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Analysis of the recovery and resilience plan of Poland

Accompanying the document

Proposal for a COUNCIL IMPLEMENTING DECISION

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

{COM(2022) 268 final}

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1. EXECUTIVE SUMMARY

The implementation of the recovery and resilience plan is expected to contribute significantly to the recovery from the COVID-19 crisis. The COVID-19 pandemic pushed Poland's economy into a broad-based recession in 2020. After nearly three decades of uninterrupted economic growth, Poland's economy contracted by 2.2% in 2020. The fall in GDP was milder than the EU average, however, as Poland's low exposure to hard-hit sectors and its diversified economic structure cushioned the impact of containment measures on economic activity. Real GDP then recovered strongly in 2021 despite recurring COVID-19 waves and supply chain disruptions, swiftly putting Poland back to its pre-pandemic output path. According to the Euroepan Commission's Spring 2022 Economic forecast, real GDP is expected to decelerate to 3.7% and 3.0% in 2022 and 2023, respectively. After falling to its all-time low in 2020, the unemployment rate is expected to increase again to 3.9% in 2023, mainly driven by the significant inflow of displaced persons from Ukraine, which will increase Poland's labour force. In 2021, the government deficit declined to 1.9% of GDP. The general government debt-to-GDP ratio is expected to decline from 57.1% of GDP in 2020 to some 49.8% of GDP over the forecast horizon. The plan fully uses the estimated grant allocation of EUR 23.9 billion and Poland has requested EUR 11.5 billion of loans under the Recovery and Resilience Facility.

Poland's challenges relate mainly to shifting the economy towards higher value-added and lower emissions while improving the quality of key public services, such as education and training, health, long-term care and a stable and a predictable regulatory environment. The recovery and resilience plan should make a significant contribution to boosting the country's economic rebound and contribute to a green, digital, inclusive and resilient future. Structured around the six pillars, the plan gives a focused response to several of Poland's structural challenges.

The plan is expected to contribute to effectively addressing a significant subset of the structural challenges identified in the country-specific recommendations of 2019 and 2020. The plan's strong focus on energy transformation and the decarbonisation of the economy, sustainable transport, digital transition, improving the labour market relevance of vocational education and training and lifelong learning, improving accessibility and quality of early childhood education and care below the age of three as well as accessibility and quality of healthcare, innovation-enhancing support, addressing labour market segmentation and improving the investment climate can be considered a comprehensive and adequate response to the challenges Poland is facing.

The implementation of the recovery and resilience plan is expected to contribute significantly to economic growth and job creation in Poland, while strengthening economic, social and institutional resilience. RRF support for research and innovation is expected to enhance research commercialisation activities and to facilitate innovation diffusion in the business sector, which is expected to lead to productivity growth in the medium to long term. The RRF support is expected to provide a boost to aggregate demand in the short to medium term, improving the cyclical position of the Polish economy, and thereby mitigating the adverse economic effects of the COVID-19 crisis. The plan also contains several measures contributing to increasing social resilience. They include measures for further development of childcare and long-term care, which are expected to improve the labour market participation of women. Additionally, extending the obligation for social security contributions to all civil law contracts is expected to further reduce the segmentation of the labour market and to provide better social protection to certain workers. Personal income tax reductions envisaged for taxpayers reaching the statutory retirement age and deciding to continue working aim at extending careers and are expected to help decrease income inequalities for the elderly. Resilience of the labour market is expected to be strengthened by measures improving the quality and adequacy of the functioning of Public Employment Services and reaching out to and activating older workers or people from disadvantaged groups through up- and reskilling programmes. Measures to attract and integrate labour migrants as well as to promote flexible forms of employment are expected to further increase the resilience of the labour market.

The plan is expected to contribute to addressing challenges related to the investment climate, notably with regard to the Polish judicial system as well as decision- and law-making processes. In particular, the plan contains measures aiming to reduce the regulatory burden and improve the quality of law-making by reducing the use of fast-tracking procedures and rendering mandatory the use of impact assessments and public consultations. Furthermore, dedicated measures aim to strengthen the independence and impartiality of courts, through the reform of the disciplinary regime applicable to judges.

With 42.7% of its allocation dedicated to climate-related measures, Poland's recovery and resilience plan has a strong focus on climate mitigation and adaptation as well as environmental restoration and contributes to achieving the 2030 and 2050 climate targets. Increasing the installed capacity of onshore wind farms and photovoltaic installations, investments in renewable energy production – in particular offshore wind farms – and renewable and low-carbon hydrogen capacity combined with a set of reforms aimed at facilitating investments in onshore wind should help Poland achieve its 2030 renewables target. A wide programme of replacing coal-fired boilers combined with building renovations will decrease their impact on greenhouse gas emissions and improve air quality. In transport, a comprehensive package of reforms and investments will promote zero-emission mobility (both on roads and railways), multi-modality, road safety and sustainable public transport. The plan also includes reforms and investments aimed at water management in rural areas.

All measures in the Polish plan pass the ex-ante assessment of the 'do no significant harm' principle. Any potential harmful environmental and climate impact is addressed through appropriate assurances that the applicable criteria are to be respected. For some measures contained in the energy or transport components, which are sensitive from a climate and environmental point of view, Poland ensures that no significant harm to the environment be done through a binding commitment to comply with the relevant requirements of the "do no significant harm" technical guidance of the European Commission (2021/C 58/01).

With 21.3% of its allocation dedicated to digital measures, the plan is expected to contribute significantly to the digital transformation of the Polish economy and society. The plan puts strong emphasis on connectivity, which aims to provide access to fast internet connection in white Next Generation Access (NGA) areas, where internet access of at least 30 Mb/s is not guaranteed, and foster commercial investments in modern electronic communication networks. The development of digital skills is one of the objectives of the Digital Competence Development Programme and of the overarching investment in basic digital skills of different groups of the population, including civil servants, teachers, citizens with insufficient basic digital knowledge and people excluded or at risk of exclusion. The new policy for the digitalisation of education, common digital standards for schools and the substantial investment in ICT equipment for schools and teachers aim to ensure equal access to digital education and to support the efficient integration of ICT in teaching and learning. The plan also focuses on improving e-Government services and cybersecurity of the public administration and of the economy, on innovation, labour market, agriculture, green energy and reduction of energy intensity, e-health and transport.

The plan is expected to have a lasting impact on Poland. The plan includes a package of measures aimed at addressing several structural challenges identified in the context of the European Semester. The measures in the plan also are set to facilitate the green and digital transitions and strengthen the growth potential, job creation and economic and social resilience of Poland. The measures presented in this respect comprise structural changes to the administration or relevant institutions and policies. The lasting impact refers to policy areas where the estimated long-term impact on growth potential and employment is significant but also in areas where structural changes are expected to improve social aspects that are not necessarily quantifiable. More specifically, the plan includes relevant structural changes to the public administration and institutions. Notably, reforms to improve the investment climate and to encourage the uptake of digital solutions in the public sector are set to have a lasting impact. The digitalisation efforts across a wide range of public institutions and administration levels have the potential to structurally enhance efficiency and improve the quality of public services. The plan includes several measures to foster the green transition, having a lasting impact on many aspects of the economy, including environmental, health, and competitiveness ones. Several policy changes are envisaged to improve the business environment with a lasting impact on the country's competitiveness and potential for increasing investment. In the area of health, the reform of the hospital supervision system will likely support cost-efficiency and the quality of services. As far as labour market and education are concerned, the plan includes measures that will have a lasting positive impact by increasing labour market participation, limiting labour market segmentation, improving the quality of early childhood education and care below the age of three, modernisation of vocational education and training, and providing up-skilling and reskilling opportunities. Finally, the reform to modernise and simplify public finance management will strengthen Poland's budgetary framework and enhance more efficient management of spending.

The plan proposes a comprehensive and coherent set of milestones and targets that are clear, realistic and with a sufficient level of ambition to achieve the objectives of each component. Indicators attributed to milestones and targets are relevant, acceptable and robust. Poland has set up a comprehensive implementation system with a leading role of the Ministry of Funds and Regional Policy. Concretely, the Ministry is responsible for monitoring the implementation of the plan, verification of achievement of milestones and targets, reporting to the European Commission, establishing procedures for the implementation of the audit, and for drawing up and submitting payment requests and management declarations to the European Commission. The plan also provides adequate information on coordination and reporting mechanisms between the Ministry and other actors in charge of the implementation of investments and reforms. The same applies to the information concerning the assurance of management verifications, in particular for the fulfilment of milestones and targets.

Overall, sufficient information and supporting documents has been provided to conclude that the estimated total cost of the plan is reasonable and plausible, commensurate to the expected national economic and social impact, and additional to other funds. The calculations and the methodology and assumptions made for the cost estimates of the various measures of the plan are clear and understandable. Poland has also provided a sufficient volume of justification and evidence to underpin the reasonability and plausibility of those cost estimates. These are most often built on the basis of the previous projects carried out for similar investments in the past. The plan does include some operational costs which cannot be considered as recurring because their nature is temporary and exclusively limited to the achievement of the relevant investment or reform. As regards additionality, the plan provides information on other sources of EU financing where relevant and sufficient assurance that the same type of cost will not be financed from several sources of EU funding.

The arrangements proposed in the recovery and resilience plan are adequate to contribute to prevent, detect and correct corruption, fraud and conflicts of interests, provided that pending issues are addressed in due time, through specific measures contained in the proposal for the Council implementing decision. The arrangements are expected to effectively avoid double funding and help lower the risks as regards the effectiveness of the fight against corruption.

The plan presents a coherent and comprehensive package of reforms and investments mutually reinforcing each other with a strong reform drive. Synergies between measures in the plan and with other national policies are ensured within components (for instance in the areas of transport, energy and digitisation) as well as horizontally across several components (for instance by improving e-competences in the digital component and increasing labour market relevance of vocational education and training, including upskilling with digital skills, in the education sub-component).

No/insufficient info provided		Satisfactory		Satisfactory, but justification lacking		Partially satisfactory			Unsatisfactory	
(1) **Balanced Response**	**(2)** **CSRs**	**(3)** **Growth, jobs…**	**(4)** **DNSH**	**(5)** **Green target**	**(6)** **Digital target**	**(7)** **Lasting impact**	**(8)** **M & T**	**(9)** **Costing**	**(10)** **Control Systems**	**(11)** **Cohere nce**
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 COVID-19 pandemic had a significant impact on the Polish economy, but the recovery was swift and robust. Before the pandemic, Poland was going through a period of strong economic growth. Real GDP expanded by 4.7% in 2019, driven by a robust performance of both domestic demand. Private consumption was thriving amid high consumer confidence and a buoyant labour market, which was recording all-time low unemployment rates and strong wage dynamics. The COVID-19 pandemic led to a sudden halt of GDP growth in 2020 as containment measures disrupted economic activity and foreign demand plunged. Following the introduction of government restrictions in March 2020, real GDP contracted by 3.8% in the first half of the year. Economic activity then rebounded strongly in the third quarter of 2020, growing by 7.3% q-o-q, but a surge in new infections and the reintroduction of containment measures during the last months of 2020 weighed on recovery. As a result, real GDP contracted by 2.2% in 2020, representing the first recession in Poland in nearly three decades. In 2021, despite recurrent COVID-19 waves, the economy continued a strong growth path, reaching pre-crisis levels of GDP in Q2-2021. Booming private consumption was the main driver of the rebound, supported by high levels of accumulated savings and a strong labour market. All in all, real GDP expanded by 5.9% in 2021, putting Poland back to its pre-pandemic output path.

All sectors of the economy have been affected by the crisis, but the services sector took the hardest hit. At the beginning of the pandemic, the lockdown impacted the economy as a whole. Industrial production fell by 25.1% in April 2020 in year-on-year terms, driven by an unprecedented drop in manufacturing, particularly in the car industry. Shop closures also led to a plunge of retail sales, which decreased by 11.8% year-on-year in April 2020. Yet, as restrictions became more targeted and supply chain disruptions observed at the beginning of the pandemic gradually disappeared, most economic sectors saw a strong and sustained recovery from May 2020 onwards. Nevertheless, restrictions on activities that require face-to-face interactions weighed on the recovery of the services sector. After the historical drop in confidence and turnover during the first wave of the pandemic, the services sector only managed to partially recover the losses during the 2020 summer period. The recurrent waves of the pandemic further contained the recovery, resulting in a drop of almost 6.3% in gross value added in 2020 in services, vs. the -2.6% in the economy as a whole[1]. Still, the sector was aided by significant public support, mainly in the form of loans and grants to companies, which prevented a sharp and sudden rise in bankruptcies.

The macroeconomic scenario contained in Poland's Recovery and Resilience Plan expects a rebound of economic activity in 2022-2023, following the COVID-19-induced contraction in 2020. The macroeconomic scenario underpinning the plan had 31 March 2021 as a cut-off date. Thus, the projections do not take into account economic developments for 2021 and the beginning of 2022, including the real GDP growth publication for 2021, which stood at 5.9%. For 2022, the forecast projects real GDP growth at 4.3%, driven by a strong pick-up in private consumption and investment, which is expected to be helped by public investments financed from the Recovery and Resilience Facility and by the drawing of Multiannual Financial Framework (MFF) funds. Growth is then expected to gradually moderate in 2023 and 2024 to around 3.7%-3.5%. The output gap is estimated to be closed by 2022 with output above potential thereafter. According to the plan, inflation is set to return to the 2.5% corridor over the forecast horizon.

Against this backdrop, the scenario expects unemployment to peak in 2021 before gradually falling to 2.0% in 2024. Poland's labour market was showing signs of overheating before the crisis, with unemployment reaching an all-time low at the beginning of 2020 and wage growth standing at 7.3% in 2019. The COVID pandemic had a limited impact on the labour market, mainly due to sizeable fiscal support, which encouraged cutting worktime instead of jobs. According to the baseline scenario of the plan (that does not factor in the positive impact of the plan), unemployment is expected to gradually decrease to 2.0% in 2024. Structural challenges in the labour market remain, however, despite its good performance since the recovery took hold. These include a low labour market participation of some population groups, segmentation in employment protection, differences in employment rates across regions, as well as labour and skill shortages. Although the employment rate increased to all-time highs, women's participation in the labour market remains significantly below that of men, as they generally bear a larger share of care responsibilities. Despite investments in online education, the COVID-19 pandemic has deepened inequalities in education, affecting in particular disadvantaged students, which may also lead to increased early leaving from education and training in the long run. Labour shortages continue to be a significant problem, as it limits the ability of the economy to restructure towards high-growth and highly productive sector. Income inequality in Poland remains around the EU average, while the share of people at risk of poverty or social exclusion has been decreasing steadily in recent years, standing below the EU average in 2019.

The pandemic had a strong negative impact on public finances. The budget deficit reached 6.9% of GDP in 2020. By 2023 it is set to decline to 4.4% of GDP, according to the 2022 Spring Commission forecast. Discretionary policy measures in response to the pandemic

[1] The figure for economic activity in services refers to the gross value added in wholesale and retail trade, transport, accommodation and food service activities (NACE rev. 2 G-I) and arts, entertainment and recreation and other service activities (NACE rev. 2 R-U).

amounted to 4.5% of GDP in 2020. For 2022, the baseline scenario of the plan (which does not take the impact of the plan into consideration) expects a deficit of 4.2% of GDP, which is expected to decline to 2.5% of GDP by 2024. This does not take into consideration the impact of the measures included in the plan on public finances. After an increase in the debt-to-GDP ratio to 57.1% due to the combined effect of the macroeconomic downturn and fiscal package to counteract the crisis in 2020, the 2022 Spring Commission forecast projects the debt to reach 49.8% of GDP in 2023.

The plan specifies a number of risks for the macroeconomic scenario. Downside risks mainly relate to a stronger-than-expected rise in inflation stemming from supply constraints and labour shortages, which could weigh on purchasing power and private consumption growth. New COVID-19 waves, especially given Poland's relatively low vaccination rate, could also hinder the recovery. On the other hand, a better-than-expected recovery of Poland's main trading partners could boost growth, representing a significant upside risk. On balance, risks are tilted to the downside, but the outlook remains broadly uncertain.

Table 1: Comparison of macroeconomic developments and forecasts

	2019	2020	2021	2022		2023		2024
	COM	COM	COM	COM	RRP	COM	RRP	RRP
Real GDP (% change)	4.7	-2.2	5.9	3.7	4.3	3.0	3.7	3.5
Inflation (% change)	2.1	3.7	5.2	11.6	2.8	7.3	2.6	2.5
Employment (15-74 years, % change)	0.0	0.0	1.5	0.4	0.0	0.3	0.0	0.0
Unemployment rate (%)	3.3	3.2	3.4	4.1	3.0	3.9	2.5	2.0
GG net lending (% of GDP)	-0.7	-6.9	-1.9	-4.0	-4.2	-4.4	-3.2	-2.5
Government debt (% of GDP)	45.6	57.1	53.8	50.8	-	49.8	-	-

Source: Commission 2022 Spring Forecast; Recovery and Resilience Plan (RRP)

The forecast underpinning the plan is different than the latest Commission's forecast, but this is largely due to different cut-off dates[2]. The forecast underpinning the plan had as a cut-off date the 31 March 2021. It has not been updated after the Plan was submitted in May 2021. At the same time, the latest European Commission projections are from the Spring 2022 forecast, with a cut-off date of 29 April 2022. Consequently, differences between the forecast in the plan and the European Commission's forecast mainly stem from different cut-off dates, which result in varying assumptions and data underpinning both forecasts.

[2] The forecast underpinning the plan had 31 March 2021 as a cut-off date, as it was not updated after the Plan was submitted in May 2021. In contrast, the European Commission projections are from the European Commission's Spring 2022 forecast (cutoff date 29 April 2022). Differences from the forecast underpinning the plan and the European Commission's forecast mainly stem from economic developments between both cut-off dates. In particular, the forecast underpinning the plan does not account for the significant acceleration on inflation from mid-2021 onwards. It does not account for the better than expected performance of the Polish economy during the second half of 2021, either, nor for Russia's unprovoked invasion of Ukraine.

The forecast underpinning the plan is slightly more optimistic than the European Commission's forecast. The 2022 Commission Spring forecast expects real GDP growth to be below that of the RRP forecast. In particular, the Commission 2022 Spring forecast expects real GDP to grow by 3.7% and 3.0% in 2022 and 2023, respectively. This is less optimistic than the forecast underpinning the plan, which projects growth at 4.3% in 2022 and 3.7% in 2023. The European Commission's less optimistic forecast is largely due to the inclusion of the Russian invasion of Ukraine into the forecast, which significanly clouded the outlook for the Polish economy. In line with the Polish authorities, the Commission considers that domestic demand, particularly private consumption, will be the main growth driver over the forecast horizon. For net exports, the MoF projections expect a negative contribution of net exports to growth in 2022, before remaining broadly stable in 2023. This goes against the European Commission's forecast, which project a positive – albeit small – contribution of net exports to growth in 2022 and 2023. Regarding the labour market, the European Commission forecast projects the unemployment rate to increase in 2022 due to the significant inflow of displaced persons from Ukraine. For inflation, the Commission forecast foresees a substantially stronger acceleration of inflation over the forecast horizon. For the general government deficit, the Commission forecasts a better performance compared to the Plan for 2022, but worse for 2023, mainly due to the assumptions on cost of aid to displaced persons from Ukraine. Years beyond 2023 are currently not covered by the Commission forecast. The macroeconomic and fiscal outlook continue to be affected by high uncertainty related to the COVID-19 pandemic and Russia's unprovoked invasion of Ukraine.

The macroeconomic scenario of the plan is overall plausible. The economic scenario is identical to the one contained in the 2021 budget, National Reform Programme, Stability and Convergence Programme and has been developed by the Ministry of Finance. The economic projections are broadly similar to those from other international institutions and independent government agencies.

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

Poland has made fast progress in catching up with the EU average in the years following EU accession, driven by a significant inflow of foreign direct investment and close access to the EU market. GDP per capita in Poland increased from 63% of the EU average in 2010 to around 73% in 2019, in Purchasing Power Parity terms. This period of swift convergence was based on deeper integration of Poland's economy into global value chains, mainly thanks to the relative competitiveness of Poland's businesses, including lower labour costs compared to the EU average. However, despite considerable progress in recent years, Poland faces significant long-term structural challenges that can hinder the country's potential to maintain a sustainable growth path, resilience and cohesion in the coming decades.

An overarching challenge that Poland faces is the transition towards a higher value-added economy. This includes increasing Poland's research and innovation capacity in order to upgrade its growth model from cost-competitiveness towards sustainability and more advanced products and services in the medium to long term. Measures in this area should focus on improving public-private cooperation and knowledge transfer, strengthening the mechanisms and support structures for the transfer of research, as well as supporting the commercialisation of research and innovation, which includes generally improving the R&D&I governance framework. Improving investment in innovation and R&D

through e.g. fiscal incentives, regulatory changes, increased Science, Technology, Engineering and Mathematics (STEM) education and public investment will be key to help Poland develop products and services that will allow its economy to move up the value-chain.

The pandemic has amplified the need for tackling structural deficiencies in Poland's social services, labour market and education system. Social benefits should be better targeted to those in need. Challenges persist in the provision of social services, such as the underdeveloped childcare and long-term care services. These also hinder the labour market participation of various groups, in particular of women. Labour shortages have limited Poland's growth potential and ability to move up the value chain.

Significant skills gaps as well as a decrease of the working-age population contribute to the labour shortages. To address the declining number of people at working age, it is important to encourage labour migration and the integration of migrants, particularly the high-skilled. As nearly half of the adult population lacks basic digital skills and the overall adults' participation in learning is low, enhancing digital skills and efficient coordination of life-long learning policies is paramount. Increasing labour market participation of women, older people, persons with disabilities and their carers, those with lower qualifications, removing obstacles to more permanent forms of employment and improving the labour market relevance of skills is needed for more resilience in the future. Moreover, the frequent use of non-standard labour contracts (work contracts based on civil law) has led to labour market segmentation. While it has been limited in recent years, it is important to tackle the varying social protection. The pandemic has indicated that expanding and enhancing flexible working arrangements (e.g. distance working and flexible working time schemes), notably under permanent types of employment, may also help support groups with lower activity rates to find permanent employment.

The Polish healthcare system is inefficient and excessively relies on hospitals, based on the most costly type of care. Shifting towards primary and ambulatory care is of particular importance, as healthcare spending is expected to grow considerably in the medium to long term, increasing the burden on public finances. Some hospitals run substantial debts and with low occupancy rates, while many medical procedures currently performed in hospitals could be performed at lower levels of care and at lower costs. Therefore, a shift from hospital to outpatient care is important and should be underpinned by a clear vision for reform and consolidation of the hospital sector. The primary care system is understaffed and overstretching its services. Its potential remains untapped, thus overburdening higher levels of care. At the same time, the hospital system suffers from chronic underfunding, especially in terms of human resources. Due to unfavourable conditions, such as low salaries, medical professions are not popular, and a significant 'brain drain' can be observed. The shortage in human resources places Poland in the lowest ranks compared with other Member States, and makes it necessary to keep professionals working beyond their retirement ages (with 40% of medical doctors over the pensionable age in some specialisations). Access to care differs among regions. Although progressing, e-health services are underdeveloped and underused.

Since ensuring a favourable business and investment environment is important for the economy, especially to support the recovery of all sectors, Poland should address a number of challenges in this area. Fostering a stable and predictable regulatory framework, diminishing burdensome administrative requirements and procedures and frequent changes to key laws (in e.g. taxation, social security contributions, energy policies), improved use of experts, impact assessments and meaningful social partner consultations, and limiting the use of fast-track legislative procedures that do not require public consultations will help build a more resilient economy. Poland's low private investment share to GDP compared to the EU average and peer countries could hinder its ability to transition into a more knowledge-based economy. Ensuring equal treatment of economic operators by an independent judiciary is also essential for a solid investment climate. Safeguarding and upholding the rule of law is a cornerstone for making the Polish economy more resilient.

Safeguarding sound public finances is crucial to establishing the right conditions for mitigating the negative consequences of the pandemic and for making the economy more resilient in the future. Poland will face high expenditure pressures in the medium and long term as an effect of ageing of the population, an expected lower inflow of EU funds as Poland catches up with the EU, investments in the green transition and supporting the move towards a more knowledge-based growth model. At present, expenditure management in Poland has several weaknesses resulting from an outdated budget system and a frequent circumvention of fiscal rules. In view of limited expected tax collection gains, efficient and effective expenditure management will be key to ensuring fiscal sustainability.

2.3. Challenges related to the green and digital transition

An overarching objective of the Recovery and Resilience Facility is to support the twin green and digital transitions. The Polish economy is lagging in bringing emissions reductions and energy sector developments into line with EU targets and in reaping the benefits of the digital transition, as measured in the Commission's assessment of Poland's 2020 National Energy and Climate Plan (NECP) and the 2021 Digital Economy and Society Index (DESI), respectively. To advance the green and digital transitions of society and of the economy, Poland needs to increase its ambitions and commit to long-term, consistent policies. This section recalls where Poland stands relative to the EU targets related to the green and digital transitions.

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 shall contribute to achieving the 2050 climate neutrality objective, and the 2030 climate and energy targets, taking into account Poland's national energy and climate plan. They should also contribute to meeting environmental targets for waste, pollution control, sustainable mobility, biodiversity protection and restoration, marine and water resources, and support the transition to sustainable food systems and to a circular economy as appropriate, while ensuring that nobody is left behind.

To transition towards a climate neutral economy, Poland needs a progressive approach to decarbonisation and energy transformation. The Polish economy is very energy-intensive and highly dependent on fossil fuels. Around 72% of electricity is still generated in conventional coal power plants. Comprehensive planning, timely investment as well as the adoption of ambitious measures to support the energy transformation in line with the Green Deal are therefore essential. Lack of action in this respect would affect the competitiveness of the Polish economy in the coming decades due to, inter alia, increased energy costs. In addition, the reliance on fossil fuels hampers air quality, generating health problems and the associated health care costs. To address the issue, Poland should invest more in renewable energy, zero- and low-emissions heating and cooling, energy efficiency improvements in buildings, replacement and phasing out of inefficient and coal-based district and domestic heating, supporting energy savings and tackling energy poverty, as well as promoting zero- and low-emissions, smart and safe mobility and sustainable public transport. Moreover, more effort is needed in supporting investment in low-carbon innovation as well as energy- and resource-efficiency in industry sectors. Enhancing energy system integration across electricity and heating, industry and transport sectors is also necessary.

Transition towards a low-carbon economy

Poland is still one of the most energy-intensive economies in the EU, despite improvements over the last years. The greenhouse gas emissions intensity of the Polish economy is one of the highest in the EU due to the coal-based power generation and the economy's reliance on heavy manufacturing. Air quality stands among the lowest in the Union, posing major environmental and health concerns. Poland's 2020 NECP shows that significant additional measures will have to be implemented to achieve the national 2030 greenhouse gas emissions reductions target – for sectors not covered by the EU Emissions Trading System – of 7% below 2005 levels.

A comprehensive and just transition to a climate-neutral economy calls for a clear strategy to reduce Poland's coal dependency. Coal-based fuels play a key role in electricity and heat generation, industry, transport and agriculture sectors. Industry accounted for 22% of the national emissions in 2017. This sector has a considerable potential to reduce emissions through, for example, the electrification of industrial processes and improvements in energy- and resource-efficiency. Significant efforts are necessary to address emissions from the transport sector, accounting for 15% of emissions in 2017 and increasing year on year primarily in road transport. This includes shifting towards zero- and low-emission mobility and notably shifting from roads to rail and other modes of sustainable transport. Poland should also consider decarbonising the agricultural sector which accounted for around 10% of emissions in 2017. Finally, Poland should increase the share of renewables in energy production.

Increasing the share of alternative zero or low-emission energy sources

While the share of renewable energy has increased over the past years, Poland should accelerate the deployment of renewable energy in order to contribute to the decarbonisation of the economy in line with the 2050 targets. Pursuant to the Renewable Energy Progress Report[3], in 2018 Poland was identified as one of the few Member States that was at a severe risk of failing their 2020 renewable energy target. While the 2020 target has been met, further accelerated progress is needed in line with the Union's new climate targets.

To achieve climate neutrality Poland will need to significantly step up its ambitions by increasing energy production from renewable energy sources. Not only is the current 2030 target considered unambitious compared to the applicable benchmark but the measures included in Poland's 2020 National Energy and Climate Plan are considered insufficient even to achieve that target. The national contribution to the 2030 EU renewable energy target is 2-4 percentage points below the share of 25% by 2030 based on the formula in Annex II of the Governance Regulation. As established in the Commission's assessment of Poland's 2020 National Energy and Climate Plan (NECP), the planned policies and measures will not allow Poland to achieve the planned renewable electricity consumption of 32% by 2030.

[3] Renewable Energy Progress Report, COM(2020) 952 final

Additional measures need to be put in place to incentivise renewables. This includes supporting large-scale installations, such as offshore wind where a dedicated support scheme is needed. To stimulate investments in onshore wind farms, the regulatory environment should be improved by relaxing distance restrictions on the onshore wind installations that were introduced in 2016. Further measures, notably a clear long-term auctioning plan, and support to facilitate the production of renewable gases (e.g. biomethane) and their injection into the gas networks should be explored, while an increase of renewables in heating should be coupled with the modernisation of the district heating network and building renovations. With regard to electricity infrastructure, the integration of renewables requires the strengthening and expansion of transmission and distribution lines across the national territory and the development of storage capacity. Other important measures include the setting up of an enabling framework for renewable self-consumption and energy communities, and promoting market-based direct power purchase agreements (PPAs).

Reducing energy consumption

The poor energy efficiency of buildings is one of the key challenges in Poland impacting the level of energy consumption and air quality. Public and residential buildings often have low technical standards and approximately 70% of houses are poorly insulated[4]. Poland's progress towards the 2020 indicative national energy efficiency targets was considered insufficient for primary energy consumption and for final energy consumption. Although the level of ambition has been increased compared to the 2020 target, Poland's planned national contribution to the 2030 energy efficiency target is modest[5].

Air pollution is a major environmental challenge across Poland, with several regions severely affected (e.g. Małopolska and Silesia). This pollution comes to a large extent from individual heating sources in residential buildings and from road congestion in urban areas. Around 3 million inefficient and polluting boilers need a replacement.

District heating networks are often inefficient and heat generation is mainly coal-based (about 78%) with a limited coverage, especially in small and medium-sized towns. As 42% of Polish households are connected to district heating systems, Poland should address this challenge by phasing out coal-based heat sources and replacing them with less carbon-intensive sources. These investments should be combined with more connections of houses to district heating networks and with a reduction of heat demand by better insulating houses and other buildings.

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[4] Castellazzi, L., Zangheri, P., Paci, D., Economidou, M., Labanca, N., Ribeiro Serrenho, T., Zancanella, P. and Broc, J., Assessment of second long-term renovation strategies under the Energy Efficiency Directive, EUR 29605 EN, Publications Office of the European Union, Luxembourg, 2019, ISBN 978-92-79-98727-4, doi:10.2760/973672, JRC114200; and 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. See also European Commission SWD(2021) 365 final/2

[5] 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, ISBN 978-92-76-27013-3, doi:10.2760/678371, JRC122862. See also Tsemekidi-Tzeiranaki, S., Paci, D., Cuniberti, B., Economidou, M. and Bertoldi, P., Analysis of the Annual Reports 2020 under the Energy Efficiency Directive, EUR 30517 EN, Publications Office of the European Union, Luxembourg, 2020, ISBN 978-92-76-27416-2, doi:10.2760/180952, JRC122742

Poland's investment support schemes should be streamlined and better targeted, notably with respect to low-income households. Effective investment support should be coupled with a proper monitoring and control of existing rules and standards, e.g. related to emission standards for local heaters and quality standards for fuels. The table below gives an overview of Poland'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.

Reduction of human impact on the environment

The effects of climate change in Poland, in particular the sustained increase in average temperature and the growing intensity and frequency of extreme weather events, puts pressure on natural resources, the economy and social wellbeing. Adapting to climate change and making the economy more resilient to its impacts both in the short- and long-term remains a major challenge for Poland. Urban and infrastructure development should be adjusted for the expected impacts of climate change such as heat waves or floods. Similarly, agricultural practices and rural land management should avoid exacerbating the already prevailing impacts of climate change such as drought.

Rural areas face challenges in the delivery of sustainable water and sanitation services. The prioritisation of investments needs to be improved to maximise the environmental benefits and cost-efficiency of projects. Water resources are increasingly scarce, also as a consequence of climate change. The retention of water in agricultural areas is low, in particular due to existing, inadequate drainage systems, which increase the water outflow and aggravate the consequences of droughts. Raising awareness of climate change impacts on the availability of water for agriculture should also be prioritised.

The problems related to the presence of pollutants and hazardous waste accumulated in the past in a way that endangers human life or health are still present. The presence of hazardous waste in the environment can result in emissions to surface and groundwater, emissions to air, as well as pollution of land surfaces, and ultimately a risk to human health or life. In addition, remnants of the Baltic Sea seabed war remain a major challenge and pose a threat to the implementation of energy, marine and environmental projects.

Finally, to support the green transition and avoid potential bottlenecks in achieving it, there is a need to enhance the development of relevant skills and to foster climate literacy. If not systematically addressed, Poland's relatively low proportion of graduates in Science, Technology, Engineering and Mathematics (STEM) skills, the lack of education in 'green' skills and the generally low participation of the adult population in learning could undermine efforts in transforming the economy and society towards climate-neutrality.

The table below gives an overview of Poland'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 2: Overview of Poland's energy and 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 (%)	21%	14%	-7%	As in ESR
	National target/contribution for renewable energy: share of energy from renewable sources in gross final consumption of energy (%)	11.3%	15%	21%-23%	Unambitious (25% is the result of the RES formula)
	National contribution for energy efficiency:				
	Primary energy consumption (Mtoe)	100.9 Mtoe	96.4 Mtoe	91.3 Mtoe	Modest
	Final energy consumption (Mtoe)	71.8 Mtoe	71.6 Mtoe	67.1 Mtoe	Modest
	Level of electricity interconnectivity (%)	4%	4%	8.7%	N.A.

Source: Assessment of the final national energy and climate plan of Poland, SWD 2020 920 final

Sustainable transport

The GHG emissions from transport in Poland have increased by 219% over the period 1990-2019. This trend is largely driven by an increase in road transport traffic, and leads to significant air quality, congestion and safety issues. It is thus key to step up measures to decarbonise road transport and promote clean modes of transport not based on fossil fuels.

A comprehensive set of measures is needed to address transport-related emissions, urban congestion, and quality and coverage of public transport services. Even though some Polish cities have adopted sustainable urban mobility plans, they are not properly implemented. Despite substantial investments in urban mobility, half of the inhabitants of urbanised areas have no direct access to public transport (average distance to public transport is 2 km), which hampers its use and lowers the mobility of many inhabitants. Between 2008 and 2018, the length of regional and sub-urban bus lines in Poland decreased by more than 50%. As a result, around 65% of the rural population is devoid of public transportation.

The modernisation of railway lines in Poland to TEN-T standards is still lagging behind. This is linked to the unsatisfactory technical condition of rail infrastructure, capacity bottlenecks and lengthy track works which has an adverse impact especially on rail freight competitiveness. Passenger rail is not an attractive alternative to private cars due to a low frequency of operations and an insufficient integration with other transport modes. Addressing interoperability is particularly important for long-distance and cross-border freight rail traffic. The focus of infrastructure investments in Poland should be on the completion of key sections and nodes of the rail TEN-T Core Network, especially rail Core Network Corridors. In the same vein, linking rail better with other transport modes and hubs and addressing accessibility issues would contribute to modal shift and support environmental priorities. Poland also lacks a comprehensive institutional set-up for the management of its approach to intermodal transport, including its governance, and does not take into account functional interdependencies between investments in different transport modes. The swifter deployment of the European Rail Traffic Management System (ERTMS) is needed for increased safety and capacity, reduced maintenance costs for infrastructure, higher performance and creation of a seamless rail transport.

The capacity and quality of road infrastructure in Poland have improved over the recent years, contributing to significant growth in road transport, but also to an associated increase in greenhouse gas emissions. Measures to stimulate the shift towards zero-emission mobility, sustainable public transport, and alternative fuels are needed. Access to charging of electro vehicles and hydrogen infrastructure needs to be developed, being one of the main catalysers for the zero-emission mobility.

Poland has improved its road safety in recent years, but still reports 50% more road fatalities than the EU average. To enhance road safety, Poland should focus on enforcement, education campaigns, and the infrastructure protecting vulnerable road users.

Poland should explore its potential in clean hydrogen, as it is expected to play an important role in replacing fossil-based hydrogen or fossil fuels, in particular in transport and industrial applications. The development of zero-emission hydrogen rolling stock would also offer a viable option complementing railway electrification in Poland.

Digital dimension

The recovery and resilience plan should contribute to Poland's digital transition and at least 20% of the financial allocation needs to contribute 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, primary and secondary school education, 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, while ensuring inclusiveness.

Poland faces a number of challenges that slow down the digital transformation and its potential towards a higher value-added economy. Poland ranks 24th amongst EU Member States in the Digital Economy and Society Index (DESI) 2021. An integrated and strategic approach to connectivity, RD&I, digital skills and the broader digitalisation of the economy is still needed to keep up with digital technological developments, reap the economic benefits of digitalisation and narrow digital gaps in education and society.

Connectivity

In terms of broadband connectivity, Poland faces difficulties in meeting its targets. Although the coverage of networks capable of providing 30 Mbps speed or higher for all citizens was intended to be achieved by 2020, this has not been accomplished. While Poland continues to have the highest mobile broadband take-up in the EU and very competitive prices, fast internet is not yet available for all households (in 2020, 77% of households had access to fixed broadband) and many rural areas are not connected to fixed broadband at all. Although many legislative and administrative initiatives were taken to create a better basis for broadband investments (especially the 'Mega-law' which implements the Broadband Cost Reduction Directive rules), there are still barriers hampering the ultra-fast broadband roll-out, such as the uneven application of laws by local authorities, reluctance of the owners of power, sewage, and water networks to give access to power poles, and water and sewage infrastructure, obstacles in accessing buildings.

Connectivity should be ensured to prevent a further deepening of the urban/rural divide and to enable the use of digital technologies. Priority should be given to ensuring access to Next Generation Access broadband infrastructure, especially in rural areas, as well as to strengthening Broadband Competence Offices at national and regional level. An effective deployment of the 5G networks may be helpful in assuring reliable and fast connectivity in rural and remote areas. However, Poland has still not assigned any frequencies in the 5G pioneer bands, namely the 700 MHz and 3.6 GHz bands, keeping the total harmonised 5G spectrum assignation at 0%. In order to accelerate the 5G network deployment, Poland should swiftly assign radio frequencies in the 700 MHz and 3.6 GHz bands on objective, transparent, pro-competitive, non-discriminatory and proportionate criteria, in accordance with the European Electronic Communications Code.

Digital Skills

Poland still faces significant challenges in improving basic digital literacy and advanced skills of the population. In 2019, only 44% of the adult population had at least basic digital skills. In 2020, ICT specialists represented a lower proportion of the workforce (3.4%) against the EU average (4.3%) and women constituted only 15% of ICT specialists. The education offered at post-graduate level in advanced digital skills is to be improved, as both the proportion of master's programmes and the proportion of places offered to students, with contents on cybersecurity, high-performance computing or data science are lower in Poland than the EU average. Only the proportion of masters in artificial intelligence is higher in Poland than in the EU[6]. These challenges create serious bottlenecks for developing a digital economy and society, as well as innovation and competitiveness, which is demonstrated by increasing skills gaps in the labour market. Public investments in life-long learning and upskilling are needed, given that investments by Polish enterprises for upskilling their workforce are comparatively low. Nevertheless, Polish enterprises have recently started investing more in ICT training for their employees, and 18% of them offered specialised ICT training to their employees in 2020, resulting in a significant increase from the previous year (13%). Poland has also continued the implementation of national initiatives on digital competencies, but neither a new comprehensive digital competences strategy nor a focused digital strategy for schools have been adopted so far. Despite significant efforts, various elements that are needed to ensure economy- and society-wide digital skills development are either not addressed in an integrated manner or lack sufficient ambition. Particular attention is needed to ensure equal access to quality education and training, including IT tools and equipment, effective integration of

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[6] Righi, R., Lopez Cobo, M., Alaveras, G., Samoili, S., Cardona, M., Vazquez-Prada Baillet, M., Ziemba, L.W. and De Prato, G., Academic Offer of Advanced Digital Skills in 2019-20. International Comparison,2020 JRC121680; Gomez Losada, A., Lopez Cobo, M., Samoili, S., Alaveras, G., Vazquez-Prada Baillet, M., Cardona, M., Righi, R., Ziemba, L.W. and De Prato, G., Estimation of supply and demand of tertiary education places in advanced digital profiles in the EU, 2020JRC121683

ICT to enhance teaching and learning at all levels, as well as the development of the digital pedagogy competences of teachers.

Digitalisation and innovation of SMEs

Despite efforts undertaken by Poland to improve the level of digitisation of businesses, companies - particularly small enterprises - show a slow uptake of digital technologies. Only 23.7% of Polish companies are innovative, against an EU average of 50.3%[7]. 52% of Polish SMEs have at least a basic level of digital intensity, which is slightly below the EU average of 60%. Compared to last year, Polish businesses slowly continue to take advantage of the opportunities offered by digital technologies. They are participating in online commerce, with 13% of SMEs selling online and 5% selling across border to other EU countries. However, only 10% of small enterprises are highly digitalised, compared to 50% of large companies. The share of high-tech exports has stagnated in recent years and skills gaps have further increased the challenges faced by businesses for improving their innovation capacity, which threatens the sustainability of Poland's growth model. Only around 10% of Polish enterprises offer distance-working arrangements, which indicates insufficient digitalisation and ability to adapt to new conditions. Advanced technologies are slowly gaining popularity among Polish enterprises with 15% of them using cloud solutions and 18% integrating AI technology in their operations. However, the number of AI firms over GDP in Poland (0.58 firms per € bn GDP) lies below the EU average (0.71) (JRC AI TES Dataset 2020[8]). Meanwhile, only 14% of Polish enterprises actively use social media while 29% use electronic information-sharing. E-invoices and big data are not yet widely popular. Despite a high share of graduates in science, engineering and computing (20.1%), which is in line with the EU average, businesses have difficulties in hiring specialists, and in particular small businesses have limited access to specialised ICT training.

E-government and digital public administration

Poland performs below EU average in the area of digital public services. The level of online interaction between public authorities and the general public shows only 49% of online users actively using e-government services (EU average 64%). On the availability of digital public services, Poland also scores below the EU average: only 65 out of 100 on digital public services for citizens, compared to the EU average of 75, and 67 out of 100 on digital services for businesses (EU average of 84). At the same time, positive developments can be seen with regard to open data maturity, where Poland classifies well above the EU average. The development of e-services is an essential part of the digital transformation of the economy and public administration, at all levels of governance. Efforts are needed to support the use of ICT and the development of e-government. To modernise the public administration, including the civil service, investments are needed in product testing laboratories, digitalisation of IT systems, and deployment of human resources and training programmes. Only 28.6% of the municipalities have digitalised studies, plans and maps, which indicates the need for investments in the digital capacity at local and regional level.

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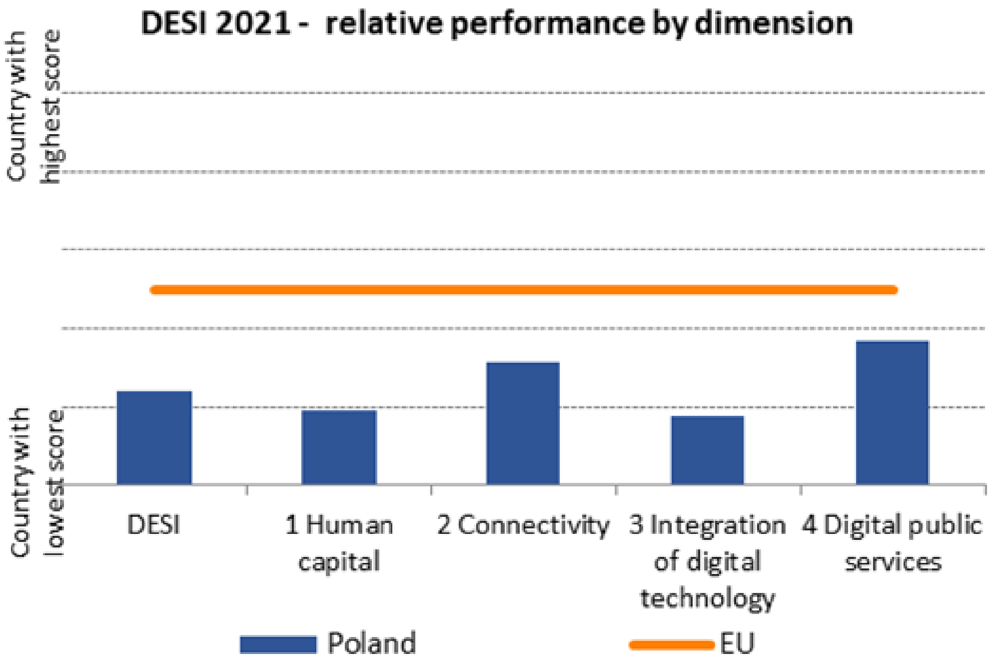
[7] 2018 Community Innovation Survey, https://ec.europa.eu/eurostat/web/products-eurostat-news/-/ddn-20210115-2

[8] Vazquez-Prada Baillet, M., Samoili, S., Righi, R., Cardona, M., Lopez Cobo, M. and De Prato, G., Tecno-Economic Segment, European Commission, 2020, JRC120287. https://data.jrc.ec.europa.eu/collection/id-0126

Digital innovation

To capitalise on the digital transformation and reinforce economic resilience, Poland needs significant reforms and investments beyond digital equipment and tools. The innovation capacity of the Polish economy is under structural threat due to a weak R&D&I performance, including its governance. Structural improvements to the entire innovation ecosystem are needed to facilitate the uptake of (digital) technology in businesses, building on increased access to internet and networks by businesses and households, and hence to support productivity growth. This requires efforts e.g. to improve public-private cooperation and support structures for knowledge transfer between science and businesses (including through strengthening Technology Transfer Offices in universities with improved governance mechanisms), support for (international) R&D projects, and more broadly improving the coordination of innovation policies.



Note: EU aggregate corresponds to EU27, based on 2021 DESI report

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 are integrated into the European Semester since the 2020 cycle. This provides a strong commitment towards sustainability in the coordination of economic and employment policies in the EU. In that respect, this section outlines Poland'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 (green transition, fairness, digital transition and productivity, and macroeconomic stability), indicating possible areas where investments and reforms in line with the objectives of the Facility could further accelerate the progress on the SDGs.

Green Transition

Between 2014 and 2019 Poland made significant progress across several indicators underpinning SDG 7 ('Affordable and clean energy') and SDG 13 ('Climate action') but additional reforms and investments will be necessary to close the gap with the EU average in a number of those areas. While the greenhouse gas emissions intensity of energy consumption decreased from 92 in 2014 (vs 2000 benchmark = 100) to 86 in 2019, this was still significantly above the EU average for that year (82.7). The pace of improvements in intensity was also not sufficient to offset an absolute growth in GHG emissions between 2013 and 2018, arguably linked to strong economic growth. Most worryingly, Poland has been very slow in increasing the share of renewable energy consumption in gross final energy consumption which increased from 11.6% in 2014 to 12.2% in 2019, while for the EU average these numbers stood at 17.5% and 19.7%, respectively. Another worrying element is that emissions from transport in Poland have increased by 219% over the 1990-2019 period, largely due to road transport increase, and a continued decline in the share of public transport in total passenger transport. On a positive note, the share of the population unable to keep their home adequately warm more than halved between 2014 and 2019 and the air quality significantly improved. Nonetheless, for the latter indicator Poland needs additional efforts to narrow the gap with the EU average.

Fairness

Poland has made progress towards achieving SDGs in the area of fairness, although challenges remain. Between 2014 and 2019, under SDG 1 (no poverty) the share of people at risk of social exclusion decreased from 24.7% down to 18.2%, which is below the EU average of 20.9%. At the same time, in-work at-risk-of-poverty (9.7%) remains above the EU average

(9.0%). A positive trend is visible on good health and well-being (SDG 3), but additional progress is required to move closer to the EU average on most indicators for this SDG. For example, the self-reported unmet need for medical care decreased from 7.8% to 4.2% while the EU average is 1.7%. Poland performed relatively better than the EU average in most indicators measuring the reduction of inequalities (SDG 10). For instance, the adjusted gross disposable income of households per capita increased from 70% to 74% of the EU average. However, the decrease of the urban-rural gap for risk of poverty of social exclusion (from 13.4% to 11.1%) has only moderately contributed to closing the worrying gap with the EU average (1.1%). As regards gender equality (SDG 5), Poland made limited progress. It underperformed compared to the EU average for a majority of targets, such as the gender gap for tertiary education which went up from 18.8% to 19.9% between 2015 and 2020, well above the EU average of 10.8%.

Digital transition and productivity

Poland is underperforming compared to the EU average in most targets related to the digital transition and productivity dimension reported under SDG 8 (Sustainable economic growth) and SDG 9 (Industry, innovation and infrastructure). While gross domestic expenditure on R&D has increased between 2014 and 2019 from 0.94% to 1.32% of GDP, it remains significantly below the EU average (2.11% in 2014 and 2.2% of GDP in 2019 respectively). The number of patent applications to the European Patent Office (EPO) has decreased between 2014 and 2019 from 15 to 13 applications per million inhabitants. This is significantly below the EU average where during the same period the number of applications increased from 141 to 147 per million inhabitants. The Polish transport infrastructure exhibits connectivity gaps, especially in rail TEN-T, and poor environmental and safety standards. Significant investment needs are identified to develop a sustainable multimodal mobility, including TEN-T and cross-border links. Road safety is a key issue: in terms of road fatalities per million inhabitants, Poland (75 in 2017) is significantly above the EU average (49 in 2017). Compared to 2010 the situation has considerably improved, but Poland is still clearly lagging behind the EU average. At the same time, Poland made significant progress towards increasing the share of households covered by a high-speed internet connection in the last 5 years, increasing 6 times its original value and surpassing the EU average by more than 5 percentage points.

Macroeconomic stability

Between 2014 and 2019, Poland has made significant progress across most indicators underpinning SDG 8 ('Decent Work and Economic Growth'). Real GDP per capita growth averaged 3.6% per year between 2010 and 2019, gradually closing the GDP to the EU average and signalling steady progress in Poland's convergence process. The share of young people neither in employment nor education and training has been decreasing steadily, from 15.5% of the total 15–29-year-old population in 2014 to 12% in 2019. The share of people in work at risk of poverty has also declined somewhat over the same period. Prior to the pandemic, public debt stayed below the Maastricht threshold of 60% of GDP, and even after the crisis remained slightly below, being significantly lower than the EU average. Still, several macroeconomic challenges remain, which ask for well-targeted reforms and investments. First, the share of investment to GDP has declined significantly in recent years, hampering Poland's potential growth and ability to move up the value-chain in the medium term. Second, although labour market developments have been largely favourable since 2014, with the employment rate reaching 73% in 2019, pervasive labour shortages have been limiting investment activity and growth in Poland's businesses, particularly SMEs.

3. OBJECTIVES, STRUCTURE AND GOVERNANCE OF THE PLAN

3.1. Overall strategy of the plan

The recovery and resilience plan of Poland is a comprehensive response to the consequences of the COVID-19 crisis, as well as a response to the main challenges identified and systemic weaknesses of the Polish economy. The plan aims to rebuild the growth potential of the Polish economy, to enhance its competitiveness and to increase the standard of living of its citizens. The plan pursues the following objectives:

- strengthening of innovative economic development to increase productivity, taking into account the green and digital transformation,
- development of green and smart mobility,
- enhancing social capital and upgrading quality of life, in particular by ensuring the improvement of citizens' health and higher quality of vocational education and skills adapted to the needs of the modern economy.

The Polish recovery and resilience plan comprises six components with the overarching objectives of increasing economic development and productivity, supporting the digital and green transitions and enhancing the quality of life. These components address challenges in the following areas:

A. Resilience and competitiveness of the economy – where the aim is to build a crisis-resilient economy, increase productivity and create quality jobs through:

1. Reducing the impact of COVID-19 and the subsequent crisis for businesses
2. Strengthening the innovation capacity and the cooperation between enterprises and research institutes in key areas for the development of the economy (digitization and greening)
3. Improving skills development, the vocational education and training system and lifelong learning to better match needs of the modern economy
4. Increasing the labour market participation, the efficiency and crisis resilience of the labour market

B. Green energy and energy intensity reduction – which is focused on the shift towards supporting renewables and generation of alternative fuels and energy efficiency to reduce the negative environmental impact and to ensure competitiveness and energy security coupled with greening of the economy through:

1. Improving the energy efficiency of the economy
2. Increasing the use of renewable energy sources and the development of alternative generation sources
3. Adapting to climate change and reducing its negative environmental impact

C. Digital transformation – which is aimed at investing in modern technologies in the public sector, society, education and in the economy as a whole through:

1. Improving access to high-speed internet
2. Developing and consolidating e-services, creating the conditions for the development of digital technologies for the economy and improving communication between public institutions, citizens and business
3. Boosting digital skills and the digitalisation of education

4. Increasing cyberspace security, ensuring and digitising safe data processing infrastructure

D. Efficiency, accessibility and quality of the health system – which focuses on ensuring a smooth functioning and modernisation of the healthcare system through:

1. Improving the efficiency of the health system, especially in the hospital sector, its accessibility and quality of health services, including by making more use of digital solutions
2. Developing healthcare staff and strengthening the capacity of medical universities and health care providers involved in the training of medical personnel
3. Supporting scientific research and the pharmaceutical sector to strengthen the resilience of the health system

E. Green, smart mobility – which aims to develop a sustainable, safe and resilient transport system meeting the needs of the economy and society through:

1. Increasing the share of zero- and low-emission transport and reducing the negative environmental impact of transport
2. Enhancing transport accessibility and digitalisation as well as its safety and security

F. Quality of institutions and conditions for the implementation of the plan – which aims to improve the investment climate and put in place the framework for implementing the plan through:

1. Strengthening the independence and impartiality of courts and remedying the situation of judges affected by the decisions of the Disciplinary Chamber of the Polish Supreme Court
2. Enhancing consultation of social partners and the use of impact assessments, and reducing the use of fast-track procedures in the law-making process
3. Ensuring the proper consultation of social partners and stakeholders, as well as the application of the Arachne risk-scoring tool in the implementation of the plan

The cost estimations of the measures are presented in the table below.

Table 3: Components and associated costs

Component	Costs (EUR million)		Total (EUR million)
	Grants	Loans	
A. *Resilience and competitiveness of the economy*	4,455	245	**4,700**
B. *Green energy and energy intensity reduction*	5,696	8,172	**13,868**
C. *Digital transformation*	2,797	2,100	**4,897**
D. *Efficiency, accessibility and quality of the health system*	4,092	289.5	**4,381.5**
E. *Green, smart mobility*	6,817	700	**7,517**
F. *Improving the quality of institutions and the conditions for the implementation of the RRP*	0	0	**0**
Total	**23,857**	**11,506.5**	**35,363.5**

3.2. Implementation aspects of the plan

Consistency with other programmes

The plan outlines the consistency with other relevant programmes. The main strategy document at the national level to which the RRP refers is the Strategy for Responsible Development (with a 2030 perspective) adopted by the government on 14 February 2017. The Strategy focuses on jobs and growth, with the main objective of increasing social, economic, environmental and territorial cohesion, which is in line with the challenges and priorities identified in the framework of the European Semester. The plan is also consistent with the National Energy and Climate Plan 2021-2030 submitted to the European Commission on 30 December 2019 and Poland's Energy Policy strategy for 2040 (PEP2040), adopted by the government on 2 February 2021. The RRP also draws on several sectoral strategies adopted by the government in recent years in the areas of regional development, digitalisation, cybersecurity, sustainable agriculture, infrastructure, human and social capital.

The plan is designed to be complementary to the Union Funds both in the current programming period (2014 – 2020) as well as in the new programming period (2021-2027). As the Partnership Agreement (PA) and the Programmes are still pending finalisation and approval, the plan explains the main synergies at a strategic level (between priority areas of the Cohesion Policy funding and RRP components), which are elaborated in individual components by indicating areas where funding from other sources is envisaged. The plan recognises the importance of synergies with Cohesion policy programmes and stresses that complementarities and potential overlaps will be systematically and continuously assessed at different levels of implementation (including at strategic, programme and project levels) to avoid double funding.

Poland is the largest net recipient of Cohesion funds in the EU and, since its accession in 2004, the country has developed an efficient administrative capacity in this respect.

Poland's absorption capacity as regards EU funding is much above the EU average. Despite significant achievements in addressing structural problems, investment needs in Poland are still much higher than available funds, in particular regarding infrastructure, innovation, digital economy, human capital and health care. Moreover, the green transition poses an immediate and very costly challenge for the economy.

Administrative organisation of the RRP

The Ministry of Development Funds and Regional Policy, which is also in charge of the programming of the Cohesion policy, coordinates the preparation and implementation of the plan. Other ministries that are actively involved in the process include the Ministry of Economic Development, Labour and Technology, which coordinates the European Semester, the Ministry of Finance, the Ministry of Climate and Environment, the Ministry of Infrastructure, the Ministry of Health, and the Chancellery of the Prime Minister. Moreover, the plan has been prepared in in consultation with local governments, social and economic partners and NGOs.

To ensure effective implementation, the same implementing structure will be used for the RRP as for the Partnership Agreement. The use of the institutional system of Cohesion policy for the programming and implementation of measures under the RRP is expected to enable synergies between the programmes and to avoid double-funding for the same initiatives. The institutions involved in the programming, implementation, monitoring and control of Cohesion policy actions have the administrative capacity and the institutional experience necessary to carry out RRP-related tasks. To ensure the correct implementation of the plan, Poland will set up a Monitoring Committee composed of representatives of the institutions involved in the implementation of the plan, as well as a wide representation of stakeholders including trade unions, employers' and non-governmental organizations.

The Technical Support Instrument (TSI) provides expertise in building capacities to implement the plan in a number of areas. In particular, this concerns support for the implementation of green, digital and public administration RRP measures. For instance, TSI is providing support for the implementation of the programme for the development of digital competences, and for boosting the competitiveness of the railway sector to promote green mobility and socio-economic convergence. In addition, TSI continues to support the reform of the budgetary system (measure A1.1 Reform of the fiscal framework), in particular by assisting in setting out new budget classification. During the implementation of the plan, sectoral support for the design, implementation and evaluation of research and innovation policy reforms will be available via the Horizon Policy Support Facility.

Gender equality and equal opportunities for all

With regard to gender equality and equal opportunities for all, **Poland indicates that horizontal principles guide all initiatives under the plan, in line with the European Pillar of Social Rights.** Poland describes the impact of the COVID-19 crisis on various groups and the challenges related to gender equality and equal opportunities for all, in particular in view of labour market needs. The plan contains specific measures to address equality challenges, for instance by increasing the quality and availability of childcare facilities to facilitate the labour market participation of women. Poland has indicated that a pre-screening of different projects was made with equality criteria in mind, and that certain projects that were proposed were not included in the plan as they did not meet accessibility criteria for persons with disabilities or were otherwise not compliant with equality principles. Poland stresses that the principles of gender equality and equal opportunities for all will be taken into account at every stage of the management and implementation of the plan. Finally, the monitoring committee tasked to supervise the effective implementation of the plan will notably include representatives of bodies representing the civil society and promoting fundamental rights and non-discrimination.

Stakeholder consultation

Poland carried out stakeholder consultations through different platforms prior to the submission of its RRP. The public consultation process was based on the provisions of the Development Policy Act of 6 December 2006. The public consultation of the RRP was launched on 26 February 2021 and lasted until 2 April 2021. In total, 5 275 contributions were made in a dedicated form on the government website. In addition, comments were voiced during three debates organised by the government and five public hearings led by social partners and other organisations. The draft RRP was also discussed by the Joint Government and Local Government Commission (pol. Komisja Wspólna Rządu i Samorządu Terytorialnego). During the work of this commission, local governments submitted over 520 comments. In the framework of the Social Dialogue Council, the government also consulted social partners on the RRP. As a result of the stakeholders' consultations, changes were made to all components of the draft RRP. In particular, the planned reform of spatial planning was amended, and the investments in offshore wind farms and in the digitalisation of education were enhanced, and investments in green urban transition were added

Security self-assessment

The RRP does not contain a security self-assessment for investments in digital capacities and connectivity, in accordance with Article 18(4) point (g) of Regulation (EU) 2021/241. Poland does not identify any security issues nor does it provide any detail on how potential security risks could be addressed in order to comply with relevant Union and national law. However, Poland has indicated throughout the plan that projects related to digital technologies will be carried out in accordance with high cybersecurity standards, in line with the Polish Cybersecurity Strategy 2019-2024, adopted by the Council of Ministers on 22 October 2019. The main objective of the Strategy is to increase the level of cyber-resilience and data protection in the public, private and military sector. Furthermore, the RRP indicates that connectivity measures will be implemented in line with national and European legislation, and in accordance with the EU Connectivity toolbox.

Cross-border and multi-country projects

The plan envisages the involvement of Poland in the multi-country project *Common Data Infrastructure and Services* in the area of data processing. This multi-country project is expected to be implemented as a potential *Important Project of Common European Interest (IPCEI)* on Next Generation Cloud and Edge Infrastructure and Services. The European project aims at developing and industrially deploying for the first time highly innovative, ultra-secure and energy-efficient cloud and edge solutions that enterprises, public administrations and end-users are demanding for making sustainable businesses and delivering better public services to citizens.

Communication strategy

The communication on the Polish RRP will be carried out in coherence and complementarity with the communication on other EU Cohesion policy support instruments. This will allow for a comprehensive and complementary presentation of EU support to Poland. The government’s communication activities will focus on the results of key investment projects and structural reforms. Any added value of EU support to reforms and investments will be underlined. Communication activities are coordinated and carried out by the Ministry of Development Funds and Regional Policy, in cooperation with other ministries and actors involved in the implementation of the RRP, as well as social, economic, non-governmental organisations and beneficiaries. Beneficiaries of the RRP will also be obliged to communicate about their projects to achieve synergies in this respect. The aim will be to ensure a high level of awareness of the country's development activities with the help of the European Funds and the role it plays in the EU. Various communication tools and channels will be used for the specified target groups. Coordination between EU and national authorities should be pursued to maximise the impact and effectiveness of communications. Communication activities on RRP will be subject to continuous assessment and monitoring by the authorities.

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. 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 Poland in the recovery and resilience plan cannot be deemed a State aid notification. As far as Poland 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 Poland to ensure full compliance with the applicable rules. In addition to complying with EU's State aid rules, measures taken under this framework should be compatible with the EU's international obligations, in particular under World Trade Organization rules.

4. SUMMARY OF THE ASSESSMENT OF THE PLAN

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

Poland's recovery and resilience plan provides a comprehensive and balanced response to the consequences of the COVID-19 pandemic, while tackling various structural socio-economic challenges (as detailed in section 4.3 of this document)**.** As such, it makes an explicit reference to the six pillars of the Recovery and Resilience Facility pursuant to Article 3 of the Recovery and Resilience Facility Regulation. In accordance with Article 4 of that Regulation, the objective of the recovery and resilience plan is to promote economic, social and territorial cohesion by increasing resilience, crisis preparedness, adaptability and growth potential, mitigating the social and economic consequences of the crisis, in particular for women (and thereby achieving the objectives of the European Pillar of Social Rights). The plan also aims at supporting the green transition, contributing to the Union's climate objectives, and digital transformation. Thereby, interventions envisaged in the recovery and resilience plan support the EU's objectives of increasing socio-economic convergence, restoring and promoting sustainable growth and integration of EU economies, as well as the creation of quality jobs, the strategic autonomy of the Union and an open economy generating European added value.

Green transition

The Polish recovery and resilience plan identifies key challenges of Poland related to climate and environment. It emphasises that Poland's economy is heavily based on solid fossil fuels as well as oil and petroleum products and while their share in the energy mix has been steadily declining it was around 72 % in 2019. The installed capacity in the national electricity system at the end of 2019 was close to 46.8 GW gross, of which almost 36.7 GW are conventional power plants, mostly based on hard coal and lignite. Rising prices of CO_2 allowances contribute to rising energy prices, which together with a high energy intensity of the economy and a low level of energy efficiency of buildings lead to the risk of increased energy poverty and a noticeable rise in the prices of products and services, as well as a negative impact on the competitiveness of the economy. Against this background, the energy transition towards a climate-neutral economy is a key challenge for Poland.

Poland's recovery and resilience plan is strongly oriented towards the green transition. This is reflected in the high share of climate-related investments in the overall plan (estimated at 42.7%). Major investments will be directed towards developing offshore wind on the Baltic Sea; the renovation of buildings combined with replacing coal-fired heaters; the construction of new buildings of more ambitious standard than Nearly-Zero Energy Buildings; developing hydrogen infrastructure and technologies; investing in efficient district heating systems; clean urban projects, sustainable water management in rural areas and sustainable public transport.

The sustainability focus of the plan is reinforced by the inclusion of a number of key reforms. These reforms will notably include the removal of barriers to the development of onshore wind, a comprehensive set of measures aimed at phasing out coal in individual heating, and a regulatory framework to support the development of hydrogen technologies and alternative fuels. To provide investors with greater predictability and allow for longer advance planning a plan of auctions will be published. The new database of heat sources in buildings will increase the reliability and completeness of information about building stock.

Reforms to promote clean modes of transport, sustainable urban mobility and substantial investments shall contribute to decarbonisation, digitalisation and safety of transport. The reforms include higher incentives for the development and implementation of sustainable urban mobility plans, incentives for promoting zero-emission vehicles and reducing the use of polluting vehicles in line with "polluter pays" principle, road safety measures (e.g. enforcement, elimination of blackspots, investments), and incentives for clean vehicles. The investments are focused on railways, zero-emission rolling stock for both urban and inter-urban transport, investment in public transport, digitalisation of road (ITS) and railways transport (ERTMS).

The recovery and resilience plan is expected to contribute to the long-term resilience of ecosystems to climate change. Increasing the availability of water and sewerage infrastructure in rural areas with the biggest deficits should contribute to improving the quality of life of the population living there. The reforms and investments will create a framework for a more efficient management of water resources and increase the landscape's water retention capacity in rural areas. Investments improving water retention within agricultural or forest land should improve the water balance and increase the availability of water for agriculture and forestry.

These reforms and investments are expected to significantly contribute to the 2030 and 2050 climate objectives. Although the plan does not quantify this impact, measures included in the plan can be reasonably expected to accelerate Poland's transition towards greater sustainability.

Digital transformation

Despite positive developments in recent years, Poland still lags behind the EU average on digital indicators ranking 24th out of 27 EU Member States in the Digital Economy and Society Index (DESI) 2021. The country continues to perform weakly in integration of digital technology and use of internet services, which remain the most challenging areas. The human capital dimension is still underdeveloped, with only 44% of the population having at least basic digital skills. Noteworthy is also the lack of female ICT specialists (only 0.9%). However, in connectivity Poland ranks among the best performers in the EU, thanks to the significant progress on the fixed very high-capacity networks coverage (60% compared to 29% one year earlier).

The Polish recovery and resilience plan assigns to digital challenges 21.3% of the overall RRF allocation and presents a good mix of interventions to make progress with better digital administration and e-services, ranging from infrastructure, skills of public sector employees, efficiency of administrative processes, and an improved analytical capacity for decision-making. The outlined actions aim at ensuring access to high-speed internet for citizens, boosting the digital efficiency of the public sector, the economy and society, and improving the security of digital services. This should be achieved through investments in the broadband network, particularly to cover white next-generation-access (NGA) areas, by strengthening the use of digital processes in the administration and by improving digital skills across all sectors of society. With regard to the interaction between public institutions, citizens and businesses, the creation of user-friendly information systems should reduce the time and financial costs of communicating with the state and improve a wide range of public services. The cyber-resilience of the public administration is also improved.

The reforms and investments are expected to reduce digital exclusion through upskilling and reskilling of e-competences and increasing opportunities for teleworking and learning. Increasing digital skills of the population is a key element for digitalising the economy. The Polish RRP takes a holistic and strategic approach to the acquisition of digital competences of the wider population and to the digitalisation of education and training. The proposed measures contribute significantly to the creation of a broader digital learning ecosystem and aim at an efficient coordination of the development of digital competences at national and local level. The investments in digital infrastructure and equipment for general and vocational schools, together with boosting the skills of teachers, should create the basis for the development of digital and information skills in the society. Improved access to technologies and e-competence training for a wide group of citizens should connect the digitally excluded, in particular inactive people, and help their re-integration into an increasingly digital society.

Digital investments are expected to contribute to the ambition to modernise Poland across all components of the recovery and resilience plan. The roll-out of three new central digital services, including decision-making support tools for doctors based on AI algorithms, and the launch of a central repository of medical data are likely to contribute to the efficiency and accessibility of healthcare services for all citizens. In the area of energy, the development of smart grids will allow for a better integration of renewables into the Polish electricity system, while battery storage systems are expected to contribute to ensuring the local stability of supply, contributing thus to strategic energy independence as well as cleaner air in Poland. In the transport sector, the plan includes measures improving the efficiency of road and rail transport through digitalisation via ITS, ERTMS, and remote and traffic control systems. It also includes incentives to deploy single e-ticketing for railway passengers. Finally, several measures include support for the digital transition in the agriculture and agri-food sectors, in particular by encouraging the uptake of Agriculture 4.0 solutions, which is expected to increase the efficiency and sustainability of the sector.

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 presents targeted policy actions across various relevant policy areas related to smart, sustainable and inclusive growth. Smart growth will be promoted particularly through actions targeting innovation and digitalisation as well as through improvements in the business environment, educational outcomes and labour market relevance of skills. As regards sustainable growth, the plan's key investment initiatives are expected to contribute *inter alia* to a cleaner energy mix, industrial decarbonisation and greening of public transport.

The plan is expected to help tackle challenges in the labour market. The pandemic had a limited impact on the Polish labour market, mainly thanks to sizeable policy support, which prevented a rise in unemployment and bankruptcies. Still, job losses occurred mainly in the services sectors, particularly in the hospitality and food sector, affecting a significant share of the low-skilled workforce. The plan is expected to support the labour market by rolling out investments into green construction sector activities (both new constructions and renovations), renewables, nature protection, sustainable transport and digital infrastructure. The plan also includes various measures to incentivise an increase in labour market participation of various groups, as well as efforts to align education (in particular vocational education and training) with modern labour market needs. This will be particularly relevant for tackling labour and skill shortages, which are currently limiting the ability of the Polish economy to restructure towards more productive and higher growth sectors. Furthermore, the plan includes measures that are expected to increase the competitiveness and resilience of the sectors most affected by the crisis, especially the HoReCa and culture sectors, in particular by investing in re-skilling and up-skilling for employees in these sectors.

Research and Innovation reforms and investments will contribute to strengthening the competitiveness of the Polish economy in the medium to long run. The level of R&D expenditure, despite an increase in recent years relative to GDP (up to 1.32 % in 2019), is below the EU average (2.19 % in 2019). The plan rightly identifies Poland's structural challenges and the need for innovation-driven growth. Higher investment into R&D alongside other intangible assets could contribute to resilience against unfavourable economic shocks. Reforms and investments focus on strengthening the links between industry and research organisations and education facilities, as well as supporting pilot projects to facilitate the development of breakthrough technologies in advanced stages of R & D projects. To accelerate the process of robotisation and automation, in addition to supporting investments, the plan foresees fiscal incentives for the industry.

A series of reforms and investments are expected to contribute to strengthening Poland's competitiveness through more research and innovation and an improved business environment. The plan identifies the productivity-related challenges for Poland and the need for innovation-driven growth, while aiming at closing the gap vis-à-vis the EU average in terms of living standards. Support for cooperation between science and industry will improve research commercialisation and ensure a better implementation of innovative solutions as well as support the development and dissemination of innovations in the agri-food sector. The set-up of Sectoral Skills Centres is also expected to contribute to better links between vocational education and training and the economy and improved dissemination of innovative solutions. Several investments linked to decarbonisation efforts (such as the development of offshore wind farms and unlocking the potential of onshore wind, hydrogen technologies and alternative fuels, and energy storage facilities) are expected to strengthen the competitiveness of the Polish industry and to support the required green transition. Improvements in the business environment through the lowering of administrative burdens are expected to boost investment. Furthermore, the proposed reforms to enhance the use of public consultations in policymaking and reduce the use of fast-track procedures in law-making are expected to lead to a better and more stable regulatory framework, which may also improve the investment climate. Finally, measures aiming to strenghten the independence and impartiality of courts, and to remedy the situation of judges affected by decisions of the Disciplinary Chamber, are also expected to contribute to improving the investment climate.

The reforms in the plan are expected to contribute to a well-functioning Single Market with strong SMEs. The Polish Recovery and Resilience Plan includes a number of measures targeted at SMEs which are expected to have a lasting impact on the Polish economy where SMEs account for more than 42% of total employment. SMEs in the agri-food sector will particularly benefit from investments to enhance their competitiveness and give a push to the green and digital transition in their activities. SMEs in the HoReCa, culture and tourism sectors are set to benefit from investments in reskilling, which can lead to increased productivity growth and competitiveness in the medium term. SMEs and mid-caps can also benefit from financial support from the Recovery and Resilience Facility to innovate and produce low-emission mobility and alternative energy solutions. Indirectly, SMEs will also benefit from a strong demand impulse triggered by other investments as well as improved infrastructure. For example, the investments to increase access to high-speed internet are expected to improve the competitiveness of SMEs and support innovation, particularly in remote areas. Overall, the plan is expected to contribute to achieving the objectives of the new Industrial Strategy for making the EU industry more competitive globally, enhance strategic autonomy and fostering the twin transition[9].

Social and territorial cohesion

The plan addresses the marked social and territorial cohesion challenges primarily through measures in the areas of digitalisation of education, skills development and healthcare services, as well as social housing. Investments to provide students and teachers with ICT equipment and support for the development of digital skills are expected to create opportunities for pupils from disadvantaged regions and persons at risk of social exclusion. Other digitalisation measures are also likely to improve social and territorial cohesion, such as investments in the development of network infrastructure to cover ‘white spots’ in broadband access and the development of 5G technology in market failure areas, as well as measures aiming at increasing the availability of digital public services. The creation of a network of sectoral skills centres and of regional coordination teams for vocational training and lifelong learning are expected to support upskilling and reskilling in the regions, in close cooperation with all local and regional stakeholders in education and the labour market, to maximise benefits for labour market participation. A new network of local digital leaders will support each municipality (‘gmina’) in the digitalisation efforts and will also contribute to social and territorial cohesion and digital inclusion. Relevant measures in the area of health include steering and financing the restructuring of hospitals, including regional hospitals, in accordance with their specific needs. The development of e-health solutions, including launching three central digital services, is also expected to lead to increased accessibility of health services.

[9] COM(2020) 102 final, https://ec.europa.eu/info/sites/info/files/communication-eu-industrial-strategy-march-2020_en.pdf

Finally, social cohesion is set to be enhanced by the spatial planning reform in municipalities, which, among others, introduces the requirement to land-developers to build social services for citizens. Moreover, measures to extend social security coverage of non-standard contracts are likely to address the segmentation of the labour market and to ensure a better social protection for certain workers. Poor access to affordable housing will be addressed by investment support to the development of housing for low- and average-income households.

Measures in the energy and sustainable transport components are also expected to contribute to social and territorial cohesion. Investments in sustainable urban transport are expected to accelerate the green transition of cities by implementing sustainable urban mobility plans and developing zero-emission public transport in cities and at regional level. Measures aimed at increasing the availability of water and sewerage infrastructure in rural areas are expected to improve the quality of life in those regions. The plan includes measures focused on strengthening the resilience of rural areas to crises, including by increasing the potential of sustainable water management in rural areas that should reduce effects of recurrent excess or water scarcity, prevent floods in agricultural areas and increase water retention levels. Investments in the agriculture sector further contribute to territorial cohesion, in particular due to investments that diversify and shorten the supply chain of agricultural and food products and build the resilience of the entities in the chain. Furthermore, investments in risk mitigation and the restoration of large-scale brownfield sites will enable relaunching economic activities in the concerned areas. Investments in low and zero-emission rolling stock for bus connections in areas with poor transport accessibility are expected to help connect remote regions to centres of economic activity, which is also expected to benefit labour market participation across regions. Finally, the renovation and improvement of the energy efficiency of family homes and public buildings will contribute to addressing energy poverty among households with limited incomes.

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

The recovery and resilience plan identifies the structural and post-pandemic challenges for the Polish health system and outlines a comprehensive reform and accompanying investments for the health sector. The plan includes a detailed stocktaking of challenges, both in terms of recovery from the Covid-19 health crisis and of increasing the long-term resilience of the health system. Measures aim at improving access to healthcare and disease prevention, the availability of resources in the health system, progress in the digitisation of health care, and addressing staff shortages, as well as addressing shortcomings in health infrastructure and pharmaceuticals combined with support for research and innovation activities. The plan provides for a significant health sector reform, addressing the entire spectrum of the pyramid of care, including primary, ambulatory and hospital care. Poland's main objective in this area is to increase the effectiveness, accessibility and quality of the health system. To this end, large investments to support the reform of the hospital sector are envisaged, with lasting effects on care provision (including community-based long-term care and investment in rehabilitation facilities), quality of outcomes, and the financial sustainability of hospitals. Complementary funding from other sources should guarantee necessary investments in primary care. The investments are also expected to help increase the supply of qualified staff and digitalisation of healthcare services. In addition to addressing current structural challenges, these measures are also expected to increase the capacity of the sector to respond adequately to future crisis situations.

The Polish plan aims at enhancing the economy's resilience and crisis response capacity with investments in green solutions, education and skills, digitalisation and innovation in

companies. The investment in decarbonisation, such as the development of offshore wind farms or hydrogen technologies, will contribute to creation of new jobs and facilitate the energy transition towards a green and more competitive economy. Increasing digital skills and investment in digital competences through, inter alia, digitalisation of education, will result in a better match with post-pandemic labour market requirements and employers' expectations. The competitiveness of Polish companies will be strengthened with measures accelerating robotisation and facilitation of deployment and diffusion of breakthrough technologies and innovative solutions, in particular in the areas of circular economy and unmanned aviation. These measures are expected to adjust Poland's economy to post-pandemic challenges, making it more competitive and resilient.

Poland has committed to introduce various measures contributing to increasing social resilience. Measures envisaged for further development of childcare and long-term care are expected to improve the labour market participation of women (learning and well-being of children below the age of 3), as well as access to long-term care services as a consequence of policy initiatives coming from a strategic review of long-term care policies, as well as targeted measures in the health sector. Measures improving the quality and adequacy of the functioning of labour market institutions, in particular Public Employment Services, reaching out to and activating older workers or people from disadvantaged groups through up- and reskilling programmes, and attracting and integrating labour migrants as well as promoting flexible forms of employment and methods of providing services are likely to build resilience of the labour market. Moreover, extending the obligation for social security contributions to all civil law contracts is expected to further reduce the segmentation of the labour market and to provide better social protection to certain groups of employed. Personal income tax reductions envisaged for taxpayers reaching the statutory retirement age and deciding to continue working aim at extending careers and are expected to help decrease income inequalities for the elderly. Finally, significant support is being directed to farmers, which is expected to enhance territorial cohesion and reduce inequalities in rural areas.

Poland's institutions and public sector are expected to be enhanced due to measures reducing certain administrative barriers, improving the law-making process and strenghtening the independence of the judiciary. Digitalisation processes envisaged for the public sector, including digital identity, digital signature, structured electronic invoice, up-graded and new e-services, are to bring durable results and diminish the administrative burden. A reform package speeding-up and simplifying administrative decisions, will increase business confidence, particularly for SMEs. Enhancing the role of public consultations in the law-making process is likely to increase the stability of the regulatory framework and contribute to mitigating uncertainty for consumers and businesses. Strengthening the independence of the judiciary is expected to contribute to a more friendly and predictable investment climate.

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

Among the socio-economic challenges for the next generation, reforms and investments included in the plan focus predominantly on education and skills. The plan presents a number of measures with a direct impact on children and young people. Reforms and investments to improve the availability and quality of childcare aim at improving the education and care of children from a young age. An increase in the capacity of childcare facilities is expected to improve the rate of attendance of children up to the age of three, while quality and educational standards are expected to be set through a dedicated reform.

Targeted investments will provide pupils and teachers with modernised ICT equipment and accelerate the improvement of digital skills among educators, teachers and pupils.

This financial support will be underpinned by a reform aiming at improved digitalisation of education in a strategic and comprehensive way, including enhancing teaching, learning and assessment. Investments in access to ICT equipment and connectivity for schools and households with children, as well as improving digital skills of teachers and students are likely to improve equal access to digital education, as well as its quality.

Finally, the plan is expected to improve the matching of skills and qualifications with labour market requirements in the modern economy. Reforms to improve the coordination of policies in the regions in the area of vocational education and training and lifelong learning, as well as reforms and investments to set up 120 sectoral skills centres throughout the country are expected to improve labour market outcomes of education and training at all levels and provide better labour market opportunities. With specific attention for digital and green skills and the provision of targeted upskilling and reskilling opportunities, these measures are set to prepare adults, young people, and next generations for the modern economy.

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Taking into consideration all reforms and investments envisaged by Poland, its Recovery and Resilience plan represents, to a high 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 Poland into account. This would warrant a rating of A under the assessment criterion 2.1 in Annex V to the RRF Regulation.

Table 4: Coverage of the six pillars of the Facility by the Polish 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
A - Resilience and competitiveness of the economy	○	○	●	○		○
B - Green energy and energy intensity reduction	●	○	○	○		
C - Digital transformation		●			○	○
D - Efficiency, accessibility and quality of the health system		○	○		●	
E – Green, smart mobility	●	○	○	○		
F – Improving the quality of institutions and the conditions for the implementation of the RRP			○		○	

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

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

The plan contributes to effectively addressing a significant subset of the structural challenges identified in the country-specific recommendations (CSRs) of 2019 and 2020. The plan focuses on measures that follow recommendations linked to the COVID-19 pandemic response, notably by targeting a reinforcement of the health system and providing support to economic sectors heavily affected by the economic downturn. The plan also places a strong emphasis on reforms and investments aligned with the EU green and digital agendas. In addition, the plan addresses - albeit to a lesser extent - long-term challenges linked to the labour market and the sustainability of public finances.

Poland's recovery and resilience plan presents a mapping of CSR challenges onto the Plan's six components. A dedicated chapter of the plan presents a comprehensive overview of correspondence between the 2019 and 2020 CSRs and the reforms and investments included in the plan. Where relevant, the overview includes supplementary information on measures taken outside the RRP, notably support to companies provided during the pandemic crisis as part of the Anti-Crisis Shield and the Financial Shield by the Polish Development Fund. The overview thereby illustrates a high degree of CSR coverage achieved by Poland's RRP.

Table 5: Mapping of country challenges identified in 2019-20 country-specific recommendations and the Polish recovery and resilience plan components

Country challenges (as identified in Section 2)	**Associated CSR (2019-2020) and European Semester recommendations**	**Component A – Resilience and competitiveness of the economy**	**Component B – Green energy and energy intensity reduction**	**Component C – Digital transformation**	**Component D – Efficiency, accessibility and quality of the health system**	**Component E – Green, smart mobility**	**Component F – Improving the quality of institutions and the conditions for the implementation of the RRP**
Transition towards a higher value-added economy	2019.3.1, 2019.3.2, 2020.2.4a, 2020.3.3	●	○	●		○	
Tackling structural deficiencies in Poland's social services, labour market and education system	2019.2.2a, 2019.2.2b, 2019.2.2c, 2019.2.3, 2019.3.2, 2020.1.3, 2020.2.1, 2020.2.2, 2020.2.3	●		●	●		
Ensuring a favourable business and investment environment	2019.3.1, 2019.3.3, 2020.2.4b, 2020.3.1, 2020.4.1, 2020.4.2	○	○	○		○	○
Safeguarding sound public finances	2019.1.2, 2019.2.1, 2020.3.2a	●					
Green transition	2019.3.2, 2020.3.3		●			●	
Digital transition	2019.3.2, 2020.2.3, 2020.2.4a, 2020.2.4b, 2020.3.3	○	○	●	○	○	

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

The plan addresses the country-specific recommendations on the efficiency of spending (CSR 2019.1). This is done through a reform of the budget system and by broadening the scope of the general expenditure rule with potential to increase the efficiency of public spending.

The plan partially addresses CSRs in the area of labour market and education (CSR 2019.2). The plan includes some measures to improve the adequacy of future pension benefits and the sustainability of the pension system, as recommended in the CSR. This is to be achieved through tax incentives for those who reach the statutory retirement age but choose to continue their working life. The CSR on labour market participation is only partially addressed concerning the need to compensate for the adverse effects of the low statutory retirement age and demographic trends. Rather than raising employment incentives for all age groups, the main measures in the plan include the promotion of more remote and flexible work arrangements, a reform of public employment services, as well as investments in childcare and a setting up quality educational standards for childcare. The plan does not include a reform on special pension regimes, which would be conducive to fostering mobility of the labour force. The CSR on issues in the long-term care system is partially addressed in the plan by, inter alia, a strategic review of the long-term care system, supporting the transformation of certain district hospitals and district hospitals' units into long-term care facilities. The CSR to address increasing labour market segmentation is addressed by covering all civil-law contracts by social security contributions and by conducting a study on the single labour contract that might by followed by legislative changes. These measures have the potential to tackle the segmentation of the labour market and to increase social protection of certain workers. Investments setting up sectoral skills centres underpinned by a clear legal framework intend to foster quality vocational education and training and adult learning and address the relevant CSR. These measures are expected to stimulate the development of skills relevant to the labour market. While the educational inequalities deepened due to COVID-19, the low attractiveness of the teaching profession or the quality of education, in particular of higher education, are not directly addressed by the plan, the schooling system is expected to benefit from measures supporting its digitalisation.

Investments, combined with the necessary reforms, in road safety, clean vehicles, sustainable urban mobility and railways will promote the sustainability of transport, in particular its decarbonisation, digitalisation and safety (CSR 2019.3). It will be important to ensure fair and transparent criteria for the allocation of RRF funds across sectors and municipalities to ensure regional disparities are not further exacerbated.

The research and innovation measures proposed in the plan partially address the CSRs in the area of research and innovation (CSR 2019.3). Investment in the acquisition of research infrastructure by research institutes aims at facilitating research commercialisation and at fostering closer cooperative links with the business sector. Innovation diffusion in the business sector, as well as support for the development of breakthrough technologies and health R&I activities may contribute to an increase in Poland's innovative capacity and performance.

Poland has implemented measures to address the pandemic in line with the relevant recommendation (CSR 2020.1). In response to the COVID-19 pandemic and related economic downturn, Poland has adopted budgetary measures to strengthen the capacity of its health system, contain the pandemic and provide relief to those individuals and sectors that have been particularly affected. At the same time, the plan includes measures that can help achieving prudent medium-term fiscal positions and ensuring debt sustainability, notably the reform of the budget system and the broadening of the scope of the stabilising expenditure rule. Investments in hospitals, health sector staffing, medical research, and e-health are likely to help improve the resilience, accessibility and effectiveness of the health system. Strong reform commitment, especially in primary care and the hospital sector, is needed to bring sustainable results. Other parts of the healthcare system with challenges addressed in the CSR and crucial to improving prevention, access and the system resilience (such as primary care), will be supported by other sources of investment financing, including the Cohesion Policy Funds.

The plan is ambitious in mitigating the employment impact of the COVID-19 crisis, while it does not include measures to better target social spending. (CSR 2020.2). The legislative efforts towards the introduction of flexible and short time working arrangements in the labour code are expected to increase job attractiveness, especially for those leaving in remote areas, while the investments in equipping employees to work remotely are expected to partially strengthen the legislative efforts by advising on the digitalisation process of micro, small and medium-sized enterprises, introducing training on remote work, and purchasing IT services to enable online work and communication. At the same time, the plan does not include any measures to better target social spending, leaving this challenge unaddressed

The plan presents a balanced and promising response to recommendations to improve digital skills and promote the digital transformation of companies and public administration (CSR 2020.2). The plan promotes the development of basic digital skills for various population groups such as teachers, civil servants, citizens with insufficient basic digital knowledge and people excluded or at risk of exclusion. This will be supported by the creation of the Digital Competence Development Programme by the relevant centre of experts and a network of local digital coordinators. As for the digital transformation of the public administration, a series of projects and legislative changes are expected to promote digitalisation of administrative processes, which in turn will boost digitalisation of companies. These projects include the development of a digital identity for citizens and businesses, digital signatures, structured electronic invoices, up-graded and new e-services, and public data sharing platforms and IT systems. This has potential to considerably improve the quality of public services in Poland and their coordination by the government, given difficulties in communication and coordination between different government levels as well as with end-users, such as citizens and businesses.

The Plan provides a limited response to increase access to finance and liquidity for companies (CSR 2020.3). The plan includes investments to support reskilling in companies, as well as projects related to modernising their equipment and infrastructure. This could enhance the resilience and competitiveness of Polish companies in the medium term. At the same time, the Plan lacks concrete reforms to tackle bottlenecks in access to finance and liquidity for companies, which may hinder the recovery of some companies. The application rate by SMEs for bank loans has decreased in 2019, while the rejection rate has increased in the same period. This could limit investment and innovation levels, which are already low compared to the EU average.

Some measures have been introduced to boost private investment (CSR 2020.3). The plan includes some measures to reduce administrative burden to businesses, in particular by reducing administrative requirements, streamlining procedures and legislation, and enhancing the transparency of procedures and legal requirements. The reform to ensure a better and more stable regulatory framework by enhancing the use of public consultations and impact assessments is also set to improve business sentiment, thus boosting private investment. The plan includes a financial instrument to support SMEs and mid-caps in producing low-emission mobility and alternative energy solutions. Finally, SMEs and small producers in the agri-food sector are set to benefit from a reform to combat unfair trade practices, which could also enhance private investment levels.

Poland's plan can be regarded as a determined and effective response to the challenges posed by the green and digital transition (CSRs 2019.3 and 2020.3). A comprehensive set of reforms and investments in energy, transport and water management supports addressing the CSR to focus investment-related economic policy on innovation, transport, notably on its sustainability, digital and energy infrastructure, healthcare and cleaner energy, and to focus investment on the green and digital transitions, in particular digital broadband infrastructure, clean and efficient energy production and use and sustainable transport, which will contribute to the gradual decarbonisation of the economy, including in coal regions. The plan is expected to contribute to a significant increase in the installed capacity of onshore wind farms and photovoltaic installations. Several significant reforms and investm.ents to enable a clean and efficient production and use of energy, such as reforms supporting the development of offshore wind farms and of hydrogen technologies along with accompanying investments and a reform unlocking the potential of investments in onshore wind farms, are envisaged. The plan also includes measures aimed at the transition towards a low-carbon economy such as reforms regarding the prohibition of coal-fired boilers and the sustainable mobility via clean vehicles, low-emission urban zones and modal shift towards railways.

Significant investments in the plan aim to expand fixed and mobile digital infrastructure (CSR 2020.3). Although the digitalisation of the Polish society is fast-paced, there is still a consistent urban-rural divide in digital infrastructure. The so-called white NGA areas, where internet access of at least 30 Mb/s is not guaranteed, risk to be left behind not only when competing for businesses and economic development, but also in various social dimensions. The planned investments in digital infrastructure are expected to support the economic recovery and help close Poland's gap with other countries in the coverage of very high-capacity networks. While the 4G coverage is almost 100%, the country's readiness to 5G is still 0% (DESI 2021), with no frequencies spectrum assigned to 5G pioneer bands. The relevance of reforms eliminating barriers to the implementation of 5G networks and investments offering financial support to telecom operators for 5G deployment in market failure areas is therefore paramount.

The Polish recovery and resilience plan contributes to addressing the recommendations to improve the process of law-making (CSR 2019.3) and safeguard the independence of the judiciary, ameliorating the investment climate (CSR 2020.4). In particular, the plan seeks to improve the regulatory environment by including a reform limiting the use of fast-track legislative procedures and making mandatory the use of impact assessments and public consultations. Furthermore, the proposal includes the establishment of a committee consisting of main stakeholders and social partners, which will monitor the effective implementation of the RRP. A reform of the disciplinary regime applicable to judges and a reform remedying the situation of judges affected by the decisions of the Disciplinary Chamber of the Supreme Court are included in the plan, in order to better safeguard the independence and impartiality of the judiciary. As a result of these reforms, it is expected that any cases relating to judges will be adjudicated by a court complying with the requirements of EU law on independence and impartiality, while all judges affected by the past Disciplinary Chamber rulings will have the right to have these rulings reviewed by an independent and impartial court. These measures aim at raising the standard of judicial protection, thereby contributing to improving the investment climate.

Response to the economic and social situation

Poland entered the pandemic crisis on a robust macroeconomic footing, having previously enjoyed nearly three decades of uninterrupted economic growth. Real GDP grew by 4.7% in 2019, mainly supported by robust private consumption growth. Strong international competitiveness helped Poland keep gaining shares in key export markets, with exports raising by 7% on average over the 2014-2019 period. The labour market was showing signs of overheating, as unemployment reached historical lows and wage inflation exceeded 7.3% in 2019. Overall, Poland's economy was going through a period of good economic performance, signalling a successful convergence process to the rest of the EU. At the same time, emerging structural weaknesses in education, innovation, and governance were starting to cloud the economic outlook. Low levels of private investment and productivity gaps in SMEs could lead to lower rates of potential growth in the medium term, as well as limit the ability of the Polish economy to move up the value chain and produce more advance products and services.

After a 2.2% decline in 2020 real output, the Polish economy has posted a strong recovery which has only been partly constrained by persisting pandemic-related restrictions. The fall in GDP was milder than the EU average, as Poland's low exposure to hard-hit sectors and its diversified economic structure cushioned the impact of the pandemic on economic activity. According to the latest estimate by the statistical office, real GDP growth reached 5.9% in 2021, reaching its pre-pandemic level of output in Q2-2021. Poland's economic growth is expected to decelerate in 2022 and 2023 driven by Russia's unprovoked invasion of Ukraine, which has clouded the economic outlook, as projected by the Euroepan Commission 2022 Spring economic forecast. Due to public support which encouraged cutting worktime rather than jobs, the impact of the crisis on the labour market has been mild.

On the social side, strong economic growth in the past drove up employment and created moderately inclusive growth, while reducing the risk of poverty in the population. The share of people at risk of poverty saw a significant fall over the period 2014-2018, reaching 18.9% in 2018, well below the EU average. The income share of the bottom 40% of the population showed a marked increase over the same period, going from 21% in 2014 to more than 22.5% in 2018. Nevertheless, significant disparities continue to exist across vulnerable groups. The difference in employment rates between men and women remains high and the gap has widened in recent years. Similarly, the gender pay gap has increased over the 2014-2019 period, as opposed to the falling trend in the EU. The COVID-19 crisis is also likely to have accentuated limited employment opportunities for disadvantaged groups, who are facing a significantly higher risk of poverty and for whom social exclusion remains a challenge. The unemployment rate among youngsters increased visibly compared to the total population, which could lead to lower future earnings, skills depreciation, and depressed productivity growth in the long term, especially if there is a sustained increase in long-term youth unemployment. Despite investments in online education, the COVID-19 pandemic has deepened inequalities in education, affecting in particular disadvantaged students, which may also lead to increased early leaving from education and training in the long run. Women's participation in the labour market also remains well below men, as they generally bear a larger share of care responsibilities.

Overall, and compared to initial expectations of a much deeper and protracted recession in Poland, the economic scars of the pandemic recession appear to be comparatively moderate. In light of the relatively swift recovery that Poland is projected to experience in economic activity, policy attention should be placed on more structural – rather than purely cyclical - constraints on growth and prosperity. In light of Poland's aforementioned structural challenges, which became more apparent as the economy 'heated up' in the pre-pandemic years, the plan's strong focus on vocational education, governance and productivity-enhancing investment into the green and digital transition, can be regarded as a comprehensive and adequate response to the economic crisis.

Impact on growth potential

In the long run, structural reforms contained in the Polish RRP are expected to entail a GDP gain of *at least* 1.9% by 2040 according to the authorities, relative to the counterfactual scenario without the RRP. Two thirds of these effects are assumed to come from increasing the quality of human capital, improving the skills composition and the increased size of the Polish labour force. The remaining third of the effect is expected to come from the build-up of productive capital, in particular reforms to enhance the efficiency of public administration and improve the business environment. These measures would raise productivity and maintain the competitiveness of the Polish economy. As a result, a successful implementation of the RRP could facilitate the country's transition to a new, more diversified economic model, based on a larger share of high value-added activities. By addressing long-standing weaknesses of the Polish economy and preparing the country to successfully face the challenges posed by 21st century trends, these reforms could have a long-lasting beneficial effect on Poland's economic performance and growth potential.

The RRP focuses on scaling up innovative solutions in the economy and transforming the economy towards the circular economy. The plan aims to increase the innovation capacity of the economy by supporting research institutions and laboratories and their closer cooperation with businesses in particular in the areas of digitalisation and green transition. The objective is also to increase the innovation potential on the supply side (creators and providers of innovative solutions) as well as on the demand side (implementing innovative solutions). By introducing tax incentives Poland expects to see a greater uptake of robotisation and automation processes. Improving the framework for technology transfer between science and the industry as well as the development of research capacities should lead to a higher rate of commercialised innovative technologies, in particular in the area of environmental solutions related to the circular economy, unmanned vehicles and agriculture.

Low labour force participation is another important factor constraining Poland's potential growth, which the RRP aims to address via several channels. Measures to increase the labour market relevance of skills and to reduce mismatches as well as measures aiming for better and more digitally-inclusive education should facilitate a higher participation in the labour market. The RRP also intends to expand the long-term care facility network for the elderly which can unburden family members, particularly women, hence supporting their return to the labour market. Increased investments in childcare can also help tackle the lower labour market participation of women. These measures could have a beneficial impact on potential economic growth, especially given the projections of a fast-ageing Polish population.

By addressing problems in the efficiency of public administration and procedures, the RRP could also facilitate a more favourable business environment and investment climate which is more conducive to private investment and innovation. Reducing the regulatory and administrative burden for business by e.g. simplifying certain procedures and streamlining existing land-planning legislation can help lower barriers to investment and enhance the competitiveness and productivity of Polish businesses. A fundamental reform to enhance the use of public consultations in the law-making process is also expected to lead to an improved and more stable regulatory framework, increasing business confidence. Extending the number of areas defined as special economic zones is also expected to increase investment levels and attract investors, particularly foreign ones. Poland's potential growth should significantly benefit from these reforms in the coming decades, particularly through increased productivity growth, investment, and innovation.

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Taking into consideration the reforms and investments envisaged by Poland, its recovery and resilience plan is expected to contribute to effectively addressing 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 Poland. This would warrant a rating of A under the assessment criterion 2.2 in Annex V to the RRF Regulation.

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

Box 2: Stylised NGEU impact simulations with QUEST - Poland

Model simulations conducted by the Commission using the QUEST model show that the economic impact of the NGEU in Poland could lead to an increase of GDP of between 1.1% and 1.8% by 2026[1]. After 20 years, GDP could be 0.6% higher. Spillovers account for a part of the effect.

According to these simulations, this would translate into up to around 105,000 additional jobs. Cross border (GDP) spillovers account for 0.2 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)[2].

Table 1: QUEST simulation results (%-deviation of real GDP level from non-NGEU case, linear disbursement assumption over 6 years)

Scenario	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2040
Baseline	0.7	1.3	1.5	1.6	1.7	1.8	1.4	1.0	1.0	0.9	0.6
of which spillover	*-0.4*	*-0.2*	*0.0*	*0.1*	*0.2*	*0.2*	*0.2*	*0.2*	*0.1*	*0.1*	*0.1*
Low productivity	0.4	0.9	1.0	1.0	1.1	1.1	0.7	0.3	0.3	0.3	0.2

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 Poland's GDP by 15% in 20 years' time, compared to 11% for the EU average[3].

Due to the differences in the assumptions and methodology, **the results of this stylised assessment cannot be directly compared to the numbers reported in chapter 4 of Poland's RRP**.

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

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

[3] 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

4.3.1. Fostering economic growth and jobs

The implementation of the Recovery and Resilience Plan is expected to contribute to economic growth and job creation in Poland. RRF-funded public expenditure is expected to provide a boost to aggregate demand in the short to medium term and to improve further the position of the Polish economy. In the long run, investments together with the planned structural reforms could help address the current growth challenges, including low investment and innovation levels and skill mismatches. This would facilitate the country's transition to a knowledge-based economic model more focused on high value-added activities, and which remains competitive amid increased automation and the digital and green transition. Implementing the RRP is therefore expected to raise potential output and to have a lasting impact on the economic performance of Poland.

Non-refundable grants from the RRF amount to around 4.6% of pre-crisis GDP, which Poland plans to spend mainly on public investments spread over 6 years between 2021 and 2026. These expenditures constitute a sizable fiscal stimulus, as a result of which the Polish authorities estimate real GDP to be 1.3% higher in 2025 relative to the counterfactual scenario without the RRF. The labour market is also expected to improve, with employment forecasts to be 0.4% higher by 2025 than it would be in the absence of RRF grants over the same time horizon. This short to medium-term boost to aggregate demand should speed up the recovery of the Polish economy from the COVID-19 crisis, especially in light of the high share of construction projects in the investment plan and considering that the Polish construction sector was among the hardest hit during the pandemic.

The transmission channels of higher public investment spending to the broader economy are manifold. In addition to the direct effect of more public expenditures on GDP, there is also an indirect response of the economy via influencing private spending decisions, which will determine the size of the fiscal multiplier in the current environment of depressed demand, the usual effect of crowding out private expenditures via higher real interest rates is likely to be muted, given the expectations of continued monetary policy support by the National Bank of Poland for the coming years. In addition, by expanding the capital stock of the economy, public investment can raise the productivity of the private sector, and thereby crowd in private investments. Higher public spending raises incomes in general, while higher productivity also contributes to faster real wage growth, which can further support household consumption. This is even more so if households tend to consume a large fraction of their earnings, which bodes well for Poland with household saving rates below the EU average. Finally, additional spillover effects are expected to come from the fact that the RRF will be implemented simultaneously in other EU Member States in a relatively short time.

In the long run, the measures contained in the Polish RRP are expected to entail a GDP gain of at least 1.9% by 2040 according to the authorities, relative to the counterfactual scenario without the RRF. Two thirds are expected to come directly from improvements in human capital and skills, which are set to alleviate skills shortages in the Polish economy, while the remaining one third is expected to be a direct consequence of the build-up of productive capital. In addition, potential growth could be stimulated by improvements in the efficiency, accessibility and quality of the health system, which coupled with improvements in the labour market participation of disadvantaged groups, are expected to increase labour market activity.

The RRP contributes to potential output also by speeding up the recovery from the COVID-19 crisis, hence preventing long-term scarring due to hysteresis effects, prolonged unemployment and rising bankruptcies and mitigating permanent economic damages as a result of the pandemic.

As far as the plausibility of these short and medium-run economic impact estimates is concerned, the Polish RRP rests on well-reasoned macroeconomic modelling and econometric techniques. The implied fiscal multiplier of 1.3 over the period of 2021-2026 is only slightly below the averaged 1.4 estimated by the Commission's own QUEST macroeconomic model for the same public expenditure profile and calibrated for Poland. The estimated medium-term employment response in the RRP is also largely in line with that given by QUEST.

In addition, the above short and medium-run estimates only consider the effects of public investments in the RRP, while structural reforms are not taken into account. Given that structural reforms could start to exert their beneficial economic impact in the medium term, this might constitute a downward bias in the estimated figures.

Investment baseline

The public investments outlined in the RRP are convincingly argued to be additional to what would have been the case in the absence of the RRF. The case for macro-additionality is supported by analysis in the Plan showing that baseline public investments, excluding those to be financed from RRF grants, are forecast to be at least as high on average over the period of 2021-2026 as they were in 2017-2019. This makes it likely that, by coming in addition to these investments, RRF-funded spending truly contributes to economic growth and does not just replace otherwise planned nationally-financed investments, being used only for public debt reduction.[10] According to information supplied by the Polish authorities, nationally-financed baseline public investments (excluding military spending) are expected to be on average 38.3% higher in nominal terms between 2021 and 2026 compared to the three years preceding the pandemic. This corresponds to baseline investments maintaining a similar share of GDP across the two time periods.

Prior to the pandemic the composition of public investments was dominated by spending on transport and health infrastructure. Funds from the RRF place an emphasis on investments in the areas of environment and sustainable mobility. More than a third of the funds are planned to go for green economy measures, which mainly include investments in renewable energy sources and energy efficiency measures. Over a fifth of the funds are directed to investments in sustainable mobility measures, including the promotion of clean public vehicles and investments in railway infrastructure and the electrification of rolling stocks.

4.3.2. Strengthening social cohesion

The Recovery and Resilience Plan addresses several social and territorial challenges relevant for Poland and contributes to the implementation of the European Pillar of Social Rights. It includes measures on the availability and quality of childcare, digitalisation of schools and development of digital skills, on vocational training and adult learning, and on health and long-term care and access to public services. Upskilling and reskilling of the population, better coordination of policies and territorial coverage are specifically mentioned as objectives of several measures, including those related to the digitalisation of schools.

The plan primarily aims to reduce social inequalities through reforms and investments in the education and skills system. Investments in childcare facilities are expected to support labour market participation, especially among women. Supplying all schools with modern ICT

[10] While it is never straightforward to establish a true counterfactual scenario, the default working assumption is that even without the RRF public investments would have at least stayed at a similar level than prior to the pandemic.

equipment for students and teachers on the basis of a strategic approach for the short, medium and long term are expected to contribute to improving learning conditions. Furthermore, people excluded or at risk of exclusion are expected to benefit from a dedicated share of investments on the strengthening of basic digital skills.

Reinforcing and better coordinating the existing offer of secondary and higher vocational education and training and lifelong learning will also contribute to supporting labour market participation. Reforms and investments in this field are expected to better equip the workforce with the skills needed for the modern economy, with a particular focus on the digital and green transitions. Investments in setting up sectoral skills centres are also expected to channel a significant share of support towards the inclusion of persons with disabilities in the sectors concerned.

In light of the above, the reforms and investments in the plan are coherent with the main relevant EU policy agendas in the field of skills, vocational training and adult learning. They are expected to help deliver on the related principles of the European Pillar of Social Rights. These actions are also expected to support Youth Guarantee scheme, notably by increasing skills and qualifications of young people and ultimately improving the creation of qualified employment.

Comprehensive reforms reinforced with significant investments are expected to improve the resilience, accessibility and effectiveness of the Polish healthcare system. Restructuring hospitals with substantial supportive investment based on a precise identification of investment needs at regional and national level are expected to contribute to address the challenges in the hospital sector. A set of specific reforms and targeted investments will cover a wide range of medical professions, including specialised medicine, emergency health services and nursing. Medical universities as well as their current and future students are expected to benefit from substantial investment support and the creation of new schemes to encourage choosing this study path and incentivising young medical professionals to remain in Poland after the end of their studies. Investments in universities' infrastructure and the clinical base are to improve the studying conditions and thus help increase the number of students interested in taking up medical studies. The attractiveness of the medical sector will be subject to a dedicated reform, including minimum salary increases for certain medical professions to be financed from national sources.

Reforms and investments aimed at improving connectivity and ensuring universal access to high-speed internet should contribute to reducing existing territorial gaps. The plan indicates that more than 35% of households in Poland are still unable to access the internet with a speed of at least 100 Mbps, with strong differences between urban and rural areas, as well as between western and eastern Poland. This gap should be significantly narrowed by the investments in connectivity foreseen in the RRP. In addition, measures dedicated to increasing the availability of digital public services and supporting the digital transition of public administration shall contribute to improving accessibility of public services.

4.3.3. Reducing vulnerability and increasing resilience

While no macroeconomic imbalances have been identified, Poland's economy faces several challenges to a more sustainable growth path. An ageing population and a decreasing number of people at working age are significant challenges that may hamper Poland's growth potential in the medium-to-long term. The plan aims to tackle labour and skill shortages by investing in labour market relevance of skills and supporting reskilling/upskilling projects, particularly in SMEs, as well as by encouraging higher labour market participation of disadvantaged groups by investing in child-care and long-term care infrastructure. Moreover, the strong focus on the green transition in the plan is set to reduce Poland's dependence on fossil fuels, cushioning the potential impact of supply or price shocks as well as contributing to addressing energy poverty. This will be achieved by an expansion of renewable energy production, by measures to reduce energy consumption of buildings and in industry, and by moving towards a more sustainable transport system (such as through the purchase of alternative fuels rolling stock, or the development of infrastructure for e-mobility). The plan also aims to address emerging weaknesses in the housing sector, which has seen swift house price growth in recent years, through a reform to streamline and improve land-planning legislation. Enhancing the investment climate is also a significant challenge for Poland given the low investment levels that the country has been experiencing in recent years compared to the EU average. Several measures included in the plan are expected to significantly reduce the regulatory and administrative burden to businesses and to contribute to safeguarding the independence of the judiciary, which should improve the business environment and support increased investment levels.

Poland's plan includes a range of measures in the social, education and skills policy areas that can be expected to improve social resilience. The strategic approach to digitalisation in primary and secondary education aims to ensure equal access to digital and online education, as well as a more efficient integration of new technologies in teaching and learning. Improving the digital skills of all students, teachers, as well as of public officials, citizens without digital skills or those at risk of exclusion will help public administration, the education system and vulnerable social groups face important challenges. The creation of sectoral skills centres for up- and re-skilling, as well as support for the skills coordination in the regions will enhance employability and opportunities for labour market participation.

Structural reforms, improved capacities and digitalisation efforts are set to strengthen institutional resilience. The digital transition of the country's public administration is the most efficient way to provide faster, cheaper and better services. A more effective and efficient public administration should provide a solid platform for the development of businesses and ensure quality services for citizens and businesses. Similarly, development of e-health services will contribute to improving the accessibility of healthcare accessibility and effectiveness of the health system, as well as to reinforcing the system's administrative capacity. This, in turn, is expected to attract the investments needed to support growth and economic development. Efforts on the digitalisation of the public sphere have the potential to foster a user-friendly and accessible administration, while reducing risks of corruption.

4.3.4. Cohesion and convergence

The Recovery and Resilience Plan of Poland includes a number of measures aimed at reducing territorial and economic disparities. The socio-economic consequences of the pandemic are likely to be unevenly distributed across regions due to different specialisation patterns. This entails a risk of widening territorial disparities within Poland.

Improved coordination of vocational education and training, higher education and lifelong learning in the regions may contribute to addressing existing weaknesses. Investments in sectoral skills centres, underpinned by a dedicated reform, are expected to promote links between relevant stakeholders, such as educational and labour market institutions, enterprises and employers' organisations, and local and regional authorities. This should help improve the matching of skills with labour market needs at national and regional levels. Digitalisation in primary and secondary education aims to ensure equal access to digital and online education, as well as a more efficient integration of new technologies in teaching and learning. Improving the digital skills of all students, teachers, as well as of public officials, citizens without digital skills or those at risk of exclusion can further contribute to mitigating regional disparities.

Some of the measures included in the plan in the area of healthcare may also contribute to alleviate social and territorial disparities. They aim to address challenges related to accessibility of healthcare services, including emergency and specialised units. Among others, district hospitals are expected to benefit from targeted support for their partial restructuring into long-term care centres, based on a thorough analysis of local needs.

Addressing territorial disparities is also among the objectives of thet digital component, with measures dedicated to promoting the development of network infrastructure, a focus on increasing access to high-speed internet services in white next-generation-access (NGA) areas and to strengthening the digitalisation of public services.

Investments related to the green transition in the plan could have beneficial effects on social and territorial cohesion mainly via creating new and more accessible job opportunities. Investments in the provision of low and zero-emission rolling stock for bus connections in areas with poor transport accessibility are expected to help connect remote regions to economic centres and to facilitate the commuting of jobseekers to where employment opportunities are more abundant, thereby improving the labour market outcomes of the population in less developed regions. In addition, construction projects related to renewables, in particular offshore wind farms and dedicated infrastructure investments, would provide another source of job opportunities for medium skilled workers. Assistance for renovating and increasing the energy efficiency of family homes and public buildings would help address the energy poverty prevalent among poor households. Measures aimed at increasing the availability of water and sewerage infrastructure in rural areas are expected to improve the quality of life in those regions. Investments in the agriculture sector may further contribute to territorial cohesion.

The tax and social security reforms foreseen in the plan may have a beneficial impact on the labour market. Lowering income tax for those who reached the retirement age but do not retire and continue working creates an incentive to extend careers and increase the effective retirement age. This may positively contribute to employment, in particular via labour supply, addressing crucial demographic challenges including a shrinking working-age population. In addition, this may help alleviate old-age poverty, which is expected to increasingly become a challenge in the future, particularly for women, considering the design of the pension system in Poland and the low statutory retirement age. At the same time, extending full social security contributions to all civil-law contracts is expected to further reduce the segmentation of the labour market and provide better social protection, including through pension contributions, to certain groups of workers.

While the precise impact of the above measures on social and territorial cohesion is uncertain, and they are unlikely to exhaustively solve all the existing challenges, the RRP is nevertheless expected to make a contribution to addressing them.

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Taking into consideration all reforms and investments envisaged by Poland, 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 to the RRF Regulation.*

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

Social Scoreboard for POLAND		
Equal opportunities and access to the labour market	Early leavers from education and training (% of population aged 18-24) (2021)	5.9
	Individuals' level of digital skills (% of population 16-74) (2021)	43.0
	Youth NEET (% of total population aged 15-29) (2021)	13.4
	Gender employment gap (percentage points) (2021)	14.0
	Income quintile ratio (S80/S20) (2020)	4.1
Dynamic labour markets and fair working conditions	Employment rate (% population aged 20-64) (2021)	75.4
	Unemployment rate (% population aged 15-74) (2021)	3.4
	Long term unemployment (% population aged 15-74) (2021)	0.9
	GDHI per capita growth (2008=100) (2020)	145.3
Social protection and inclusion	At risk of poverty or social exclusion (in %) (2020)	17.0
	At risk of poverty or social exclusion for children (in %) (2020)	16.1
	Impact of social transfers (other than pensions) on poverty reduction (% reduction of AROP) (2020)	36.8
	Disability employment gap (ratio) (2020)	31.3
	Housing cost overburden (% of population) (2020)	4.9
	Children aged less than 3 years in formal childcare (% of under 3-years-olds) (2020)	11.2
	Self-reported unmet need for medical care (% of population 16+) (2020)	1.9

Critical situation	To watch	Weak but improving	Good but to monitor	On average	Better than average	Best performers

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 Joint Employment Report 2022. Due to changes in the definition of the individuals' level of digital skills in 2021, exceptionally only levels are used in the assessment of this indicator; NEET: neither in employment nor in education and training; GDHI: gross disposable household income.

The Social Scoreboard supporting the European Pillar of Social Rights points to some employment and social challenges in Poland. While the COVID-19 crisis has slowed down the positive labour market developments observed in the past, Poland’s labour market performance remained strong compared to other Member States. The unemployment rate, at 3.4% in 2021, is one of the lowest in the EU and long-term unemployment has been decreasing (0.9% in 2021). There is a need to address skills mismatches and shortages. Individuals’ levels of digital skills are relatively low (only 43% have basic or overall basic digital skills). The rate of early leavers from education and training is very low, at 5.9%. Poverty has been steadily decreasing, however the share of people experiencing persistent poverty has increased.

The gender employment gap and participation in formal childcare are at critical levels. While the overall employment rate (75.4%) was slightly higher than the EU average (73.1%) in 2021, the employment rate of women was about 14.0 pps below that of men. This very large gender employment gap is attributable to women’s caring responsibilities. Poland has one of the lowest childcare enrolment rates in the EU, with 11.2% of children aged less than 3 years in formal childcare in 2020 (EU average in 2019: 35.3%), decreasing from 11.6% in 2017.

The Recovery and Resilience Plan submitted by Poland addresses some employment and social challenges relevant for the implementation of the Pillar. To foster equal opportunities and access to the labour market, the plan envisages measures in support to the employment of migrants and the social economy, as well as a strengthening of the public employment services through capacity building, aiming at increased efficiency. Also, measures to increase employment of certain groups, particularly women and older workers, are included in the plan.

With more people likely to fall back on basic safety nets due to the COVID-19 crisis, reforms of social protection and inclusion are important in order to provide much needed support, in synergy with ESF funding. To support social protection and inclusion, Poland aims to increase access to childcare through proposed infrastructural investments. This will be followed by a reform creating a new system to finance childcare, relying on the Recovery and Resilience Facility, ESF+ and national financing from the Toddler+ programme. However, the long-term sustainability of this system is still to be ensured. Healthcare challenges are addressed by creating the right conditions for an increase in the number of medical staff by supporting capacity of medical universities and increasing the number of students. The plan also aims at addressing challenges concerning the accessibility of long-term care.

4.4. The principle of 'do no significant harm'

Poland has carried out an adequate Do No Significant Harm (DNSH) assessment of all measures included in the plan within the meaning of Article 17 of the Taxonomy Regulation (EU) No 2020/852). The assessment follows the methodology set out in the Commission´s technical guidance on the application of DNSH under the RRF Regulation (2021/C 58/01). It covers the six environmental objectives, 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. 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 cases where the analysis identifies a risk, a more detailed assessment is performed. Based on the information provided by Poland, no measure for the implementation of reforms and investments projects included in Poland's recovery and resilience plan is expected to do significant harm to the environmental objectives within the meaning of Article 17 of the Taxonomy Regulation. Strong commitments are included that DNSH requirements shall be complied with, being enshrined in the design of measures and reflected in various milestones and targets.

The potential harmful environmental and climate impact of all relevant measures is addressed through appropriate assurances that the applicable criteria will be met. Measures targeting industry decarbonisation will aim at levels of greenhouse gas emissions substantially lower than the applicable EU Emission Trading System benchmarks; building renovations will comply with requirements linked to the boiler replacement and will ensure that at least 70% of demolition waste is reused or recycled; hydrogen production will meet the GHG emission threshold set out in the Delegated Act to the Taxonomy Regulation, and the rolling stock/vehicles will meet the applicable emission standards. With respect to wastewater and water management projects, Poland will ensure full compliance of supported projects with relevant EU legislation, namely the Water Framework, Habitats and Birds, EIA and SEA Directives and national legislation. Measures related to the development of hydrogen technologies will support only renewable and low-carbon hydrogen . These criteria are also reflected in the milestones and targets through references to relevant criteria and thresholds (e.g. hydrogen projects need to meet the GHG emission threshold of 3 tCO_2e per tH_2). In transport, only electric urban buses and high-floor buses meeting EURO 6 criteria will be supported. Investments in roads will be limited and related only to increasing road safety, e.g. through the construction of road bypasses**.**

The DNSH compliance of the financial instruments (relevant notably to measures in transport and innovation) will require that an investment strategy and subsequent contractual agreement with financial intermediaries is aligned with the Commission sustainability proofing guidance. This requirement is reflected in the design of individual measures and corresponding milestones and targets.

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Taking into consideration the assessment of all the measures envisaged, no measure for the implementation of reforms and investments projects included in Poland´s recovery and resilience plan is expected to do a 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 to the RRF Regulation.

4.5. Green transition

Climate target

Measures proposed in the plan to support climate change objectives account for 42.7% of the plan´s total allocations, which exceeds the 37% threshold. In absolute terms, the highest contributions towards this target come from measures targeting offshore wind installations, building renovations, railway modernisation, clean rolling stock, investments in green urban transition, and support to hydrogen technologies. The tagging applied follows the methodology for climate tracking in line with Annex VI of the Regulation and the relevant conditions set out in the Regulation for applying specific climate co-efficients are reflected in the description of milestones and targets included in the annex to the draft Council implementing decision. Where appropriate, the tagging is applied the sub-measure level, e.g. in the case of green urban investments, railway investements and bus investements. The increase of climate coefficient has not been proposed.

Table 6: Climate contribution of the components in the Polish recovery and resilience plan

Component	Cost (EUR million)	Climate contribution (EUR million)	Climate contribution (% of total cost)
A - Resilience and competitiveness of the economy	4,700	130.4	0.4%
B - Green energy and energy intensity reduction	13,868	8,766.2	24.8%
C - Digital transformation	4,897	74	0.2%
D - Efficiency, accessibility and quality of the health system	4,381.5	0	0%
E - Green, smart mobility	7,517	6,119.3	17.3%
F - Improving the quality of institutions and the conditions for the implementation of the RRP	0	0	0%
Total	35,363.5	15,089.9	42.7%

Green transition

Reforms and investments included in Poland's recovery and resilience plan are expected to make a significant contribution to the gradual decarbonisation of the economy. The recovery and resilience plan builds on the National Energy and Climate Plan (NECP) 2021-2030 and Poland's Energy Policy until 2040 (PEP2040), an energy transition strategy adopted in February 2021. The strategy envisages a gradual transition away from coal with no more than 56% of electricity generated from coal in 2030 (in the scenario with high CO2 price increases, the share of coal could fall to 37%) and at least 23% renewables in gross final energy consumption, while primary energy consumption decreases by 23% (compared to PRIMES 2007 projections). The planned actions should reduce greenhouse gas emissions by 30% by 2030 (compared to 1990).

The recovery and resilience plan includes important reforms and sizable investments in energy and transport which are expected to accelerate Poland's green transition towards a low-carbon economy and to contribute to the European Green Deal objectives of reducing emissions by at least 55% by 2030 and achieving climate neutrality in the EU by 2050. Reforms and investments in energy will be focused on supporting energy efficiency, heat sources in district heating, renewables, hydrogen and alternative fuels, transmission networks and smart infrastructure, and industry decarbonisation. In transport, the focus will be on the development and modernisation of rail, clean passenger transport and inter-modality. Investments in water and waste-water management will aim at adapting to climate change, while ensuring sustainable water use.

After years of relative stagnation in the share of renewables in Poland's energy mix, measures included in the recovery and resilience plan are expected to unlock the potential

for investments in that field. Poland will significantly increase the installed capacity of onshore wind farms and photovoltaic installations. Doubling the installed capacity of these two technologies from 11.2 GW to 23.5 GW in 2026 will contribute to stepping up Poland's decarbonization. The provisions prescribing the minimum distance between installations and dwellings (so-called 10H distance rule) that halted the development of onshore wind will be relaxed. The existing renewables support scheme will be prolonged and a long-term auctioning plan will be published in order to provide the predictability necessary to investors. Individual and community prosumers will be supported through a dedicated regulatory framework, notably through provisions on group billing in micro-grids. The development of offshore wind in the Baltic Sea will be supported by a dedicated legal framework and will be financed to a large extent through the RRF, both the project preparation phase with the development of a dedicated port and the actual construction of the wind farms. Under the plan, decentralised renewables (mostly solar and wind) for energy communities and companies will be targeted through pre-investment and investment support. The above will be combined with investments in developing and modernising the electricity grid and introducing smart digital solutions to allow for the integration of additional renewables capacity.

Energy efficiency measures included in the plan are expected to significantly decrease the negative impact of the current coal-based heating systems on greenhouse gas emissions and other air pollutants, while increasing energy efficiency in the end-use (buildings, industry). Poland has persistent problems in complying with air quality standards stemming from the EU air quality directives. In addition, according to the WHO, as many as 36 of the 50 most polluted cities in the EU were Polish cities. This is primarily due to coal-based individual heaters combined with a low energy efficiency of buildings. The recovery and resilience plan therefore rightly places an emphasis on accelerating the transition to clean alternatives. This will be achieved by upscaling and simplifying the Clean Air Priority Programme, which is the main vehicle for investment support in the energy efficiency of residential buildings. The level of support will be modulated according to the scope of investment, but will also take into account the purchasing power of beneficiaries. Support to gas-fired boilers will be provided as part of a wider renovations scheme. In addition, new affordable housing supported under the recovery and resilience plan will meet efficiency standards going significantly (20%) above near-zero energy building standards. This will be coupled with a reform providing for a pre-determined higher level of subsidy for low-income households. These measures will be combined with a series of important reforms under a revised National Air Protection Programme, which will mandate an end of any public subsidies to coal-fired heaters as of 2022 and provide for a stronger enforcement of air quality standards set locally. Complementing that will be mandatory quality standards for solid fuels and a prohibition of misleading marketing in that sector. Heating will be also addressed at the district heating level with significant investments in clean combined heat and power generation, meeting strict 'do no significant harm' requirements. Additional reforms will be oriented towards simplifying and upscaling the Energy Efficiency Obligation scheme and encouraging the use of Energy Performance Contracts in the public sector.

Poland's recovery and resilience plan includes a comprehensive package of reforms and investments aimed at supporting the production and distribution of hydrogen and alternative fuels. This will include the adoption of legislation setting out the details of the functioning of the market, implementing EU law, taking into account the DNSH principle, and implementing a system of incentives, primarily for the production of renewable hydrogen, as well as low-carbon hydrogen that will comply with the GHG emission threshold . Support is planned for the development of hydrogen technologies as well as infrastructure for the production, storage, transport and use of hydrogen as a fuel in various sectors (transport, industry, heating and professional energy). It is expected that these measures will speed up the process of phasing out fossil fuels.

The expected long-term increase in the cost of fossil fuels will present a major challenge to the competitiveness of Polish enterprises given the reliance of the economy on coal. In that context the recovery and resilience plan includes a dedicated investment support scheme aimed the implementation of green solutions in companies. The scheme will focus on improving industrial and energy processes in order to increase energy efficiency together with investments in renewable and low-carbon energy sources. In order to ensure coherence with the EU Emissions Trading System for companies covered by the latter, investment support under the plan will aim at thresholds substantially below benchmarks for the free allocation of allowances.

In view of the fast-developing renewable energy sources, including energy generated by prosumers, investments in energy storage systems are necessary to ensure the stable operation of the electricity grid. The plan envisages supporting both large-scale and small-scale energy storage solutions. Pumped storage offers a reliable option that can quickly switch from the energy storage function to electricity generation. Backyard electricity storage facilities at the level of a prosumer can contribute to ensuring local stability of supply.

In line with the 2019 and 2020 country-specific recommendations, measures in transport are focused on shifting the transport system to zero and low-emission mobility across a number of areas. The key challenges are the significant emissions and air pollution – mainly due to road transport – with a significant increase over the last decades (+219% emissions in the period 1990-2019), as well as road safety. Reforms aimed at making transport more sustainable are focused on mandatory clean vehicle procurement, the promotion of e-charging points in residential buildings and support to the preparation of Sustainable Urban Mobility Plans. In rail, reforms will lower infrastructure access charge for operators affected by the economic crisis and promote intermodal transport. Road safety is addressed through important reforms providing greater protection to pedestrians and investment aimed at increasing road safety, with the ambition of decreasing road fatalities and seriously injured people across the country by 50% by 2030. Significant investments are targeting transport sustainability, including an upgrade of almost 500km of railway lines to increase capacity and speed for both freight and passengers; to promote clean public transport including with the purchase of zero-emission buses for urban and inter-urban transport and zero-emission rolling stock for rail transport. Investments in rolling stock are expected to be provided through schemes open to all actors and non-discriminatory, or as part of a clearly defined Public Service Obligation (PSO) contract, in which case at the end of the contract the rolling stock will be made available to the next public service operator at market conditions net of public support. Support will only be granted to zero-emission rolling stock and equipped with ERTMS. Any intervention should comply with the Technical Specifications for Interoperability (TSI). Additional investments will be oriented towards increasing the capacity of inter-modal terminals, digitisation and road safety. Poland will also set up a dedicated investment fund which will provide equity or debt support for enterprises' investment projects related to the development of low and zero-emission solutions in the field of sustainable mobility and energy, focusing on SMEs and mid-caps. In order to ensure that this supply is matched with increased demand for clean vehicles, the purchasing of the latter will be encouraged through dedicated fiscal/financial measures in line with the “polluter pays’ principle.

Water and wastewater management will be addressed through reforms and through investments that expand wastewater systems in rural areas and adapt those areas to climate change through water management measures. The proportion of the population connected to wastewater networks remains low. This is particularly the case of rural areas where currently 16% of the population does not have access to a drainage system and 42% does not have access to a sewage system. The recovery and resilience plan focuses therefore on rural areas, while recognising that urban areas also require significant investments to be financed through other resources. A dedicated reform will improve the conditions for investments in rural areas in water management and resource efficiency and, as a result, increase the availability of water resources in rural areas through increased retention capacity. The proposed amendments will comply with the requirements laid down in the 'Do no significant harm' Technical Guidance, in particular, they shall ensure compliance with the EU environmental legislation, including the EIA Directive and the Water Framework Directive. The amendment shall not lead to any deterioration of the level of compliance with EU environmental legislation. Water management in rural areas will also be addressed through reforms and investments aimed at drought adaptation and flood prevention; improving water efficiency by properly regulating water relations in agricultural areas and reducing run-off. Nature-based climate change resilient methods and practices for water management in agricultural lands and forests will be prioritized, while possible further action will be supported once the resilient methods and practices have been exhausted, provided their need and nature is justified appropriately and does not affect negatively the good status of water bodies or the biodiversity objective. Taking into account the future impacts of climate change based on the best available science, only projects that do not lead to a deterioration of the status of surface waters and groundwater and do not prevent the improvement of the ecological status or potential of the affected water bodies will be supported.

Poland's recovery and resilience plan also includes measures that will contribute to "closing the loop" of product life cycles through greater recycling and re-use. Changes to the legislative framework shall enable trade in secondary raw materials and will be accompanied by investment supporting the development of technologies contributing to the creation of a market for secondary raw materials. The plan will also finance solutions aimed to develop and improve or implement green technologies related to the circular economy.

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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 and to address the challenges resulting from it 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 to the RRF Regulation.

4.6. Digital transition

Digital transition

Measures contributing to the digital transition account for 21.3% of the plan's total allocation, exceeding the required minimum target of 20% outlined in the Regulation. Out of the plan's six components, component C on Digital Transition clearly stands out as the main contributor to the digital target (with an allocation of EUR 4,818,000,000), with interventions in network deployment, e-services in the public administration, education, digital skills and cybersecurity. This is followed by digital investments in innovation and labour market (Component A), healthcare services (Component D), green energy and reduction of energy intensity (Component B) and sustainable transport (Component E). Taken together, these components contribute EUR 7,535,000,000 to digital objectives.

Digital tagging in the plan is in line with the methodology set out in Annex VII of the RRF Regulation. Specific weighting coefficients and intervention fields are identified for the calculation of each measure's support to the digital objectives. Each investment is correctly associated with a single intervention field, although the plan could be improved by considering the sub-measures associated to some investments and indicating the respective intervention field for each sub-measure, for instance on cybersecurity (C3.1.1) and investments to digitise SMEs (A4.4.1) Otherwise, the choice of intervention field is well-justified and reflects the nature, focus, objective or expected outcome of the investments included in each component. The plan does not propose to increase the digital coefficients for any measure. The tagging exercise is performed considering measures financed under both the grant and loan envelope.

Table 7: Digital contribution of the components of the Polish recovery and resilience plan

Component	Cost (EUR million)	Digital contribution (EUR million)	Digital contribution (% of total cost)
A - Resilience and competitiveness of the economy	4,700	1,176	3.3%
B - Green energy and energy intensity reduction	13,868	200	0.6%
C - Digital transformation	4,897	4,818	13.6%
D - Efficiency, accessibility and quality of the health system	4,381.5	1,000	2.8%
E - Green, smart mobility	7,517	341	1.0%
F - Improving the quality of institutions and the conditions for the implementation of the RRP	0	0	0
Total	35,363.5	7,535	21.3%

Digital transition

The reforms and investments put forward in the plan jointly represent a significant contribution to the digital transformation of the Polish economy and society. Poland's main digital challenges include legal and administrative obstacles to the widespread roll-out of high-speed broadband networks, particularly in rural areas, low or ineffective use of digital tools in public administration and the delivery of public services, insufficient digital skills among students, teachers and, in general, among the adult population and also the lack of a comprehensive digitalisation policy for education. Finally, the increasing number of cyber-attacks that show growing threats to cybersecurity also constitutes an important challenge. The

RRP is expected to tackle these challenges in an ambitious manner, in line with the EU Digital Strategy[11].

The Polish recovery and resilience plan dedicates an entire component to the digital transition. There are also reforms and investments in the digital sphere throughout the plan, amounting to 21.3% of the total plan allocation. Component C is dedicated to the digital transformation of Poland and consists of three sub-parts: C1 on improving access to high-speed internet; C2 on developing and consolidating e-services, creating the conditions for the development of digital breakthrough applications in the public sector, the economy and society, and improving communication between public institutions, citizens and businesses; C3 on increasing security in cyberspace, securing data processing infrastructure and digitising security services infrastructure. The other four components of the Plan also contain measures that contribute to the digital transition, for instance in the areas of innovation, labour market, agriculture, green energy and reduction of energy intensity, health and transport, thus reflecting Poland's objective to support the digital transition and to address the related challenges with a broad, cross-cutting approach**.**

The largest allocation of financial resources within the digital component is dedicated to connectivity, with the purpose of boosting the deployment of very high-capacity networks, including fibre and 5G. This will be done in line with the best practices of the EU Connectivity Toolbox.[12] The total amount allocated to investments in network infrastructure is EUR 1.4 billion for fixed broadband and EUR 1.2 billion for mobile broadband. With these resources Poland aims to provide universal access to high-quality telecommunication infrastructure and modern electronic communication services in market failure areas throughout the country, narrowing the gap between urban and rural areas. The investments will focus on: (i) covering 930,000 households in white NGA areas[13], to achieve broadband internet access with a capacity of at least 100 Mb/s and possibly increasing it to Gigabit capacity; (ii) supporting the roll-out of 5G network by concluding at least 100 contracts with telecom operators deploying additional base stations in market failure areas. These measures are expected to contribute to the achievement of the goals set out by the National Broadband Plan, namely speeding up the roll-out of ICT of the country by 2025, as well as achieving the EU's 2025 5G and Gigabit connectivity objectives.

The reforms and investments in the RRP aiming at the digitalisation of the public sector are expected to contribute to the digital transformation of both the public and private sectors. According to the Digital Economy and Society Index (DESI 2021)[14] Poland ranks 22nd on digital public services, well below the EU average, with only 49% of users of e-government services. To foster the development of public e-services, a more efficient management of IT resources in the public administration and a better interaction with citizens and businesses are needed. Poland will introduce provisions for the digitalisation of processes in the public administration, on the management of electronic documents (online handling of cases, production and collection of documentation, integration of e-services across administrative and

[11] COM(2020)67 - Shaping Europe's Digital Future
[12] EU Connectivity Toolbox of 25 March 2021
[13] Next Generation Access: Access networks which rely wholly or partly on optical elements and which are capable of delivering broadband access services with enhanced characteristics as compared to existing basic broadband networks.
[14] Digital Economy and Society Index Report for Poland, 2021

departmental boundaries) as well as on the introduction of electronic structured invoices. At the same time, a number of projects are expected to promote automated customer services and other digital solutions such as electronic identification, e-signature and data sharing platforms for citizens and businesses through breakthrough technologies such as internet of things, blockchain and artificial intelligence. These investments are expected to have a long-lasting impact on the digital transformation of the public administration and will be essential for strengthening the interoperability capacities of its digital services.

The approach to digital skills addresses the two strategic priorities of the European Digital Education Action Plan 2030[15]. First, fostering the development of a high-performing digital education ecosystem and, second, enhancing digital skills and competences for the digital transformation. The reforms foreseen in the area of primary and secondary education, skills and lifelong learning are expected to facilitate the entry in the labour market and to prevent the digital divide by guaranteeing equal access to digital infrastructure, equipment and skills. The RRP tackles these objectives with four different initiatives. First, through the adoption and implementation of a Digital Competence Development Programme, a multi-annual programme aimed at strengthening the development of digital competences in formal, informal and non-formal education. Secondly, by the adoption of binding minimum legal standards for equipping schools with digital infrastructure that will support the implementation of investments in ICT, enabling the use of digital technologies in learning on an equal level in each school. Thirdly, via the policy on digitalisation of education, which is expected to create a first, comprehensive strategy, constituting the basis for changes in the education system and defining the directions of digitalisation of the education system in the short and long term. Finally, the large-scale investment in the ICT equipment for primary and secondary schools (including in vocational education and training), kindergartens, as well as examination centres will support the implementation of the above policy measures, facilitating a more efficient and meaningful integration of ICT in education.

As far as the digitalisation of businesses is concerned, digital competences for SMEs are partially targeted by the investment on equipping companies to work remotely. The RRP envisages supporting 3,000 micro, small and medium-sized enterprises out of nearly 2 million with advice to firms on digitalisation, remote training for staff and the purchase of licenses and software to enable remote communication. In addition, the digital transformation of the public administration is expected to work as an incentive for companies to do the same, therefore the focus on e-services can indirectly contribute to the digital transformation of companies.

Cybersecurity has a prominent role in the Polish RRP, with the purpose of ensuring internet security and preventing cybercrime. Further to the growing number of cyber threats and incidents, Poland intends to increase the resilience of IT systems in the public administration, state services responsible for security and businesses as well as raise public awareness of security-related problems, in line with the Polish Cybersecurity Strategy. This includes improving capacity for incident detection and response, notably by setting up regional Security Operation Centres (ISACs), sectoral Computer Security Incident Response Teams (CSIRTs), as well as enhancing public-private information sharing and crisis management systems.

With RRF support, Poland will participate in the Common Data Infrastructure and Services EU multi-country project on Cloud and Edge Computing, in order to develop

[15] COM(2020)624 - Digital Education Action Plan 2021-2027 Resetting education and training for the digital age, 30 September 2020.

the next generation of joint capabilities in data processing with the participation of Polish businesses and technological actors. Poland committed to participate in this EU multi-country project expected to be implemented as a potential Important Project of Common European Interest (IPCEI) on Next Generation Cloud Infrastructure and Edge Services. This project will aim at the development and first industrial deployment of advanced R&D projects towards the future of data processing along the cloud to edge continuum. It will also provide networking opportunities among businesses and research and technology organisations while fostering know-how, knowledge transfer and capacity-building. The project is expected to develop the next generation of cloud and edge solutions, with high levels of innovation, energy efficiency and a positive environmental impact contributing to the EU Green Deal ambition.

The plan envisages several investments in the area of innovation that will equally contribute to the digital objectives. Projects related to the development and equipment of competence centres (specialist training centres, implementation support centres, observatories) and infrastructure will support an innovation ecosystem for unmanned vehicles. Investments in support of robotisation and innovation in enterprises will finance digitisation of processes that are expected to result in improved business efficiency.

A number of investments aim to enhance digital transition in the agricultural sector. In particular, investments to encourage Agriculture 4.0 solutions in farms, including the purchasing of sensors and the implementation of digital ICT systems, can increase productivity while encouraging more environmentally friendly production practices.

Some investments in the energy component also have a digital dimension. In particular, investments in the development of transmission networks, including smart electricity infrastructure are expected to support the development of modern digital technologies in the electricity market that are necessary to better integrate dispersed renewables sources.

In the health sector, significant investments for the digitalisation of health services are envisaged. Investments cover the launch of three central services: a Patient Health Analysis Tool, an AI-based decision-making support tool for doctors, and a central repository of medical data integrated with other key healthcare systems. Within five years of the RRP implementation Poland is committed to reach the level of 60% of medical document types digitised and 70% of adult patients covered by the Patient Health Analysis Tool.

In the transport sector, digital investments to promote the efficiency and safety of road and railways transport are envisaged. The plan includes direct investments to digitalise road transport (via Intelligent Transport Systems and equipment for road safety enforcement and controls including 100 automatic road traffic surveillance devices) and railway transport (through trackside and on-board ERTMS deployment, including retrofitting of 180 existing rolling stock, the purchase of 183 new trains, the installation of railways level crossing automation and traffic control systems in 35 railways stations and of dynamic information system in 27 locations). These are important investments that are expected to enhance the efficiency and safety of transport. Additional investments that facilitate the generalised use of e-ticketing for railway passengers are also foreseen.

The measures in the Polish plan contributing to the digital transition or helping to address the related challenges are aligned with both national and European strategies. At national level, the reforms and investments described in the plan are consistent with the Polish Broadband Plan and with the Polish Cybersecurity Strategy as well as national and regional programmes funded from Cohesion Policy, such as the Operational Programme Digital Poland.

At European level, they are aligned with initiatives like the EU Digital Strategy[16], the European Gigabit Society, the EU Skills Agenda, the European Pillar of Social Rights, the European Education Area and the Digital Education Action Plan.

This comprehensive set of measures is expected to have a lasting impact on Poland's digital transformation and to address the challenges resulting from it. The reforms and investments described are expected to be instrumental in developing the broadband network, improving the delivery of public services to businesses and citizens as well as the digitisation of public administration, while strengthening their resilience and cybersecurity. They will also contribute to the digitalisation of the education system and the development of digital skills. Enhancing the digital transition in agriculture can improve the resilience, sustainability, and productivity of the sector, which is particularly relevant given that the agriculture sector accounts for 2.7% of Poland's GDP and 8.7% of Poland's total greenhouse gas emissions. The digitalisation of electricity networks should contribute to a better integration of renewables and to reducing energy losses and emissions. In transport, the electrification of railways combined with traffic automation will provide incentives to users to switch from individual to collective mode of transportation. Making greater use of e-health digital solutions is also expected to strengthen the efficiency, accessibility and quality of health services. Altogether, these measures should contribute to the long-term transformation of the Polish economy towards a digitalised society.

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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 and to address the challenges resulting from it and ensure that at least 20% of its total allocation contributes to supporting digital objectives. This would warrant a rating of A under criterion 2.6 of Annex V to the RRF Regulation.

4.7. Lasting impact of the plan

The recovery and resilience plan includes a package of measures aimed at addressing most of the challenges identified in the context of the European Semester. The measures in the plan also are set to facilitate the green and digital transitions and strengthen the growth potential, job creation and economic and social resilience of Poland. The proposed reforms and investments are thus expected to have a lasting, positive impact on the Polish economy and society.

Most of the components of the plan are assessed as having a lasting impact on Poland. The measures presented in this respect comprise structural changes to the administration or relevant institutions and policies. The lasting impact refers to policy areas where the estimated long-term impact on growth potential and employment is significant, as specified in Chapter 4.3, but also in areas where structural changes are expected to improve social and cultural aspects that are not necessarily quantifiable.

[16] Shaping Europe's Digital Future: https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age/shaping-europe-digital-future_en

Structural change in public administration and institutions

Poland's recovery and resilience plan includes relevant structural changes to the public administration and institutions. Notably, reforms to improve the law-making process, to enhance the independence of the judiciary and to encourage the uptake of digital solutions in the public sector are set to have a lasting impact. An important reform relates to limiting the use of fast-track legislative procedures and enhancing the use of public consultations and impact assessments in the law-making process, which paves the way for an improved and more stable regulatory framework. Another reform package to simplify and streamline administrative procedures, limit the number of formalities and digitalise the main channel for handling administrative and legal procedures, is set to improve transparency and enhance the delivery of public services, thereby reducing the administrative burden for businesses.

Digitalisation efforts across a wide range of public institutions and administration levels have the potential to structurally enhance efficiency and improve the quality of public services. Reforms to digitalise the activities and administrative processes are set to structurally enhance efficiency in public administration and speed-up the delivery of public services. The plan also puts a strong focus on investing in e-governance infrastructure and on developing the digital skills of public staff, which has the potential to enhance innovation, reduce costs and improve productivity in the public administration.

The reform of the hospital supervision system will support cost-efficiency and the quality of services. The hospital sector reform envisages changes to the supervision and management system of hospitals covered by public financing in order to ensure a lasting improvement in effectiveness, quality, and access to healthcare and long-term care. The reform provides for the creation of a professionalised system of supervision of hospitals, strengthening management and improving the uptake of modern management tools, methods and systems in health care. These measures are expected to improve the resilience of the healthcare system.

The reform to modernise and simplify public finance management will strengthen Poland's budgetary framework. The full and effective implementation of several amendments to the Act on Public Finances will enable a more efficient and accountable management of public funds, as well as to help ensure the sustainability of public finances and prevent an unsustainable increase of expenditure in the future. In particular, the introduction of a new model of budget management and a new medium-term budgetary framework will help ensure fiscal discipline and provide benchmarks against which budgetary developments can be assessed over time. The plan also includes a measure to extend the scope of the Stabilising Expenditure Rule (SER) to more general government units, which is set to support the stability of public finances and control the increase in public expenditure and public debt.

Structural change in policies

Structural changes in policies are envisaged in all components of the plan and most of them are expected to have a lasting impact. Many of these changes refer to a new energy model for the transition to climate neutrality. The transition is considered as an opportunity to leverage the national economy in a spirit of sustainable development by promoting technological advancement, job creation, and the preservation of natural resources. This includes measures related to the decarbonisation of the energy sector and industry, the reduction of energy dependency, increasingly sustainable mobility, improved energy efficiency of buildings, and the deployment of new technologies for renewable hydrogen and other renewable gases. The plan is expected to also increase the productivity of Poland's economy and strengthen its resilience against future shocks in line with the 2020 new Industrial Strategy.

Several policy changes are envisaged to improve the business environment and investment climate with a lasting impact on the country's competitiveness and potential for attracting foreign investors. These cover measures to reduce the administrative burden on businesses, including the simplification of administrative procedures and the limitation of the two-instance procedure to a reduced number of cases, as well as measures expected to partially address the shortcomings related to the Polish judicial system. The measures to streamline the legislation in land planning are expected to enhance investment levels and to contribute to a more stable regulatory framework which enhances sustainability and the quality of services provided to citizens in municipalities. The amendments to the investment zone act, which are set to increase the number of areas defined as special economic zones, will also contribute to increased investment levels and attract investors, particularly foreign ones. The agricultural sector is set to benefit from a reform that provides clear and defined principles for contractual relations in the agri-food supply chain, which is expected to increase business confidence, particularly for SMEs and small producers, as well as reinforced research and innovation capacity through investment in research infrastructure.

Measures in the area of labour market and education will have a lasting positive impact by increasing labour market participation, addressing labour market segmentation, modernisation of vocational education and training, and providing up-skilling and reskilling opportunities. The plan includes measures to improve the coordination of policies in the regions on vocational education and training, higher education and lifelong learning, which can have an important lasting impact on the education system as a whole. The plan also contains measures to improve labour market participation and address labour shortages, for instance through increased availability of childcare facilities and modernising public employment services, as well as addressing labour market segmentation by reducing disparities in social security contributions between various work contracts.

Poland has put emphasis on broad stakeholder public consultations. Comments from stakeholders have been considered in the preparation of the plan. This led, for example, to the inclusion of measures to increase access to 5G mobile networks, an amendment to the planned reform of spatial planning, and enhanced investments in offshore wind farms and digitalisation of education. A series of working meetings and thematic roundtables structured the dialogue, and a public website of the plan was launched in February 2021, where proposals could be submitted.

The implementation of the Polish RRP will be subject to strict supervision and consultation, which will ensure that the measures included in the Plan have a lasting impact in the Polish economy. The plan envisages the creation of a monitoring committee that will be tasked with supervising the implementation of the measures under the recovery and resilience plan. The monitoring committee will be composed of the main stakeholders and social partners, which will ensure that the RRF funding is used in the most effective and efficient way, contributing to the lasting impact of the measures included in the plan.

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Taking into consideration all reforms and investments envisaged by Poland 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 to 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

According to the plan, the Ministry of Funds and Regional Policy is responsible for the coordination of implementation of the recovery and resilience plan in Poland. Particularly, the Ministry of Funds and Regional Policy is responsible for monitoring the implementation of the plan, verification of achievement of milestones and targets, reporting to the European Commission, establishing procedures for the implementation of the audit, and for drawing up and submitting payment requests and management declarations to the European Commission. Regarding coordination and reporting mechanisms between the Ministry of Funds and Regional Policy and other bodies responsible for the implementation of the investments and reforms under the components, the description, although brief, seems adequate. The same applies to the information concerning the assurance of management verifications, in particular for the fulfilment of milestones and targets. This will depend on an information system, which has already been put in place.

The plan provides a description of the institutional actors in charge of the implementation of individual reforms and investments. The plan clearly indicates in all components a public entity in charge for the implementation of each reform and investment. These are mainly ensured by the relevant ministries, but also other public entities and local governments, particularly in the investment part. In some cases, more than one body is responsible for the implementation. While there is no comprehensive information on a clear division of labour among them, the plan indicates a body in the lead of coordination and implementation of particular investments and reforms. The responsible bodies involved in the implementation of each reform and investment will liaise with the Ministry of Funds and Regional Policy via dedicated working groups to discuss the state of play of the implementation of the plan, to identify problems and to work out relevant solutions. The plan does not provide more details on the operational arrangements of these meetings. Instead, it says that the meetings' frequency and the composition of groups will be adapted on an ongoing basis to the specificities of the challenges identified during the implementation of the plan.

A dedicated Monitoring Committee is planned to fulfil an implementation monitoring role. While the Ministry of Funds and Regional Policy is in charge of the verification and the effectiveness of achieving milestones and targets, a dedicated body – the Monitoring Committee – is expected to ensure the correct implementation of the plan. It will be composed of representatives of the bodies implementing the plan, social partners, non-governmental organisations and local governments. The plan stipulates that the Committee will monitor the implementation of reforms and investments, ensure that funds are spent properly, analyse the impact of measures on the economy and its sectors, society and regional development, and ensure that measures implemented under other funding sources are complementary. However, it is not specified if the Committee would be involved in defining criteria and procedures for calls that would be the basis for disbursement of grants under the plan, which would significantly strengthen the monitoring function of the Committee. The Committee will operate based on a law that is currently not yet enacted.

Milestones, targets and indicators

The plan includes relevant and well-defined milestones and targets. The plan combines 49 reforms and 53 investments (broken down into 6 components) that are accompanied by 283 milestones and targets, making the overall number of the latter reasonable and manageable.

They indicate key steps towards the implementation of reforms and investment and are considered realistic and sufficiently ambitious to address the relevant challenges. The right proportion between milestones and targets is maintained, with the latter slightly predominating.

Milestones dominate the first phase of the plan's implementation, laying the groundwork for investments resulting from the adopted reforms. Most of the milestones involve key amendments to the framework of the crucial CSRs public policies such as labour market, healthcare, education, business environment, energy, transport, R&D, and aim to be adopted in the period 2021-2023. Targets, quantifying the objectives of investments and reforms dominate in the second period of implementation with an accumulation of targets at the end of the implementation. Intermediate targets or the monitoring steps are set to track the progress over the timespan.

The distribution of milestones and targets over the period until August 2026 is as follows:

- 78 for 2021-2022
- 91 for 2023-2024
- 114 for 2025-August 2026

For most of the reforms and investments, milestones and targets are designed around a life-cycle approach, which ensures that the overall objective shall be achieved. For the reforms the initial milestone is often associated with the entry into force of the important piece of legislation. Investments in turn, commence by launching a call for tenders. Reforms and investments end up with either an implementing milestone or output oriented target. Milestones and targets to ensure appropriate climate tracking/digital tagging and compliance with ‘do no significant harm’ (DNSH) principle are also included.

Indicators chosen for the implementation of milestones and targets are clear, realistic and robust. Data sources, methodology of collecting the data as well as the verification mechanisms of milestones and targets, that will trace the implementation of the reform and investments, are described properly. More details shall be defined in the Operational Arrangement to be concluded with the Commission, as prescribed in Article 20(6) of the RRF Regulation.

Overall organisational arrangements

While there is currently no dedicated law in place, the arrangements set up to devise, negotiate and ensure an efficient and regular implementation of the plan seem to have a sufficient legal mandate. Poland has not enacted a separate law that would cover mandates, functions, remits and responsibilities of various bodies involved in the implementation of the plan. However, the plan indicates other legal bases defining them. In particular, the law on principles of the conduct of development policy (of 6 December 2006, subsequently amended) gives a clear mandate to the Minister of Funds and Regional Policy to (i) coordinate the preparation and implementation of development strategies co-financed by development funds of the European Union or other foreign sources, and to (ii) prepare a draft of the development plan. The development plan is defined as a document setting out reforms and investments involving European Union funds aimed at mitigating the social and economic consequences of the crisis and strengthening the country’s sustainable development. The legal mandate for other bodies implementing the plan is specified in the plan itself (adopted by the Council of Ministers), in a law defining the remit of particular ministries (of 4 September 1997, subsequently amended) and in other laws and regulations defining their operations. The plan stipulates that the Monitoring Committee will operate on a basis of a law, however without providing any further detail, in particular on the appointment criteria and modalities for its members.

The plan provides some information on the administrative capacity. The brief description focuses mainly on underlining the experience of the bodies (and their staff) in charge of the implementation of the plan in implementing similar undertakings, and in particular in implementing the EU structural funds. The plan states that the implementation of some parts of the plan can be delegated to dedicated (public) bodies and agencies that have sufficient experience and expertise in the area (those bodies are mentioned in the plan). According to the plan, around 1400 individuals will be involved in implementing the plan, including those that are currently in charge of the implementation of other EU funds in Poland. However, the plan does not specify how many of those individuals still need to be recruited.

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

4.9. Costing

Poland submitted information about cost estimates for all measures of the plan involving a cost. All measures across the six components of the plan include a cost estimate accompanied by relevant information on the methodology and calculations on how it was reached.

Poland provided complete costing information following the structure recommended by the Commission and complemented with additional elements in various pieces. In the Guidance to Member States adopted by the Commission on 22 January 2021 Member States were invited to fill a specific table providing information on cost estimates, breakdown, methodology, reference data and possible independent validation. The table was intended to summarise the key information and evidence on costing, including supporting documents (evidence of similar past projects financed by the EU with information on whether they have been reimbursed and subject to a control cycle, review or accounting reports, studies to substantiate key assumptions, etc.). Poland provided a comprehensive table following the structure recommended by the Commission and complemented it with specific spreadsheets for each measure as well as a short description of the cost estimates in the main document of the recovery and resilience plan.

Reasonable costs

The methodology and assumptions used to make the cost estimates are overall clear even though they vary across measures. In some cases, the costing estimate is reached by aggregating the estimated cost of the various inputs required for the implementation of the measure at stake. In other cases, the costing estimate is reached by referring to a unit cost of the output expected by that measure, using a methodology that is similar to the Simplified Cost Options used for some projects under ESIF and referred in Recital 18 of the RRF Regulation. Some measures refer to market prices to set the final cost estimate.

All measures financed by the recovery and resilience plan for Poland refer to costs incurred and actions that commenced after 1 February 2020 and entail only non-recurrent costs, except for duly justified exceptions. All measures included in the plan started after 1 February 2020, and all the costs are recorded after that date. In addition, some costs, for instance staff costs under a project related to the development and equipment of competence centres, which are classified under current expenditure in the European System of Accounts 2010 will be financed considering their strict temporary nature, their close link with the implementation of a specific investment or reform of the plan and their sustainability. All costs are therefore fully in line with Article 5(1) of the RRF Regulation.

Poland did not provide an independent validation for any of the measures of the plan. The guidance note of 22 January 2021 encouraged Member States to provide an independent validation of estimated costs. Member States were encouraged to seek the opinion of their national productivity boards or independent fiscal institutions on their recovery and resilience plans, including possible validation of cost estimates of their recovery and resilience plan. Even though for various measures Poland referred to various sources of independent validations, these were not from independent bodies with specific audit powers or from the two institutions mentioned above. However, it was not considered as a negative element per se in the assessment as it was not a compulsory element for providing justification and evidence about the cost estimates of the plan.

Plausible costs

The volume and quality of information about the cost estimates is sufficient even though it varies across measure. The details as regards the methodology and the assumptions made to reach these cost estimates are thorough in many cases while more limited for other measures. The quality of the description of the methodologies and calculations made to reach the costing estimated and comparative cost data is relatively heterogeneous. The sources taken as a reference to make the cost estimates are clear for most measures. The bulk of them refer to past projects financed by the European Structural Investment Funds (ESIF). The other references mention various studies and evaluations both from public and private sectors. For a limited number of measures the description of the costing methodology and references to which the costing estimates relate are not fully detailed and are not always clear.

Poland provided a significant amount of evidence and justification for the cost estimates. The cost estimates of most measures are accompanied by a high volume of supporting documents and evidence on the basis of which the costing estimates were reached. These are mostly past projects but there are also cases of studies on specific areas. However, the relevance of some of those documents has not been ascertained for all cases.

Risk of double financing from Union funds

The cost estimates of the plan provide a relatively high level of assurance about the risk of double financing from the Recovery and Resilience Facility and other Union funds. For a significant number of measures in the plan there is a reference that part of the project has been or is expected to be financed by other EU budgetary sources, where relevant. The principle of additionality and complementary of funding of Article 9 provides that the reforms and investment projects financed by the RRF may receive support from other Union programmes and instruments provided that such support does not cover the same cost. The information provided refers to specific type of cost that will be financed by the various EU instruments with some exceptions where those details are not always fully clear enough. In addition, under the monitoring arrangements the plan specifies that every administration responsible for the implementation of the various measures of the plan will make controls in relation to legality and regularity and will adopt the necessary measures to prevent, correct and sanction any misuse of funding, including the double financing of the same cost. It is important that this is closely monitored by Polish authorities during implementation in particular for those cases where it is not yet known precisely at the stage of approval of the Recovery and Resilience Plan, whether the reforms and investment projects would be co-financed by other Union funds in the future.

The costing estimates of the plan are commensurate to its expected economic and social impact. The recovery and resilience plan is expected to contribute to effectively addressing all or a significant subset of challenges identified in the relevant country-specific recommendations and contains measures that are expected to foster economic growth and economic cohesion in an inclusive manner, to boost the growth potential of the Polish economy, to stimulate job creation, and mitigate the adverse effects of the crisis.

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The justification provided by Poland on the amount of the estimated total costs of the recovery and resilience plan is to a medium extent reasonable, plausible, in line with the principle of cost-efficiency and is commensurate to the expected national economic and social impact. Poland 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 of Annex V to the RRF Regulation.

4.10. Controls and audit

Robustness of internal control system and distribution of roles and responsibilities

The plan provides sufficiently detailed information on the two-level national set-up for the internal control system of the RRP. The Polish set-up for the internal control system of the RRP consists of two levels: management verifications by institutions in charge of the implementation of the reforms and investments; and audits carried out by the national audit body. Both levels are presented in the plan.

The Ministry of Funds and Regional Policy coordinates the implementation of the Plan, while management verifications will be done by institutions in charge of the operational implementation of the plan. The Ministry of Funds and Regional Policy is the central coordinating body for the RRP implementation and is responsible for the overall coordination, monitoring and reporting of the plan. It is also a single point of contact for the Commission. The Ministry is also in charge of preparing the payment claims and management declarations. At the same time, relevant internal units of the institutions responsible for the implementation of the reforms and investments will verify compliance of implemented measures with applicable Union and national law. They are also in charge of the verification of progress in the achievement of defined milestones and targets.

A dedicated department at the Ministry of Finance and regional offices will be in charge of audits. The plan stipulates that audits will be carried out by the department of the audit of public funds at the Ministry of Finance and 16 regional offices in the country. The audit body will verify the correct implementation of reforms and investments, achievement of defined milestones and targets, and the effectiveness of mechanisms to prevent fraud and conflicts of interest. It will also detect and correct serious irregularities and avoid double funding. Finally, it will check the security of an IT system supporting the implementation of the RRF. The audit work will be carried out at the level of the coordination body, the bodies responsible for the reforms and investments, other bodies supporting implementation of the plan and final recipients. This is the same audit authority as the one for the ESI Funds. Its independence from the coordination body and institutions responsible for the implementation of the reforms and investments will be ensured. Therefore, the segregation-of-duties principle will be respected.

The plan provides a general description of an audit approach. The overall audit approach applied to the RRF will encompass two major elements. First, system audits to provide reasonable assurance that the system functions effectively and prevents, detects and corrects irregularities. Secondly, audits of investments and reforms to verify the achievement of milestones and targets. The plan includes main elements on the audit work of the audit body and a commitment to prepare an audit strategy within 3 months of the adoption of the plan which will be afterwards updated annually.

The internal control system seems to be robust. The plan presents a well-defined structure of the internal control system. This particularly applies to the collection and verification of the data on the achievement of milestones and targets. The plan specifies the sources of relevant information and transmission channels that the Ministry of Funds and Regional Policy will use to collect them. It also stipulates that this ministry will verify them. Overall, the legal and institutional framework to prevent and combat corruption is largely in place.

Adequacy of control systems and other relevant arrangements

The outline of the control system put in place seems appropriate and control actors are identified across all levels. For the management verifications at component level, the level of information is not sufficient to draw conclusions on the adequacy of management verifications carried out by the institutions responsible for the implementation of the reforms and investments. The second level of the control system is entrusted to an independent audit body which acts with complete autonomy and independence from the bodies responsible for managing the actions and operations covered by each component. The plan indicates that the IT system is already operational to support the implementation of the plan. The same system will be used for the collection and storing of data on final beneficiaries in accordance with the provisions of Article 22(2)(d) of the RRF Regulation. This system will be also used for the ESI Funds in the programming period 2021-2027. The audit body committed in the plan that the first audit performed before the first payment request will provide assurance on the accuracy, reliability and security of the IT system. Finally, with a view to effectively prevent and detect conflicts of interests, fraud, corruption, and double funding, a dedicated milestone is expected to ensure that the conditions for the systematic and extended use of the functionalities of the Arachne risk-scoring tool in the implementation of the Polish plan will be set out. Taking into account that this milestone should ensure the protection of the financial interests of the Union and the establishment of an adequate control system, it should be fulfilled before the submission of the first payment request and no payment under the Facility should be made before its fulfilment.

The corrective element of the control systems and corrective arrangements put in place by Poland in cases of corruption, fraud and conflicts of interests, including the arrangements aimed to avoid double funding, may include a judicial procedure, in addition to the administrative processes described in the plan. As such, the effectiveness of the judicial system is relevant to assess the adequacy of the arrangements proposed by Poland. In this regard, two dedicated reforms are expected to ensure, on the one hand, that the independence and impartiality of courts are strenghtened and, on the other hand, that the situation of judges affected by decisions of the Disciplinary Chamber of the Supreme Court in disciplinary cases and judicial immunity cases is remedied. Concretely, the plan provides that all disciplinary cases against judges will be adjudicated by an independent and impartial court, thus not the Disciplinary Chamber. It also provides that judges will not be disciplinary liable for submitting a request for preliminary ruling to the Court of Justice, or for the content of judicial decisions, or for verifying whether another court is impartial and independent. Procedural guarantees and powers of judges will be strengthened in the disciplinary proceedings concerning them. All judges affected by the past Disciplinary Chamber rulings will have the right to have these rulings reviewed by an independent and impartial court. The first hearing in the context of such review proceedings will take place withing three months from the receipt of the motion of the judge asking for a review, and the review cases will be adjudicated within 12 months. Taking into account that the related milestones planned in the second quarter of 2022 should ensure the protection of the financial interests of the Union and the establishment of an adequate control system, they should be fulfilled before the submission of the first payment request and no payment under the Facility should be made before their fulfilment.

Adequacy of arrangements to avoid double EU funding

The Polish authorities recognise that there are risks of funding from several EU and national sources and designed mechanisms to address such risks. The Polish authorities will use the following mechanisms and tools to address risks of double funding: (i) demarcation lines at the stage of programming of individual programmes co-financed by EU, (ii) ex-ante analysis at the stage of project selection, (iii) management verification and (iv) automatic control algorithms in the IT system. The use of Arachne is also planned for the verification of double funding. The fact that the implementing bodies for RRP are also involved in the implementation of ESI Funds gives additional assurance for cross-checking the data with traditional ESI Funds management systems and avoiding double funding.

Legal empowerment and administrative capacity of control function

Poland indicates the approval of the plan by the Government of the Republic of Poland of 30 April 2021 constitute the legal mandate for both the Ministry of Funds and Regional policy, as well as for the audit body. As regards the administrative capacity of the coordinating body, it will consist of 70 staff members, which according to Poland is sufficient to perform the task allocated to it. As regards the audit body, the Plan specifies that 50 staff member involved in the audits. It further elaborates on the experience of the involved staff and organisational arrangements to be put in place in order to ensure staff availability. The plan also foresees the possibility to outsource certain audit tasks for the RRF to the external auditors if needed.

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The arrangements proposed by Poland 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 pending issues are addressed in due time, through the dedicated milestones, in accordance with Article 20(5)(e) of the RRF Regulation. This would warrant a rating of A under the assessment criterion 2.10 of Annex V to the RRF Regulation.

4.11. Coherence

The plan provides a comprehensive response to the consequences of the COVID-19 crisis, as well as a response to the main challenges identified based on the country´s performance

and the systemic weaknesses of the Polish economy. The plan builds on the strategic objectives to restore the growth potential of the Polish economy, strengthen its competitiveness and to increase the standard of living in a long-term perspective, in particular by accelerating the green and digital transitions. On this basis, Poland developed three specific objectives focused on increased productivity of the Polish economy based on the digital transformation, the energy transformation and clean smart mobility, and increased social capital based on health and quality of education and skills. Reforms and investments were compiled in packages in the priority areas and stru ctured around the six pillars set out in the RRF Regulation. On this basis, Poland structured the measures in six components.

Mutually reinforcing measures

The plan presents a coherent and comprehensive package of reforms and investments that are generally for the most part reinforcing each other. A strong reform drive is visible in various components. The plan demonstrates synergies among components, such as measures aimed at the development of digital skills and infrastructure and supporting the workforce by improving the matching of skills and qualifications with labour market needs as a result of the introduction of new technologies in the economy and the green and digital transformation, and reforms and investments to improve labour market participation). Synergies are generally well presented and clearly structured. There is a good interplay between reforms and investments in each component. Some reforms, such as the improvement of the law-making process, are expected to have a wider impact on the quality of legislation, including reforms proposed in the RRP. Reforms are to a large extent concentrated in the early years of the plan in order to create favourable conditions for effective and targeted investments (e.g. introduction of a regulatory framework for the developments of hydrogen technologies, rules enabling trade in secondary raw materials) and to address implementation barriers (e.g. for onshore wind investments and solutions in the economy using connectivity in 5G networks). Synergies are ensured in thematic components as well as horizontally across components, e.g. on the digital transition of the public administration or education or green and digital transition in innovation. No cases have been observed of areas where the measures proposed within any component (be it reforms or investments) contradict or undermine each other´s effectiveness.

Complementarity of measures

The plan presents a consistent vision throughout the thematic areas, components as well as regarding the proposed reforms and investments.

Business environment

The plan sets out several relevant measures to enhance the business environment and the business climate in a subpart of Component A and in Component F. This includes several measures to reduce the administrative burden on business, such as the so-called ‘Legal Shield’ regulatory package, which will streamline administrative procedures and improve the transparency of administration. The land reform included in the subcomponent is expected to increase levels of investment in construction by improving the regulatory framework and giving more clarity to potential investors about land-planning development in all municipalities. The reform to expand the number of ‘special economic zones’ in Poland is set to improve confidence and attract investment, thereby enhancing investment levels. The proposed reform to limit the use of fast-track legislative procedures and enhance the use of public consultations in the policymaking process, as well as the reform to strenghten the independence of the judiciary are also expected to improve the investment climate. Finally, a reform to protect agri-food SMEs and small producers against unfair trade practices will improve business sentiment in the agri-food sector.

Innovation

In order to enhance Poland's capacity for innovation the plan includes a dedicated package of investments and reforms in a subpart of component A. The measures are coherent with national policies and strategies such as the roadmap for the transition to a circular economy and the "Constitution for Science". The focus is on creating a legal framework to accelerate the processes of robotisation, digitalisation and innovation in the Polish industry and to accelerate the uptake of such technologies through targeted investments. The component also envisages changes in the internal governance of research institutes to improve the effective cooperation between science and industry, and it will support the development and dissemination of innovative technologies. The dissemination of innovative solutions is also expected to be improved through the creation of sectoral skills centres (in another sub-part of component A), demonstrating synergies and complementarity of various measures. By means of a set of reforms and investments, the plan is expected to incentivise the development and commercialisation of innovative solutions, in particular in the area of unmanned mobility, environmental projects related to the circular economy, hydrogen, agri-food and health. Therefore, the projects supported under this subcomponent contribute also to the green and digital transition. Different EU programmes, including inter alia the EU Space Programme, provide complementary support in this area.

Education

Measures on childcare, digitalisation of schools, upskilling and reskilling complement each other and address different types of shortcomings at various levels. Component A addresses the participation in and quality of childcare through targeted investments underpinned by an envisaged reform of quality standards. It also includes a significant reform to put in place and finance a network of sectoral skills centres. Both aspects are expected to contribute to increasing labour market participation and improving education and skills. At the same time, Component C addresses the lack of a strategic approach to digital competences or digitalisation in education, shortages in ICT equipment with investments in computers and other IT tools for both teachers and students, which promote digital education, together with investment in connectivity for schools and digital skills for various groups. This is in line with European initiatives such as EU Digital Strategy, the EU Skills Agenda, the European Education Area and the EU Digital Education Action Plan.

Labour Market

Challenges related to the labour market are addressed in Component A and focus on increasing labour market participation and lowering segmentation. Reforms of public employment services and of the early childhood education and care framework, supported by relevant investment in childcare facilities aim at increasing labour force participation, including of women and inactive persons. The envisaged measures to review the long-term care policy framework may further contribute to this objective. Also, the planned tax incentive for those who reach the statutory retirement age but continue working can have a similar effect for that group of workers. At the same time, covering all civil-law contracts by social security contributions has potential to address the issue of the labour market segmentation and provide more social security to certain workers.

Energy

The energy transition is pursued through Component B, which focuses on improving air quality and energy efficiency, increasing the use of renewable energy sources and low-emissions heating, as well as adaptation to climate change and reducing environmental

degradation. The proposed measures are coherent with the NECP and Polish Energy Policy until 2040 (PEP2040). To address the first challenge, the proposed reforms and investments include the replacement of the most polluting boilers combined with a building renovation programme to improve the energy performance of buildings. For the second specific objective, the plan proposes to establish a regulatory framework for the development of offshore and onshore wind farms, hydrogen and alternative fuels, and energy storage facilities and will be accompanied by the relevant investments. The adaptation to climate change and reducing environmental degradation will be addressed through legislative changes and investments aimed at improving sustainable water and wastewater management in rural areas as well as neutralising risks and restoring large-scale brownfield sites and in the Baltic Sea. Investments supported under this component are coupled with meaningful reforms, which combined address important challenges that Poland faces for the energy transition.

Digital

While digital transformation is the core objective of Component C, there are measures that contribute to the same goal also in the remaining four components, building on synergies throughout the plan. Measures in Component C focus explicitly on the digitalisation of the economy, with a series of interventions. First, through developing high-speed internet connection to close the gap between urban and rural areas. Second, through removing bottlenecks in the digitalisation of the public administration, the economy and society, which in turn incentivises companies to be more digitalised, and through facilitating remote work. Third, through fostering digital competences in education, which improves labour market readiness, as well as in other sectors to improve the overall level of basic digital knowledge in the country. This is accompanied by investments in ICT tools for educational institutions and by overarching standards to equip schools with digital infrastructure on an equal basis. Fourth, increasing cybersecurity of the public information systems and optimising data processing infrastructure to allow for better synergies among state services responsible for security. In addition to these measures, which are considered 100% digital, actions in the areas of entrepreneurship, health, agriculture, energy and transport also contribute to Poland's digital transformation and to shape Europe's digital future. Different EU programmes, including inter alia a new satellite-based secure connectivity system initiated at the EU level, provide a complementary support in this area.

Health

The plan's Component D addresses the challenges in the Polish healthcare system by presenting a comprehensive reform and investment agenda. This agenda covers multiple actions and measures addressing structural challenges for the health system, financed from both national and EU sources. It presents a coherent approach to improving accessibility and quality of healthcare with rationalisation of the pyramid of care and some far-reaching changes to the provision of the primary care and ambulatory care addressed by national means. The plan provides for the restructuring of the hospital sector in the context of a comprehensive hospital care reform. The key goal is to help ensure a lasting improvement in resilience, effectiveness, quality and accessibility of hospital care. The measures for the hospital sector at district level under Component D also include reforms and investments for supporting the development of long-term care, in line with the planned general review of the long-term care policy framework covered under Component A. Other measures envisaged cover support for staffing in the health sector, as well as development of digital solutions for healthcare. Additionally, measures planned for the support to the pharmaceutical sector and for specialised medical science research and analysis aim to strengthen the resilience of the health system, especially in view of the lessons to be learnt from the pandemic and the importance of access to supply of medicines. These complementing measures have the potential to create synergies to support the successful roll-out of the broader agenda for a health system reform.

Transport

The plan contains several reforms and investments to promote sustainable transport across modes and in urban, interurban and rural areas. It contains an important reform and investment to improve road safety with a comprehensive approach to rules, enforcement, equipment and infrastructure. It includes measures to promote clean public vehicles, demand for zero-emission vehicles, urban mobility in a comprehensive way and in complementarity with Cohesion policy. It also contains significant investments in railways infrastructure, in the framework of TEN-Ts and including electrification and zero-emission rolling stocks. Finally, it addresses the issue of digitalisation of transport via investments in efficiency and safety of road and railway transport (e.g. ITS, ERTMS) and e-ticketing.

Coherence with EU cohesion policy funding

As Poland is the largest beneficiary of Cohesion Policy funding in the EU, significant complementarities are visible and generally spelled out in the text, but the level of details varies across the components and effective monitoring and implementation will be crucial. Both levels of programming documents, namely the Partnership Agreement and Programmes (2021 – 2027) are currently subject to negotiations. An overall description of complementarities accompanied by RRF/ESIF synergy tables at the horizontal level offers a first overview of intended complementarities per areas covered by both funds. This is complemented by a mechanism to avoid double funding, which appears to be reasonable, but needs to be effectively implemented in close cooperation between responsible actors under both funds. All potential ESIF investments indicated in the plan are still subject to negotiations with the Commission and cannot be prejudged on the basis of the text in the plan.

The plan does not present inconsistencies or contradictions between the different components. In order to promote wider coherence across instruments, notably with the European cohesion policy funds, a balanced territorial allocation of resources is encouraged.

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Taking into consideration the qualitative assessment of all components of Poland ´s recovery and resilience plan, their individual weight (size, 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 to the RRF Regulation.

ANNEX – CLIMATE AND DIGITAL TAGGING

Note: While the total cost of Poland's recovery and resilience plan exceeds the total allocation of non-repayable financial support to Poland, Poland will ensure that all spending related to the 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 Name = if italic, it refers to tagging of a sub-measure
Int. Field = intervention field
Coeff. = Coefficient for the calculation of support to climate change objectives and to digital transition, on the basis of Annex VI and Annex VII to the RRF Regulation

			Climate		Digital	
Measure / Sub-Measure ID	**Measure/Sub-Measure Name**	**Amount**	**Int. field**	**Coeff. %**	**Int. field**	**Coeff. %**
A1.2.1	Investments for enterprises in products, services and competences of employees and staff related to the diversification of activities	500			016	40%
A1.4.1.2	*Agriculture 4.0*	168			055	100%
A2.1.1	Investments supporting robotisation and digitalisation in enterprises	450			010bis	100%
A2.2.1	Investments in the deployment of environmental technologies and innovation, including those related to circular economy	162	023	40%		
A2.3.1	Development and equipment of competence centres (specialist training centres, implementation support centres, observatories) and unmanned vehicle industry management infrastructure, as an ecosystem of innovation	164	084bis	40%	084bis	100%
A2.6.1	Investment - Development of the national system of monitoring services, products, analytical tools, services and accompanying infrastructure using satellite data	150			055	100%
A4.4.1	Investments related to equipping workers/companies to work remotely	44			010	100%
B1.1.1	Investments in heat (cooling) sources in district heating systems	300	034	40%		
B1.1.2.2	*Replacement of heat sources and improvement of energy efficiency in residential buildings – non-gas boilers*	1,920.6	025bis	100%		
B1.1.3	Thermal modernization of schools	290	025	40%		
B1.1.4	Strengthening the energy efficiency of local social activity facilities	67	025	40%		
B1.2.1	Energy efficiency and RES in companies – investments with the highest greenhouse gas reduction potential	300	024bis	40%		

B2.1.1	Investments in hydrogen technologies, hydrogen manufacturing, storage and transport	800	032	100%		
B2.2.1	Development of transmission networks, smart electricity infrastructure	300	033	100%	033	40%
B2.2.2.1	*RES installations operated by energy communities – investment part*	53.8	027	100%		
B2.2.3	Construction of offshore terminal infrastructure	437	031	100%		
B2.3.1	Construction of offshore wind farms	3,250	031	100%		
B2.4.1	Energy storage	200	033	100%	033	40%
B3.4.1.1	*Renovation to increase energy efficiency or energy efficiency measures of public infrastructure, demonstration projects and support measures*	1,600	026	40%		
B3.4.1.2	*Water management and protection of water resources (including river basin management, specific climate change adaptation actions, reuse, leakage reduction)*	750	040	40%		
B3.4.1.3	*Actions aimed at reducing noise and improving air quality*	280	048	40%		
B3.4.1.4	*Nature and biodiversity protection, natural heritage and resources, green and blue infrastructure*	170	050	40%		
B3.5.1	Investment in energy-efficient housing for low- and average-income households	755	025ter	40%		
C1.1.1	Providing access to very fast internet in the areas of white spots	1,200			051	100%
C1.2.1	Strengthening the potential of commercial investments in modern electronic communication networks	1,400			054bis	100%
C2.1.1	Public e-services, IT solutions improving the functioning of administrations and economic sectors, and breakthrough technologies in the public sector, the economy and society	420			011	100%
C2.1.2	Level playing field for schools with mobile multimedia devices – investments related to the fulfilment of minimum equipment standards	550			012	100%
C2.1.3	E-competences	184			108	100%
C2.2.1.1	*LAN connection, STEM laboratories – digital part, AI laboratories, examination commissions*	621			012	100%
C3.1.1.1	*Cyber security – CyberPL*	193			021quinquies	100%
C3.1.1.2	*Infrastructure for data processing and delivery of digital services*	185	011bis	40%	011bis	100%

C3.1.1.3	*Optimization of the infrastructure of law enforcement services*	54			011	100%
C3.1.1.4	*IPCEI on Next Generation Cloud*	11			021quater	100%
D1.1.2	Accelerating the digital transformation of healthcare by further developing digital healthcare services	1,000			095	100%
E1.1.1	Support for a low-carbon economy	1,114	022	100%		
E1.1.2.2	*Zero-emission public transport (electric buses)*	893.5	074	100%		
E1.2.1	Zero-emission public transport (trams)	200	074	100%		
E2.1.1.1	*Modernization and revitalization of railroads*	1,243	065	100%		
E2.1.1.2	*Improving safety of railway-road crossings*	237	064	100%		
E2.1.1.3	*Increasing the capacity of the railway network*	251	066	40%		
E2.1.1.4	*Preparatory works for high-speed railway line*	660	066bis	100%		
E2.1.2	Railways passenger rolling stock	965	072bis	100%		
E2.1.3	Investments in intermodal transport	175	079	40%		
E2.2.2	Transport digitization	341	070	40%	070	100%
E2.3.1	Regional railways passenger rolling stock	500	072bis	100%		