

# Possible Futures and the Future We Want

**Francisco González**



“Life is a series of collisions with the future; it is not the sum of what we have been, but what we yearn to be.”

José Ortega y Gasset

*There's a Future: Visions for a Better World* is the fifth book in this annual series that BBVA devotes to disseminating the best knowledge on the greatest topics of our time.

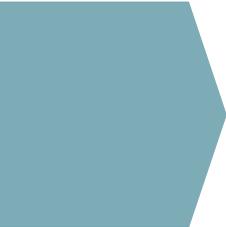
We launched our project in 2008 with *Frontiers of Knowledge*, which explored the recent advances and key challenges faced by scientific research in the eight areas recognized by the Frontiers of Knowledge Awards, presented by the BBVA Foundation.

This book was followed by editions dedicated to *globalization*, a phenomenon that is vital to understanding our times; *innovation*, understood as the greatest factor able to help humanity tackle the huge problems we face and to improve our general quality of life; and *ethics and values*, because the changes our global society is undergoing require a review and reaffirmation of our ethical values in order to guarantee balanced and sustainable development.

Encouraged by how well our books were being received, we created OpenMind ([www.bbvaopenmind.com](http://www.bbvaopenmind.com)), an online community dedicated to sharing and spreading knowledge. The contents of OpenMind are based on the books we have published so far and on those we will publish in the future. This means our books are now at the fingertips of a much broader and more varied public. These contents are supplemented by material from other authors and readers, both specialist and non-specialist. But

above all, OpenMind is a space to discover, discuss and generate new ideas in an open and multidisciplinary setting. OpenMind is also available as an iPad App — completely free of charge, of course — and in the near future, it will exist in a format suitable for all types of tablets and for mobiles.

Little by little, this project is growing and reaching a larger audience. This fifth book, on the future, enriches it still further.



**This book presents a wide range of articles that encompass many different visions of the future [...] It is a multidisciplinary cross-section designed to map out the basic lines along which our reality is changing and in which direction they are taking us [...] We believe that a better future for people is possible, and contributing to that future is the cornerstone of our work**

## WHY THE FUTURE?

The main reason behind this theme is its coherence with our corporate cultural values, summed up in our vision: “BBVA, working towards a better future for people.” Clearly, this entails anticipating the future. And to do this, we need to know the past and the present, detecting the trends that are shaping the future every step along the way.

That is why at BBVA we give centre stage to knowledge as a tool for improving the future of people. And ultimately, that is the justification for this project, which seeks to generate and disseminate the best knowledge.

This forward-facing approach, looking further ahead, is present in each of our earlier books. The frontiers of knowledge are mobile: the efforts we make today will broaden our horizon of tomorrow and our ability to manage it. We are interested in globalization because it has a profound effect on our future. The books in this series on innovation and ethics explicitly referred to the twenty-first century perspective in their titles, because both innovation and ethics are key ingredients for a better future.

In some ways, this book represents a necessary synthesis and extension of the previous ones. Through it, we seek to integrate the various elements we are coming to understand: How do they interact with each other? Where are they leading us? And, more importantly, what can we do to ensure that this path, with all its acknowledged risks, leads us to improve people’s quality of life in a sustainable way?

This is a very tough task, “it is difficult to make predictions, especially about the future.” This famous quote, uttered by renowned physicist Niels Bohr almost a century ago, is — if possible — even truer today. We have known since Heraclitus that “there is nothing permanent

except change,” but in our era, the rhythm of change is accelerating. We are living in a period of transformation of unprecedented magnitude and speed. The future seems to be hurtling towards us at full tilt.

For this very reason, if predicting the future is particularly difficult today, preparing for it is also vital and urgent. As Albert Einstein said, “we will have the future we deserve.”

This book does not uphold the naïve and dangerous pretension of foretelling “the” future. Instead, we seek to be thought-provoking and to trigger debate over a future that will be the result of various interacting forces and of our own decisions: a future that is shaping itself day by day in its many facets.

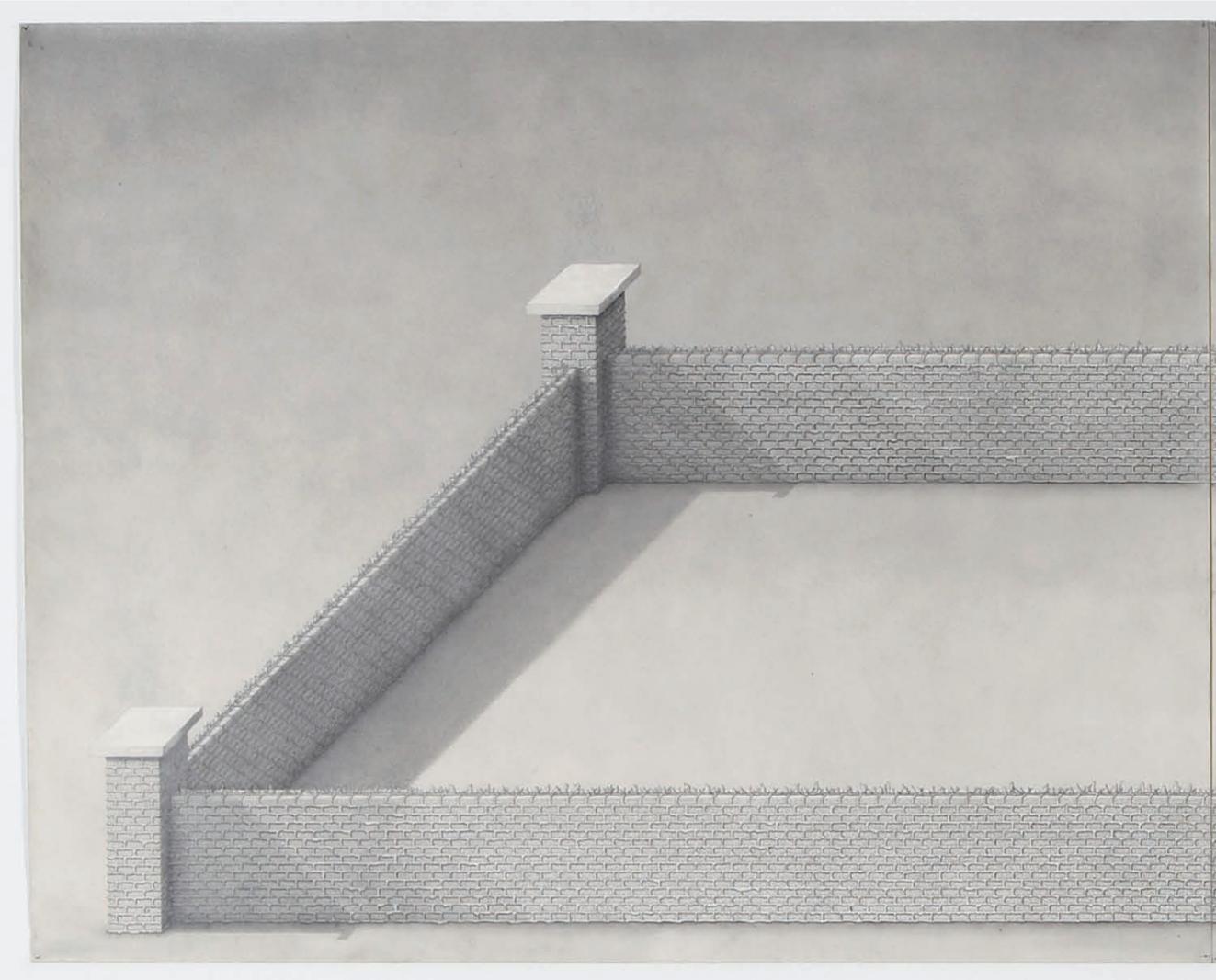
That is why this book presents a wide range of articles that encompass many different visions of the future, both in focus and theme. It is a multidisciplinary cross-section designed to map out the basic lines along which our reality is changing and in which direction they are taking us.

Our authors — specialists of the highest order in their various fields — propose “possible futures” that do not necessarily agree with each other. But all these visions have shared characteristics: firstly, analytical rigor and scientific objectivity, presented in a language and framework accessible to the non-specialist reader; secondly, a profoundly optimistic spirit. And when I say optimistic, I do not mean that they paint a Utopian view of the future, free from difficulty; instead, they all partake of the notion that the future is not predetermined — that people — humanity — can influence the future and change it through their actions and decisions. As Peter Drucker said, “the best way to predict the future is to create it.” Finally, all our authors share a strong ethical component: they want their work to contribute to creating the best possible future for people, for this generation and for generations to come.

Therefore, all the authors in this book, whatever their theses, share BBVA’s fundamental values: we too believe that a better future for people is possible, and contributing to that future is the cornerstone of our work.

Every year, one of the most rewarding aspects of preparing the new book is the contact with the authors: we are privileged to work with people and teams of the highest level, who are keen to understand and know more, who are open to debate and new ideas. Through them, we broaden our knowledge, open our minds and enrich ourselves as human beings. We are extremely proud of the growing band of first-rate authors who have contributed to our project and who have become part of OpenMind, where thanks to the Internet, everyone has access to their ideas and can discuss and share important knowledge.

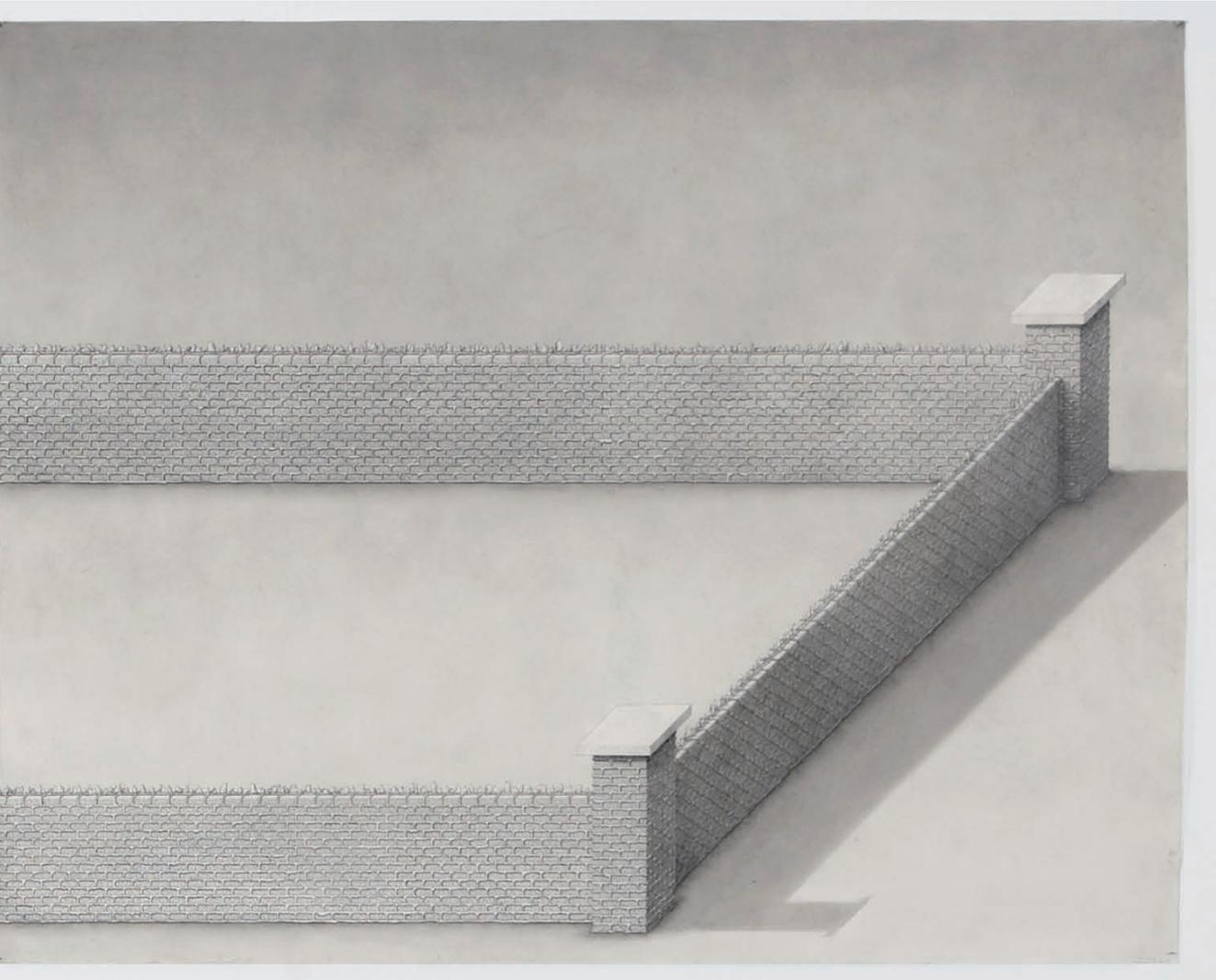
I would like to take this opportunity to show my appreciation to all of them, particularly to the authors who have contributed to this book, *There’s a Future*: a fine group of experts in diverse fields. A number of them — such as professors Sánchez Ron, Tiwari, Mato and Broecker — have collaborated in previous books. Their presence here can only be a sign



Paul Noble, *Heaven*, 2009

of their valuable support for our project. Others have joined this edition to enrich even further the panorama of ideas and the OpenMind authors. All of them make a valuable contribution to bringing us closer to their vision of the future. Through all these contributions, we hope to present a broader, deeper, more open and suggestive panorama of the challenges that await us in the coming decades and to consider how to frame the answers that will allow us to move towards that better future that together we can and must build.

In order to cover such a large area, we have divided the book into six parts: the fundamentals of futures studies (the discipline formerly known as Futurology); science and



technology; the planet; society; people; and finally, Vision 2020+, a summary of how BBVA sees the coming years and how we are preparing for them.

In the first article, Sohail Inayatullah sets out the rules and basic methods behind futures studies. He examines how the discipline has moved from focusing on “predicting the future” to its current state, in which it strives to design and define alternative futures. The central and most suggestive conclusion he draws is that futures studies have evolved to such an extent that they now not only have the capacity to predict and interpret the future, but they can also play an important part in creating it.

As an example of current methodology, Jerome Glenn gives us the State of the Future Index, drawn up as part of the Millennium Project. Glenn offers us an overview of our future using historical data on key indicators collected globally over the past 30 years. Of course, such a large spectrum of variables throws up mixed results; yet Glenn concludes in a largely optimistic way: overall, in the future the world will be for the most part better than it is today.

The second section of the book is devoted to science and technology, areas with traditionally strong ties to the future in the public imagination. And this is no coincidence: from the very first plough to today's nanotechnology, science has pointed out the door to the future, and technology has been the key to open it.

Touching on this idea, José Manuel Sánchez Ron begins this section by mapping out a panorama of future predictions throughout history in various scientific fields. He reveals how our capacity to make scientific predictions has always been rather unreliable. Conversely, our powers of prediction improve when we enter the realm of technology. By examining the close and extremely complex relationship between science and technology, he concludes that technological prediction plays an important part in determining the future direction of science.

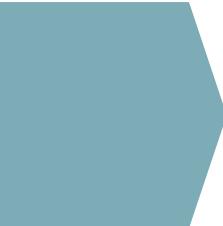
Kevin Warwick then guides us through the future of artificial intelligence and robotics. He pays particular attention to the "fusion" between technology and the human brain. Warwick believes that computerized cerebral interfaces, such as those created by "invasive" brain implants or even external electrodes, could improve human capacities. This issue raises a host of difficult social and ethical problems. We are on the threshold of a great technological leap and many of the ethical questions he raises can only be fully understood once the scientific and technical issues have been solved.

Sandip Tiwari's article provides a fascinating summary of the incredible possibilities of science in the twenty-first century, as well as its hidden pitfalls. Nanotechnology enables us to work at a molecular or even atomic level. The line between human and machine is disappearing at such a speed that Tiwari predicts a time when both will become one. Another key consequence of technological progress is the unimaginable accumulation of data it produces. Tiwari argues that this will lead us to develop a new branch of information sciences and a completely new theory of networks. This in turn will give rise to a collection of intelligent applications he calls "emergent machines." These machines will be almost indistinguishable from humans and "autoreplicants." He also foresees tools that he calls "evolutionary machines" capable of constructing molecules and enabling the production of new types of proteins, parallel to those that form life.

This section concludes with José M. Mato's article on medicine and its predictive capacity. He argues that the hegemony of the genocentric theory over recent years has led molecular biology to develop a deterministic approach that fails to address key questions such as how and why a single genotype gives rise to very diverse phenotypes. He proposes that the enormous amount of data used in genomics masks quality-control problems in some areas of

research. Even though inadequate data management could be addressed with high performance techniques or “omics,” scientific rigor is still vital for quality control and the credibility of any research in the eyes of peers or project leaders.

The third section focuses on the environment. Paul Raskin opens the subject with his article on sustainability. He believes that concern for this issue springs from our current “Planetary Phase of Civilization,” which marks the beginning of a global society. Ever-increasing levels of human activity and the ecological footprint of humanity have a huge impact on the biosphere. He concludes that we are already entering a high-risk zone. Yet at the same time he tells us that moments of transformation such as this are opportunities to change priorities and to mobilize the enormous potential of this Planetary Phase of Civilization in order to solve global sustainability problems.



**BBVA is preparing to make a big contribution to this global effort involving governments, institutions, companies and civil society all over the world, in line with our vision of working towards a better future for people**

Wallace Broecker takes part in our project once again, this time to raise a key question for our future: the impact of global warming on the distribution of rainfall. Using a simulation model based on data from 30 000 years of history, he concludes that great changes are on their way, especially in the arid areas of the earth: the Middle East and the western United States will become even drier, whilst the Nile and China will receive more rain. The Amazon rainforests will gradually move north, leaving vast dry zones in Brazil and Bolivia. These and other changes will have enormous economic, social and political repercussions.

The final article in our section on the planet examines the question of where and how we will live. Mitchell Joachim and Melanie Fessel explore urban design, architecture and environmental planning. They explain how urban design is currently at an impasse; they propose Urbaneering as a viable way forward. Urbaneering is the practice of rethinking all human implications on their surroundings. The design of an urbaneered city incorporates elements such as crowd-sourcing, localized energy, e-government, biotech applications (e.g. for waste management) and high-throughput computation. These technologies will contribute to restructuring all human needs and the very infrastructure of the city.

The fourth section examines the possible evolution of a global society.

Joaquín Vial, Clara Barrabés and Carola Moreno address the effects of the great demographic transformation we are witnessing now. First, they highlight the challenges arising from the heterogeneous nature of this transition: each country or region faces specific impacts.

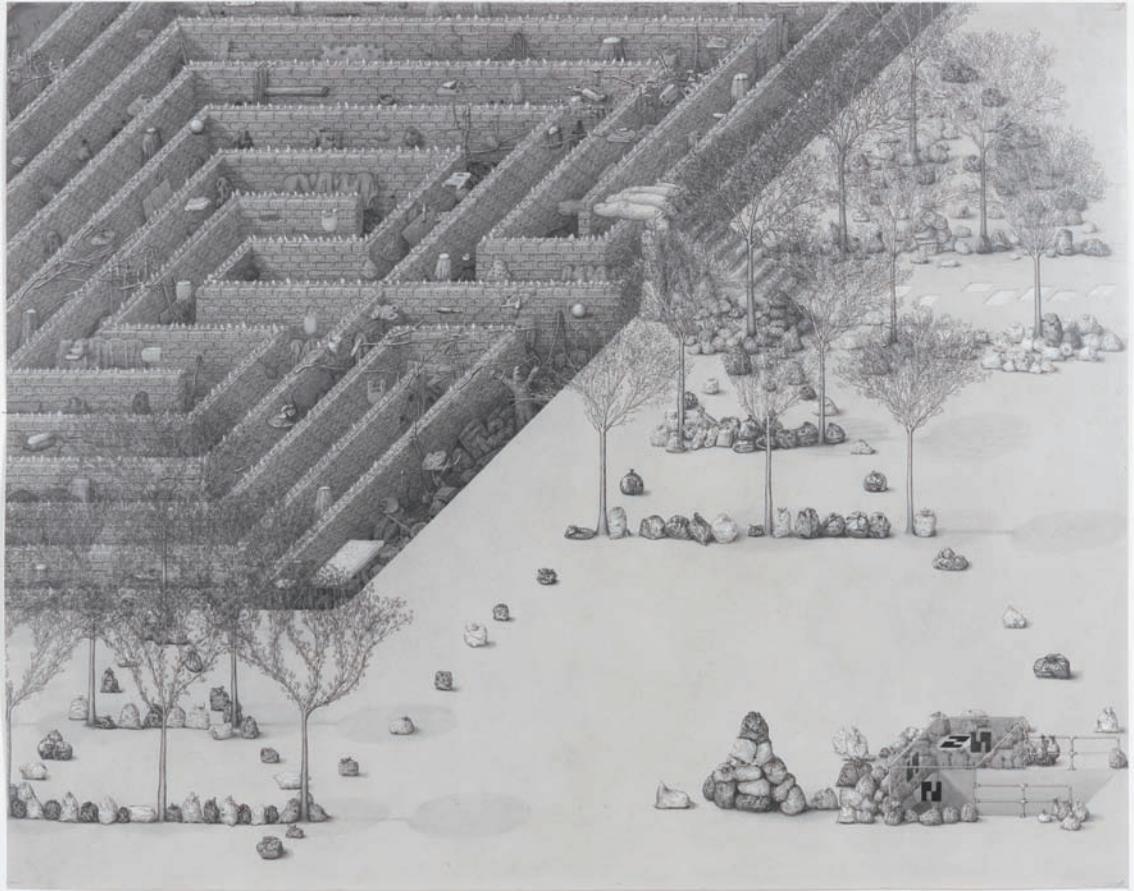
Key characteristics of this new map are population ageing (and the tensions this generates in developed regions at the end of their demographic transition); the inexorable rise of China in the global context; the growing demands of populations in less developed countries; and regional differences in population growth. These decisive events will take place in a complex environment characterized by climate change and fierce competition for natural resources, which means an increased risk of regional conflict.

Daniel Altman's contribution focuses on growth forecasts for various regions, using conditional convergence theory, which he applies to China. Altman asks himself whether China will be able to sustain its rapid growth rate over the coming decades. He concludes that cultural factors are key to long-term growth and that the influence of Confucianism — although it brings certain benefits in preserving social stability — will become an obstacle. This does not mean that China is condemned to slow growth, but rather that maintaining the current development process will require very deep changes.

Nayef Al-Rodhan addresses the future of international relations. He believes we need to move away from the concept of international relations as a collection of zero-sum games and instead promote a more sustainable new world order, based on what he calls "symbiotic realism." Symbiotic realism focuses on the promotion of human dignity and symbiotic relations between states, based on absolute wins for all parties. It is a broader and more integrated vision of the dimensions and dynamics of our world, extending the concept of global actors to include not only countries but also large collective identities and international organizations (multilateral institutions, NGOs and transnational corporations). Furthermore, it takes into account the specific needs to protect the environment, natural resources and the rights of women.

Any positive focus on changing international relations must be based on a solid and efficient model of international cooperation. This is the issue tackled by Claus Leggewie in his article, in which he recommends redefining our current culture of cooperation. The ability that most distinguishes humans from animals is that of collaboration. Collective objectives, knowledge and shared beliefs lie at the heart of the success of the human race and they should balance the social-Darwinist demands for the survival of the fittest. Leggewie advocates redesigning and strengthening global institutions with this in mind, and he applies his method to analyse the current difficulties experienced by Mediterranean countries.

The fifth section of the book revolves around how people will live in the global society of the future. This question takes us beyond material issues. The great upheavals that are rapidly transforming our lives — whether technological, economic, environmental, ethical, cultural, etc. — are causing many people to reassess their basic priorities. It is this issue of priorities and values that is the real key to the future. In the words of Friedrich Nietzsche, "all sciences must, from now on, prepare the way for the future work of the philosopher: this work being understood to mean that the philosopher has to solve the problem of values and that he has to decide on the hierarchy of values."



Paul Noble, *Welcome to Nobson*, 2010

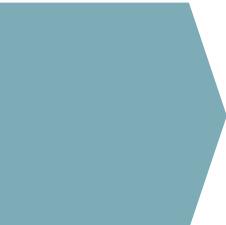
Amitai Etzioni opens this section with an article that reviews what has traditionally been described as “the good life” in various civilizations. In general, the acquisition of wealth has taken a secondary role to the search for happiness through spirituality and knowledge. He concludes that none of the “spiritualist” movements — some more ascetic than others — have succeeded in inspiring a sufficiently broad and lasting/sustainable society in our time. Therefore, he believes that instead of seeking to eliminate consumerism, we should focus on finding constructive ways of controlling and channelling it.

In her article, Jennifer Gidley explores the future of education. She believes that current education is antiquated and that if we are to face a context of increasing global and social complexity, education must give people the tools and skills needed to cope with continual adaptation. This means attaching less importance to a predefined body of knowledge and concrete skills, and giving more space to creativity, the imagination and dialogue in a more

holistic and pluralist approach. We should move towards an evolutionist educational focus that prepares us to manage our changing, complex and unpredictable surroundings.

The final article of this section is by Anne Lise Kjaer, who explores how consumer trends will evolve. Her arguments resonate with ideas proposed by Etzioni, as she describes how for many people economic growth has not brought more happiness. At the same time, this constant growth in consumption levels is unsustainable, which is becoming an ethical issue for more and more people. This concern will lead us towards a more sustainable model. New platforms and social networks will enable people to avoid conventional commercial channels. Organizations and companies will find it increasingly difficult to communicate with the public and to gain their trust. Only those who are perceived as transparent and concerned about people and the environment will enjoy success.

In the final section of our book, we present how BBVA sees the future and how we are preparing to participate in it. “Vision 2020+” was written by Beatriz Lara together with the team at our Innovation Centre. The article analyses the most important change factors and trends shaping the future.



**The next few decades will provide a huge opportunity. The world is well equipped to tackle its key challenges. Scientific progress today drives the technological progress of tomorrow, and the proliferation of technological development is the main source of innovation as different ideas are recombined to create new products and services**

Three alternative scenarios, or “possible futures,” arise from this analysis. The most important conclusion is that the challenges we face are very complex and the risks are serious, yet the best of these three scenarios — named “World in Balance” in the article — is within our reach. But to achieve it, we need to act in a rapid, decisive and coordinated way, involving governments, institutions, companies and civil society all over the world. The article sets out the basic lines of this action and ends with a summary of how BBVA is preparing to make a big contribution to this global effort, in line with our vision of working towards a better future for people.

## **PAST, PRESENT AND POSSIBLE FUTURES: KEYS TO THE TWENTY-FIRST CENTURY GLOBAL ECONOMY**

When we analyse humanity’s great challenges for the coming decades, on which the survival of our species and the planet depend, we come to the conclusion that most, though not all, are challenges related to the economy. Essentially, we are striving to bring more prosperity and well-being in a

sustainable way to a greater number of people all over the world (almost 7 billion people today and around 9.3 billion people towards the middle of this century, according to UN forecasts [2011]).

This requires us to solve different yet interrelated problems. We need to reduce the huge inequalities in income and well-being between different parts of the world and between different social classes within countries. We have to tackle the consequences of the demographic revolution: ageing populations in the most developed parts of the world and in certain emerging economies, together with a lack of basic services (health, nutrition, education) for a rapidly growing number of children and young people in the poorest countries. Lastly, and most importantly, we need to find a way to make progress in these areas whilst still preserving natural resources and limiting, or even reversing, the environmental destruction caused by human activity.

These challenges are becoming ever more urgent, but the current economic and financial crisis seems to be placing them further and further out of reach. However, if we look to the past, we find reasons to be optimistic. The work of Angus Maddison (1995), which continues today as the Maddison Project, allows us to observe that global average per capita income has quadrupled in the last century, in spite of huge setbacks in the form of the two world wars and the Great Depression, and despite the five-fold increase in world population. At the same time, worldwide average life expectancy has doubled to reach around 60 years (Acemoglu and Johnson 2007).

It is true that this undeniable progress has come hand in hand with rising inequality throughout this period. Yet the percentage — and the absolute number — of people living in extreme poverty is falling: between 1981 and 2010 it fell by 550 million people, a decrease from 50 percent of world population to around 20 percent, (Glenn, Gordon and Florescu 2011).

Jerome Glenn's article draws up a balance sheet of humanity's progress and regression through the indicators that make up the State of the Future Index. This demonstrates that over the past 30 to 40 years, we have made progress on indicators related to increasing income and reducing poverty; improving health, education and gender equality; and reducing war. But we are moving backwards on issues as important as income inequality, environmental destruction and the risk of terrorism.

To sum up in a very simplified way, we could say that the world is becoming a more efficient and productive place, able to generate more wealth and well-being for people. It also offers people better health and education, longer life expectancy and more opportunities. In some ways, it is more peaceful and stable, with fewer wars.

These are no small achievements; they are sustained improvements of considerable scope. Without doubt, the world is now a better place to live in than it was 100 or even 30 years ago.

However, we cannot rest on our laurels, precisely because the indicators in which we are making no progress or in which we are actually going backwards are key to the sustainability of these achievements. We are making economic progress at the expense of growing environmental destruction, with an unending increase in greenhouse gas emissions and high

consumption of finite energy and other resources. All of this compromises our ability to keep growing and generating wealth. Rising income inequality and increased terrorism point to potential political and social instability. We must also factor in the growing unemployment and global debt arising from the economic crisis.

This is what has happened in the recent past. But to turn our gaze to the future, we need to understand which factors are driving these trends and how they interact.

I think we can group these factors into three, closely interrelated themes: technological revolution, globalization, and the spread of democracy and individual rights.

We are witnessing what must be the biggest and fastest technological revolution humanity has ever seen. It revolves around two basic areas: information and telecommunications, and health and medicine. The latter is largely responsible for the increase in life expectancy and the conditions that foster this. But above all, it is a source of great prospects for improvement over the coming decades.

The information technologies revolution is possibly the biggest factor shaping our times, and not just because of its intrinsic ability to generate wealth in the sectors and industries directly related to it. It also facilitates and magnifies all human activity. The information revolution lies behind our exponential increase in capacity, and it has exponentially reduced the cost of storing, distributing and processing information in order to generate knowledge. It is hard to overestimate the importance of this, as it represents a tremendously powerful motor for development and the dissemination of scientific research in all fields, technological applications, company management and education. This has transformed the daily life of people all over the world: not just how we work but also how we interact and how we relax. The transformation is set to continue at high speed.

In short, the information technologies revolution is multiplying the human capacity to generate knowledge, to make new things, to tackle new problems and therefore, it is expanding innovation and productivity in all human activity.

The technological revolution has also facilitated the development and impact of other important factors that shape our times: the globalization and spread of democracy and human rights.

This current wave of globalization may have begun in the 1950s before the information revolution, but it has been greatly strengthened by it. Globalization is a very complex phenomenon that impacts many aspects of human activity (not just economic, but also social, political and cultural). We have already dedicated a book to these issues (the second of our series). But perhaps the single most influential event to mark global evolution over the last decades has been the creation of a much more integrated global market, accompanied by exponential growth in international commercial and financial flows. For example, according to IMF statistics, international trade has grown from representing less than 10 percent of global

GDP in the 1950s to around 50 percent now. Direct investment has grown even more rapidly, particularly international financial operations that today amount to several times global GDP. This has been a strong factor behind the increase in global economic efficiency and global growth potential — a consequence, at least in principle, of better resource allocation.

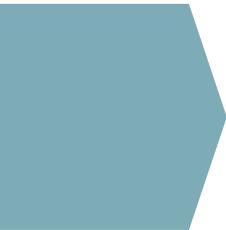
At the same time, globalization has paved the way for new economic powers to enter the global scene, mostly in Asia, but also in Latin America. These powers have boosted growth and made a decisive contribution to reducing world poverty. In this book, Vial, Barrabés and Moreno cite data showing that in the period 1960 to 2000, emerging countries represented 25 percent of global growth (compared to the 70 percent of developed countries). In the period 2000 to 2030, these same countries will make up two thirds of global growth (compared to one third in developed countries). BBVA Research has identified the most important emerging countries in terms of size and growth potential. These countries are known as EAGLEs: Emerging and Growth-Leading Economies. Ten countries belong to this group: Brazil, China, Korea, India, Indonesia, Mexico, Russia, Taiwan and Turkey. They will represent half of global growth in the next 10 years, completely transforming the global economic and geopolitical map.

The last determining factor I would like to highlight behind the revolution of global society and the global economy of recent decades is the expansion of democracy and human rights. Never before has such a large proportion of the world population been able to choose its leaders and decide on the policies these leaders put into place. According to the most rigorous historical indexes on global democratization (Polity IV and Freedom House, both uncannily similar in their results), global democracy has leapt forward since the Second World War, and particularly since the 1980s. These indexes run from 0 to 1, with 0 representing a complete absence of democracy. After the Second World War, the indexes stood at 0.2, rising to 0.3–0.4 in the 1970s. At the start of the twenty-first century, they registered 0.6–0.7 (data from Acemoglu 2013). This means democracy has moved from being a minority regime at global level, to being the predominant form of government. At the same time, most countries with authoritarian or semi-authoritarian regimes now grant their people greater margins of freedom than in the past. Moreover, this progress has not been restricted to entire populations within each country or society. There has also been a big improvement in minority rights (ethnic, religious, sexual, etc.) and most notably, an improvement in women's rights, generating a huge positive impact on society and the economy.

Of course, this progress has not been smooth and linear; still today it is partial and incomplete. Even if we leave aside the fact that the quality and depth of democracy in many theoretically democratic countries is far from perfect, it is clear that large areas of the globe — including countries like China, the most densely populated and economically dynamic country today — live under non-democratic governments.

Nonetheless, the expansion of democracy and political, social and civil rights over the past decades has been unprecedented in human history. Furthermore, it has helped direct the impact of globalization and the technological revolution towards increasing well-being for all world citizens.

Why is this the case? In principle, the most common and conventional causal link in social sciences runs from technology to institutions. In general, history supports the notion that technological progress and economic prosperity foster democracy and the growth of individual rights. However, the opposite point of view also has a strong and venerable tradition, stretching back to Adam Smith himself. This argument states that institutions (whether political, legislative or social) and at a deeper level, the cultural traits of a society, define the nature, rhythm and spread of technological change and therefore, of economic growth.



**There must be organizational and cultural transformation that enables banks to build a reputation of transparency with their customers, responding to their needs with efficiency, agility and flexibility, and striving to make a positive contribution to solving social problems**

The latter argument enjoyed a comeback in twentieth-century economic theory with the institutionalist school founded by Thorstein Veblen (1898), in opposition to dominant neoclassical thought. More recently, “neoinstitutionalist” perspectives have received a definitive boost through the Nobel Prizes awarded to Ronald Coase in 1991, Douglass North in 1993 and Oliver Williamson (disciple of Coase) in 2009. Coase’s 1960 article, “The Problem of Social Cost,” is said to be the most cited article in the history of economic literature, while North’s work *Institutions, Institutional Change and Economic Performance* captures the essential thinking behind this movement. Recently, followers of this school of thought, albeit with different focuses, have been making waves. Among them is Niall Ferguson, who attributes differential development and the political domination of western economies in the Modern Age to six “killer apps” that the rest of the world is missing: free competition, science, the rule of law, medicine, consumerism and the work ethic (Ferguson 2011). Through their widely published works, Acemoglu and Robinson (2012), together with one of the authors of this book, Daniel Altman (2011), have all made significant contributions to stimulating interest in the role of institutional and cultural factors in medium- and long-term growth.

The theoretical or academic “renaissance” of the role of institutions has been endorsed by the practice of multilateral institutions such as the IMF, the OECD and the World Bank. These

bodies systematically link the success of development programmes to policies of institutional reform.

The main argument behind recovering the value of institutions is summed up magnificently by Douglass North: “If we know the sources of plenty, why don’t poor countries simply adopt policies that make for plenty? [...] We must create incentives for people to invest in more efficient technology, increase their skills and organize efficient markets. Such incentives are embodied in institutions” (North 1995).

In short, the spread and rhythm of technological progress, and the relevance of its innovations, depend on whether the judicial-institutional-cultural system provides the opportunities and right incentives for the largest number of people and organizations within each society.

Growth and development therefore require a cultural-institutional framework that guarantees reasonable rights for creators and innovators, and that rewards the initiative shown by entrepreneurs. At the same time, it must extend opportunities to as many citizens as possible, creating a level playing field for competition, one that is free from barriers to entry for all activities, businesses and jobs. It should also provide basic services and infrastructure to allow all citizens to achieve their potential and participate in productive activities.

These societal characteristics have usually been associated with a pluralistic and participative political system, in which no single person or group can exercise unlimited power in their own interest. Of equal importance is a legal system that guarantees fairness and the legitimate rights of all.

This type of institution, which Acemoglu and Robinson have called “inclusive” as opposed to “extractive” institutions, has shown itself to be better equipped to foster growth and well-being for everyone.

To counter this theory of the positive effect of democracy on economic development, we could take the case of China, a non-democratic country that has enjoyed tremendous economic growth over the past three decades.

However, other historical examples could be given to argue against the case for China, the most recent and directly applicable being the Soviet Union. The USSR’s extraordinary growth between the 1930s and the 1970s can be explained as a technological catch-up that came from more advanced countries, driven by the large-scale forced transfer of resources from agriculture to industry. This development model collapsed when the forced industrialization reached its limits, limits that could not be pushed back through technological progress and innovation because the right culture, incentives and controls were not in place.

Altman’s article in this book suggests that China could go down a similar route, even though the country could enjoy more prolonged growth and a less abrupt ending thanks to the very nature of this particular technological revolution. On the other hand, the information revolution

is an increasing threat to the existence of “non inclusive” institutions, in a context of better-informed citizens who find it easier to form associations and coordinate their actions through the Internet. Herein may lie the greatest hope technology can bring for the future of China and of the world.

Given our recent trajectory, the next few decades will provide a huge opportunity. The world is well equipped to tackle its key challenges. Scientific progress today drives the technological progress of tomorrow, and the proliferation of technological development is the main source of innovation as different ideas are recombined to create new products and services. With an “inclusive,” open and free environment, the next few decades could see unprecedented wealth creation. This wave of prosperity could be generated so as to include regions such as Africa and sectors of society that have thus far been excluded. We can eliminate poverty and improve income distribution. And we can do it in a way that is fair for future generations, i.e. respecting the environment and biodiversity, preserving finite natural resources, and fighting global warming.

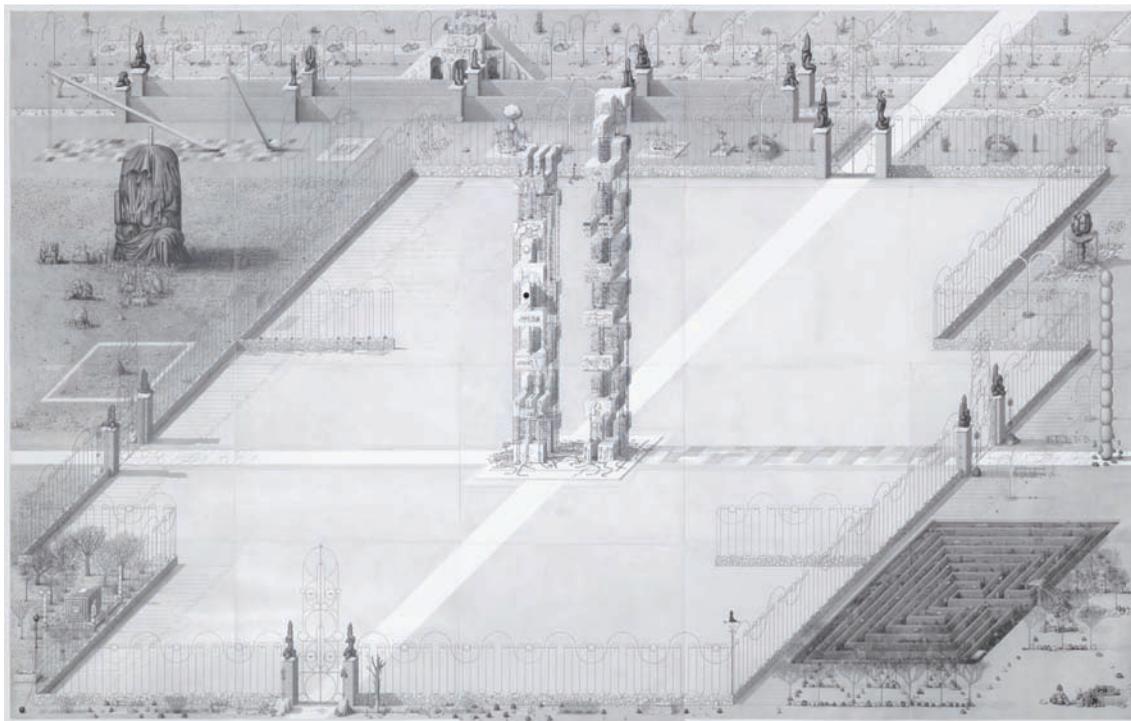
Yet this is no easy task. Success is far from guaranteed. First, we are working against the clock. Population growth and economic development are leading to increasing environmental threats and pressure on natural resources that at a certain point could become irreversible. We are lagging behind the schedules set for controlling greenhouse gas emissions, and there is no hope this situation will improve in the near future.

Finally, the most fundamental of all our problems is that our institutional-cultural system has not kept pace with technology. Our societies have not adapted their values, governance structures and regulations sufficiently. Indeed, most citizens have not adjusted their values and attitudes to reflect the demands of the new global context that technology has created.

The depth, speed and scale of technological change and the new horizons opened up by these changes in all areas (economic, social or cultural) strike at the heart of deeply rooted institutions, activities, habits and certainties. The ensuing process of adaptation generates uncertainties and conflicts at both political and social levels, pitting countries and social sectors against each other as they adopt different visions and attitudes to the change, right down to the level of the individual.

Therefore, the divisions between groups begin to widen. These gaps form for a variety of reasons: the adoption of new technologies, differing levels of income, secular groups and individuals against their religious counterparts, etc.

This diversity makes it hard to set global objectives and strategies to tackle global problems. As Zizek (2004) explains, the first world’s exclusive focus on ecological crisis, racism and intolerance seems cynical in the face of the extreme poverty, hunger and violence in the third world. Conversely, any attempt to cast first-world concerns as trivial, compared to the catastrophic “real” problems of the third world, is but a form of escapism in the face of certain threats to our shared destiny.



Paul Noble, *Welcome to Nobson* (detail), 2010

In any case, such marked divisions foster defensive reactions that seek to “protect” (isolate) groups as a function of their nationality, race, creed or other criteria, in many cases under authoritarian regimes. This can give rise to environments that are unfavourable or even explicitly opposed to international cooperation, the diffusion of knowledge, and innovation.

This situation becomes even more complex and takes on new features in the context of the information revolution. The open, anonymous character of the Internet and the constant extreme difficulty associated with protecting data and communication properly gives terrorists many more opportunities, whether they are organized groups or fanatic individuals. Terrorism is becoming a greater risk than traditional armed conflicts.

Ultimately, if we are to achieve that better future — the one technology makes possible — we must demand global conditions of freedom and human rights, free initiative, education and the sharing of knowledge.

At the same time, we need to reinforce the mechanisms of global governance to make sure that all legitimate interests all over the world are represented and that they can agree on and implement sufficiently ambitious programmes to tackle our shared problems. This runs from the

basic coordination of economic policy, to projects that foster medium- and long-term development in the most disadvantaged areas, and efforts to tackle big environmental issues.

But governments alone cannot achieve all this. It requires cooperation from everyone, in many different fields: companies, NGOs and citizens, both individually and through their many formations in civil society. In such an interconnected world with information flowing freely and instantly, these complex collaborative connections can form faster and more concretely than ever before.

Similarly, an even greater role is given to all kinds of people and organizations who set examples and stimulate others: people who promote and implement initiatives to improve aspects of other people's lives. They become leaders of change; some may join their initiatives, while many others will learn from their efforts. They also have a very important medium-term impact: influencing the conscience of large segments of the population.

Change needs more leaders, supported by a growing number of people who are increasingly interconnected, better informed and more aware of the importance of human rights and collaboration to reach common goals. We need a cultural and ethical shift to adapt our values and institutions so that we can make the best of all the opportunities that scientific and technological progress offer.

## **THE FINANCIAL SYSTEM: NECESSARY INSTITUTIONAL REFORM**

The financial industry lies at the heart of the economic system and is key to moving towards a better future. In particular, banks are necessary tools that enable millions and millions of companies and families all over the world to have more opportunities and increase their quality of life, by financing their investments, helping them buy homes and offering the right products for their savings. That is why banks are extremely powerful levers of economic development and social stability. There is a large body of evidence to support the positive causal relationship between increased bank credit and growth. The recent economic crisis has revealed this relationship once again, but in a negative way. Serious problems in banks in many countries are in large part responsible for decreased growth.

But beyond our current situation, the crisis has revealed very serious problems in the functioning of the international financial system. Undoubtedly, there have been errors on the part of regulators and supervisors, but also very grave mistakes in many large and small financial institutions in various countries. These mistakes can be put down to carelessness, or in many cases, to the flagrant breach of basic banking practice: prudence, transparency, and integrity. The public image of banks has been greatly tarnished by the perception that they are "to blame" for the crisis, together with the latter's enormous costs in terms of public resources,

growth and employment. Banks have lost most of the trust placed in them by their customers and society. This is clearly negative for banking institutions, but it is also negative for global well-being. A solvent financial system that works efficiently is fundamental to sustainable growth.

We need to transform the financial industry, and the crisis itself represents a trigger to accelerate this process. Change is already underway: unstoppable change with far-reaching consequences because the factors behind this change are unstoppable and far-reaching: technological progress and the economic and social transformation it is driving will change people's habits and behaviour. All companies will have to cope with changes in their clientele, but these changes will be more strongly felt in the service industries where the informative and virtual — as opposed to physical — element is really important (Miles 2000).

This is particularly the case for the financial industry and for banks, as their basic goods are information and money. And money is dematerialising into accounting records, i.e. into information that can be stored, processed and transmitted in real time at costs so low as to approach zero.

However, banking has not yet undergone a transformation comparable to that seen in other information-based sectors such as music or entertainment.

This is partly because banking is a highly regulated sector with heavy intervention from public bodies. It is also because the exceptionally good economic and monetary environment in the years leading up to the crisis drove the business and profits, in spite of relatively high levels of inefficiency throughout the industry.

But the technological revolution is underway and its impact is increasingly broad and deep. Plus, the current crisis is pushing change along several different lines. It has unleashed a process of change in banking regulation and supervision. On the one hand, it is putting in place the mechanisms needed to adapt these areas to a more global arena; this will inevitably result in fewer differences between each national or regional market. On the other hand, reform is underway of the prudential mechanisms: there are more demanding capital and liquidity requirements, caps on debt, better consumer protection, heavy investment in risk control systems, compliance, etc. This all means lower profitability — not just during the crisis but also in the future — but it also facilitates access to a broader, more homogeneous market.

In summary, banks must respond to new demands from customers and from a society that is better informed and more exigent. They must also achieve this in a climate that is adverse in terms of reputation and profitability.

That is why transformation must deliver not only a qualitative increase in efficiency but also a profound review of the way in which banks interact with their customers.

Efficiency gains could in part be found in a drastic consolidation, something that is already underway. But true change will spring from a sustained process of innovation through the

intensive — and intelligent — use of technology. Hand in hand with the technological transformation, there must be organizational and cultural transformation that enables banks to build a reputation of transparency with their customers, responding to their needs with efficiency, agility and flexibility, and striving to make a positive contribution to solving social problems.

The industry will be much more competitive than in the past, and it will offer huge opportunities if between us all we manage to harness the enormous possibilities of technology to build a more efficient, stronger and more sustainable global financial system; one that is able to generate more opportunities and greater well-being for all its citizens.

## **BBVA, A LEADER OF THE FINANCIAL INDUSTRY OF THE FUTURE**

Any process of change requires leaders to set an example. BBVA aspires to become a leader in the transformation of the financial industry in the twenty-first century.

At BBVA, we believe we are in a good position to lead this change. We are a strong, diversified and global financial group. And long before the crisis, for more than a decade, we have been working on building a new business model that anticipates the future.

Our aspirations and the nature of our project are summed up in our vision: “BBVA, working towards a better future for people.”

Fundamentally, this means one thing: at BBVA we are optimists; we view the future with ambition. We believe that human beings can and must solve the challenges of our time to build a better future. A better future for people is a better future for BBVA. And BBVA can and must make a big contribution to achieving it.

Our project is based on three pillars: principles, people and innovation.

Of these three pillars, principles are the key. At BBVA we like to remind ourselves that we work in accordance with the premise that ethics are not only desirable but also profitable. Advocating a culture of prudence, transparency and integrity at all costs often means sacrificing easy short-term gains. But this is the only way to ensure the sustainability of our project in the medium and long term. Thanks to these principles, BBVA has avoided many of the errors made by our peers, and during the crisis we have strengthened our position with respect to the global industry. Yet principles do not merely help avoid mistakes; they are vital to our relationship with people, our second pillar.

Our business model is founded on establishing stable, long-term relationships of trust with our customers, who are at the centre of all our activity. And naturally, we strive to form similar relationships with our partners, our shareholders, our regulators and supervisors, and with the citizens of the countries in which we operate. In short, with people. This trust can

only be won and maintained through constantly ethical behaviour, which includes always seeking to provide the best solutions for their needs in a flexible and convenient way, and at the best price.

The key to achieving this lies in our third pillar: innovation. A sustained innovation effort is needed to create a new model for producing and distributing services that really does set us apart: completely focused on the customer, more efficient, flexible, simple and convenient. This means innovation not only in terms of technology, but also in organization and culture.

In my foreword to the third book of this series, I had the opportunity to comment on our innovation model (González 2011). In this edition, Beatriz Lara briefly describes our innovation method, some of the areas we are working in, and a few of our projects and accomplishments. I will therefore dedicate a few brief lines to setting out the more conceptual aspects of innovation at BBVA.

Our innovation focus takes knowledge as its starting point. If we want to offer the best solutions to the present and future needs of our customers, we first need to understand them very well. BBVA, like all banks, has a huge amount of information on its customers. The big challenge lies in turning this information into useful knowledge to design products that better satisfy their needs, to set the right price for their circumstances and to identify the best distribution channels. That is why at BBVA we are pioneers of data mining and the construction of intelligent algorithms that anticipate customer demand.

At the same time, here at BBVA we are addressing how to implement a profound transformation of our distribution network. BBVA is one of the most efficient banks in the world, but we want to go much further than that. We are moving towards a distribution model that supersedes the multi-channel approach. We are building a platform that is both physical and virtual, one continuous and unbroken space that customers can access as they wish. In other words, whichever channel they choose, they will be able to move seamlessly between it and other channels, enjoying the best functionalities and products that BBVA can offer.

This platform will form the basis of a concept far-removed from that of a bank: a company that of course offers a wide range of financial products and services, but that also provides other services based on information and knowledge, incorporating contributions from users themselves and maximizing the potential of social networks. Moreover, all this will be achieved thanks to the growing functionalities of mobile phones, and in the future, of many other devices, as well as the possibilities of very cheap universal access to information that the cloud offers our customers.

At BBVA we want to leverage the potential of our model in markets that offer great growth opportunities. Which is why we are not only leaders in Mexico and the whole of Latin America, we are also building a solid franchise in the US — the biggest market in the world with the greatest growth potential of all developed countries. And we are also firmly present in China and Turkey. All of these markets are going to see the greatest share of global growth over the

coming decades, plus they still have a very high percentage of the population who do not have access to financial services, which multiplies our potential for growth.

The technologically advanced and highly efficient BBVA project represents an important competitive advantage for customers in developed countries (who are sophisticated and intensive users of technology). But it is also particularly well equipped to develop flexible, simple models at low cost, facilitating access to financial services for large segments of the population (as we have already done in Latin America). It is suited to tackling key markets where BBVA has no current physical presence.

Without a doubt, the biggest contribution BBVA can make to a better future for people is through its daily activity. But at the same time, BBVA carries out a large amount of corporate social responsibility work, which we see as another way to contribute towards developing and improving the societies in which we operate. BBVA devotes over 70 million euros a year to this effort (74 million euros in 2011, which represented almost 2.5 percent of our attributable profit).

This work focuses on areas we think are the most powerful levers for opening up opportunities for people and helping them improve their future: financial inclusion, the generation and dissemination of knowledge, and education. And in 2011, we added advocating social entrepreneurship to the list.

Supporting financial inclusion is BBVA's response to the fact that fewer than 1 billion people are currently customers of a bank. Consequently, there are around 2.5 billion adults who are excluded from basic financial products and services, who are therefore excluded from the chance to better their circumstances, or are subject to usury.

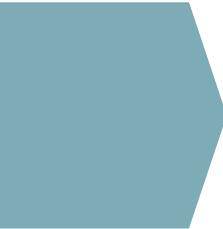
The conventional banking model cannot provide even the most basic financial products and services at an accessible price for global citizens with low incomes, many of whom live in remote areas.

As I have mentioned, through its banking activity, BBVA is developing and applying lighter and cheaper schemes based on mobiles, cards or agents for lower income segments of the population. Through these schemes, BBVA has acquired 2 million customers in Mexico and 1 million in the rest of Latin America.

Furthermore, in order to help more disadvantaged people, BBVA created the BBVA Microfinance Foundation in 2007. This non-profit institution was endowed with 200 million euros in order to support the development of microfinance.

The Foundation currently operates in Latin America, although it may be rolled out to other regions in the future, and it has two fields of activity. The first is creating a network of microfinance institutions in the region. The second is developing initiatives that contribute to transforming the microfinance sector. All of this is done in a philanthropic way, open to the whole sector.

The Foundation's strategy consists in acquiring controlling stakes in microfinance institutions that are leaders in their field, enjoy a good reputation and have a good track record. The Foundation brings capital and resources to define their solvency and facilitate their expansion, as well as know-how to improve their corporate governance, management, risk control, the creation and implementation of new products and services, and the development of human capital. This process is fuelled by the synergies of the network set up in order to share best practices.



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At the close of 2011, the Foundation was operating in six countries (Chile, Peru, Colombia, Puerto Rico, Argentina and Panama) via eight institutions. It attended 1 million customers — which represents almost 4 million beneficiaries — through a network of 359 offices. Since it was launched, it has granted 2.5 billion euros in credit, with an average of just over 1 000 euros per credit. Most credits have been awarded to small entrepreneurs, of whom 60 percent are women.

The Foundation also carries out important disinterested initiatives to improve the microfinance sector in tandem with universities, multilateral organizations such as the Inter-American Development Bank and the World Bank, as well as with national public-development bodies.

Of all these initiatives, I would like to highlight the specialist training programmes; the creation of a Universal Corporate Government Code for Microfinance Institutions, accompanied by a guide on how to apply it; the training given to members of the executive boards of these institutions; and public-private partnerships such as the one signed in Panama for developing and improving the management of microfinance in the country.

The BBVA Microfinance Foundation is now the biggest microfinance network in Latin America, and it is still growing: at the time of writing this foreword, the Foundation announced its entry into the Dominican Republic — its seventh country — through the acquisition of 31 percent of ADOPEM. As well as providing opportunities to improve well-being and the quality of life for millions of people, it also offers disinterested support for the development of microfinance throughout the region. This carries a consequent multiplier effect on its impact on all disadvantaged consumers and on social and economic development.

The newest string to BBVA's bow of corporate social responsibility is social entrepreneurship, an incipient form of organization that combines the culture of companies with conventional assistance networks. It seeks to generate economic profits that can be reinvested, thereby guaranteeing the sustainability and scalability of the initiative, with the resulting social benefits. In short, it means putting the best practices of entrepreneurial excellence at the service of the common good.

There are a growing number of social entrepreneurs, pioneers of profound change who advocate market solutions to the problems of all. These are generally small-scale initiatives in developing countries: a small effort in the face of giant global problems. But they are also a very powerful force for change and they can play an important role in redirecting our world towards a better future.

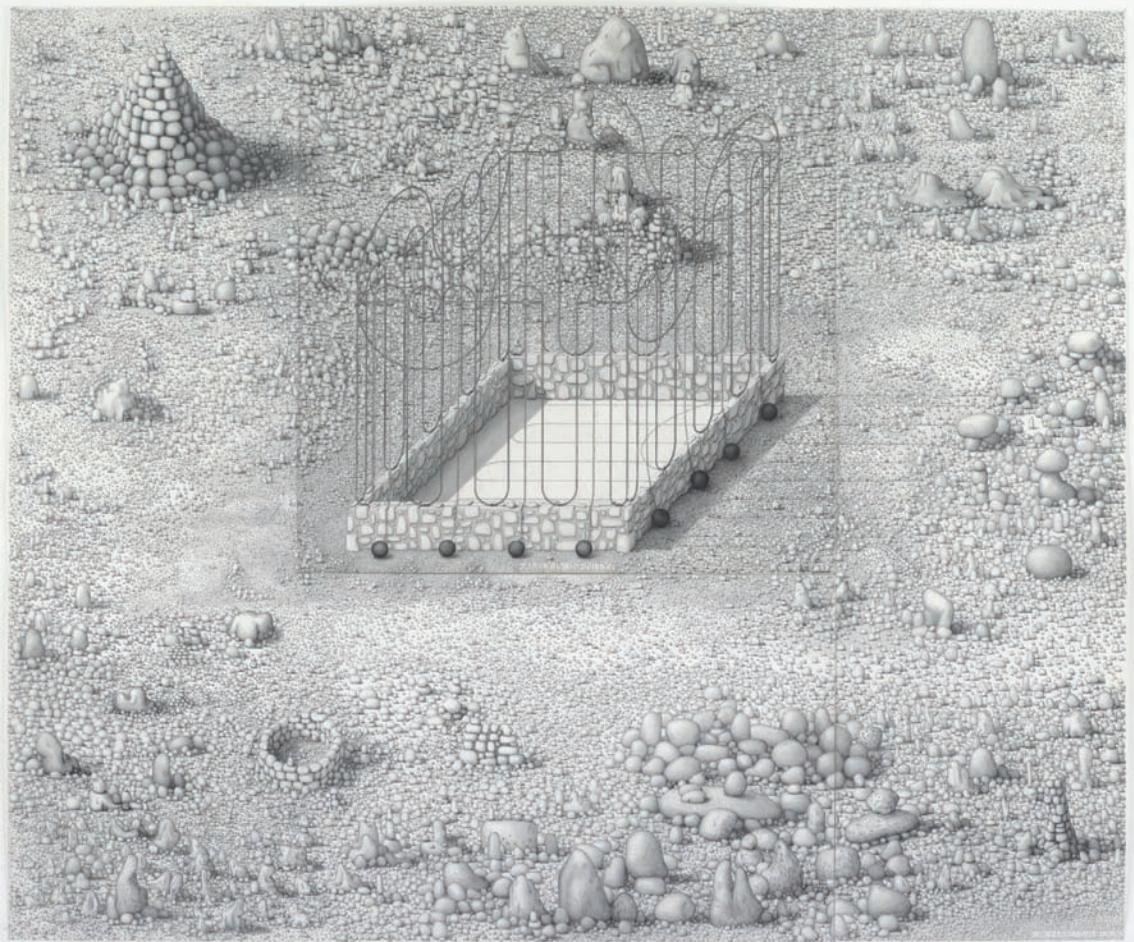
The work of the BBVA Microfinance Foundation has much in common with social entrepreneurship. And since 2011, BBVA has offered specific support programmes for social entrepreneurs.

In 2011, BBVA created an investment vehicle for this type of initiative, endowed with 3 million euros. At the same time, we launched the "Momentum Project" to evaluate and support projects of this kind. The first edition of the "Momentum Project" focused on Spain and ended up supporting ten projects (and financing seven). In 2012, the initiative was expanded to Mexico and Peru, and a programme of courses and workshops for young entrepreneurs was run throughout Latin America, with ambitious plans to expand over the next few years.

Without a doubt, education is the most powerful tool for increasing people's opportunities and helping them access higher levels of well-being and quality of life. Education programmes account for over half the resources BBVA devotes to corporate responsibility. In this field, we focus on financial education, for two reasons: first, because this is the field we know best and it is where we can make the biggest contribution; secondly, because financial education is a key way for people to broaden their horizon of possibilities and to improve their quality of life in the medium and long term.

In this context, BBVA has developed the Global Financial Education Plan. The plan includes the "Future Values" programme, aimed at schoolchildren in Spain and Portugal. In the 2011–2012 biennium, the programme reached over 650 000 beneficiaries in 3 500 schools in Spain, and 105 000 students in 800 centres in Portugal. In Latin America, the programme is called "Going forward with your Future" and it focuses mainly on adults, assisting them to manage their personal finances. It has helped 405 000 people, mostly in Mexico where the programme was launched. It is now being rolled out to other countries in the region.

Recently, BBVA has been supporting financial education initiatives in the US for adults ("Money Smart") and for children ("Teach Children to Save" or "Get Smart about Credit").



Paul Noble, *Family is Infinity (or Hard Labour)*, 2010

Moreover, through the “Children Getting Ahead” programme, BBVA grants yearly scholarships and study support to 65 000 Mexican children so they can continue to study. These children come from environments affected by emigration to the US; many homes are left without a head of the family and in a precarious economic situation.

Finally, I would like to highlight our “Advancing Knowledge” policy. BBVA’s commitment to knowledge springs from our profound conviction that knowledge is essential to improving our personal and collective future.

This policy is largely under the leadership of the BBVA Foundation, which dedicates around 20 million euros a year to different programmes supporting scientific research and its dissemination. It places particular emphasis on the social sciences, biomedicine, environmental

sciences and basic sciences, as well as artistic creation (especially, though not exclusively, contemporary music).

Aside from supporting research teams and projects that have an important impact on scientific progress and on opening new horizons, the Foundation's strategy also plays a key role in communicating this knowledge to society. It likewise strives to bring society closer to scientific and creative activity by making an example of the people and teams who allow us to expand our realm of knowledge and enrich our cultural spectrum.

Important tools in this task are the awards the Foundation grants or supports. Of these awards, I would like to highlight those dedicated to musical creation, the preservation of biodiversity, secondary education and above all, the Frontiers of Knowledge Awards. This year, these awards celebrate their fifth anniversary. In their short existence, they have become a world-class benchmark in their fields, which not only include traditional disciplines that are vital for our future (the basic sciences, musical creation, economics and company management), but also five multidisciplinary fields that revolve around key questions for the twenty-first century global society: biomedicine; ecology and conservation biology; information and communication technologies; climate change; and development cooperation.

It is under this same impetus that BBVA publishes this collection of books, and supports its parallel form, the OpenMind knowledge community. I strongly hope that all who read this book will enjoy it and learn from it, just as we have in editing it. I encourage you to join and support our efforts by participating in OpenMind, so that we can make it a rich, open and live space for debating, sharing and spreading the best knowledge on issues that are fundamental to achieving a better future for everyone.

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