



# *Connected* Living

REPORT

2023

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## *Connected Living*

Have you ever stopped to think about **the CO<sub>2</sub> emissions you avoid** when you telework? And how your video calls reduce the amount you travel as well as your carbon footprint? Or that car sharing or using a satellite navigation app to find the optimal route are sustainable options?



These are small gestures and ways of doing things. Habits from our connected lives that allow us to reduce our environmental impact on the planet. **Routines we have been incorporating into our daily lives, almost without even realising it, thanks to connectivity and digital solutions.**

## 01. Connected to a challenge

**Curbing climate change is one of the greatest challenges we face. Perhaps the biggest of them all. The question is how we can achieve this as a matter of urgency.**

According to the [latest Assessment Report from the IPCC](#) (The Intergovernmental Panel on Climate Change), **if we fail to reduce current CO<sub>2</sub> emissions, the planet could face a temperature rise that exceeds the 1.5°C** limit set by world leaders in the Paris Agreement in 2015. Halting this rise is essential to avoid the worst effects of climate change and to ensure that the planet remains a livable place for everyone.



Temperatures are already surpassing the 1.5°C figure in some months of the year and this trend is increasing. A difference of 0.5°C may seem small, **but did you know that reaching 2°C would have devastating consequences for the planet?** We are talking about ice-free summers in the Arctic, with the consequent rise in sea levels and the disappearance of 99% of coral reefs. The intensity and frequency of natural disasters such as floods, droughts and heatwaves would also increase.

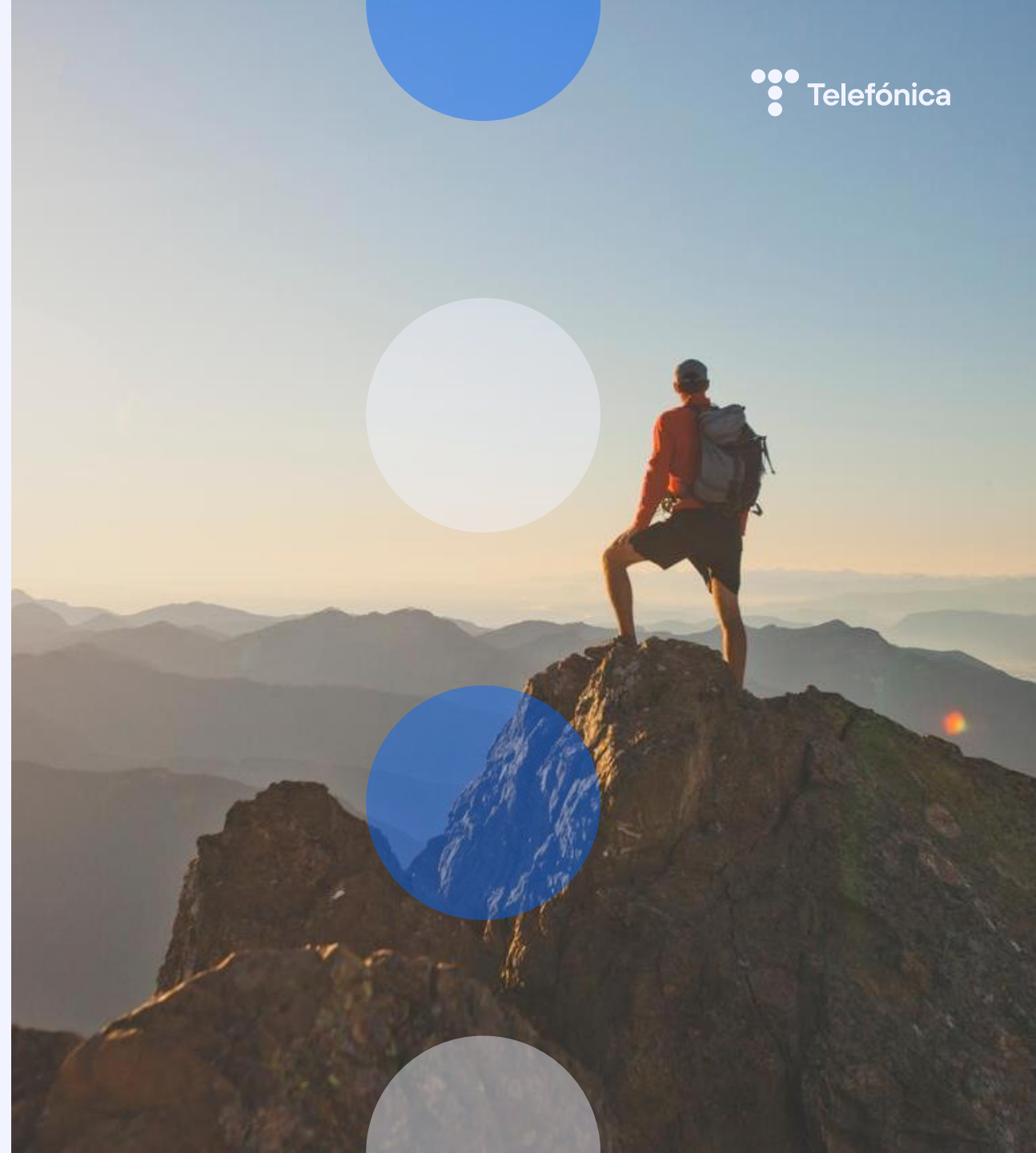
## 01. Connected to a challenge

### What should we do?

**“We should not despair and fall into a state of shock”** says IPCC chairman Jim Skea, but take the necessary steps to control climate change. That means doing everything necessary to cut global CO<sub>2</sub> emissions by half by 2030 and to reach net zero emissions by 2050. This requires a joint effort from institutions, industry and society.

### “Every tenth of a degree counts”

Javier Peña, environmental communicator and creator of the [canal Hope!](#)



## 01. Connected to a challenge

### Digitalisation as an ally

Faced with this urgent challenge, digitalisation driven by new technologies and connectivity solutions has proven to be a vital tool in tackling climate change. It encourages energy efficiency in industry and households and facilitates **a connected life with more sustainable habits**, such as telework, online learning, calls and video calling, which contribute to decarbonisation.

The key to reducing CO<sub>2</sub> emissions lies in the three Ds\*:



#### DECARBONISATION

for example, through the use of energy management systems that allow us to control and reduce energy consumption.



#### DEMATERIALISATION

through the digital conversion of resources, devices and infrastructures. For example, moving from paper documents to digital formats.



#### DEMOBILISATION

or the reduction of mobility, through solutions that avoid journeys that generate CO<sub>2</sub>, such as video calling to replace business trips.

## 01. Connected to a challenge

Entities such as the [World Economic Forum](#) and the [Exponential Roadmap](#) initiative report that digital technologies could **reduce greenhouse gas emissions by 15% in the industrial sector**, and by up to 35% if people's habits become more digital and sustainable.

Nevertheless, it is important to take into account the **negative environmental impact** of technology. At present, according to data from the [European Commission](#), it is estimated the negative environmental impact at the ICT sector accounts for **8-10% of global energy consumption and generates 2-4% of greenhouse gas emissions**.

It is therefore key to ensure that the impact of the ICT sector is kept to a minimum, while maximising its potential to support the transition to a net zero future.



## 02. How is Telefónica tackling the challenge?

### Reducing our negative impact

We work to reduce our footprint through our environmental strategy, which targets greater efficiency and sustainability in our operations.

To achieve the challenge of reaching net zero emissions by 2040 across our entire value chain, we are committed to energy efficiency and renewable energies. For example, in Europe, Brazil, Chile and Peru, we only consume renewable electricity in our operations. As a result, **we have managed to reduce our own emissions (Scope 1 and 2) by 81%** and our total carbon footprint (including Scope 3, value chain emissions) by 51%<sup>1</sup>.

We are making good progress towards our goal of being a zero waste company by 2030, **we already recycle 98% of our waste** and apply circularity criteria to our purchases and materials. By 2023, we were able to give a second life to 4 millions of equipment.

1. Base year for Scopes 1 and 2: 2015; base year for Scope 3: 2016.



**Our goals are to achieve net zero emissions by 2040**, 10 years ahead of the Paris Agreement, **and to be a zero waste company by 2030.**



## 02. How is Telefónica tackling the challenge?

### Leaders in connectivity solutions

In order to promote more sustainable habits and achieve an increasingly digitalised society, the first step is to guarantee connectivity for as many people as possible.

At Telefónica, we do everything we can to ensure internet connectivity for people and businesses by continually expanding our network. **We prove this with our leadership in mobile broadband coverage in Spain, Germany and Brazil.** Thanks to this access to fixed and mobile networks, people can use apps or services that help them adopt more efficient habits.

**We connect over  
115 million people<sup>2</sup>**

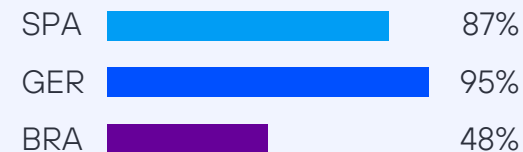
1. Population coverage data.

2. Total number of mobile lines plus fixed accesses including Spain, Germany and Brazil.

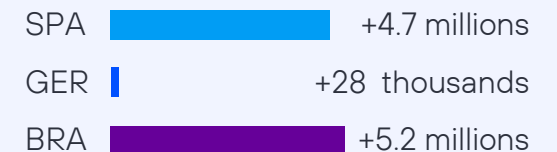
#### 4G<sup>1</sup> coverage in 2023



#### 5G<sup>1</sup> coverage in 2023



#### Households connected to fibre in 2023:



Operators:

Spain  Germany  Brazil 

## 02. How is Telefónica tackling the challenge?

### The positive impact of connectivity

Connectivity contributes to the digitalisation of businesses, institutions and citizens and brings new digital practices that promote sustainability. In this report we focus on those that **lead to a change in people's habits**, enabling them to generate less CO<sub>2</sub>.

To understand people's digital habits, **we surveyed over 4,400 residential customers in Spain, Brazil and Germany in 2022 and 2023**. The aim was to estimate their impact on decarbonisation and calculate the amount of emissions they avoid per year.

#### How did we calculate this?

#### CO<sub>2</sub> avoided = volume x abatement factor

##### CO<sub>2</sub> Avoided

Amount of CO<sub>2</sub> emissions avoided in the atmosphere.

##### Volume

Number of fixed or mobile accesses of residential customers.

##### Abatement factor<sup>1</sup>

CO<sub>2</sub> avoided per access.

Formula that follows the principles of Mission Innovation's [Avoided Emissions Framework](#).

1. Calculated for each habit category based on the results of our customer surveys in each country.



## 03. How do your digital habits contribute to caring for the planet?

Now that you understand the challenge and know that digitalisation can help you do your bit, you may wonder: **What are the digital habits I can adopt to reduce my environmental footprint? Which actions are the most effective?**



We will explain the average use of each digital habit and how it contributes to reducing your carbon footprint.

## 03. How do your digital habits contribute to caring for the planet?

### 3.1 Main digital habits at a glance

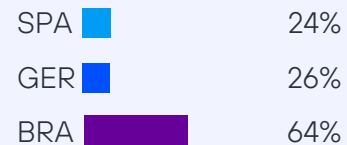
We asked **over 4,400 customers of Movistar in Spain, O<sub>2</sub> in Germany and Vivo in Brazil** about their digital habits to gauge how much they were helping to reduce CO<sub>2</sub> emissions. These were residential customers with a postpaid mobile contract and a smartphone, who may or may not have fixed broadband at home. In other words, this was a representative sample of our customer base, not of the total populations of these countries. The results were very interesting!

**Online banking and shopping, or the use of video calls already have a high level of adoption.**

#### Percentage of usage by activity and country



##### Carpooling



##### Public transport apps



##### Calls and video calling



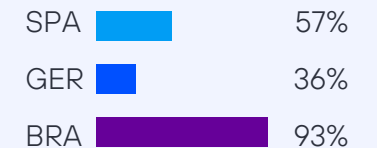
##### Online shopping



##### Satellite navigation apps



##### Online learning



##### Telework



##### Online banking



There is an annex at the end of this presentation with more information on the surveys from which these data were drawn.

## 03. How do your digital habits contribute to caring for the planet?

### 3.2 Calls and video calling

Connectivity makes it possible to use digital services for calls and video calling. **This makes it easier to keep in touch with people wherever they are.** This technological development has had a major impact on both personal and work environments, as it makes it easier to virtually connect with family, friends and colleagues, **avoiding the need to travel and saving on emissions.**

**>80 %**  
of respondents make calls and video calls

Each customer avoids emitting of up to  
**3,963 kg**  
of CO<sub>2</sub> in Germany

#### Customers who make calls

SPA		80%
GER		83%
BRA		93%

#### CO<sub>2</sub> avoided per person per year thanks to video calling

SPA		2009 kg
GER		3963 kg
BRA		Not available <sup>1</sup>

\*Data obtained from our customer survey on their digital habits in 2022 and 2023 and is therefore only representative of Telefónica customers.

1. The results of the survey carried out in Brazil on this digital habit were inconsistent and unreliable, so it was decided to discard them from the study.

### Did you know that...

the video calls made by our Spanish customers avoid up to **18 domestic and 3 international trips per year?**

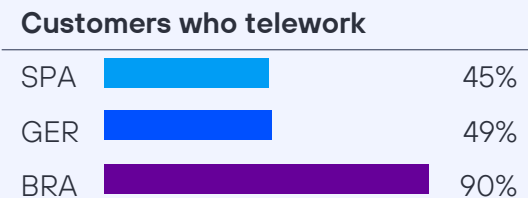


## 03. How do your digital habits contribute to caring for the planet?

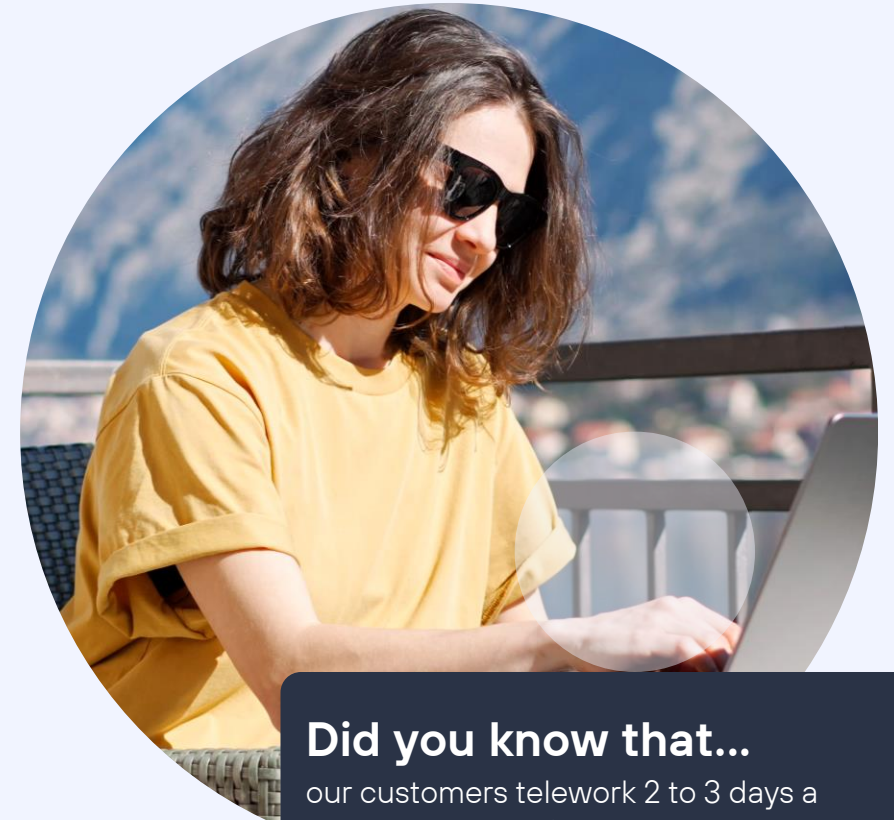
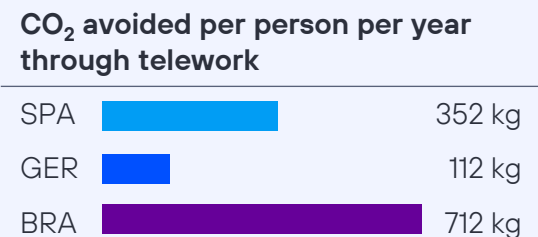
### 3.3 Telework

The pandemic transformed work environments as more people began to work remotely. While there has been a gradual return to on-site work after the health crisis, **telework is still more prevalent than before 2020**, especially thanks to hybrid models allowing people to work from home a few days a week. This, in addition to the personal flexibility it brings, cuts our carbon footprint by reducing the need to commute. We should not forget that this way of working also entails increase in individual energy consumption from heating and air conditioning, but the impact is nonetheless very positive.

In Spain and Germany, almost **50%** of respondents telework



Each teleworker could avoid between **112 y 712kg** de CO<sub>2</sub> per year



#### Did you know that...

our customers telework 2 to 3 days a week on average? And that half of all commuting in Spain, Germany and Brazil is done by petrol or diesel car or motorbike?

\*Data obtained from our customer survey on their digital habits in 2022 and 2023 and is therefore only representative of Telefónica customers.

## 03. How do your digital habits contribute to caring for the planet?

### 3.4 Online learning

Students no longer need to go to a university or school to take a course, obtain a specialist qualification or even get a degree. **Digital connectivity provides access to education without leaving home through online learning.** This, in addition to helping to strike a balance between work, family and any other personal circumstances, avoids CO<sub>2</sub> emissions due to reduced travel. As in the case of telework, on the other side of the coin is the increase in energy consumption caused by the individual use of heating or air conditioning.

**93%**  
of our Brazilian customers  
taker online courses

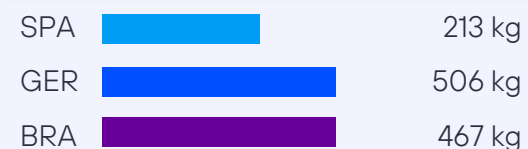
#### Customers who study online:



Each customer in Germany avoids emitting up to

**506 kg** of CO<sub>2</sub> emissions per  
year through online learning

CO<sub>2</sub> avoided per person per year  
thanks to online learning



#### Did you know that...

thanks to online learning, our customers avoid more than 3 trips per week and that **4 out of 10** of these would be by petrol or diesel car? And that the average distance of these trips in Germany is **21 km**?



## 03. How do your digital habits contribute to caring for the planet?

### 3.5 Public transport apps

Public transport apps show you the optimal route to get from A to B and display in real time how long it will take for your bus to arrive or any problems with the network. These tools encourage more citizens to use these sustainable modes of transport compared to using their more polluting private vehicles, such as petrol and diesel cars.

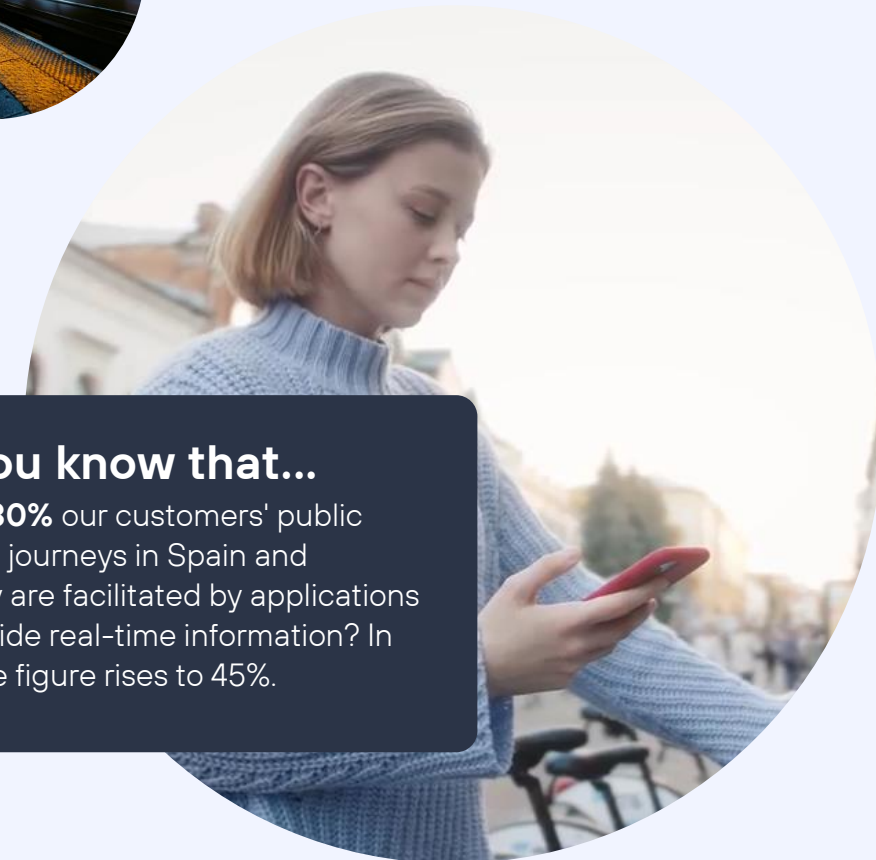
At least **2** out of **3** respondents use public transport apps

#### Customers who use public transport apps:



On average, each of them avoids emitting between **68** and **308 kg** of CO<sub>2</sub> per year

#### CO<sub>2</sub> avoided per person per year by using public transport apps



#### Did you know that...

around **30%** our customers' public transport journeys in Spain and Germany are facilitated by applications that provide real-time information? In Brazil, the figure rises to 45%.



## 03. How do your digital habits contribute to caring for the planet?

### 3.6 Carpooling

Thanks to digitalisation, there are now apps and services that put users in contact with each other to share car journeys. **This helps us to avoid one-person journeys.** Replacing two or more vehicles carrying only one person with a single car carrying all of them produces far fewer pollutant emissions.

**1 in 4** respondents in Spain and Germany and **2 in 3** in Brazil use carpooling apps.

On average, each of these customers avoids between **42 y 53 kg** of CO<sub>2</sub> per year

#### Customers who use carpooling services:

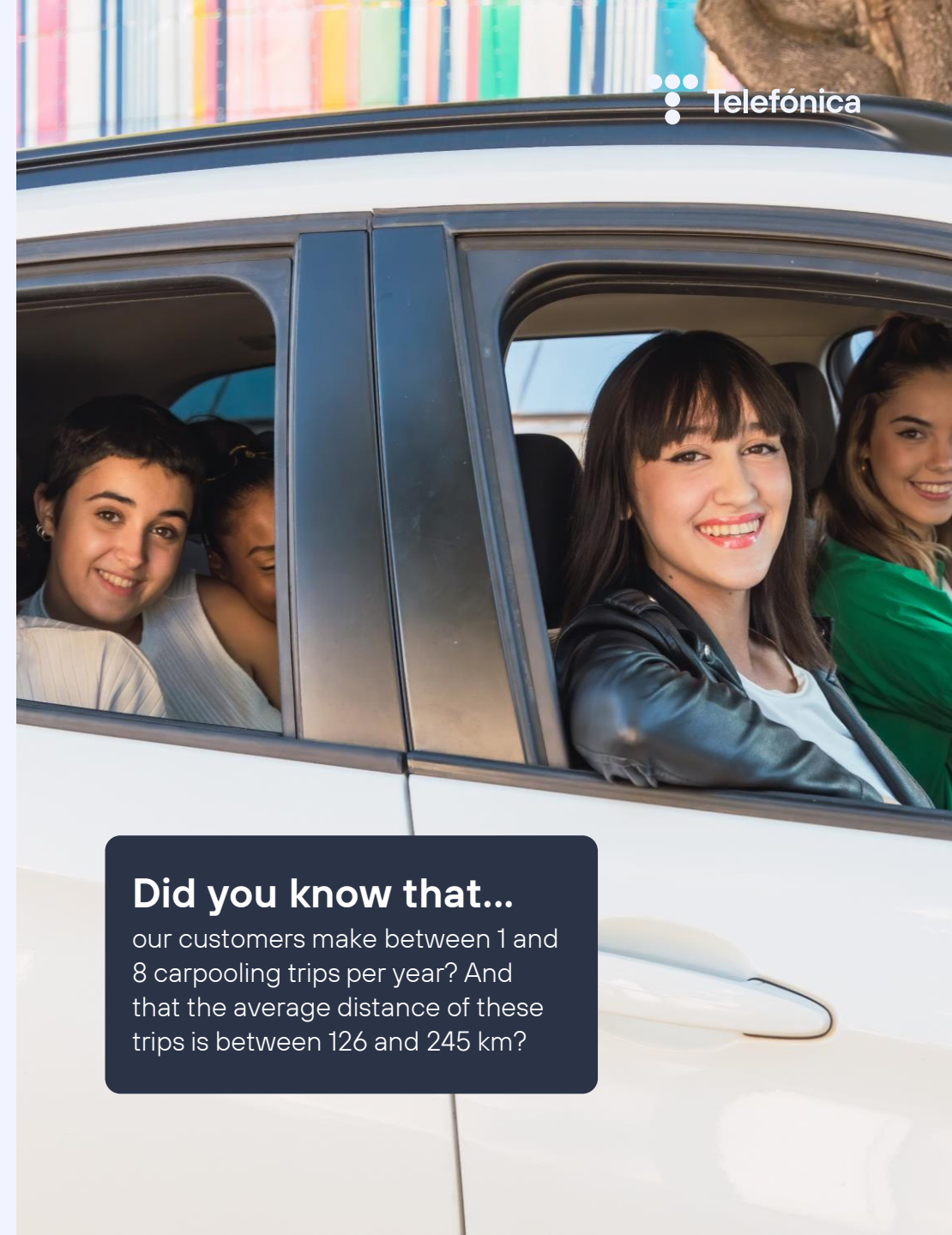


#### CO<sub>2</sub> avoided per person per year thanks to ridesharing



\*Data obtained from our customer survey on their digital habits in 2022 and 2023 and is therefore only representative of Telefónica customers.

1. The results of the survey carried out in Brazil on this digital habit were inconsistent and unreliable, so it was decided to discard them from the study.



#### Did you know that...

our customers make between 1 and 8 carpooling trips per year? And that the average distance of these trips is between 126 and 245 km?

## 03. How do your digital habits contribute to caring for the planet?

### 3.7 Satellite navigation apps

Nowadays, those who get lost essentially do so because they want to. Satellite navigation apps show us how to get to any destination. In addition to being convenient, this can have a positive environmental impact. Using them while on the move makes our journeys more efficient and saves us from detours and traffic jams that produce unnecessary emissions.

**>50%** of respondents use satellite navigation apps

#### Customers who use satellite navigation apps:



On average, each of them avoids emitting between

**11 and 19 kg** of CO<sub>2</sub> per year

#### CO<sub>2</sub> avoided per person per year by using satellite navigation apps



#### Did you know that...

our customers in Brazil use satellite navigation apps when travelling by car or motorbike 44% of the time?

\*Data obtained from our customer survey on their digital habits in 2022 and 2023 and is therefore only representative of Telefónica customers.



## 03. How do your digital habits contribute to caring for the planet?

### 3.8 Online shopping

The digitalisation of our societies is allowing more and more people to use e-commerce for their everyday purchases. While transporting these goods does generate emissions, more emissions are avoided, as according to our survey, around half of all shopping trips are made in petrol or diesel cars. However, **this can also have a rebound effect**, due to an increase in returns or purchases in general. Whether or not this is a sustainable option ultimately depends on how well each individual uses it.

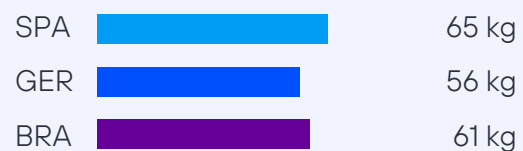
>89%  
of respondents shop online

On average, each of them  
avoids emitting around  
60kg of CO<sub>2</sub> per year

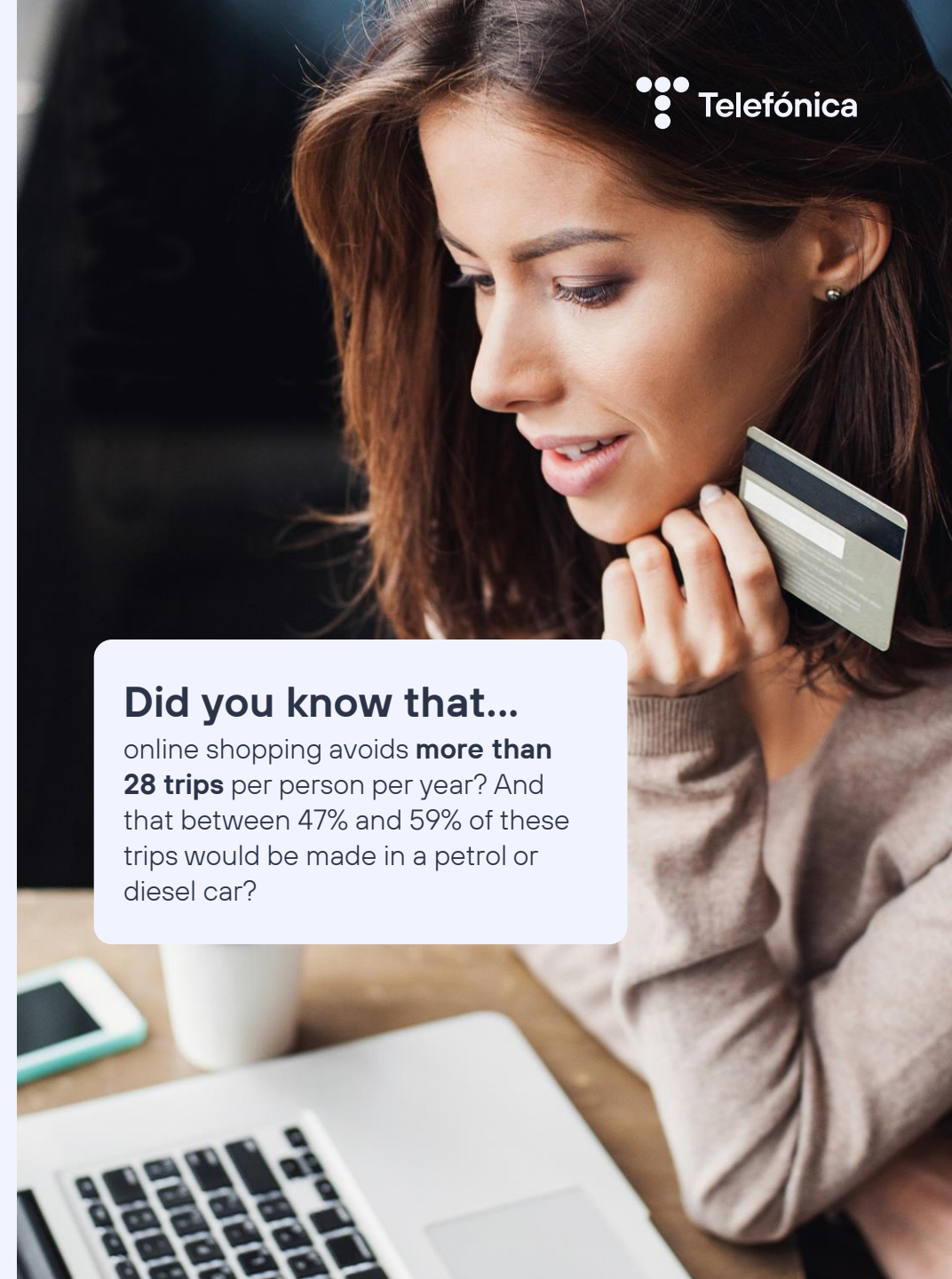
#### Customers who shop online



#### CO<sub>2</sub> avoided per person per year thanks to online shopping



\*Data obtained from our customer survey on their digital habits in 2022 and 2023 and is therefore only representative of Telefónica customers.



#### Did you know that...

online shopping avoids **more than 28 trips** per person per year? And that between 47% and 59% of these trips would be made in a petrol or diesel car?

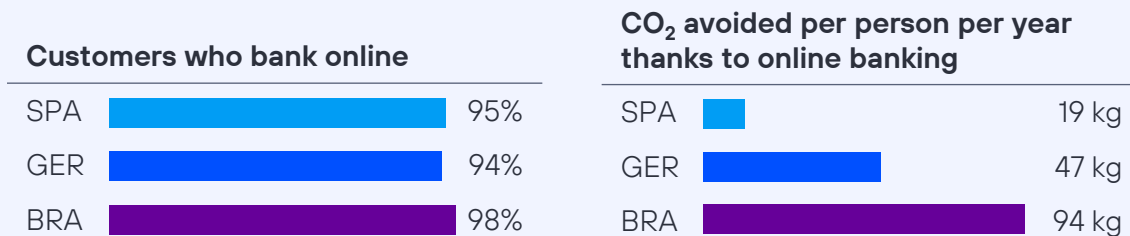
## 03. How do your digital habits contribute to caring for the planet?

### 3.9 Online banking

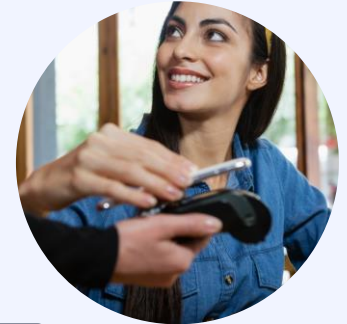
These days you can carry out many of your financial transactions from your home or anywhere else thanks to the digital services and solutions offered by banks. If you have a branch nearby, you may prefer to walk there. If this is not possible and your only option is to drive, online banking is a great way to avoid emissions.

**>94 %**  
of respondents use  
online banking

On average, each of them  
avoids emitting  
**94kg** of CO<sub>2</sub> per year in Brazil



\*Data obtained from our customer survey on their digital habits in 2022 and 2023 and is therefore only representative of Telefónica customers.



**Did you know that...**  
online banking avoids 25 to 32 trips per year? And that in Germany 46% of these trips would be made by petrol or diesel car?



## 04. What conclusions can we draw?

Although global temperatures are rising, it is not too late **to slow down climate change**.

Nonetheless, we have to *work together* to do so.

In the fight against global warming, **every tenth of a degree counts**, and we can all do many things in our daily lives to protect the space in which we live.

# Conclusions

## Choose more sustainable options

Connectivity opens the door to a range of technologies and applications. Knowing how to use them allows us to **change our habits to make sure we choose more sustainable options**, which are very often digital, such as online learning, teleworking or using satellite navigation apps.



## Universal connectivity

This is why **it is important that internet access levels increase**, technologies continue to develop and policies are in place to promote digitalisation, so that we can all have the means at our disposal to fight climate change.

### Digital habits

Analysis of the digital habits of **our residential customers** shows how these habits prevent unnecessary trips, optimise non-avoidable journeys to make them more efficient, reduce energy consumption and, consequently, release fewer CO<sub>2</sub> emissions into the atmosphere. In other words, **they reduce people's environmental footprint** and with it their impact on the planet.



In this way, every time we shop online, use an app to choose a route on public transport or study online, **we contribute to mitigating climate change**. Being aware of this means always being able to make a commitment to the planet through each of our daily actions.

## Telefónica, driver of change

Thanks to the connectivity we provide, we helped **our residential customers in Brazil, Spain and Germany to avoid the emission of a total of 69.2<sup>1</sup> million tonnes of CO<sub>2</sub> in 2023.**

We want to continue supporting them in this sustainable transformation of their day-to-day habits.



At Telefónica, we are committed to deploying and developing efficient communication networks that promote the **digitalisation of society and contribute every day to a more sustainable world**, promoting habits that contribute to decarbonisation and reducing the environmental impact of our day-to-day activity.

1. This consolidated figure includes the emissions generated by the connectivity and network infrastructure that form part of these services.



## 05. Annex

### Survey data

The data on the implementation of each activity is derived from quantitative studies through online surveys conducted in 2022 and 2023 among our customers in Spain, Germany and Brazil. Here are the details of each study:

Country	Year	N° of respondents	Sampling error
Germany	2022	1021	± 3.1 %
Spain	2022	1167	± 3.7 %
	2023	336	± 5.3 %
Brazil	2022	1200	± 2.8 %
	2023	800	± 3.5 %



## 05. Annex

### See our sources

Here you can view the sources of information cited in the report:

- [Sixth assessment report. IPCC \(2022\).](#)
- [Welle, D. \(2023, 30 julio\). Don't overstate 1.5 degrees C threat, new IPCC head says. The Daily Star.](#)
- [Sector Digital Verde. Política de la Comisión Europea.](#)
- [Götze, S. \(2023, 29 julio\). Bei 1,5 Grad Erwärmung geht die Welt nicht unter. Der Spiegel, Hamburg, Germany.](#)
- [Hope. \(2023, 20 julio\). NADA ha sido nunca más urgente que esto. NUNCA \[Vídeo\]. YouTube.](#)
- [Sociedad Digital en España 2023. \(2023\). Fundación Telefónica.](#)
- [Ekholm, B., & Rockström, J. \(2020, 8 febrero\). Digital technology can cut global emissions by 15%. Here's how. World Economic Forum.](#)
- [Falk, J., & Gaffney, O. \(2019, 19 septiembre\). Exponential Roadmap - Scaling 36 solutions to halve emissions by 2030. Exponential Roadmap Initiative.](#)
- [Stephens, A., & Thieme, V. \(2020, septiembre\). Towards >60 Gigatonnes of Climate Innovations: Module 2. The Avoided Emissions Framework \(AEF\).](#)

