The Industrialist

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"Our industry is changing, the pace of digitalization is accelerating, and this will allow us to address the central challenge of our generation, which is decarbonization."

Gilles Godard
Chief Digital Transformation Officer,
VINCI Construction

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VINCI Construction: Building a digital and sustainable future

Each month, we speak to a different industry leader about their approach to innovation and the emerging trends impacting the industrial sector. For this edition, we talked with VINCI Construction's Chief Digital Transformation Officer Gilles Godard about the digitalization of the construction industry, where VINCI Construction is on that journey, how they are addressing the net-zero challenge and why he is optimistic about the future of the industry.

In conversation with VINCI Construction's Chief Digital Transformation Officer, Gilles Godard

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Cyclical demand and unrelenting pressure to balance time, cost and quality have always been at the core of the construction industry. Today, construction companies are also dealing with the sustainability imperative, digital transformation and accelerating pace of change. With commitment to its people, environment, clients, stakeholders and communities, VINCI Construction is addressing all of these priorities. As a descentralized company with 1,300 autonomous business units, a consensus on a common language and management model, supported by strong digital backbone for information systems and business operations —enabled by the extensive use of data, gen AI, digital twins and other tech solutions— are key for achieving their strategic priorities. This is what Gilles Godard and his team are building and implementing in their Connect Programme.

What one word describes you best?

To describe oneself in one word is always tricky. I think the word I would choose is **'deliberate'.** I like to think of myself in that way, because I believe we are what we do. We are our actions. And therefore, it is very important to think before we act. And then to talk the walk, to walk the talk, to think about the consequences of our actions and, most importantly, to act.

Could you give an overview of VINCI Construction and its business?

We are the construction arm of VINCI—a world leader in concessions, energy and construction. VINCI Construction is a people-first company, consisting of 115,000 women and men working together to provide a large and diversified construction related expertise in over 100 countries, in about 1,300 business units, steeped in a culture of builders, and managing 70,000 diverse projects a year.

An important factor is that we are a decentralized company. Each of our business units is an autonomous company with one manager, one business line, a territory, a profit and loss account and its own resources. It operates with a high degree of independence and is measured in its all-round performance with KPIs on safety, environment, social value and profitability as a percentage of our revenue—but the last is just the result of everything we do. Together these units generate about €30 billion a year. Based on this and what you read in magazines, you might think that VINCI Construction is a big player with big projects. But the reality is very different: it´s a lot of small projects at about an average of €400,000 per project.

We have a simple organization based on three pillars: The first is Proximity Networks, which includes operations in local markets such as buildings in France or road infrastructure in the US. Then we have a Major Projects division which deals quite naturally with very large and complex projects all over the world. Finally, there's Specialty Networks, which consists of specialist contractors that provide services and expertise to other main contractors.

What is your secret sauce for keeping such a large, diverse organization working effectively together?

Our vision is to Build Better Together. We all share the same passion for **building**—our own people, our clients, our partners. Why better? We believe that good and great are never enough. We have to constantly be **better** on our worksites. We have to be more inclusive with our people, and in serving the communities we operate in and the environment. And **together** – people come first: our employees first, our customers first, our partners and our stakeholders, all working together. That team spirit, that's the secret sauce.

To what extent is your business affected by macroeconomic trends?

Construction is a very cyclical business, and because we operate globally the cycles are very different across our different geographies and markets.

We know these cycles will happen, but they are unpredictable and we don't know how to time them. We believe strongly that our business is to adapt to these cycles when they do happen.

Having said that, there are some very powerful trends that go beyond these cycles and drive our business. These are the major transitions, of which the most important is the environmental transition. Digital transformation is critical too. So low-carbon transport, urban development, protecting infrastructure and assets from the consequences of climate change, maintaining existing assets such as hydraulic networks, providing ecological engineering. These are all strong trends that we see everywhere.

As the Chief Digital Transformation Officer, what is the change mandate that comes with your role?

My most important mandate is to build consensus on our common language and how we implement it across the organization. We started this journey by defining "The Way We Work", which describes in broad terms how we operate in our decentralized model. I said that our 1,300 business units operate autonomously, but the reality is we are a company. So, there's a balance between autonomy and working together.

"The Way We Work" is complemented by "The Way We Are", which describes our five basic attitudes: humility, team spirit, entrepreneurship, excellence and transparency. This is a very strong foundation that allows each unit in the company to operate within very clear boundaries yet sharing a common street. We are now developing the tools to make and practically implement our common language. The core is our ERP system, which replaces the multitude of management and information systems which we inherited when we reorganized our activities in 2021. Our priority is to offer all our business units an integrated information system platform that supports our common language, provides standardized, real-time information for our managers, and connects all our people on-site to our entire organization.

The digital landscape in the construction industry is very dynamic. Every day there's a new company coming up with a new solution to solve one of our very practical problems on-site. What gives our operational model so much power is that our business units have the autonomy to choose and implement the best tools on-site to solve their problems. Therefore, they're agile and fast.

Of course this sounds great, but it can end up in a very big mess. We're talking about building information modelling, logistics planning and coordination, project management, engineering calculations and many more. So, the appropriate level for deciding which tool to use will vary. There will also be synergies between business units at a country level, and these can happen quite fluidly.

Some of the solutions will be stand-alone and don't need to interact, while others do need to talk to related solutions or to our management and accounting systems. In this context, our role is to define very clearly, and to build and deploy the backbone of our information systems common to the entire company, so this very diverse landscape can easily work and connect to each other. That's the objective of what we call our Connect program.

We tried, a few years back, to operate a model where we didn't have a very strong backbone. We had more like a bus, on which everyone would connect and the applications could talk to each other. It didn't work. You need a strong backbone in the middle, you need a common language. With it the system operates, and you can unleash the power of these tools.

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How far along is the engineering and construction industry in its digital transformation?

Some people say the construction industry is far behind, but I have a slightly different opinion. I think digital is everywhere in construction. In design, we have moved from two-dimensional paper to the point where everything is 3D and now even 4D. We measure progress on-site daily with scanning tools, and this feeds directly into as-built records. Projects, plant and equipment are monitored in real time using artificial intelligence to help identify quickly where we can improve safety and productivity. Building Operating Systems (BOS) are being implemented to optimize planned and reactive maintenance. Asset managers are digitizing their legacy assets.

All this is happening. So, I'm very optimistic about the future. Our industry is changing, the pace is accelerating, and this will allow us to address the central challenge of our generation, which is the decarbonization of our activity.

Having said that, there are three specific challenges to the digital transformation of our industry which still need to be addressed. **The first** is that we are a very granular and fragmented industry with a lot of players in the value chain, from project design all the way to its delivery. The management and integration of data all along that supply chain is critical, and we're not quite there yet.

Second, a construction site, if you think about it, is actually a factory. But critically, it's a factory that's been designed and built for just one project and then will be decommissioned. In other industries, they can invest quite a lot of money into the design of their factories because they expect to produce lots of items. So, the ratio of design to items is much higher in our industry. People have struggled with this problem for some time. There are two main ways of dealing with it: one is to build off-site, but no-one has really made that work yet. The second is to standardize construction sites and methods.

The third challenge is we operate in a live environment, which has particular risks and uncertainties. For example, the soil condition changes and is very difficult to predict. Weather always changes, so do traffic and logistics. We operate in an environment where margins are slim and losses can be very significant. So, what do successful contractors do? They are very, very focused on identifying and managing risk. This can make them quite risk averse, which means the pace of change can be slow in our industry.

Where do you see key benefits of digitalization?

The key driver in our industry is time. Shortening the time to market for our clients is very important. Yet the tendency has been for time to market to grow. We need not only to reduce our own construction time, but also help our clients manage their regulatory environment and manage their stakeholders. We can do this by optimizing design and construction, by getting better designs into the framework earlier and working more efficiently with our supply chain. This will reduce disruption; it will reduce and provide traceability of the carbon footprint—all while providing real cost-benefit services to clients, such as telling them in real time what their options are. You know, you always have the option of investing more now to reduce your impact later. This is traditionally part of an investment cycle; now we can do it in the carbon cycle. Re-using pre-existing assets is also very important for driving the top line. So is making the construction process more flexible, because after all, change is very expensive.

Putting digital in our existing assets will help us to re-use them by giving us better knowledge of them. This will increase flexibility in the construction process. Historically, regulatory and other constraints have made it very difficult to manage change in the construction industry, as well as increasing cost and time. By increasing flexibility, digital can enable better change management on-site and reduce the impact of late changes. And last but not least, clients are looking more and more at how we can optimize the lifecycle of their assets. This will be something that digital can help us achieve.

What role does digitalization play in helping to retain and attract talent?

The generations we are recruiting today—the Gen Z, the Gen Alpha—they were literally born with an iPhone in their hand. So, they expect us to operate that way. That presents quite a few challenges. Like how can we use digital to make our processes more interesting? How can we gamify construction while keeping the rigor that we need on-site? I think it has a big role in how we manage training in a more decentralized way. For example leveraging Youtube-like training videos, but using the appropriate tools to ensure the key messages are there, and how we do things from a safety perspective. There's a great power in the company to get our people to help each other and at the same time, provide high quality training which is more engaging for our people.

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Could you tell us more about your Connect program, and how it supports VINCI Construction's strategic priorities?

Connect is our practical vector for implementing our common language and our management model.

In this sense it is a very strong part of our business journey. And in a decentralized organization such as ours, it is a considerable change management endeavor requiring everyone to embrace the principles of The Way We Work. In that way, Connect is an accelerator for achieving our strategic priorities.

The first of these priorities is to value people above all. We have very strong access within Connect to simplify and decentralize the system, and put it at the service of our operational staff in the business units and on-site. It has to provide real-time information on their operations integrated in the site. Key is to help people on-site, and as a side product, it will create all the reporting that the organization requires.

A second strategic priority is to partner with our clients and our stakeholders, and here Connect has a very important role to play. It can provide open-book information to everyone working on a project and maximum transparency to our clients. In our construction activities, this is key. Our alliances entail early contractor involvement or partnering contracts, alliances, which are very developed and require a high level of transparency and trust. Connect is a great tool in that respect.

Our third priority is to deliver projects with a positive impact, and you can only do this if you measure it. Connect is a key tool for this. It will assist in measuring our carbon footprint and environmental impact in real time. So it's completely aligned, and will be an accelerator for achieving this key objective.

We also want to increase our know-how and our industry-leading expertise. By providing a strong backbone for our systems and our business operations, we allow the system around it—what we call the tools for the site—to constantly develop and adapt in a very dynamic way. It also helps us to innovate and look ahead in a sustainable way by providing us with good information on all our construction activities. This gives us a better understanding of where we need to focus our efforts and allocate our resources for innovation and a sustainable path" to go forward. So, Connect is completely at the core of our strategy.

Construction projects are becoming more complex to deliver, with more technology embedded and ever-more regulation to comply with. How is VINCI Construction leveraging advanced technology to support delivery excellence?

Building information model (BIM) is now a standard. We use BIM to design, we use it to prepare the site, and we use it in our toolbox meetings to explain and showcase to our teams what is going to happen during the day. We also use BIM as an interactive tool for discussions with our teams, to coordinate with our partners and with our supply chain, to manage change, to record progress, and to provide accurate as-built data and to be the foundation for the building operation system.

Digital twins are part of what we call this building operation system, and we are beginning to see more and more sophisticated models appear. The key issue here is that you need the twin to be usable by the participants in your value chain. And what we tend to see is different digital twins: one for the architect, one for the main contractor, one for the facilities management company. More work is required to get into a full modular twin, and that will be key to integrating the value chain of construction.

What about artificial intelligence and gen AI? Do you think it has the potential to transform how you design, how you build, and how you operate your business?

We have already started this journey. We have generative design in quite a few of our businesses. In one of our companies, for instance, we use generative design to find the optimal solution to a problem. It's quite fun to watch, because you see generative AI go through different designs before arriving at that final design, calculating in real time. It's actually quite impressive. We've also used generative AI in a project in New Zealand to find the optimal route for a road. You give it a starting point and an end point, you give it the stakeholders, the environmental constraints, the soil, and it will find you the best route. That's quite amazing.

Then we use gen AI for document analysis. We receive lots of documents when preparing a bid, and we use it to check for inconsistencies and to anticipate the risks. We use it to identify opportunities as early as possible, using publicly available information. We use it on-site for classification of our activities, which helps us analyze our operational performance. And like a lot of people, we use it for fraud detection. We also use it for quality control and to help increase the performance of our plants and equipment.

When you see how AI has massively improved video games by generating, in real time, scenarios that interact with the players, it's easy to imagine what it could do on a worksite to anticipate the difficult situations which might arise. This would allow us to give advance warnings to our teams, which would be great. It can also be used by operators to improve construction methods and perhaps, in the future, to enable better connectivity between robots, co-bots and people.

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What innovations do you see that will help reach net-zero emissions in the industry? And how is VINCI Construction responding to the net-zero challenge?

I'll take that in two steps. On industry level, to reach net zero emissions, there won't be a single big game-changer. There's not one button that you can press and that works, like turning on a nuclear power plant to reduce your carbon footprint if you are in the electrical sector. It's going to be a lot of initiatives from the ground up. Our model is very well adapted to that. We must work on everything. Obviously, we need to move from carbon-based fuels; that means electricity and hydrogen. Why? Because we use plant that uses a lot of power. So, we'll see small plants using electricity and larger equipment probably using hydrogen. That transition will take time. We have existing assets, and we're not simply going to throw them in the bin and replace them. In the meantime, we're going to switch to biofuels or gas rather than diesel. But we also need to decarbonize the entire supply chain, and that is the big challenge—the scope 3. So that means cement and concrete, it means steel, it means more environmentally friendly materials such as sustainable wood. That's the industry challenge.

As for VINCI Construction, our first objective is to design to use less material. And that's great, because that's the business model of Freyssinet, one of our companies—that's what they do every day, all day, and have been doing the past hundred years through prestressing concrete. We will continue that journey and expand it. The second is to use low-carbon materials. We are one step ahead in this with our EXEGY program—we've set a target that 90% of the concrete we pour worldwide by 2030 will be low-carbon concrete. The third is to reduce carbon-based fuels, so we decarbonize our plants and our sites by moving away from diesel-based solutions. And the last is to design and build for a zero-carbon lifecycle: energy-positive buildings, smart grids, re-using materials, and planning the decommissioning of assets.

But the most important lever we have is our people—empowering our 115,000 employees. They are up to the challenge, and every day they come up with ideas for solutions. They constantly try new things to reduce the carbon footprint of their activities, whether it is our own carbon footprint, that of our supply chain or that of our clients.

How do you see the role of data to accelerate sustainability transformation?

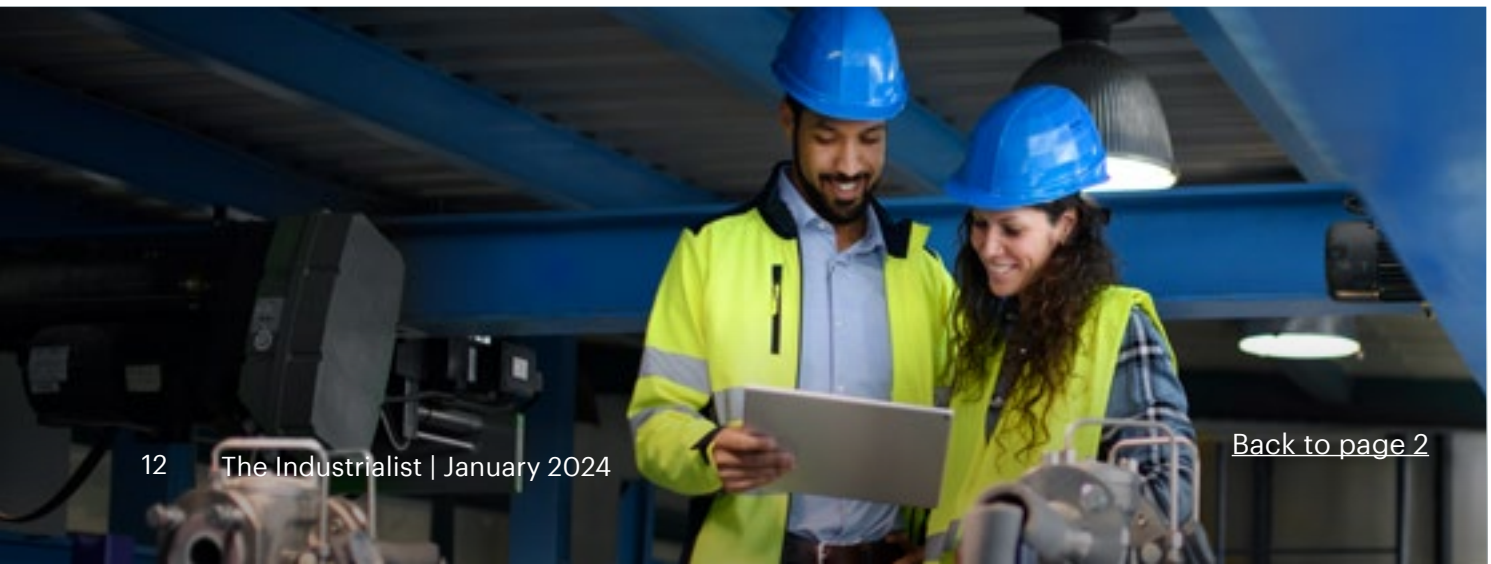
It's often been said: you cannot improve unless you measure, so data is at the heart of everything. We need data to model what we do. We need data to plan how we do it. We need data to execute it and then to monitor it, and then to feed that back into the cycle. And we need data to coordinate with our value chain. So, data is at the heart of the sustainable transformation and everything we do.

You know, people build these big data lakes. But the truth is, if it's a disorganized data lake, you can't actually do anything with it. So, to get back to where we started this conversation, the common language part, it's vital that you qualify the data and ensure that people put the same meaning behind the data, because that allows you to leverage it across your sites and across your industry.

Where do you see engineering and construction going in the next decade, and what do you expect will impact the industry in the future?

The construction industry is quite ancient, and is driven by people's need to reside, to transport and to move. These are very strong drivers. I believe that we will continue to be a people-centric industry, with a strong focus on safety, on cooperation, on collaboration, on working together.

The pace of change will accelerate. The re-use and transformation of existing assets will increase; we are already seeing this. We will see the direct integration of technology in construction materials and within the projects. So, it won't just be technology to build; it will also be technology within the buildings themselves, within the civil engineering that we produce. I think new materials will be developed that are stronger and more versatile; we haven't even imagined those which the future holds. And contractors will integrate the value chain, all the way from design to delivery—integrating decommissioning in the process, with collaborative platforms at the heart of this integration.



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To conclude, would you tell us what inspires you most?

More and more, it is great teams with empowering leadership. One example that comes to mind is from the ‘60s, how the American space program took the US from nowhere to the moon in less than a decade. This was an incredible achievement that could not have happened without strong leadership, which empowered the people at NASA to accomplish this. More recently, if you look at what Satya Nadella has done at Microsoft: it used to be like a bureaucracy, now it’s an incredible company. He did this in less than ten years, again through empowering his people. And then of course, closer to home, how VINCI became VINCI. It is a great journey, and it’s exactly that: a journey of empowering people.

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In closing

Just weeks after the COP28 climate summit in Dubai, many of the same global business leaders gathered for the annual World Economic Forum in Davos, Switzerland. While discussions were focused around AI, geopolitics and the predominantly negative near-term outlook for the world shown in WEF´s Global Risks Report, climate change remained high on the agenda with a growing understanding of the interconnectivity to other global challenges. Still, the transition toward net zero is not moving fast enough.

How can new technologies accelerate industrial decarbonization?

Despite facing an all-time high rate of change that is expected to accelerate even further, the majority of global business leaders remains cautiously optimistic about 2024, according to Accenture´s Pulse of Change: 2024 Index. The reason for this is that the most significant source of change and disruption–technology–is also seen as opportunity and key for systemic change.

To support the progress in long-term global decarbonization including in the industrial sector, bold actions are required. From adopting circular economy practices and advanced manufacturing techniques that help reduce waste and energy consumption in the production process, to rapid scaling of renewable energy, smart grids, and the use of digital platforms for carbon accounting and blockchain for supply chain traceability – technology, data and AI, including harnessing the power of generative AI will help industrial organizations achieve faster and more effective decarbonization.

The successful implementation of these technologies however often requires collaboration among various stakeholders, investment in research and development, and supportive policies that incentivize the adoption of sustainable practices. If businesses act on this ecosystem collaboration imperative now, our recent Powered for change research shows that in only three years they could set the foundations for new economic pathways on the road to net zero.

The insights provided by VINCI Construction´s Chief Digital Transformation Officer, Gilles Godard, in this edition of The Industrialist exemplifies that this is also very much true for the construction industry. Technology and digitalization help address the need for efficient construction practices, including optimizing design and construction processes, managing regulatory environments, and collaborating effectively with the supply chain–all with the goal to reduce construction time, minimize disruption, provide traceability of the carbon footprint, and offer real-time cost-benefit services to their clients.

Best regards,

Thomas Rinn
Senior Managing Director,
Global Industrial Lead, Accenture

About The Industrialist

The Industrialist is our monthly digital publication that puts game-changing perspectives in the spotlight. It combines thought-provoking content and insights, to keep you on top of what's new in the industrial industry.

Featuring different CXOs and diverse views, you can be inspired by leading innovators, explore the latest trends, tools, technologies, and innovations, and ignite your industry interest with transformational thought leadership.

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