

Ahead of the future

Megatrends

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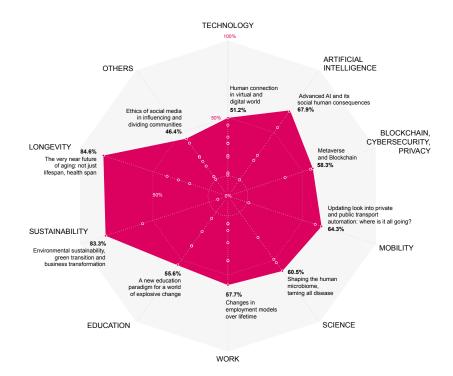
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Leader



Introduction





Introduction

The American computer scientist Alan Kay, a pioneer in programming languages, used to say that "the best way to predict the future is to invent it". That is why we are asking probing questions to the experts of the Bankinter Innovation Founda-tion: what innovative trends will impact our society in the medium term, in the next two, four or six years?

Answering this question is the main mission of the Future Trends Forum, the international think tank where the most prominent voices of the **Bankinter Innovation Foundation** analyze the details of the present in order to accurately sketch the future.

Detecting the innovation trends that will change our technology, business models and society is no easy task. For this reason, the aim of this report is to lay out the current scene, in the context of 2022, in areas such as artificial intelligence, new work models and sustainability challenges, and to point out what will be the keys to their development in the medium term. In other words, to put the spotlight on the present; since that is where we find the answers to the main questions about the future and the clues as to the desired direction of our actions and strategies.

More than 700 internationally renowned professionals who collaborate with Bankinter Innovation Foundation have triaged and picked these **ten trends**. Once a year, our Future Trends Forum experts propose different topics and vote on those that will have the greatest impact. This is our way of **sharing all our knowledge with society** and anticipating the trends that will transform society through innovation.

There are four categories: *Technology and Science*, *Emerging Trends*, *Economic Progress and the Future of Society*. Once obtained and analyzed, they are submitted to a vote that results in a final ranking. Our experts will explore the topics in this global list one by one over the course of 2022.

And as a foretaste of the global analysis, we conclude in a single headline the link that unites all the subjects analyzed: "The future has arrived, and the only constant is change".



Trends





Technology

Human connections in an increasingly virtual world

If there were a graph that traced personal interactions through technological devices over the years, it would very likely show a huge peak in March 2020. Driven by the global pandemic, we began to see social interactions of all kinds being transferred to the virtual world. From chatting with friends after work to water-cooler conversations with colleagues. Everything was now happening on a screen. We bid farewell to face-to-face. "When will normality return?" we asked ourselves.

Now, almost two years later, we have finally understood that many changes have come to stay and that the future we had heard so much about was already among us.

We need to see more of each other

Yes, seeing each other then made more sense than ever. Video calls replaced voice calls with family and friends to bridge the gap left by distance and isolation. "Cameras on, please," was one of the most frequently heard requests at work meetings via Zoom. We realized how many nuances were lost in a long-distance conversation in which non-verbal communication played no role.

But how do we adapt our needs as human beings to the virtual world in which we operate daily?

Redefining work

When was the last time you closed a business deal with a handshake? Gestures like that, as well as networking events, seem like routines of the past. Now, working life is being built on new foundations—technological foundations.

We now enjoy greater globality, flexibility, mobility and accessibility. For some professions, technology and a change of mindset have granted access to labor markets previously limited due to geography. At the same time, organizations are placing professionals now more than ever at the center, seeking to generate satisfaction, retain talent and foster group dynamics that maintain team cohesion. Technology yes, but as humane as possible.

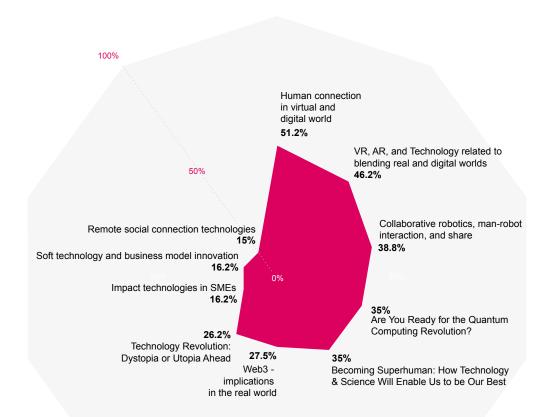
Technology that brings people closer together

Having a thousand friends on Facebook doesn't mean that those friendships are real. Maybe only ten or twenty of those contacts are really an important part of your life. And the rest? Acquaintances or people you once crossed paths with and are happy to hear from. Without social media, you'd probably never hear from most of them again.

And that's what technology does to human rerelationships. As we discuss in the 'Technology

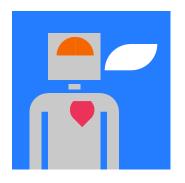


and Inequality' report, these tools spearhead a hyper-connected world, where we can enrich our relationships, bring out the best in ourselves and fight inequality with powerful tools. How will they develop, what will be the next frontier of digitalization? We will analyze it over the course of 2022.



80 out of 96 answered





Advanced artificial intelligence

And its consequences for humans

Joshua Barbeau, a freelance writer from Canada, was surfing the web one night in December 2020 when he stumbled upon GPT-3, a complex AI chat development software co-founded, among others, by Elon Musk.

Barbeau, who had not gotten over the death of his fiancée, discovered that he could recreate her personality and talk to her again thanks to these algorithms, capable of adapting in a very complex way to human language. The conversation they had was so disturbing and real that its creators decided to close the website, called Project December, amidst great controversy.

What happened to Barbeau is just another example of how delicate and complex it is to set limits to artificial intelligence. It is also a sign of how shocking it is to face a fully computerized world, a challenge that we will also analyze with expert voices in the coming months.

AI, regulation and ethics

In a context in which technology is advancing by leaps and bounds and regulation is following at an awfully slow pace, society must focus on ed-ucation.

Understanding the advantages of applying artificial intelligence in our daily lives, understanding its drawbacks and discovering our initial prejudices is a complicated but necessary exercise in order to move forward. Furthermore, once we have overcome the

technological barriers, we must assess how to use them in a way to effect **positive impact** on society.

The word "ethics" has probably tagged along the concept of artificial intelligence the most in recent years. Public Administrations strive to regulate this technology and ensure that it protects freedoms, rights and equality among citizens. One of the latest to take the initiative has been the UNESCO, which has issued a series of ethical recommendations that serve as a guide for applying Al in a way that protects people, respects their privacy, rights and freedoms, and promotes non-discrimination.

Are robots taking our jobs?

The application of artificial intelligence in the workplace will have as great an impact as the mechanization of agricultural work in the 20th century, which led to large-scale migrations from the countryside to the city and the creation of more urban societies.

Part of the task of educating about these technologies involves dispelling myths such as the fact that thousands of people will become unemployed and be replaced by robots or machines. At the Bankinter Innovation Foundation we analyzed this in detail last year: it is not a question of machines replacing humans, but of machines complementing them. This means that many professionals will be able to devote more hours of their time to less mechanical tasks.

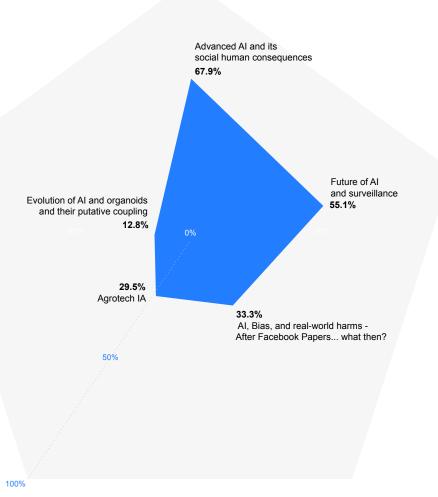


Why employ human assets in repetitive tasks that can be automated? Why not dedicate human resources to tasks associated with creativity, thinking or logic? This would undoubtedly be the next logical step in the optimization of human resources in organizations.

In Spain, the OECD estimates that 22% of jobs could be automated in the next few years. On the other side of this story, it is estimated that 133 million new jobs will emerge worldwide by 2022.

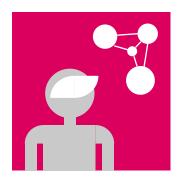
Which new professions will emerge? Which will be reinvented along the way? Warehouse personnel, customer service managers, administration positions... these are just a few examples of professions that will be completely reinvented by the impact of artificial intelligence and au-tomation.

The name of the challenge going forward is **learning**.



78 out of 96 answered





Metaverse, blockchain and cybersecurity

Ever since Mark Zuckerberg announced in October 2021 his firm commitment to **metaverse**, the word has crept into every conversation. What is it really, who is driving it, what will it mean in our daily lives? We do not know for sure what it is or what it will mean, but what we do know for sure is that **we want to be there.**

At the Bankinter Foundation we are already reflecting on what the metaverse is, a very global concept from which we can affirm that we will never disconnect and which opens up an infinite world of possibilities.

Experts such as Amir Baradan gave us answers on how adding virtual layers will affect the physical world and in 2022 we will continue to analyze the evolution of a technology that will play a major role in our future.

It is not a game, it is the evolution of the Internet

Yes, there have been forerunners—Second Life—of what Silicon Valley gurus call today the metaverse. But, like many other inventions and projects, aligning the idea with the right timing is crucial for it to be a real game changer. This is what seems to be the difference between the impact of the forerunners vs. metaverse now on our lives and on how we interact with each other as a society.

The technology and the use we make of them are now prime and ripe to face a change of such magnitude. Because no, we are not talking about a video game or a virtual world for a few gamers and fans. We are talking about the **natural next step of the Internet**.

And in this process, cybersecurity will play a key role, especially after a 2021 with several episodes of major, global cyber-attacks.

There are many questions still to be answered in this area: how to prevent identity theft? What laws will govern metaverses? And which bodies will be responsible for their application and control? What are minors being exposed to? Where will the enormous amounts of data generated by users be stored and for what purposes will this data be used?

Weaving safety nets strong enough to articulate systems that protect users is not an easy task, but it is a necessary one.

Blockchain

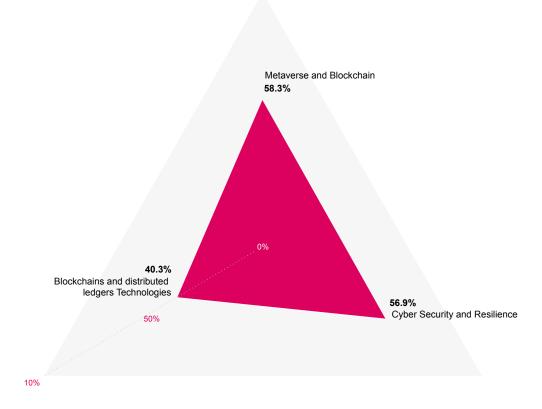
Buying virtual land for millions of dollars was unthinkable just a few years ago. But today, in 2022, the new real estate boom is taking place in the metaverse thanks to blockchain technology. In the month of December 2021 alone, this land-buying craze



has attracted more than \$100 million in investments. We have witnessed news one would think belonged to the realm of science fiction, such as the purchase of all the digital land of The Alhambra in Granada by a single buyer.

In the report 'The Future of Money' we analyze, precisely, **blockchain**, which will be the basis of the metaverse economy. It is time to familiarize yourself with it, which will be used for all kinds of transactions and represent a promising market that experts look at with equal parts of wariness and enthusiasm.

Forget shopping as we know it. How will this affect the various business sectors? Will it change the way we work and our personal lives? How will the development of paradigms such as quantum computing affect us? In just a few years, the answers to these questions will become clearer.



72 out of 96 answered





Mobility

Where will the automation of public and private transportation take us?

It was 1985 when movies depicted a futuristic panorama of hoverboards and flying cars in the famous Back to the Future trilogy. But a few decades later, Marty McFly would have been disappointed to see that, even in 2022, cars, motorcycles and buses are still wheeling off.

Although our cities are not as imagined in the story of that rebellious teenager and Emmet Brown, a.k.a. Doc, the next few years are shap-ing up to be a really promising period.

Autonomous cars, at last?

Fortunately, the technologies needed to make such vehicles work in a practical and functional way are evolving rapidly, and there are signs that autonomous driving is (now) much closer to becoming widespread.

Smart cities, which we discussed in one of our mobility reports, will be the stage for these developments. Munich, for example, will start to enjoy a fleet of autonomous cabs this year.

In September 2022, **France** will enact a new law regarding these vehicles, authorizing their traffic on public roads. In this case, they are especially designed for university campuses, shopping malls or communities.

Also in Europe, **Madrid** will be the stage of a trilogy of automated vehicles: cars, delivery robots and drones.

The latter will be particularly interesting for dodging the capital's traffic and delivering basic necessities to places such as hospitals. There are also plans to use them for home deliveries and replace riders.

Despite this, the sector is fighting against some failures that have forced giants like **Tesla** to take a few steps back (and a lot of explanations).

Controversies, accidents and complaints from the most suspicious users of this technology aside, Tesla remains firm in its intention to be the first to offer a market of 100% autonomous vehicles. And it will undoubtedly have a lot to say in this market in the medium term.

Public transport, at the forefront

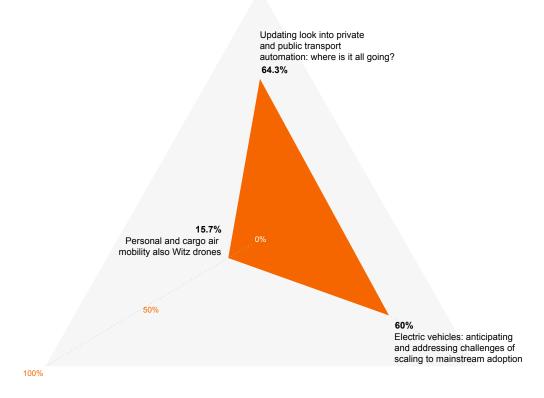
It is in the **city bus** sector that we find the greatest advances in this field. Hong Kong, Singapore, Las Vegas, Michigan, Lyon, Freiburg, etc. have already had fully automated public transport vehicles for at least three years.

Another key factor will be the way millennials and Generation Z understand transportation. For the most part, they do not care about driving or owning a vehicle in the way previous generations did. Moreover, sustainability is a determining factor in defining the world they want to live in, and shared transport or micro-mobility are already part of their way of understanding life and caring for the planet. Therefore,



autonomous and sustainable public transport will be much more attractive to these users.

Almost 90% of road accidents caused by human error. The automated vehicle sector clearly has a long and promising road ahead. The technology is almost ready. It remains for the laws to be ready as well.



70 out of 96 answered





Science

Towards the human microbiome, a door to cure disease

Aaron Ciechanover, Nobel Laureate in Chemistry, said that the day will come when all diseases have a cure. Even the creator of Facebook, Mark Zuckerberg, envisioned a world without diseases in the year 2100, after donating billions of dollars to medical and scientific research. Is this realistic?

To understand and help cure diseases as diverse as Alzheimer's, depression, diabetes or some types of cancer, the scientific community has agreed to focus on the intestinal microbiome.

Our microbiome evolves and alters according to what we do and our routines. And also what we eat, a factor that we have already analyzed at the Bankinter Innovation Foundation as a real brake on aging.

A second genome

The genetics inherited from our parents is perceived as a kind of sentence against which we cannot fight. But the scientific community agrees that all this microbial information that we harbor in our body and that depends on external factors, and not on our DNA, functions as a "second genome" and carries much more weight than our genetics when it comes to developing all kinds of diseases.

The statement by Californian university professor and science communicator Michael Pollan, who describes it as follows, helps us to understand such complex concepts: "I began to think of myself as a superorganism, in the first-person plural.

Curing cancer, chimerical?

Faced with a disease as aggressive, complex and diverse as cancer, scientific breakthroughs aimed at curing it completely can seem like a David versus Goliath struggle.

Research that sheds light on the importance of the microbiome has meant, already in 2021, incredibly good news for the third most common type of cancer in Spain and the second most common cause of death: colon cancer.

Scientists at the University of Pittsburgh were able to prove that, by introducing a specific bacterium, the immune system becomes strong against cancer cells. Yes, a single bacterium. A finding that represents a huge breakthrough in the treatment of advanced tumors and will lead to great results in the coming years.



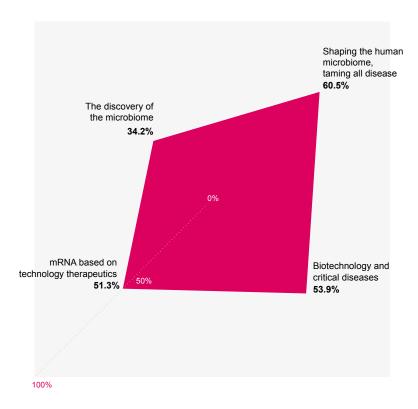
Does mental health depend on our gut?

It may sound paradoxical, but the answer is yes. We live in a time when mental health is increasingly important, as we become increasingly aware of the importance of taking care of our mind.

What is becoming increasingly clear to the scientific community is that this "other pandemic" of our century, which affects all types of people, regardless of their social, economic or emotional position, may find a solution in the intestinal microbiome.

Research will continue to explore the gut-brain axis in the coming years after the recent and promising findings, which open up a world of possibilities for the cure of hundreds of pathol-ogies of all kinds.

Will biology, medicine or nutrition be able to undertake these great efforts and innovations and bring about a great change in medicine as we know it?



76 out of 96 answered





Work

The potential of technology

"I quit" has probably been one of the most frequently uttered phrases by professionals during the year 2021. At least in the United States, where this sort of mass labor exodus has been dubbed **The Big Quit**. This provides a stark contrast with the more flexible, global and liquid work models we have known so far, allowing many professionals to have better work-life balance and aspire to work for companies previously unattainable to them due to geographical barriers.

Is the brain drain a truly global phenomenon?

The pandemic has triggered a phenomenon of hitherto unknown consequences. As far as the figures are concerned, there is no doubt: 11.5 million employees in the United States (7.3 % of the country's workforce) voluntarily left their jobs in the second half of 2021. Even without another job lined up.

The reasons are intertwined with multiple factors: from caring for sick or vulnerable family members to latent situations of labor dissatisfaction. The pandemic was merely the fuse that lit a flame that had been smoldering for years.

The professional network LinkedIn supported this phenomenon with data: 3 out of 4 employees in the United States claim to have reconsidered their working lives as a result of the pandemic. Then, the consulting firm McKinsey offered a very convincing statistic: 36 % of the employees who had resigned had no new job in sight.

The so-called burnout syndrome—chronic stress suffered by many workers who cannot find a way to defuse it—has affected professionals all over the world.

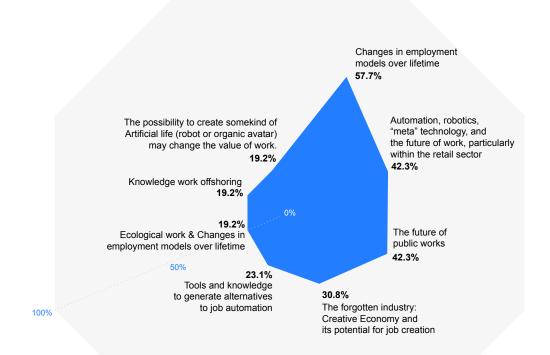
Towards new ways of working

"Do I like what I do?", "Can I still enjoy some free time afterwork?", "Am I happy with my routine?". Questions like these are what mil-lions of workers have been asking themselves during the pandemic. Many, seeing that the answers to these questions were not what they should have been, decided to act on it. From the city to the countryside. From working for others to freelancing. From meeting the demands of a manager to becoming their own boss.

Flexibility and work-life balance have ceased to be additional perks to become basic needs for many, as we analyzed in the Future Trends Forum report on the future of work. Far ahead, even, of other crucial factors such as financial remuneration. Who said money was the most important thing?

Our experts put it this way: this is the era of the most connected and best-trained professionals; what will the world of work in which they will develop be like? Will technology continue to be the great enabler of all processes? Are we facing the most complex and complete world of work we have ever seen? FTF experts will analyze this in detail soon.





26 out of 96 answered





Education

A new educational paradigm in a changing world

2021 was the year of educational change, driven by the global situation. But then, it remains to be seen if we are facing a real paradigm shift over the next two to three years.

Education is now more accessible than ever before-as

disconcerting as this may be—and, at the same time, it has experienced a major set-back during the year of the pandemic. On the one hand, students all over the world have had to get used to attending classes in front of a screen, studying more individually than ever before and dispensing with the face-to-face factor and all that it implies. On the other hand, this situation has uncovered a digital divide between families with enough devices to meet the needs of their students and those who, perhaps, did not even have a computer or tablet to be able to do their homework from home.

What will education be like from now on? Undoubtedly, and as our experts have already analyzed, it will be hybrid and multidimensional.

Technology, empathy and teamwork

Technology and its profound transforming power are, indisputably, the driving force behind the general change in the education system. It has been the key element during the pandemic, but it had been gaining momentum over the last few years and will undoubtedly gain more and more weight in the short and medium term.

The biggest challenge will be to adapt this model to also include work on empathy and teamwork, which can be left aside in an educational strategy that turns a new page towards individualism, and away from fully on-site models.

"Mom, I want to be a youtuber"

As the years go by, new jobs will emerge, and others will disappear. Experts insist that **65% of the jobs that will be held by today's children in the future do not yet exist**. For this reason, educational models are increasingly tending to be more liquid, flexible and skill-enhancing rather than maintaining static models anchored in outdated schemes.

This does not mean that, if your child claims that his or her dream is to be a youtuber, influencer or gamer, you should worry too much. They have totally different references to those of previous generations, so their concerns are also different. The important thing is to instill in them timeless values and skills that allow them to be, simply, what they want in the future.

Educating tomorrow's leaders

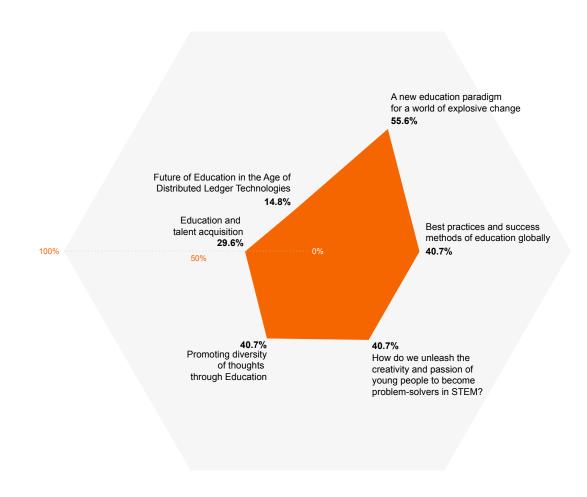
How to prepare a leader? The answer to this question was not easy a few years ago and it is not easy now. As work models evolve, so does leadership in organizations.



In large and small companies alike, today's leaders have nothing to do with those of the past. Organizations are becoming more and more horizontal and less hierarchical, even though there are people who report to others. Knowing how to appreciate the strengths of each team member, having the ability to be entrepreneurial, understanding the concerns of professionals and

being totally transparent are some of the keys. Yes, principled leadership is here to stay. Or, as our experts defined it: the challenge of soft skills is the new epicenter of leadership education.

We must respond to new scenarios with new professions, new professionals and new business leaders.



27 out of 96 answered





Sustainability

Green transition and business transformation

It is often said that times of deep crisis are also great opportunities to take a positive turn for the future. This is exactly what is happening in the field of energy transition and the fight against climate change.

The big environmental organizations were very confident about 2021. But it still seems that we are far from achieving the climate goals established in the Paris agreement.

Are we on the road to a zero-emission world?

Faced with the inaction of some of the relevant players in this global situation, individual action is the determining factor in remedying this critical situation.

This does not mean that the action of a single person can bring about a great change, but rather that individual awareness of climate-change related problems has generated an enormous social movement that is already un-stoppable. People are now asking questions that were unthinkable just a few years ago: "Where does this product come from?", "What is the impact on the planet if I buy this brand or that brand?

Moreover, it is these same consumers who openly demand, through their decisions, more conscientious, greener companies. A commit-ment that is more than necessary to achieve the desired goal of a world with zero emissions.

This translates into an exponential increase in CSR initiatives, in the creation of new jobs re-lated to these policies within organizations (whether large or small) and in lines of external communication aimed, ultimately, at the end consumer. These indicate that not all is lost.

From Glasgow to Egypt

If the last CoP in Glasgow ended with a bittersweet sensation due to the lack of determination in some of the (non-binding) decisions that came out of it, a new stage is now opening with an eye on Egypt. It will be there that the COP27 will be held in November 2022 and where it will be possible to analyze whether there has really been relevant progress.

"The world must wake up," said the UN Secre-tary General himself in September 2021.

Adapt or die

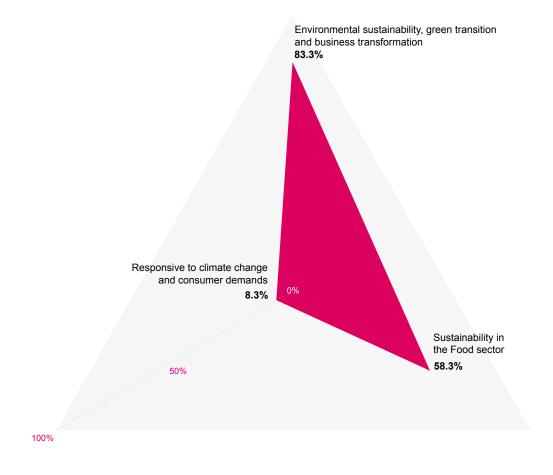
Change must be structural, not cyclical. This also applies to companies. This is why the transformation in the business world will be so great that some will survive, and others will be left behind, unable to adapt.

The ability to generate **positive impact** is remaking entire industries and generating a host of new forms



of growth. It will require investment and awareness, as we are talking about a transformation that can be equated to the digital transformation we have been experiencing for years.

It's not about acting more sustainably; it's about embedding sustainability into the DNA of organizations.



24 out of 96 answered





Aging in the near future

Life expectancy versus quality of life

It is estimated that by the year 2050 there will be more than 2 billion people over the age of 60 living in the world. As years go by, the number of elderly people is increasing at a faster rate than the number of new births. This situation paints a picture that many consider daunting and difficult to maintain. But why not approach it as an opportunity?

Living, not surviving

Thanks to **technology** applied to health and the evolution of scientific research in many of the most serious diseases, we can affirm that we will live better, longer, healthier and happier lives. This takes us back to a question already asked by our former experts: What does living up to 150 years depend on?

How old are we when we are old? If you ask this question to a person in their thirties, they will answer that from age 60 onwards. If the same question is posed to a 50-year-old, they would probably choose to draw that line at 70.

A change might come about sooner than we think. The challenge is not simply to extend life. Rather, it is to make **quality of life** greater in old age. Greater longevity would translate into independent older adults. If they enjoy better health and have technology as an ally, their level of independence will multiply.

Focusing on the **positive aspects of aging**, rather than on its darker side, means appreciating the universe of opportunities it offers. After a lifetime of work, it is time to enjoy all the knowledge and experience acquired and the social relationships that have come with age.

A discourse that should be modified from all angles of social life. First, institutions and media outlets have regularly paired old age with a host of negative factors. Then, companies tend to focus on the youth of professionals—an unsustainable model in the short-term.

How will technology help to promote independence in the elderly? And how can we promote care for those who need it?

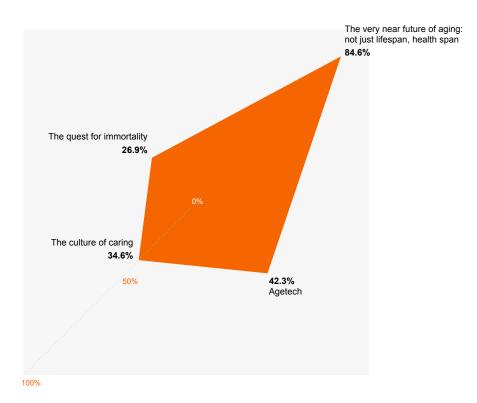


Extending working life

The traditional retirement age of 65 in Spain will inevitably have to adapt to the current situation.

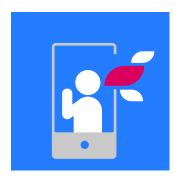
In an attempt to maintain the complex balance of the national pension system, governments are currently encouraging (for financial reasons) to postpone retirement. However, it may increasingly become a choice. Especially for those who will have a much better quality of life than they expected, supported by technological innovation.

Health and **longevity** go, now more than ever, hand in hand.



26 out of 96 answered





The ethics of social media

And their power to influence and divide communities

Americans activate their phones an average of 262 times a day, most of them to check notifications or browse their social networks. The design of many of the apps to which we dedicate hours and hours of our time is designed to mimic the functioning of addictive painkillers.

Add to this the legal vacuum in which they op-erate, the complexity of regulating basic and fundamental aspects regarding content accessible to minors, cases of harassment or fraudulent uses that a slow regulation is not able to respond to, and it becomes a ticking bomb.

How can we put a stop to this situation and what can be done in the short term? Jonathan Zittrain, professor of cyber law at Harvard, has defined "user loyalty ethics" that big tech companies should adopt. "They shouldn't just see us as individuals to sell ads to, they should treat us as people."

Something as simple and basic as "treating the user as a person" is probably the cornerstone of social networks in the short-term.

How to regain control?

As in other fields such as sustainability, the short-term future of ethics in social networks and the proper use of these powerful global communication and content dissemination tools depends on **self-responsibility** and **awareness**. Once again, it is unfeasible to think

that legisla-tion will advance at the breakneck speed of change, so it is time to move from being part of the problem to being part of the solution.

Avoiding hate speech, becoming informed and educated citizens to distinguish between the information in social networks or encouraging their positive and responsible use will be the driving force for change on a global scale.

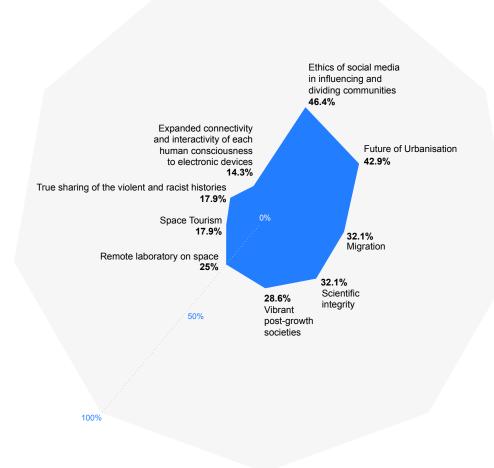
Ethical social networks, educated citizens

As social networks grow older, so do we as a society. It is surprising to recall that Facebook was created in 2004, Twitter in 2006 and Instagram in 2010. Just 16, 14 and 10 years, respectively, separate us from a time when we lived without using all these platforms, which have already become a fundamental part of most people's routines.

Therefore, in the coming years we will see how these platforms **mature**, finetuning ethical aspects that had not been considered until now, improving and implementing changes that society is demanding—and will continue to demand, ever more firmly.

Likewise, the mature use of networks by citizens will be more evident than ever, as we become aware of the behind-the-scenes of platforms that are part of our lives. Because ethical citizenship begins with a responsible attitude, also on social networks. **Will we be up to the challenge?**





28 out of 96 answered



Editorial



the year when all change is put to the test

After two years of unexpected twists and turns, dystopian experiences and changes that have forcefully put us to the test at all levels, we can state (this time, it seems, without fear of being wrong) that the much talked-about new normal is already among us.

While 2020 and 2021 were years of drastic changes, 2022 starts a new page where we examine this reality.

But what are the issues that will be subjected to indepth analysis? And, above all, what implications will they have on our lives and our society?

Through the **Future Trends Forum**, the experts of the **Bankinter Innovation Foundation** anticipate the trends that will define the near future and answer the big question: What will the world and society of tomorrow be like?

Following the clues of the most relevant trends in each area offered by the experts, the Bankinter Innovation Foundation points at a future that will look towards the **metaverse**, virtual universes. Also, towards blockchain

as a way to articulate worlds that we imagined one day and that are drawn as great economic, social and commercial opportunities.

We will also see **artificial intelligence** reach new heights, moving closer to ethics and continuing its transformation into a real tool at the service of people.

New ways of working, which have brought more flexible and global work schemes, will be put to the test this year and will have to prove to what extent they represent a real structural change.

The same applies to **education**, a sector that has faced one of the greatest lessons in its history and must now learn to build a new paradigm.

Technology and science are facing a great opportunity to completely transform our society and there are many exciting questions and challenges that remain to be solved. Throughout the year, we will be addressing some of them with expert voices. Shall we continue?



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