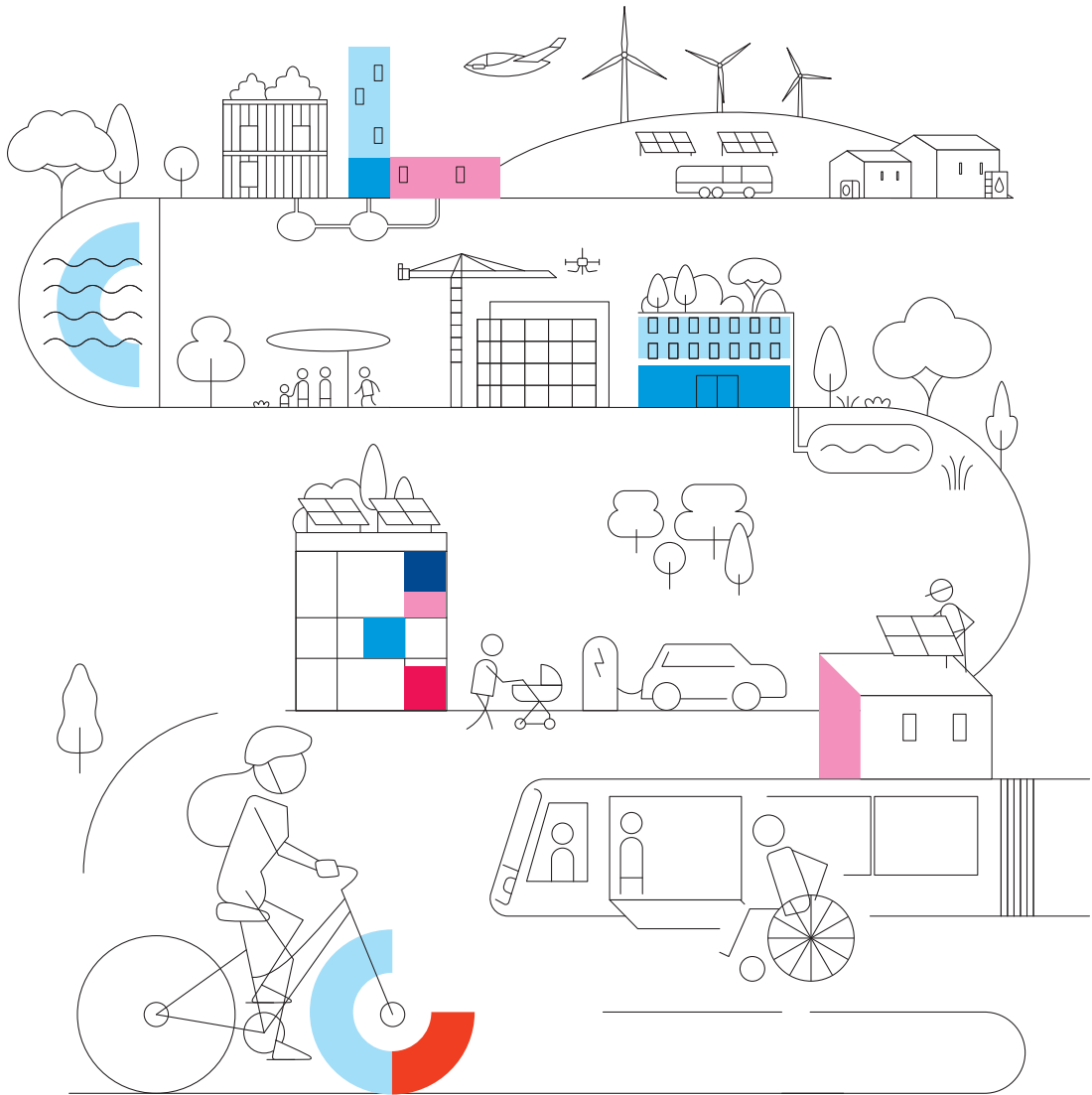


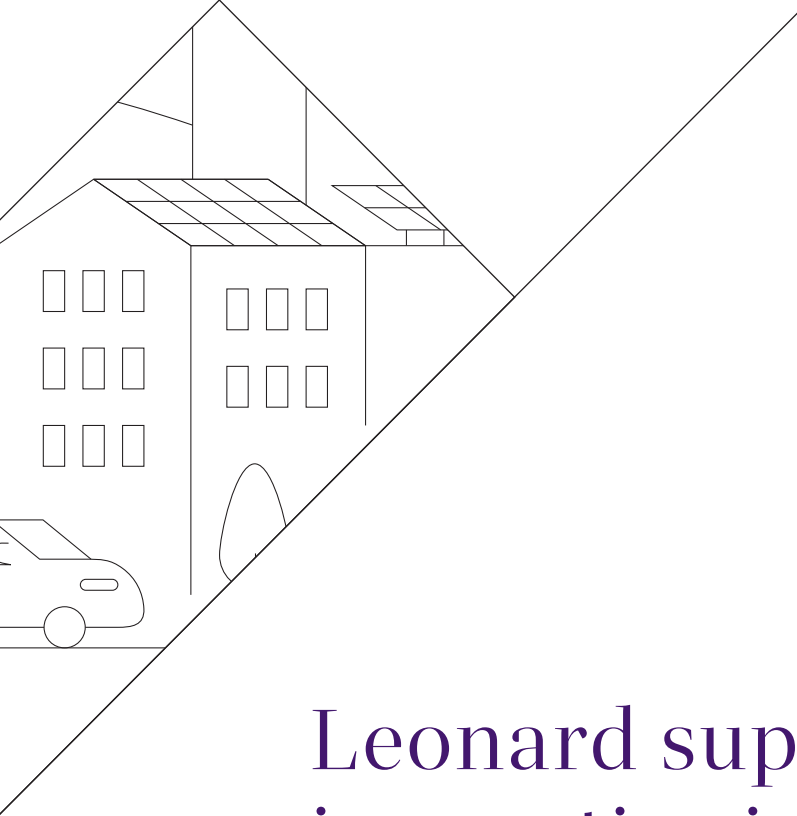
# LEONARD

YEARBOOK 2025



Construction, Mobility, Energy, Real Estate

# Shaping solutions



CONSTRUCTION • MOBILITY • ENERGY • REAL ESTATE

# Leonard supports innovative initiatives to shape the future of cities and regions

VINCI, a global leader in concessions, energy, and construction, is at the forefront of addressing the environmental transition challenges in living environments, infrastructure, and mobility. Its ambition is also to contribute to social progress by acting as a humanistic and socially responsible company.

**It is within this context that VINCI created Leonard** in 2017.

The platform brings together a community of stakeholders – thinkers, decision makers, and entrepreneurs – united by the ambition to develop environmentally friendly innovations. Together, they make concrete and operational contributions to building the cities and infrastructures of tomorrow.

# Leonard fosters discussions on major *transitions*

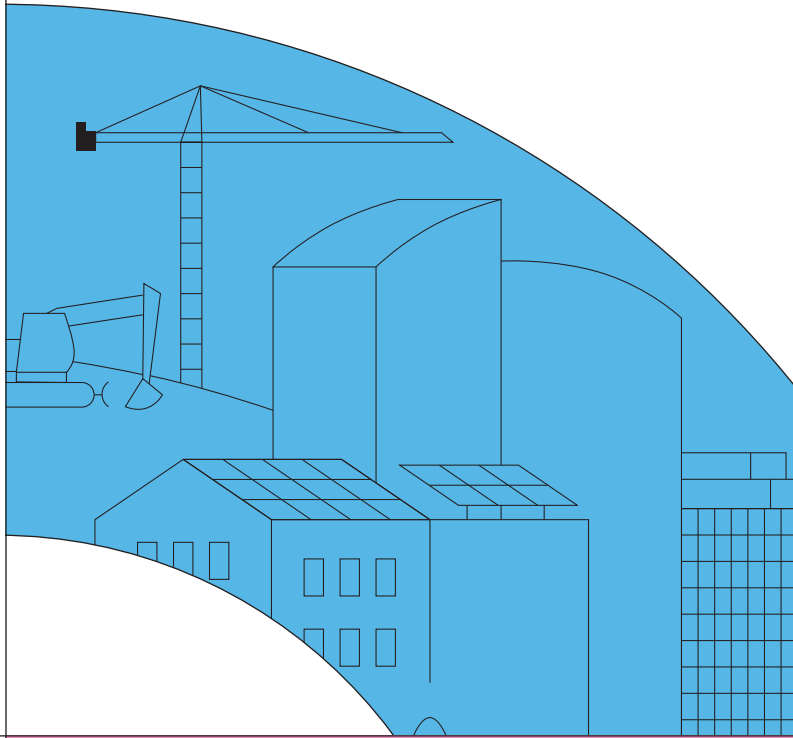
IN 2024

**190**

speakers  
at public events

**44**

articles  
and studies  
published



# Leonard supports *action*

**4**

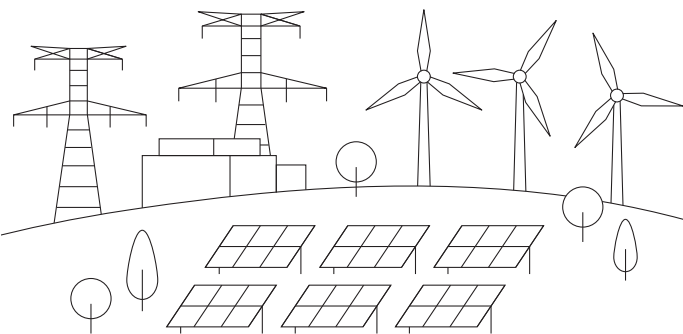
specific  
incubation  
and acceleration  
programs

**215**

projects  
supported  
since Leonard's  
inception

**12**

ongoing foresight  
initiatives



# Leonard and its network *get results*

**1,000**

contracts signed  
between VINCI and  
supported startups

**100**

AI experts  
trained within  
the VINCI group

**32**

new businesses  
developed through  
the Intrapreneurs  
program

# Construction robots must prove their worth to be adopted

**The construction sector is gradually warming up to the idea of robots on worksites. While early adopters recognise their potential to innovate for the most strenuous tasks, many remain skeptical due to costs or the robots' ability to adapt to the unique challenges of each project. Startups have a role to play in helping large companies overcome cultural barriers and introduce business models that could transform the value chain.**

**To explore the challenges of robotics in construction, Leonard commissioned its partner Sifted, a media outlet dedicated to the startup community, to draft a report on the topic.**

The report highlights new opportunities emerging from companies in the United States, Europe, and Japan. The United States leads in construction robotics funding; Europe is home to innovators like Gropyus, specialising in prefabrication, and Flyability, whose drones inspect hard-to-reach areas. Japan, on the other hand, has already implemented automated dam construction projects, providing a glimpse of fully robotic worksites.

The construction sector faces productivity challenges, labor shortages, and hazardous working conditions. Robots excel in tasks that are "simple, repetitive, and dangerous," enhancing productivity while ensuring worker safety.

**The goal is not to replace workers but to imagine new collaborations between humans and machines.**

Robots take on repetitive and high-risk tasks, enabling workers to focus on more skilled and creative roles. By making construction more appealing, robotics also attracts new talent, often not originally from the sector.

**Startups face unique challenges in construction automation:**

earning the trust of site managers, solving calibration and transportation issues, and even addressing aesthetics – should robots look friendly or simply be functional? Flexible business models, such as leasing or robots-as-a-service, lower entry barriers, allowing companies to test tools without significant upfront investment.

**Why is this robotics revolution possible now?** Thanks to mature technology combining IoT, LiDAR, satellite systems, and advanced AI. These technologies make robots smarter, more adaptable, and better equipped to manage real-time changes on ever-changing construction sites.

**The global construction robotics market is growing rapidly,**

with its value expected to double to €750 million by 2029. Robotics provides the construction sector with a lever to become more efficient on multiple levels, from boosting productivity to optimising material use. Investors are taking notice and organising to support startups entering this sector.

The real breakthrough for the sector lies ahead. According to the Crunchbase database, only 17 construction robotics companies worldwide have secured funding from investors since 2022.

**Are you interested in robotics for construction?** The report is available for consultation and download, and we invite you to share it widely. ■



**Access or download the report:**  
<https://leonard.vinci.com/en/robots-construction-report-sifted-leonard/>

# Faced with the climate challenge, no mitigation without adaptation



**Faced with climate change, we must simultaneously reduce CO<sub>2</sub> emissions (mitigation) and prepare our cities and regions for the impacts of evolving climate conditions (adaptation). As a builder and operator of infrastructures at the core of climate challenges, VINCI has a responsibility to provide tangible solutions and to be a recognised player in enhancing the resilience of territories.**

**Three questions for Isabelle Spiegel, VINCI Vice-President, Environment.**

## **How does VINCI build its adaptation strategy to address climate change and its consequences?**

As a transport infrastructure concession holder, VINCI is required to adopt a long-term perspective, as our contracts often span several decades. Since 2017, we have initiated, with Leonard, a foresight approach focused on climate resilience. We have also developed ResiLens, a tool for visualising and pre-diagnosing the criticality of infrastructure in relation to climate risks. More than 200 employees have been trained on these topics. Only a systemic, multi-stakeholder approach grounded in a deep understanding of the territory ensures the effectiveness of an adaptation strategy. Flood forecasting is a good example – it is addressed on a watershed scale using simulation tools such as CaledonIA, developed within the Group.

## **Adaptation, in the long run, is a matter of anticipation. Given the uncertainties surrounding climate evolution, how do you choose a credible scenario?**

There is a real need to share methodologies so that all stakeholders can act consistently. In France, the new National Climate Change Adaptation Plan (PNACC-3) is based on the

***“A good adaptation strategy begins with a systemic vision of the challenges within its territory.”***

assumption of a +4°C average temperature increase by 2100. This provides a useful framework for cooperation among public authorities, local governments, private actors, and insurers to design new economic models for adaptation. There are about ten countries worldwide that already have similar adaptation plans; the United Kingdom published its third climate adaptation plan in 2023, and Colombia is also highly committed to adaptation, as well as biodiversity preservation.

## **Once risks are identified within the framework of shared scenarios, how do you take action?**

The VINCI Group is committed to providing solutions! Internally, we have compiled a catalog of 75 solutions for climate adaptation. One example I particularly appreciate is the creation of urban cooling islands, illustrating the need for urban centres to adapt

and the essential collaboration between public and private sectors to reinvent urban planning. Revilo, which won the Grand Prize of the VINCI 2024 Environment Awards, contributes, with its expertise, in combining soil de-impermeabilization, rainwater re-infiltration, and greening efforts. ■

# Small modular reactors attracting interest from investors

**A promising decarbonised energy solution for both cities and industry, small nuclear reactors are disrupting this traditionally state-run sector. Private players are now at the forefront of innovation, both from the perspective of companies and investors.**

Small Modular Reactors (SMRs) can be installed on a reduced surface area (10 to 15 hectares compared to 100 to 300 hectares for a 900 MW nuclear power plant); they benefit from innovations in passive safety, which reassures and makes it possible to consider installations near urban centres; SMRs produce between 50 and 300 MWe, but can operate in a modular network depending on demand; they are prefabricated in factories, which reduces installation time (from 3 to 5 years compared to 10 to 15 years) and on-site installation costs; they produce electricity, of course, but also heat that can be used for industry or district heating networks. Finally, the energy produced by SMRs is decarbonised. These are all qualities that generate global interest in this technology, from both governments and private companies.

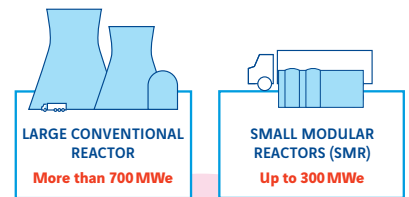
## On the side of private companies

The tech giants are showing growing interest in SMRs due to their massive energy needs. Google has signed an agreement with Kairos Power to use SMR energy in its operations, particularly to power data centres and AI-related projects. Amazon is investing to ensure a decarbonised and stable

energy supply for its logistics and digital activities. Microsoft is actively exploring SMRs as part of its energy strategy to support its artificial intelligence ambitions and reduce its carbon footprint. In 2023, the company signed an agreement to acquire nuclear energy through Constellation Energy, which aims to restart a unit at the Three Mile Island nuclear site, closed since 2019. This project could produce 835 MWe of energy by 2028.

## On the side of governments

In the United States, the Department of Energy (DOE) announced a \$900 million program to accelerate the deployment of Generation III+ SMR technologies. The United Kingdom sees SMRs as a key solution for achieving carbon neutrality by 2050: a government funding of £210 million has been allocated to support Rolls-Royce. The global market for SMRs is expected to reach \$72.4 billion by 2033 (see opposite) and SMRs using advanced technologies like molten salt reactors. Among other countries, Canada, which views this as an opportunity for the development of its remote regions and industrial activities, Russia (which has SMRs on floating platforms), China, South Korea, Japan... ■



### SMR in 3 key points

**Electronuclear capacity**  
Up to 300 MWe per unit.

**Small footprint**  
They physically occupy a fraction of the size of a conventional nuclear reactor.

**Modular**  
Systems and components can be factory-assembled and transported as a unit to a location for installation.

# \$72.4 billion

*These are the findings of the latest report released by IDTechEx, titled Nuclear Small Modular Reactors (SMRs) 2023-2043. It shows that the global SMR market is expected to reach \$72.4 billion by 2033 and \$295 billion by 2043, an annual growth rate of 30%.*

## NuScale

*The small nuclear reactor project by the US company NuScale should be operational in 2030, with a 12-module power plant providing a combined output of 720 MW. The Department of Energy has granted NuScale around 1.4 billion dollars to develop this project, the most advanced in the United States.*



# Industrial startups and artificial intelligence: a winning combination?

**After a decade dominated by software solutions, startups in the construction and infrastructure sectors are now diversifying, driven by the urgency of the climate crisis and the worsening geopolitical context.**

## A global reality

We spend 80% of our time in a built environment that serves as our home, workspace, and leisure space. An additional 10% of our time is spent in motorised transportation, whether private or public. In the face of climate change, decarbonising the infrastructures we rely on to live, work, and travel is a critical challenge for the future of our societies. This requires increasing electrification and the adoption of breakthrough technologies.

## Startups inspired by the need for transformative change

The scope of the problem has a unifying virtue: it brings together engineers and entrepreneurs with a shared mission to invent a decarbonised society capable of meeting our needs and sustaining our lifestyles in a durable way. Profound decarbonisation of the economy cannot be achieved through digital solutions alone. Industrial processes must also be rethought and innovated upon.

In this context, new startups are stepping up to design, manufacture, and produce materials, tools, or robots that provide concrete solutions. For instance, we need low-carbon concrete that is as strong as traditional concrete but reduces CO<sub>2</sub> emissions by 70%. We also need materials that combine robotics and AI to invent and produce lightweight structural components that can replace steel, concrete, or aluminum in construction and mobility, such as those offered by Strong By Form, a company specialising in enhanced wood manufacturing.

## The growing interest of investors

In parallel with the rise of industrial solutions driven by startups, the fundamentals of our economy are undergoing a radical shift. The outsourcing of production tools and the prioritisation of service economies in developed countries have shown their limitations.

The aspiration for greater independence in the production of materials and energy is now widely recognised. Before COVID-19, the global supply chain operated on the “just-in-time” model. Since the pandemic, a “just-in-case” approach has emerged, encouraging regionalised industrial production and storage.

Politically, this trend aligns with increasing national and continental sovereignty concerns, whether for pharmaceuticals, energy, or materials. Investors have taken notice of this paradigm shift and are now directing their funds toward tangible industrial innovations that advance decarbonisation, offering solid and sustainable returns.

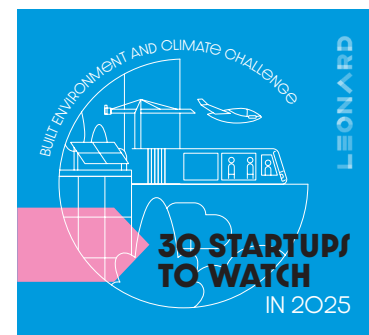
Over the past two years, 40 investment funds dedicated to this real economy have been created globally, raising €10 billion. In 2023, InfraTech (the integration of technology and digital solutions into infrastructures) saw significant interest from investors. By the third quarter of 2024, quarterly investments – totalling slightly over \$2 billion – were balanced across ConTech, Building Tech, and InfraTech (source: Builtworlds).

## A promising new paradigm for industry

Thus, the fight against carbon has found its battleground. These industrial startups are ushering in a promising era, not only for the industry but also for the revitalisation of our regions.

The new paradigm, combining technology, artificial intelligence, material innovation, agility, and flexibility, represents a powerful model for economic transformation. These factors can and should attract an increasing number of talented minds to an industry poised to play its part in achieving carbon neutrality by 2050. ■

Discover our selection of startups!



# LEONARD thanks all of their 2024 speakers

Roger Abou-Khalil, Orano Open Innovation · Frédérique Ait-Touati, CNRS · Rayane Al Amir Dache, École des Ponts ParisTech · Ayda Alehashemi, Paris-Malaquais · Sofiane Aouchiche, VINCI Construction · Yasmina Auburtin, Imagine2050 · Frédéric Augis, President of Tours Métropole Val-de-Loire · Rony Azar, Mines Paris PSL · Alexandre Barré, EDF · Cécile Belard du Plantys, Paris Habitat · Fabien Benoit, Journalist · Pascal Bertheaud, Cerema · Julien Bertolini, VINCI Énergies · Alexandra Bidet, CNRS · Aurélien Bigo, Energy and Prosperity Chair · Gwenaël Bodo, City of Rennes and Rennes Métropole · Romain Bonenfant, FFTélécoms · Emmanuel Bonnet, Clermont School of Business · Alexandre Born, Bellevilles · Patrick Bouchain, scenographer and urban designer · Hervé Bougon, Festival Close Up · Christine Bouisset, University of Pau and of Pays de l'Adour · Rémy Bourganel, Group of Humans · Virginie Boutueil, École des Ponts ParisTech · Maxime Boyer, vice-president of Toulouse Métropole · Philipp Braun, École des Ponts ParisTech · Alexandre Breerette, Explain · Martin Briand, École des Ponts ParisTech · Anthony Briant, École des Ponts ParisTech · André Broto, mobility expert · Michaël Bruel, La Varappe · Vincent Callebaut, architect · Marie-Pierre Callet, Bouches-du-Rhône departmental council · Sylvain Chapon, ENGIE · Mathieu Chassignet, ADEME · Étienne Chaufour, France Urbaine · Emmanuel Chirache, L'ADN · Paul Christophe, MP for Nord (14th constituency) · Raphaël Claustre, SIPeN · Christian Clot, Human Adaptation Institute · Clotilde Combe, OpinionWay · Patrick Conan, AXA Entreprises · Rémi Constantino, grand port de Marseille · Pierre Coppey, VINCI · Alexandre Cousin, VINCI Construction · Lionel d'Allard, VINCI Construction · Éric Daniel-Lacombe, EDL Architectural Office · Jean Daniélou, Engie · Gilles Dansart, Mobilettre · Simon de Dreuille, architect · Benoît Decourt, Elyse Energy · Marie Dégremont, La Fabrique de la Cité · Bertrand Degrieck, Syndicat Mixte des basses vallées Angevine et de la Romme · Michel-François Delannoy, Caisse des dépôts et consignations · Antoine Denoix, AXA Climate · Edouard Dequeker, ESSEC · Cécile Desjardins, l'Opinion · Franck Dhersin, sénateur du Nord · Julien Dossier, Renaissance écologique · Cécile Droux, Fondation VINCI pour la Cité · Cécile Dufflot, Oxfam France · Philippe Durance, CNAM · Emmanuel Duteil, L'Usine Nouvelle · Éric Duverger, Convention des Entreprises pour le Climat · Mounim A. 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