



*“IT & innovation is an exploratory journey.”*

**Dimitris Bountolos**

Chief Information and  
Innovation Officer, Ferrovial

**September 2021**

# Ferrovial building the future on the back of IT and innovation

Transformation is at the heart of every company's agenda. So at Ferrovial, it made perfect sense to combine the roles of innovation and IT to accelerate change.

**“IT and innovation is an exploratory journey,” says Dimitris Bountolos, Chief Information and Innovation Officer. “It’s about making connections and alliances in an open ecosystem.”**

Bountolos is well positioned to bridge the worlds of IT and innovation across the Spanish multinational, which designs, constructs, operates and maintains transport infrastructure and urban services. He has spent his career bridging different worlds in business and entrepreneurship. He has a proven track record as Chief Digital Officer at Latam Airlines, senior advisor to the Chief Innovation Officer at NASA, and at the startups he has founded across the areas of aerospace, drone technology, and virtual reality.

We sat down with Bountolos to discuss how he is combining IT and innovation to drive change at Ferrovial, the impact of AI on the construction industry, and his mission to help sustainable infrastructure flourish.

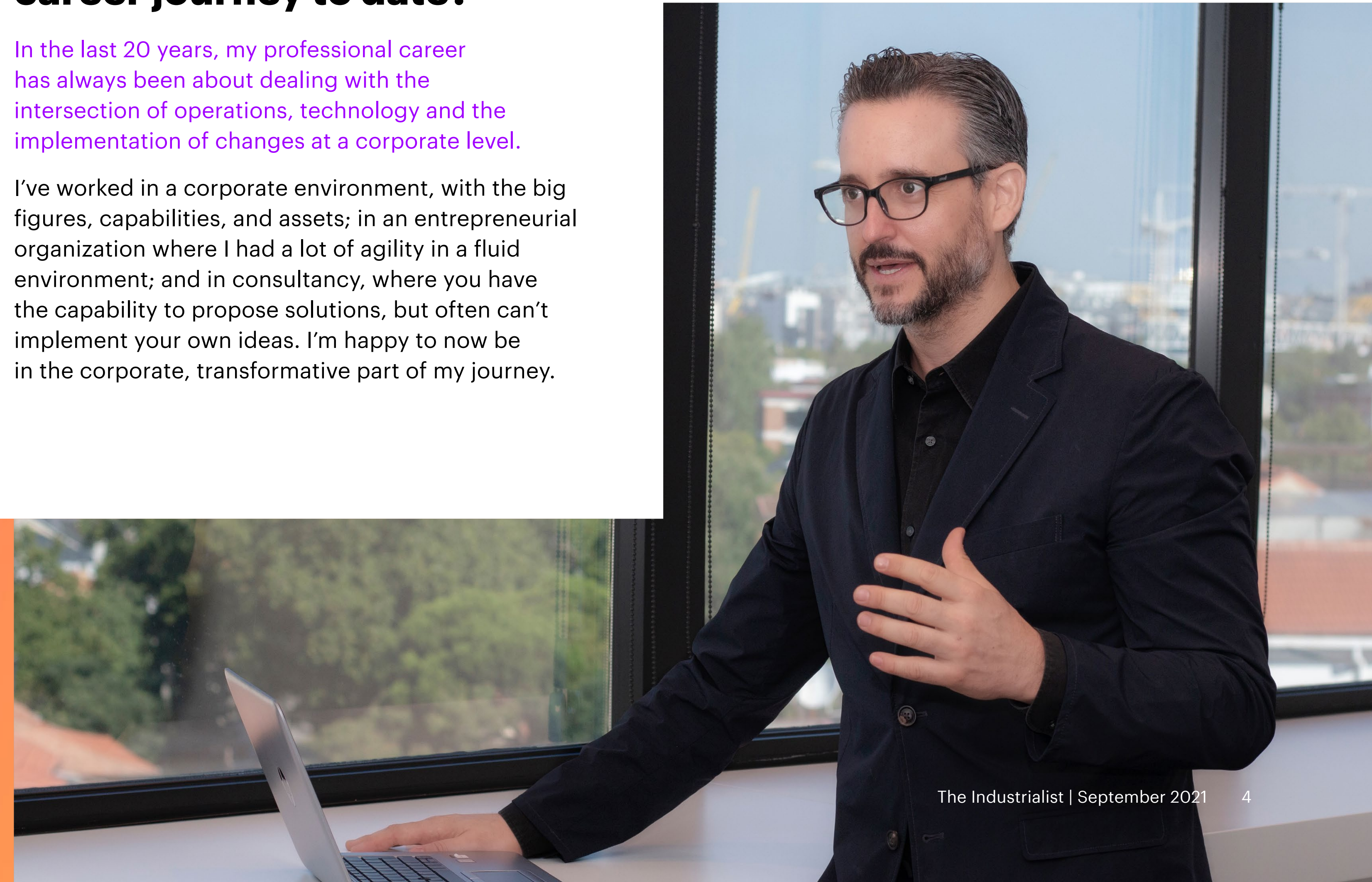
## What one word describes you best?

Curious. That describes me since birth!

## Can you tell us about your career journey to date?

In the last 20 years, my professional career has always been about dealing with the intersection of operations, technology and the implementation of changes at a corporate level.

I've worked in a corporate environment, with the big figures, capabilities, and assets; in an entrepreneurial organization where I had a lot of agility in a fluid environment; and in consultancy, where you have the capability to propose solutions, but often can't implement your own ideas. I'm happy to now be in the corporate, transformative part of my journey.



## Chief Innovation and Information Officer at Ferrovial is an interesting combination—what does your role involve?

It's not very common to join both disciplines! I must focus on pure IT topics and prevent potential disruption from cyber attacks, while at the same time exploring long-term opportunities through new and emerging technologies. These are very difficult dimensions to combine, but there are a lot of commonalities.

The mandate is to combine both parts of the equation. IT is no longer simply a provider. We see ourselves as a partner able to create value, ideate and explore the new, while guaranteeing stability and robustness.

Our transformation journey is covered under our Ferrovial's strategic program, Horizon 24. But we also have Digital Horizon, where our mandate is to accelerate our evolution towards a more asset- and data-driven company. We assess huge infrastructure projects globally where uncertainty is a constant. With the support of data and the latest technology, we must assess, anticipate risk, and add value. We have 50 years of experience anticipating and forecasting risk, but the unexpected events we are living through now prove there's more to be done.

We need to revamp our platforms so they are much more fluid, plug-and-play, and scalable. Digital platforms represent the backbone of the new technology, and the journey to cloud accelerates that capability.

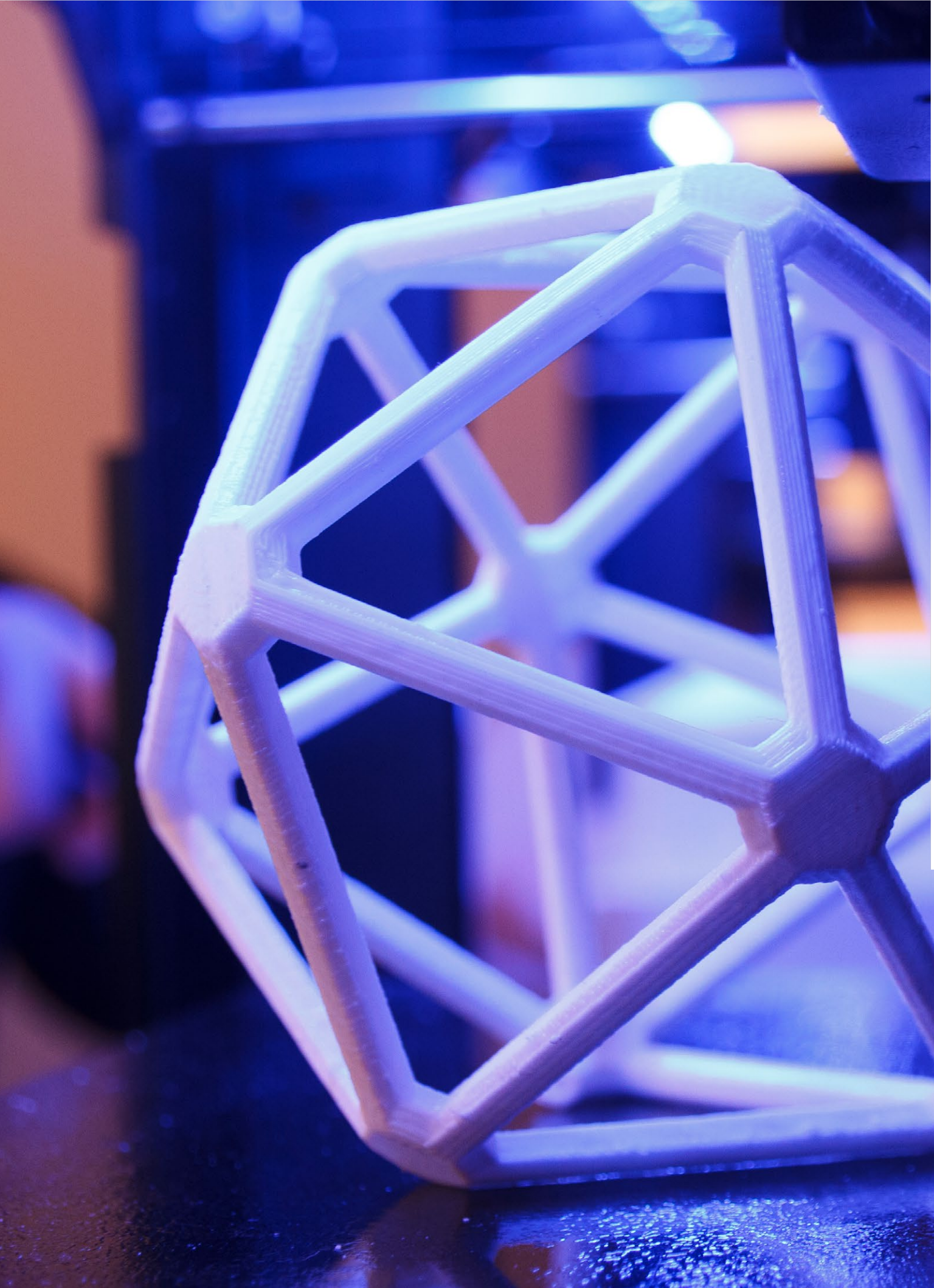
Another angle is processes. We're modifying and simplifying processes in our transformation work across mining, discovery, and Robotic Process Automation (RPA) to create shortcuts, increase efficiencies, and give us a competitive edge.

The adoption of new technologies like AI and blockchain is key, and we are starting to implement interesting use-cases across drones and 3D printing to industrialize those technologies.

We are also striving to equalize and balance the profile of our entire workforce, so we don't have different levels of maturity across the organization with respect to skills and competencies. Technology was not at the core of all operations—that has changed and we need to support our employees through that transformation to help them embrace the combination of IT and innovation as an exploratory journey.

It's about making connections and alliances in an open ecosystem; adopting the working methods of startups; and interacting with academia (we have a strong connection with MIT). We must anticipate the kinds of ideas that will generate opportunities for growth and diversify our current portfolio of sectors. Innovation is part of Ferrovial's DNA and I'm really excited about that combination with IT.





## What have been your biggest learnings from the past two years?

A lot has happened, and we are starting to digest the structural changes that are going to stay. We believe that we have entered a 'never-normal' situation, and that uncertainty must be included in our new decision-making processes.

We must anticipate cycles and develop a more resilient business. We identified resilience as a critical factor, particularly in IT, years ago. That was vital to reacting quickly when the pandemic began.

We must also be willing to operate in a completely different type of environment, and that comes down to trusting in the autonomy and responsibility of each employee. Many of our employees were classified as critical workers during the pandemic.

For example, we were working on the construction of critical facilities, hospital services, and the maintenance of critical infrastructure. I am proud of our entire workforce because they demonstrated autonomy and purpose, enabling us to operate in quite a normal way.

Society has changed in many ways—everything from transport to the concept of what sustainability means. We are looking at research and analysis to understand which of those changes offer the most opportunities.

I think the result of all these learnings is that we will be much more prepared when it comes to managing and anticipating potential unexpected risks.

## What is your approach to innovation? Can you highlight any ground-breaking initiatives?

Our approach is conventional and unconventional at the same time. Conventional from the perspective of the sector, but unconventional because we are dividing our actions across three horizons.



**Horizon 3** is about **disruption**—exploring new technologies and business models. We've developed new ideas around mobility, autonomous vehicles, and connected cars in Horizon 3, and new alliances to support that. We're trying to interconnect our ideas and vision about a future ecosystem together with academia and research centers, using all that information to anticipate 'what if' scenarios to define archetypes and track the evolution of drivers. This will help us to better anticipate opportunities.



**Horizon 2** is around **exponential work**. We're bringing more mature capabilities and collaborating with startups. We're continually scouting for different verticals, with the support of our different Centers of Excellence, particularly around mobility and digital infrastructure. We can improve the competitiveness of our existing assets and business units, for example, by using AI to monitor and anticipate the potential failures of transmission lines in isolated areas at a fraction of the cost. We have hundreds of examples where we're working like this across the business.



**Horizon 1** is about **incremental, day-to-day improvements**. We're proud of our employees and the "intrapreneurial" culture we have. We run programs like Zuritanken to promote a culture of innovation where we receive hundreds of ideas. We recently promoted our finalists' contributions—which represents an inventory of ideas we prioritize according to their potential to drive incremental value.

## How is Ferrovial differentiating from its peers?

We've been quite outspoken about the trends we believe will be the next frontier—including clean energy, which will redefine how we visualize infrastructure and transport.

Sustainable mobility has been in demand for years, and mega cities are consulting and planning for that. We have vast experience in that area and created the AIVIA Orchestrated Connected Corridors initiative to develop infrastructure and technology that ensures conventional and autonomous vehicles can co-exist.

We believe every physical asset will have a digital twin, and that will allow us to visualize, manage and orchestrate those assets. Those assets may be public entities that belong to society, so we have a responsibility to manage them efficiently.

Another important angle is the adoption of AI, which will help us improve rudimentary tasks, assess risk, and identify potential infrastructure problems.

We're always scanning and monitoring what's happening along our infrastructure, and AI, advanced analytics and machine learning will not only bring efficiencies to that work, but will also provide a return for society.

Blockchain is also key. Traceability of all materials and assets, the overall track record of the value chain, where there are 10,000 sub-contractors and suppliers, require a common understanding—and blockchain could bring the neutrality, transparency and trust that is so important if you're going to transfer responsibility along the journey.

The reliability of 5G will also be key. We believe all leading infrastructures will have 5G connectivity, and the benefits that will be introduced will be incredible. The same will be true of connected construction sites, where everything needs monitoring and health and safety is tracked.



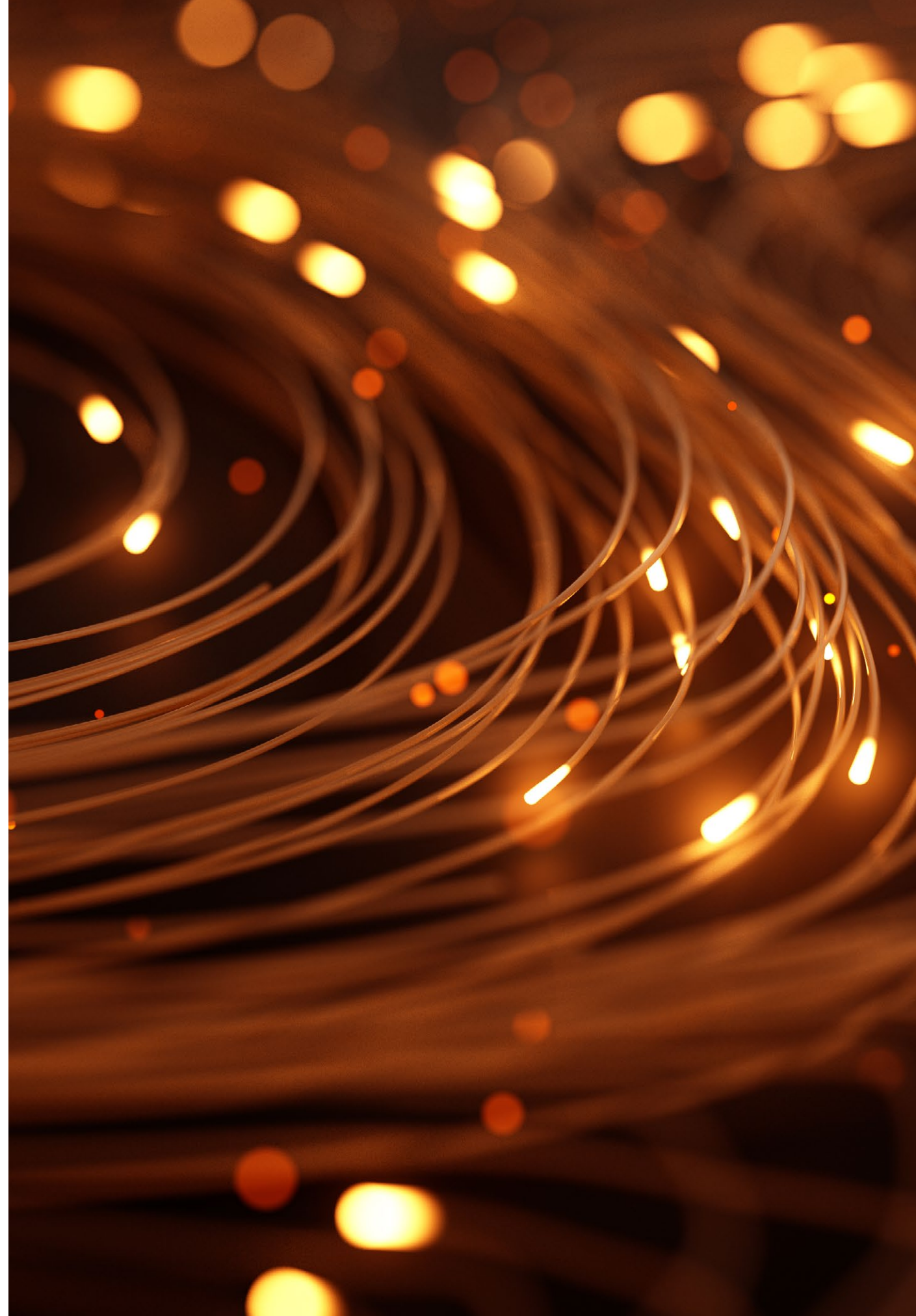
## How do you see your department helping the company and improving IT processes to be more agile, efficient, and automated?

Everybody's talking about how to become more of an agile company, be ambidextrous, scale, and at the same time explore.

I believe it makes no sense to become an AI/IT division if the rest of the company is operating in a different way. As the IT division, or innovation division, we must embrace and represent change, and adopt those changes with the ambition to solve problems that sit between the business and more technical areas.

We're accelerating the adoption of those technologies and methodologies at the core—and I'm not talking about just agile, but also how we transition from an application- to a more product-oriented type of organization. For example, we're following a user-centric design approach, because despite the fact we are in a more B2B space, we need to understand the final users' motivation and their willingness to pay to use our infrastructure.

We're running this transformation by focusing on the interplay of processes, technology and people. We continually track these three ingredients, but in the end it's a cultural change—and there is no one single recipe for that.



## Is data management a key driver to transforming the company for the better?

For sure. The way we structure data and capture its value is the cornerstone of how we unlock potential. We're trying to accelerate the adoption of transversal platforms and democratize the use of data.

It will simplify the way we interoperate with data, with API (Application Programming Interface) platforms and the adoption of domains and services. Before we start to work out any answer, we will first put the question in context of the data. Previously, we stored data, but did not use it. Now we are starting to discover 'unicorns', information that was in storage for 10, 15 years, but will now give us an incredible opportunity to train and develop models for the future.

We want to stop having information in silos. We have consolidated that data with a platform called Pangea, named after the unified continent. We believe in the next two or three years, that obsession of becoming a data-driven company across all verticals and divisions will become a reality.

## What infrastructure and services trends will be the game changer in the coming years?

The main game changer will be the digitalization of the construction process. In many places, construction has been operating for centuries in the same way. Introducing connectivity and digitizing it will change everything.

The adoption of orchestrated ways to manage construction is also key to always operating with the social and economic angle in mind. That balance requires companies like us that have the historical muscle, and a commitment to the adoption of new capabilities.

There are many other trends coming and I will summarize a few:

- The first is the **adoption of a more collaborative type of work**. We belong to a sector that has traditionally been isolated in our own discoveries. Startups and research centers are emerging that are socializing and collaborating, and we are embracing that.
- Another important trend is the **mobilization of our workforce**. Every employee in the front line of our construction site and maintenance work is transferring and receiving information that will lead them to make efficient, informed decisions in real time.
- The **Internet of Things (IoT)** is a critical component that is revolutionizing the way we manage assets. It's going to completely modify the way we approach maintenance and the operation of assets. The asset itself will also be able to optimize and allow for different maintenance strategies.
- **Generative design** is creating a lot of positive noise, because with the support of this technology, we can expand the dimension of design process. Design is based on iteration, using a handful of factors. If we introduce hundreds of thousands of factors—economic impact, and other externalities—it's going to revolutionize our approach and help rapidly move from design intent to construction.
- **New materials** are something we are giving a lot of attention. With newer materials, we can embed green energy or circular economy practices.
- **Energy and sustainability** are also important. We belong to a sector that's still associated with non-renewable sources. We're adopting sustainability strategies to reduce our carbon footprint in a smart way, with a competitive angle that also brings efficiencies and provides a better social outcome.
- **Connectivity** is going to change dramatically, and 5G is bringing incredible opportunities for linear infrastructure. We believe the car is going to be the new mobile phone, and mobile phones require connectivity. So new linear infrastructure will necessarily require strong, reliable 5G.

## Where do you see Ferrovial in two years to five years?

Five years from now, Ferrovial is going to continue to be a global leader, with sustainable infrastructure in our verticals—from mobility at the airport to construction itself. We are going to keep playing an important role in society.

We will be the most efficient, data- and technology-driven type of new infrastructure and construction company, with responsible suppliers and subcontractors. We will be open to a society where startups, new technologies our future leaders and clients all work together to create that balance. And I think we're well-positioned to go for it.

## What inspires you the most?

It's inspiring to visualize change. We belong to a sector that has an evident impact on society. Society is changing and we need to drive a positive impact through a focus on sustainability and equal opportunities—because every time we develop infrastructure, we create opportunities. We enable the transfer of goods, people, and cargo. Even during the pandemic, we are activating economic drivers at a social scale and that gives everyone in our company a sense of responsibility.

We're in a time of great opportunity, because society is demanding change. As a group, we could represent a catalyst for that change. And that sense of responsibility is evident for our entire workforce.



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