amounted to about 3% of GDP, or EUR 7.1 billion. They included spending on healthcare and public safety, but the bulk of the measures was designed to support the economy. Companies were offered targeted subsidies and tax deferrals and the government extended the unemployment benefit schemes to facilitate short-term layoffs. The emergency fiscal measures, together with the pre-existing tax-benefit system, have cushioned about 3/4 of the shock.[3] The government also made new investments in transport, research and education. It extended public guarantees and took other measures to support liquidity in the economy, amounting to about 20% of GDP.

In 2021, public finances still incur costs of the pandemic. The government continues some measures related to the pandemic, in particular the support for businesses and employees. The health-related costs, such as testing for COVID-19, also continue. Furthermore, the government is expecting to incur some losses from its loan guarantees. According to the plan, public finances are forecast to remain in deficit by about 4.7% of GDP in 2021. In 2022, the public health situation is expected to normalise, and economic growth should help improve public finances. The general government deficit is projected to decrease below the Treaty reference value of 3% of GDP, assuming no policy change. The public debt ratio increased by around 10 percentage points in 2020, reaching 69.2% of GDP, driven by the general government deficit and measures that are not factored into the deficit, such as tax deferrals, loans and recapitalisations. The debt ratio is projected to reach 71.6% of GDP in 2021.

[3] See JRC121598 and Christl, M, De Poli, S., Figari, F., Hufkens, T., Leventi, C., Papini, A. and Tumino, A. (2021) "The cushioning effect of fiscal policy in the EU during the COVID-19 pandemic", JRC Working Papers on Taxation and Structural Reforms, 02/2021, JRC125567.

Finland is currently assessed as facing low fiscal sustainability risks in the medium term and medium risks in the long term.[4] The Commission's S0 indicator signals a high risk of fiscal stress in the short term, i.e. in the coming year. This stems from the sharp deterioration of public finances in 2020 and the resulting surge in financing needs, reaching 18% of GDP. However, Finland is currently benefiting from advantageous access to financial markets, with negative yields and oversubscriptions on government short- and medium-term debt securities. The 'AA+' sovereign rating given by the three major credit rating agencies and the historically low sovereign spreads mitigate the short-term risks. Moreover, financing needs are expected to fall to around 15% of GDP in 2021 and 14% in 2022. Low risks in the medium term reflect the fact that, under the baseline assumptions adopted in the Commission's debt sustainability analysis, the government debt would peak at 71% of GDP in 2021 and fall close to 60% of GDP in 10 years' time. Alternative scenarios, both favourable and unfavourable, broadly confirm these low risks. However, Finland has a high stock of government guarantees, which are a source of potential fiscal cost in the event they are called in. Finally, the assessment of sustainability risks in the medium and long term does not yet fully incorporate the impact of reforms and investments under the RRF. These are expected to support potential growth, mitigating debt sustainability risks.

The macroeconomic scenario underpinning Finland's plan is slightly more cautious than the latest Commission 2021 spring forecast. The Commission 2021 summer forecast expects real GDP in Finland to grow by 2.7% in 2021 and 2.9% in 2022. Like the Finnish authorities, the Commission considers domestic demand to be the main factor generating growth in the recovery. The biggest difference lies in projections of gross fixed capital formation, with the Commission forecasting a rebound in 2021 and the Finnish authorities forecasting a contraction. Inflation projections are similar, but Finland makes more cautious labour market projections for 2021. The forecasts of the general government deficit and debt made by the Commission are similar to those set out in Finland's plan up to 2022 (noting that the Commission's forecast does not go beyond 2022).

The macroeconomic scenario set out in the plan relies on plausible macroeconomic assumptions. The macroeconomic scenario set out in Finland's recovery and resilience plan is based on the independent forecast of the Economics Department of the Ministry of Finance published in May 2021. Though it is slightly more cautious than the Commission's forecast, it provides a similar scenario of economic recovery, after which growth gradually reverts to its long-term potential rate. The macroeconomic and fiscal outlook continues however to be affected by high uncertainty related to the COVID-19 pandemic and its economic consequences.

Table 2: Comparison of macroeconomic developments and forecasts

[4] Commission Debt Sustainability Monitor 2020, https://ec.europa.eu/info/sites/default/files/economy-finance/ip143_en.pdf

	2019	2020		2021		2022		2023	2024	2025
	COM	COM	RRP	COM	RRP	COM	RRP	RRP	RRP	RRP
Real GDP (% change)	1.3	-2.8	-2.8	2.7	2.6	2.9	2.5	1.5	1.4	1.2
Employment (% change)	1.8	-1.5	-1.5	0.9	0.1	1.1	1.2	0.6	n.a.	n.a
Unemployment rate (%)	6.7	7.8	7.8	7.6	7.8	7.2	7.2	6.9	6.7	6.5
HICP inflation (% change)	1.1	0.4	0.4	1.5	1.5	1.6	1.7	1.9	n.a.	n.a.
General government balance (% of GDP)	-0.9	-5.4	-5.4	-4.6	-4.7	-2.1	-2.9	-2.2	-1.7	-1.6
Government debt (% of GDP)	59.5	69.2	69.2	71.0	71.6	70.1	72.4	73.9	74.8	75.6

Source: [Commission Spring Forecast 2021, except for real GDP and HICP inflation for which Commission Summer Forecast 2021 is used] (COM); Recovery and resilience plan (RRP)

2.2. Challenges related to sustainable growth, cohesion, resilience and policies for the next generation

Finland is one of the most advanced economies in the EU and a front-runner in digital technologies and clean energy innovation. Nevertheless, the country faces major challenges, in particular falling productivity after its electronics sector contracted and a low employment rate in comparison with its Nordic neighbours. Reasons for this include skills mismatches, the complex benefit system, which creates barriers to taking up work, and health-related reasons. Investment remains low compared to its EU peers, excluding the construction sector.

Smart, sustainable and inclusive growth

The impact of a structural shift away from manufacturing to services has affected Finland's aggregate productivity. Total factor productivity has stalled for several years and remains below that of Finland's Nordic peers. At the same time, low investment in areas that most support productivity growth (machinery and equipment, including information and communication technology equipment, and intellectual property products) could hinder the return to higher potential growth. The low level of productive investment is expected to continue to be a drag on productivity, and therefore on non-cost competitiveness. In terms of research, development and innovation, Finland's productive investment is narrowly concentrated, with an increasing gap[5] between the most productive firms and the least productive. In parallel, there is potential for further increasing cooperation between academia and businesses. Equally, there seems to be scope to improve productivity growth by providing further incentives for business start-ups and

[5] Finnish companies that kept innovating in 2020 were far less affected by the COVID-19 pandemic, by almost halving the decrease in their income in comparison with non-innovative firms (JRC125490).

support their access to finance and by supporting the severely hit[6] touristic sector in line with Finland's Tourism Strategy to be the most sustainably growing tourist destination in the Nordic countries.

Labour shortages, especially in the information and communication technology sector, risk becoming an obstacle to investment and growth. With a shortage of high-skilled domestic employees, Finland also needs to attract high-skilled labour migrants in addition to implementing reskilling and upskilling measures. The key challenges are to facilitate international recruitment, streamline and expedite the application process for residence permits and provide integration services.

Social and territorial cohesion

The shrinking workforce is expected to soon affect Finland's growth potential. Therefore, raising the employment rate to levels comparable to its Nordic neighbours remains a major structural challenge. There is a need to integrate many groups of people into the labour market, especially low-skilled workers, workers close to retirement, people with a migrant background, people with partial work capacity and persons with disabilities. Past employment measures have encountered some challenges, mainly due to the fragmentation of services. At the same time, the COVID-19 crisis has hit hard the most vulnerable groups in the workforce. Beside short-term action to re-integrate people who have lost their jobs due to the crisis into the labour market, Finland needs to take measures to reduce structural unemployment. The causes of unemployment appear also gender and age-specific. While the gender pay gap remains above the EU average, the homecare allowance has some negative impact on taking up work, mostly by women, and may hinder enrolment to formal childcare.

A key challenge will be to simplify the social benefit system, while maintaining its capacity to reduce poverty and inequalities. The complex and fragmented benefit system creates barriers to take up work. It also lacks the flexibility to combine part-time income with benefits. Key political decisions on the direction of the reform are yet to be taken. Investment in digitalisation is necessary to improve IT systems and procedures in the social benefit system.

Territorial cohesion remains a challenge, with an evident regional divide between the capital and the less developed region of North and East Finland. In terms of GDP per head, the Greater Helsinki region performs well above the EU average (144%) in 2019 and 1.5 times higher than the weakest North and East region, where GDP per head corresponds to 93% of the EU average. However, regional rates of people in employment and unemployed have continued to converge in recent years, also during the pandemic. While the level of dispersion of NUTS2 regional employment rates has remained low, according to national statistics, some job market challenges remain at regional level, mainly regarding workforce availability in growth sectors.[3] In North and East Finland, the current demand for jobs and investment is less favourable than in

[6] The Finnish tourism sector is responsible for around 11% of total national employment, with substantial regional differences (e.g. 20,5% for Åland and 15,5% for Pohjois-ja Itä-Suomi) (JRC121262). In 2020 arrivals dropped by 41% (Eurostat).

the rest of the country. It will be important to ensure that investments included in the plan enable lagging regions to catch up with the rest of the country.

Health, economic, social, and institutional resilience

In the fast-ageing Finnish society, the costs of healthcare, especially long-term care, are forecast to weigh increasingly on public finances and therefore to pose risks to the long-term sustainability of the social and healthcare system. Equal access to healthcare is a key challenge, due to long waiting times for municipal primary healthcare and specialised care for people who do not have occupational healthcare or private health insurance. The level of out-of-pocket payments is also higher than the EU average, affecting vulnerable groups. A reform of the social and healthcare system has been recently adopted, after having been on the government's agenda for a long time. The aim is to improve cost efficiency and equal access to services. Consolidating the management of both social and healthcare services from fragmented and often financially weak municipalities at a higher level of governance could improve both efficiency and access. Moreover, existing regional disparities with the availability of health workforce indicate a heightened risk of labour shortages within the next decade. Demand for long-term care is also projected to increase in the coming decades driven by the ageing of the population. Due to decentralisation, the interoperability of electronic patient records is not always sufficient. Investments could support the consolidation and integration of the healthcare IT systems, contributing thereby to efficiency, the smooth flow of information and cross-sectoral medical cooperation.

The private-sector debt-to-GDP ratio remains above the threshold for the macro-imbalance procedure and prudential levels and is high compared with other EU Member States. The private-sector debt-to-GDP ratio rose further to 155.1% of the GDP in 2020 due to the crisis. Banks remain financially stable, with strong capital positions and a solid record of debt servicing. Nevertheless, recent liquidity measures have allowed banks to take on more risks. Moreover, some companies from the hardest hit sectors might go bankrupt, which could lead to an increase in the ratio of non-performing loans. The swift establishment and implementation of the announced credit registry could strengthen the stability of the financial system. In parallel, effective supervision and enforcement of the anti-money laundering framework needs to be strengthened. Effective supervision requires increased human resources of the supervisory authority, training of employees and appropriate procedures to apply the risk-based approach more effectively.

There is also room to improve some aspects of the business environment such as permits and the level of entrepreneurship, labour market institutions, liberalisation of trade in the pharmacy sector, administration of value added tax and strategic planning by amending the Land Use and Building Act.

Policies for the next generation, children and young people, including education and skills.

Although education in Finland remains among the best in the EU, there are signs that performance and fairness in the Finnish education system are deteriorating. The level of basic skills remains comparatively high but has worsened in recent years. Results from the PISA 2018 survey[7] show a statistically significant decline of performance in science. The proportion of 15-year-old students underachieving also increased, even though remaining below the EU benchmark level of 15% for each subject area. In addition, the difference in reading performance between immigrants and non-immigrants students is the largest in the EU. At the same time, regional differences in key education indicators are increasing. The take-up of early childhood education and care remains low by international comparison, and there are shortages of teachers in special education and kindergartens.[8]

Reskilling and upskilling are key to maintaining the employability of the labour force and ensuring that supply matches the demand for future skills in an increasingly digital and green economy. Finland has the highest uptake in adult learning in the EU, though participation is concentrated among high-skilled employees. To avoid aggravating the socio-economic situation of the most vulnerable groups in the wake of the COVID-19 crisis, it will be key to address the skills mismatches and digital divide, particularly by ensuring that disadvantaged learners have access to quality education and training. Investment could support more training and post-secondary education initiatives in the green and IT sectors. In parallel, reaching a higher post-secondary education achievement target will require making sufficient university places available, in line with employment expectations in each sector and region. Finally, there is a need for more women to enrol in ICT studies, to both mitigate gender inequalities and respond to labour shortages.

2.3. Challenges related to the green and digital transition

Green dimension

The recovery and resilience plan should contribute to the green transition and at least 37% of the financial allocation needs to contribute to climate objectives. The measures in the plan should contribute to achieving the 2050 climate neutrality objective, and the 2030 energy and climate targets, taking into account Finland's national energy and climate plan (NECP). They should also contribute to meeting environmental targets for waste, water, pollution control, sustainable mobility, biodiversity protection and restoration, marine and water resources, and support the transition to sustainable food systems as well as to a circular economy as appropriate, while ensuring that nobody is left behind.

Finland has set an ambitious target to achieve carbon neutrality by 2035 and become the world's first fossil-free welfare society. Achieving these targets will require a comprehensive set of policies and measures that will affect the whole economy. Finland's economy is one of the

[7] Organisation for Economic Co-operation and Development, PISA 2018 results. Volume II. https://www.oecd.org/pisa/publications/PISA2018_CN_FIN.pdf.
[8] European Commission, Country Report Finland 2020.

most energy-intensive in the EU. Transport, energy and housing are the main sectors in Finland with scope for reductions in energy-related greenhouse gas emissions. Peat is still a major source of energy in remote and sparsely populated areas. Phasing out peat could notably contribute to Finland's goal of achieving carbon neutrality by 2035. Substantial investment is required to achieve the planned transformation to carbon neutrality.

Greenhouse gas emissions

Finland is one of the EU Member States with the lowest greenhouse gas (GHG) emissions per capita. Between 1990 and 2019, Finland's GHG emissions fell by 23%[9] (or by 21% when including land use, land use change, and forestry). Finland has adopted or is on track to adopt ambitious climate policies, including an overhaul of the Climate Change Act, an overhaul of energy taxation, a roadmap for achieving climate neutrality, a roadmap for sustainable transport taxation, and a roadmap for fossil-free transport. The country has also benefited from significant renewable resources, with renewable energy sources representing about 40% of energy end-consumption, particularly originating from bioenergy, hydropower, wind power, ground heat, and solar electricity.[10] Finland is likely to meet its EU commitments but will need to adopt and implement additional policy measures to achieve its national objective of carbon neutrality by 2035.

Finland's 2030 target for greenhouse gas emissions not covered by the EU emissions trading system (non-ETS) is to achieve a 39% reduction compared to 2005 levels, as set in the Effort Sharing Regulation (ESR). Without additional measures, non-ETS emissions would only fall by 24% by 2030. Finland has so far reduced its emissions by 14% since 2005.[11] Non-ETS emissions account for 53% of total GHG emissions in Finland, compared to 59% at EU level. Finland also intends to use some of the flexibility provided for under the ESR, including flexibility between the ETS and the ESR sector. It would use the maximum amount, i.e. 2% of 2005 emissions per year or 6.9 million tonnes CO2 equivalent. The current long-term objective for 2050 is to reduce Finland's GHG emissions by 80-95%, and the final plan aims to achieve carbon neutrality by 2035 and becoming carbon negative soon thereafter.

Based on Finland's projections, the Commission estimates in its assessment of Finland's 2020 National Energy and Climate Plan (NECP) that the information provided in the decarbonisation plan, existing and planned policies and measures, together with the indicated use of flexibilities, could be sufficient for Finland to meet its target. If implemented, the additional policies planned may yield significant emission reductions, which are particularly needed in transport; a smaller impact is expected in the buildings sector. The NECP states that it is possible for Finland to avoid creating any land use, land-use change, and forestry debits, but does not clarify how and does not provide projections. It puts an emphasis on

[9] Climate Action Progress Report 2020, published by DG CLIMA in November 2020. https://ec.europa.eu/clima/sites/clima/files/strategies/progress/docs/com_2020_777_en.pdf
[10] Renewable energy - Ministry of Economic Affairs and Employment (tem.fi)
[11] Climate Action Progress Report 2020 published by DG CLIMA in November 2020, country profile Finland: https://ec.europa.eu/clima/sites/clima/files/strategies/progress/docs/fi_2020_factsheet_en.pdf

bioenergy but does not cover in depth the sustainability of biomass or the impact on the carbon sink. Finland acknowledges that the NECP requires an update to factor in the ambitious 2035 carbon neutrality target, and that several policies and measures need to be prepared, adopted, and implemented to ensure consistency with the new target. However, the policies and measures presented in the NECP are not sufficiently quantified to ascertain whether Finland will meet its EU commitments and national objectives.

Energy efficiency

Achieving climate neutrality by 2035 will require making substantial investment in electricity networks and in the energy efficiency of buildings. Strong interconnections between Finland, the other Nordic countries and the Baltic States are needed to ensure a well-functioning electricity market in the whole region and to increase the projected contribution of renewable energy to the energy mix. This requires additional investment in the electricity sector.

Finland's national contribution for energy efficiency in 2030 is set at 25 Mtoe of final energy, translating into 34.8 Mtoe of primary energy consumption. In its NECP, Finland explains the contribution made by heavy industries with a high-energy intensity (such as pulp production, biorefineries and data centres) to the expected GDP growth. However, it does not specify which policies and measures would mitigate the likely increase in energy use. The NECP describes policies and measures beyond 2020, targeting all sectors. Finland has included in its NECP measures for the transport sector (transport fuel taxation, promoting modal shifts, rail infrastructure investments), agriculture and waste heat. However, energy efficiency is not the main objective of some of these measures and some have already been implemented. Due to the lack of an underlying methodology, it remains unclear whether these measures would provide a sufficient contribution to energy savings to meet the overall energy saving target[12].

The Long-Term Renovation Strategy 2020-2050, submitted in March 2020, has a strong focus on the decarbonisation of buildings. It aims at reducing CO_2 emissions of the building stock completed by 2020 by 90% by 2050, and at cutting the energy consumption of residential and non-residential buildings by half by 2050. Measures included in this strategy include new legislation to support the implementation of energy efficiency policies, voluntary agreements among companies and, in the public sector, update of the Energy Performance Certification scheme. Further measures include subsidies and incentives to support and stimulate deep renovation, the promotion of smart energy systems, demolition of unused/vacant buildings, and accessible funding and financial instruments allocated to energy efficiency building renovations projects. Finland aims at making the building stock highly energy and resource efficient and carbon neutral by 2035 and having all buildings (residential and non-residential) with an energy class C or above by 2050. Legislation has been adopted to abandon coal use in energy production

12 Economidou, M., Ringel, M., Valentova, M., Zancanella, P., Tsemekidi Tzeiranak, S., Zangheri, P., Paci, D., Ribeiro Serrenho, T., Palermo, V. and Bertoldi, P., National Energy and Climate Plans for 2021-2030 under the EU Energy Union, EUR 30487 EN, Publications Office of the European Union, Luxembourg, 2020.

as of 2029. Central government and municipalities will cease using oil heating by 2024, and in residential buildings, oil heating will be abandoned by 2050[13].

Share of renewables in energy mix

Finland is one of the EU Member States with the highest share of renewables in energy consumption. The share of renewable resources in final energy consumption was 43.1% in 2019, already above its 2020 target of 38%. The major contributor to that achievement is heating and cooling with a renewable share of 57.5%, while electricity has a share of 38.1%. The main sources for renewable electricity are hydropower and solid biofuels (1240 and 1059 ktoe, respectively) while wind energy provides 505 ktoe out of the total generation of renewable energy sources of 2903 ktoe. The major growth for the last ten years has occurred for wind and, to a certain extent, solid biofuels, while the share from hydropower has remained mostly constant.

Finland aims to contribute to the EU's 2030 target for renewable energy by reaching 51% of renewable sources in gross final consumption of energy. This contribution is in line with result calculated using the formula in Annex II to Regulation (EU) 2018/1999 on the Governance of the Energy Union and Climate Action (the 'Governance Regulation') setting out the national contributions for the share of energy from renewable sources. Continuous monitoring of progress and possibly additional policies and measures might be needed to ensure the achievement of Finland's 2030 target.

In recent years, the generation portfolio of Finland and its neighbouring countries have undergone significant changes. The decommissioning of conventional thermal power plants at a time where there has been a significant increase in onshore renewable energy production increased the congestion on existing electricity interconnections with Sweden and challenged the adequacy of the electricity system. The increase in transmission capacity with Sweden is identified as a Project of Common Interest (PCI) under the Trans-European Energy Networks Regulation and is progressing well. In view of the ambitious national target for renewable energy and the ongoing regional cooperation under the High-Level Group on Baltic Energy Market Interconnection Plan (BEMIP HLG) on offshore renewable energy grid development in the Baltic Sea, Finland should pursue investments that reinforce the internal grid to accommodate the expected onshore and offshore renewable energy capacity in a coordinated approach.

Biodiversity and zero pollution

For a green recovery, Finland should invest more in making the transition to a circular economy. The investment needs include improving eco-innovation, new circular business models, eco-design, and encouraging SMEs to stimulate behavioural change. Further investments in the waste sector are also needed. Finland needs to step up action to ensure compliance with the

13 Zangheri, P. et Al., Progress of the Member States in implementing the Energy Performance of Building Directive, Publications Office of the European Union, Luxembourg, 2021, EUR 30469, ISBN 978-92-76-25200-9, doi:10.2760/914310, JRC122347.

recycling targets for the post-2020 period, including reducing the high level of incinerated waste (59% in 2017). Public and private investments are needed for waste prevention, product reuse, separate collection as a precursor of quality recycling and recycling. Moreover, projects rolling out digital solutions for improved waste data collection, reporting and waste management would be crucial, as would capacity-building projects for municipalities to put into practice the necessary waste management reforms.

Despite Finland's overall good environmental performance, further improvement of air and water quality and support to biodiversity-related measures is needed. This is key to achieving the biodiversity targets under the EU Biodiversity Strategy for 2030 (30% improvement in the conservation status of 30% of protected habitats and species and restoration targets). In particular, the transition out of peat extraction and further promotion of biodiversity-friendly sustainable forest management and low-impact harvesting technologies in the forestry sector would be in line with Finland's specific responsibility at EU level for the habitats and the species it hosts. Investing in restoring a range of forested and peat areas and implementing the management measures needed on the Natura 2000 network would improve Finland's overall environmental performance.

Sustainable transport

The transport sector accounts for 20% of total emissions in Finland. Reducing these emissions will be key to achieving the country's carbon neutrality target. Finland has set an ambitious target of halving transport emissions by 2030, but Finland faces specific circumstances that complicate the situation: distances inside the country are large, it has a dispersed population and a cold climate with harsh winters. Moreover, public transport is fragmented, especially outside the main cities. This means there is no easy single solution to reduce transport emissions. The clear political will has not yet been translated into a comprehensive set of measures to improve the transport system.

The table below gives an overview of Finland's objectives, targets and contributions under Regulation (EU) 2018/1999 of the European Parliament and of the Council of 11 December 2018 on the Governance of the Energy Union and Climate Action.

Table 3: Overview of Finland's climate objectives, targets and contributions

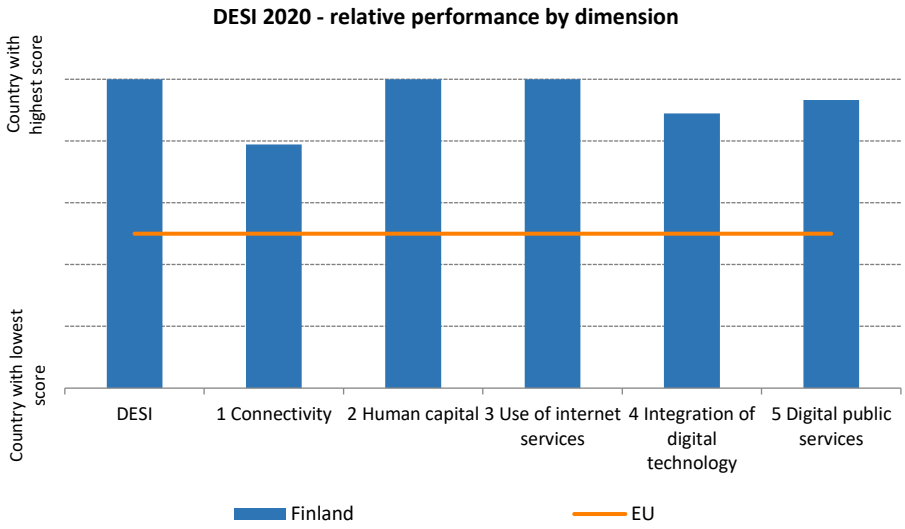
	National targets and contributions	Latest available data	2020	2030	Assessment of 2030 ambition level
	Binding target for greenhouse gas emissions compared to 2005 under the Effort Sharing Regulation (%)	-11%	-16%	-39%	As in ESR
	National target/contribution for renewable energy: Share of energy from renewable sources in gross final consumption of energy (%)	43.08%	38%	51%	Adequate (51% is the result of RES formula)
	**National contribution for energy efficiency:**				
	Primary energy consumption (Mtoe)	32.1	35.9	34.8	Low
	Final energy consumption (Mtoe)	25.3	26.7	24.9	Low
	Level of electricity interconnectivity (%)	29%	18%	Above 15%	N/A

Source: Assessment of the final national energy and climate plan of Finland, SWD (2020) 925 final.

Digital dimension

The recovery and resilience plan should contribute to the digital transition with at least 20% of the financial allocation contributing to digital objectives. The measures in the plan should, inter alia, contribute to the digital transformation of the economic and social sectors (including public administration, public services, and the justice and health systems). The objective of the measures in the plan should be to improve not only the competitiveness, but also the resilience, agility and security of companies and public actors, all while ensuring inclusiveness.

Figure 1: Digital Economy and Society Index 2020 – relative performance by dimension



Finland is a digital leader in the EU. It ranks overall first amongst Member States in the 2020 Digital Economy and Society Index (DESI), thanks to its excellence in the dimensions human capital (digital skills) and use of internet service. Finland performs well in the areas of digital public services and the integration of digital technologies in businesses, enabled by active cooperation between the public and private sectors and an active start-up scene. According to the 2020 European Index of Digital Entrepreneurship Systems (EIDES), Finland is the leader in terms of framework conditions for digital stand-ups, start-ups and scale-ups, and it ranks ahead of other Member States with respect to the availability of human capital[14]. Based on EIDES, Finland ranks also among the leaders when it comes to formal institutions, regulation and taxation, including public services, but the Finland's physical infrastructure remains a weakness with a view to promoting digital entrepreneurship. In the EU ecosystem of artificial intelligence (AI), Finland ranks 8th by number of AI players (firms, research and government institutions), hosting 3.2% of all EU economic agents, and 3.4% of AI firms.[15] According to DESI, Finland is the most advanced on the uptake of cloud services (50% of companies, compared to an EU average of 18%) Finland has also pioneered data sharing and data spaces initiatives, in particular for health.[16] Currently, education offer of advanced digital technologies by Finnish universities and bachelor's degrees is on average higher than in the EU.[17]

14 Autio, E., Szerb, L., Komlósi, E.and Tiszberger, M. (2020), EIDES 2020-The European Index of Digital Entrepreneurship Systems, Nepelski, D. (ed.), JRC120727.

15 JRC AI TES Dataset 2020..

16 See e.g.: https://findata.fi/en/.

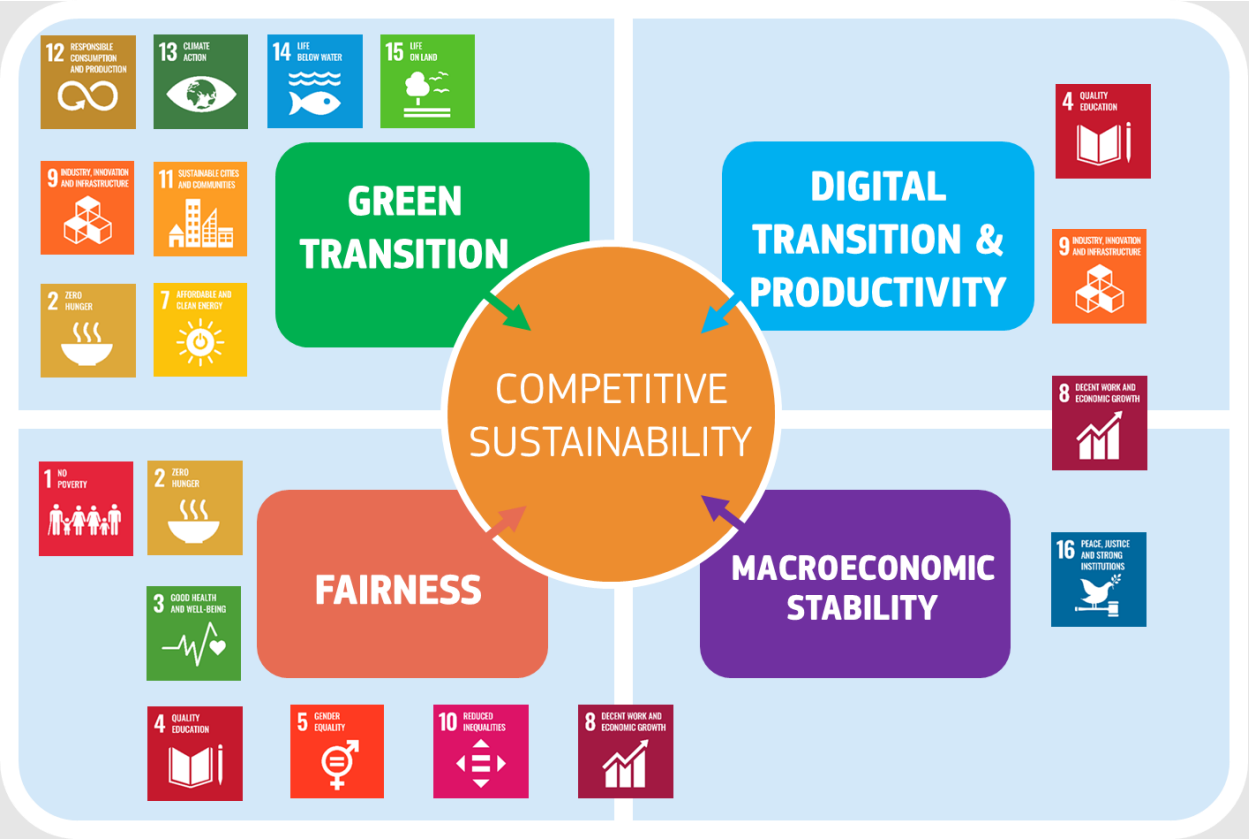
17 For example, the proportion of masters' programmes at Finnish Universities teaching artificial intelligence, high-performance computing, cybersecurity and data science are all considerablty above the EU average (Righi et al., 2020).

Despite the strong digital performance, productivity growth remains a challenge, which calls for further investments to address remaining connectivity gaps to fully reap the benefits of the digital transition. Continued action is needed to roll out high-speed connectivity and to improve other digital infrastructure, to rationalise logistics, improve productivity and maintain economic activity in remote areas. With an overall connectivity score of 59.2, Finland ranks ninth in the EU. Commercial 5G services are already available in the centres of the biggest cities. Coverage is good in most of the country for mobile broadband (4G), while access to broadband is limited in rural areas. Market players do not have sufficient incentives to invest in sparsely populated areas of the country. The current national broadband strategy published in 2018, the 'Digital infrastructure strategy 2025', envisages the construction of both optical fibre connections and wireless broadband connections.

To address the challenge of stalling productivity growth, Finland will need to tackle skill shortages in the ICT sector and foster reskilling and upskilling of human capital, in particular in the area of digital skills. Finland ranks first among all Member States in the area of digital human capital, according to DESI. However, the availability of a digitally skilled workforce does not seem to keep up with the growing demand for ICT specialists. While Finland has the highest percentage of ICT specialists in the labour force in the EU, 66.2% of companies, which recruited or tried to recruit an ICT specialist, had difficulties doing so (EU average: 56.8%). In addition, gender imbalances among ICT graduates remain a challenge. Addressing these challenges through suitable investments and reforms of the educational and vocational system can help contribute to fostering stalling productivity growth in Finland.

Box 1: Progress towards the Sustainable Development Goals

Sustainable Development Goals and the four dimensions underpinning the Annual Sustainable Growth Strategy.



The objectives of the Sustainable Development Goals have been integrated in the European Semester since the 2020 cycle. This provides a strong commitment to sustainability in the coordination of economic and employment policies in the EU. In that respect, this section outlines Finland's performance with respect to SDGs with particular relevance for the four dimensions underpinning the 2021 annual sustainable growth strategy and of relevance to the recovery and resilience plans, namely green transition, fairness, digital transition and productivity, and macroeconomic stability, indicating possible areas where investments and reforms in line with the objectives of the RRF could further accelerate the progress on the SDGs.

Green transition

Finland performs well on many SDGs related to the green transition. Greenhouse gas emissions in Finland have decreased at a similar pace as in the EU as a whole (-23% in 2019 since 1990). However, Finland's emissions in sectors not covered by the EU emissions trading scheme are still higher than the 2020 target. To achieve Finland's objective of carbon neutrality by 2035, emissions reduction measures will need to cover all greenhouse gas emissions sources. The share of renewables in gross final energy consumption was 43% in 2019, substantially above the EU average of 20%, mainly due to the use of hydropower, solid biofuels and wind. The share is expected to increase further, which would contribute to further progress on SDG 7 "Affordable and clean energy", SDG 12 "Responsible consumptions and production", and SDG 13 "Climate

action". The country can still improve its performance in terms of the use of circular material (SDG 11, "Sustainable cities and communities" and SDG 12, "Responsible consumption and production").

Fairness

Overall, Finland performs well on the indicators measuring the fairness of society and economy. For instance, the rate of people at risk of poverty or social exclusion was 15.6% in 2019, well below the EU average of 20.9%, indicating a superior performance on SDG 1 "No poverty". In addition, income inequalities in Finland are among the lowest in the EU (SDG 10 "Reduced inequalities"). However, high unmet healthcare needs pose a challenge. The share of self-reported unmet needs for medical care was 4.7% in 2019, notably above the EU average of 1.7%. This is a particular issue for the inactive and for the unemployed. Addressing those challenges would facilitate progress on SDG 3 "Good health and well-being".

Digital transition and productivity

Overall, Finland performs well in terms of "Decent work and economic growth" (SDG 8) and "Industry, innovation, and infrastructure" (SDG 9). R&D spending in terms of GDP was 2.8% in 2019, above the EU average of 2.2%, while investment accounted for 29.8% of GDP (EU average: 22.4%) in 2019. At the same time, further investments in digital infrastructure are needed to close remaining connectivity gaps throughout Finland and thus support growth and economic activity in remote areas. Moreover, while the workforce in Finland is generally well-equipped with digital skills, shortages and gender imbalances among ICT specialists leave further scope to improve the innovative capacity of the Finnish economy, in line with SDG 4 "Quality education".

Macroeconomic stability

Finland scores very well on indicators related to "Peace, justice, and strong institutions" (SDG 16), where it scores high in a global context on the perceived absence of corruption. Together with its satisfactory performance on SDG 8 "Decent work and economic growth", this contributes to a strong business environment.

3. OBJECTIVES, STRUCTURE AND GOVERNANCE OF THE PLAN

3.1. Overall strategy of the plan

Finland's recovery and resilience plan aims to provide investment support to sectors that are undergoing important reforms. Funds in the plan will help stimulate the transformation of the economy and support jobs while helping to speed up the green and digital transition. This effort is crucial to realising Finland's ambitious carbon neutrality target and to underpinning EU climate targets. Achieving carbon neutrality by 2035 will require large investments, in particular in technology, infrastructure and research, development and innovation. The plan therefore channels approximately 50% of the funds to green initiatives.

The plan is structured around four policy areas, which are made up of thirteen components. In addition to its contribution to reaching Finland's climate targets, the plan

promotes digitalisation, research and innovation, employment creation and resilience of the health care system. The plan includes measures to enable Finnish companies to participate in potential IPCEIs in the areas of micro-electronics and renewable hydrogen. In addition, it is noted that Finland presents the 800 MW electricity connector between Northern Finland and Northern Sweden as an important supporting measure to provide sufficient network capacity for the additional renewable energy that is expected to be generated in the medium to long term.

The first policy area of the plan focuses on the green transition. Finland has set an ambitious goal of reaching carbon neutrality by 2035 and becoming the world's first fossil-free welfare society. The first policy area includes five components that contribute to the transition towards carbon neutrality (P1C1 – Transformation of the energy system, P1C2 – Industrial reforms and investments in support of the green and digital transition, P1C3 - Reducing the climate and environmental impacts of the building stock, P1C4 - Low-carbon solutions for communities and transport and P1C5 - Environmental sustainability and nature-based solutions). Reforms presented in these components include changes to the Climate Change Act, Energy Aid Regulation, Nature Conservation Act and Waste Act. Investment measures in these components include new energy technologies and related infrastructure, the hydrogen economy, the decarbonisation of industries, recycling of key materials and industrial side streams, reducing emissions of the building stock, including by replacing oil-based heating by low-carbon forms of heating, charging and refuelling low- and zero emissions vehicles and reducing pollution.

The second policy area of the plan aims to enable Finland to make full use of the opportunities of the digital transition. This policy area includes three components that contribute to the digitalisation of Finland's economy and society (P2C1 – Digital infrastructure, P2C2 – Accelerating the data economy and digitalisation and P2C3 – Digital security). The investment in broadband connectivity included in the first of these three components aims to increase access to high-speed connections where those are not provided on a commercial basis. This policy area also aims to invest in the digitalisation of rail services to replace the current system for traffic control, which is reaching the end of its lifecycle. Moreover, investments included in the second component of this policy area aim to foster the digitalisation of businesses and the public sector by supporting the exchange of business and financial information in standardised formats that allow for automated processing. In addition, the component includes investments in digital solutions to help Finnish companies attract foreign workers and offer their services internationally. The second component will also support research and innovation in key digital technologies with relevance for strategic autonomy and future competitiveness. Finally, the third component in this policy area aims to increase Finland’s resilience through the development of cybersecurity solutions and tackling money laundering.

The third policy area of the plan aims to raise the employment rate, improve the skills levels among young people and adults in view of the twin transition, strengthen RDI intensity, and promote long-term growth, while accelerating the recovery of the sectors most affected by the COVID-19 crisis. The first component (P3C1 – Employment and labour market) aims to raise the employment rate and strengthen the functioning of the labour market. This will be done by increasing the effectiveness of the public employment services in providing job-seeking support, by activating older people through abolition of additional days of unemployment benefit (the so-called “Unemployment tunnel”), by strengthening integrated

services for youth in Ohjaamo one-stop-shop centres, and by providing integrated services for people with partial work capacity in view of extending their working careers. Finland also aims to attract international talent by streamlining permit procedures for labour and education-based migration, especially in sectors suffering from labour shortages, through a reform of the Alien's Act. The second component (P3C2 – Upskilling and continuous learning) will enhance skills and improve employment opportunities through a reform of the continuous learning system, including through more integrated digital platforms and online services, and by increasing higher education study places in sectors suffering from labour shortages. Further objectives are to reduce learning gaps, increase equality in education, and support the smooth transition between working life and education, therefore ultimately improving the employment conditions for all. Parallel, the objective is also to digitalise and modernise the Åland islands higher education and continuous learning system.

To contribute to strengthening RDI intensity, component P3C3 – RDI, Research infrastructure and piloting proposes two investment packages that aim at promoting the green transition and investing in research and innovation infrastructure supporting sustainable growth and digitalisation. Finally, component P3C4 – Strengthening competitiveness and boosting growth in crisis-impacted sectors aims to raise export capabilities of the economy and digitalisation by making sector-specific investments that are based on Finland's strengths and international market potential. It will also support the recovery and sustainable renewal of the cultural and creative industries and of the Finnish tourism industry, with the aim to increase innovation and export of services.

The main objectives of the fourth policy area of the plan are to remove the backlog in provision of social and healthcare services caused by the COVID-19 pandemic and to enhance equal access to social and healthcare services across the country. This will be achieved by introducing new operating models, digital services and new approaches as well as by implementing the objectives of the social and healthcare reform (P4C1 - Strengthening access to social and healthcare services and increasing cost-effectiveness). The measures under the policy area will promote the implementation of the basic care guarantee, reduce inequalities, support earlier identification of problems and more effective prevention, and improve the quality and cost-effectiveness of social and healthcare services. A further objective is to improve the Åland islands digital social and healthcare information system.

Table 4: Overview of the plan, its components and associated costs

Policy Area	Component	Costs (EUR million)
P1: Green transition	P1C1: Transformation of the energy system	318.7
	P1C2: Industrial reforms and investments in support of the green and digital transition	326
	P1C3: Reducing the climate and environmental impacts of the building stock	110
	P1C4: Low-carbon solutions for communities and transport	40
	P1C5: Environmental sustainability and nature-based solutions	30

Policy Area	Component	Costs (EUR million)
P2: Digitalisation and data economy	P2C1: Digital infrastructure	135
	P2C2: Accelerating the data economy and digitalisation	62
	P2C3: Digital security	29.75
P3: Raising the employment rate and skills levels to boost sustainable growth	P3C1: Employment and labour market	170
	P3C2: Upskilling and continuous learning	107.5
	P3C3: RDI, Research infrastructure and piloting	267
	P3C4: Strengthening competitiveness and boosting growth in crisis-impacted sectors	94
P4: Social and healthcare services	P4C1: Strengthening access to social and healthcare services and increasing cost-effectiveness	404.8

3.2. Implementation aspects of the plan

Consistency with other programmes

The Finnish plan provides justification for its consistency with the objectives and priorities of other initiatives, such as the National Reform Programme, the European Digital Agenda and the National Energy and Climate Plan. The proposed measures contribute to the implementation of the European Pillar of Social Rights, including the principles on gender equality, equal opportunities, active support to employment, inclusion of persons with disabilities, education, training and life-long learning, and equal access to healthcare, as well as other EU initiatives, such as the EU Skills Agenda, the EU's flagship initiative Reskill and upskill, the Council Recommendation on Vocational Education and Training (VET) and Upskilling Pathways, and the Commission Recommendation for Effective Active Support to Employment (EASE). The measure supporting the integrated youth services is in line with the Youth Guarantee, as it will aim to prevent social exclusion of young people and improve their employment possibilities by strengthening the integrated employment, health, social and education services for young people. The Technical Support Instrument provides expertise in building capacities to implement the Plan in a number of areas such as digitalisation of the public sector, sustainable growth and innovation.

Consistency with the challenges and priorities identified in the most recent euro area recommendations

The Finnish recovery and resilience plan is consistent with the challenges and priorities identified in the Council Recommendation on the economic policy of the euro area (EAR). The plan addresses EAR 1 as it includes measures to strengthen the coverage, adequacy, and sustainability of health and social protection systems for all (policy area 4). Measures in the plan also address EAR 2 as they strengthen productivity and employment (policy area 3) and provide support to private investment to foster the green and digital transitions (policy areas 1 and 2),

support job transitions, address labour market segmentation and address skills shortages (policy area 3). Measures in policy areas 2, 3 and 4 will strengthen the effectiveness and digitalization of public administration, the health system and public employment services, in line with EAR 3. The measures related to the data economy and information sharing will reduce the administrative burden for firms and improve the business environment. Finally, the plan contains a reform of the framework to prevent money laundering and terrorism financing, consistent with EAR 3 and 5.

Governance

The Ministry of Finance is responsible for the overall coordination of the plan and it acts as a point of contact with the Commission. It shall monitor the implementation progress of the plan as a central authority and in cooperation with the other ministries and bodies involved in the implementation. The Ministry of Finance shall also be responsible for control and audit and for the preparation of payment requests to the Commission, for ensuring the accuracy of the-related information and for issuing the management declarations. Various ministries and agencies are responsible for the granting of subsidies, corrective measures to be taken and recoveries related to their respective administrative branches. The Ministry of Finance will collect information on the implementation progress and on the achievement of milestones and targets from the other ministries and authorities granting the aid via a common information system.

Equality

The plan contains a section on gender equality and equal opportunities for all, which describes the impact of Covid-19 crisis and in particular challenges related to gender equality, which is a crosscutting general objective of the plan in line with the European Pillar of Social Rights. The actions and measures in the plan are expected to contribute to addressing the described challenges and have direct and indirect impact on gender equality and on women. The plan also includes information on expected social impacts, including on persons with disabilities, persons with mental health problems, older people and migrants. There are employment and labour market reforms dedicated to developing more integrated services, which are available and accessible to all, and address the needs of disadvantaged groups. Other measures, including the acceleration of digitalisation and improving regional availability of high-speed broadband connections, aim at facilitating location-independent work making it easier for women and men to reconcile work and family life.

Consultation process

The preparatory stages of the Finnish plan were marked by a substantial degree of inclusion towards regional administrations, social partners, industry and business organisations, non-governmental organisations and educational institutions. The consultations were arranged in various formats including regional and thematic events to inform the participants about the preparation of the plan and to hear stakeholder views regarding the needed funding priorities and the content of the plan.

The recovery and resilience plan provides an adequate overview of the stakeholder consultations that took place between autumn 2020 and spring 2021. An inter-ministerial coordination group has consulted social partners, regional and local associations, academia, educational institutions and various civil society organisations during a regional tour, the Growth Forum and other stakeholder events. Ministries have also received written statements and

proposals from organisations and individuals. In addition, researchers have been consulted on the measurement of targets. The plan also provides adequate information on involvement of various stakeholders during implementation.

Communication strategy

The communication strategy is embedded in the broader context of the Finnish Sustainable Growth Programme. The Ministry of Finance is coordinating the communication efforts and has already set up a network with representatives from all ministries. It has also discussed on a preliminary basis coordination in communication efforts with the Representation of the Commission. The website of the Ministry of Finance serves as a primary channel to provide continous and complete information on the preparation and the implementation. A dedicated section under the Finnish Sustainable Growth Programme informs about Finland's recovery and resilience plan and the process. It is envisaged to provide information on the measures included in the plan, distribution of funding over time and practical information for beneficiaries. The communication involves a mix of formats, including media events and social media outreach.

The plan indicates a clear commitment of the Finnish authorities to adhere to the obligations on communication as per the regulation, in particular that projects be labelled as financed by the RRF: "Funded by the European Union– Next Generation". The Ministry of Finance has organised a communications network, in which representatives from all implementing ministries have been invited to participate. As the implementation of the plan advances, this will give rise to additional communication opportunities; it will be up to the Finnish authorities, in cooperation with the Commission, to seize such opportunities. The Ministry of Finance has committed to cooperate in communication with the Commission.

State aid

State aid and competition rules fully apply to the measures funded by the Recovery and Resilience Facility. Union funds channelled through the authorities of Member States, like the RRF funds, become State resources and can constitute State aid if all the other criteria of Article 107(1) TFEU are met. When this is the case and State aid is present, these measures must be notified and approved by the Commission before Member States can grant the aid, unless those measures are covered by an existing aid scheme or comply with the applicable conditions of a block exemption regulation, in particular the General Block Exemption Regulation (GBER) declaring certain categories of aid compatible with the internal market in application of Articles 107 and 108 TFEU[18]. When State aid is present and it requires notification, it is the duty of the Member State to notify State aid measures to the Commission before granting them, in compliance with Article 108(3) TFEU. In this respect, the State aid analysis carried out by Finland in the recovery and resilience plan cannot be deemed a State aid notification. In as far as Finland considers that a specific measure contained in the recovery and resilience plan entails de minimis aid or aid exempted from the notification requirement, it is the responsibility of Finland to ensure full compliance with the applicable rules.

[18] Commission Regulation 651/2014, OJ L 187, 26.6.2014, p. 1

Security self-assessment

In accordance with Article 18(4) point (g) of Regulation (EU) 2021/241, the plan indicates that risk assessment and risk management plans are prepared for several measures linked to digital capacities and connectivity. For investments in connectivity infrastructure, development environments for 6G, artificial intelligence and quantum calculations, as well as investments in cyber security exercises and trainings, the plan indicates that a risk assessment and risk management plan are prepared for each project and that security risks are addressed throughout the project's life cycle. For connectivity investments, the plan describes the national legislative framework that takes into account the EU's toolbox for secure 5G networks. For instance, devices that may endanger national security may not be used in critical parts of the communication networks. The plan also indicates that the realisation of cyber security requirements will be ensured for the products and services associated with the project, and that possible certification systems should be used, if necessary. Security requirements are planned to be ensured in public procurement procedures and, where necessary, personnel and company security clearance procedures should be applied. Strategic measures mentioned in the security self-assessment would need to be closely monitored during the implementation of the plan.

4. SUMMARY OF THE ASSESSMENT OF THE PLAN

4.1. Comprehensive and adequately balanced response to the economic and social situation

The Finnish recovery and resilience plan constitutes a comprehensive and balanced response to Finland's economic and social situation and, given the specific challenges and the size of the financial allocation, it is expected to bring an appropriate contribution to the six pillars referred to in Article 3 of the Regulation, namely (i) green transition, (ii) digital transformation, (iii) smart, sustainable and inclusive growth, (iv) social and territorial cohesion, (v) health and economic, social and institutional resilience, and (vi) policies for the next generation. The plan contains 57 measures (18 reforms and 39 investments) grouped under 13 components structured around the following four main policy areas: (1) green transition, (2) digital transformation, (3) employment and skills, research, development and innovation, support to companies and (4) social and healthcare. Both the green and digital targets are met, with the green target exceeded considerably. All pillars are covered by at least one component, while a component may contribute to several pillars. The range of actions of the plan corresponds to the one of the Facility with an appropriate overall balance between pillars. The coverage of the Finnish plan's components toward the six pillars is summarised in Table 5. Finland submitted its National Reform Programme on 27 May 2021. The information provided in the National Reform Programme is being considered and jointly assessed in this Staff Working Document together with the Recovery and Resilience Plan.

Table 5: Coverage of the six pillars of the Facility by the Finnish recovery and resilience plan components

	Green transition	Digital transformation	Smart, sustainable & inclusive growth	Social and territorial cohesion	Health, and economic, social and institutional resilience	Policies for the next generation
P1C1: Transformation of the energy system	●	○	●	●	○	
P1C2: Industrial reforms and investments in support of the green and digital transition	●	○	●	●	○	
P1C3: Reducing the climate and environmental impacts of the building stock	●		●	●	○	
P1C4: Low-carbon solutions for communities and transport	●	○	●	●	○	
P1C5: Environmental sustainability and nature-based solutions	●		○	●	○	
P2C1: Digital infrastructure	○	●	○	●		
P2C2: Accelerating the data economy and digitalisation		●	●		○	
P2C3: Digital security		●			●	
P3C1: Employment and labour market		○	○	●	●	○
P3C2: Upskilling and continuous learning	●	●	●	○	●	●
P3C3: RDI, Research infrastructure and piloting	●	○	●	○		●
P3C4: Strengthening competitiveness and boosting growth in crisis-impacted sectors	○	●	●	○		
P4C1: Strengthening access to social and healthcare services and increasing cost-effectiveness		●	○	●	●	○

Key: "●" investments and reforms of the component significantly contribute to the pillar; "○" the component partially contributes to the pillar

Pillar I: Green transition

Accelerating the green transition is the major focus of the plan. The measures supporting climate objectives account for an amount which represents 50,1% of the RRP's total allocation. This is consistent with the Finnish government's ambitions to reach carbon neutrality by 2035.

The measures in the plan are also aligned with the national energy and climate plan (NECP) for 2021-2030, especially with respect to its targets on reducing GHG emissions and on achieving carbon neutrality by 2035. Such measures include notably reforms and investments boosting the share of renewables in the energy mix, decarbonisation of industry, reducing emissions of public and private buildings and promoting low-emission forms of transport.

The green transition policy area of the plan contains five components that each contribute to a different dimension of the challenges related to the green transition. This corresponds to analysis showing that emissions reduction measures will need to address all greenhouse gas emissions sources to achieve the carbon neutrality objective[19]. The main sources of total emissions in Finland are the energy supply sector (31% of the total emissions), transport (20%), manufacturing (12%) and buildings (7%)[20]. Each of these sectors are addressed in dedicated components in the Finnish plan. The plan also includes a dedicated R&D&I component (P3C3), with over 70% of the investments earmarked to the green transition, focussing in particular on hydrogen, clean energy and high-value bioproducts as well as data analytics and social sciences related to resilience and climate change adaptation.

The plan has a prominent focus on the promotion of clean energy production, with reform efforts to phase out the use of coal and a reform of energy taxation. The dedicated component (P1C1) also includes investments in new energy technologies and energy infrastructure (system integration, storage and transport). A sizable effort is made to accelerate the reduction of industrial emissions by the measures included in component P1C2. This component includes the reform of the Climate Change Act setting ambitious emission reduction targets, complemented by industry-specific roadmaps which should contribute to the achievement of the government's target of climate neutrality by 2035. Support is foreseen for the production and storage of clean hydrogen within the framework of planned IPCEIs, aimed to support investments along the hydrogen value chain as well as in carbon capture, storage and recovery. Other measures promote the direct electrification and low-carbon industrial processes in the industrial sector. The plan also steps up efforts to promote the circular economy and the use of recycled material, through a combination of reforms such as the Waste Act, as well as investments in the promotion of reuse and recycling initiatives, focussing in particular on industrial side streams such as the bioeconomy or the battery value chain.

The plan contributes to decarbonisation in the built environment and in the transport sector. Component P1C3 includes reforms to legislate and finance low-carbon technologies in the buildings sector, including the replacement of oil heating in private and public buildings. Component P1C4 contributes to the reduction of greenhouse gas emissions in the transport sector

[19] Finland country report 2020, SWD/2020/525 final

[20] Sectoral GHG emissions: https://www.eea.europa.eu/data-and-maps/data/data-viewers/greenhouse-gases-viewer

by reforming the transport taxation system and by supporting the roll-out of recharging and refuelling infrastructure for cleaner forms of transport. The component promotes the construction of a private electric car charging station infrastructure, including in private buildings, the lack thereof having been identified as one of the bottlenecks that hampers the incentive for electric vehicle ownership. This is complemented by component P1C5 which focuses on environmental sustainability by modernising the Nature Conservation Act and investing in nutrient recycling initiatives.

Pillar II: Digital transformation

The plan fully covers the second pillar in its different dimensions, with several components targeting the digital transformation directly or indirectly. While Finland is a world leader in digital transformation, the plan is expected to address the remaining gaps in digital infrastructure, notably high-speed broadband networks. Moreover, reforms and investments in the plan are expected to support the digitalisation of businesses, in particular SMEs, and to further enhance digital skills through a comprehensive continuous learning reform. The Real-Time Economy (RTE) programme aims to help create common solutions and structures to facilitate the exchange of digital financial data between organisations in a structured machine-readable format (such as e-invoices, e-receipts, procurement documents and financial statements), in line with the vision of a 'real-time economy'.

A sizable effort is dedicated to the digitalisation of public services. Measures range from data-driven innovation to the digitalization of rail services and smart energy systems. The introduction of the European Rail Traffic Management System (ERTMS) on the entire national network by 2040, along with the 4G and 5G-based Future Railway Mobile Communication System (FRMCS) will help ensure that rail services are fit-for-future. Other investments support the ongoing reform efforts in the employment, social and healthcare domains, with a strong focus on the transformative potential of digitalisation, e.g. upskilling and re-skilling, the digitalisation of public employment and social and healthcare services and in support of secure, interoperable information exchanges between competent authorities in the field of financial supervision and anti-money laundering.

The plan also fosters research, development, and innovation in the digital domain, while supporting the development of cyber and information security. This is complemented by investments in key digital technologies such as 6G, AI and quantum computing, including through contributions to the planned IPCEI in microelectronics.

Pillar III: Smart, sustainable and inclusive growth, including economic cohesion, jobs, productivity, competitiveness, research, development and innovation, and a well-functioning single market with strong SMEs

The plan extensively covers the third pillar, as all components directly contribute to smart and sustainable growth. In this regard, the plan's focus on promoting the green and digital transitions will help the economy to grow on a more sustainable path. The initiatives funded by the plan are estimated to slightly increase GDP, employment and productivity over the medium

and long term. Finland is already among the best-performing EU countries as regards developing and taking up environmental technologies, and its competitiveness and trading performance can be further strengthened by the plan.

Competitiveness and productivity are also expected to benefit from several other measures in the plan that support research, innovation, and development of key green and digital technologies for the future. The plan's focus on industrial decarbonisation is likely to contribute to industry competitiveness in the medium term. A modernised and interoperable digital infrastructure will give people and businesses better access to public services and data-driven innovation and improve efficiency. At the same time, the investments in key digital technologies under component **P2C2** such as Real-Time Economy, 6G, AI and quantum computing, including through contributions to the planned IPCEI in microelectronics (see above) are expected to contribute to safeguarding Europe's competitiveness and to improving its productivity.

The measures proposed under component P3C1 are expected to contribute to raising the employment rate to the declared objective of 75% and productivity, and thereby to offsetting the negative impact of the demographic challenge and improving the sustainability of public finances. The proposed measures respond to the specific challenges caused by the COVID-19 pandemic, especially for vulnerable groups, but the primary focus is on long-term structural reforms, in line with the employment priorities of the government. The adoption and implementation of the Nordic model of public employment services and the phasing out of the additional days of unemployment benefits for older people (the so-called "unemployment tunnel") are both expected to have a positive impact on employment. In parallel, the facilitation of work- and education-based immigration is targeted at attracting international talent and should thereby contribute to both employment and productivity growth, two of Finland's major challenges.

Component P3C3 is expected to contribute to RDI intensity. It is expected to contribute to raising the share of RDI expenditure in Finland from 2,9% (2019) to 4% of GDP by 2030, while stepping up cooperation within public RDI entities and between public and private entities involved in RDI, including at international level. The package promoting green transition includes investments for supporting projects of leading companies, accelerating key sectors and strengthening competence in key sectors, and for supporting innovative growth companies. The package promoting innovation and research infrastructures includes investments for the development of local research infrastructures, national research infrastructures and innovation infrastructures.

In P3C4, the plan also includes measures to help businesses, in particular SMEs, to grow and to trade goods and services across borders, with a particular focus on high potential growth sectors and targeted support to sectors hard hit by the COVID-19 pandemic, including tourism and the cultural and creative sector. These measures are in line with the objectives of the twin transition and are expected to support a well-functioning internal market and help deliver on the EU's Industrial Strategy.

Pillar IV: Social and territorial cohesion

Measures in the plan also aim at addressing the regional divide and at fostering social inclusion. Under component **P1C3**, measures to stimulate the replacement of oil-based heating systems in private and public buildings by heating systems based on low- or zero-carbon technology are expected to temporarily boost local jobs and investment, contributing thereby to territorial cohesion. At the same time, support to the replacement of oil heaters is likely to be particularly relevant for households with limited financing opportunities. Indeed, renovations will reduce energy bills, which absorb a larger proportion of less wealthy households' income, contributing thereby to social cohesion.

Several proposed measures are expected to positively contribute to cohesion and convergence by addressing existing regional differences in provision of public services, including IT and e-government services. Increased access to and higher quality of broadband services in remote areas under component **P2C1** is expected to help maintain economic activity and increase productivity with positive benefits for territorial cohesion. Moreover, digital healthcare innovations under component **P4C1** have the potential to benefit people living in less densely populated areas with longer distances to access social and healthcare services. The broadband initiative (**P2C1**), which promotes high-speed internet access in rural areas, will also contribute to this objective.

Social cohesion is promoted with all measures directly contributing to the implementation of the European Pillar of Social Rights, especially the Nordic model of public employment services and measures integrating in the labour market the young, persons with partial work capacity, and persons with disabilities. The reform of continuous learning and its digitalisation are expected to improve employment opportunities of working age people, including those belonging to under-represented groups. Improved cohesion is also expected to be achieved with the integrated one-stop-shop services for youth, and extension of the integrated work capacity and mental health services to new regions. Furthermore, improved social cohesion will be achieved with the implementation of measures that promote equal access to healthcare.

Pillar V: Health, and economic, social and institutional resilience, with the aim of, inter alia, increasing crisis preparedness and crisis reaction capacity

Measures in the plan are consistent with the necessity for Finland to address weaknesses in its healthcare system. While Finland has shown a general readiness to deal with the COVID-19 crisis, its health system could benefit from being made more resilient. To improve equal access to social and healthcare services, the proposed measures aim to gradually reduce the delays (or "care debt") accumulated during the COVID-19 crisis and contribute to the implementation of the 7-day care guarantee. In parallel, investments in strengthening prevention and early identification of health problems with the help of e-services and in digital innovations for social welfare and health care, combined with the further extension of the high-speed broadband networks, are expected to contribute to addressing unmet medical needs, especially in more remote areas. As regards the risks for the sustainability of the social and healthcare system posed by the ageing population, the Finnish government has established a knowledge-based and impact-based steering group with a view to reinforce the cost-effectiveness of the system. Investments to

promote the introduction of an upgraded system for monitoring the care guarantee in all health centres will contribute to this objective.

Institutional resilience is expected to be fostered through the development of the residential and commercial property information system and through measures against money laundering and terrorism financing. Under component P2C2, the development of a central register for housing company loans has been planned. Information on housing company loans shall be transmitted to the planned positive credit data register, helping to address private over-indebtedness and contributing thereby to Finland's financial stability. In parallel, component P2C3 includes a reform and accompanying investments into the effective enforcement of measures against money laundering and terrorism financing. This is complemented by investments to support the digitisation of public administration and to promote better access to data and interoperable digital infrastructure. The component also envisages actions to enhance the public sector cybersecurity capacities, which are key to detect and respond to cyberattacks.

Pillar VI: Policies for the next generation, children and the youth, such as education and skills

The Finnish RRP also addresses education and skills in view of the twin transition. The plan includes a reform of the continuous learning system and the digitalisation elements thereof. This is expected to ensure the acquisition of labour market relevant skills that are key to maintaining the employability of the labour force in an increasingly digital and green economy. More integrated digital platforms and online services are planned and expected to play a crucial role in this respect. At the same time, specific efforts are also made through strengthened Ohjaamos service points, a new intermediate labour market operator, an expanded work ability programme (WAP) and the expanded individual placement and support model (IPS) to facilitate the integration of young people and people with partial work capacity, including persons with disabilities, into the labour market by addressing their specific social, healthcare but also education needs.

To reach the new tertiary education attainment target, the plan foresees support measures to increase the availability of higher education study places. Emphasis is placed on sectors most affected by labour shortages, including the STEM (science, technology, electronics, mathematics) sector and more specifically the information technology or IT sector. In parallel, the objective of the plan is also to digitalise and modernise the Åland islands higher education and continuous learning system.

Conclusion

Taking into consideration all reforms and investments envisaged by Finland, its recovery and resilience plan is expected to represent, to a large extent a comprehensive and adequately balanced response to the economic and social situation, thereby contributing appropriately to all six pillars referred to in Article 3 of the RRF Regulation, taking the specific challenges and the financial allocation of Finland into account. This would warrant a rating of A under the assessment criterion 2.1 in Annex V of the RRF Regulation.

4.2. Link with country-specific recommendations and the European Semester

The plan is ambitious in providing a response to a broad set of challenges faced by the Finnish economy and society. It introduces reforms and investments aimed at strengthening the green and digital transitions, the well-functioning and inclusivity of the labour market, the resilience of and access to healthcare, and the investment in research and development. Some CSRs, e.g. resilience of the healthcare system and improved access to social and healthcare services (CSR 1.2-3 of 2020) or the establishment of the credit registry system (CSR 4.2 of 2019) are being or have been addressed to a large extent in parallel with the plan, so measures incorporated in the plan in these areas only have a complementary character. Table 6 at the end of the section presents the mapping of the selected challenges, the associated CSRs and the components of the Finnish RRP.

Public finance and financial sector

Efforts to improve cost-effectiveness of social and healthcare services are included in the Finnish recovery and resilience plan (CSR 1.2 2019). Under component P4C1, cost-effectiveness is expected to improve by means of the proposed investments, especially those improving data and evidence-base for decision-making, and the planned digital and phone services. Management solutions include the development and implementation of advanced knowledge management and analytics solutions. These are expected to enable a better control and national monitoring of the service packages and improve the cost-effectiveness of the service system.

Finland's plan includes reform measures related to the establishment of a comprehensive credit registry system (CSR 4.2 2019). Draft legislation setting up the already announced credit registry system is expected to be submitted to Parliament by spring 2022. In parallel, the Finnish plan entails the establishment of a central register for housing company loans. The latter register constitutes a necessary complementary element, as information on housing company loans shall be transmitted to the positive credit register, helping contain the current private over-indebtedness and fostering financial stability. Common procedures concerning the availability of administrative information on housing companies have been defined in a project carried out by the Ministry of Agriculture and Forestry and the National Land Survey of Finland, and a data distribution channel is provided from the residential and commercial property information system.

Healthcare and long-term care

Efforts to improve resilience and equal access to social and healthcare services are included in the Finnish recovery and resilience plan (CSR 1.2 2019 and CSR 1.2-3 2020). The elements announced in the plan are complementary to the social and healthcare reform (SOTE) adopted by the Finnish Parliament on 23 June 2021. In particular, the measures addressing the care guarantee are expected to improve equal access to social and healthcare, as they aim to change patterns, provide new, digital solutions, ensure early identification of problems, and develop low-threshold social and health services. The shortage of health workers is addressed to some extent in the plan through the digitalisation of health services. However, under policy area 3, the increase in higher education places related to sectors suffering from labour shortages is

expected to have a positive impact on the shortage of health workers in the medium-term. If the proposed measures are implemented successfully as a complement to ongoing national measures, they are expected to contribute to improving equal access to social and healthcare services, and in addressing the shortage of health workers.

Labour market integration and skills

All measures under the P3C1 component aim to support employment and strengthen the functioning of the labour market (CSR 2.1 2019 and CSR 2.1 2020). The main objective of the component is to raise the employment rate and strengthen the functioning of the labour market. This is proposed to be done through a structural reform, a Nordic model of public employment services, and digitalisation of the public employment services by phasing out the extended unemployment benefits to older people ahead of the statutory retirement age by facilitating work- and education-based immigration, and by promoting labour market integration of young people and people with partial work capacity. The Nordic model of public employment services and the gradual removal of the additional days of unemployment benefits for older people (the so-called 'unemployment tunnel') include activation elements and contribute to providing incentives to accept work. However, the RRP does not include measures supporting the ongoing social security reform, mainly because it is a long-term reform that will be implemented over two government terms, and the key political decisions on the direction of the reform are not expected before 2023. Nevertheless, commitments to this reform are reflected in the narrative of the plan (Chapter 1) and in its Annex 5 (Finland's National Reform Programme). At the same time, the setting up of the income registry, important for addressing bureaucratic traps in combining work income and social benefits, has been completed.

Components P3C1 and P3C2 of the plan contribute to enhancing skills, including through streamlined processes for work- and education-based immigration and through a reform of the continuous learning system (CSR 2.2 2019). Under component **P3C1**, the proposed streamlining of the administrative procedures for processing residence permit applications based on work and education is aimed to attract international talent. The reform is expected to increase immigration of skilled workers and to improve the opportunities for international degree students to find employment in Finland. Consequently, the reform shall contribute to addressing labour shortages in specific sectors, notably by supplying experts, students and researchers in leading and growth sectors. The measures proposed under **P3C2** are expected to contribute to the ongoing continuous learning reform to enhance skills for the labour market, especially in the context of the twin transition, including for those in the under-represented groups with low skills. The proposed increase of at least 600 new places in universities and universities in applied sciences in sectors affected by labour shortages (e.g. engineering, IT, social and healthcare professions), is expected to contribute to supporting employment of skilled workers in the long-term.

A substantial part of component P3C1 is focused on improving integrated services for the unemployed and the inactive as well as on bolstering active labour market policies (CSR 2.3 2019 and CSR 2.2 2020). This is particularly the case for the Nordic model of public employment services, the one-stop-shop Ohjaamo youth services and the planned work capacity related services: the New Intermediate Labour Market Operator, the extension of the work

capacity programme and of the Individual Placement and Support services for people suffering from mental health disorders as well as mental health services for individuals and work places.

Investment and innovation policies

Component P3C4 of the plan provides liquidity to the real economy, in particular to small and medium-sized enterprises and promotes private investment to foster the economic recovery (CSR 3.1&3 2020). The planned grants schemes in this component totally support SME development, innovation and investments needed for digital and green transition in particular on clean and efficient production and use of energy, sustainable and efficient infrastructure as well as research and innovation. In parallel, the front-loading of mature public investment projects (CSR 3.2 2020) and focusing investment on sustainable and efficient infrastructure are partially addressed. Indeed, several large investment projects (high speed line Turku-Helsinki, high speed line Tampere-Helsinki, high speed line Helsinki to national airport, completing the electrification of railways, etc.) will be financed from national budget and other EU sources (Connecting Europe Facility).

Components in Policy areas 2 and 3 are part of Finland's efforts to offset the gradual decline in research and innovation that was registered over the last decade after the setback of the country's IT sector and address the recommendation to focus investment-related economic policy on research and innovation (CSR 3.1 2019 and CSR 3.6 2020). Under P2C2 Finland aims to fund applied RDI activities and the infrastructure supporting them, i.e. testing and experimentation environments, related to microelectronics, 5G/6G technologies, artificial intelligence or quantum technology, and thus contributing to the digital transition. Under P2C3, Finland is planning to support applied research on cyber security, with the aim to develop a platform for teaching and developing cybersecurity skills. Moreover, the objective of the P3C3 component is to contribute to strengthening RDI intensity, raising the share of RDI expenditure in Finland from 2,9% (2019) to 4% of GDP by 2030 and increasing the ambition level of RDI activities, in line with the National Roadmap for Research, Development and Innovation adopted in spring 2020. To this end, the component proposes two investment packages that aim at promoting green transition and at investing in research and innovation infrastructure supporting sustainable growth and digitalisation.

Measures proposed under Policy area 1 of the plan, as well as a number of measures in policy areas 2 and 3, contribute to the implementation of recommendations to invest in the green transition (CSR 3.2-3 2019 and CSR 3.4-5 2020). This includes the recommendations on focusing investment-related policy on low carbon and energy transition and sustainable transport and those on energy transition, in particular on clean and efficient production and use of energy as well as on sustainable and efficient infrastructure. Component P1C1 includes several investment measures to support the production and distribution of clean and renewable energy. This consists of investment in energy transmission and distribution to increase the capacity on the energy network to support the growing share of renewable sources of energy in Finland's energy mix, as well as investments in new energy technologies. Component P1C2 focuses investment on the transition to a low-carbon economy by supporting the electrification and decarbonisation of industrial processes, including by investing in hydrogen to replace fossil fuels. Investments included in component P1C3 aim at reducing the emissions of the building stock through the introduction of a grant scheme for the replacement of fossil-oil boilers by low-carbon forms of

heating as well as a low-carbon built environment programme. Regarding investment in sustainable transport, sustainable and efficient infrastructure, component P1C4 includes two investment measures to increase investment in sustainable transport by incentivising investments in electric and low-carbon vehicles. Moreover, component P2C1 contributes to the 'Digirail-Digirata' initiative, which aims at modernising rail traffic management. In addition, several large investment projects will be financed from national budget and other EU sources including the Connecting Europe Facility. Moreover, component P3C3 includes a package of investment measures to provide R&D&I funding to support the green transition, including by supporting public and private research organisations as well as locomotive and growth enterprises developing low-carbon climate change adaptation and coping activities.

Policy areas 2, 3 and 4 of the plan are expected to contribute to the digital transformation in Finland and to sustainable and efficient infrastructure (CSR 3.4-5 2020). Component P2C1 emphasises digital infrastructure, with investments aiming at developing the quality and availability of communications networks and at the digitalisation of rail services. Funding from the Facility will be used to increase the coverage and quality of broadband connections in rural areas. This component also supports the introduction of the European Rail Traffic Management System (ERTMS) on the entire Finnish network, as the current system will reach the end of its lifetime by the end of the current decade. Component P2C2 includes reforms and investments to support data-driven innovation, the exchange of digital information and research in key technologies in order to increase Finland's competitiveness. Measures in component P2C3 aim to help create a comprehensive framework for addressing cyber and information security issues, which is a prerequisite for a successful digital transition. Pillar 3 includes four components focused on employment policy and R&D&I. On the employment side (components P3C1 and P3C2), a digital information system for public employment services will be developed. Investment will also take place to accelerate the handling of work and residence permits. An extensive programme will aid the development of digital services and information resources to support continuous learning. The development of existing and new digital services are also expected to increase the innovation capacity of higher education and facilitate access to digital educational services. On the business and innovation side (components P3C3 and P3C4), the plan will contribute to the renewal and development of national research infrastructures with an emphasis on the objectives of the green and digital transition. The plan also focuses on accelerating the growth of Finnish micro and small enterprises, including through the promotion of new digital solutions. Moreover, component P4C1 aims to introduce digital innovations in the form of a care guarantee service, which will deliver digital solutions to support the development of social and healthcare services and promote the implementation of the care guarantee.

Public administration and business environment

Component P2C3 of the plan includes measures that are expected to help ensure effective supervision and enforcement of the anti-money laundering framework (CSR 4 2020). The reform aims at facilitating the collection and exchange of information between the competent authorities for the prevention and detection of money-laundering, including through the automation of data processing and analysis. Support will be provided to improve the data processing within the supervisory authority as well as the exchange of information among different authorities, and to implement a more effective risk-based supervision of anti-money

laundering measures. The bank and payment accounts control system is planned to be amended to increase the efficiency of the prevention, detection and prosecution of money-laundering and terrorist financing. Finally, the reform aims to improve the timeliness, coverage and accuracy of the register of beneficial owner.

Response to the economic and social situation

Medium to long-term recovery prospects for Finland will benefit from investments to increase productivity and innovation, while the weak productivity growth observed before the crisis is also addressed through investments in people. The plan focusses on investments to fasten the digital transformation, notably in sectors that will help the country increase competitiveness, for instance development environments for 6G, artificial intelligence and quantum calculations. Measures supporting skills across different population groups (in particular green and digital ones) and a more effective public administration, including the public employment services systems and tools, are expected to contribute to productivity growth by investing in people. When it comes to innovation, the Finnish RRP also seeks to reinforce the private involvement in research and in industrial innovation. Overall, the measures planned in the Finnish RRP are expected to have a positive impact on economic activity against the background of considerable uncertainty.

Conclusion

Taking into consideration the reforms and investments envisaged by Finland, its recovery and resilience plan is expected to contribute to effectively addressing all or a significant subset of challenges identified in the country-specific recommendations, or challenges in other relevant documents officially adopted by the Commission under the European Semester, and the recovery and resilience plan represents an adequate response to the economic and social situation of Finland. This would warrant a rating of A under the assessment criterion 2.2 in Annex V of the RRF Regulation.

Table 6: Mapping of country challenges identified in 2019-20 country-specific recommendations and the Finnish RRP components

Country challenges (as identified in Section 2)	Associated CSR (2019-2020) and European Semester recommendations	P1C1	P1C2	P1C3	P1C4	P1C5	P2C1	P2C2	P2C3	P3C1	P3C2	P3C3	P3C4	P4C1
Public finance and the financial sector														
Cost-effectiveness of the healthcare sector	2019.1.2													○
Monitoring of private debt (and establishment of credit registry)	2019.4.1-2							○						
Health and long-term care														

Country challenges (as identified in Section 2)	Associated CSR (2019-2020) and European Semester recommendations	P1C1	P1C2	P1C3	P1C4	P1C5	P2C1	P2C2	P2C3	P3C1	P3C2	P3C3	P3C4	P4C1
Healthcare resilience (including by addressing shortage of health workers) and improved access	2019.1.2, 2020.1.2-3													●
Labour market integration and skills														
Incentives to accept work and support to employment	2019.2.1, 2020.2.1-2									●	○			
Enhancing skills	2019.2.2, 2020.2.1										●			
Active inclusion and integrated services	2019.2.3, 2020.2.2									●				
Investment and innovation policies														
Investment policies	2020.3.3												●	
RDI	2019.3.1, 2020.3.6							●				●	○	
Green transition	2019.3.2-3, 2020.3.4-5	●	●	●	●	●	○				○	○	○	
Digital transformation	2020.3.4-5						●	●	●	●	○	○	●	●
Public administration and business environment														
Anti-money laundering policies	2019.1.2, 2020.1-2-3								●					

Key: "●" investments and reforms of the component significantly address the challenge; "○" the component partially addresses the challenge

4.3. Growth potential, job creation, economic, institutional and social resilience, European Pillar of Social Rights, mitigating the impact of the crisis, and social territorial cohesion and convergence

Fostering economic growth and jobs

The mix of investments and reforms presented by Finland is expected to stimulate growth through multiple channels, including improvements in total factor productivity, in line with

the EU update of the 2020 new Industrial Strategy.[21] Raising the long-term productivity remains an issue in Finland. In recent years, growth in investment mostly materialized in construction (e.g. in 2018, it accounted for 7.3% of gross value added) which has less long-term effects on productivity than equipment investment. Equipment investment (as % share in GDP) was below EU average in recent years. The RRP includes a series of measures determinedly targeted at productive investment, notably equipment and intellectual property investment, that are expected to support productivity. These measures can mostly be found under policy areas 1 and 2 of the Finnish plan, but also under component P3C3 targeting research and innovation.

In particular, investments related to the green and digital transition and to research and innovation are set to support Finland's long-term growth potential. Measures related to the green transition, such as supporting the transformation of the energy system (component P1C1) and support for the decarbonisation of industry (component P1C2) are expected to contribute to sustainable growth. They are also in line with Finland's goal to become carbon neutral by 2035. The two planned ICPEIs on hydrogen and microelectronics, together with investments to develop and deploy the next generation of green and secure digital capabilities, from support to digital infrastructure (component P2C1) to the data economy and digitalisation (component P2C2), are expected to contribute to the growth potential and enhance the competitiveness of the Finnish economy. This is complemented by ambitious R&D&I investments, notably under components P2C2 and P3C3, intended to stimulate innovation and innovative growth of companies.

The Finnish authorities estimate that GDP will increase by 0.2 pps. in the short term compared to the baseline scenario, in the medium term by 0.3 pps., while the long-term impact will be up to 0.8 pps. of GDP. Finland has a small allocation of the Recovery and Resilience Facility in relative terms, in total 0.9% of GDP (grants only). The impact of the Finnish plan in the short term was calculated using the assumption of a short-run fiscal multiplier of 1, which is justified in the plan with references to the literature. The impact on GDP in short term is small but plausible. In the medium term, the plan also examines the impacts on potential output using EU commonly agreed methodology for the estimation of output gaps rather than a simple production-function framework. The size of the estimated impact is plausible. In the long term, the positive impact on potential output seems to decay rather fast, as table 2 in Chapter 4 of the plan reports long-term level impacts that are well below the medium-term impacts. This is also below estimations done by the QUEST model. The Finnish plan does not include the potential impact of the structural reforms proposed therein.

According to the Finnish plan, the impact of the measures on the labour market, and on potential growth in the longer-term, is positive. The labour market is expected to improve compared to the baseline scenario, as employment would increase by 0.1 percentage point in the short and medium term and by up to 0.4 percentage points in the long term. In the plan there are specific reforms which, if implemented successfully, could increase the impact above these estimations.

[21]See European Commission, Updating the 2020 New Industrial Strategy, COM(2021) 350 final, 05.05.2021.

The reform and investment measures proposed under P3C1 are expected to have a positive impact on growth and jobs and mitigate the economic effects of the crisis. The implementation of the Nordic model of public employment services (reform P3C1R1) is estimated to have an employment impact of between 9500-10000 additional people in employment, and the abolition of additional days of unemployment benefit for older people (reform P3C1R2) is expected to have an employment impact of 7900 additional people in employment (by 2029). Furthermore, unemployed people with partial work capacity targeted by investment P3C1I1 represent an untapped potential for raising the employment rate, while improving the employability of young people is a key investment in the future. Also, the measure addressing labour and education-based migration is important in view of the demographic changes and the shrinking workforce.

The plan contains measures to improve higher education outcomes and skills of working age people, with a positive impact expected on productivity and employment in the longer term. Component P3C2 contributes to growth and jobs, as the targeted reskilling and upskilling measures as part of the continuous learning reform, will improve the skills levels, and hence the conditions for employment, including for the under-represented groups in the labour market. In parallel, the proposed increase of study places in universities and universities of applied sciences, mainly in sectors affected by labour shortages (e.g. engineering, IT, social and healthcare professions), is expected to contribute to employment and productivity growth in the longer term.

Box 2: Stylised NGEU impact simulations with QUEST – Finland

Model simulations conducted by the Commission using the QUEST model show that the economic impact of the NGEU in Finland could lead to an increase of GDP of between 0.4% and 0.6% by 2026(22). After 20 years, GDP could be 0.1% higher. Spill-overs account for a large part of such impact.

According to these simulations, this would translate into more than 8000 additional jobs. Cross-border (GDP) spill-overs account for 0.4 pps in 2026, showing the value added of synchronised expenditure across Member States (line 2). Even in a scenario with a lower productivity of NGEU funds, it would still lead to a significant impact (line 3)(23).

Table: QUEST simulation results (% deviation of real GDP level from non-NGEU case, linear disbursement assumption over 4 years)

Scenario	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2040
Baseline	0.5	0.6	0.6	0.6	0.6	0.6	0.5	0.4	0.3	0.3	0.1
of which spillover	0.4	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.2	0.1	0.0
Low productivity	0.2	0.3	0.3	0.3	0.3	0.4	0.3	0.2	0.2	0.1	0.0

[22] RRF amounts to roughly 90% of NGEU, which also includes ReactEU, Horizon, InvestEU, JTF, Rural Development and RescEU.

[23] Technically, the low productivity scenario considers a significantly reduced output elasticity of public capital.

This stylised scenario does not include the possible positive impact of structural reforms, which can be substantial. A model-based benchmarking exercise shows that undertaking structural reforms that would result in halving the gap vis-à-vis best performers in terms of indicators of structural reforms could raise Finland's GDP by 13% in 20 years' time, broadly in line with findings for the EU average **(24)**.
Due to differences in assumptions and methodology, **the results of this stylised assessment cannot be directly compared to the numbers reported in chapter 4 of Finland's RRP.**

Strengthening social cohesion

The plan is expected to contribute to maintaining a high degree of social cohesion through increased employment in rural areas notably by extending digital services. Reform and investment in digital infrastructure (component P2C1) is expected to contribute to social cohesion. In particular, under investment P2C1I1 **"**Developing the quality and availability of communications networks", the planned extension of optical fibre connections and/or wireless broadband connections, notably to rural areas, is expected to contribute to social cohesion through higher access for rural population to the labour market, notably wider teleworking possibilities, and to the social and healthcare systems and networks.

The measures proposed under component P3C1 contribute to the implementation of the European Pillar of Social Rights. This notably includes the principles on gender equality, equal opportunities, active support to employment and inclusion of persons with disabilities. In particular, the measure supporting the integrated youth services is in line with the Youth Guarantee (reform P3C1R4), as it will aim to prevent social exclusion of young people and improve their employment possibilities by strengthening the integrated employment, health, social and education services for young people. The measure is also in line with the Commission Recommendation for Effective Active Support to Employment (EASE). With respect to the development of work capacity, productivity and well-being at work (investment P3C1I1), the objective of the investment is to raise the employment rate by increasing the participation of people with partial work capacity, including persons with disabilities, in the labour market and to increase the employment rate by enhancing mental health and work capacity, in view of extending working careers.

The measures on the continuous learning reform proposed under component P3C2 also contribute to the implementation of the European Pillar of Social Rights. This includes the principles on education, training and life-long learning, gender equality and equal opportunities. The measures further contribute to implementation of other EU initiatives, such as the EU Skills Agenda, the EU's flagship initiative Reskill and upskill, the Council Recommendation on Vocational Education and Training and Upskilling Pathways, and the EASE Recommendation.

[24] Varga, J, in 't Veld J. (2014), "The potential growth impact of structural reforms in the EU: a benchmarking exercise", European Economy Economic Papers no. 541.
http://ec.europa.eu/economy_finance/publications/economic_paper/2014/pdf/ecp541_en.pdf.

The measures are also in line with the Youth Guarantee, as they aim to increase the skills and qualifications of young people not in employment, education or training (NEET) and other young people, among other target groups, and ultimately improve their employment opportunities.

Finally, the proposed measures under component P4C1 aim to improve resilience of the social and healthcare system, hence contributing to equal access to care in line with the European Pillar of Social Rights. The measures contribute to the implementation of the social and healthcare reform and address both the care debt (delays) caused by the COVID-19 pandemic and the care guarantee, including through digital innovation. However, a balance will need to be ensured between digitalised and personalised social and healthcare services, especially for people in more vulnerable positions, as they may not have the same possibilities to use digitalised services. The plan does not provide any risk mitigation measures in this respect.

Reducing vulnerability and increasing resilience

The on-going digital and green transition will encourage a diversification of the Finnish economy and will be a key factor conducive to resilience towards external shocks. These aspects appear to be well covered in the plan and will be instrumental in fostering economic recovery.

In particular, investment in digital infrastructure in P2C1I1 is expected to further boost Finland's already strong economic resilience. Regarding GDP and COVID-19, Finland has been among the least affected countries in the EU and has had milder restrictions compared to the continental Europe. Moreover, strong reliance on teleworking in the peak of the crisis (more than elsewhere) has limited the fall in output. Already prior to the crisis, office workers could occasionally telework albeit on a smaller scale. Furthermore, during the pandemic, the switch to teleworking accelerated the digitalisation trend. The planned extension of digital infrastructure, notably the further rolling out of optical fibre connections and/or wireless broadband connections under the RRF (investment P2C1I1), notably to rural areas, is expected to reinforce the trend and to further strengthen the resilience of the Finnish economy. The further increase in digital economy is expected to become persistent and should in principle feed into an increase in resilience and long-term productivity, even though these factors could be mitigated by reduction in capital (for example through business exit cascades).

Measures under component P3C4 partly aim at fostering recovery in the tourism sector and cultural and creative industries, which were most affected by the COVID-19 crisis. Calculations of the sectoral impact of the pandemic on value added, persons employed and hours (measured as the deviation from the pre-COVID trend) show that hours worked have been affected especially in the trade and tourism sectors as well as in arts and entertainment. Compared to the EU27, real estate and professional services were less hit.

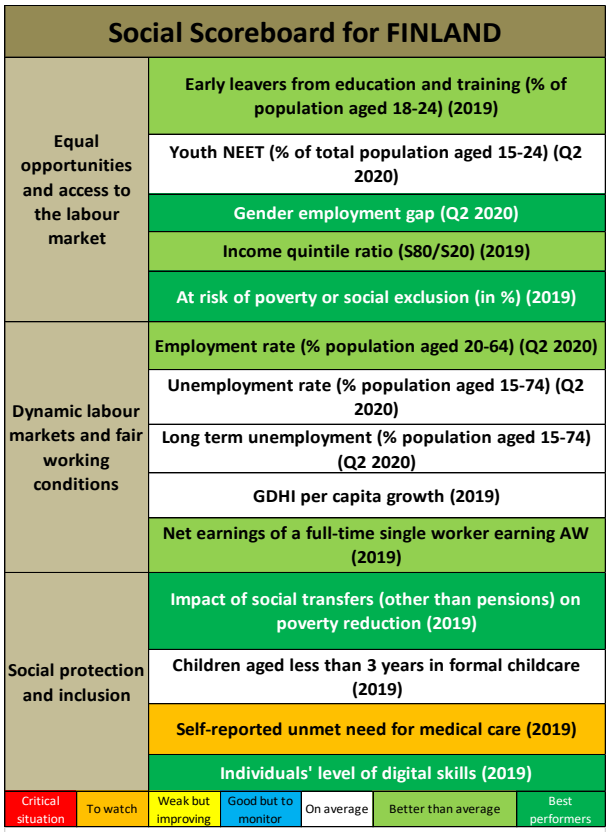
Cohesion and convergence

Initiatives to maintain the world-class level of its public sector by a continuous modernisation and digitalisation of services are conducive to territorial cohesion. In addition, the measures proposed under component P3C1 are expected to positively contribute to cohesion and convergence, especially through more integrated public employment services, extension of the integrated work capacity and mental health services to new regions, and

introduction of more integrated one-stop-shop youth services. The measures on continuous learning proposed under component P3C2 are expected to positively contribute to cohesion and convergence, as digitalisation of continuous learning will allow studies regardless of the physical location. Furthermore, the measures proposed to improve resilience of the social and healthcare system (component P4C1) address existing regional disparities in provision of health services.

Box 3: Employment and social challenges in light of the Social Scoreboard accompanying the European Pillar of Social Rights

The Social Scoreboard supporting the European Pillar of Social Rights points to an overall good performance but also some challenges in Finland. Prior to the COVID-19 pandemic, Finland was on a steady path to increase the employment rate, which reached 77.2% in 2019, but dropped to 76.5% in 2020. In parallel, the unemployment rate increased from 6.7% to 7.8%, slightly above the EU average. While the emergency measures taken by the government have moderated the impact of the crisis, certain groups, especially young people, have been affected most. In 2020, the rate of 15-24 year old not in education, employment or training (NEET) was 9.3%, compared to 8.2% the year before. On the positive side, the gender employment gap remained among the lowest in the EU, at 2.7 pps in 2019 and 2.9 pps in 2020. Also, the risk of poverty and social exclusion is among the lowest in the EU, with only a slight increase from 15.6% in 2019 to 16.0% in 2020.



Members States are classified on the Social Scoreboard according to a statistical methodology agreed with the EMCO and SPC Committees. It looks jointly at levels and changes of the indicators in comparison with the respective EU averages and classifies Member States in seven categories. For methodological details, please consult the proposal for a Joint Employment Report 2021, COM(2020) 744 final; NEET: neither in employment nor in education and training; GDHI: gross disposable household income.

The impact of social transfers on poverty reduction is among the highest in the EU at 54.0% in 2019. While there was a slight decrease in 2020, the social protection system has cushioned well the impact of the pandemic, especially on low-income earners. Income inequalities are among the lowest in the EU. The impact of the child homecare allowance, which is paid to parents (predominantly women) when a child is under 3 years old, is estimated to have some negative impact on employment of women and hinder enrolment into formal childcare. In 2019, 38.2% of children less than 3 years were in formal childcare (slightly above the EU average of 35.3%). Finland is introducing a family leave reform to increase equality in working life, and to narrow the gender pay gap (16.6% in 2019).

Self-reported unmet needs for medical care remain a challenge. The long waiting times for primary healthcare and specialised care concern especially those not covered by occupational and private healthcare insurance and those in the lowest income quintile, of whom 5.4% reported unmet needs in 2019, compared to 2.8% in the highest income quintile. Due to the pandemic, there has been an increase of self-reported unmet needs from 4.7% in 2019 to 5.4% in 2020. The recently adopted social and healthcare reform and the planned 7-day care guarantee for non-urgent care are expected to improve access to care. The availability of health workers will pose a key challenge in the next decade due to population ageing.

Finland performs well on upskilling and reskilling, particularly for digital skills. In 2019, 76% of 16-74 year old had basic or above basic digital skills, and Finland had the highest uptake in adult learning, with 29.0% of adults aged 25-64 having had a learning experience in the past 4 weeks (EU average is 10.8%). At the same time, adults with high skills participate in adult learning significantly more than adults with low skills. The country has a well-performing skill forecasting system to inform policies. After reforming the vocational education and training system, Finland is implementing a continuous learning reform since 2019, to increase opportunities for retraining and continuing professional development throughout the working life.

The Recovery and Resilience Plan submitted by Finland addresses labour market, upskilling/ reskilling and social and healthcare priorities relevant for the implementation of the Pillar. To support employment, the plan addresses the development and implementation of more integrated and tailored support for job seekers, activation of older cohorts, digitalisation of public employment services, integrated one-stop-shop services for the youth, facilitation of labour and education-based migration, and work capacity, including through a new labour market operator. Upskilling and reskilling of workers is addressed through support for the implementation of the continuous learning reform. The plan aims to improve equal access to social and healthcare services by reducing the healthcare backlog caused by the pandemic and supporting the implementation of the care guarantee. Also, support will be provided to more integrated primary care services and digitalised health services. The plan is in full synergy with ESF funding, for which the main priorities are improving access to employment, skills and social inclusion.

Conclusion

Taking into consideration all reforms and investments envisaged by Finland, its recovery and resilience plan is expected to have a high impact on strengthening the growth potential, job creation, and economic, social and institutional resilience of the Member State, on contributing to the implementation of the European Pillar of Social Rights, including through the promotion of policies for children and youth, and on mitigating the economic and social impact of the COVID-19 crisis, thereby enhancing the economic, social and territorial cohesion and convergence within the Union. This would warrant a rating of A under the assessment criterion 2.3 of Annex V of the RRF Regulation.

4.4. The principle of 'do no significant harm'

Finland's recovery and resilience plan assesses compliance with the 'do no significant harm' (DNSH) principle. The assessment follows the methodology set out in the Commission's technical guidance on the application of 'do no significant harm' under the RRF Regulation (2021/C 58/01). It covers the six environmental objectives within the meaning of Article 17 of Regulation (EU) No 2020/852, namely climate change mitigation, climate change adaptation, sustainable use and protection of water and marine resources, circular economy, pollution prevention and control, and protection and restoration of biodiversity and ecosystems. The environmental impact is assessed per reform or investment. Hence, the 18 reforms and 39 investments in Finland's recovery and resilience plan translate into 57 'do no significant harm' assessments.

Each DNSH assessment follows a two-step approach. The first step assesses whether there is a risk that a measure could do significant harm to one or more of the environmental objectives. In some cases, the assessment concludes that there is no risk of significant harm, in which case the measure is assessed as compliant with this objective of the Regulation. This is the case for instance for measures in education and training, labour market, or health. In cases where the analysis identifies a potential risk (including industrial policy, energy renovation, sustainable mobility), a more detailed assessment is performed in which Finland demonstrates the absence of significant harm.

Where needed, the requirements of the DNSH assessment are enshrined in the design of a measure and specified in a milestone or target related to this measure. This ensures that the fulfilment of the respective milestones and targets can only be positively assessed once

compliance with the DNSH principle is guaranteed. This includes broad support schemes that span across sectors and activities (e.g. in R&D&I or industry support). For instance, to ensure compliance with the 'do no significant harm' principle, the eligibility criteria for upcoming calls for projects under measures for energy infrastructure (investment PIC1I1) and new energy technologies (investment P1C1I2) will exclude harmful activities and require that only activities that comply with relevant EU and national environmental legislation can be selected. Under these measures support may be provided to installations covered by the EU emissions trading system (ETS). DNSH compliance is ensured by the fact that only projects with emissions substantially below ETS benchmark are eligible for support under the measures. The verification of the DNSH compliance of the investments is made binding through a milestone linked to the launch of the call for proposals. A similar approach is followed for other broad funding schemes, such as in the measure supporting hydrogen and carbon capture and recovery (investment P1C2I1), and the measures for investment in R&D&I and supporting sustainable growth in SMEs included in component P3C3 – RDI, research infrastructure and piloting.

Finland's recovery and resilience plan puts a particular focus on reducing emissions from energy and industry (e.g. in components P1C1 – Transformation of the energy system, P1C2 – Industrial reforms and P1C2 – Industrial reforms and investments in support of the green transition). While the potential for emissions reductions is large in these sectors, the construction of the relevant infrastructure has potential impacts on biodiversity depending on the location where the relevant infrastructure is constructed. Finland ensures no significant harm to the biodiversity objective by detailing in the plan for the relevant measures that environmental permits will only be granted to projects that meet the requirements of the Environmental Protection Act, the Waste Act and the Nature Conservation Act. For the hydrogen measure included in component P1C2, only 'green' low-carbon hydrogen projects are eligible.

The plan includes a component that will contribute to reducing the emissions over the lifetime of buildings (P1C3 – Reducing the climate and environmental impacts of the building stock). This component includes an investment measure to replace existing oil-based heating systems in private and public buildings with low-carbon heating systems (mainly heat pumps). The DNSH assessment ensures that the requirement of an improvement of at least 30% of greenhouse gas efficiency will be met and excludes the possibility of using fossil fuel-based heating systems. The DNSH assessment of this measure also ensures that the waste generated under this programme shall be recycled.

Another focus area in Finland's recovery and resilience plan is digitalisation (policy area 2). Particularly relevant from an environmental perspective is physical investment in digital infrastructure (component P2C1 – digital infrastructure), where underground cabling may interfere with groundwater resources. No significant harm to the water and marine resources objective is ensured in Finland's recovery and resilience plan through a commitment that in groundwater areas, the construction of communications networks must take into account plans and protective measures to prevent groundwater pollution. A separate permit for construction is required in these areas.

The plan also includes reforms to the social and healthcare system (policy area 4). The DNSH assessment has confirmed that their environmental impacts are rather negligible, ensuring that they do no significant harm to any of the six environmental objectives.

Particular attention is paid to measures whose impact on environmental objectives warrants close scrutiny. Component P1C5 – Environmental sustainability contains a measure to treat fields with gypsum to reduce the phosphorus load of agriculture into the Baltic Sea and to promote the preservation of the carbon stock of arable land. In this context, Finland commits to the monitoring of the concerned arable lands and water bodies to ensure the absence of impacts on land and aquatic ecosystems and absence of adverse impacts on its carbon balance. In case any adverse effects are identified, Finland commits to taking appropriate measures to ensure ecosystem and/or carbon balance recovery and the use of gypsum are prevented in the concerned area. Moreover, financing under this investment shall not be used to apply gypsum to grow food-based biofuel/bioenergy crops. While studies performed on similar measures in the past have shown that the changes in concentrations are minor, their duration is short-term and no adverse effects on aquatic organisms have been observed in studies and water monitoring, Finland confirms in its DNSH assessment that application sites suitable for gypsum will be clearly delineated, and gypsum will not be spread to lake catchment areas, acid sulphate soils, groundwater areas or Natura 2000 sites. The other measure included in this component concerns climate-sustainable measures in the land use sector. While the scope of this measure includes precision forestry projects, safeguards are included to ensure that no harm is done by favouring mixed forests and strengthening forest biodiversity, for instance through increasing the amount of dead wood in the site. In the forests where continuous forest management methods are applied, there shall neither be clear cuts nor new or remedial ditching.

Conclusion

Taking into consideration the assessment of all the measures envisaged, no measure for the implementation of reforms and investments projects included in Finland's recovery and resilience plan is expected to do significant harm to environmental objectives within the meaning of Article 17 of Regulation (EU) No 2020/852 (the principle of 'do no significant harm'). This would warrant a rating of A under the assessment criterion 2.4 of Annex V of the RRF Regulation.

4.5. Green transition

Climate tagging

Finland's recovery and resilience plan correctly follows the methodology for climate tracking set out in Annex VI of the RRF regulation by identifying intervention fields and corresponding coefficients for the calculation of support to the climate objectives, for each measure. It should be noted that:

- the proposed reform measures for the climate contribution do not have any associated cost in the recovery and resilience plan. In this context, the plan does not identify intervention fields for these measures, and they do contribute to reaching the climate target.
- some measures of the recovery and resilience plan consist of several sub-measures – for these measures, the plan indicates an intervention field for each sub-measure and computes the climate contribution at sub-measure level.
- where relevant, milestones and targets include specifications that ensure that the requirements of an intervention field are met. For instance, where intervention field

045bis – Use of recycled materials as raw materials compliant with the efficiency criteria is used, a milestone specifies that the objective of the measure is to convert at least 50 %, in terms of weight, of the processed separately collected non-hazardous waste into secondary raw materials.

- the choice of intervention fields for the climate transition is well justified and reflects the nature, focus, objective or expected outcome of the investments.
- the recovery and resilience plan does not propose to increase the climate coefficients for any measure.

Measures supporting climate change objectives in Finland's recovery and resilience plan account for EUR 1.048 billion, which represents 50.1% of the plan's total allocation.[25] Of the 13 components in the plan, 9 components include expenditure that contributes to the climate objectives, with the greatest concentration in policy area 1 (green transition).

Table 7: Climate contribution and cost per component

Component	Cost (EUR million)	Climate contribution (EUR million)	Climate contribution (percentage of total cost)
P1C1 Transformation of the energy system	318.7	318.7	15.3%
P1C2 Industrial reforms and investments in support of the green and digital transition	326	326	15.6%
P1C3 Reducing the climate and environmental impacts of the building stock	110	110	5.3%
P1C4 Low-carbon solutions for communities and transport	40	40	1.9%
P1C5 Environmental sustainability and nature-based solutions	30	24	1.1%
P2C1 Digital infrastructure	135	34	1.6%
P2C2 Accelerating data economy and digitalisation	62	0	0%
P2C3 Digital security	29.75	0	0%

[25] The table in the Annex presents the detailed application of the climate tracking methodology for all measures and sub-measures with a climate contribution.

Component	Cost (EUR million)	Climate contribution (EUR million)	Climate contribution (percentage of total cost)
P3C1 Employment and labour market	170	0	0%
P3C2 Upskilling and continuous learning	107.5	1.5	0.1%
P3C3 RDI, Research infrastructure and piloting	267	192	9.2%
P3C4 Strengthening competitiveness and boosting growth in crisis-impacted sectors	94	3.6	0.2%
P4C1 Strengthening access to social and healthcare services and increasing cost-effectiveness	404.8	0	0%
Total	2094.96	1049.8	50.1%

Measures to reduce emissions from energy and industry (in components P1C1 and P1C2) account for a large part of the climate contribution. This is achieved through investing in energy infrastructure, new energy technologies, distribution of green hydrogen and low carbon gases and electrification of industrial processes. Measures tagged with corresponding intervention fields contribute EUR 645 million to climate objectives. This corresponds to more than half of the plan's total climate contribution. Where applicable, Finland ensures through milestones that the required level of energy-efficiency, greenhouse gas emissions reduction and waste conversion shall be achieved. It has been ensured that the necessary budget is attributed to these measures to ensure that the energy-savings can actually be achieved.

Investments in reducing carbon emissions from the building stock also provide a significant contribution towards achieving the climate objectives. Component P1C3 – Reducing the climate and environmental impacts of the building stock is expected to contribute to reducing greenhouse gas emissions from construction and heating of buildings. Investment measures included focus on subsidising the replacement of oil-fuelled heating boilers by low-carbon energy-efficient heating in private and public buildings, and on accelerating the adoption of technologies, services and operating models to reduce emissions in the construction sector. Measures reducing the emissions of buildings account for EUR 110 million of the climate contribution of Finland's recovery and resilience plan.

Likewise, expenditure for green transition R&D&I funding contributes to the climate target. These research activities and the technology transfer and cooperation between the private and public sector focus on developing solutions of innovative companies, for example, with the possibility of achieving emission reductions (component P3C3 - RDI, Research infrastructure and piloting). In addition to supporting growth companies, this results in an important climate contribution as well as environmental benefits. These measures account for a climate contribution

of EUR 192 million. The sustainable transport investment measures in component P1C4 - Low-carbon solutions for communities and transport contribute another EUR 40 million to the rollout of the public and private charging and refueling infrastructure. A more modest contribution comes from the re-skilling programme for the green and digital transition. At least 5% of this measure is earmarked for green skills.

Green transition

The measures in Finland's recovery and resilience plan effectively contribute to the green transition, including biodiversity, and address the challenges resulting therefrom. The plan supports Finland's 2035 target for carbon neutrality, as set out in the National Energy and Climate Plan 2030 (NECP 2030). In the NECP 2030, Finland commits to reducing GHG emissions (-39% compared to 2005) and increasing renewable energy (51% renewables in gross final energy consumption). Together with the NECP 2030, the reform of the Climate Change Act ensures coherence between the energy and climate areas, as well as the interconnection with the green and energy transition dimension of the investments envisaged in the recovery and resilience plan.

Various components of the recovery and resilience plan contribute to the commitments made in the NECP 2030:

- **Component P1C1 aims at increasing the share of renewables in energy generation.** The measures included in this component should accelerate the transition of the energy sector, increase the already high share of renewables and capitalise on the innovative capacity of the Finnish economy. Finland is complementing these investments with the planned construction of an 800 MW electricity interconnector between Northern Finland and Northern Sweden with a length of approximately 370 km, partially funded by TEN-E.
- **Component P1C2 provides financial support to innovation projects in industry, targeting sectors characterised by an intensive use of energy.** The support for low carbon processes and technologies, electrification of industrial processes and the development of sectoral roadmaps are expected to help decarbonise industry.
- **Component P1C3 improves the energy efficiency of the building stock**. Finland aims to abandon all fossil oil-based heating in public building by 2024 and completely by 2030. The investments included in this component are expected to contribute strongly to this objective by providing support to owners of private and public buildings to replace fossil oil-based heating systems by low-carbon alternatives. This should lead to lower levels of greenhouse gas emissions and air pollution.
- **Component P1C4 aims to promote the sustainability of transport by reducing transport emissions.** Transport accounts for 20% of total emissions in Finland. As part of Finland's progress towards carbon neutrality, it has set an objective of reducing emissions from transport by 50% by 2030 compared to 2005. Measures in this component focus on stimulating the use of vehicles that use electricity or alternative fuels by investing in the recharging and refuelling infrastructure.
- **Component P1C5 contributes to increasing biodiversity and reducing pollution.** The measures intend to combat eutrophication of the Baltic Sea by treating fields with gypsum. By re-using industrial by-products, this component also contributes to meeting

Finland's recycling targets. A transition to precision forestry can safeguard biodiversity, and reduce the load on water bodies.

These measures contribute to the green transition and environmental protection. The recovery and resilience plan supports Finland in meeting the national energy and climate targets set out in the NECP 2030 as well as its national target of achieving carbon neutrality by 2035.

The plan contains limited measures to enhance biodiversity. Component P1C5 is expected to promote biodiversity to some extent through measures focusing on nutrient recycling and forest management. A broader approach on biodiversity conservation will be needed to address the challenges that Finland is facing, including in the marine environment. Finland should consider addressing the environmental challenges and investment needs in these areas with the support of other EU funds.

Conclusion: Taking into consideration the assessment of all the measures envisaged, the recovery and resilience plan is expected, to a large extent, to make a significant contribution to the green transition or to address the related challenges and ensures that at least 37% of its total allocation contribute to the climate target. This would warrant a rating of A under criterion 2.5 of Annex V of the RRF Regulation.

4.6. Digital transition

Digital tagging

Reforms and investments contributing to digital objectives account for 27.0% of the plan's total allocation. A substantive contribution stems from the three components in the dedicated **policy area 2** on digitalisation and the data economy, in particular from the investments in digital infrastructure. In addition, measures on the transformation of the energy system (component P1C1) as well as on increasing employment, upgrading skills, and research and development (policy area 3) and on the digitalisation of healthcare (policy area 4) will make notable contributions to the digital objectives.

The plan correctly follows the methodology for digital tagging set out in Annex VII of the RRF regulation, by identifying intervention fields, and corresponding coefficients for the calculation of support to the digital objectives, for each measure (the table in Annex presents the detailed application of the digital tagging methodology). The plan does not propose an increase in coefficients. It should be noted that:

- some measures of the recovery and resilience plan consist of several sub-measures – for these measures, the plan indicates an intervention field for each sub-measure and computes the digital contribution at sub-measure level. This concerns in particular measures related to continuous learning, R&D&I and SME support.
- the choice of intervention fields for the digital transition is well justified and reflects the nature, focus, objective or expected outcome of the investments.

Table 8: Digital contribution per component

Component	Cost (EUR million)	Digital contribution (EUR million)	Digital contribution (percentage on total cost)
P1C1 Transformation of the energy system	318.7	62.0	2.9%
P2C1 Digital infrastructure	135.0	135.0	6.4%
P2C2 Accelerating the data economy and digitalisation	62.0	62.0	3.0%
P2C3 Digital security	29.8	20.0	1.0%
P3C1 Employment and labour market	170.0	40.0	1.9.%
P3C2 Raising the competence level and reform of continuous learning	107.4	52.9	2.5%
P3C3 RDI, research infrastructure and piloting	267.0	18.0	0.9%
P3C4 Strengthening competitiveness and boosting growth in crisis-impacted sectors	94.0	30.0	1.4%
P4C1 Improving the availability of social welfare and health care services and increasing cost-effectiveness	404.8	144.8	6.9%
Total plan	**2094.7**	**564.7**	**27.0%**

Digital transition

The plan contains several measures that are expected to contribute to the digital transition and to address challenges resulting from it in a lasting manner. The main focus of the plan is on e-government, the digitalisation of public service, and local digital ecosystems. This includes measures to foster digitalisation in health and employment services, digitalisation of rail systems, and the implementation of smart energy grids (in total about EUR 332 million), and Finland will also invest in data-driven innovation (EUR 37 million) and cybersecurity (EUR 20 million). Moreover, Finland will invest in digital skills (EUR 52.9 million), connectivity (EUR 50 million), the deployment of advanced technologies and digital R&D&I (EUR 43 million), and in the digitalisation of businesses, including SMEs (EUR 30 million).

Investments and reforms also link to the following flagships as put forward in the 2021 Annual Sustainable Growth Strategy: *connect* (rollout of rapid broadband services to all regions and households), *modernise* (digitalisation of public administration), *reskill and upskill* (education and training to support digital skills), *scale-up* (development of the most powerful, cutting edge, and sustainable processors), and *recharge and refuel* (promotion of future-proof

clean technologies to accelerate the use of sustainable, accessible and smart transport, charging and refuelling stations and extension of public transport).

The actions put forward in the plan are coherent with the relevant national strategies and plans in the digital domain. Investments in digital infrastructure are in line with the actions set out in the Digital Infrastructure Strategy, put forward by the Ministry of Transport and Communication in October 2018. This outlines the objectives for the development of digital infrastructure in Finland by 2025 as well as the methods for achieving it. Concerning the digitalisation of rail services, the actions in the plan will contribute towards achieving the goal of halving transport emissions by 2030, in line with the 'Roadmap for fossil-free transport' adopted 6 May 2021. They are also in line with the National Transport System Plan for 2021-2032 approved by the government in April 2021. The reform related to anti-money laundering is consistent with the Strategy and Action Plan for Tackling the Grey Economy and Economic Crime for 2020–2023 adopted in 2020, which identified obstacles to information exchanges aiming to prevent money laundering and the financing of terrorism as possible action points.

The measures in the plan are expected to contribute to the four strategic priorities identified at EU level and reaffirmed in the recent communication on Europe's Digital Decade[26]: skills, infrastructures, digital transformation of businesses and digitalisation of public services.

The plan foresees several measures to make best use of the opportunities of the digital transition in the public sector. A reform of the anti-money laundering framework is expected to improve the collection and exchange of information between the competent authorities, including through the automation of data processing and analysis. By extending the coverage of the residential and commercial property information system with information on housing company loans, the plan should help strengthen the monitoring of household debt and establish the credit registry system. Finland also envisages the promotion of a wide range of digital innovations in employment services, the social and health care sector, to increase resource efficiency, support preventive services, enable the sharing of expertise between different regions and service provides, and strengthen the role of customers.

The Finnish plan contains notable measures to support the development of digital skills and increase employment through the application of new digital solutions. In the area of reskilling and upskilling, the Finnish plan contains a reform of continuous learning accompanied by an extensive digitalisation programme to build digital services and information resources on continuous learning, with the aim of facilitating the access to digital education services, and to provide a specific training programme related to digital skills. Finland also aims to increase the number of students with a higher degree in sectors experiencing labour shortages, including the ICT sector. Immigration of skilled workers and international degree students is planned to be supported through the development of new digital infrastructures and functionalities for speeding up the resident permit procedures, with the aim of addressing labour and skills shortages in

[26] COM(2021) 118 - 2030 Digital Compass: the European way for the Digital Decade, 9 March 2021

specific sectors. In Åland, the plan is expected to support the introduction of student-centred digital education in all higher education studies and introduce new study programmes in particular in the field of digitalisation and automation.

The plan foresees investment in research and innovation in several areas that are fundamental to the digital transition. In particular, the plan aims to fund applied research and deployment of new technologies, in order to improve Finland's competitiveness, information security and sovereignty. In the area of microelectronics, financial support should be provided to accelerate and increase Finnish companies' investments in the development of the production value chain of microelectronics and to increase the ability to design and manufacture semiconductor components in Finland and the EU. The plan also envisages support for the development of 6G, artificial intelligence and quantum computing, which are considered important for technological competitiveness in the future. Moreover, the plan includes an investment package that aims at investing in research and innovation infrastructure supporting sustainable growth and digitalisation more broadly.

Investments in digital infrastructure are expected to help addressing connectivity gaps and to meet the needs of an increasingly digital society. Finland aims to invest in fixed high-speed broadband networks in areas where access would not be provided on commercial basis, i.e. in particular in sparsely populated regions, which is in line with the national broadband strategy ('Digital Infrastructure Strategy 2025'). Deployment of new digital solutions across sectors require fast and reliable communication networks, especially for critical applications. Furthermore, the plan contains investment in the digitalisation of rail transport. In particular, the 'Digirail' project aims to introduce a new rail traffic management system, which is expected to help Finland increase the capacity of the system, improve the quality of service and also meet the emission reduction targets.

The plan also includes measures that aim at supporting the digitalisation of businesses. In particular, Finland aims to foster the international business development of at least 240 SMEs through the 'growth acceleration programme' that should promote the application of new digital solutions. Moreover, under the 'real-time economy' initiative, Finland plans investment in common solutions to create an ecosystem for businesses that facilitates the exchange of digital business information and financial reporting and allows for automated processes and thus increasing productivity. A virtual platform should offer uniform and user-friendly services for Finnish companies to increase their global recognition and for foreign companies and individuals to enter the country.

Climate and environmental-related measures in the plan also include the application of new digital technologies. Notably, this concerns the investments in energy infrastructure, which aim to support smart energy systems (smart grids) and the use of digital solutions (smart meters) to fully exploit the flexibility in energy consumption. In addition, the reform of the Land Use and Building Act should allow monitoring emissions throughout the life cycle of buildings based on the use of smart, digital technology. To promote a circular economy, the plan envisages the application of digital platforms and services that promote the re-use and recycling of key materials and industrial side products.

Finally, the digital measures included in the plan will make Finland more resilient. In particular, the plan contains measures that aim at improving cyber security. Up to 2,000 public officials will receive a corresponding training until 2025. Moreover, the plan includes financial support for developing cybersecurity skills. The proposed reforms and investments aim at improving the public digital services, including of the public employment services, and at mitigating the impact of the pandemic on most vulnerable groups. Furthermore, investment in digital health solutions are expected to improve the resilience of the healthcare system.

Conclusion

Taking into consideration the assessment of all the measures envisaged, the recovery and resilience plan is expected, to a large extent, to make a significant contribution to the digital transition or to address the challenges resulting from it and ensures that at least 20% of its total allocation contribute to support digital objectives. This would warrant a rating of A under criterion 2.6 of Annex V of the RRF Regulation.

4.7. Lasting impact of the plan

Structural change in administration and institutions

The implementation of the envisaged reforms and investments is expected to bring about structural changes to the Finnish public administration that will improve its effectiveness and efficiency. The plan is expected to bring about institutional changes in public services and in the organisation of local and regional administration, along with the modernisation and digitalisation of public services. Components P2C2, P2C3 and P3C1 include initiatives that aim to further build up the digital public sector of the future by a continuous modernisation of the digital infrastructure, meeting the needs of all citizens and businesses. This notably covers reforms and investments such as the real-time economy (RTE) programme, the acceleration of data economy and digitalisation (Virtual Finland), the development of the residential and commercial property information system, ensuring effective supervision and enforcement of the prevention of money laundering-, developing civilian cybersecurity skills, and the digitalisation of several labour market-related tools. Measures included in component P3C1 are expected to contribute to long-term structural changes in the Public Employment Services (PES), following the implementation of the Nordic model of public employment services and PES digitalisation. The plan also foresees a streamlining and digitalisation project regarding the resident permit procedures for labour and education-based migration that is expected to bring positive lasting effects by better talent attraction. Furthermore, Finland has in recent years focused on integrated employment, education and health services, which will be further supported under this component, hence contributing to long-term changes in the way public services are provided.

The measures proposed under component P3C2 have a strong likelihood to contribute to long-term positive structural and systemic changes through the digitalisation of the continuous learning system and the higher education system and improved functioning of the public administration in general. The digitalisation programme for continuous learning aims atimproving interoperability and efficiency both in the use of resources and the operating

methods, through anticipating labour and competence needs and developing tailor-made training and guidance services.

The social and healthcare (SOTE) reform, which is addressed by component P4C1, entails the transfer of responsibilities for management and organisation of social and health services from more than 300 municipalities to 21 welfare areas and the city of Helsinki. The proposed measures, in particular the digitalisation investments, together with the ongoing national measures, are also expected to have a positive impact on the resilience and accessibility of the social and healthcare system. By developing digital services targeting citizens, professional systems and management solutions at regional and national level, these measures have the potential to become long-lasting solutions and to meet the increasing needs and pressures in the sector.

Structural change in policies

Finland's recovery and resilience plan includes a broad set of reforms that are bound to have a lasting impact in many policy areas that will support the transformation of the economy, in particular through measures contributing to the green and digital transitions and promoting innovation. Green transition policies contained in the components in the first policy area of the plan aim at achieving lasting impacts by structurally reducing greenhouse gas emissions in the most emitting sectors: energy supply, industry, buildings, and transport. With dedicated support for the green transition, new low-carbon solutions for the economy could accelerate the growth of emerging sectors, thus further creating opportunities for economic growth. This is also expected to put Finland firmly on the path towards a substantial and sustainable reduction in greenhouse gas emissions, contributing to its target of becoming carbon-neutral by 2035. The measures included in Policy area 1 of the plan are expected to contribute to this overarching policy target by providing funding for projects in several sectors with high potential reductions in emissions. The phasing out of the use of coal in energy, investments in increasing the share of renewables in the energy mix and investment in hydrogen are examples of measures with an expected lasting impact on the structure of the energy sector and industry in Finland.

The implementation of investments and reforms planned by Finland in its recovery and resilience plan is expected to bring about further structural changes in several areas and to have a significantly positive impact on the economic and social resilience of the country. The envisaged investment in technologies, innovation (green technologies, digital, health), digitalisation and skills embedded in the plan are meant to entail a beneficial and long-lasting effect on productivity and therefore on potential growth of the Finnish economy. They are expected to enhance the resilience and productivity of SMEs, while also providing accurate incentives for innovative firms. The plan’s ambitious R&D&I projects under components P2C2, P3C2, P3C3 and P4C1 could have a long-lasting positive impact respectively on climate objectives and on digital transformation. The focus on digitalisation throughout the Plan is expected to contribute to raising productivity in the long term. In particular, the completion of the broadband network will promote high-speed internet access for citizens, households, and companies in less densely populated areas across the country, which will enable everyone to take part in the upward social and economic convergence driven by digitalisation and strengthening connectivity.

The measures aimed to increase employment and employability through upskilling and reskilling will also carry a positive effect on potential growth in the long-term. Reforms in active labour market policies, in accordance with the Nordic model of public employment services, are potentially strong drivers in raising both labour supply and improving the employability of various groups. The plan also encompasses large-scale investments in upskilling and reskilling of working age people in view of twin transition. Measures that promote youth employment, especially a more effective integration of employment, education and health services in Ohjaamo one-stop-shop service points, should facilitate the labour market integration of young people and counteract the structural rise in unemployment.

Investments are also planned to strengthen the role of higher education institutions. The objective of the planned investment is to raise the level of education by increasing the number of people with a higher education degree. This is expected to contribute to the economic recovery and mitigate the negative effects of the COVID-19 pandemic by accelerating young people's access to higher education. The measure consists in increasing the number of study places allocated to higher education institutions, especially in sectors experiencing labour shortages such as social and health care, education, technology, and ICT sectors. Such investments in higher education should have beneficial spill over effects and a lasting impact on the economy and society, including in terms of increased innovation potential and by increasing the diversity of the economic output.

Lasting impact

The Finnish plan seeks to tackle many root causes of identified structural challenges. After the setback of its electronics sector in the last decade and in more recent years, Finland's productivity has remained comparatively low, reflecting productive investment below the level of the EU peers; at the same time, higher employment rate levels could hardly be reached due to skills mismatch, the complex benefit system, which creates barriers to taking up work, and health-related reasons. The plan entails sizeable investment in equipment, including in green technologies and digitalisation, and in research and innovation. In parallel, major efforts are made to address unemployment and improve the incentives to accept work, notably through the implementation of the Nordic model of public employment services, reskilling and upskilling measures, work capacity measures, and the phasing out of additional days of unemployment benefits ahead of the retirement age (the so-called "unemployment tunnel").

Important measures meet the standard of good practices. The proposed reforms and investments in the social, education and healthcare areas are fully in line with other EU initiatives, such as the EU Skills Agenda, the EU's flagship initiative Reskill and upskill, the Council Recommendation on VET and Upskilling Pathways, and the EASE Recommendation. The proposed measures are also in line with the fundamental rights and the European Pillar of Social Rights, including the right to quality and inclusive education, training and life-long learning and equal opportunities for all and equal access to healthcare. However, in view of strong focus on digitalisation of public services, people in more vulnerable positions will need to be continuously ensured personalised social and healthcare services.

The positive impact on fiscal sustainability is ensured. The proposed reforms, in particular in the areas of labour market (P3C1), education and skills (P3C2) and health care (P4C1), are

expected to contribute to enhancing the efficiency of public spending while contributing to stabilising the level of public debt in the medium-term. If these reforms could prove instrumental to reinforcing public debt sustainability and to providing further fiscal space to offset possible negative shocks, they could also entail a positive impact on long-term growth.

The proposed measures have been decided in an inclusive manner, involving the consultation of relevant stakeholders, and their implementation is expected to be inclusive as well. The proposed measures have been subject to wide stakeholder consultations. Key stakeholders continue to be integrally involved during the implementation phase, including in validation and/or assessment of proposed solutions and monitoring of implementation.

Conclusion

Taking into consideration all reforms and investments envisaged by Finland in its recovery and resilience plan, their implementation is expected, to a large extent to bring about a structural change in the administration, in relevant institutions and in relevant policies and to have a lasting impact. This would warrant a rating of A under criterion 2.7 of Annex V of the RRF Regulation.

4.8. Milestones, targets, monitoring and implementation

Adequacy of the structure tasked with the implementation of the plan, monitoring of progress and reporting

The implementation, monitoring and reporting process of the Finnish recovery and resilience plan is ensured at the highest level of the Finnish Government by a "Ministerial Working Group" appointed by the Government on 14 January 2021 and chaired by the Minister of Finance. This Working Group is composed of Ministers representing the Government parties and its role is to guide and monitor the implementation of Finland's Sustainable Growth Programme financed by the country's recovery and resilience plan.

The implementation of Finland's Sustainable Growth Programme is administratively coordinated by Inter-ministerial Co-ordination Group consisting of Permanent Secretaries of all ministries and chaired by the Ministry of Finance. Central-level tasks related to the coordination, management, control and audit of the Finnish RRP are consolidated by the Ministry of Finance, which is supported in the implementation and monitoring process of the plan by a technical secretariat, operating in connection with the State Treasury under the administration of the Ministry of Finance. The Secretariat acts as a liaison body between the ministries and agencies responsible for the implementation and monitoring of the plan.

Regarding the reforms presented in the recovery and resilience plan, their implementation is subject to specific high-level monitoring by the Ministerial Working Group. The Ministry of Finance as a coordinating body will be monitoring the implementation of reforms and investments. Responsible ministries and agencies have been identified for the implementation of each reform, for monitoring its progress, and for the reporting on the achievement of milestones. The division of tasks is clear and the roles and responsibilities are adequately delineated, subject to the successful completion of the respective milestone on the entry into force of the respective legal mandates.

The achievement of the targets and milestones related to investments will be subject to regular and centralised monitoring by the Ministry of Finance, on the basis of information collected and reported by the responsible public administrations concerned. A responsible body has been appointed for each reform and investment among the organisations responsible for implementation of the plan (Ministry of Economic Affairs and Employment, Ministry of Environment, Ministry of Transport and Communications, Business Finland, Energy Authority, The Housing Finance and Development Centre of Finland (ARA), Regional Centres for Economic Development, Transport and the Environment, etc.). In particular, these bodies will provide information on the progress of the indicators chosen as milestones and targets to the Ministry of Finance and the technical secretariat via a dedicated IT repository. The plan provides comprehensive information on the assurance of management verifications and clearly illustrates that the system to be put in place by the Finnish authorities will ensure a close monitoring of the implementation of the plan and a robust reporting on the achievement of milestones and targets to the Commission. Fulfilling these tasks will crucially depend on the successful set-up of the planned repository system.

Milestones, targets and indicators

The plan includes 140 milestones and targets spread out over the eligibility period of the RRF, with some backloading of targets towards the end of the period. Milestones set near the beginning of the lifetime of the RRF relate mainly to the setting up of investment facilities with a relatively broad mandate as well as a number of reform measures that provide the basis for the relevant investments. In this regard, the roll-out of many measures can be quick and the risk of non-completion of the initial milestones is considered low.

The milestones and targets in the plan are clear and realistic. The number of milestones or targets per measure (between one and four) is a reasonable reflection of the lifecycle of the measures. The milestones and targets appropriately reflect the different stages of implementation of reforms and investments. For most measures, they relate to the setting-up or entry into force of a measure. The majority of milestones and targets related to changes in public policies addressed in the country-specific recommendations for Finland. Examples include the adoption of the Climate Change Act, the reform of continuous learning, the reform of social and health care, all of which shall be adopted between 2021 and 2023. For some of the broad investment schemes, a final output target is included that appropriately measures whether the objective of the measure has been achieved. For investment schemes where this has not been feasible, the plan provides instead budgetary execution targets. This is the case where it is not clear in advance whether there will only be a small number of large projects to be financed or rather a larger number of smaller projects. The milestones and targets are consistent with the long-term objectives of the measures.

The proposed indicators are relevant, acceptable and robust. They are easily measurable and constitute relevant markers of progress in implementing the measures. Overall, the indicators are under the control of the government, as they either reflect an input provided by the government or an output. Few indicators can be expected to be influenced by factors outside the government's control. Given their limited number, the risk of non-completion is considered low.

The ambition of some of the indicators can be considered modest. However, this cautious approach will help ensure that the government reaches the milestone or target in cases where, for

instance, the number of beneficiaries of certain investment schemes is uncertain. This is the case for measures that aim to stimulate highly innovative sectors and whose full budgetary execution depends on the development of the relevant technologies by market operators, such as in the field of reductions of industrial emissions.

Overall organisational arrangements

The Ministry of Finance will oversee coordination, monitoring and reporting on the implementation of the plan. It will, among other things:

- ensure compliance with EU regulations;
- monitor the full and timely fulfilment of the plan's strategic and operational objectives through milestones and targets;
- prepare and submit the requests for disbursement based on the necessary information from the competent authorities and reports to the Commission;
- ensure the evaluation of the results of the plan and the dissemination of outputs; and
- provide technical assistance to the competent authorities.

The Ministry of Finance will monitor the implementation of the plan and be responsible for liaising with the EU institutions. Responsibility for implementation will be divided per components among the relevant ministries. In addition, the Ministry of Finance's internal audit unit will be assigned the task of coordinating the audit systems and conducting controls on the line ministries' application of funds and fulfilment of milestones and targets. The interaction with the control system is described in detail in Section 4.10.

Conclusion

The arrangements proposed by Finland in its recovery and resilience plan are expected to be sufficient to ensure effective monitoring and implementation of the plan, including the envisaged timetable, milestones and targets, and the related indicators. This warrants a rating of A under assessment criterion 2.8 in Annex V to the RRF Regulation.

4.9. Costing

Finland has provided cost estimates for all concerned measures in the plan. In some cases, no costs were associated with the reforms in the plan, although the plan also includes reforms linked with RRF-financed expenditures. The reforms and investments in the plan comply with the eligibility criteria set out in the RRF Regulation. All measures are implemented after 1 February 2020 and the relevant actions relating to their implementation are expected to be carried out by 31 August 2026 at the latest. Value-added tax (VAT) is not part of the cost estimates for which funding from the RRF is requested.

The cost breakdown is sufficiently detailed. Estimates are for the most part based on comparisons with past investment schemes, contracts of a similar nature or government impact assessments and internal expertise. The tables proposed in the standard template were completed and presented. They were supplemented by separate documents including more detailed descriptions of cost estimates. The cost estimates were not validated by an independent public body such as a national productivity board or an independent fiscal institution. The assessment of

the cost estimates and the supporting documents demonstrates that most of the costs are well justified, reasonable and plausible.

Finland provided detailed explanations to justify the reasonability of the cost estimates. The analysis of the supporting evidence revealed a wide range of methodologies used to estimate costs. The costs of most measures were estimated on the basis of similar past or parallel projects (e.g. broad investments schemes in energy investments or RDI) or government impact assessment for ongoing reforms (e.g. Nordic model of public employment services, the continuous learning reform, investments supporting implementation of the social and healthcare reform). In some cases, cost estimates were based by independent studies (Digirail project), academia research plans (cyber security) or tentative calls for proposals (innovation infrastructures). The cost estimates were presented in a synthetic way. The key assumptions and cost drivers were clearly spelt out allowing to identify the methodology used. Overall, more than three quarters of measures in the plan have been rated high in the assessment of reasonability of costing estimates. In this context, the reasonability of the cost estimates is deemed well established.

Finland used reference costs to justify the plausibility of its cost estimates. Many measures in the plan constitute broad investment schemes based on call for applications, for which similar investment schemes existed in the past and historical or comparative information on the key cost drivers were provided. However, the supply of supporting evidence has not been consistent throughout the plan. For some measures, no detailed comparative cost data or relevant studies have been provided. For most measures, the estimated costs have been assessed by the Commission services as consistent with similar reforms and investments, including those funded by other EU Programmes. Considering the limitations of an ex-ante assessment of cost estimates, the amounts proposed for financing were overall deemed appropriate and the plausibility of the cost estimates is fairly well established.

Finland has a relatively large share (about 14%) of temporary staff costs in the total costs of the plan. These are typically temporary public sector staff costs that are intrinsically linked to the implementation of reforms in the area of labour market as well as health and social care. These sectors require high level of spending on human capital to ensure implementation of reforms and investments. In quite a few cases the Finnish authorities expressed their intention to rely on temporarily hired in-house experts rather than external consultancy services. According to detailed explanations provided with the plan, these costs are found fully justified and temporary (i.e. will not be continued beyond the implementation of the plan).

F**inland has confirmed that the same cost will not be covered at the same time by the recovery and resilience plan and by existing or planned Union financing, in line with the provisions of Article 9 of the RRF Regulation.** Finland has identified a limited number of cases where investments are planned to be financed by both the RRP and other EU funding. In those limited cases, Finland has provided sufficient information on the costs planned to be funded by each source of funding. Acknowledging that the planning documents for the implementation of the European Structural and Investment Funds (ESIF) are still at preliminary stages of preparation. Finland has confirmed that specific arrangements will be put in place in due course to avoid double funding, including from ESI funds, during the implementation phase [(see further details on the arrangements to prevent double-funding under Section 4.10 Controls and Audits)].

Taking into account the economic and social impact of the plan, as well as the reasonability and plausibility of the cost assessment, it is considered that the plan is in line with the principle of cost efficiency. At the same time, the output targets provided in the plan for the investments are commensurate with the costing justifications and assumptions provided.

Conclusion

The justifications provided by Finland on the amount of the estimated total costs of the recovery and resilience plan are to a medium extent reasonable, to a medium extent plausible, in line with the principle of cost efficiency and commensurate to the expected national economic and social impact on the economy. Finland has provided sufficient information and evidence that the amount of the estimated cost of the reforms and investments of the recovery and resilience plan to be financed under the Facility is not covered by existing or planned Union financing. This would warrant a rating of B under the assessment criterion 2.9 in Annex V of the RRF Regulation.

4.10. Controls and audit

Robustness of internal control system and distribution of roles and responsibilities

The Ministry of Finance (MoF) is responsible for coordination, control and audit, preparation of payment requests and issuing the management declarations. It is also responsible for monitoring and reporting, draws up summaries of audits to accompany payment requests and acts as the point of contact for the Commission. The MoF is supported by the Technical Secretariat (see more in section 4.8) in the areas of coordination, management, monitoring of the implementation as well as fight against fraud and prevention of double funding. Various ministries and agencies are responsible for managing grants and subsidies, including corrections and recoveries, in their respective areas.

The Ministry of Finance will perform control activities and monitoring visits to the authorities granting the aid. The supervisory activities are supposed to take place based on an annual plan developed following a risk assessment. According to the plan, the aim is to have as wide coverage as possible during the supervision visits. The correctness of the programme's monitoring data and the implementation of corrective actions concerning the deficiencies detected are supposed to be ensured by the control measures. A common information system is supposed to be used to store information on supervision activities.

The Ministry of Finance's Financial Controller's function is responsible for audits. While the function is part of the MoF, it is independent from other programme management and control functions. The Audit Authority Unit within the Finance Controller function of the Ministry of Finance is responsible for drawing up and updating the audit strategy. It will conduct both audits of the control systems and individual projects / RRP measures. While its project audits are explained to be carried out randomly, the system audits are supposed to be carried out on a risk-based basis according to the audit strategy and plan. The preliminary audit strategy envisages conducting two to five system audits and statistical sampling for 30 project audits per year. The audit strategy defines the random sampling method and the minimum number of audit priorities to be assessed in project audits. The strategy is supposed to define risk-level assessment criteria that take into account the amount of funding, the number and size of projects and measures, and draw on the experience gained from other programmes and control and audit visits by other

authorities. The audit authority may outsource part of system and project audits by competitive tendering with independent audit entities outside the public administration.

The National Audit Office of Finland (NAOF) will also audit the implementation of the plan. The NAOF, which reports to Parliament, carries out audits as part of the monitoring of the implementation of the state budget, which may concern both the central government accounting offices and the EU funds used in Finland, including the implementation of the RRP. The audited authorities are responsible for implementing the NAOF recommendations and the MoF takes note of them for the overall implementation of the plan.

Adequacy of control systems, IT system and other relevant arrangements

Recipients of government transfers must provide access to information, reports, documents, recordings and other material necessary for audits as well as otherwise assist in audits. The plan furthermore provides a number of legal bases on recoveries and criminal code related to irregularities related to financial support. This includes legal bases for reasons of irregularities that trigger recoveries and the corresponding criminal code implications in such cases. Hence, the plan adequately describes the obligations for ministries and agencies to conduct corrective actions and recoveries.

Finland has committed to developing a comprehensive IT repository that will facilitate the implementation and monitoring of the plan. The new system, which will build partly on the existing systems, will be constructed to ensure that the necessary data transfers to the Commission's data mining and risk scoring tool (ARACHNE) will be possible. The possibility to implement the ARACHNE system in Finland will also be explored. Establishment of the repository system for audit and controls that will collect information for monitoring the implementation of the plan constitutes a dedicated milestone included in the plan that has to be achieved by the time of submitting the first payment request under the RRP. The system shall include at least the following functionalities: (a) collect data and monitor the achievement of milestones and targets; b) collect, store and ensure access to the data required by Article 22(2)(d)(i) to (iii) of the RRF Regulation. An audit report from the audit authority shall confirm the functionalities of the repository system and that the system is fully functional and in operation. Establishment and operation of this IT system will ensure that all required information is collected and stored in accordance with Article 132 of the EU Financial Regulation.

Serious irregularities can be detected during the monitoring of the coordinating body, the ministries, agencies or audit bodies. Reporting of irregularities to the appropriate control authorities and OLAF is the responsibility of ministries and aid granting authorities. Each ministry and aid granting authority shall also be responsible for the corrective measures to be taken in the event of irregularities, including recoveries in accordance with national laws applicable to the aid. Furthermore, the police and the tax authorities have procedures and whistleblowing channels for reporting fraud and irregularities, which are ready to use for the implementation of the RRP. The plan also states that the avoidance of conflicts of interest is ensured in the Administrative Procedure Act (434/2003).

The overall assessment of the adequacy of the control systems and other relevant arrangements is positive, although the plan is lacking description of details in some parts. This notably concerns procedures for detection of serious irregularities, training of staff to prevent fraud, protection of whistle-blowers, fraud risk assessments, contractual arrangements with implementing bodies and transparency laws.

Adequacy of arrangements to avoid double EU funding

The plan states that double funding shall be avoided by means of coordination between authorities at all stages of the process. Each ministry and aid granting authority have their own procedures in place to prevent and control double funding, which are however not explained in detail in the plan.

Legal empowerment and administrative capacity of control function

According to the plan, the Act on the Implementation of the RRP will provide the Ministry of Finance with the mandate to direct the authorities responsible for administration, supervision and enforcement, to issue regulations on the use of funds and reporting, and to carry out supervision visits to authorities, projects and measures. The administration and supervision of the implementation will be carried out by each ministry in its own administrative branch (Ministry of Employment and the Economy, Ministry of Education and Culture, Ministry of Social Affairs and Health, Ministry of the Environment, Ministry of Transport and Communications, Ministry of Agriculture and Forestry, Ministry for Foreign Affairs, Ministry of the Interior, Ministry of Finance). Ministries and authorities granting support are responsible for the RRP's actions on the basis of the Act on Discretionary Government Transfers (688/2001) or special legislation. **The plan includes a commitment to establish the legal mandates for the bodies involved in the coordination, monitoring, control and audit of the implementation of the Finnish RRP (including the audit function in the MoF).** These legal mandates are the subject of another dedicated milestone included in the plan: entry into force of the Law on the implementation of the RRP. The Law shall set out the roles and responsibilities of those bodies in ensuring (a) the collection and reliability of data linked to and monitoring of the achievement of milestones and targets; (b) that procedures are in place for the drawing up of management declarations, audit summaries and payment requests; (c) that the necessary principles underlying the collection and storing of data on beneficiaries, contractors, subcontractors, and beneficial owners in accordance with Article 22 of the RRF Regulation are in place. The law shall enter into force before the submission of the first payment request under the recovery and resilience plan.

The plan states that Authorities responsible for the coordination, administration, supervision and audit of the implementation of the RRP will start their operations in Q4 2021. Hence a milestone to this effect, to be achieved by the time of the first payment request, is included in the plan. The plan outlines the additional required administrative capacity in terms of additional staff required.

Conclusion

The arrangements proposed by Finland in the recovery and resilience plan to prevent, detect and correct corruption, fraud and conflicts of interest when using the funds provided under the Facility, including the arrangements aimed to avoid double funding from the Facility and other Union programmes, are assessed to be adequate, provided that the additional arrangements envisaged under the milestone on audit and control (Entry into force of the Law on the implementation of the RRP) and the milestone on the IT system (Repository system for Audit and Controls) are fulfilled in due time. This would warrant a rating of A under the assessment criterion 2.10 of Annex V of the RRF Regulation. Otherwise, the rating would be C.

4.11. Coherence

Finland's recovery and resilience plan is at the centre of the Sustainable Growth Programme for Finland. The objective of the Sustainable Growth Programme is to reduce greenhouse gas emissions, increase productivity, raise the employment rate, ensure quicker access to care and promote regional, social and gender equality. Building on a coherent narrative, the Finland's recovery and resilience plan displays a clear strategic vision

towards those objectives. The six strategic objectives are translated into four policy areas: (1) green transition, (2) digital transformation, (3) employment and skills, research, development and innovation, research infrastructure, small and medium-sized enterprises-related support, growth sectors and (4) social and healthcare.

The four policy areas ensure the coherence of the 13 components of the plan and the individual measures within them. The RRP provides for an overall balanced mix of reforms and investments. Measures included in the plan reinforce and complement each other: Reforms included in the plan underpin envisaged investments on the one hand while investment support and operationalise broader reforms efforts on the other hand. This leads to a mutually reinforcing impact and synergies. Components have a clear and meaningful structure that focus on addressing clearly identified overarching challenges and objectives. Components contain well-established links between reforms and investments that are of coherent nature. Measures are also consistent with the relevant national policy frameworks, including the government programme, the continuous learning reform and the national energy and climate plan.

Mutually-reinforcing measures

Each component includes meaningful reforms that accompany the investment measures, thereby increasing their impact. This section includes a limited number of examples to illustrate the reinforcement of measures within components. The measures included in Policy area 1 of the plan contribute to the Finnish government's target of carbon neutrality by 2035, which also strengthens the coherence between these measures. Moreover, reforms and investments are mutually reinforcing throughout the components in this policy area. For example, Component P1C1 includes a reform to phase out coal use in the energy sector and investments in renewable energy infrastructure and technologies. These measures are strongly interlinked, and their full implementation will reinforce their impacts. Under component P2C2, reforms and investments planned under the “Digital businesses – Real Time Economy programme” (measures P2C2R1 and P2C2I1), under “Virtual Finland” (investment P2C2I2) and under “Accelerating key technologies (microelectronics, 6G, artificial intelligence and quantum computing)” (investment P2C2I3) share with RDI funding measures considered under component P3C3 the same objective of increasing the country’s [total factor] productivity and competitiveness. Similarly, the digitalisation of the services under “Virtual Finland” pursues a very general objective of the Finnish plan to create new digital services and replacing existing processes, such as in several measures planned under policy area 3, especially reform P3C1R3 the “Streamlining of work- and education-based immigration and recruitment of international talents”. Measures proposed under component P3C1 appear markedly coherent as they all aim to raise employment and to contribute to meeting the government’s ambitious employment target of [75%]. This is done by improving the integrated employment and other types of services (e.g. the Nordic model of public employment services, the one-stop-shop Ohjaamo youth centres, the work capacity services) and by activating and/or bringing different groups in the labour market (e.g. older cohorts, youth, people with partial work capacity, international experts). The two reform measures under component P3C2 supporting the continuous learning reform (upskilling and reskilling) are both mutually coherent and coherent with the national reform measures, hence providing a comprehensive reform package. While the proposed two measures addressing higher education under component P3C2, i.e. digitalisation of higher education under the digitalisation programme

for continuous learning and the investment to increase 600 new higher education study places, do not form a very coherent reform and investment package under the RRP, they are linked to ongoing national measures (i.e. 9400 new higher education study places funded through the national budget over the period 2020-22). Also, under component P3C2, while the measure supporting the Åland islands is separate from the mainland Finland measures, the underlying objectives are very similar and mutually supportive.

The measures proposed under policy area 4 are coherent as they all aim to improve equal access to social and healthcare services according to the general principles and criteria defined at the national level. However, there is a loose link between the social and healthcare (SOTE) reform, which addresses the organisation and management of social and healthcare services (i.e. transfer of responsibility from municipalities to welfare areas) and the proposed investments to address the care guarantee and equal access (yet to be regulated and not part of the RRP). Finland does not have a comprehensive national social and healthcare strategy that would provide a strategic basis and a clear roadmap for the proposed national and regional investments.

Complementarity of measures

Many measures also support measures contained in other components or strategies related to the same policy area. In component P2C1, the plan contains investment in the digitalisation of rail transport. Beyond the pure efficiency objective pursued by the initiative, the proposed investment is also expected to help Finland meet its emission reduction targets from the transport sector, which are directly targeted in component P1C4, and smooth its energy transition, as targeted in component P1C1. Under component P2C2, the emphasis is also put on digital infrastructure, in particular developing the quality and availability of communications networks. This is consistent with Finland's need for continued efforts to roll out high-speed broadband and to improve other digital infrastructure. Again, beyond the pure efficiency objective to rationalise logistics that is targeted by the initiative, the planned measures can also be expected to contribute to maintaining economic activity, and thereby employment, in remote areas. Such measures are therefore complementary to the measures proposed under component P3C1 that all aim to increase employment. At the same time, the efforts made to roll out high-speed broadband and to improve other digital infrastructure can also be expected to contribute markedly to facilitating digital access to healthcare services, especially in remote areas, an objective sought through measures proposed under social and healthcare component P4C1. The targeted increase in the number of higher education study places in component P3C2, aims to raise the overall level of tertiary graduates in the country, which, in the longer term, is complementary to the employment objective under component P3C1, and contributes also to alleviation of shortage of health workers and equal access to care, addressed under component P4C1.

None of the measures proposed within any component (be it reforms or investments) contradict or undermine the effectiveness of other measures. There are no significant inconsistencies, where aims and measures of one component might harm those of another. Also, there are no significant conflicts between the aims, the envisaged implementation, and the effects. Due care was given to ensure that implementation timelines of the measures ensure successful delivery.

In view of the challenges faced by Finland, the recovery and resilience plan presents a balanced approach between reforms and investments. As elaborated in Section 4.2 of the plan, it addresses a significant subset of the country-specific recommendations addressed to Finland in the context of the European Semester, making the proposed reforms and investments appropriate. In order to promote wider coherence across instruments, notably with the European cohesion policy funds, a balanced territorial allocation of resources is encouraged.

Conclusion

Taking into consideration the qualitative assessment of all components of Finland's recovery and resilience plan, their individual weight (importance, relevance, financial allocation) and their interactions, the plan contains measures for the implementation of reforms and public investments which, to a high extent, represent coherent actions. This would warrant a rating of A under the assessment criterion 2.11 of Annex V of the RRF Regulation.

5. ANNEX[27]

Measure/ Sub-Measure ID	Measure/Sub-Measure Name	Estimated Costs (EUR m), excluding VAT	Climate		Digital	
			Int. Field	Coeff. %	Int. Field	Coeff. %
P1C1I1	Energy infrastructure investments	155	033	100%	033	40%
P1C1I2a	Investments in new energy technology – Geothermal energy	36	032	100%		
P1C1I2b	Investments in new energy technology – District heating	25	034bis	100%		
P1C1I2c	Investments in new energy technology – Wind energy	50	028	100%		
P1C1I2d	Investments in new energy technology – Solar energy	10	029	100%		
P1C1I2e	Investments in new energy technology – Biomass	40	030bis	100%		
P1C1I3a	Renewable energy investment in Åland – Wind energy	1,7	028	100%		
P1C1I3b	Renewable energy investment in Åland – Solar energy	1	029	100%		
P1C2I1	Low carbon hydrogen and carbon capture and recovery	156	032	100%		

27 While the total cost of Finland's recovery and resilience plan exceeds the total allocation of non-repayable financial support to Finland, Finland will ensure that all spending related to the investments measures mentioned in this table as contributing to climate objectives are fully financed by the funds from the Recovery and Resilience Facility.

Measure/ Sub-Measure ID	Measure/Sub-Measure Name	Estimated Costs (EUR m), excluding VAT	Climate		Digital	
			Int. Field	Coeff. %	Int. Field	Coeff. %
P1C2I2	Direct electrification and low-carbon industrial processes	60	024ter	100%		
P1C2I3	Re-use and recycling of key materials and industrial side streams	110	045bis	100%		
P1C3I1	Replacement of heating systems in buildings from fossil oil to low-carbon forms of heating	70	025bis	100%		
P1C3I2	Low-carbon built environment programme	40	022	100%		
P1C4I1	Public electricity and gas charging and refuelling infrastructure	20	077	100%		
P1C4I2	Private charging infrastructure	20	077	100%		
P1C5I1	Gypsum treatment and nutrient recycling	20	045bis	100%		
P1C5I2	Climate-sustainable measures in the land use sector	10	050	40%		
P2C1I1	Development of quality and availability of communications networks	50			053	100%
P2C1I2	Digirail project	85	071	40%	071	100%
P2C2I1	Digital economy	14			011	100%
P2C2I2	Virtual Finland	9			011	100%
P2C2I3a	Microelectronic value chain	15			021 quater	100%

Measure/ Sub-Measure ID	Measure/Sub-Measure Name	Estimated Costs (EUR m), excluding VAT	Climate		Digital	
			Int. Field	Coeff. %	Int. Field	Coeff. %
P2C2I3b	Development environments for 6G, artificial intelligence and quantum calculations	10			021 quater	100%
P2C2R1	Residential and commercial property information system	14			011	100%
P2C3R1	Effective prevention of money laundering	10			011	100%
P2C3I1	Research investment in cyber security	5			021 quinquies	100%
P2C3I2	Cyber security exercises	5			021 quinquies	100%
P3C1R1	Nordic model of public employment services	20			011	100%
P3C1R3	Streamlining work- and education-based immigration and facilitating international recruitment	20			011	100%
P3C2R1a	Reform of continuous learning – digital skills	4,5			108	100%
P3C2R1b	Reform of continuous learning – green skills	1,5	01	100%	01	
P3C2I1	Digitalisation programme for continuous learning	46			011	100%
P3C2I3	Continuous learning and digitalisation: Åland	2,437			108	100%
P3C3I6	Promoting innovation and research infrastructure – national infrastructures	8			009bis	100%
P3C3I7	Promoting innovation and research infrastructure – competitive funding for innovation infrastructures	25			019	40%

Measure/ Sub-Measure ID	Measure/Sub-Measure Name	Estimated Costs (EUR m), excluding VAT	Climate		Digital	
			Int. Field	Coeff. %	Int. Field	Coeff. %
P3C3I1	RDI funding package promoting the green transition – Leading projects	100	022	100%		
P3C3I2	RDI funding package promoting the green transition – Academy of Finland	45	022	100%		
P3C3I3	RDI funding package promoting the green transition – Business Finland	27	022	100%		
P3C3I4	RDI funding package supporting the green transition – Supporting innovative growth companies	20	022	100%		
P3C4I1	Growth acceleration Programme for small enterprises	10			015	40%
P3C4I2a	Key programmes for international growth – low-carbon, circular economy and digital renewal	5	022	40%		
P3C4I2b	Key programmes for international growth – Health and wellbeing skills and technology	5			015	40%
P3C4I2c	Key programmes for international growth – Programme for growth and exports of water expertise	4	040	40%		
P3C4I3a	Support for the renewal of the cultural and creative sectors – Support for creative industries and event companies to implement pilots	10			015	40%
P3C4I3b	Support for the renewal of the cultural and creative sectors – Structural support for cultural and creative companies and organisations (innovative services, production and operating models)	30			015	40%

Measure/ Sub-Measure ID	Measure/Sub-Measure Name	Estimated Costs (EUR m), excluding VAT	Climate		Digital	
			Int. Field	Coeff. %	Int. Field	Coeff. %
P3C4I4	Sustainable and digital growth in the tourism sector	20			015	40%
P4C1I3	Cost-effectiveness of social welfare and health care	40			095	100%
P4C1I4	Introducing digital innovations for social welfare and health care services	100			095	100%
P4C1I5	Digital healthcare information system on Åland	4,8			095	100%