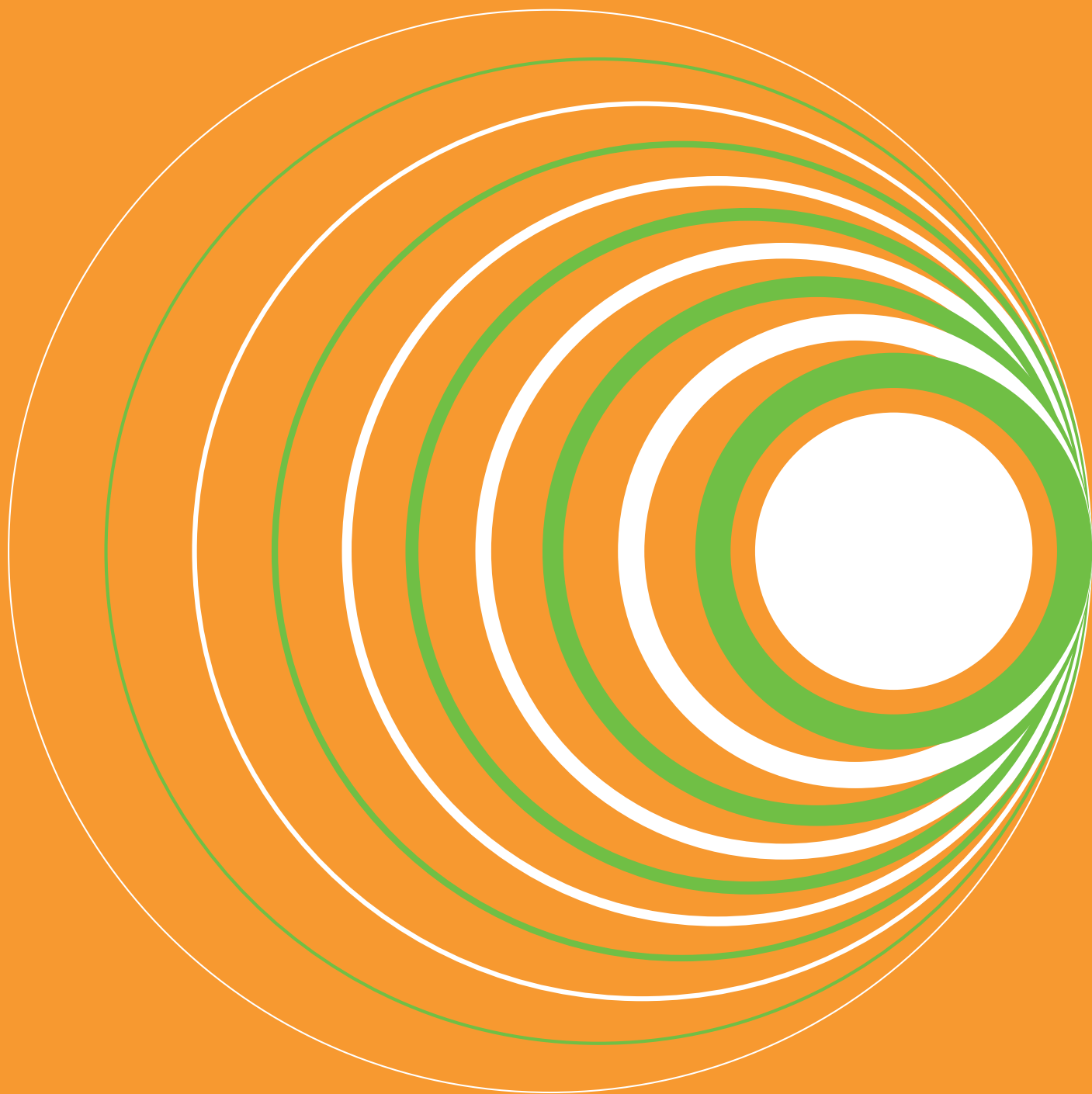


THE THIRD CIRCULAR ECONOMY REPORT

Focus: the role of circular economy in the transition to climate neutrality

20 21



REPORT ON CIRCULAR ECONOMY IN ITALY - 2021

By the Circular Economy Network

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CIRCULAR ECONOMY NETWORK

The Circular Economy Network, promoted by a group of companies and associations in collaboration with the Sustainable Development Foundation, aims at supporting the transition to a circular economy. To this end, the Network:

- operates as a forum for debate and the exchange of information and best practices, in order to promote a shared vision and a common action on the various aspects of circular economy: the reduction in the use of resources, a more lasting employment of resources in production and consumption, a quantitative and qualitative increase in recycling levels and in the employment of secondary raw materials, as well as the regenerative reuse of resources and renewable energy;
- evaluates the main critical issues and barriers to be removed, indicating the possible solutions to enhance the transition to a circular economy in Italy;
- develops studies and research, focused on European and international action and proposals, on the various aspects of circular economy, especially on its positive impact on development, wellbeing and employment, on the reduction of natural resources employed, on climate, and on innovation and digitalization;
- develops proposals for policies and measures to be submitted to political decision makers, enabling a dialogue with institutions at all levels.

The full report (in Italian) can be downloaded from the following websites:

www.circulareconomynetwork.it

www.fondazionevilupposostenibile.org

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SYNTHESIS: THE THIRD CIRCULAR ECONOMY REPORT

The Third Circular Economy Report (2021) by the Circular Economy Network, besides providing the updated analysis on circular economy in Italy, as compared to the main EU countries, includes a focus on the role of circular economy in the transition towards climate neutrality, as well as an update on the most important measures implemented at the national and European level.

Focus: the role of circular economy in the transition to climate neutrality

A significant number of studies and documents stress the relevance and the contribution of circular economy in the reduction of GHG emissions: doubling the current circularity rate would allow to cut 22.8 bln t of GHG emissions.

The European Commission, in its new Circular Economy Action Plan, stresses that a linear economic model, based on energy and resources consumption, will not allow to reach climate neutrality. In order to cut GHG emissions, current circularity gaps must be recovered. Such gaps refer to:

- **a reduction in resources use**, with a decreased amount of materials used in the production of goods or in services, thanks to circular design, aiming at shared consumption patterns and further implementing digitalization;
- **extending the lifespan of resources employed**, optimizing the use of resources and increasing the lifespan of goods, their reuse, repairing and regeneration;
- **employment of regenerative raw materials**, replacing fossil fuels and non-renewable materials with renewable energy and materials, preserving the natural capital and ecosystem services;
- **reuse of resources**, through waste recycling and reuse of secondary raw materials.

In each of these four pillars of the transition towards a circular economy there are some specific circularity gaps that can be recovered in the short and mid-term with available technologies and existing operating and management procedures, while other are long term gaps that require innovation research and development. Recovering these circularity gaps, by, for example, reducing the amount of materials needed to provide a service, or extending the years of useful life of a product, or increasing the share of renewable energy and materials or increasing the share of recycled materials replacing raw materials, allows to achieve energy savings and a reduction in the use of fossil fuels and, thus, a reduction in GHG emissions.

The proposed focus assesses the example of the relation between the increase in the circularity rate and the reduction of GHG emissions in some sectors.

For example, the IRP (International Resource Panel) of UNEP (United Nation Environmental Programme), notes a reduction in GHG emissions up to 38% in steel production based on iron scrap as compared to primary steel produced with iron ore and coal. ENEA (National Agency for New Technologies, Energy and Sustainable Economic Development) estimates a reduction

in GHG emissions up to 80% by recycling aluminum instead of producing it from raw materials. Plastic recycling also has a significant impact in reducing GHG emissions, up to 90% as compared to the production from oil derivatives. The production of some electronic appliances requires a significant amount of energy, for some others a significant amount of energy is needed in order to achieve high purity in input materials. The EU Commission estimates that a 1-year increase in the useful life of smartphones in the EU would allow to save 2.1 MtCO₂eq. Producing and processing textile fibers also consume a significant amount of energy and generate emissions: it is estimated that doubling the use of garments would significantly reduce GHG emissions deriving from their replacement with new ones.

The production and use of means of transport generate enormous amounts of GHG emissions. The International Resources Panel¹ (IRP) estimates that adequate circular strategies in transport modalities and on passenger means of transport would reduce GHG emissions derived from the material cycle in vehicles production by 57-70% and by 30-40% in their use. Regenerative bioeconomy will also be able to provide a significant contribution to the reduction of GHG emissions, with a sustainable use of biomasses, implementing carbon-fixing in long-term processes, as well as with an increase in soil organic carbon sequestration. IRP stresses that adequate strategies related to the use of buildings, increased recycling, the implementing eco-design in building new constructions and employing less materials, using sustainable wood biomasses to replace traditional materials, would allow to cut almost entirely GHG emissions deriving from the residential sector during the useful life of buildings. The European Environment Agency, referring to the different forms of circularity, estimates that CO₂ emissions derived from buildings could be reduced by up to 61% with an improvement in their use, adequate end-of-life reuse and recycle measures, spaces and management and maintenance optimization. Lastly, there are numerous examples of GHG emissions reductions in various sectors of waste recycling, with significant margins for further reductions derived from an increase in recycling rates.

Policies and strategies for circular economy: the update on the national and European context

In the context of the Green Deal, at the European level the new Circular Economy Action Plan and the new EU Industrial Strategy push towards the transition to circularity. A recent resolution by the European Parliament stresses that the transition to a circular economy is one of the required conditions to achieve climate neutrality by 2050. This is one of the reasons why the European

Parliament asks the Commission to define binding 2030 targets on the reduction of raw materials use, as well as on the increase of recycled materials in products.

In Italy, in 2020, a number of legislative decrees transposing EU directives on waste and circular economy entered into force, and the 2020 Budget Law provided for incentives for investments by companies in the context of *Impresa 4.0* measures.

New measures and funds for circular economy are now expected to derive from the **National Recovery and Resilience Plan employing European funds derived from Next Generation EU**. At the time of writing this Report, the text that the new Draghi Government will submit to the European Commission, after the evaluation of the national Parliament is not available yet.

¹ resourcepanel.org

In the draft submitted by the previous Conte Government, circular economy was present, but not adequately considered in terms of investments and reforms, despite a resolution by the European Parliament had reaffirmed that “the principles of circular economy should be the core element of [...] the national Recovery and Resilience Plans of Member States”.

The state of circular economy in Italy and European comparison

This Third Report updates the analysis on the state of circular economy in Italy, assessing the results achieved in the areas of production, consumption, circular waste management, as well as investments and employment in recycling, repairing and reuse. For each of these areas a set of indicators was identified, resulting

in a mark, and it was thus developed a comparison among the main economies in the European Union: Germany, France, Italy, Spain, and Poland, the latter being the fifth European economy after the UK left the EU.

The sum of scores in each sector determines the “**circular economy performance index**”, which confirms Italy in the first place, as in 2020, with 79 points, followed by France with 68 points, Germany and Spain with 65 points and Poland with 54 points.

○ **Table 1 Circular economy performance index 2021: ranking of the five main EU countries and comparison with 2020.**

		2021	Variation from 2020
1 st	Italy	79	↔
2 nd	France	68	↔
3 rd	Germany	65	↔
3 rd	Spain	65	↔
4 th	Poland	54	↔

Italian performances in the sectors

The national circularity performances in the production sector confirm to be better than the other four main EU economies.

As per the **resources productivity**, Italy generates the highest economic value per material consumption unit: every kg of consumed resources generates 3.3 € in GDP, as compared to the European average of 1.98 €. Energy productivity is also good, generating a production of 8.1 € per kilogram of oil equivalent consumed.

Domestic material consumption in Italy in 2019 accounted for 490 Mt, unchanged compared to the previous year. In the comparison with the main EU economies, Italy has the lowest consumption rate, together with Spain, with a value of consumed materials accounting for less than half of the value of Germany. In 2018, the five-top **energy consuming** countries are the five most advanced economies of the continent. In particular, Italy employs approximately 116.000 TOE (tonnes of oil equivalent) per year, unchanged compared to the previous year. As per the **share of renewable energy consumed in relation to total energy consumption**, Italy loses its primacy and ranks second, behind Spain, with 18.2% of energy produced from renewable sources, as compared to final gross consumption.

Per capita urban waste production in Italy in 2019 was stable at 499 kg per inhabitant, compared to a European average of 502 kg per inhabitant. The decoupling of waste production and GDP has been constantly increasing since 2011, reaching a significant gap in recent years: while waste production was unchanged, GDP increased by 4.3% in the period 2015-2019. According to ISPRA (Institute for Environmental Research and Protection), **urban waste recycling** in Italy reached 46.9% in 2019, in line with the EU average; Italy thus ranks second behind Germany. The **overall recycling rate** for all types of waste is 68%, the highest among the main European economies and significantly above the EU average (57%).

The **material circular use** index reached 19.3% in Italy in 2019, above the EU average, with Netherlands, Belgium and France performing better than Italy (28.5%, 24%, and 20.1%, respectively), and Germany performing lower than Italy, at 12.2%

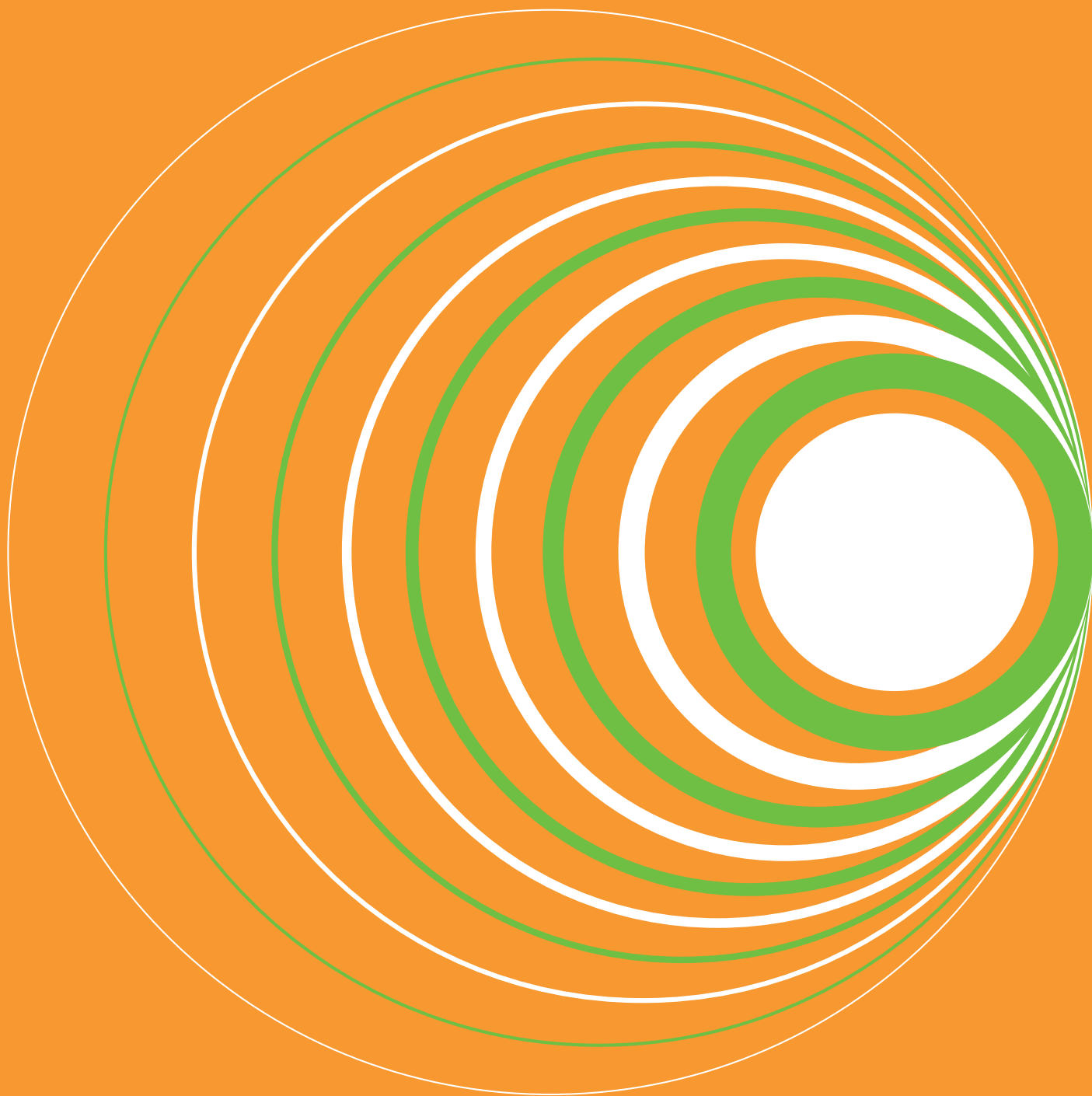
On the other hand, Italy has the lowest **number of patents** filed among the main EU economies.

As per the **employment in the repairing, reuse and recycling sectors**, Italy ranks second, behind Poland, but above France, Germany, and Spain.

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