

A person is shown from the chest up, looking through binoculars. The image is monochromatic with a blue tint. The person is wearing a plaid shirt. The binoculars are held up to their eyes, and they are looking towards the upper right. The background is a soft, out-of-focus landscape.

Introduction

TOWARDS A LONG TERM NATIONAL STRATEGY

THE LONG TERM: WHY LOOK TO 2050?

We humans are short-sighted creatures. Our brains went through their main evolutionary leap 300,000 years ago, in a world where our sapiens ancestors were subjected to immediate threats (the big cat that preyed on them in the savannah, the infection that killed them in a few days) and when the precariousness of science and technology meant that the consequences of their actions barely extended a few decades in time. As a result, **we ended up building a strong cognitive bias towards the short term.**¹ Our minds are designed to prioritise immediate benefits and threats over those in the future. This is why we find it so hard to stop smoking or to start exercising, and why we tend to put off indefinitely changes that benefit our lives.

Social institutions, and later **States, were created to mitigate this natural inclination towards the short term and to look after the interests of society in the more distant future.** "The origin of civil government," wrote the Enlightenment philosopher David Hume in 1739, is that "men are not capable of correcting, either in themselves or in others, the narrowness of thought which makes them prefer the present to that which is remote."²

Unfortunately, today's democracy has ended up exacerbating short-termism instead of offering a solution to it. In recent decades, the acceleration of technological change, globalisation, the digitalisation of the public debate and a range of institutional changes have meant that **Western countries' political horizons have narrowed dramatically.** Today's governments face more frequent elections than ever before; they need to manage increasingly rapid social, economic and technological processes; and they have to deal with a frenetic news flow in which "current" affairs last only a few hours and where events are rarely analysed with the necessary depth and calm.

The result is an increasingly short-sighted society, in which that which is urgent tends to overshadow that which is important and tactics prevail over strategy. **The costs of this short-termism are high:** decisions that backfire due to lack of anticipation, missed opportunities, laws that quickly become obsolete, and problems that are addressed too late.³ Short-termism is damaging our well-being and is preventing us from effectively addressing the great challenges of our time. Phenomena such as climate change, demographic ageing, low economic growth, inequality, educational stagnation and democratic discontent are not new: they have been decades in the making. And if they are as significant as they are today, it is partly due to our inability in the past to anticipate them or to tackle them by implementing far-reaching reforms that are sustained over time.

Short-termism is also mortgaging the welfare of future generations. Just as Europeans of the past colonised other parts of the world and used them to compensate for the shortcomings of their economic growth patterns and social models, we 21st-century Europeans are using the future as a sort of distant colony into which we are pouring all the inefficiencies of the current system: environmental degradation, technological risks and social fracture.⁴ In a way, we are "colonising the future," putting the rights and interests of the 47 million people who live in Spain today before those of the approximately 44 million who will inhabit it over the next century.⁵ This is not just wrong from a strictly economic point of view, it is also ethically unacceptable.

Fortunately, more and more countries are opening their eyes to this problem. In recent years, a number of governments have launched initiatives aimed at increasing the time horizon for their political actions and developing their capacity for "anticipatory governance." Evidence of this include: the setting up of **strategic foresight units** in several countries around the world (Germany,

Canada, France, Finland, Singapur, Sweden and the UK, among others); the proliferation of long-term multi-sector plans (such as *Agenda 2030* or the *Roadmap to a low-carbon economy by 2050*); and the creation of institutions and legal frameworks designed to protect the rights of future generations⁶ (for example, *Walle's Well-being of Future Generations Act*.)

The pandemic has accelerated this trend. The disruptive impact of the coronavirus has reminded many governments that they can no longer rely on traditional methods of policy-making and that they need analytical tools that allow them to **rethink the future, anticipate scenarios, and articulate structural responses over the long term**. So much so that, in the last year, several of our neighbouring countries (like France, the UK and the US) have begun preparing *grand strategies* to adapt to a post-Covid world,⁷ and The European Commission has set up a Vice-Presidency of Foresight and the EU-wide Foresight Network aimed at making foresight a key part of Europe's policy making.⁸

With the creation of **its National Office of Foresight & Strategy** in 2020,⁹ Spain joined this movement and resumed the path that had been established in 1976 when Adolfo Suárez set up the National Foresight Institute within the Office of the Prime Minister, mandating it to study “the problems of the future in a multi-disciplinary way” and to assist the country during the crucial years of transitioning to democracy.¹⁰

Spain is now facing a decade of change as dizzying and decisive as it was then. This is why it is essential for our country to look ahead once more and develop a *Long-Term National Strategy* that help us to anticipate the challenges and take advantage of the opportunities that megatrends such as climate change, demographic ageing and technological transformation will bring in the coming years. As we will discuss below, **it is not a question of forecasting the future, but of understanding it better** through the objective analysis of empirical evidence, and of fostering the national dialogue needed to build it.

THE METHOD: DIACHRONIC ANALYSIS AND STRATEGIC FORESIGHT

Spain 2050 is a **strategic foresight** exercise that has a dual goal:

- improve our understanding of the social, economic and environmental challenges and opportunities that our country will face over the coming decades; and
- create a multi-stakeholder dialogue that generates a *Long-Term National Strategy* that will enable us to set priorities, coordinate efforts, and ensure the prosperity and well-being of our citizens in the future.

This study is a **first step** in this direction. It contains:

- a diachronic and prospective analysis of nine major challenges that Spain will have to overcome between now and 2050 if it wants to consolidate its position as one of Europe's most advanced countries;
- more than 200 proposals to achieve this; and
- a set of 50 quantitative goals and indicators to use in designing areas of action, taking specific measures, and monitoring progress over the coming years.

These *Fundamentals and Proposals* have been drawn up by the **by the National Office of Foresight and Strategy of the Prime Minister's Office and a team of more than a hundred renowned experts** who have worked *ad honorem* and with full independence more than 900 hours of research and debate. Most of them are scholars in Spanish and foreign universities, although there are also analysts from international institutions, think tanks, think tanks and NGOs. Two criteria have been used for selecting them: merit (we have chosen people who have published top-notch research on the topics addressed) and diversity (we have tried to achieve diversity in terms of age, gender, geographical origin, academic discipline and political sensitivities).

In addition to these experts, the Office has had **the valuable support of several government ministries, the AIREF, the Bank of Spain and the European Commission's Joint Research Centre**, and has held meetings with specialists from international organisations like the World Bank, the OECD and the United Nations.¹¹

We have divided the exercise into two phases:

I. In the first phase (scenario-building), we created a range of future scenarios (*scenario-building*) **to serve as a basis for reflection and strategic conversation.** Contrary to popular belief, these scenarios are not *predictions* but rather *descriptions* of probable futures. To craft them, we examined the previous evolution of the main demographic, societal, economic, technological, environmental and institutional trends¹² in Spain and Europe. Then, we projected their potential future evolution combining the (economics, environmental sciences, demographics, sociology, history, political science and law) with qualitative and quantitative foresight techniques.¹³

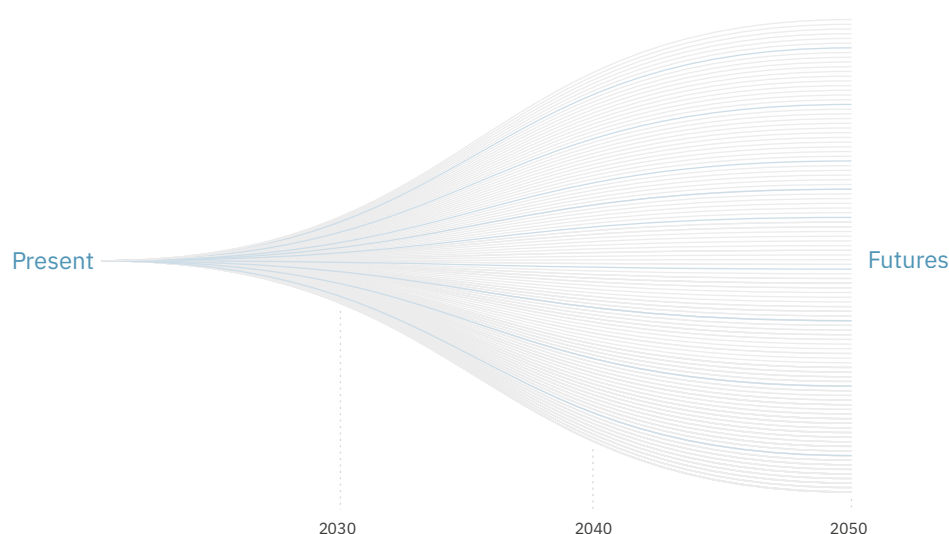
No one can predict the future. Social change is not governed by universal laws like physics. And it is constantly altered by accidents, individual decisions, and disruptions that are impossible to anticipate. However, it also depends on the continuity of certain institutions, the recurrence of many social behaviours, and the prevalence of long-term structural processes that are subject to economic, environmental and legal constraints that make them less susceptible to short-term changes and, therefore, easier to anticipate. Good examples are demographic changes,¹⁴ labour market shifts,¹⁵ and climate transformations¹⁶. **In this study,¹⁷ we use these structural processes to project trends and establish a restricted range of probable futures—which in turn helps us to reflect on our options, map uncertainty, and design effective and resilient long-term policy strategies.**

For practical reasons,¹⁸ we have reduced the range of working scenarios to two [Fig. 1]:

- A baseline scenario that projects past trends on the assumption that no major changes occur.
- A convergence scenario that assumes the occurrence of major changes that allow Spain to reduce or close its gap with the most advanced member states of the EU on key issues such as human capital, employment, productivity, sustainability and social welfare.

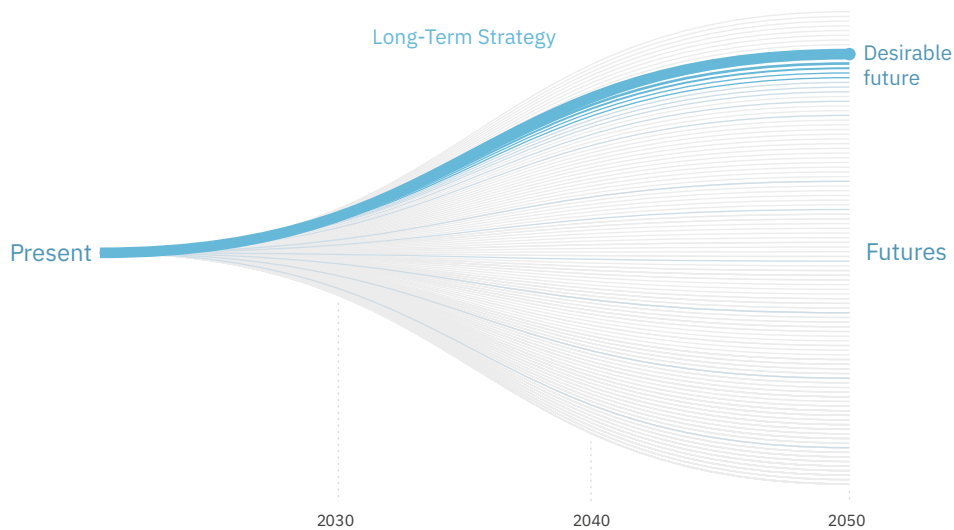
The use of just two scenarios helps us to make the exercise more accesible to the general public, to illustrate better the differences between action and inaction, and to find shared goals.

Fig. 1. Scenario building (phase I of the exercise)



II. In the second phase of the exercise (backcasting), we outlined a realistic roadmap that would allow Spain to move from its current state to the desired converge scenario. Such roadmap includes 50 specific goals and indicators and over 200 concrete policy measures to achieve them [Fig. 2]. This was done in the knowledge that nothing can be set in stone and that most of these goals, indicators and measures will have to be revised and updated over time, so they are adapted to the changing priorities of citizens, the information available, and the new societal, economic, enviromental and technological realities that will arise.

Fig. 2. Backcasting (phase II of the exercise)



Some people may find this approach strange or inadequate, but the truth is that this is how major transformations usually happen. The scientific community decided to search for the Higgs boson in 1964 - at a time when neither the knowledge nor the technology to do so existed. They set the goal, mobilised resources, started experimenting and, in 2012, after half a century of work, they found it.

The European Union was born out of a similar process. After the Second World War, a number of intellectuals created the vision of an association of countries united in common values and interests, without knowing how this could be achieved. This vision gave way to a dialogue, which in turn led to the cultural and institutional transformations that eventually resulted in the creation of the Union that we are today. The same approach drives initiatives such as the 2030 Agenda (*en cursiva*) and the missions of the *Horizon Europe 2021-2027* programme.

Very often, **major transformations often begin with the creation of a shared vision**, a distant goal that helps us set priorities, coordinate efforts, and make sense of decades of effort. When such visions are created, there is not usually a detailed roadmap. Their design emerges progressively, through study, negotiation, experimentation, and constant adaptation to changing circumstances.

If the day-to-day political debate is not as constructive and cohesive as it should be, it is often because the first step has been skipped: **the shared vision, the common goals, have not been set**. Where we want to end up has not been stated explicitly and, as a result of this void, the discussions about which path to take result difficult, tense or even useless.

Strategic foresight seeks to solve this problem by placing the search for future goals at the very centre of the conversation. It focuses on the identification of common and realistic goals based on historical experience and empirical evidence. Success stories from countries such as Finland, Canada, the UK and Singapore illustrate the many benefits of this method:¹⁹

- It serves to anticipate risks and opportunities that are often not evident in the immediate present, which in turn saves time and enables us to respond proactively (rather than reactively) to them.
- It helps with setting priorities.
- It opens the mind to new possibilities.
- It reveals the costs of inaction.
- It enables the design of more resilient policies.
- It helps to bridge differences, bring positions closer together, and reach agreements because:
 - Negotiations that start from clear and ambitious goals tend to general better outcomes.²⁰
 - Anticipatory outlooks allow all parties to better understand the potential consequences of a given course of action and this, in turn, helps positions to converge.
 - The level of resistance to change is lower, the less immediate or disruptive the change is perceived to be (in other words, measures tend to have a higher approval when they are progressive and when a transitional period for the adaptation of all the affected stakeholders is envisaged).

In summary, the use of strategic foresight has great advantages, which is why it is widely used by the world's most advanced governments, businesses, and international organisations. It does not predict the future, but it does help face it, and it fosters an informed and constructive conversation about the crucial issues that will mark the future of a country and its inhabitants over the medium and long term.

Our methodological principles

Ten methodological principles guided the design and execution of this exercise:

A vision for the country. Policies for the future need to be State policies, not government policies, as they need to span several legislatures. For this reason, our analysis has been conducted from a non-partisan perspective that puts data and empirical evidence before political positions. This *Strategy* intends neither to endorse nor refute any political party's programme. It does, however, aspire to help them all, along with public institutions, companies, NGOs, trade unions, universities, foundations, associations and other organisations within our civil society.

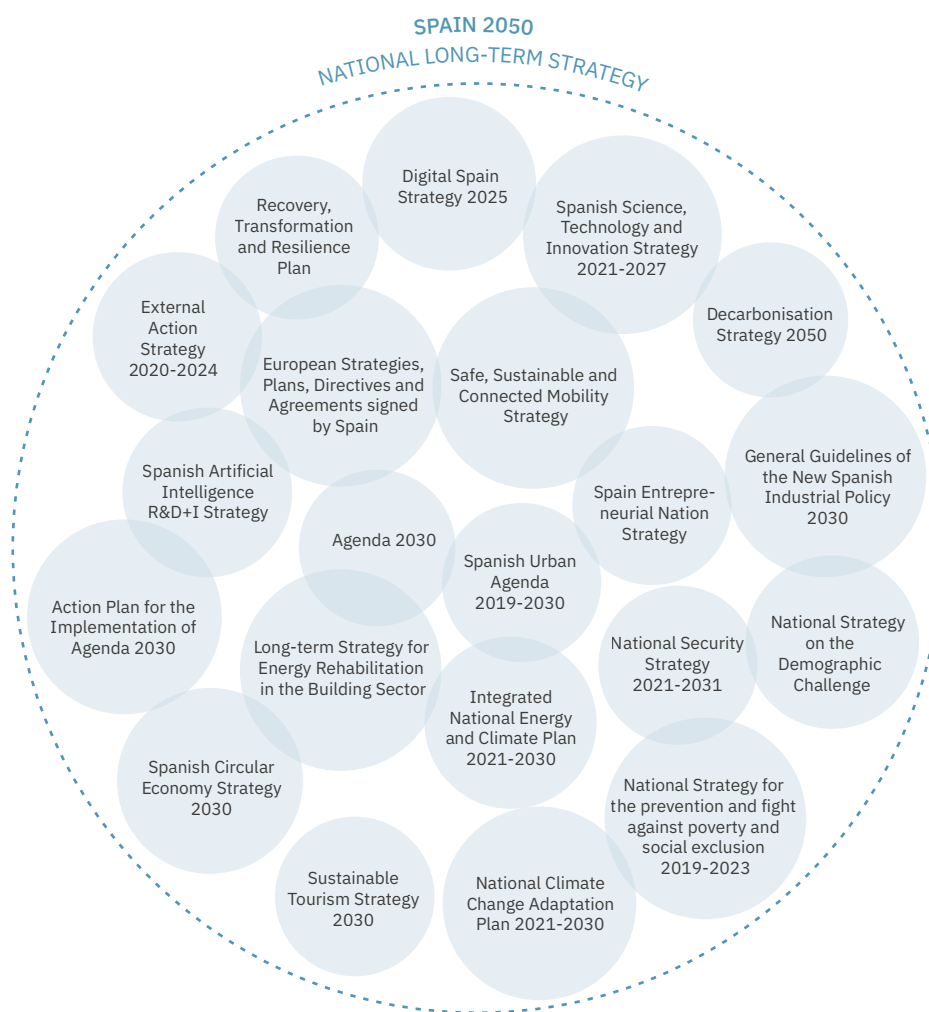
Empirical rigour. In the field of foresight, there are plenty of sensationalist studies that attempt to grab headlines with predictions that are as eye-catching as they are unfounded. In this exercise, we have avoided such device and have based our analysis on a broad empirical, measurable and verifiable base, consisting of over 500 data series and some 1,650 scientific peer-reviewed

articles and publications produced by international organisations, think tanks, and non-profit entities of recognized technical competence.

European ambition. We divided the 27 EU Member States into three groups of countries based on their level of performance (low, medium and high) according to a set of standard economic, social and environmental indicators. We then analysed how, over the last thirty years, Spain successfully moved from the low to the medium performance group in regard to most of these indicators, and asked what we would have to do to join the high performance group (which we call the “EU-8”) ²¹ in the next thirty years.

Comprehensive approach. *Spain 2050* seeks to outline a holistic vision of Spain's challenges and opportunities, taking into account both the interdependence between them (trade-offs and synergies), and the need to address them through public-private collaboration and coordinated action by all areas of government (the so-called Whole-of-Government Approach). To this end, all plans and strategies drawn up by the national government’s departments, European institutions, and international organizations have been examined [Fig. 3]. Special attention has been paid to the *Recovery, Transformation and Resilience Plan* ²² and the *2030 Agenda*.

Fig. 3. Some States plans and strategies that have been taken into account.



Recognition of complexity. Public debate today tends to oversimplify reality, often presenting it in a biased way that omits or minimises the existence of nuances, disagreements and uncertainties. The truth is, however, that things are never simple, since all of them are part of the universe, which is notoriously complex. This *Strategy* seeks to embrace and resolve that complexity and convey it in a clear and accessible way to the public.

Applicable and transformative. *Spain 2050* has been conceived as an applied research device that aspires to be useful for society. Our work is part of the *transformative foresight* trend, which consists of studying the future in order to change decision-making in the present. The aim is to identify the likely futures that are to be avoided or achieved, and to suggest policies for doing so. Each chapter therefore includes a series of concrete goals for the coming decades, along with empirical indicators to measure them, as well as recommendations on how to achieve them.

Prioritising that which is important. We have left aside the issues that are of minor causal relevance (and which tend to clog up the media debate), and have focused on the issues that are truly decisive for the future of the country and we have also focused on guidelines for tackling them.

Gender perspective. The gender perspective permeates the analysis of all the issues addressed, with the conviction that, without eliminating the many structural inequalities that still afflict our country, we will not be able to achieve the best possible future.

Transparency. The names of the experts who participated in the exercise, the databases used, and the methodology employed are explained and available for anyone to download, compare and use in their own analysis.

Agreement focused. Long-term policies need to be born out of agreement. Without it, they are bound to die halfway through. Our intention has been to create a study that brings together the consensus reached in recent decades by the academic community in relation to the different challenges that our country faces now and in the future. It is obvious that empirical evidence does not provide all the answers and that there will always be decisions that are more ideological than technical in nature. But it is also true that science has more to say about how to govern a country than we tend to acknowledge and that the points of disagreement are fewer and less acute than the media debate lets on.²³ Spaniards agree on many things. Experts do too. We must take advantage of these shared visions to build a space of broad agreement - a solid pillar of the State around which day-to-day policies can oscillate according to the different governments and the public's changing views.

ANALYSIS AND PROPOSALS: ACHIEVEMENTS, CHALLENGES AND OPPORTUNITIES OF A COUNTRY FULL OF FUTURE.

Over the past forty years, Spain has undergone a profound transformation that, in many respects, is exemplary on a global scale. In just four decades, our country has gone from an agrarian-based economy, weak and poorly connected with the rest of the world, to a modern and competitive economy, with a trade openness rate higher than France and Italy, and a plethora of leading companies in industries such as tourism, construction, transport, renewable energies, agri-food, banking and fashion.

This economic development has allowed us to: generate more wealth as a country than at any other time in our history; increase our employment rate by 15 points (which is equivalent to generating 8 million net jobs); successfully incorporate women into the labour market; and double our per-capita income. It has also helped us to build a welfare state of European standard that provides high quality social benefits and public services to all citizens. As a result, skills levels among the Spanish population have improved dramatically, at a rate only comparable to that of Finland over the same period, and is now practically in line with the EU average.

At the intangible level, progress has been equally remarkable. Spain today is home to one of the most inclusive, pluralistic and tolerant societies in the West. We have a higher level of freedoms than the USA, and a democracy that is ranked as one of the most complete and stable in the world.

In short, **ours is a great country and its short democratic journey is a clear success story.** When we think about what is happening by limiting ourselves to the immediate present, it is easy to succumb to pessimism and the feeling that "things aren't getting better" or that "they are getting worse". However, when the empirical evidence is analysed, it can be seen that Spain is on a positive trajectory on most fronts. And in terms of many of them, it is already a global leader [Fig. 4].

Fig. 4. Map of Spain's strengths
Areas in which our country leads at European or global level





Source: Authors' own, based on data from the different sources cited.

The EU-27 and the EU-8 represent the simple average of the values of each of their countries, based on the available data.

Of course, this does not mean that Spain does not face significant problems or that it should be satisfied with what it has achieved. It is undeniable that, in many respects, the changes that have occurred so far have been insufficient or inadequate, and that many of them have not benefited the entire population equally. Our country still has severe shortcomings in its productive sector, its human capital and its institutional architecture and these have prevented it from converging with its European neighbours in terms of key aspects for economic development, environmental sustainability and social welfare [Fig. 5]. In addition, we face important challenges that, if not successfully addressed in the coming decades, could worsen as a result of *megatrends* such as demographic ageing, climate change, technological transformation, growing cities, and the reconfiguration of the global order.

Of these many challenges, **we look at nine here, which we believe will be particularly relevant to our future in the medium and long term:**

1. Be more productive for better growth.
2. Move to the forefront of education.
3. Improve training and retraining of our population.
4. Becoming a carbon-neutral, sustainable and climate-resilient society.
5. Get our welfare state ready for a longer-lived society.
6. Promote balanced, fair and sustainable territorial development.
7. Solve the deficiencies of our labour market and bring it into line with the new social, economic and technological realities.
8. Reducing poverty and inequality and repairing the social elevator.
9. Broaden the foundations of our future well-being.

Why these challenges and not others? The selection is based on several criteria. We have focused on these nine because in our view they are: 1) key to the economic development of the country, the prosperity and health of its population and the sustainability of the welfare state; and 2) because there is abundant empirical evidence, academic studies and success stories in countries around us from which we can draw lessons and ideas.

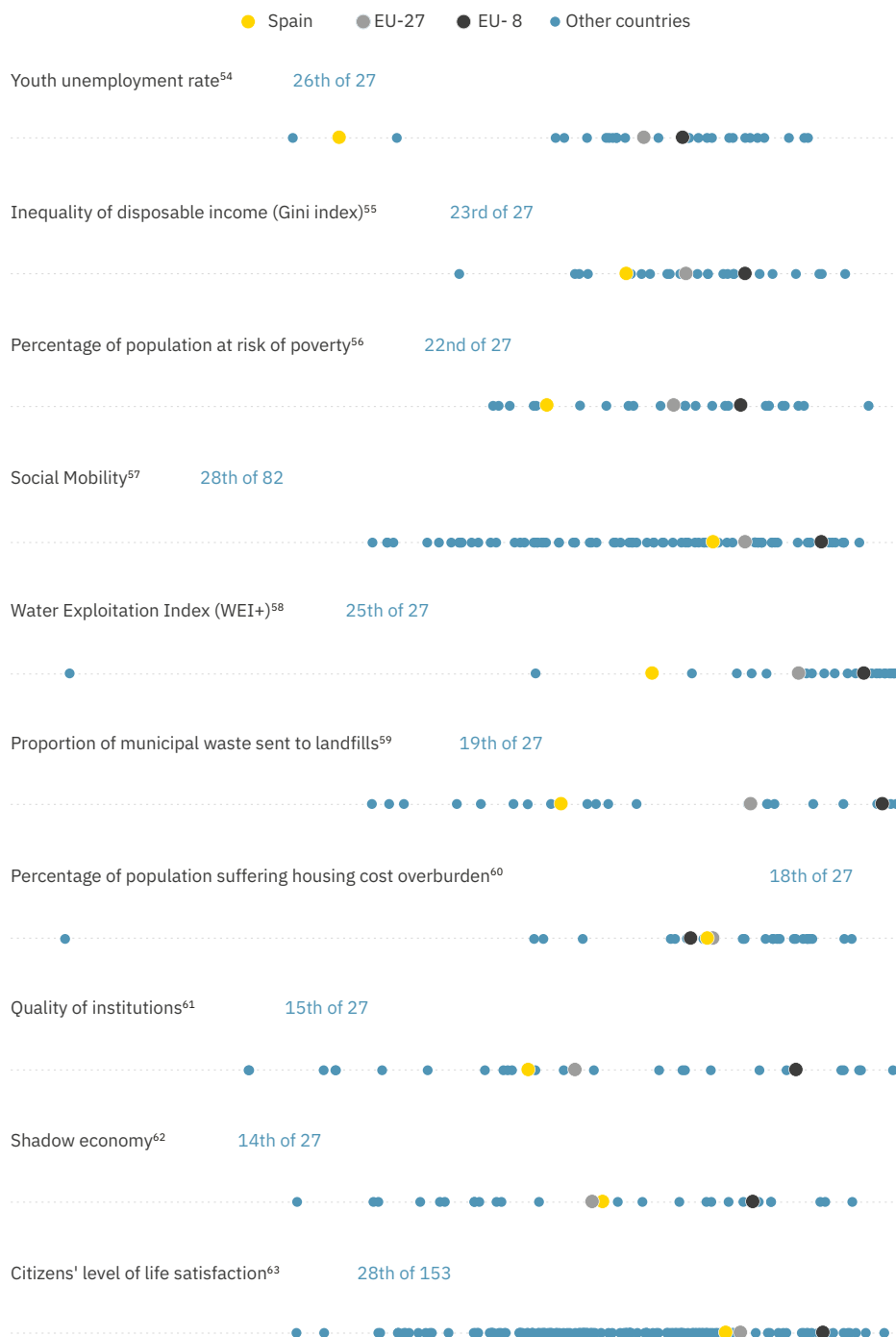
As can be seen, these challenges are eminently domestic, but they have all been analysed from a European perspective and as part of the global reality under which they fall.

It is clear that the list does not reflect all our country's challenges. There are key issues that are not explicitly mentioned but that are addressed in detail across the chapters, such as scientific and technological innovation, public administration modernisation, gender equality, and support for young people, which, although they are not explicitly mentioned, are addressed in detail and apply across all the challenges. There are also important issues, such as Spain's role in the world and the structuring of the autonomous State, that have been left out or have not been analysed in the depth they deserve and which will be dealt with in future projects.

Fig. 5. Map of Spain's weak

Areas in which our country is still in a low position compared to the most advanced countries in Europe





Source: Authors' own, based on data from the different sources cited.

The EU-27 and the EU-8 represent the simple average of the values of each of their countries and based on the available data.

A realistic ambition

Overcoming the above-mentioned challenges will not be easy, but it is certainly possible. For some time now, there has been a sense of growing pessimism among the Spanish population. A number of surveys reveal that many citizens believe the country will not be able to cope successfully with phenomena such as technological change and youth unemployment. Consequently, they think that present generations will end up having worse lives than their parents. This pessimism is a common reaction among human beings when they think about the future.⁶⁴ However, we are convinced that, in the case of our country, it is unfounded.

The analysis of how far we have come and the comparative politics exercises contained in this study indicate that **Spain is making positive progress on practically all fronts and, if the necessary changes were implemented, it would continue to do so in the future. This would allow us to overcome the challenges discussed and experience immense economic and social progress, which would lead us to surpass the EU-27 average in the next decade and converge with the most advanced countries in Europe (EU-8) before 2050.**

That is our proposed ambition for Spain. The Spain of 1978 dreamed of democracy, economic development and full incorporation into the European community. Those dreams have been fulfilled. **The Spain of 2021 can, and must, look even further ahead. It must aspire to sustainable and globally competitive growth and a strong, effective welfare state that raises its population's well-being levels to the highest standards in the world.**

This ambition is as necessary as it is realistic. To understand why, we need to avoid two mistakes we humans tend to make when we look to the future. The first is *focalism*, which means focusing attention only on some aspects of the phenomenon under analysis (generally the most negative ones) and ignoring the rest.⁶⁵ For example, when we think about the ecological transition, we calculate the billions of euros we will have to spend on redesigning our production and transport systems, but we forget the billions we will save on importing fossil fuels. Similarly, when we think about digitalisation, we worry about the jobs that the new technologies will destroy, but not about the many new ones they will create, nor the huge gains in productivity and working conditions that will occur in most jobs. **This biased way of looking at the future leads to pessimism and prevents us from gauging our potential for change.**

The other common mistake is to lose historical perspective. We often forget that most of the social rights and material possibilities we enjoy today were completely unthinkable just fifty years ago. This forgetfulness produces in us the blindness of immediacy, which means that any proposal far removed from today's reality is discarded as utopian or unfeasible. Thus, only those goals that are close to what already exists are accepted as "realistic". We must free ourselves from that blindness and put our challenges in perspective. If we make the most of it, thirty years is a long time. In fact, it should be borne in mind that **the reforms and improvements that Spain will need to make in order to converge with the EU-8 countries are, in most cases, similar in difficulty and magnitude to those already implemented by Spain and other neighbouring countries during the last four decades.** If we did it in the past, we can do it again.

The proposals

Obviously, nothing will be achieved by the simple inertia of history. To overcome our challenges and converge with the EU-8, today's generation will have to carry out far-reaching reforms and launch bold and sustained initiatives. **This study suggests more than 200** that can be summarised into 12 main groups:

- A firm commitment to improving the education of our population - from birth and throughout life.
- Robust and ambitious support for innovation on all fronts, not only in the scientific-technological field.
- Strong modernisation of our economy and business culture.
- Transition towards a sustainable and environmentally friendly model of development.
- Dramatic expansion of opportunities for young people, especially in areas such as education, employment and access to housing.
- Achieving full gender equality.
- Encouraging legal immigration and attracting foreign talent as additional ways to boost our economy and underpin the viability of our welfare state.
- Strengthening public services, with a special focus on education, health and care.
- Redesigning social benefits to move progressively towards a model that protects citizens on the basis of their needs and not only on their employment history.
- Reforming our tax system to increase its revenue-raising capacity and improve its progressivity, so that it is able to finance the strengthening of our welfare state without compromising the sustainability of public accounts.
- Modernising public administration to create efficiency gains, and improving the policy-making process through a greater attention to empirical evidence, experimentation, evaluation, social collaboration, and the analysis of trade-offs.
- A core commitment to the rights and interests of future generations. The decisions we take today cannot end up reducing our children's well-being.

None of these reforms can be made within one single legislature. We need to understand and accept that there is no such thing as immediate change. Economic, political and social transformations are usually incremental; they occur slowly and gradually (in history, disruptions are rare and almost never good). **True progress is not just a fleeting impulse, the fruit of a few individuals' genius. Rather, it is an effort sustained over time, by several generations.** It is therefore important that we define a clear and shared direction and that we are able to maintain it over a long period of time. When sailing a hard-to-handle slow boat, it is essential to have a well-defined course.

The compass: 50 goals for 2050

It is difficult to attain that which cannot be measured. We have therefore created a **dashboard that includes 50 specific goals that Spain should achieve by 2050** if it wants to converge with the most advanced countries in Europe [Fig. 6]. When designing and selecting these, we have tried to adhere to the following three conditions:

- The goals should be quantifiable. That is, they should be measurable using specific indicators based on accessible data that are European in scope, regularly published, and recognised as valid by the academic community.
- The goals should be ambitious but realistic. The convergence pathways have been designed through a careful analysis that takes account of past trajectories, projected future trends, dozens of comparative policy cases and the interdependence between goals.
- The goals and indicators should be updateable and capable of being modified or replaced by others as the actual situation changes, so that they do not end up being obsolete by 2050.

What we present here is nevertheless just an **initial proposal that should be constantly reviewed and updated**, as the country changes, scientific knowledge advances and better indicators emerge. It should also be borne in mind that these 50 quantitative goals are only an indicative tool and should in no way replace (or overshadow) the many qualitative goals set out in *The Strategy*.

Fig. 6. Dashboard of indicators and targets

Indicators	Average 2015-2019 or latest data available*	Targets		
		2030	2040	2050

Challenge 1: Be more productive for better growth

1	Gap in per capita income with the EU-8 ⁶⁶	-22%	-18%	-15%	-10%	
2	Labour productivity levels (constant euros, PPP 2015) ⁶⁷	42	46	53	63	
3	Employment rate ⁶⁸	62%	68%	72%	80% ⁶⁹	
4	Total R&D expenditure (% of GDP) ⁷⁰	1.2%	3.0% ⁷¹	3.5%	4.0%	
5	Firms by size (by % of employment) ⁷²	Large (+250 employees)	31%*	32%	33%	35%
		Medium (20-249)	23%*	25%	28%	30%
		Small (1-19)	45%*	42%	38%	35%
6	Shadow economy (% of GDP) ⁷³	20%	15%	12%	10%	

Challenge 2: Move to the forefront of education

7	Percentage of pupils who have repeated at least one grade at age of 15 ⁷⁴	29%*	18%	10%	5%	
8	Early school dropout rate ⁷⁵	17%*	10% ⁷⁶	6%	3%	
9	Population aged 25-34 with more than lower secondary education ⁷⁷	70%*	78%	86%	93%	
10	Importance of socio-economic differences on the probability of repetition at equal skills levels ⁷⁸	3.9*	3.0	2.0	1.0	
11	Percentage of 15 year olds with low performance in PISA (below level 2) ⁷⁹	Reading	20%	18%	15%	<15%
		Mathematics	23%	20%	18%	<15%
		Science	20%	18%	15%	<15%
12	Percentage of 15-year-olds with high performance in PISA (level 5 or above) ⁸⁰	Reading	5%	6%	8%	10%
		Mathematics	7%	10%	13%	16%
		Science	5%	6%	8%	10%
13	Public expenditure on education (% of GDP) ⁸¹	4.3%	5.1%	5.3%	5.5% ⁸²	

Indicators	Average 2015-2019 or latest data available*	Targets		
		2030	2040	2050

Challenge 3: Improve training and retraining of our population

14	Female students enrolled in tertiary education in the STEM field (% of total) ⁸³	28%	35%	42%	50%	
15	Proportion of adult population (16-74 years old) with at least basic digital skills ⁸⁴	55%	70% ⁸⁵	100%	100%	
16	Adult population (25-64 years old) who recognise that they do not speak any foreign languages (% of total) ⁸⁶	46%*	40%	30%	25%	
17	Proportion of adult population (25-64 years old) who report having taken part in a retraining programme in the last year ⁸⁷	30%*	50% ⁸⁸	70%	90%	
18	Proportion of unemployed population (25-64 years old) with recent learning experience ⁸⁹	32%*	35%	50%	70%	
19	Active labour market policies devoted to training (% of GDP) ⁹⁰	0.11%	0.25%	0.30%	0.40%	
20	Percentage of enterprises that carry out training for their employees by size ⁹¹	Large (+250 employees)	92%	95%	100%	100%
		Medium (50-249)	82%	88%	92%	95%
		Small (10-49)	51%	60%	70%	75%

Challenge 4: Become a carbon neutral and sustainable society that is resilient in the face of climate change

21	GHG emissions (thousands of tonnes of CO _{2-eq}) ⁹²	330,640	223,000 ⁹³ (-23%)	126,000 (-57%)	29,000 ⁹⁴ (-90%)
22	Water demand (hm ³ /year) ⁹⁵	30,983*	29,434 ⁹⁶ (-5%)	27,885 (-10%)	26,335 (-15%)
23	Primary energy intensity (kilograms of oil equivalent/ thousands of euros) ⁹⁷	115 ⁹⁸	73 ⁹⁹ (-36%)	56 (-51%)	42 ¹⁰⁰ (-63%)
24	Electricity generated by renewable energy sources (% of total) ¹⁰¹	36%	-74% ¹⁰²	87%	100% ¹⁰³
25	Environmental tax (% of GDP) ¹⁰⁴	1.8%	2.6%	4.0%	5.0% ¹⁰⁵
26	Organic farming area (% of total cultivated area) ¹⁰⁶	10%*	25% ¹⁰⁷	43%	60%
27	Annual reforestation rate (hectares/year) ¹⁰⁸	15,103 ¹⁰⁹	20,000 ¹¹⁰	20,000	20,000

Indicators	Average 2015-2019 or latest data available*	Targets		
		2030	2040	2050

Challenge 5: Get our welfare state ready for a longer-lived society

28 Activity rate ¹¹¹	Between 55 and 64 years old (%)	62%*	63%	64%	67%
	Between 65 and 74 years old (%)	5%*	7%	9%	11%
29 Public expenditure on health (% GDP) excluding health expenditure on long-term care ¹¹²		5.7%	7.0%	7.0%	7.0%
30 Public expenditure on long-term care (% of GDP) ¹¹³		0.8%	1.5%	2.0%	2.5%
31 Percentage of people who are entitled to SAAD benefits but do not receive them ¹¹⁴		17%*	0%	0%	0%

Challenge 6: Promote a balanced, fair and sustainable development of the country

32 Percentage of population suffering housing cost overburden ¹¹⁵		9.5%	8.0%	6.5%	4.5% ¹¹⁶
33 Proportion of dwellings rehabilitated per year (% of total stock) ¹¹⁷		0.1%	1.5%	1.8%	2.0%
34 Municipal waste sent to landfill (% of total generated) ¹¹⁸		55%	10% ¹¹⁹	5%	0%
35 Population exposed to air pollution levels (PM _{2.5} particles) above WHO recommendations (% of total) ¹²⁰		51%	25%	15%	2% ¹²¹
36 Energy poverty (% of population unable to keep their dwelling at an adequate temperature) ¹²²		7.5%*	6.0% ¹²³	3.0%	0.0% ¹²⁴

Challenge 7: Resolve the shortcomings in our labour market and adapt it to the new social, economic and technological realities

37 Unemployment rate ¹²⁵		18%	12%	10%	7%
38 Employment rate of women ¹²⁶		57%	65%	75%	82%
39 Youth unemployment rate ¹²⁷		40%	30%	21%	14%
40 Employment rate (55-64 years) ¹²⁸		51%	56%	62%	68%
41 Temporary rate ¹²⁹		26%	23%	18%	15%
42 Involuntary part-time rate ¹³⁰		9%	7%	5%	3%
43 Hours worked per week ¹³¹		37.7	37.0	36.0	35.0
44 Gender wage gap ¹³²		14%	10%	5%	0%
45 People satisfied with their employment situation ¹³³		85%*	87%	90%	93%

Indicators	Average 2015-2019 or latest data available*	Targets		
		2030	2040	2050

Challenge 8: Reduce poverty and inequality and reactivate the social elevator

46 Gini Index (income inequality) ¹³⁴	34	32	31	29 ¹³⁵
47 Population at risk of poverty (% of total) ¹³⁶	22%	18%	15%	10%
48 Tax revenue (% of GDP) ¹³⁷	35%	37%	40%	43%
49 Public expenditure on social protection (% of GDP) ¹³⁸	17%	18%	19%	20%

Challenge 9: Broaden the foundations of our future well-being

50 Percentage of people satisfied with their life ¹³⁹	83%	86%	89%	92%
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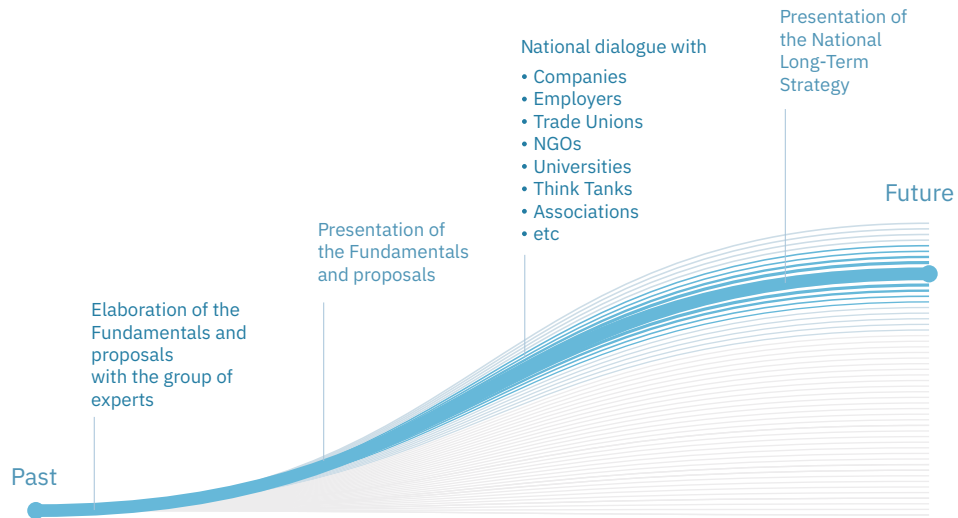
Note: This is the summary version of the chart. For the expanded version containing more detail, please see Appendix 50 *goals for 2050*.

Just the first step

Spain 2050 intends to be a plural and inclusive strategic foresight exercise that brings together the vision of all our country's social and economic stakeholders. What we present here, **therefore is not the Strategy as such, but as the title indicates, an initial imperfect, incomplete proposal that will need to be corrected, expanded and built upon through a national dialogue** that will involve the country's autonomous governments, main public institutions, companies, trade unions, universities, think tanks, associations, foundations, third sector organisations and political parties [Fig. 7].

Our hope is that this dialogue will allow us to reach not a consensus (in which all parties end up thinking the same thing), **but an agreement** (resulting from concessions made by all parties) **that will result in the Long-Term National Strategy**. A rigorous, plural and grounded Strategy that will serve to sharpen up the strategic vision of our public and private institutions, as well as strengthen the design of the second phase of the *NextGenerationEU* plan (to cover the period 2023-26) and guide Spaniards' decision-making over the coming decades.

Fig. 7. Spain 2050 Phases of the exercise



Some will consider such an agreement to be impossible, especially in such seemingly polarised times as now. Nevertheless, history shows that our country was able in the past to look with optimism at the future and to come to terms with situations that are as tough (if not more so) than the current one. **We must therefore try. The well-being of current and future generations depends on it.**

INTRODUCTION: TOWARDS A LONG-TERM NATIONAL STRATEGY

¹ For an introduction to this issue, see, among others Benhabib, Jess, Alberto Bisin, y Andrew Schotter. “Present-bias, quasi-hyperbolic discounting, and fixed costs.” *Games and Economic Behavior* 69, n.º 2, 2010. <https://doi.org/10.1016/j.geb.2009.11.003>; Delaney Liam, y Leonhard K. Lades. “Present Bias and Everyday Self-Control Failures: A Day Reconstruction Study.” *Journal of Behavioral Decision Making* 30, n.º 5, 2017. <https://doi.org/10.1002/bdm.2031>; Frederick, Shane, George Loewenstein, y Ted O’Donoghue. “Time Discounting and Time Preference: A Critical Review.” *Journal of Economic Literature* 40, n.º 2, 2002. <https://doi.org/10.1257/002205102320161311>; Hardisty, David J., Kirstin C. Appelt, y Elke U. Weber. “Good or Bad, We Want it Now: Fixed-cost Present Bias for Gains and Losses Explains Magnitude Asymmetries in Intertemporal Choice.” *Journal of Behavioral Decision Making* 26, n.º 4, 2013. <https://doi.org/10.1002/bdm.1771>; Herschfield, Hal E. “Future self-continuity: How conceptions of the future self-transform intertemporal choice.” *Annals of the New York Academy of Sciences* 1235, n.º 1, 2011. <https://doi.org/10.1111/j.1749-6632.2011.06201.x>; y O’Donoghue, Ted, y Matthew Rabin. “Present Bias: Lessons Learned and To Be Learned.” *American Economic Review* 105, n.º 5, 2015. <http://dx.doi.org/10.1257/aer.p20151085>.

² In book III, part II, section VII of: Hume, David. *A Treatise of Human Nature*. London, 1738.

³ For a reflection and specific examples of the impact of short-termism on political management, see, among others: Boston, Jonathan. *Governing for the future: designing democratic institutions for a better tomorrow*. Bingley: Emerald, 2016; Jacobs, Alan M. *Governing for the Long Term: Democracy and the Politics of Investment*. Cambridge: Cambridge University Press, 2011. <https://doi.org/10.1017/CBO9780511921766>; Offe, Claus. *Europe entrapped*. Cambridge: Polity Press, 2015; Piketty, Thomas. *Chronicles: On Our Troubled Times*. London: Viking, 2016; Streeck, Wolfgang. *Buying Time: The Delayed Crisis of Democratic Capitalism*. London: Verso, 2014; y Terry, Stephen J. “The Macro Impact of Short-Termism.” *Discussion Papers of the Stanford Institute for Economic Policy Research*, n.º 15-022, 2015. <http://www-siepr.stanford.edu/RePEc/sip/15-022.pdf>.

⁴ Krznaric, Roman. *The Good Ancestor: How to Think Long-term in a Short-term World*. London: WH Allen, 2020.

⁵ The figure refers to both births and immigrant arrivals We take as a reference the Eurostat *baseline projections* to 2100 and add our own projection for the period 2101 - 2121. For further details, see: Eurostat. *Population on 1st January by age, sex and type of projection [proj_19np]*. <https://ec.europa.eu/eurostat/data/database>.

⁶ For a summary of progress on this regard, see: González-Ricoy, Iñigo, y Axel Gosseries (eds.). *Institutions For Future Generations*. Oxford: Oxford University Press, 2016; y Tremmel, Jörg (ed.). *Handbook of Intergenerational Justice*. Cheltenham: Edward Elgar Publishing, 2006.

⁷ El gobierno francés ha creado el Haut-Commissariat au Plan para “*animer et de coordonner les travaux de planification et de réflexion prospective conduits pour le compte de l’Etat et d’éclairer les choix des pouvoirs publics au regard des enjeux démographiques, économiques,*

sociaux, environnementaux, sanitaires, technologiques et culturels.” See: Gouvernement de la République française. “Présentation du Haut-Commissariat au Plan.” Gouvernement de la République française, <https://www.gouvernement.fr/haut-commissariat-au-plan/presentation>. El gobierno británico ha puesto en marcha The Integrated Review, un ejercicio de reflexión que “*will define the Government’s vision for the UK’s role in the world over the next decade. Its goal is to set the long-term strategic aims of our international policy and national security, rooted in our national interests.*” See: Government of the United Kingdom. “Integrated Review: Call for evidence.” Government of the United Kingdom, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/909008/Integrated_Review_call_for_evidence.pdf. The United States government has asked the Broad Institute (MIT/Harvard) for help to develop “*a national science and technology strategy to set us on a strong course for the next 75 years.*” See: American Institute of Physics. “Biden Names Science Team, Appoints Science Advisor to Cabinet.” American Institute of Physics, <https://www.aip.org/fyi/2021/biden-names-science-team-appoints-science-advisor-cabinet>.

⁸ See, for example: European Commission. *2020 Strategic Foresight Report: Charting the course towards a more resilient Europe*. 2020. https://ec.europa.eu/info/sites/info/files/strategic_foresight_report_2020_1.pdf; y La Moncloa. “Discurso del Presidente de la Eurocámara, David María Sassoli, en el lanzamiento de la European Government Foresight Network el 18 de noviembre de 2020.” La Moncloa, https://www.lamoncloa.gob.es/presidente/actividades/Paginas/2020/18112020_network-.aspx.

⁹ Official State Gazette. *Real Decreto 136/2020, de 27 de enero, por el que se reestructura la Presidencia del Gobierno*. Madrid, 2020. <https://www.boe.es/buscar/act.php?id=BOE-A-2020-1200>.

¹⁰ Official State Gazette. *Real Decreto 2689/1976, de 12 de noviembre, por el que se regulan las funciones, estructura orgánica y medios del Instituto Nacional de Prospectiva y Desarrollo Económico*. Madrid, 1976. <https://www.boe.es/buscar/doc.php?id=BOE-A-1976-23966>.

¹¹ For an extensive list, see the list of *Experts and collaborating institutions*.

¹² There are many methodological schemes to carry out this selection: SWOT, PEST, PESTLE and STEEPLE, are some of them. We have created our own scheme based on the needs of the exercise and the availability of data

¹³ For further details, see the *Methodological Notes*.

¹⁴ On this question see, among others: Ayuso, Mercedes, Jorge Miguel Bravo, y Robert Holzmann. “Population Projections Revisited: Moving beyond convenient assumptions on fertility, mortality and migration.” *Instituto BBVA de pensiones, Working Paper*, n.º 10, 2015. http://www.ub.edu/rfa/research/WP/10_Population%20Projections%20Revisited_ING.pdf; Keilman, Nico. “Data quality and accuracy of United Nations population projections, 1950-95.” *Population Studies* 55, n.º 2, 2001. <https://doi.org/10.1080/00324720127686>; Keilman, Nico. “Erroneous Population Forecasts.” In T. Bengtsson and N. Keilman (eds.). *Old and*

New Perspectives on Mortality Forecasting. Springer International Publishing, 2019. 95-111; y National Research Council. "Beyond six billion: Forecasting the world's population. Panel on population projections." In J. Bongaarts and R. Bulatao (eds.). *Committee on population, commission on behavioral and social sciences and education*. Washington, D.C.: National Academy Press. <https://www.nap.edu/read/9828/chapter/1>.

¹⁵ See, for example: Canadian Council on Learning. *Is it Possible to Accurately Forecast Labour Market Needs?* British Columbia Ministry of Advanced Education, 2007. http://en.copian.ca/library/research/ccl/forecast_labour_market_needs/forecast_labour_market_needs.pdf; González-Velosa, Carolina, y Graciana Rucci. "Methods to Anticipate Skills Demand." *Banco Interamericano de Desarrollo, Nota técnica*, n.º 954, 2016. <https://publications.iadb.org/publications/english/document/Methods-to-Anticipate-Skills-Demand.pdf>; Haskel, J., y R. Holt. "Anticipating future skill needs: Can it be done? Does it need to be done?" *Department for Education and Employment*, 1999. <http://hdl.voced.edu.au/10707/98577>; International Labour Organization, y OCDE. *Approaches to anticipating skills for the future of work. Report prepared by the ILO and OECD for the G20 Employment Working Group*. Ginebra, 2018. https://www.ilo.org/wcmsp5/groups/public/---dgreports/---inst/documents/publication/wcms_646143.pdf; Richardson, Sue, y Yan Tan. "Forecasting future demands. What we can and cannot know." Australian National Center for Vocational Education Research, 2007. <https://files.eric.ed.gov/fulltext/ED499706.pdf>; y Veneri, Carolyn. "Evaluating the 1995 occupational employment projections." *Monthly Labor Review* 120, 1997. <https://www.bls.gov/opub/mlr/1997/09/art4full.pdf>.

¹⁶ For example, in 1999, the proportion of Spanish people born between 1965 and 1974 with tertiary education was 32% In 2019, that proportion was 37% for the same cohorts. In other words, the vast majority of people who did not have a university degree by the age of 30 did not obtain one afterwards. This allows us to anticipate, with a high margin of confidence, what the educational level of Spanish adults will be in the coming decades. For further details, see: OECD. *Educational attainment and labour-force status. Share of population by educational attainment*. <https://stats.oecd.org/>.

¹⁷ On this question, see, for example: Hausfather, Zeke, *et al.* "Evaluating the performance of past climate model projections." *Geophysical Research Letters* 47, 2020. <https://doi.org/10.1029/2019GL085378>; Maslin, Mark. "Cascading uncertainty in climate change models and its implications for policy." *The Geographical Journal* 179, 2013. <https://doi.org/10.1111/j.1475-4959.2012.00494.x>; y Ragmstorf, Stefan, Grant Foster, y Anny Cazenave. "Comparing climate projections to observations up to 2011." *Environmental Research Letters* 7, n.º. 4, 2012. <https://iopscience.iop.org/article/10.1088/1748-9326/7/4/044035>.¹⁸ For a recent example, see: ESPAS. *Global Trends to 2030. Challenges and Choices for Europe*. 2019. https://espas.secure.europarl.europa.eu/orbis/sites/default/files/generated/document/en/ESPAS_Report2019_V14.pdf.

¹⁹ For an introduction to the use and benefits of strategic foresight, see, among others: Cagnin, Cristiano, *et al* (eds.). *Future-Oriented Technology Analysis: Strategic Intelligence for an Innovative Economy*. Springer-Verlag Berlin Heidelberg, 2008; Centre for Strategic Futures, and Civil Service College (Singapore). *Foresight: A Glossary*. Singapur,

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²⁰ See: Halpert, Jane, et al. "Paths to Negotiation Success." *Negotiation and Conflict Management Research*, vol. 3, issue 2, 2010. <https://doi.org/10.1111/j.1750-4716.2010.00051.x>; y Zetik, Deborah, y Alice F. Stuhlmacher. "Goal Setting and Negotiation Performance: A Meta-Analysis." *Group Processes & Intergroup Relations* 5, n.º 1, 2002. <https://doi.org/10.1177/1368430202005001537>.

²¹ The EU-8 includes the following countries: Austria, Germany, Belgium, Denmark, Finland, France, The Netherlands and Sweden. For further details see *Metodologic Note número 1*. Also see Andrés, Javier, and Rafael Doménech. *En busca de la prosperidad. Los retos de la sociedad española en la economía global del siglo XXI*. Barcelona: Ediciones Deusto, 2015.

²² For synergies between European funds and this Strategy see el *the Mapa de sinergias entre la Estrategia Nacional de Largo Plazo y el Plan de Recuperación, Transformación y Resiliencia de la economía española*.

²³ European Commission. *Comprender nuestra naturaleza política: cómo situar el conocimiento y la razón en el centro de la toma de decisiones políticas*. Sevilla: JRC. 2021.

²⁴ Life expectancy in years in 2018. For further details, see: Banco Mundial. *Life expectancy at birth, total (years)*. https://data.worldbank.org/indicador/SP.DYN.LE00.IN?most_recent_value_desc=true.

²⁵ Score obtained in the *Liberal Democracy Index*. For further details, see: Lührmann, Anna, et al. "Autocratization Surges—Resistance Grows: Democracy Report 2020, Score of Liberal Democracy Index." *Varieties of Democracy Institute (V-Dem)*, 2020. https://www.v-dem.net/media/filer_public/de/39/de39af54-0bc5-4421-89ae-fb20dcc53dba/democracy_report.pdf.

²⁶ Puntuación obtenida en el *Law and Order Index 2020*. The EU-27 does not include the Czech Republic due to lack of data. For further details, see: GALLUP. *Global Law and Order Report 2020*. Washington D.C., 2020. https://www.gallup.com/file/analytics/322247/Gallup_Global_Law_and_Order_2020_Report.pdf.

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2019. Geneve, 2019. http://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2019.pdf.

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³⁴ Percentage of the population living in overcrowded conditions in 2019 who also experienced at least one of the housing deprivation measures (leaking roof, no bath/shower, no indoor toilet, too dark). See: Eurostat. *European Union Statistics on Income and Living Conditions. Severe housing deprivation rate by age, sex and poverty status - EU-SILC survey [ilc_mdho06a]*. <https://ec.europa.eu/eurostat/data/database>.

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³⁶ Score obtained in the *Global Gender Gap Index 2020*. For further details, see: World Economic Forum. *Global Gender Gap Report 2020*. Geneve, 2020. http://www3.weforum.org/docs/WEF_GGGR_2020.pdf. Other rankings offer similar results: CFR. "Women's Workplace Equality Index." CFR, <https://www.cfr.org/legal-barriers/>; European Institute for Gender Equality. "Gender Equality Index." European Institute for Gender Equality, <https://eige.europa.eu/gender-equality-index/compare-countries>; y Georgetown Institute for Women, Peace and Security, y Peace Research Institute Oslo. *Women Peace and Security Index*. Washington D.C., 2019. <https://giwps.georgetown.edu/wp-content/uploads/2019/12/WPS-Index-2019-20-Report.pdf>.

³⁷ Score obtained in the overall indicator. The EU-27 only includes Spain, Germany, Poland, Ireland, France, Sweden and Italy due to data availability. For further details, see: HSBC. "Expatriate Explorer Survey Overall Score." HSBC, <https://expatexplorer.hsbc.com/survey/>.

³⁸ Score obtained in the *Environmental Performance Index 2020*. For further details, see: Environmental Performance Index. "EPI Score." Environmental Performance Index, <https://epi.yale.edu/epi-results/2020/component/epi>.

³⁹ Ranking of countries by electricity capacity (megawatts) of renewable energy in 2019. For further details, see: International Renewable Energy Agency. *Electricity capacity (MW) Total Renewable Energy*. <https://www.irena.org/Statistics/View-Data-by-Topic/Capacity-and-Generation/Statistics-Time-Series>.

⁴⁰ Percentage of terrestrial protected area over total area for each country in 2018. For further details, see: Banco Mundial. *Terrestrial protected areas (% of total land area)*. https://data.worldbank.org/indicator/ER.LND.PTLD.ZS?most_recent_value_desc=true.

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⁴² Score obtained in the *Cultural Influence*. The EU-27 does not include Malta, Belgium, Ireland, Hungary and Cyprus due to lack of data. For the same reason, the EU-8 does not include Belgium. For further details, see: US News. "Countries Ranking: Cultural Influence US News, <https://www.usnews.com/news/best-countries/influence-rankings>.

⁴³ Percentage of people over the age of 16 who are not alone and have someone to count on in 2015. For further details, see: Eurostat. *Persons who have someone to discuss personal matters by sex, age and educational attainment level [ILC_SCP17]*. <https://ec.europa.eu/eurostat/data/database>.

⁴⁴ Ranking of countries by GDP per capita at current prices in 2019 or latest available year. For further details, see: International Monetary Fund. *World Economic Outlook, October 2020*. Washington D.C., 2020. <https://bit.ly/2GrDhfD>.

⁴⁵ Labour productivity is defined as the ratio of GDP (in constant 2015 euros and adjusted for purchasing power differences) to total hours worked. In this case, the EU-27 is the aggregate indicator reported by Eurostat. For further details, see: Eurostat. *GDP and main components (output, expenditure and income) [nama_10_gdp]; Employment by A*10 industry breakdowns [nama_10_a10_e]; y Purchasing power parities (PPPs), price level indices and real expenditures for ESA 2010 aggregates [prc_ppp_ind]*. <https://ec.europa.eu/eurostat/data/database>.

⁴⁶ Score of the *Economic Complexity Index* for the year 2018. For further details, see: Atlas of Economic Complexity. *Country & Product Complexity Rankings. Economic Complexity Index*. <https://atlas.cid.harvard.edu/rankings>.

⁴⁷ It represents the score obtained in the *European Innovation Index scoreboard 2020* for the year 2019. For further details, see: European Commission. *European Innovation Index scoreboard 2020*. https://ec.europa.eu/growth/industry/policy/innovation/scoreboards_en.

⁴⁸ Investment in intellectual property is represented as a percentage of GDP for the year 2018. In this case, instead of the EU-27 the EU-22 is represented, which is constructed as the simple average of the values of the individual countries. The EU-22 consists of the EU-27 member countries that are also members of the OECD. This excludes Bulgaria, Croatia, Cyprus, Malta and Romania. For further details, see: OECD. *Gross domestic product (GDP); y Capital formation by activity ISIC rev4*. <https://stats.oecd.org/>.

⁴⁹ The human capital index calculates the contributions of health and education to worker productivity. Data for the year 2020 are represented. For data, see: World Bank. *The Human Capital Index 2020 Update: Human Capital in the Time of COVID-19*. Washington D.C., 2020. <http://hdl.handle.net/10986/34432>.

⁵⁰ Data for the year 2019 are represented for persons aged 18-24 years. In this case, the EU-27 is the aggregate indicator reported by Eurostat. For further details, see: Eurostat. *Early leavers from education and training by sex and labour status [edat_lfse_14]*. <https://ec.europa.eu/eurostat/data/database>.

[eurostat/data/database](https://ec.europa.eu/eurostat/data/database).

⁵¹ Data for the year 2019 are represented for persons aged 25-64 years. EU-27 is the aggregate indicator reported by Eurostat. For further details, see: Eurostat. *Population by educational attainment level, sex and age (%) - main indicators [edat_lfse_03]*. <https://ec.europa.eu/eurostat/data/database>.

⁵² Average score for reading comprehension and mathematics for people aged 16-65 are represented. Data have been taken from Figure 1.1. of the report mentioned below. Instead of the EU-27, the OECD average informed in the same report is represented. For further details, see: OECD. *Skills Matter: Further Results from the Survey of Adult Skills*. Paris: OECD Publishing, 2016. <https://doi.org/10.1787/9789264258051-en>.

⁵³ Data for the year 2018 are represented for persons aged 15-64 years. The EU-8 is constructed as the weighted average of the values of the individual countries, with working age population being the reference for the calculation of weights. The EU-28 is constructed from the aggregates reported by the OECD. For further details, see: OECD. *Historical population y Annual Labour Force Statistics summary tables*. <https://stats.oecd.org/>.

⁵⁴ Data for the year 2019 are represented for persons aged 15-24 years. In this case, the EU-27 is the aggregate indicator reported by Eurostat. For further details, see: Eurostat. *Unemployment by sex and age - annual data [une_rt_a]*. <https://ec.europa.eu/eurostat/data/database>.

⁵⁵ Data for the year 2019 are represented. In this case, the EU-27 is the aggregate indicator reported by Eurostat. For further details, see: Eurostat. *Gini coefficient of equalised disposable income [ilc_di12]*. <https://ec.europa.eu/eurostat/data/database>.

⁵⁶ The poverty rate is the proportion of people (in a given age group) whose income is below the poverty line, in this case calculated as half the average household income of the total population. Data for the year 2018 are represented. In this case, the EU-27 is the aggregate indicator reported by Eurostat. See: Eurostat. *At-risk-of-poverty rate by poverty threshold [ilc_li02]*. <https://ec.europa.eu/eurostat/data/database>.

⁵⁷ The overall score obtained in the Global Social Mobility Index in 2020 is represented. For further details, see: World Economic Forum. *Global Social Mobility Index 2020: why economies benefit from fixing inequality*. Colonia, Ginebra, 2020. http://www3.weforum.org/docs/Global_Social_Mobility_Report.pdf.

⁵⁸ Data average from 2008 to 2017 is represented. See: European Environment Agency. *Development of the water exploitation index plus (WEI+)*. https://www.eea.europa.eu/data-and-maps/daviz/water-exploitation-index-plus#tab-chart_2_filters=%7B%22rowFilters%22%3A%7B%7D%3B%22columnFilters%22%3A%7B%22pre_config_country%22%3A%5B%22Spain%22%5D%7D%7D.

⁵⁹ The percentage of municipal waste sent to landfill has been calculated on the basis of the annual per capita kilograms of municipal waste sent to landfill and the annual per capita kilograms of municipal waste generated. Data for the year 2018 are represented. In this case, the EU-27 is the aggregate indicator reported by Eurostat. See: Eurostat. *Municipal waste by waste management operations [ENV_WASMUN]. Disposal - landfill and other (D1-D7, D12), Kilograms per capita. Waste generated, kilograms per capita*. <https://ec.europa.eu/eurostat/data/database>.

⁶⁰ Percentage of population living in households where expenditure on housing represents at least 40% of total household disposable income in 2019. Refer to: Eurostat. *European Union Statistics on Income and Living Conditions. Housing cost overburden rate by tenure status - EU-SILC survey [ilc_lvho07c]*. <https://ec.europa.eu/eurostat/data/database>.

⁶¹ The average of the indicators of corruption control, government effectiveness, accountability and compliance with the law for the year 2018 is represented. For further details, see: Banco Mundial. *Worldwide Governance Indicators*. <https://databank.worldbank.org/source/worldwide-governance-indicators>.

⁶² Data for the year 2017 are represented. For further details, see: Medina, Leandro, and Friedrich Schneider. "Shadow Economies Around the World: What Did We Learn Over the Last 20 Years?" *IMF Working Papers*, n.º 18/17, 2018. <https://www.imf.org/en/Publications/WP/Issues/2018/01/25/Shadow-Economies-Around-the-World-What-Did-We-Learn-Over-the-Last-20-Years-45583>.

⁶³ Score obtained in the *Ranking of Happiness 2017-2019*. For further details, see: Helliwell, John F., Haifang Huang, Shun Wang, and Max Norton. "Social Environments for World Happiness." In Helliwell, John F., Richard Layard, Jeffrey Sachs, and Jan-Emmanuel De Neve (eds.). *World Happiness Report 2020*. New York: Sustainable Development Solutions Network, 2020. 17-50. <https://happiness-report.s3.amazonaws.com/2020/WHR20.pdf>.

⁶⁴ Foresight studies often tend to be pessimistic. On this issue, see: Cazes, Bernard. *Histoire des futurs: les figures de l'avenir, de saint Augustin au XXI^e siècle*. Paris: Seghers, 1986; Hecht, David. "The Neural Basis of Optimism and Pessimism." *Experimental Neurobiology* 22, n.º 3, 2013. <https://doi.org/10.5607/en.2013.22.3.173>; y Tertrais, Bruno. *L'apocalypse n'est pas pour demain: pour en finir avec le catastrophisme*. Paris: Denoël, 2011.

⁶⁵ Wilson, Timothy, *et al.* "Focalism: A source of durability bias in affective forecasting." *Journal of Personality and Social Psychology*, 78, n.º 5, 2000. <https://doi.org/10.1037/0022-3514.78.5.821>.

⁶⁶ The income per capita gap measures the relative differences in GDP per capita between Spain and the EU-8. GDP per capita is defined as the ratio of GDP (in constant 2015 euros and adjusted for purchasing power differences) to total population. The EU-8 is constructed as the weighted average of the values of the individual countries, with population being the reference for the calculation of weights. For further details, see: Eurostat. *GDP and main components (output, expenditure and income) [nama_10_gdp]*; *Population on 1 January by age and sex [demo_pjan]*; y *Purchasing power parities (PPPs), price level indices and real expenditures for ESA 2010 aggregates [prc_ppp_ind]*. <https://ec.europa.eu/eurostat/data/database>.

⁶⁷ Labour productivity is defined as the ratio of GDP (in constant 2015 euros and adjusted for purchasing power differences) to total hours worked. For further details, see: Eurostat. *GDP and main components (output, expenditure and income) [nama_10_gdp]*; *Employment by A*10 industry breakdowns [nama_10_a10_e]*; y *Purchasing power parities (PPPs), price level indices and real expenditures for ESA 2010 aggregates [prc_ppp_ind]*. <https://ec.europa.eu/eurostat/data/database>.

⁶⁸ Labour productivity is defined as the ratio of GDP (in constant 2015 euros and adjusted for purchasing power differences) to total hours worked. For further details, see: Eurostat. *Employment by sex, age and*

citizenship (1 000) [lfsa_egan]; y *Population on 1 January by age and sex [demo_pjan]*. <https://ec.europa.eu/eurostat/data/database>.

⁶⁹ It should be noted that among the headline targets of the EU 2020 strategy, 75% of men and women aged 20-64 should be in employment. In 2019, this employment rate for Spain was 74% for men and 62% for women, below the target. For further details, see: European Commission. *Europe 2020: A European strategy for smart, sustainable and inclusive growth*. Brussels: European Commission, 2020. <https://ec.europa.eu/eu2020/pdf/COMPLET%20EN%20BARROSO%20%20%20007%20-%20Europe%202020%20-%20EN%20version.pdf>; and INE. *Tasas de empleo según niveles de educación. Brecha de género*. https://www.ine.es/ss/Satellite?L=es_ES&c=INESeccion_C&cid=1259925461647&p=1254735110672&pagename=ProductosYServicios/PYSLayout¶m1=PYSDetalle¶m3=1259924822888.

⁷⁰ Total R&D expenditure includes expenditure by the General Government, higher education, the business sector and non-profit institutions. In the case of Spain, R&D expenditure by General Government and higher education represents 0.5% of GDP for the period 2015-19, i.e. about 45% of the country's total R&D expenditure. For further details, see: Eurostat. *Intramural R&D expenditure (GERD) by sectors of performance [rd_e_gerdtot]*. <https://ec.europa.eu/eurostat/data/database>.

⁷¹ The 2020 European Strategy sets an R&D investment target of 3% of GDP. For further details, see: European Commission. *Europe 2020: A European strategy for smart, sustainable and inclusive growth*. Brussels: European Commission, 2020. <https://ec.europa.eu/eu2020/pdf/COMPLET%20EN%20BARROSO%20%20%20007%20-%20Europe%202020%20-%20EN%20version.pdf>.

⁷² Data available is from 2018. For further details, see: Eurostat. *Persons employed in the non-financial business economy by size class of employment [tin00148]*. <https://ec.europa.eu/eurostat/data/database>.

⁷³ The available data is the average from 2015 to 2017. For further details, see: Medina, Leandro, and Friedrich Schneider. "Shadow Economies Around the World: What Did We Learn Over the Last 20 Years?" *IMF Working Papers*, no. 18/17, 2018. <https://www.imf.org/en/Publications/WP/Issues/2018/01/25/Shadow-Economies-Around-the-World-What-Did-We-Learn-Over-the-Last-20-Years-45583>.

⁷⁴ Data available is from 2018. For further details, see: Ferrer, Álvaro. *Todo lo que debes saber de PISA 2018 sobre equidad*. Madrid, 2019. https://www.savethechildren.es/sites/default/files/imce/dossier_pisa2018_espanadatos.pdf; and OECD. *PISA 2018*. <https://www.oecd.org/pisa/>.

⁷⁵ The early school drop out rate is defined as the percentage of the population between 18 and 24 years of age whose highest educational level is secondary education or lower, and who are not currently in formal education. Data available is from 2019. For further details, see: Eurostat. *Early leavers from education and training by sex and labour status [edat_lfse_14]*. <https://ec.europa.eu/eurostat/data/database>.

⁷⁶ The European Strategy set a target of 10% for 2020. For further details, see: European Commission. *Europe 2020: A European strategy for smart, sustainable and inclusive growth*. Brussels: European Commission, 2020. <https://ec.europa.eu/eu2020/pdf/COMPLET%20EN%20BARROSO%20%20%20007%20-%20Europe%202020%20-%20EN%20version.pdf>.

⁷⁷ The population aged 25-34 with a qualification higher than secondary education is defined as the percentage of people in this age range whose highest level of education is the second stage of secondary education (*Bachillerato* or Intermediate Level Vocational Training) or tertiary education (University or Higher Level Vocational Training). Data available is from 2019. For further details, see: Eurostat. *Population by educational attainment level, sex and age (%) - main indicators [edat_lfse_03]*. <https://ec.europa.eu/eurostat/data/database>.

⁷⁸ The *odds ratio*, i.e. at equal mathematics and science proficiency, how many times higher is the probability of repeating an academic year for a student from a more disadvantaged background compared to a student with more resources. For example, a value of 4 means that, with equivalent skills in mathematics and science, a student with fewer resources (25% of students with fewer resources) is four times more likely to have repeated an academic year than a student from a more favourable background (25% of students with more resources). Data available is from 2018. For further details, see: Ferrer, Álvaro. *Todo lo que debes saber de PISA 2018 sobre equidad*. Madrid, 2019. https://www.savethechildren.es/sites/default/files/imce/dossier_pisa2018_espanadatos.pdf; and OECD. *PISA 2018*. <https://www.oecd.org/pisa/>.

⁷⁹ The percentage of low-achieving 15-year-olds in PISA is defined as the percentage of students below level 2 (below 406 points). The figure corresponds to the average of 2015 and 2018. For further details, see: Department of Education and Vocational Training. *PISA 2018 Resultados de lectura en España*. Madrid, 2020. <https://www.educacionyfp.gob.es/inee/evaluaciones-internacionales/pisa/pisa-2018/pisa-2018-informes-es.html>; and OECD. *PISA 2018 Results (Volume I): What Students Know and Can Do. Tables I.B1.7, I.B1.8, and I.B1.9*. <https://doi.org/10.1787/5f07c754-en>.

⁸⁰ The percentage of high-achieving 15-year-olds in PISA is defined as the percentage of students at level 5 or above (over 625 points). The figure corresponds to the average of 2015 and 2018. For further details, see: Ministry of Education and Vocational Training. *PISA 2018 Resultados de lectura en España*. Madrid, 2020. <https://www.educacionyfp.gob.es/inee/evaluaciones-internacionales/pisa/pisa-2018/pisa-2018-informes-es.html>; and OECD. *PISA 2018 Results (Volume I): What Students Know and Can Do. Tables I.B1.7, I.B1.8, and I.B1.9*. <https://doi.org/10.1787/5f07c754-en>.

⁸¹ Public expenditure on education includes both expenditure on pre-primary, primary and secondary education and expenditure on post-compulsory education (*Bachillerato*, vocational training and university). In 2018 (latest year available), pre-primary, primary and secondary education accounted for around 60% of total public spending on education in our country. The latest data available for Spain is from 2018. For further details, see: Department of Education and Vocational Training. *Gasto Público en educación en relación al P.I.B. por cobertura económica, tipo de administración y periodo*. <http://www.educacionyfp.gob.es/servicios-al-ciudadano/estadisticas/economicas/gasto.html>; y UNESCO Institute for Statistics. *Government expenditure on education as a percentage of GDP (%)*. <http://data.uis.unesco.org/#>.

⁸² Public expenditure on education of 5.5% of GDP is the result of increasing expenditure per student to current Danish levels and assuming a GDP evolution in line with the EU-8 convergence objective [see chapter 1]. The difference compared to the EU-8, which currently spends 6.1% of its GDP on education, is that the reduction in the

number of students will be very sharp in the coming decades, allowing us to increase funding per student significantly without such a sharp increase as a percentage of GDP.

⁸³ The STEM series is constructed from the data on *Natural sciences, mathematics and statistics, Information and Communication Technologies, y Engineering, manufacturing and construction*. The observed figure is the average from 2015 to 2018. For further details, see: Eurostat. *Students enrolled in tertiary education by education level, programme orientation, sex and field of education [educ_uoe_enrt03]*. <https://ec.europa.eu/eurostat/data/database>.

⁸⁴ The observed figure is the average from 2015 to 2018. For further details, see: Eurostat. *Individuals who have basic or above basic overall digital skills by sex [TEPSR_SP410]*. https://ec.europa.eu/eurostat/databrowser/view/ISOC_SK_DSKL_I/default/table?lang=en.

⁸⁵ 2025 target of the *European Skills Agenda*. For further details, see: European Commission. "European Skills Agenda." European Commission, <https://ec.europa.eu/social/main.jsp?catId=1223&langId=en>.

⁸⁶ Data Observed is from 2016. For further details, see: Eurostat. *Number of foreign languages known (self-reported) by sex [edat_aes_121]*. <https://ec.europa.eu/eurostat/data/database>.

⁸⁷ Guided on-the-job training is excluded. The observed figure is from 2016. For further details, see: CIRCABC. *Participation in education and training (excluding guided on-the-job training)*. https://circabc.europa.eu/ui/group/d14c857a-601d-438a-b878-4b4cebd0e10f/library/ac6f3889-ab25-4f75-9c7a-de997f65e2db?p=1&n=10&sort=modified_DESC%E2%80%A6.

⁸⁸ Objetivo para 2025 de la *European Skills Agenda*. For further details, see: European Commission. "European Skills Agenda." European Commission, <https://ec.europa.eu/social/main.jsp?catId=1223&langId=en>.

⁸⁹ The observed figure is from 2016. For further details, see: Eurostat. *Participation rate in education and training by labour status [trng_aes_103]*. <https://ec.europa.eu/eurostat/data/database>.

⁹⁰ Spending on active training policies includes the spending aimed at both the employed and unemployed population. The observed figure is the average from 2015 to 2018. For further details, see: OECD. *Public expenditure as a percentage of GDP. 20: Training*. <https://stats.oecd.org/>.

⁹¹ For further details, see: FUNDAE. *Formación en las empresas. Informe anual 2016*. Madrid, 2017. <https://www.fundae.es/docs/default-source/publicaciones-y-evaluaciones/publicaciones-estad%C3%ADstica/formaci%C3%B3n-en-las-empresas-2016.pdf>; y FUNDAE. *Formación para el empleo: Balance de la situación 2019*. Madrid, 2019. <https://www.fundae.es/docs/default-source/publicaciones-y-evaluaciones/publicaciones-estad%C3%ADstica/balance-de-situaci%C3%B3n-2019.pdf>.

⁹² Direct greenhouse gases estimated in the inventory are: carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFC), perfluorocarbons (PFC) and sulphur hexafluoride (SF₆). For further details, see: Department for Ecological Transition and Demographic Challenge *Inventario Nacional de Gases de Efecto Invernadero (GEI): Resumen Serie 1990-2018*. <https://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei/>

[Inventario-GEI.aspx](#).

⁹³ Target of 23% reduction from the 1990 level according to the PNIIEC. See: Department for Ecological Transition and Demographic Challenge *Plan Nacional Integrado de Energía y Clima 2021-2030*. Madrid, 2020. https://www.miteco.gob.es/images/es/pnieccompleto_tcm30-508410.pdf.

⁹⁴ Target of 90% reduction from the 1990 level according to the ELP. See: Department for Ecological Transition and Demographic Challenge. *Long Term Decarbonisation Strategy*. Madrid, 2020. https://www.miteco.gob.es/es/prensa/documentoelp_tcm30-516109.pdf.

⁹⁵ Total annual demand for consumptive uses (water, once used, is not returned to the environment where it was abstracted or is not returned in the same way as it was abstracted): supply, agricultural use, industrial use and other consumptive uses. The observed figure is from 2013/2014. See: Department for Ecological Transition and Demographic Challenge *Informe de seguimiento de Planes Hidrológicos y Recursos Hídricos en España. Año 2018*. Madrid, 2019. https://www.miteco.gob.es/es/agua/temas/planificacion-hidrologica/memoria_infoseg_2018_tcm30-482594.pdf.

⁹⁶ To compensate for the reduction in average water resources availabilities estimated by CEDEX, an average reduction in water demand of 5% by 2030 would be necessary, and of and 15% by 2050.. This would result in a decrease in demand of 1,000 hm³ for each planning cycle (6 years). See: Centro de Estudios y Experimentación de Obras Públicas. *Evaluación del impacto del cambio climático en los recursos hídricos y sequías en España*. Madrid: Centro de Estudios Hidrográficos, 2017. http://www.cedex.es/NR/rdonlyres/3B08CCC1-C252-4AC0-BAF7-1BC27266534B/145732/2017_07_424150001_Evaluaci%C3%B3n_cambio_clim%C3%A1tico_recu.pdf.

⁹⁷ LPrimary energy intensity is defined as the ratio between the energy consumption and the gross domestic product (equivalent kilogram oil / thousands of euros). See: Eurostat. *Energy intensity [nrg_ind_ei]. Energy intensity of GDP in chain linked volumes (2010)*. <https://ec.europa.eu/eurostat/data/database>.

⁹⁸ This figure corresponds to the year 2015 as reported in the ELP. For further details, see: Department for Ecological Transition and Demographic Challenge *Estrategia de Descarbonización a Largo Plazo 2050*. Madrid, 2020. https://www.miteco.gob.es/es/prensa/documentoelp_tcm30-516109.pdf.

⁹⁹ Target of 37% reduction from the 2015 level according to the PNIIEC. See: Department for Ecological Transition and Demographic Challenge *Plan Nacional Integrado de Energía y Clima 2021-2030*. Madrid, 2020. https://www.miteco.gob.es/images/es/pnieccompleto_tcm30-508410.pdf.

¹⁰⁰ Target of 63% reduction from the 2015 level according to the ELP. See: Department for Ecological Transition and Demographic Challenge. *Long Term Decarbonisation Strategy*. Madrid, 2020. https://www.miteco.gob.es/es/prensa/documentoelp_tcm30-516109.pdf.

¹⁰¹ This percentage is calculated in accordance with the rules set out in Directive 2009/28/EC. See: Eurostat. *Share of energy from renewable sources [NRG_IND_REN]. Renewable energy sources in electricity*. <https://ec.europa.eu/eurostat/data/database>.

¹⁰² Target for 2030 according to the PNIIEC. See: Department for

Ecological Transition and Demographic Challenge *Plan Nacional Integrado de Energía y Clima 2021-2030*. Madrid, 2020. https://www.miteco.gob.es/images/es/pnieccompleto_tcm30-508410.pdf.

¹⁰³ Target for 2050 according to the ELP. See: Department for Ecological Transition and Demographic Challenge *Long Term Decarbonisation Strategy*. Madrid, 2020. https://www.miteco.gob.es/es/prensa/documentoelp_tcm30-516109.pdf.

¹⁰⁴ Environmental tax revenues include taxes on energy, transport, pollution and resource use. See: Eurostat. *Environmental Tax Revenues [env_ac_tax]. Percentage of gross domestic product (GDP)*. <https://ec.europa.eu/eurostat/data/database>.

¹⁰⁵ This level of environmental revenue collection was achieved by countries such as Denmark between 1996 and 2007. See: Eurostat. *Environmental Tax Revenues [env_ac_tax]. Percentage of gross domestic product (GDP)*. <https://ec.europa.eu/eurostat/data/database>.

¹⁰⁶ It is defined as the proportion of the total utilised agricultural area occupied by organic farming (includes existing organically farmed areas and areas under conversion). The observed figure is from 2019. See: Eurostat. *Area under organic farming [SDG_02_40]. Percentage of total utilised agricultural area. Utilised agricultural area excluding kitchen gardens. Total fully converted and under conversion to organic farming*. <https://ec.europa.eu/eurostat/data/database>.

¹⁰⁷ Target for 2030 according to the European Commission. See: European Commission. *Farm to Fork Strategy: for a fair, healthy and environmentally-friendly food system*. Brussels, 2020. https://ec.europa.eu/food/sites/food/files/safety/docs/f2f_action-plan_2020_strategy-info_en.pdf.

¹⁰⁸ The value corresponds to the sum of hectares resulting from protective afforestation, productive afforestation and afforestation of agricultural land. Annual average over the decade 2009-2018. On this question, see: Department for Ecological Transition and Demographic Challenge *Anuario de Estadística Forestal. Resultados Estadísticos Principales de 2018*. https://www.miteco.gob.es/es/biodiversidad/estadisticas/aef_2018_resumen_tcm30-521680.pdf.

¹⁰⁹ The value corresponds to the sum of hectares resulting from protective afforestation, productive afforestation and afforestation of agricultural land. Annual average over the decade 2009-2018. On this question, see: Department for Ecological Transition and Demographic Challenge *Anuario de Estadística Forestal. Resultados Estadísticos Principales de 2018*. https://www.miteco.gob.es/es/biodiversidad/estadisticas/aef_2018_resumen_tcm30-521680.pdf.

¹¹⁰ According to the ELP, the annual reforestation rate is set at 20,000 hectares per year. See: Department for Ecological Transition and Demographic Challenge *Long Term Decarbonisation Strategy 2050. Anexos*. Madrid, 2020. https://www.miteco.gob.es/es/prensa/anexoelp2050_tcm30-516147.pdf.

¹¹¹ The activity rate is defined as the ratio between the active population in each of the represented age cohorts and the population in that age group. The observed figure is from 2019. For further details, see: OECD. *LFS by sex and age – indicators*. <https://stats.oecd.org/>.

¹¹² The health expenditure reported here does not include long-term care services The observed figure is the average from 2015 to 2018. For further details, see: OECD. *Health expenditure and financing*.

Government/compulsory schemes. Long-term care (health) and long-term care (social). <https://stats.oecd.org/Index.aspx?DataSetCode=SHA>.

¹¹³ Public expenditure on long-term care includes health and social care components. The observed figure is the average from 2015 to 2018. For further details, see: OECD. *Health expenditure and financing. Government/compulsory schemes. Current expenditure on health (all functions) and long-term care (health)*. <https://stats.oecd.org/Index.aspx?DataSetCode=SHA>.

¹¹⁴ The numerator includes the beneficiaries of the System for Autonomy and Care for Dependency (SAAD) who, although they have the right to a benefit, are not receiving it. The denominator includes all the beneficiaries of the Sistema para la Autonomía y Atención a la Dependencia who have been recognised as entitled to a benefit. The data observed is the situation as of December 2020. For further details, see: Instituto de Mayores y Servicios Sociales. *Estadísticas. Sistema para la Autonomía y Atención a la Dependencia. Histórico. Informes publicados*. https://www.imserso.es/imserso_01/documentacion/estadisticas/info_d/estadisticas/est_inf_gp/2020/index.htm.

¹¹⁵ Se define como el porcentaje de población que vive en hogares en los que el gasto en la vivienda representa al menos el 40% de la renta disponible total del hogar. Refer to: Eurostat. *European Union Statistics on Income and Living Conditions. Housing cost overburden rate by tenure status - EU-SILC survey [ilc_lwho07c]*. <https://ec.europa.eu/eurostat/data/database>.

¹¹⁶ Today, several European countries such as Ireland, Finland, Slovenia or Estonia have similar levels. Assuming a halving of the proportion of the population experiencing rent overburden, recent values of overburden in the case of home ownership and a progressive change in tenure status (greater importance of renting as opposed to owning), the aggregate overburden target of 4.5% of the population for 2050 is feasible.

¹¹⁷ The proportion of dwellings refurbished per year is estimated by dividing the number of building management permits for the refurbishment and/or restoration of dwellings (Building management permits of the Technical Architects' Associations. Building work in progress) (average 2015-2019), by the total number of dwellings from the estimated housing stock (average 2015-2019). See: Department of Transport, Mobility and Urban Agenda. *Estimated housing stock Total de viviendas por comunidades autónomas y provincias*. <https://apps.fomento.gob.es/BoletinOnline2/?nivel=2&orden=33000000>; and Department of Transport, Mobility and Urban Agenda. *Building management permits Obra nueva, ampliación y/o reforma de viviendas. Número de viviendas a reformar y/o restaurar*. <https://www.fomento.gob.es/BE/?nivel=2&orden=09000000>.

¹¹⁸ The percentage of municipal waste sent to landfill has been calculated on the basis of the annual per capita kilograms of municipal waste sent to landfill and the annual per capita kilograms of municipal waste, see: Eurostat. *Municipal waste by waste management operations [ENV_WASMUN]. Disposal - landfill and other (D1-D7, D12), Kilograms per capita. Waste generated, kilograms per capita*. <https://ec.europa.eu/eurostat/data/database>.

¹¹⁹ Target for 2035 according to the European Parliament and the Council of the European Union. See: European Parliament and the Council of the European Union. *Directiva (UE) 2018/850 del Parlamento Europeo y del Consejo de 30 de mayo de 2018 por la que se modifica la Directiva*

1999/31/CE relativa al vertido de residuos. Brussels, 2018. <https://eur-lex.europa.eu/legal-content/es/TXT/?uri=CELEX%3A32018L0850>.

¹²⁰ Percentage of population exposed to an annual average concentration of particulate matter (PM_{2.5}) above 10 micrograms per cubic metre (WHO recommended limit). The observed data corresponds to the year 2018. In this regard: European Environment Agency. "ECT/ATNI reports." European Topic Centre on Air Pollution, transport, noise and industrial pollution, <https://www.eionet.europa.eu/etcs/etc-atni/products/etc-atni-reports>; and WHO. *Air quality guidelines for particulate matters, ozone, nitrogen dioxide and sulphur dioxide. Global update 2005*. Geneva: World Health Organisation, 2005. http://www.who.int/phe/health_topics/outdoorair/outdoorair_aqg/en/index.html.

¹²¹ The goals for years 2030-2050 are in line with the analyses included in the European Union's Second Clean Air Outlook presented in 2021. See: European Commission. *Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. The Second Clean Air Outlook*. Brussels: European Commission, 2021. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2021%3A3%3AFIN>.

¹²² We establish this indicator to monitor fuel poverty although it is necessary to analyse the joint evolution of the four indicators established by the European Observatory on Fuel Poverty: 1) percentage of the population unable to maintain an adequate temperature at home; 2) percentage of the population in arrears with bill payments; 3) percentage of households whose energy expenditure is excessively low (hidden fuel poverty) and 4) percentage of households whose expenditure on energy supplies is disproportionate to the level of: Eurostat. *Inability to keep home adequately warm - EU-SILC survey [ILC_MDES01]*. <https://ec.europa.eu/eurostat/data/database>; and Department for Ecological Transition and Demographic Challenge *Actualización de indicadores de la Estrategia Nacional contra la Pobreza Energética*. 2020. https://www.miteco.gob.es/es/prensa/20201106_actualizaciondeindicadores2020_final__tcm30-516466.pdf.

¹²³ In line with the National Fuel Poverty Strategy, which aims to reduce to at least 6% the percentage of the population unable to keep their homes at an adequate temperature for 2025. For further details, see: Department for Ecological Transition and Demographic Challenge. *National Fuel Poverty Strategy 2019-2024*. Madrid, 2019. https://www.miteco.gob.es/es/prensa/estrategianacionalcontralapobrezaenergetica2019-2024__tcm30-496282.pdf.

¹²⁴ In line with the European Committee of the Regions proposal. For further details, see: Comité Europeo de las Regiones. *Dictamen: Gobernanza multinivel y cooperación intersectorial para combatir la pobreza energética*. Brussels, 2019. <https://cor.europa.eu/ES/our-work/Pages/OpinionTimeline.aspx?opId=CDR-5877-2018>.

¹²⁵ The unemployment rate is defined as the ratio of total unemployed persons to the active population. For further details, see: Eurostat. *Active population by sex, age and citizenship (1 000) [lfsa_agan]; y Unemployment by sex, age and citizenship (1 000) [lfsa_ugan]*. <https://ec.europa.eu/eurostat/data/database>.

¹²⁶ The female employment rate is defined as the ratio of total employed women to the population of women aged 16-64 For further details, see: Eurostat. *Employment by sex, age and citizenship (1 000) [lfsa_egan]; y*

Population on 1 January by age and sex [demo_pjan]. <https://ec.europa.eu/eurostat/data/database>.

¹²⁷ The youth unemployment rate is defined as the ratio of unemployed persons aged 18-24 to active persons in the same age range. For further details, see: Eurostat. *Active population by sex, age and citizenship (1 000) [lfsa_agan]; and Unemployment by sex and age – annual data [une_rt_a]*. <https://ec.europa.eu/eurostat/data/database>.

¹²⁸ The employment rate of those people aged 55-64 is defined as the ratio of employed persons to the population in that age range. For further details, see: Eurostat. *Employment by sex, age and citizenship (1 000) [lfsa_egan]; y Population on 1 January by age and sex [demo_pjan]*. <https://ec.europa.eu/eurostat/data/database>.

¹²⁹ The temporariness rate is defined as the ratio of employees with a temporary contract to the total number of employees aged 15-74. For further details, see: Eurostat. *Temporary employees by sex, age and educational attainment level (1 000) [lfsa_etgaed]; y Employees by sex, age and educational attainment level (1 000) [lfsa_eegaed]*. <https://ec.europa.eu/eurostat/data/database>.

¹³⁰ The involuntary part-time rate is defined as the ratio of the total number of involuntary part-time workers (15-74 years) to the total number of employees. For further details, see: Eurostat. *Employment by sex, age and citizenship (1 000) [lfsa_egan]; Full-time and part-time employment by sex, age and educational attainment level (1 000) [lfsa_epgaed]; e Involuntary part-time employment as percentage of the total part-time employment, by sex and age (%) [lfsa_eppgai]*. <https://ec.europa.eu/eurostat/data/database>.

¹³¹ Eurostat. *Average number of usual weekly hours of work in main job, by sex, professional status, full-time/part-time and occupation (hours) [lfsa_ewhuis]*. <https://ec.europa.eu/eurostat/data/database>.

¹³² The observed figure is the average from 2015 to 2018 For further details, see: Eurostat. *Gender pay gap in unadjusted form [sdg_05_20]*. <https://ec.europa.eu/eurostat/data/database>.

¹³³ The proportion of people satisfied with their job is defined as the percentage of people who rate their job satisfaction as medium or high. The observed figure is from 2018. For further details, see: Eurostat. *Percentage of the population rating their satisfaction as high, medium or low by domain, sex, age and educational attainment level [ilc_pw05]*. <https://ec.europa.eu/eurostat/data/database>.

¹³⁴ The Gini Coefficient is a measure of inequality represented by a number between 1 and 100, where 1 corresponds to perfect equality (everyone has the same income) and the value 100 corresponds to perfect inequality (one person has all the income and the others, none). Therefore, the higher the coefficient, the greater the inequality. For further details, see: Eurostat. *Gini coefficient of equivalised disposable income [ilc_di12]*. <https://ec.europa.eu/eurostat/data/database>.

¹³⁵ Estimation based on the model of Rao *et al* consistent with the projections of growth, productivity improvement and education indicators proposed in chapters 1 and 2 of this Strategy. See: Rao, Narasimha D., Petra Sauer, Matthew Gidden, and Keywan Riahi. "Income inequality projections for the Shared Socioeconomic Pathways (SSPs)." *Futures* 105, 2018. <https://doi.org/10.1016/j.futures.2018.07.001>.

¹³⁶ The poverty risk is calculated using the cut-off point of 60% of the median equivalent income after social transfers. For further details, see: Eurostat. *At-risk-of-poverty rate by poverty threshold [ilc_li02]*. <https://ec.europa.eu/eurostat/data/database>.

¹³⁷ Tax revenue is the total revenue from taxes and compulsory social security contributions. For further details, see: Eurostat. *Main national accounts tax aggregates [gov_10a_taxag]: Total receipts from taxes and compulsory social contributions after deduction of amounts assessed but unlikely to be collected*. <https://ec.europa.eu/eurostat/data/database>.

¹³⁸ Social protection expenditure includes, among other items, public spending on pensions, unemployment benefits, active employment policies (including training and guidance policies) and other social assistance. The observed figure is the average from 2015 to 2018. For further details, see: European Commission. *Manual on sources and methods for the compilation of COFOG statistics*. Luxembourg: Publications Office of the European Union, 2019. <https://ec.europa.eu/eurostat/documents/3859598/10142242/KS-GQ-19-010-EN-N.pdf/ed64a194-81db-112b-074b-b7a9eb946c32?t=1569418084000>; and Eurostat. *Total government expenditure on social protection [gov_10a_exp]*. <https://ec.europa.eu/eurostat/data/database>.

¹³⁹ The observed figure is the average between 2015 and 2019 of the percentage of people who said they were r "Very Satisfied" and "Fairly satisfied" to the question "On the whole are you very satisfied, fairly satisfied, not satisfied or not at all satisfied with the life you lead?" For further details, see: European Commission. *Eurobarometer surveys for each year*. <https://ec.europa.eu/COMMFrontOffice/publicopinion/index.cfm/Chart/getChart/themeKy/1/groupKy/1>.