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digital transformation

Interview with...

MANUEL MARÍN
Managing Director
of Digital Solutions
Iberia at Endesa

How BBVA Mexico is building
the bank of the future

Artificial intelligence that
respects privacy, the challenges
of federated learning

Paying only for what you
need. Insurance companies
adapt to new habits

Babel

We are BABEL, an international team of 2,000 professionals highly specialised in cutting-edge technologies. Our mission is to assist major clients in their digital business challenges and processes

7 countries

+110.000.000 € turnovers

+2.000 specialized professionals

+20% growth per year

Data corresponding to 2021

index

Over the next ten years, technological progress is expected to be greater than what we have experienced in the last hundred years. Among many other changes, this will cause virtually all cash to disappear during this period in developed countries. Likewise, that for medical consultations and except for very specific matters, physical interaction between physicians and patients will not be required. Or that autonomous or driverless vehicles will overtake current cars and eventually replace them entirely. Technology will drastically modify all sectors of activity and thus our daily lives, at a speed that we are unable to imagine today.

The successful full-scale implementation of this hybrid model will be an unprecedented event in the history of the professional world. This is why we managers now need to focus even more if possible on actively and closely listening to the expectations of our employees. It will be important for leaders to recognize, for example, that we don't have all the answers, but as our organization transitions to hybrid work models, we will gradually discover which long-term model is the ideal one for most employees. Likewise, professionals must admit a certain level of uncertainty on this journey, because the answers will not always be definitive and the final destination will be built dynamically by and for all of us.

This whole new situation, coupled with the current tremendous shortage of technology professionals, projects an imminent and exciting scenario where only the most agile, most flexible and innovative organizations and executives will survive and, perhaps with a bit of luck, succeed. At BABEL we are also passionately experiencing this constant change and evolution, with two fundamental objectives: to create the company ecosystem where every technologist wants to work, and thanks to this to be our clients' trusted benchmark technology partner, accompanying them on the journey to the future we are starting to write.

BABEL CEO

In this 2021 editorial, my first one as BABEL CEO, I am determined to barely speak about Covid-19 despite it being the star topic in all the debates, nor about everything we have experienced and suffered in recent months due to this pandemic, nor about how critical this situation would have been without the technological advances we currently have. I do not want to talk about Covid-19 because I want to look forward and talk about the future, and in that future humanity will have overcome it and with everything we have learned we will be better prepared to face new crises.

But among the few positive aspects of what we have experienced since the state of alert was declared is the massive acceleration of society's digitization, which affects technology-dependent business processes in virtually all sectors of activity. I am a firm believer that this technological acceleration will definitively lead to the fourth industrial revolution, which will be based on technologies such as applied artificial intelligence, the exploitation of distributed infrastructures (cloud, multicloud, edge computing), hyperautomation processes, the next generations of quantum computing, the future of programming (low-code, Zero Code, DataOps, MLops). And all this within a secure environment where cybersecurity and sustainability goals will form the basis of this joint journey.

Most of the magazine's articles you can read here deal with all these topics and their application in the different sectors. I want them to inspire you in imagining a new very near future in which technology will make our lives much more convenient, secure and easy.

However, this new industrial revolution will not be based solely on technological advances. The possibility of being able to work 100% remotely or from home has involved a radical change, one consisting of how people and companies will adapt the new formats and workspaces, what is already known as the hybrid working model, which will be the definitive trigger for this fourth industrial revolution. Recent surveys report that 40% of workers worldwide are considering switching companies by the end of 2021. Pushed by the pandemic to take refuge at home and work countless months without stepping into an office, many professionals have rediscovered a connection with their home and family that has changed the way they view their work and their work-life balance, something which they are now unwilling to give up. They have realized that this process has led to an increase in optionality that was not previously available and which no one had considered, but one that is possible and realistic. However, from a company perspective, a hybrid work model is even more complex to design than a fully in-person or remote one.

Tony olivo

Technological advances, science fiction or reality?

Luis Barreiro
Head of Strategy

Different solutions and methods open the door to travelling at high speed, predicting diseases, or solving complex problems in only few minutes like in films. Now they have reached the real world.

Thinking about the future involves something between utopia and dystopia, but this poses countless challenges and depends heavily on reality as the starting point from which to begin reflecting. With the *Star Wars* film saga in mind, there is a huge paradigm that involves travelling at the speed of light yet relying on classic 70s switches to shoot from that same spaceship, start the engine, or turn on a light. Imagining the future is not easy, and the number of variables that cannot be controlled -from geopolitics to global impact events like the ongoing pandemic- is a good example of the challenge this represents.

In technology, there are **trends and circumstances that might play a leading role in this future:** distributed computing, AI, the next generations of computing (quantum and neuromorphic chips), and cybersecurity. All of them, combined with the ageing population and the difficulty of accessing talent in a globalised world in need of sustainability, lead to us to a possible context that is, of course, one of many.

With all these challenges, it is possible to imagine a world in which **distances do not exist.** Hyperloop, with a target of no more than 35 minutes per 560 km, means land distances are aerial, and these distances are also reduced by exceeding the speed of Mach 1.7. That's more than 1,800 km/hour (United Airlines expects this to be possible on an industrial scale with 15 supersonic aircraft by 2029).

Distances are also shortened over time, as is the case with complex models or algorithms that are currently unimaginable to solve complex problems due to the time and effort required. In an imaginary world, what used to take 10,000 years to be calculated now takes just over three minutes.

In this world of immediacy, where talent is difficult to obtain and is never enough in an ageing population in need of technological progress, the **hyperautomation of processes,** tasks and, above all, speed in the development of applications must be greater than ever. So the role of the developer and the analyst has boomed. Close-to-business development leverages Zero Code tools and, primarily, the use of AI in process management, quality, guided development, and early detection. Along these lines, DataOps and MlOps are necessary and confirm part of this scenario.

In an imaginary world, advances in **medicine-applied technology** have multiplied the capacities to fight new diseases, mitigate existing ones and, more particularly, predict and understand the causes of many of these. It follows steps taken in 2020 in the fight against the Covid-19 pandemic in which the strides made in technology reduced the time required to produce not just one vaccine but more than six at the same time from an average of 13 years to 12 months. Decision-making support tools allow for the development of artificial vision models to overcome the shortage of specialist professionals in hundreds of places around the world.

The expansion of cloud computing is also no longer a cloud-based model and has become a continuous presence that brings computing and storage capabilities closer to data sources.

From fog computing we have even reached haar computing, and 6G networks mean that the latency already achieved with edge computing and 5G have been surpassed, giving way to countless new approaches: the development of the autonomous car and digital twins, or remote surgery.

One can also imagine what this near-source computing capability entails, especially at a time when sensorisation has advanced to such an extent that artificial intelligence coexists with us. It is a future that may already be here and where the limits are no set by technology but by us.

"When I was a kid 2028 sounded like the future. Like we'd all have jet packs and monorailsand we'd be taking our food in little pills like astronauts, but here we are. And I'm talking we are not astronauts. All I know is my broadband's still too slow. You can't eat bananas anymore, they are all died out. The kids demand 22 types of telly, all more expensive than the last, and the gas and electric are going through the roof. I dread to think 2028. What the hell is going to throw at us next?".
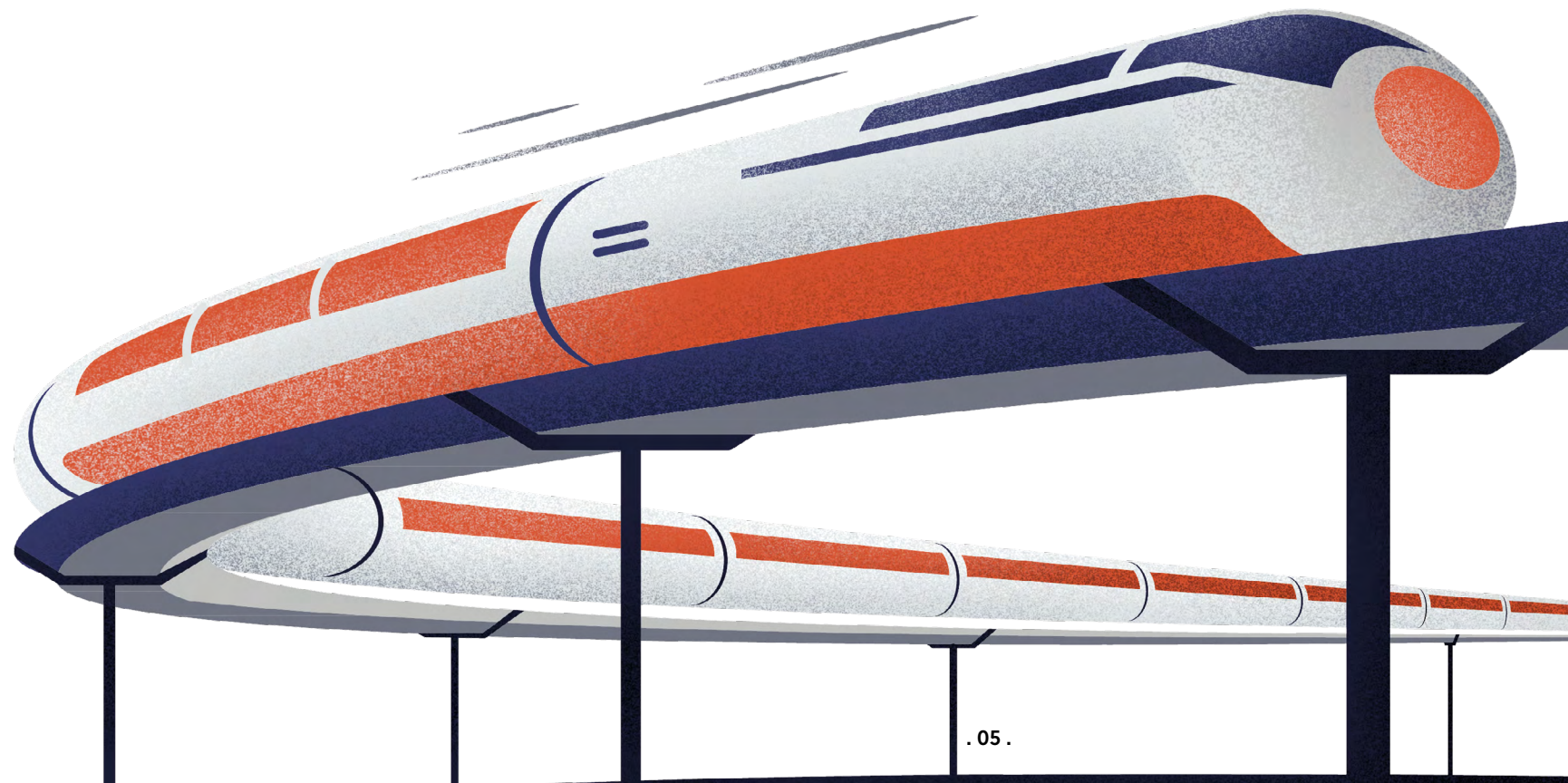
Years on years,
Season 1,
episode 5 (2019)

Technology to boost cashless banking transactions in Mexico

Most people in Mexico make their payments in cash, although more than 80 million people have smartphones. A situation that offers great potential for banking and digital banking, already being developed by BBVA.

Digitisation and mobile data have led to an increase in global banking. In 2017, the World Bank reported that 23% of the population over the age of 15 had access to a digital account via the internet or a smartphone. This percentage drops to just 10% in Latin America and to 6% in Mexico.

The National Financial Inclusion Survey (ENIF, 2018) highlights that 95% of the population in Mexico pays in cash for public services (water, electricity and gas). In addition, 95% of transactions under 500 Mexican Pesos are in cash. By reducing their use, digital technologies could be encouraged to offer products at lower costs and **boost banking.** There is a great opportunity here, considering that there are 126 million Mexicans, 80 million smartphones and 47% of the population over the age of 18 has a bank account, according to ENIF 2018.

BBVA Mexico, through its digital transformation, is **building the banking of the future.** The next step in this evolution is to boost banking and a cashless society in which the use of cash is reduced.

Digitisation is fundamental for banking. In the first quarter of 2021, BBVA Mexico had 23.5 million customers (55% are digital) and 67% of sales were made through online channels; 264 million financial transactions were reported on the internet and mobile phones -an increase of 70% over the same period of 2020- and 850,000 new accounts were opened, 60% of them through a digital medium. At ATMs, between January and March 2021, 187 million transactions were recorded (12% less than in 2020), and 35 million operations in branches (20% less than in 2020), representing 7% of total operations.

In recent years, important cashless experiments have been developed. In Sweden in 2018, only 13% of Swedes used cash and, in India, high-value banknotes were banned to move towards a society without physical currency and digital payments.

BBVA Mexico launched in August 2019 the **first pilot of a digital community in the country,** in Cocula, Jalisco. It consisted of developing an offer for retailers with point of sale terminals, boosting the opening of digital accounts, using the BBVA Mexico app and promoting the use of digital collection (CoDi) as a means of payment to reduce cash. It was able to link 1,700 people to CoDi, 845 of whom adopted it and completed almost 4,000 transactions at local shops in five months. It also managed to grow three times more than in similar municipalities in downloading the app, opening digital accounts and using CoDi.

BBVA Mexico's efforts have focused on CoDi (Banxico QR codes) as a payment method that promotes **financial inclusion** and cash reduction. Of the nine million accounts enrolled as of May 2021, 62% are from BBVA Mexico, and of the 2.3 million transactions accumulated in the same period, 42% of payments and 45% of charges in the market were made at this bank.

For BBVA Mexico, **digital transformation** has played a key role in its evolution and transformation, so it will continue to develop innovative technological solutions that expand its differentiated digital offering in the financial sector.

Hugo Nájera
Business Development & Digital Banking Head de BBVA Mexico

David Ramos
Head of Banking Sector

The end of cash? The era of digital payments has arrived

Payment for purchases in physical stores or remotely, using apps and platforms, is growing worldwide. Technology facilitates these new forms of payment, leaving the door open to further developments, such as the creation of the digital euro.

Covid-19 has speeded up the use of digital payments in everyday life. It is not the only factor driving developed countries towards a **cashless society**. Confidence in the financial systems, globalised electronic banking, and technological developments are encouraging a steady increase in the use of all kinds of digital forms of payment.

The latest data from the Bank of Spain shows that 70% of Spaniards have reduced or stopped making cash payments, and around **30% have not withdrawn cash from ATMs** throughout much of the pandemic. In addition, Bizum doubled its users in 2020.

Some countries have taken a cashless society very seriously. Denmark has set a 2030 deadline for cash in the country. Canada aims to eliminate cash by 2022, and China has more than 1 billion users on the Alipay and WeChat Pay platforms. In Sweden, paper transactions account for only 1% of GDP.

Several **technologies** are speeding up the decline in the use of cash. Among those intended for payment in physical commerce, contact-

less NFC (Near Field Communication) is highlighted, which is available for most credit cards and in an increasing number of smartphones or wearables and uses radio frequency identification by proximity (RFID). Another technology is payment by sound emission, such as in ToneTag or SOS, which do not require any specific hardware.

As for the **systems** to pay both in physical stores and remotely, the giants' wallet solutions stand out, as do other popular ones such as Google Pay, Apple Pay, Samsung Pay or WeChat Pay, which store payment data in digital wallets to avoid the need to carry physical cards.

Other innovative examples include the possibility of paying with a smile at KFC with the AliExpress account (Smile to Pay) in China or the use of facial recognition for payment at X5 Group supermarkets in Russia. Sweden is once again at the forefront with the use of subcutaneous microchips with NFC, which are a means of payment and also facilitate access to the company's offices and the intercity railway network.

Examples like Sweden seem to be bringing us imminently closer to a cashless society. However, in Spain, with a black economy accounting for 18.6% of GDP (according to Visa Europe) and considering that **digital money** is easier to tax, is this change really on the horizon?

The **advantages of a cashless society** are more than obvious: easier to fight money laundering, less black economy, and more investment in these new means of payment. But there are also shadows like global cyberattacks, which call cyber systems into question -they create stances against citizens- due to their vulnerability regarding fraud or external attacks. Nor should we forget the lack of privacy and the dangers of social exclusion of the most disadvantaged and less able to access banking services and technology.

From our perspective, one of the key steps in moving towards this cashless society is the creation of the **digital euro**, which would not involve a new currency or crypto-asset. It would be a digital currency, regulated by the European Central Bank, and equivalent to physical euro banknotes and coins.

Also collaborating in this article were Ángel Cuenca and Alfonso Izquierdo, Banking Senior Managers.

Smart cybersecurity: the sauce of the competitive digital enterprise challenge

Emilio Castellote ━
Cybersecurity Senior Manager

Data intelligence is becoming key to the digital cybersecurity strategy, which must evolve toward platforms that can integrate new or existing information for personalised, business-aligned use.

Since organizations began the race towards **digital transformation**, new ingredients have been added to the recipe to achieve the competitive digital enterprise. It is always said that there are dishes in which the sauce is worth more than the main ingredient. Perhaps this is a good analogy for defining cybersecurity as sauce of the digital enterprise challenge.

What should this digital sauce be like, which accompanies the transformation plan to **turn an organisation into a successful digital model?** The ingredients are within reach of anyone, but a strategic plan must be defined to achieve an optimal outcome.

Any digital market will offer bulk data. The first exercise will be to mix it all evenly and sieve it to obtain a concentrated fumé that combines value and grants power of prediction. This sauce is widely used in any digital transformation. It must now be incorporated into the basis of the new digital cybersecurity recipe because **data handling will define future cybersecurity strategies** to consolidate any digital project.

This comes from a cybersecurity model that has amassed a **large amount of information** that, without being homogeneous, must be ingested externally in an attempt to find a certain value capable of dealing with emerging threats, which have proven far and above any protection technology.

Concepts like collective intelligence, cyber intelligence, or threat hunters define the **outlines of an action plan** needed to tackle the most advanced persistent threats (APTs), which may remain under the technological detection radar for long periods (months or years), gathering information and waiting to be activated for very specific purposes.

The digital cybersecurity strategy must evolve towards a **multiX orchestration platform,** capable of dynamically integrating any data source (new or existing) alongside algorithms to custom-squeeze information in line with each organisation.

The ingredients of future cybersecurity strategies that must raise the watchpoint will be:

> "AI has given us greater capabilities in threat detection and response, making tools available to us that help our cybersecurity teams recognize attack patterns and acquire information analysis on the context of these attacks that had hitherto not been possible".

Mabel González
Head of the Madrid Health Service
Security Office (SERMAS)

• **Elastic, high-performance data processing capability** that must be delivered in a cloud-based service modality.

• **Predictive algorithms adaptable to the level of customisation** of each specific situation, which natively unify business and security.

We are facing a new scenario in which data intelligence will also be the key to cybersecurity strategy, and in which the mix of business and security data must be must blend together.

How to help our clients with their digital recipes? The key is in the customised cybersecurity sauce. Here are some recommendations:

• **To include a natively-secure development base** that transfers the security layer to the applications to be published in the digital ecosystem, allowing for real-time monitoring against new vulnerabilities and uncatalogued attacks.

• **To consolidate public information on organisations** to define new levels of exposure risk, setting a threshold for comparison with similar organisations and allowing third parties who connect daily to the organisation's services to be included in the equation.

• **To facilitate the orchestration of the multiX scenario** by providing a new secure perimeter that, while optimising the flow of incoming/outgoing traffic to any type of infrastructure used, applies real-time data intelligence in the detection of new emerging threats.

Faced with the new paradigm of intelligent cybersecurity, and in amidst the pandemic acceleration of collaborative services and applications, we encourage you to try these new dishes.

— Claudio Nuzzi
Government Sector Senior Manager

The challenges of modernising large public bodies

Technology, people, processes and data are the four cornerstones on which the adaptation of large authorities must focus in order to design and manage public services that meet the needs of citizens using limited resources.

For some time now, it has felt like there is a growing, constant interest in modernisation, digital transformation, robotisation, or artificial intelligence. Recalling repeated previous initiatives, one might think we are talking about parallel universes doomed never to cross paths. **Modernisation** simply means doing things better than they have been done until now, with fewer resources, less time, higher quality, and closer proximity to the end user: the citizen.

Designing and managing public services has essentially remained the same since the creation of the modern state: **meeting citizens' needs with limited resources.**

In short, this problem is neither a new one nor a simple one, because the authorities are an entity controlled by the administrative law that the other players around it demand: political, economic, social and cultural.

This view repeats itself in the Public Authorities, but **even more so in large bodies** where the critical nature of their services derived from political

and social relevance is at a maximum, the volume of information to be processed has no comparison, and the need for interaction with citizens is fundamental.

This challenge must be addressed through four complementary cornerstones -**technology, personnel, processes and data**- and two cross-cutting elements -**interoperability and cybersecurity-**, which are fundamental, as can be seen in the article of general principles of Law 40/2015.

TECHNOLOGY

Technology is identified as the **main lever** driving modernisation. Digital transformation only works if it improves the organisation and life of citizens, and its challenges stem from these and not only from technologies. This will ensure that the incorporation of innovative methods provides citizens with services that are simpler and more usable, and integrated into their everyday use.

PERSONNEL

The people and their organisation are the energy that drives transformation. The most difficult challenge involves training and education to improve the existing human factor, as well as attracting talent in collaboration with universities and professional training centres, and the return of those who have left. In all cases, **leadership is key.**

PROCESSES

Techniques such as service orientation, reuse and refactoring, presentation of the fundamental logic of current systems, combined with the interoperability and incorporation of the use of business rule engines, RPAs, Zero Code or low-code developments, etc. are the concepts allowing for integration, orchestration and process automation tasks to be undertaken.

DATA

The new paradigm requires thinking about data, which has become the treasure trove of Public Authorities that must be able to both care and manage. The key is that these data add value, and for cloud capabilities, process automation, big data & analytics, and UX/UI to evolve towards **unique data** that is consistent, non-redundant, interoperable, secure and shared between processes, homogenised, simplified, scalable and digital from start to finish in order to focus the service on the citizen's experience.

Also collaborating in this article was Javier Sambade, Government Sector Senior Manager.

— **Leopoldo Colorado**
Head of Innovation

Federated learning:
the tool to develop artificial intelligence models while respecting privacy

Increased awareness among the authorities and individuals regarding the value of their own data and privacy makes this technique necessary to develop AI models that allow for services to be provided in sectors such as health, fintech or industry.

Artificial intelligence is rapidly evolving due to advances in **machine learning** techniques driven by the increase in computing and storage resources, the activity of the research community, and the ability to generate content, which is the fundamental raw material for AI classification and prediction models.

Until now, the process of generating and training models has been based on brute force: large volumes of preprocessed data is required, which is obtained using manpower, and a great many hours of processing are required to train the model. This learning process is very expensive and is performed centrally, using a single machine with specialised hardware and access to all the information.

Eventually, however, all centralised systems reach their limit. This makes it necessary to find **distributed solutions** to continue scaling. This involves a leap in complexity, as occurs in other technologies such as blockchain.

While improvements in computing and storage have been key, even more important is the ability to obtain information. Privately, companies have collected user-generated data (images, texts, locations, etc.) in exchange for providing access to high-value free services (optimised routes, classified content, smart search engines, etc.).

All this is changing. The authorities and users are more aware of the value of their information and privacy. This requires changes because there is a clash of interests between the need to collect information to build new services and the objections that users are starting to make to share it, in addition to the regulations on data management. This means that alternatives must be sought to produce AI models.

It is here that **new approaches** arise to develop machine learning models without jeopardising information privacy:

• **Privacy-Enhancing Technologies (PET):** these generate algorithms capable of obtaining results with encrypted information in much the same way as without encryption. Users share an encrypted version of their data.

• **Processing at source:** the information never leaves the source device (mobiles or edge with capacity), forming an active part in the model generation.

This second category includes federated learning, an machine learning technique in which various client elements, such as edge or mobile devices, work collaboratively to train a model under the orchestration of a central server in which training data remains on the proprietary or source device of the information.

The first cases of federated learning application are those related to **health** to collect sensitive patient data through devices such as smartwatches, phones or specific sensors, and to locally train models such as disease prediction, sharing only the results and not the data.

In **Fintech**, this approach would help reduce fraud by learning user behaviour locally and detecting anomalies. In addition, in the **industrial setting**, many use cases may appear linked to machine behaviour, such as predictive maintenance. Manufacturers will also be able to create better services that benefit their customers without having to share information with each other.

The federated learning technique is an improvement in efficiency because, under a centralised model, devices send information to the server for learning, which might lead to performance and latency issues.

But federated learning has its challenges. As these are solved, great potential will be unleashed by unlocking many different uses of AI that are currently hindered because information cannot be accessed.

Manuel Marín

Managing Director of

Digital Solutions Iberia at Endesa

"No matter how innovative the digitization framework undertaken may be, it will not survive without appropriate cybersecurity"

"Digitization must
provide rapid returns
for businesses in line
with the evolution of
digital technologies"

MANUEL MARÍN IS THE
MANAGING DIRECTOR
OF DIGITAL SOLUTIONS
IBERIA AT ENDESA.

An agricultural engineer by training, he joined the company almost 30 years ago. Today, the Enel Group is the world's largest private energy company, with more than 74 million end users and 2.2 million kilometres of managed network. In this interview we discuss the energy transition and the ubiquitous digital transformation, the Group's role in this new scenario and its upcoming objectives.

—— **The International Panel on Climate Change has identified that we have around 10 years to halve global greenhouse gas emissions. Given that energy accounts for 70% of global greenhouse gas emissions, we need to make an energy transition to lower-carbon solutions. In your opinion, what are the main factors affecting this transition?**

In my view, the energy transition is driven by five forces, with digitization being the key element.

1. Electrification

We know that electrical energy is a commodity. An increasing number of instruments and devices are powered by electricity. It is estimated that, by 2050, more than 50% of energy consumption will be electrical in origin and 26% of the electric energy used will be devoted to electric mobility.

2. Urbanization

We are seeing large shifts from rural to urban areas. It is estimated that, by 2050, 68% of the world's population will live in urban areas, with a large increase in the number of megacities over the next 15 years. The current number of 34 megacities will increase by 14.

3. Decarbonization and sustainability

This is one of our Group's main priorities. Our goal as a company is to help build a better future. Today we have one million animal and plant species at risk of extinction, and more than nine million people die from pollution-related causes every year. By 2050, climate change is estimated to cost the world $20-25 trillion.

4. New consumer needs

79% of consumers make purchasing decisions based on values such as social responsibility, inclusion principles, environmental impact, etc. The circumstances of the past year have been a wake-up call in reimagining how to connect with customers, offering a wider range of experiences and committing to an increasingly high bar in providing value.

5. Digital transformation

Digital transformation has become ubiquitous in our lives. This is the key to the energy transition we want to implement as a Group.

—— **Speaking of digital transformation, according to a recent survey conducted by McKinsey, the response to Covid-19 has speeded up the adoption of digital technologies. Which ones would you say have played a leading role in this?**

Digital transformation and digital technologies have been crucial in addressing certain challenges relating to the unprecedented scale of the Covid-19 emergency. Some of the key technologies that have helped tackle this global crisis during these exceptional times include:

Automation. During the emergency, machines and robots performed tasks previously entrusted to workers so that they could be protected from the risk of infection.

Phygital. This is the hybrid model that combines the physical and virtual worlds. We have seen this happen in our professional and personal lives. It has made it easier for us to continue to perform and develop our daily activities.

IoT. This has enabled us to remotely monitor the activity of our systems, bringing to light the need to invest in connectivity and edge computing.

AI / Analytics. Algorithms have made it possible to automate customer interaction (for example chatbots), customization (for example marketing initiatives and assistance profiles), and supply chain optimization.

The fact of the matter is that, over the past 15 months, the digitization process has speeded up extraordinarily.

Manuel Marín in his office at the corporate headquarters in Madrid

—— **Which is the stance of the Enel Group, and consequently that of Endesa, in the current scenario? Where do you expect to be in the coming years?**

Let me give an overview of where we are so that we can put in context the direction in which the group is heading.

In the field of energy **Distribution**, the Enel Group is the world's largest private company, with more than 74 million end users and 2.2 million kilometres of managed network.

With regard to **Generation**, we are the leading private operator in the field of renewables. Globally, we have a total capacity of 87 GW, of which 49 GW come from renewable energy.

And in the **Commercial** field, we are the private company with the largest retail customer base in the world, with more than 70M. We also manage 6,300 MW of flexible consumption (demand response) for more than 14,000 commercial facilities and have 186K public charging points.

With regard to Enel's transformation in the next few years, we have very ambitious targets for 2030. By then we expect to have tripled our capacity for renewables generation from 49 to 145 GW. In Distribution, we expect to reach 90 million end users.

With regard to the number of customers in the free market, we calculate multiplying this by 1.6 in comparison with the current number. Finally, we are confident that we will also triple the power demand management of Enel X to reach 20 GW.

—— **What is the strategy to reach these goals?**

In our opinion, the platform-based utility model is crucial in managing the growing complexity of the scenario in which we are operating. Utilities are at the centre of complex systems, and the platform model allows for circular models to be incorporated into the traditional linear models that prevailed when the first power companies emerged.

Platforms make it possible to enable more complex systems capable of integrating myriad distributed generation assets such as renewable plants, storage solutions, charging stations, electric vehicles, etc.

The scalability and efficiency of platforms will favour a sustainable energy transition and give rise to the development of prosumer-focused services that will not only generate value for customers but also facilitate open innovation and the development of solutions open to ecosystems.

—— **Why do companies invest in digitization? Which areas will continue to receive investment?**

I suppose every company has its reasons and that there are many possible answers to that question. The first purpose of the investment is usually to **identify new efficiencies** that translate into reduced operational costs.

In this regard, the areas of investment are **the automation of the value chain and the deci-**

sion-taking process so that they can be turned into specific operational actions, thus benefitting from the incorporation of innovative technologies and making a much more effective use of the resources used to generate value. This type of digitization is **less complex** and provides limited benefits and advantages.

However, if we move to the **activities of the highest complexity,** we can find those involving, for example, the use of advanced analytics or social media to provide customers with increasingly personalized offers and integrated information across all platforms while offering a seamless, uninterrupted user experience. Mobile technologies have helped a lot in this type of activity, resulting in the creation of new experiences driven by customer relationship management and digital marketing.

However, **the most complex thing to implement** yet one that is very promising in terms of profits, is those activities that make it easier to address new customer needs with new and existing technologies and data and those that enable a deeper understanding of the value chain and the scaling of opportunities. In any case, companies invest to gain returns, and digitization must produce quick returns in line with the evolution of digital technologies. This is why it is also necessary to shift resources towards much more efficient investments, such as technological and digital investments that would otherwise be associated with traditional investments.

—— **Today's business environment is global and highly interconnected, increasing the likelihood of cyber threats. How does the Enel Group approach its cybersecurity?**

Regardless of how innovative the digitization framework may be, it will not survive without appropriate cybersecurity. This is the reality. And the bad news is that you can't buy ready-made cybersecurity. Security is built according to a strategic approach, a clear mindset, and with the experts who work on these issues.

Since 2019, the Allianz Risk Barometer includes cyber incidents among the top three global risks facing companies (second in 2019, first in 2020, and third in 2021 due to the global pandemic, which has shifted risk perception).

Is this perception of high risk justified? It seems so. Over the past two years, known attacks (we mustn't forget that many go unreported) have skyrocketed in all kinds of companies, from those in heavy industry to those in intangible assets. The international sanctions policy does not help in the extraterritorial arrest of the attackers. And this does not contribute to limiting the phenomenon.

More specifically, the energy industry has suffered a considerable number of attacks in recent months. At Enel we have detected and stopped two attacks, one in June and one in October. We came out of it OK, with no major consequences, but they confirm the absolute certainty that this perception of risk is not theoretical but an unfortunate part of reality.

—— **What does Enel expect from its supply chain in terms of software development?**

As operators of essential services, we need to count on suppliers that meet a specific set of characteristics. In this regard, I would send four clear messages to suppliers who wish to accompany us in our digital transformation process:

1. Secure management of Enel data.

2. Secure code development to avoid vulnerability in the design.

3. Improving internal processes for appropriate cyber hygiene.

4. The adoption, persuasively and as a top priority, of the key principle of cybersecurity by design throughout the software and product lifecycle (IT/OT/IoT).

The message we want to convey is one of alignment, not of transferring policies but of creating development teams that have these goals in their mindset.

Jesús Fernández
Energy Sector Senior Manager

Transforming the energy sector through digitisation

CUSTOMER EXPERIENCE

"It is in the flexibility markets where the services needed to keep the network in a secure stage will be competitively available".

Pedro Basagoiti
Director of Technology, Innovation and New Development, OMIE

Decarbonisation and the incorporation of renewable energies are reaping changes in the electricity industry that are leading towards a new model, which requires advanced information systems operating in real time for correct market management.

The electricity sector is undergoing a **radical transformation.** To tackle climate change, we urgently need to address the elimination of our dependence on fossil fuels, known as decarbonisation, and other unsustainable sources to replace them with renewable energy.

This poses a major challenge for the electricity industry, which has to **change its traditional model** based on large mass production facilities -located far away from access points- and with great flexibility in the variation of its production to match rigid demand. In this model, the flow of energy runs in one direction: from the generator to the consumer, through the carrier and the distributor.

The new model will incorporate renewable generation into a decentralised scheme in which generation facilities will be close to access points, with a very significant increase in storage capacity, and the **existence of flexible demand** that can choose the best time for consumption.

This **distributed generation mode** has advantages over the traditional one, as it provides greater reliability to the electricity system by avoiding dependency on only a few producers and eliminating losses by not carrying electricity. Along these lines, the concept of the prosumer emerges (an electricity consumer also able to generate it not only for self-consumption, but to store it and sell any surplus), thus breaking down another element of the traditional model by allowing a two-way flow of electricity.

The sale of surpluses provides a significant incentive to achieve the **expansion of the decentralised model** of electricity generation, as it increases the return on investment by providing an extra source of income. To negotiate the selling price, prosumers will be able to participate in global (daily, intraday auction and intraday continuous) markets.

In addition, the plan is to create **local electricity markets**, such as zone-based flexibility markets, in which operators with access points or feeding generated energy to the grid through distribution networks can participate. The aim of these markets is to facilitate the use of generation capacity at a competitive price to help distributors in each zone solve grid problems, relying on distributed generation elements.

These market are managed and participated in through **advanced information systems**, which must acquire real-time information on the status of electricity generation, storage and consumption devices, apart from having the elements to act on them. Furthermore, it must provide market access mechanisms, the production of appropriate information for decision making that optimises participation in the different sessions and the administrative management of sales.

The aggregator manages the demand of a group of consumers and prosumers and offers a solution that provides the technology and the services to enable them to participate in the different electricity markets. In Spain, this agent is defined in Royal Decree 23/2020, and opens up **new opportunities for business and technological development** in the electricity industry.

These changes are shaping the landscape of the electricity industry, making it sustainable, more reliable, and offering options to **fight climate change.**

"The employee of the future will see it as a right to be paid their salary for the days worked whenever they need it and not when the payroll is calculated. This will change the way the consumer (employee) saves and spends their money, just as it will change the payroll process. From my point of view, it is unstoppable. It's going to happen. The companies that adapt first will enjoy great competitive advantages in the fight for talent".

Josep Maria Elias
Chief Strategy Officer at CloudPay

Ferran Yáñez
Senior Manager at Barcelona

New models to collect and pay wages with one click

Asking for an advance or sending part of your salary directly to the supermarket are just some of the possibilities available through the digital services of Business Process Outsourcing (BPO) payroll, establishing a new model in the relationship between the employer and the employee.

All employees are paid according to their employment contract with the company. Two processes are completed to receive it, which form the basis for designing and creating what may be new employer-employee payment models.

The first process is **payroll**. An element that seems minor but is actually very relevant must be highlighted here: the payroll period, which is the time used to calculate and receive the salary. The second is **payment**, in which the method of payment must be underlined and, where this involves a bank transfer, the destination bank account to which the money is transferred.

With regard to the payroll period, certain cultural factors, type of contracts, bargaining agreements, etc. have an impact on what is the standard period among countries and even within a given country, and a daily, weekly, fortnightly or monthly basis may be used. This structure also follows a criterion of process efficiency and concentration in relation to the authorities. But in fact, once employees have completed a working day, they accrue the right to be paid and the money could be received at the end of the day.

Is it possible to request an advance and receive the money instantly in your account?

There are bound to be several reasons for saying 'no', but the interesting thing is to find the solution which, as is often the case, is based

on digitising something that already exists: **payroll advances**. It is now perfectly feasible for an employee to digitally request and receive an advance of his/her pay instantly via bank transfer to suit his/her needs. Of course, this has an impact on the cash flow of companies and minimal risk control if the amount of the advance payment exceeds the salary accrued from the days worked. However, from an employee's perspective, this should be seen as a great benefit because as you do not have to take out a consumer loan and pay interest.

In the payment process, the benefit that can be obtained from changing the recipient of a portion of the salary received must be considered. For example, certain repeat suppliers in domestic finances.

Can a company send part of the payroll to the supermarket where the employee typically shops?

Yes This is the **digitisation** of a process that already exists: one based on the trust previously established between the local store and the people who shop there, where any purchases are included in a list so that they can be paid for at the end of the month. Currently, through customer loyalty programs associated with e-wallets or prepaid cards, a percentage of the payroll could be transferred from the company to the supermarket, which the latter reverts to advantages such as discounts in exchange for repeat trade. Therefore, part of the payroll would have greater purchasing power. By doing so at company level, it is possible to obtain better conditions in collective bargaining discounts based on employee volume, total payroll, etc. in the same way as in collective insurance negotiations.

In terms of the implementation and operation of these new employer-employee payment models, companies providing payroll BPO services are best suited to creating these **digital services** for companies and their employees in the most efficient manner and with greater economies of scale.

— Eduardo Díaz
Senior Manager at Sevilla

Covid-19 speeds up process automation and robotisation in the Public Authorities

Due to the pandemic, the public authorities have been forced to increase the speed of implementation of technologies to respond to citizens. A process that is unstoppable and that will give rise to hyperautomation in the future.

"By integrating this technology with the processing clerks of subsidies, all information on the verification of requirements is included in the application, automatically allowing for a process that can deal with the files without the need for human intervention. It is not a question of robotizing specific tasks but of bringing about a true integration in the subsidy procedure, which gives the Administration an unheard-of agility and efficiency, especially in calls with a high volume of files".

Rubén García Bravo
Jefe de Servicio de Informática de la Consejería de Empleo, Formación y Trabajo Autónomo. Junta de Andalucía

A new environment for public organisations has emerged in the wake of Covid-19. The pandemic has changed the conditions in which they operate and their ability to provide services. During the first phase of this epidemic, it became clear that the sector had to increase its pace in adopting and using digital solutions and emerging technology to meet the new speed required in decision-making and citizen requirements. This demand is here to stay. The sector still has to offer the same set of services, but expectations on how they are delivered have changed. To this end, because of the immediacy of current times, **robotic process automation (RPA) and the automation** of workflows have played a particularly significant role.

Both processes have been a major step forward within the Public Authorities (PAs), although there is still a long way to go and their implementation can still be seen as somewhat incipient

and long-term. PAs face problems that require immediate attention, such as high volume of work that blocks productivity, shortage of employees, frequent policy and regulatory changes, which mean that RPA has found fertile ground in the public sector, prioritising citizen-focused services and **reducing redundant tasks** that are time consuming for agencies.

Even so, its main **benefits for the sector**, such as process optimisation, boosting internal talent or improving citizens' experience in the case of automation, are **clearly** visible, while RPA is having a positive impact on productivity, accuracy, objective data analysis and subsequent decision-making, as well as a direct reduction in costs.

Despite these benefits, the main thing in any public sphere providing a service to citizens is people. The fear that the entry of machines will

depersonalise the internal management processes of an authority is mitigated by the following premise: **Human capital must always be preserved.** It should be a case of collaboration and not substitution because there always has to be a layer of people above any automation. Furthermore, the person responsible for them must be a general manager.

With this approach and the fact that process automation is no longer a choice but a reality, the next steps in Public Authorities are heading towards **hyperautomation**. This is their future, which is expected to be just around the corner and that must be transferred to the present, fulfilling a series of goals over several stages:

• **Short term:** implementation of automation and/or robotisation in agencies without them.

• **Medium term:** scaling of automation solutions on all levels of organisations.

• **Long term:** combination of different automation technologies with other technologies, such as artificial intelligence, virtual agents, voice recognition, biometric intelligence or machine learning, among others.

This will lead to hyperautomation, which is itself a **strategic business** with which to reinvent the entire provision of public services and simplify the relationship between citizens and civil servants in the Public Authorities. A scenario in which adaptation is the greatest challenge in light of the retirement of 60% of all civil servants over the next ten years, current professional profiles, and organisational structures.

Fran Cuesta
Senior Architect

Technology trends that maintain business competitiveness

Data industrialisation, the multicloud approach or multi-channel architecture are just some of the new features that digital centres are testing to ensure professionals and companies do not fall behind in their technological evolution.

Technology is constantly evolving. A continuous change that means that professionals must remain constantly up to date with the latest developments, and that occurs at great speed. This speed poses a major challenge both for professionals, who cannot relax if they want to remain valuable in the market, and for companies, which usually have to decide on their medium-term technological future with the fear of getting it wrong.

It is a context in which poor technological choice can become a major problem for a company, making it difficult to hire professionals and discarding work previously completed.

In digital centres, work is carried out on an **ongoing analysis of trends**, including proof of concept and internal projects, enabling professionals to evolve and providing the best service to customers. Options currently under consideration and recommended in the medium term include:

Everything as code. For some years now, as code terms have emerged to explain how certain aspects of corporate systems have changed from being managed manually or under configurations to being managed as code. This treatment has certain advantages, such as change traceability, use of integration tools, and continuous deployment. This leads to a safer, more efficient platform.

Hybrid environments. There is sometimes some resistance to moving systems to the cloud, which might even be due to legal constraints. Major public clouds are already beginning to offer solutions to use their services supported under private infrastructure. Azure Arc is a good example of this. This type of platform enables you to take advantage of all the benefits of existing services in the public cloud while maintaining some degree of privacy, as they are supported by private systems.

Data industrialisation. Nowadays, talking about data is nothing new for most companies, but making the most of it is complex and often underestimated. To do so, data must be industrialised and a model properly defined that maximises tool power and data content: input, governance, operation, machine learning, artificial intelligence, exploitation, etc.

Multi-channel architecture. One of the main consumer channels today is that of mobile devices. In order to bring services to the mobile channel, it is possible to opt for different development paths that exist in the market: native applications (Android & iOS), hybrid applications (Ionic, React Native, Script Native) or generated applications (Xamarin, Genexus).

It is difficult to choose without clear details and context. It is therefore worth analysing the situation of each need and the circumstances at the time. This is the only way of balancing time, costs and user experience to bring services to the mobile channel and meet users' needs.

Regardless of the technology solution chosen for the development of an app, the design should be well prepared, flows should be simple and intuitive, and the entire target audience should be considered. It is also essential to remember that the user comes first, as the app is a showcase for the brand.

Multicloud approach. Problems with choosing a public cloud are common for fear of getting it wrong or becoming too tied to it. To avoid this issue, it is best to propose a multicloud approach under which it is possible to make the most of the advantages of each cloud (including the private cloud itself) without becoming tied a specific manufacturer. This model might initially seem like a bad solution from an economic point of view, but the use of the most appropriate resources in each cloud leads to cost savings.

+ Also collaborating in this article was Ismael González, Head of Mobile Area at BABEL.

CUSTOMER
EXPERIENCE

"We think we know our users, but most of the time we ignore the unconscious part of people, and it is this part that takes 80% of decisions. This is why any investment in neuromarketing and in developing neuroscience techniques ensures improvements in the conversion. But more importantly, it also helps us better understand our users, thus allowing us to design the services of the future".

Javier Zorraquín
Interaction Design Lead - Santander Consumer Bank Germany

Neuromarketing: the key to the human brain

Neuroscience techniques provide people with a better understanding of their decision making to know which items they want. This knowledge is a competitive advantage for companies as it enables them to stand out.

— Pepe García
Head of UX/UI

Having a better understanding of the stimuli people perceive and how they are affected is beginning to take its place in companies. Collecting those reactions and turning them into data based on **cognitive neuroscience technology** is the task of neuromarketing, which investigates how the brain reacts, what people feel when they look at or use a product, or what they experience when they use a service in order to use their marketing results.

But why is neuromarketing now in fashion? The key is that the resources, technology and maturity are now available to answer the questions that have always been raised.

Understanding people more comprehensively will make it easier for companies to create **made to measure products and services**. Large companies do not ignore emotions and feelings, although they are engaged in a strategy of digitising physical environments, measuring their customers' mobile devices by obtaining quantitative data that they exploit using big data.

Images, smells, music... Everything is now involved in the shopping experience, the customer experience. Measuring the effectiveness of these sensory strategies is a differential factor, a rising asset to continue to raise brand value and level of recall. But it's not just about measuring physical environments, but also digital contexts. Everything **that can be seen, can be measured** with neuroscience: web interfaces/apps, private areas, communication on social networks, brand perception, etc., as well as classic communication (audiovisual pieces, physical signage, etc.).

In a world like today, guided by data driven and where decisions are made on the basis of data, **measuring the emotional footprint** cannot be ignored. Neuroscience technologies applied to neuromarketing allow for the collection of qualitative and quantitative objective data. They measure all sorts of emotions and reactions using innovative technologies, such as fixed and mobile eye tracking, encephalographs, electrodermal activity meters, and artificial intelligence-based facial expression analysis software.

Neuromarketing is a complement to user experience (UX), customer experience (CX) and market research work. It is essential to have laboratories integrated within the UX and CX areas. A **mobile laboratory** allows its transfer in an easy, fast and agile way to carry out studies and measurements on site, contextualised, and with a real target audience, avoiding bias. On the other hand, neuromarketing does not work with panelists and loses meaning if you are not where customers are or if data collection is decontextualised, which can be done in a minimally invasive way and without taking their personal data or images. This streamlines the performing of studies without undermining the possibility of sample segmentation thanks to the use of artificial intelligence software, as well as the delivery of results with a fast time to market and within two weeks of study completion.

Currently, there are disagreeing voices that aim to open an ethical debate based on the perception that people's minds can be controlled with these techniques. But neuromarketing is not able to fully guess what the consumer wants or does not want to buy, but rather provides a framework for **better a understanding of decision-making**, which is not enough to cause the consumer to lose his or her capacity to decide on a purchase. Logically, the more consumers are known, the more connection, the more value and pre-eminence one will have over the competition, and the more dominance one will have over the market.

"One of our great challenges is to be able to use for our own benefit the vast amount of information generated daily in the care of our patients. Since much of that information is recorded in clinical notes that are neither structured nor coded, we consider it essential to have a natural-language processing tool".

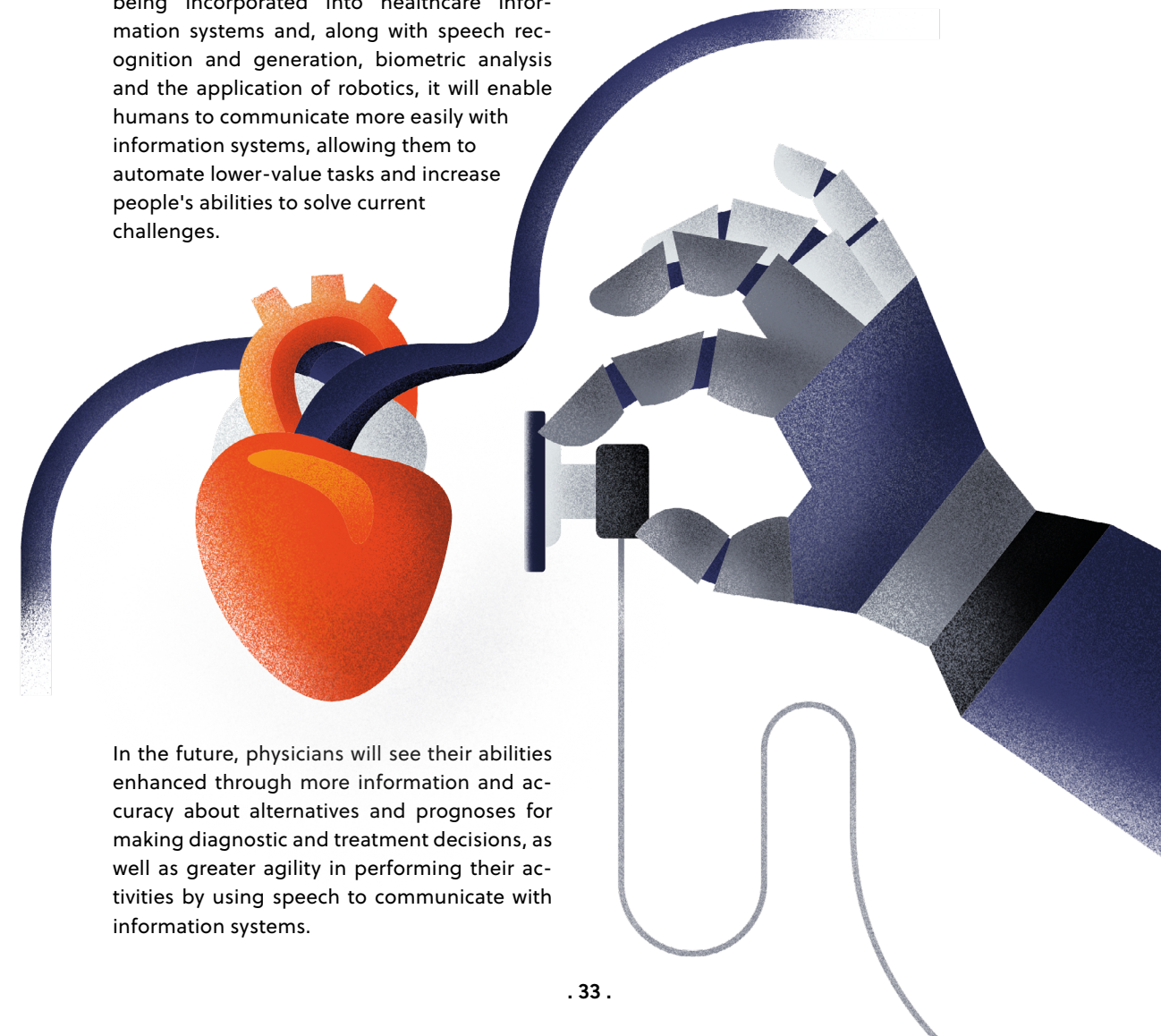**Leticia Gómez de Segura Iriarte**
Servicio de Calidad, Sistemas y Tecnologías | Dirección General de Calidad, Transformación y Gestión del Conocimiento de la Consejería de Salud del Principado de Asturias

Fernando Medina
Senior Consultant at Asturias

Natural language processing opens new possibilities for task automation

Thanks to the evolution of artificial intelligence and other sciences, it will be possible for people to communicate more easily with information systems, and focus on solving current challenges by freeing themselves from lower-value jobs.

Natural language processing (NLP) encompasses **processing, understanding, and generating written content** using automatic speech recognition and text-to-speech conversion. This field of computer science, which was invented before computers existed, is essential to derive value from the clinical information of patients' medical histories using natural language.

In 1966, the first NLP conversational bot, called ELIZA (Massachusetts Institute of Technology), replaced the psychiatrist by answering patient questions in written text, with a database and a set of rules. The techniques used evolved from linguistic rules and statistical methods to the use of deep learning models for information extraction and voice recognition in 2007.

NLP, in the understanding phase, allows for **concepts of natural language to be recognised**, along with their relationships, expressing ideas from what is interpreted. This science works by segmenting the text, recognising the underlying concepts, and extracting the context of those concepts. In the text gen-

eration phase, it determines the content to be presented and structures it, groups the ideas naturally, selects the appropriate lexicon for the concepts, generates reference expressions on the content, and **creates the text following grammatical rules**.

Current use cases include automatic coding of clinical trials, enrichment of health history, guidance of medical decisions, conduct of medical studies, anonymisation of patient records, data mining for research and automatic generation of summaries or regulatory reports.

In the coming years, possible uses will include the search for candidates for clinical studies, automatic assessment of contracted coverage for medical procedures, categorisation of patients to predict treatment costs, voice recognition with automatic text processing, phenotyping of patients, discovery of speech biomarkers and population surveillance.

The future of NLP involves **the transition from interaction to communication** between

human and machine. This involves non-verbal communication, which requires considering body language, touch, gestures and facial expressions. It is therefore necessary to process and understand spoken language, obtain information from the biometrics of people (facial recognition, fingerprint and retina scanner, etc.) to understand the context of communication, and provide a humanised look to the machine through speech and robotics.

NLP is a **mature science**, which has evolved rapidly through artificial intelligence. It is now being incorporated into healthcare information systems and, along with speech recognition and generation, biometric analysis and the application of robotics, it will enable humans to communicate more easily with information systems, allowing them to automate lower-value tasks and increase people's abilities to solve current challenges.

Furthermore, health managers will benefit from **capacity building** by having information to make better decisions and comply with regulations, automated activity reporting, business intelligence and population aggregate information.
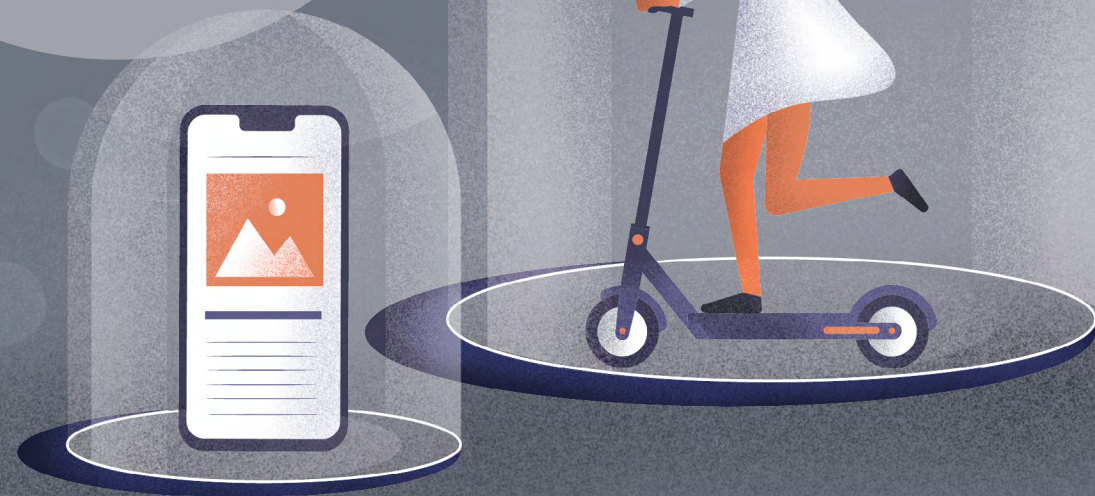
In addition, patients will gain confidence, perception of quality and value in interaction with health systems by using verbal and non-verbal communications, and will have appropriate guidance in the prevention and/or management of their disease.

In the future, physicians will see their abilities enhanced through more information and accuracy about alternatives and prognoses for making diagnostic and treatment decisions, as well as greater agility in performing their activities by using speech to communicate with information systems.

Jesús Marco
Head of Insurance Sector

"Vivaz Safe & Go means a real paradigm change, as it is the first insurance policy that is not linked to the vehicle but to the user, protecting people's mobility. Thanks to technology, the costumer can activate and deactivate the insurance policy through their smartphone, make arrangements without calling and register accident reports. A concept that allows Línea Directa Aseguradora to keep leading the insurance sector innovation, adapting to changing trends and mentality of the 21st century".

David Pérez Renovales
Director General de Vivaz, Seguros de Salud y
Movilidad de Línea Directa Aseguradora

On-demand insurance progresses in the insurance sector to respond to new lifestyles

The digital world has changed the way people consume and their habits, pushing personalised policies to pay only for cover that is really needed at specific times to remain protected.

Since the very start, the insurance business has been based on the concept of risk mutualisation, i.e. To collectively protect from the potential occurrence in case of certain unforeseen events. Therefore, all individuals in a particular group are covered for potential damages that may occur to any of them.

This concept has meant that the calculation of the price of insurance and the decisions regarding the assuming of risks by companies are based on historical analysis and the probability of occurrence of certain events in the future.

However, in the digital world, some of these traditional rules are beginning to be broken:

• New customers and, in particular, new generations are looking to buy and consume what **brings them immediate satisfaction** and do not understand why they should pay for something that is not currently enjoyed.

• **Pay-per-use or subscription business models** are increasingly common in all sectors (technology, film, music, automotive, energy, etc.).

• The **level of customisation** that customers are beginning to demand makes it difficult to apply prices and rules that are common to everyone.

• **The experience demanded by digital users** is incompatible with reading endless documents, signing incomprehensible contracts, and applying endless procedures.

It is a context in which the insurance sector is responding with on-demand insurance, as well as activation calls by customers who can **enable or disable their coverage**. This ensures those moments in which the individual regularly participates (although not permanently), and which require coverage or protection. Clear examples are new forms of mobility such as bicycles, e-scooters or shared vehicles.

Zurich Seguros, with the launch of Klinc; Mapfre, with Yip Yop; or Línea Directa Aseguradora insurance policy under Vivaz Safe & Go brand, are examples of how large companies are starting to position themselves in this segment. Above all, however, insurtechs such as Lemonade (US), Trov (US), Cuvva (UK), Getsafe (GE), Yolo (IT) and Weecover (ES) are promoting the launch of these policies, which provide a fully digital user experience. In addition, customers can **customise the product and coverage** and modify its features simply and quickly, as well as pay based on how much (Pay per use) or how (Pay how you use) the insured property is used.

These insurance policies have a **high digitisation component** and use the mobile app as a natural channel for user interaction and policy activation. The use of telematic devices, as well as geolocation, geopositioning or monitoring are fundamental in the design and configuration of these insurances.

The emergence of IoT or wearable devices, along with the increase in connectivity capabilities with the advent of 5G, are elements that will transform the way we relate to each other, consume and accelerate this trend.

Devices such as smartwatches and smart helmets are now a reality and open the door to new features such as automatically activating a bike insurance when you put on your helmet, or charging the policy price at the end of the journey. Although it sounds like science fiction, it is not and will be a common feature in the coming years.

The insurance sector has already taken the first steps, but it faces a major challenge in digitisation and transformation. This is a huge opportunity to approach and respond to the needs of this new customer segment: the customer of the future.

Tomorrow is already here

— Luis Barreiro
Head of Strategy

Technological advances must consider sustainability not only in solving problems, but also in efforts to solve them.

As discussed in this Journal's editorial, the next ten years are expected to see more technological progress than we have seen in the last 100 years. While it is true that we begin to glimpse some of the technological trends and begin to move forward in the effort to get closer to that longed-for future, with its uncertainty, but also its certainties, there are still many challenges ahead.

The biggest challenge is to help organisations progress in an increasingly competitive, changing and dynamic environment by embracing the technologies that will enable us to meet the big challenge. Yet this is not just a technology issue.

But is technology the only thing we need to consider when we think about the future? The biggest threat we have as a society at the moment of inequalities, risks associated with global warming, pandemics and other geo-strategic challenges is to make sure **that this continuous technological advance is done under a framework of sustainability.** We talk, of course, of being sustainable from multiple perspectives: productive, ethical, respect for privacy, future of work, energy efficiency...

Our approach to the use of artificial intelligence in fields such as medicine or the application of strict privacy criteria in the use of models under federated learning is a clear example of this concern. This approach should be part of the solution design and not just as an aspect to consider in the implementation process. A good case is 'explainability' to avoid unwanted but currently existing discrimination in some of the algorithms due to bias in the data used in the model, etc.

Cybersecurity is another example, another of the immanent trends in our future, which must also be our concern about the need to be able to provide users with the protection they need against fraud and malicious attacks that, even, can strike not only people, but services essential to our society.

Some interesting initiatives we explore are so-called **green algorithms** that focus their efforts not only on solving the problem, but on the sustainability of the work invested to solve it. The existence of formulas to calculate the carbon footprint generated in the computation required to develop and subsequently use our algorithms is an interesting example of this concern. The results are surprising with models that can contaminate as much as five vehicles running for an entire year.

Another good example of this process is the analysis of risk associated with extreme weather events, support for initiatives seeking efficient and safe sustainability in new mobility models under insurance on demand or our commitment to solutions in the area of energy sector transformation.

As Endesa's managing director of digital solutions, Manuel Marín, the protagonist of the interview that occupies the central pages of this magazine, commented, digitisation cannot be isolated from some of the main priorities that companies, such as the ENEL Group itself, are launching with decarbonisation and sustainability.

There is no doubt that there is still some way to go and that many of the trends that we are identifying at the moment will surely progress at different speeds than we have imagined. Some will probably disappear or generate new ones; others will transform as a result of different needs or contexts that are unimaginable today. The real challenge if we want to lead this change is to be aware that making it possible is in our hands because tomorrow is already here.

Technology for an evolving world

Integration & Application
- API Management
- Blockchain
- Multiexperience Development
- IoT
- BPMS / ESB

Business Transformation
- Architecture
- BPA
- RPA
- UX
- e-Learning

IT Transformation
- Agile
- App Cloud Native
- DevOps
- Legacy Modernization
- Low-code
- Digital Workplace

Data & Analytics
- Analytics
- Big Data
- Business Intelligence
- Machine Learning Artificial Intelligence

Cybersecurity
- Regulatory Compliance & Risk Management
- Security Monitoring & DFIR: eSOC
- Blue & Read Team Services
- ICS Security
- Cyber Threat Intelligence
- Training & Awareness
- SecDevOps

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