Contribution of National Recovery and Resilience Plans to achieve Europe’s Digital Decade ambition

The aim of this Deloitte study, commissioned by Vodafone, is to provide a high-level analysis on the potential contribution of National Recovery and Resilience Plans towards the Digital Decade targets, covering 20 Member States.

Objective

This study provides a high-level qualitative financial analysis of how:

- The 20 Member States use their National Recovery and Resilience Plans (NRRPs) to meet their Digital Decade targets
- The overall EU progress towards these targets

Note: This study does not seek to replicate Commission’s assessment and it did not look at how other national plans may contribute to digitalisation.

Approach

National Recovery and Resilience Plans
Review of the NRRPs of 20 Member States: Austria, Belgium, Croatia, Cyprus, Czechia, Denmark, France, Germany, Greece, Hungary, Italy, Latvia, Lithuania, Luxembourg, Poland, Portugal, Romania, Slovakia, Slovenia, Spain

DESI Indicators
Identify relevant DESI indicators and use to track progress towards the Digital Decade targets

Digital Decade Targets
Assess progress of DESI indicators against Digital Decade targets
Contribution of the NRRPs to the digital targets

Around 27% of the combined NRRP budgets focus on digital transformation.

Total RRF budget (EU27)
€672.5bn

NRRPs Budget (20 Member States)
€577bn

of which €485bn are funded from RRF

NRRPs of 20 Member States

- Poland €36bn
- Greece €60bn
- Spain €70bn
- France €100bn
- Italy €192bn
- Other

Glossary

**Infrastructure**
- **Connectivity**: Gigabit for everyone, 5G everywhere
- **Cutting edge Semiconductors**: double EU share in global production
- **Data - Edge & Cloud**: 10,000 climate neutral highly secure edge nodes
- **Computing**: first computer with quantum acceleration

**Public Services**
- **Key Public Services**: 100% online
- **e-Health**: 100% of citizens having access to medical records
- **Digital Identity**: 80% citizens using digital ID

**Businesses**
- **Tech up-take**: 75% of EU companies using Cloud/AI/Big Data
- **Innovators**: grow scale ups & finance to double EU Unicorns
- **Late adopters**: more than 90% of SMEs reach at least a basic level of digital intensity

**Skills**
- **ICT Specialists**: 20 millions + Gender convergence
- **Basic Digital Skills**: min 80% of population

1 RRF
2 This does not include investment in technologies to support the green transition.
3 In cases where funding is linked to multiple targets, the funding is only included once in the aggregate funding figure. However, in attributing this funding to specific targets it is assumed that all the funding could be used to achieve the target.
Infrastructure

€18bn funding for 5G and gigabit networks across the 20 NRRPs. Additional €78bn funding in 20 National Broadband Plans (NBPs).

Total contribution to closing the EU gap:

46%

Public Services

€30bn funding linked to online services, e-medical records and e-IDs.

Total contribution (online services) to EU ICT spend for public services:

6%

Businesses

€40bn funding for SME digitalisation and cloud use in 20 NRRPs

SMEs spend €57-65bn on digitalisation annually.

Total contribution to EU SME digitalisation spend:

10%

Skills

€47bn funding for digital skills across the 20 NRRPs.

WEF estimates that reskilling a worker costs €20,300.

Estimated total contribution to total EU funding needed to achieve the target of ICT specialists:

4%

- Infrastructure packages do not always distinguish between 5G and gigabit.
- Specific allocation of funding to 5G and gigabit would be required to understand the progress towards these two separate Digital Decade targets.
- Rural connectivity and the associated challenges of extending broadband coverage in rural areas do not appear to be addressed in most of the NRRPs.
- Online services availability cover a wide range of investments including digital upgrading of information systems / infrastructure. Only investments related to key public services are considered.
- E-medical records are often part of the wider Health Packages in the NRRPs and specific investments for the development of e-records is not available for all countries.
- E-IDs is missing from many of the plans but may be part of the solution towards online services.
- Most countries have specific spending commitments to support SME digitalisation, although general spending towards business digitalisation, not targeted specifically to SMEs, is also accounted for.
- Cloud computing investments are often part of broader packages linked to business digitalisation.
- All countries have committed to improving basic adults and student digital skills.
- Investments include provision of portable devices.
- Reference to ICT Specialists is limited, funding of PhD programmes or more advanced trainings is considered as spending in ICT Specialists.
**Infrastructure**

- **Gigabit Connectivity**
  - EU Average (2020): 44%
  - EU Target (2030): 100%

- **5G Coverage**
  - EU Average (2020): 14%
  - EU Target (2030): 100%

**Public Services**

- **Online Services**
  - EU Average (2020): 90%
  - EU Target (2030): 100%

- **e-medical records**
  - EU Target (2030): 100%

**Businesses**

- **SME basic digital intensity**
  - EU Average (2019): 60%
  - EU Target (2030): 90%

- **Adults with basic digital skills**
  - EU Average (2019): 3%
  - EU Target (2030): 58%

**Skills**

- **ICT specialists**
  - EU Average (2020): 20m
  - EU Target (2030): 8.51m

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**Target on track to be met by 2030 based on trend analysis**

- **Target on track to be met by 2030 based on trend analysis**
  - No

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**Sum of related funding linked to target**

- **Up to €16.9bn**
- **Up to €15.2bn**
- **Up to €12.4bn**
- **Up to €15.2bn**
- **Up to €18.9bn**
- **Up to €27.8bn**
- **Up to €5.2bn**

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**No. of NRRPs with funding linked to targets**

- **17/20**
- **16/20**
- **20/20**
- **13/20**
- **20/20**
- **19/20**
- **20/20**
- **9/20**

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**No. of NRRPs target is mentioned in**

- **17/20**
- **16/20**
- **20/20**
- **13/20**
- **20/20**
- **19/20**
- **20/20**
- **9/20**

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**Deloitte analysis, due to the difference how specific plans are, these numbers may include the value of the wider package or were double counted under two sub-areas of the Digital Decade targets, and thus may be an overestimate**

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**6** Based on current trends analysis, further details on the deep dive slides for each target;

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**5** Trends are promising, but rural coverage will be challenging

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**1** 2030 Digital Compass, 2 DESI by components, 3 Digital Intensity Index, 4 Deloitte analysis, due to the difference how specific plans are, these numbers may include the value of the wider package or were double counted under two sub-areas of the Digital Decade targets, and thus may be an overestimate

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**Target on track to be met by 2030 based on trend analysis**

- **Yes**
Key Takeaways

1. Funding linked to Digital Decade Targets
   - Significant investment committed to digital transformation
   - More detail and guidance needed to link Digital Decade targets to digitalisation
   - The NRRPs alone will not to close the gap

2. Further investment needed
   - Biggest potential gaps in digital infrastructure, ICT specialists and digitalisation of SMEs
   - Much more private and public funding needed to close gaps
   - Funding levels vary widely across Member States

3. What next?
   - The full report deep dives into progress for each of the 20 Member States in scope
Current trend

Connectivity has improved across the EU and progress is continuing:

- Next Generation Access (NGA) network coverage has increased by 17% in a five-year period, from 66.3% in 2015 to 86% in 2020.\(^1\)
- The proportion of households with Very High Capacity Networks (VHCN) enabling gigabit connectivity across the EU increased from 17.2 percentage points in 2015 to 44% in 2020.\(^2\) This is a big jump, but still far from the 100% target for 2030.
- Additional funding will be needed to extend coverage to rural and remote areas as associated infrastructure costs can be very high.

National Recovery and Resilience Plans

Most plans have specific funding for gigabit networks. They are complemented by additional funding from National Broadband Plans of around €78bn.\(^4\)

- In some plans, gigabit networks are part of a broader digital infrastructure package with 5G rollout. This could lead to double count investments in gigabit and 5G and an overestimate of actual funding.
- Funding linked to broadband that does not enable gigabit connectivity was not considered for the analysis.

Summary of plans

<table>
<thead>
<tr>
<th>Proposals to support VHCN coverage</th>
<th>16/20</th>
<th>Up to €16.9bn</th>
<th>3%</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of plans with funding linked to targets</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Funding linked to the target(^3)</td>
<td></td>
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<tr>
<td>Funding linked to the target as a proportion of total funding</td>
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</table>
Infrastructure: Progress on 5G coverage in populated areas

Current trend

Many Member States have started 5G rollout, but it is in the early stages. Some 14% of the EU’s populated areas are covered by 5G, with the rollout predominantly in major cities and large towns. Many Member States have only recently awarded or assigned 5G spectrum. These delays have hampered rollout. Currently, there is no historic data available on the proportion of areas covered by 5G. Much more investment will be needed for further rollout of 5G networks across Europe to achieve the target of 100% coverage in populated areas.

National Recovery and Resilience Plans

Most EU countries in this analysis increased 5G rollout in their plans.

- The commitment to deploy 5G varies across countries. In some countries, it was part of a broader digital infrastructure package, while others have linked specific funding to 5G.
- The analysis may have double counted some investment in 5G and gigabit networks when they have not been distinguished in the NRRPs.
- 5G specific funding from the plans are further complemented by additional investments from the National Broadband Plans of around €78bn.

Summary of plans

Proposals to support 5G coverage

<table>
<thead>
<tr>
<th>No. of plans with funding linked to targets</th>
<th>Up to</th>
<th>Funding linked to the target as a proportion of total funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>13/20</td>
<td>€15.2bn</td>
<td>3%</td>
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</tbody>
</table>

1. 2030 Digital Compass: the European way for the Digital Decade
2. Broadband in EU countries
3. This is likely an overestimate of the actual value due to double counting of broader investment packages that consider 5G and gigabit networks without providing a detailed breakdown.
Skills:
Progress on numbers of adults with basic digital skills

Current trend
The proportion of adults with basic digital skills across the EU was 58% in 2020.
On the current trajectory, this figure is expected to rise to around 66% by 2030.
The target is 80%. Reaching it will require significant speeding up in skills learning.

National Recovery and Resilience Plans
NRRPs that have linked specific funding towards the following areas of digital skills:

- Digital skills for all: Investment in digital technologies and services such as distance learning or educational online platforms, especially for vulnerable or excluded groups.
- Digital skills for students: Digitalisation of the educational system, including equipment for schools and e-education programs.
- Digital skills for workers: Vocational programmes that improve digital skills across different industries.

Summary of plans
Proposals to support adults with basic digital skills

<table>
<thead>
<tr>
<th>No. of plans with funding linked to targets</th>
<th>Funding linked to the target</th>
<th>Funding linked to the target as a proportion of total funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>Up to €44.9bn</td>
<td>8%</td>
</tr>
</tbody>
</table>

*Basic Digital Skills (2021) is likely an overestimate of the actual value due to double counting of broader investment packages that consider 5G and gigabit networks without providing a detailed breakdown.

*Illustrative projection to 2030 using a simple linear forecast based on historic data from 2015 to 2020.

*This is likely an overestimate of the actual value due to double counting of broader investment packages that consider 5G and gigabit networks without providing a detailed breakdown.
Summary of plans
Proposals to support ICT Specialists

<table>
<thead>
<tr>
<th>No. of plans the target is acknowledged in</th>
<th>Funding linked to the target</th>
<th>Funding linked to the target as a proportion of total funding</th>
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</thead>
<tbody>
<tr>
<td>9/20</td>
<td>Up to €5.2bn</td>
<td>1%</td>
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</table>

*Current trend*

8.51 million ICT specialists currently work in the EU, 11.49 million short of the 2030 target of 20 million.

Trends from 2015 to 2020 suggest the figure could reach 12 million by 2030.

Hitting the target will require a major boost in the number of ICT specialists over the next few years.

Skills:
Progress on promoting ICT specialists

Current trend

8.51 million ICT specialists currently work in the EU, 11.49 million short of the 2030 target of 20 million.

Trends from 2015 to 2020 suggest the figure could reach 12 million by 2030.

Hitting the target will require a major boost in the number of ICT specialists over the next few years.

ICT Specialists (millions)

<table>
<thead>
<tr>
<th>Year</th>
<th>European Union</th>
<th>Target 2030</th>
</tr>
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<tbody>
<tr>
<td>2015</td>
<td>6.54</td>
<td>12</td>
</tr>
<tr>
<td>2016</td>
<td></td>
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<tr>
<td>2017</td>
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<td>2018</td>
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<tr>
<td>2019</td>
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<tr>
<td>2020</td>
<td>8.51</td>
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<td>2021</td>
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<td>2022</td>
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<td>2030</td>
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</table>

European Union Target 2030

6.54
8.51
12

National Recovery and Resilience Plans

The national plans have few references to ICT specialists, often seeing them as a part of a broader investment package.

- The European Commission defines ICT specialists as those with advanced digital skills.
- Funding for PhD programmes or more advanced training has also been considered as spending on ICT specialists.
- Only six of the 20 countries have linked specific funding to raising ICT specialist numbers. Only one country’s plan specifies how much the number of ICT specialist should increase through the funding.
- EU countries have committed to improve overall adult digital skills levels, backed by large investment packages. This could indirectly raise the number of ICT specialists.
Businesses:

Progress on raising the digital intensity of SMEs

Current trend

Just 60% of SMEs in the EU had at least a basic level of digital intensity in 2019.\(^1\)

This is significantly lower than the target for 90% to achieve a basic level of digital intensity by 2030.

Current trends do not suggest the target will be met.

The gap could persist in the absence of any reforms or investments.\(^2\)

Digital Intensity of SMEs

<table>
<thead>
<tr>
<th>Year</th>
<th>European Union</th>
<th>Target 2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>57%</td>
<td>100%</td>
</tr>
<tr>
<td>2016</td>
<td>60%</td>
<td>80%</td>
</tr>
<tr>
<td>2017</td>
<td></td>
<td>60%</td>
</tr>
<tr>
<td>2018</td>
<td></td>
<td>40%</td>
</tr>
<tr>
<td>2019</td>
<td></td>
<td>20%</td>
</tr>
<tr>
<td>2020</td>
<td></td>
<td>0%</td>
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</table>

National Recovery and Resilience Plans

Spending commitments towards SME digitalisation are identified in most of the NRRPs.

- The Digital Intensity Index (DII) is the underlying metric and tracks the availability of 12 different digital technologies. It includes access to fast broadband (30 Mbps or above) and internet for at least 50% of persons employed. SMEs with a score of four or higher in a 12-point scale are considered as having at least a basic digital intensity.

- Proposed investments to meet the target include support for research and innovation, automated software processes and sector specific investments targeting SME digitalisation.

Summary of plans

Proposals to support digital intensity of SMEs

- No. of plans with funding linked to targets: 19/20
- Funding linked to the target: up to €27.8bn
- Funding linked to the target as a proportion of total funding: 5%
National Recovery and Resilience Plans

Most plans have commitments to cloud computing take-up:

- Proposed measures include tax credits to businesses using cloud computing and investments in cloud infrastructure and cloud skills.
- The analysis includes specific investment to increase the digitalisation of all enterprises, including SMEs and large enterprises.
- Only investments and reforms directly targeting cloud computing take-up have been considered in the analysis.

Current trend

Just 18% of EU businesses used certain cloud computing services in 2020. This is much lower than the 75% target for 2030. Current trends show the number will reach 40% by 2030 in the absence of any further reforms or investment. Hitting the target will require a major acceleration in businesses adopting cloud computing.

Summary of plans

Proposals to support business cloud computing

<table>
<thead>
<tr>
<th>No. of plans with funding linked to targets</th>
<th>Up to</th>
<th>Funding linked to the target as a proportion of total funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/20</td>
<td>€12.4bn</td>
<td>2%</td>
</tr>
</tbody>
</table>
Public Services: Progress on improving online service completion

Summary of plans
Proposals to support online service completion

- **20/20** No. of plans with funding linked to targets
- **Up to €18.9bn** Funding linked to the target
- **3%** Funding linked to the target as a proportion of total funding

Current trend
The share of administrative steps related to major life events that can be done online (online service completion) across the EU is 90% in 2020, slightly lower than the 100% target for online provision of key public services. Projections indicate that the online provision of key public services is expected to meet the EU target by 2030 even in the absence of any further investments or reforms. However, even when the target is met, a wider range of services that could be more efficient online will still be accessible offline, due to the narrow focus of this metric.

National Recovery and Resilience Plans
All the Member States have made spending commitments to support the objective:
- Investments focus on the digital upgrading of the state and public administration, including teleworking, migration of IT applications to cloud and digitalisation of various state departments.
- Spending commitments for the development of e-IDs and e-Health Records have been excluded and addressed separately.
- The metric ‘Online Service Completion’ consists of eight key public services related to major life events, a narrow focus that does not capture the wider digitalisation of public services.
Public Services:
Progress on promoting e-health records and e-IDs

Current trend

Most plans recognise the need for e-health records. However, just nine of the 20 plans made explicit spending commitments. The funding available for this target is relatively low but does not account for other investments to digitalise health. Many plans have significant commitments to develop telemedicine and teleconsultation as well as the digitalisation of the health care system in general. While e-health records might be a part of those broader health packages, the spending is not reflected in the analysis as there is no reliable way to apportion this funding.

National Recovery and Resilience Plans

The development of electronic identification is the least addressed target in the plans with 7 out of the 20 countries acknowledging the target and only five making a financial commitment.

Governments may consider e-IDs as an enabler of key public services, and therefore only acknowledge them under broader digitalisation of public administration.

NRRPs that acknowledge the target but do not allocate a specific funding towards e-IDs have not been considered in the analysis.

Summary of plans

Proposals to support e-IDs

<table>
<thead>
<tr>
<th>No. of plans with funding linked to targets</th>
<th>Up to 2.8bn</th>
<th>0.5%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funding linked to the target</td>
<td>Funding linked to the target as a proportion of total funding</td>
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