



Spotlight on
France



TECHNOLOGY AT HEART



Shaping the circular economy

TECHNOLOGY IN ACTION

We showcase how four French companies are making the circular economy happen today, and get their perspectives from the front line on the opportunities and the challenges they face, as well as their recommendations for policymakers.




TECHNOLOGY MEETS POLICY

Leading representatives of the technology industries in France at Orgalim members FIM and FIEEC share their insights into how they are empowering their sectors to shape a resourceful and regenerative economy and society.



#TechAtHeart



Orgalim is committed to championing an EU policy agenda for sustainable growth, to supporting the industry in its transformation, and to advancing dialogue between business, policymakers and citizens on the relationship of technology to society.

FOREWORD



Over the past six years, 70% more virgin materials were extracted than the planet can replenish. It's not hard to grasp that this is unsustainable.

Shifting to a circular economy can change this. Instead of the old take-make-waste linear approach, where we extract raw materials from the earth, make products from them and eventually throw them away as waste, a circular approach closes the loop, so that materials are used but not used up, and nothing goes to waste.

“**Applying circular economy principles across the EU economy could increase EU GDP by an additional 0.5% by 2030 and create some 700,000 new jobs.**”

The potential for a circular economy to deliver economic, social and environmental benefits is huge. The European Commission has said that applying circular economy principles across the EU economy could increase EU GDP by an additional 0.5% by 2030 and create some 700,000 new jobs.

And Europe's technology industries are at the heart of the action. Many companies have been working on optimising design, materials and resource efficiency, and on reducing waste for years. Digital technologies are increasingly part of that process, as they prove themselves to be fundamental enablers of circular ecosystems.

Current estimates that Europe is barely 13% circular underline that there is much to do, but also highlight the scale of the opportunity ahead.

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This edition of Technology at Heart focuses on France, which has anticipated – and sometimes overshoot – a harmonised European approach to the circular economy by implementing a number of national level circular economy policies. It features case studies from four French companies making the circular economy happen already and identifies some of the key enablers and challenges they face, yielding insights and implications for European policymaking.

It is produced in collaboration with Orgalim's members in France, the Federation of Mechanical Industries, FIM, and the Federation of Electrical, Electronic and Communications Industries, FIEEC.

I hope you find this report as insightful as I do.

Malte Lohan,
Director General, Orgalim



Malte Lohan

Malte Lohan is the Director General of Orgalim, Europe's Technology Industries, speaking for innovative companies spanning the mechanical engineering, electrical engineering, electronics and ICT, and metal technology branches. He is responsible for setting Orgalim's strategy, acting as the senior representative of the European technology industries in Brussels and managing the operations of the association.



TECHNOLOGY IN ACTION



Introduction

The industrial revolution is not, it is safe to say, the revolution that France is best known for. While Great Britain was setting the industrialisation pace in the late 1700s, the French were doing things more gradually and, as always, their way – building an industrial tradition founded on closely held family firms, and extending out from regional strengths in mining, metals, and textiles.

But don't mistake that steady industrial progress for a lack of inventiveness. Far from it. French industry has been constantly innovating, and not only in the automotive industry it pioneered when Joseph Cugnot built the world's first automobile in 1770.

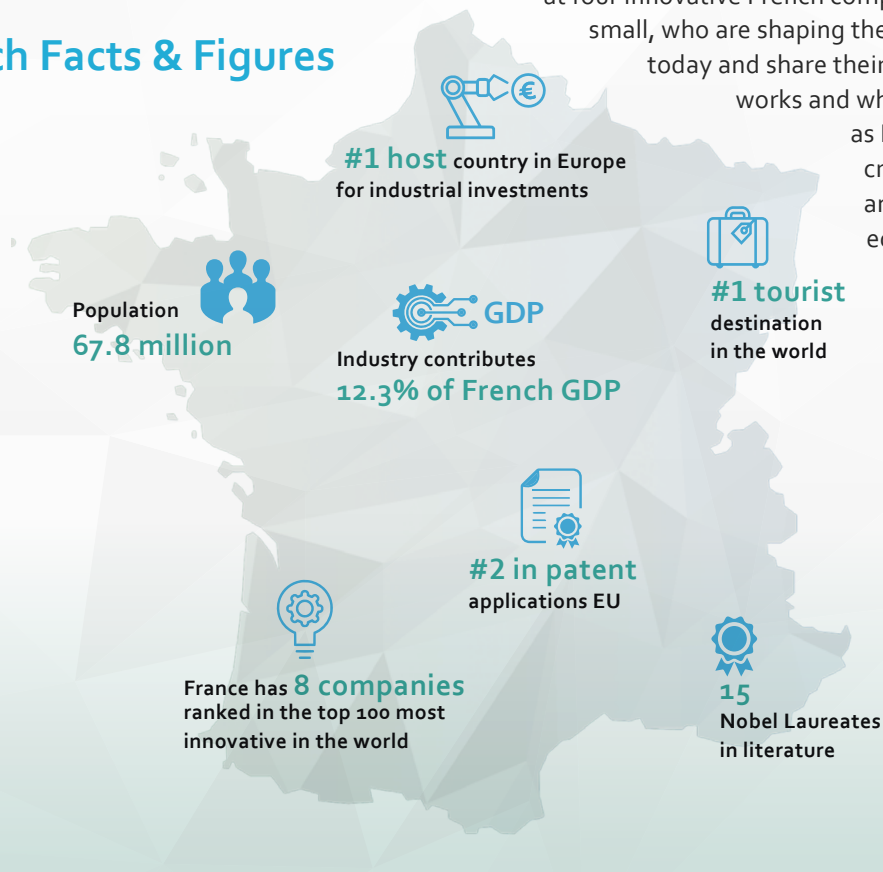
In recent years, that innovative and creative spirit has been highlighted and promoted by the government under the – stylish as ever – banner, La French Fab, a catchy play on the French word for manufacturing (fabrication) and the English word fabulous.

Mere marketing it is not. France once again came top of EY's Attractiveness Barometer in 2021 as the country attracting the most foreign direct investment in Europe. It ranks second in Europe only behind Germany in the number of patent applications. And French technology industries are at the heart of the action, driving digitalisation and the next, green industrial revolution in sectors ranging from aeronautics to automotive, rail to renewables.

In a country whose mainland is commonly known as the Hexagon, becoming more circular is a particular focus. The French government has enacted some national measures aimed at promoting a circular economy, which, it must be said, Orgalim and its members in France have consistently warned pre-empt a harmonised European approach and undermine the EU Internal Market. That said, the process has yielded some learnings.

In the following case studies, we take a look at four innovative French companies, big and small, who are shaping the circular economy today and share their insights into what works and what doesn't work, as Europe strives to create a sustainable and regenerative economy and society.

French Facts & Figures





Why digital technologies are key to circularity



Schneider Electric smart factory in Le Vaudreuil, France.

Challenge

When it comes to designing products for the circular economy, building for reparability is key to reducing waste and closing the loop, especially in the case of consumer goods. Take the current reality, where it is often easier and cheaper to buy a new household appliance or phone than get it repaired.

But what about preventing something from breaking down in the first place? And optimising infrastructure design to avoid redundancies? Preventing failure, extending durability and making the lifetime of assets much more efficient – before they even get to needing repair – is an equally crucial part of creating a more circular economy. Especially in industry, where one product is often part of a complex infrastructure.

This 'non-failing' and 'build better' part of the circular economy is not always easy to recognise, as it is less tangible. Indeed, finding the value

often requires creating entirely new services and business models. But crack it and asset lifecycle management falls into place as a business driver rather than a cost.

“**Digital solutions for predictive maintenance, modernisation and optimised design are key to maximising asset value in a circular economy.**”



Esther Finidori, VP Environment,
Schneider Electric

Solution

How? Predictive maintenance, coupled with surgical infrastructure modernisation to improve efficiency and supervision, are the needed ingredients to foster resource efficiency, says Esther Finidori, Schneider Electric's VP Environment.

Digital innovation, such as digital twins and infrastructure information management, is also key to unlock inefficiencies in infrastructure design.



Schneider Electric solutions helped Danone Evian upgrade its bottling facility.

French food giant Danone recently modernised its Evian plant to become certified as carbon neutral, and key to the process was a seven-year, fixed fee service, modernisation and maintenance contract with Schneider Electric.

Schneider experts first conducted a thorough analysis of how to optimise the life and efficiency of existing equipment. From this, they determined that much of the equipment did not need to be replaced but that the plant could effectively be modernised with Schneider's retrofit digital solutions.

The result: Danone calculates that, by retrofitting instead of replacing parts of the plant, it has effectively saved 8 tons of materials and 70 tons of CO₂ emissions. Moreover, the operating data of the plant is now digitalised so that the company can monitor and manage its power quality and energy use in real time. This has helped reduce its energy consumption, down by a third since 2008.

By leveraging data, the company can optimise the environmental impact of assets over their entire lifecycle, from design to construction and maintenance. "Digital tools will help break silos and catalyse a needed change in industry working practices" explains Ms Finidori.

Policy implications

From the company's perspective, policy implications are many, mostly revolving around the importance of recognising the key role digital solutions play in driving a more circular economy. Among those highlighted by Ms Finidori:

- Recognise digital technologies as an enabler of the circular economy in the EU taxonomy.
- Facilitate public procurement of digitally enabled circular solutions, for example by making systematic provisions for data capabilities that will enable assets condition monitoring.
- Accelerate data-sharing in B2B ecosystems to foster collaboration in infrastructure construction and modernisation.

Related Orgalim position papers

- [Circular Economy Action Plan](#)
- [Sustainable Products Initiative](#)
- [Sustainable Finance](#)
- [EU Taxonomy](#)



About Schneider Electric

Schneider Electric's purpose is "to empower all to make the most of our energy and resources, bridging progress and sustainability for all." It aims to drive digital transformation by integrating world-leading process and energy technologies, endpoint to cloud connecting products, controls, software and services, across the entire lifecycle, enabling integrated company management, for homes, buildings, data centres, infrastructure and industries. One of the targets in the company's Sustainability Impact programme is to save and avoid 800 million tons of CO₂ emissions for its customers by 2025, since 2018. Headquartered in France, Schneider Electric reported €29 billion in sales in 2021 and employs more than 135,000 people worldwide.

[se.com](https://www.se.com)



Driving circularity in the electrical industry



Challenge

Creating a more circular electrical industry is a complex challenge. Safety is paramount and so is durability: after all, electrical items installed in buildings will stay there for 20 years or more.

Such considerations impact the choice of materials. Plastics are widely used because they insulate well, are resistant to heat, water and corrosion, and are strong and durable. But with only around a third of plastics recycled in the EU, the supply of recycled plastics is limited and that of the right quality of plastics even more so, which also means they are much more expensive.

The power management role of many electrical products adds another dimension to the circularity challenge. Optimising the ability of electrical products and related digital solutions to drive the energy efficiency of the building they are installed in is a significant part of closing the loop.



We set a number of quantitative targets and report on them every year. It's closely tied to remuneration, which shows how important it is to Legrand.



Benoît Coquart, CEO, Legrand

Solution

Legrand is going about becoming more circular very systematically. As a first step, it has focused



A connected thermostat facilitates energy savings

on reducing its carbon emissions, on reducing waste (it now recycles 92% of its industrial waste), and on bringing as much transparency as possible to the environmental footprint of its products. Today it can provide Product Environmental Profile declarations for most of its products, covering 70% of its sales.

Its next CSR roadmap, covering 2022-24, will set KPIs for increasing the amount of recycled plastics and metals used in its products, and will commit to eliminating virgin plastic (flow pack and expanded polystyrene) from its packaging, among other targets, says CEO Benoît Coquart. To make sure Legrand walks the talk, management remuneration is incentivised against these targets, to the tune of up to 20% of annual bonuses.

To get there, collaborating with suppliers is key, Mr Coquart emphasises. The company has been partnering with suppliers on innovation to incorporate recycled materials. This includes testing products made with recycled materials, and new cardboard packaging, for end user acceptability, both of price, and look and feel.

The next step is to add new circularity criteria for supplier selection. Suppliers will have to make a commitment to reduce their emissions “and we will also rank high the suppliers that can provide us with some recycled components and materials.”

Recognising the huge potential of its products and services to increase the energy efficiency of buildings, Legrand is also setting targets to market more energy-efficient products and services, from simple smart and connected thermostats in the home to complex power management products and services in hospitals, factories and data centres. This is where digitalisation is “a complete game changer”, as Mr Coquart says.

Policy implications

As Legrand sees it:

1. Keep policy clear and workable: set the objectives, but let companies decide how to reach them.
2. Apply policy consistently everywhere in the EU and ensure a level playing field.
3. In the building industry, since it takes 3-4 years to develop a product and then it’s in a building for 20 years, a stable environment and enough time to implement the regulations is extremely important.

Related Orgalim position papers

- [Circular Economy Action Plan](#)
- [Sustainable Products Initiative](#)
- [Draft French decree on consumer information for waste-generating products](#)
- [Draft French decree on the minimum proportion of reused packaging](#)

About Legrand



Legrand is the global specialist in electrical and digital building infrastructures. Its comprehensive offering of solutions for commercial, industrial and residential markets makes it a benchmark for customers worldwide. The group harnesses technological and societal trends with lasting impacts on buildings with the purpose of “improving life by transforming the spaces where people live, work and meet with electrical, digital infrastructures and connected solutions that are simple, innovative and sustainable.” Headquartered in Limoges, France, and present in nearly 90 countries, the company reported nearly €7 billion in sales in 2021 and employs more than 38,200 people. Legrand started its CSR journey in 2004, with its fourth CSR roadmap ending in 2021 and the fifth one set to cover 2022-24. It is committed to reducing its greenhouse gas emissions in line with Science Based Targets.

[legrandgroup.com](https://www.legrandgroup.com)



Delivering quality with a lifetime guarantee and reparability



Challenge

Metals represent the highest share of waste currently exported outside the EU. Much of this is large, industrial scale waste, but metal waste occurs in many sectors.

Take cookware. Stainless steel and aluminium are durable and 100% recyclable, but more and more metal cookware is non-stick coated, and it is the coating that wears out first, causing pans to be thrown away.

This was a challenge taken on by Cristel, the leading French manufacturer of premium stainless steel cookware. But it was not the fundamental challenge that has defined the company from the start, back in the 1980s. That was, instead, quite simply, how to conserve jobs in an area with a strong industrial heritage struggling in the face of growing global competition.



We only put non-stick products on the market once we were capable of saying, when it becomes damaged, we will be able to repair your pan.



Damien Dodane, CEO Cristel

Solution

The answer was to develop a product of high added value, "embodying not only premium quality but



Part of the quality control process

also respect for the environment and for the people who work with us and for us," says Damien Dodane, Cristel's CEO and the second generation of the family at the helm.

From the very start, he explains, "we wanted to create a product guaranteed for life and that we could be proud would be passed from generation to generation and be repairable."

Cristel uses only French stainless steel, which is already 87% recycled, and sources everything as locally as possible. It boasts 92% of the value added of its products originating in France, earning it the label 'Origin France Guaranteed'.

If many of its practices are circular, Mr Dodane is at pains to emphasise that this is not because it is trendy to make green claims, but because they stem from the company's core values.

Since 1992, customers can send back for repair non-stick frying pans whose coating has become damaged. That service has so far saved around 123 tonnes of metal and avoided 543 tonnes of CO₂ emissions for nearly 123,000 articles re-coated. The company has also been using 100% renewable energy since 1996, uses waste heat from its compressors to heat its workshops and has a closed loop water system, enabling it to cut its water use by 70% in two years.

Today this value-driven strategy is paying off and Cristel reports sales have doubled in the two years since Covid. Mr Dodane sees it as a clear sign that customers are increasingly expecting quality to encompass strong CSR values.

Policy implications

EU subsidies have helped Cristel renovate its factory. The main regulatory headache, says Mr Dodane, is "all the administrative work we have to do to demonstrate that we're already complying." A more level playing field would also help, he says: "It's true that sometimes it pains us to see the EU let in products that are absolutely not compatible with the environment and society and we meanwhile have a mountain of paperwork to fill out to export our sustainable products to Asia."

Related Orgalim position papers

- [Circular Economy Action Plan](#)
- [Sustainable Products Initiative](#)
- [Draft French decree on consumer information for waste-generating products](#)
- [Draft French decree on the minimum proportion of reused packaging](#)



About Cristel

Cristel is the leading French manufacturer of premium stainless steel cookware, born in 1986 out of an employee buy-out from an old industrial group. Today it is a family business with just over 100 employees and €20 million in annual sales, three-quarters in France and 25% export. The company is working to become an 'entreprise à mission' (purpose-driven company), as defined in French law.

[cristel.com](https://www.cristel.com)



Making things last longer on a large scale



Challenge

If steel is infinitely recyclable and more than 85% of it is recycled, what is the problem? It is that, globally, the demand for steel is running around three times higher than the supplies of recycled metal available. Ironically, steel's in-use longevity means that there is simply not enough recycled metal to satisfy growing global demand.

This throws into stark focus both the need – and the opportunity – for circular economy strategies to do more with less: to use less steel, use it for longer, use it again and make it more cleanly.

Solution

For French company CMD Gears, deploying all of those strategies is a no-brainer. It provides premium, customised power transmission solutions – gears and couplings – for civil infrastructure and heavy industry sectors, including the steel industry.



Of course, the more the gearbox we make is adapted and robust, the lower the maintenance needed and hence the greater the productivity – this is a big driver for us.



Frédéric Bellot, Deputy General Manager, CMD Gears



And it specialises in extra-large gears that its customers definitely don't want to have to replace very often.

Many pieces are custom-designed and made to help the customer extend the life and usefulness of existing plant, and CMD Service assures their maintenance and repair. That creates the incentive to continuously improve the ecodesign of its products, explains Deputy General Manager Frédéric Bellot.

Digitalisation is also increasingly improving maintenance efficiency, through the use and sharing of data obtained from sensors monitoring temperature, vibration, oil use and more. This enables predictive maintenance and reduces downtime.

Meanwhile, within CMD Gears' own plant, all metal scrap is recycled, and energy use has been cut by the equivalent of one year's worth over six years. Parts and products taken back from customers at

end of life are remanufactured where possible or disassembled and recycled. There is no steel waste.

Policy implications

CMD Gears' biggest ask is for a level playing field. "We are competing with organisations all over the world, and some are fair competitors but some have very low environmental constraints and the competition is not fair," says Mr Bellot. "So I would say Europe should enforce fair competition because if we have to compete unfairly, we cannot win."

Related Orgalim position papers

- [Circular Economy Action Plan](#)
- [Sustainable Products Initiative](#)
- [Draft French decree on consumer information for waste-generating products](#)
- [Draft French decree on the minimum proportion of reused packaging](#)



About CMD Gears

CMD Gears was founded in 1901 by André Citroën and today is one of the leading manufacturers worldwide of low-speed, high-torque gearboxes, widely used in heavy industries, such as steel making, mining, cement, infrastructure, and also sugar production. It made and maintains the hoist for one of the lifts in the Eiffel Tower. The company employs around 400 people at two sites in France, and reported turnover of nearly €53 million in 2020, about three-quarters of which is exports to more than 70 countries. In 2005, CMD became part of the French engineering group, Groupe Cif.

cmdgears.com



Essential industries driving the transformation

The case studies in the previous section show how French companies are shaping the circular economy already today.

In this section, we take a wider look at the technology industries ecosystem in France as a whole, in conversation with leading representatives from Orgalim members FIM, the Federation of Mechanical Industries, and FIEEC, the Federation of Electrical, Electronics and Communications Industries.

France has already enacted a number of measures to drive circularity, notably its Anti-Waste and Circular Economy law and Orgalim's members on the ground in France were closely involved in the process.



We are essential contributors to all other industries: automotive, aeronautic, energy... and more.

Philippe Contet, Director General, FIM



**Fédération
des Industries
Mécaniques**

About FIM

FIM is the voice of the mechanical engineering industries in France.

It is a federation representing around 11,000 companies, mostly SMEs, employing more than 600,000 people and generating some €134 billion in turnover.

FIM defines common positions and actions, identifies the axes of a proactive and responsible industrial policy and supports its members in the key areas of business competitiveness. It acts to improve the image of the mechanical industries and contribute to the attractiveness of their trades.

fim.net



About FIEEC

FIEEC is a federation of sector associations representing around 2,000 companies in the electrical, electronics and ICT industries, some 430,000 jobs and €107 billion in turnover. FIEEC works to promote industries that develop solutions, products and services providing relevant responses to the markets of the future related to mobility, construction, the aging of the population, the built environment, and renewable energy. As the organisation says: "Our manufacturers imagine and produce innovative technological solutions that will make it possible to meet the major current and future challenges: industry of the future, connected objects, mobility, energy, digital infrastructure, smart cities and more."

fieec.fr



Our industries are at the heart of the transitions that Europe is undergoing: the green and the digital, but also the demographic.

Benoît Lavigne, Director General, FIEEC

Thinking circular: a long-term investment

First, we caught up with FIEEC's Director General, Benoît Lavigne, and its Director of Circular Economy and CSR, Anne-Charlotte Wedrychowska.

How would you describe the outlook and opportunities for your industries today?

Benoît Lavigne: What is very interesting for us is that we are at the heart of the transitions that Europe is undergoing. And we see there are three: the green and the digital, yes, but also the demographic transition, as we have the technology to help people to work remotely and to help older people to have more autonomy.

Another reason that the market for our sectors is growing is that the future is electrical. All the topics we are dealing with – the energy transition, the transformation of the built environment and of industry – we may not know what mix of renewables will be powering it all but, one thing is for sure: it will all be electric in the end.



We are addressing these huge societal challenges but at the same time we have to transform ourselves to stay competitive.

Benoît Lavigne, Director General, FIEEC

What are the main challenges?

Benoît Lavigne: We are addressing these huge societal challenges but at the same time we have to transform ourselves to stay competitive and, to do that, we need to have a stable legal framework.

What part do your industries play in shaping a circular economy?

Anne-Charlotte Wedrychowska: They are central. As the case studies show, our industries

are focused on developing sustainable products designed to last longer, that can be optimised and repaired during their life and reused or recycled at the end. They have been building expertise in the various areas of the circular economy for a long time.



You need to be very cautious about applying transversal principles to all products.

Anne-Charlotte Wedrychowska, Director of Circular Economy & CSR, FIEEC

France has taken a lead on enacting circular economy measures and Orgalim has joined FIEEC in calling for a more harmonised, European approach. What are some of the learnings we can take for European policy making, in practice?

Anne-Charlotte Wedrychowska: It is essential to have impact assessments before measures are adopted. Also, the specificities of the product must be taken into account: it does not work to apply transversal principles to all products. Work closely with industry – we need to promote a shared responsibility between industry and other stakeholders if we want to achieve our collective goals. And lastly, we need the same rules across Europe and rigorous market surveillance, if we are to remain competitive.

Benoît Lavigne: Overall, it's important to think circular when you're thinking about circular economy policy. There's a tendency to treat every issue separately and then you sometimes end up with objectives that are contradictory.



Benoît Lavigne

Benoît Lavigne has degrees in law, political science and communications from the Sorbonne. He began his career in 2001 in communications and public relations, first for AFORM (the French association for cable television providers) and then AFA (the French internet service providers association). He joined the French business confederation, MEDEF, in charge of digital affairs in 2008. Before becoming Director General of FIEEC in 2018, he spent six years as, first Deputy, then Director General of FIEEC member, IGNES.

As good as new

At FIM, we sat down to talk with Director General, Philippe Contet, and Business & Projects Development Director, Benjamin Frugier.

How would you characterise the mechanical engineering industry in the context of the French economy as a whole?

Philippe Contet: The mechanical engineering sector we represent is the most important industrial sector in France in terms of employment, and the sixth biggest in the world, after China, the USA, Japan, Germany and Italy. We are essential contributors to all other industries: automotive, aeronautic, energy, construction, transport, agriculture, the chemical industry and more.

What part can and does the mechanical engineering industry play in creating a more circular economy?

Philippe Contet: Our companies supply production equipment for all industrial sectors, so every innovation they make to improve circularity will contribute to reducing the carbon and materials footprint of customers.



This industry has been engaging in remanufacturing for years to prolong the life of equipment.

Benjamin Frugier, Business & Projects Development Director, FIM

Benjamin Frugier: This industry has been engaging in remanufacturing for years to prolong the life of equipment. They might sell, for example, a big piece of earth moving machinery,

but every five years or so, they take it back for remanufacturing, or retrofitting, so it is as good as new.



It is very important to harmonise rules at the European level in order to avoid internal market fragmentation.

Philippe Contet, Director General, FIM

What do you see as the main opportunities to shifting to a more circular economy – and the challenges?

Benjamin Frugier: Changing the business model towards supplying a product-as-a-service, including maintenance and retrofitting, is both an opportunity and a challenge. It is an opportunity for new business as greater circularity becomes more central in customers' strategies, but it is still often a challenge to convince customers to pay a higher price up front.

What are some of the learnings so far from the French circular economy law from your perspective?

Philippe Contet: The main one is that it is very important to harmonise rules at the European level in order to avoid Internal Market fragmentation. Also, Europe needs to ensure a level playing field and enforce it consistently. If we are the best in the world in terms of carbon emissions but we don't have any production in Europe anymore and everything comes from China, we will not have won anything.



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Philippe Contet

Philippe Contet is Director General of the Fédération des Industries Mécaniques, FIM (French Federation of Mechanical Industries), a position he has held since July 1st 2016. He graduated from an engineering school and has a PhD in Physical Sciences. Previously, he was Director of Innovation and Technology at FIM. From 2000-2018, he was also Director General of the Union de Normalisation de la Mécanique, UNM, the sectorial Standardisation Office of the French standardisation system in the field of mechanical engineering and rubber industries.

Orgalim's Technology at Heart series presents stories showcasing how the technology industries we represent are shaping a future that's good for Europe's economy and society – and how the right policy framework can help them do even more.

Orgalim represents Europe's technology industries, comprised of 770,000 innovative companies spanning the mechanical engineering, electrical engineering and electronics, ICT and metal technology branches. Together they represent the EU's largest manufacturing sector, generating annual turnover of over €2,000 billion, manufacturing one-third of all European exports and providing 11 million direct jobs.

We are a European-level federation that engages with EU policymakers on behalf of our membership, speaking for 29 national member associations and 19 European sector associations. Founded in 1954, and with hundreds of industry experts engaging across a broad range of policy areas, we are recognised as the foremost voice of Europe's technology industries in Brussels. Our advocacy work addresses the broad spectrum of policy and regulatory issues that impact our companies, while our Partnership services provide support to a broader network of clients in the field.

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