



Spotlight on
Portugal

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EUROPE'S TECHNOLOGY INDUSTRIES



TECHNOLOGY AT HEART



TECHNOLOGY IN ACTION

Find out how Portuguese metal technology firms have leveraged innovation and internationalisation to become major players in European value chains.

TECHNOLOGY MEETS POLICY

AIMMAP CEO Rafael Campos Pereira shares insights into the success story of Portuguese industry in recent years – and what the next chapter holds.

TECHNOLOGY IN ACTION



Transformation through innovation

Cast your mind back to 2009. The financial and economic crisis had wrought havoc across Europe, and few countries were as hard hit by the fallout as Portugal. Yet for one sector of the economy, this crisis prompted a quest for new opportunities. The Portuguese metal technology industry navigated the stormy waters, steering a course to become the supplier of choice for manufacturing giants across Europe. Ten years later, the sector is booming: turnover is up 28% and exports have risen 32% since 2014. How did this small country on the periphery of Europe catapult itself into the heart of high-value manufacturing supply chains? Two words: innovation and internationalisation.

► Metal technology: companies that shape our world ◀

Mention Portugal, and many of us will start daydreaming of sun, sand and surf. So it may be a surprise to learn that the Iberian nation also boasts a proud tradition as a metal technology heavyweight. Latest figures from AIMMAP, the trade association representing the Portuguese metallurgy and mechanical engineering sectors, put annual industry turnover at €28,000 million and headcount at 230,000. What's more, the sector has become an export colossus responsible for around a third of the total Portuguese export market.

The metal technology industry designs high-tech production systems and produces components that form the foundation of complex manufacturing chains. Whether in your car, on a plane, or in the

energy systems powering your home, chances are that Portuguese-made metal technology is a hidden yet vital part of your day-to-day. While even the giants of the sector may not be household names, they play a crucial part in shaping the world around us – literally so, in the case of companies that produce moulding and casting technologies. Companies like Simoldes and Fundiven: two firms behind the machines that give shape to many everyday objects that fill our lives.

Take Fundiven: founded in 1978, the company has carved out a highly successful niche producing high-pressure aluminium die-casting parts for the subcontracting market – parts that end up in vehicles, home appliances, electrical and gas equipment, to name just a few applications. A team of over 200 “meets our clients’ needs with parts that are 100% ready to be incorporated into the final product and fully integrated within the manufacturing chain,” reports CEO Joaquin Almeida.





By finding innovative solutions to today's challenges, we can reduce time-to-market for our clients while optimising quality and environmental performance.



Rui Paulo Rodrigues, Vice President, Simoldes

Simoldes, on the other hand, is in the business of plastic injection moulding; specifically, manufacturing the steel moulds used to produce plastic components for a variety of industries, with a strong focus on auto-making – think door panels, dashboards, engine covers... basically the full spectrum of plastic elements in a car. In over six decades of operation, the company has built a reputation as one of the automotive industry's prime tool-makers worldwide, today employing over 1,000 people in its tooling division alone. Simoldes Vice President Rui Paulo Rodrigues

shares the secret to their success: "We specialise in finding innovative solutions for today's challenges, reducing time-to-market for our clients and optimising quality and environmental performance." Today, these metal technology leaders are highly competitive suppliers in huge demand from international manufacturers, who work with them as trusted partners across the value chain – from development to manufacturing and after-sales services. However, this represents a relatively new chapter in the Portuguese metal technology industry. 20 years ago, companies in this sector were mainly supplying parts developed by others; in some cases, even the tools were owned by the clients. But when the 2008 financial crisis struck, these primarily small and medium-sized companies were hit hard. They faced a stark choice: close the shutters or fight for survival. They chose the latter. Except instead of just surviving, they thrived – by making two strategic bets.

▶ All in for innovation ◀

The first was to reorient their business strategy to position themselves no longer simply as suppliers, but as full partners to their clients. At the heart of this move was a focus on innovation: they would leverage the expertise built over decades to enhance not only the manufacturing process itself, but to increase



efficiency right along the value chain – from research and development through to after-sales services.

“Around 2010 we made a choice,” explains Almeida, describing Fundiven’s journey during this period. “We decided to make the move from being a company that simply delivers parts to one that delivers complete technology solutions.”

One institution aiding metal technology companies in this endeavour was CATIM. This not-for-profit technology centre offers services to a base of over 3,000 companies, supporting innovation through product and materials testing, metrology and advice on machine safety. Reflecting on the post-crisis period, CATIM General Manager Hildebrando Vasconcelos observed a clear trend: “There was a conscious move to make innovation the unique selling point. We could help companies identify opportunities as they re-positioned themselves in the market.”

Technology explained

High-pressure aluminium die-casting is the most efficient way to transform raw metal into a finished component: molten aluminium is injected at a mind-boggling temperature of over 600 degrees Celsius into a steel mould where it solidifies under intense pressure (up to 1400 tonnes of bolt strength) before being ejected to reveal the finely formed finished component. The high degree of accuracy and low need for finishing means the technology can be used to create highly complex components at an exceptionally rapid pace.

Plastic injection moulding is a popular production technique for manufacturing components for a wide range of applications. Granular plastic is melted and then injected under pressure into a custom-built metal mould, where it sets into the required form before being ejected and the process begins all over again. While the components produced can be simple in form, the underlying technology is highly sophisticated – today’s tooling systems cater to complex processes such as sequential injection, low-pressure injection or injection over fabrics, textiles or metal sheets.

This new strategy meant the Portuguese firms have become increasingly involved in the research, product design and development processes of their customers. Where once clients came with a fixed proposal and ready-made specifications for a component, Almeida explains that “it is far more likely nowadays that our clients involve us in the early stages of a project, requesting our input and know-how during the design and development phase.” For Simoldes likewise, as Rodrigues adds: “The daily work of our designers and engineers is to innovate and offer our customers new tooling solutions for the plastic parts of the future.” For example, devising creative new approaches to reduce vehicle weight by making components lighter – helping automakers meet demands for ever more fuel-efficient cars.

By re-orienting their business models – going from simply making parts to delivering innovative solutions along the value chain – Portuguese metal technology firms have become trusted partners to their clients. At the same time, this strategy has helped them move into areas offering higher value-added such as R&I and post-manufacturing services. The numbers speak for themselves: the sector’s gross value added has risen 34% in the last five years. And what’s good for these companies is good for the Portuguese economy, as CATIM’s Vasconcelos explains: “By making our companies stronger, this innovation strategy has





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Joaquin Almeida, CEO, Fundiven

made it possible to maintain and develop a robust technology and manufacturing base here in Portugal.”

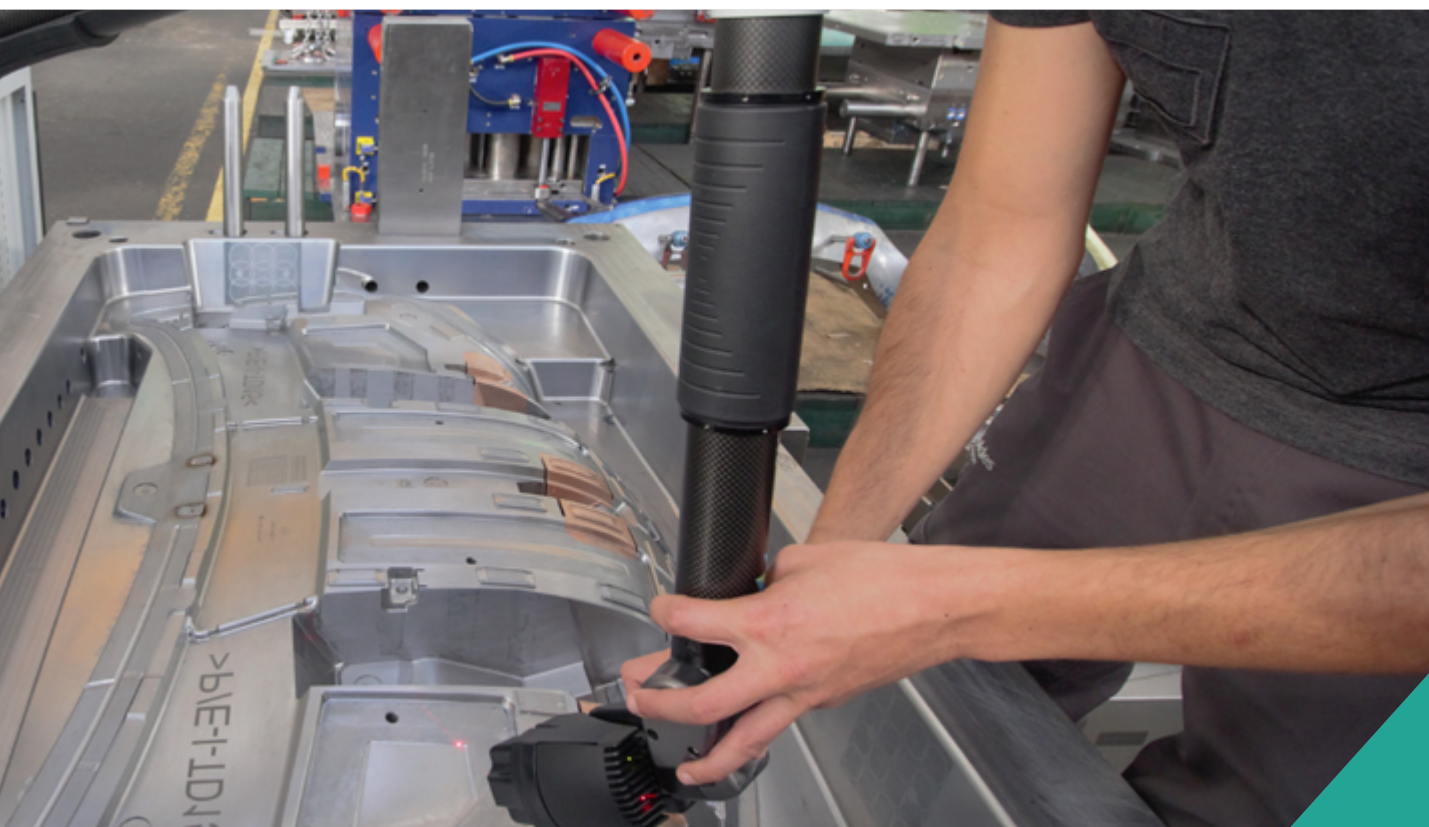
Next stop: Europe

The second strategic bet placed to bounce back post-2009 was the decision to turn outwards. A small market like Portugal places natural limits on growth, which are stretched even more when the national

economy is in turmoil. Armed with a more innovative offering than ever before, the Portuguese metal technology sector opted to make its own market – looking beyond national borders to European and global supply chains. As Vasconcelos tells it: “When the 2008 crisis hit, most of our companies were only selling in Portugal or maybe in Spain. But faced with an unprecedented challenge, they thought on their feet and started exploring other markets.”

Within a short space of time, their fresh innovative drive coupled with the reliability and specialist expertise built over decades made Portuguese contractors a highly valued link in a wide array of European supply chains. “Today, our typical clientele comprises multinational companies in need of high-quality technology,” notes Almeida, listing major Fundiven customers such as Bosch, Siemens and Scania. Simoldes’ client base, too, reads like a roll-call of European automotive giants: Mercedes, Volvo, VW, Renault...the list goes on.

The trend has been accompanied by a shift in mindset. “Between 2009 and today, there has been a deep change in the way companies in our sector feel about Europe,” explains Vasconcelos. “Nowadays it is considered ‘our’ market; it is second nature for a Portuguese company to do business with a French or German partner.” And the export figures speak



volumes. "Counting direct and indirect flows (through multinational companies present in Portugal), we export about 98% of our production – mostly to the European market," reveals Fundiven's Almeida. Likewise, Simoldes directly exports 88% of all it produces – 60% of that to EU countries and 28% outside the EU.

The Internal Market factor

The internationalisation pillar of Portuguese industry's growth strategy reflects a deepening integration of European manufacturing supply chains since the birth of the Internal Market over 25 years ago. Today, while a car might have the Mercedes star or the Renault diamond emblazoned on the grille, it is hardly possible to claim the technology inside simply as 'German' or 'French'. Rather such complex end products are often thoroughly European creations, incorporating components from across the Internal Market.

And just as an assemblage of car parts work together to keep the engine humming, so the elements of EU

supply chains interact like a well-oiled machine – in large part down to the stability and harmonised framework provided by the Internal Market. For Portuguese contractors, this has been a huge enabler of the internationalisation strategy that helped them survive and thrive over the last decade. As Rodrigues underlines: "The convenience and opportunities of doing business in the EU market make it the most important destination for Simoldes moulds." For the big brands they are selling to in countries like Germany and Sweden, in turn, the Internal Market makes it easy to find the right partner regardless of their location – and to leverage the expertise of innovative clusters such as the Portuguese metal tech sector to add value to their final product.

That's not to say doing business across borders is without its challenges. But this is where organisations like CATIM can step in, providing assistance for conformity assessment procedures, advising on legal requirements, or sharing information on developments in technical standardisation. While stressing that the Internal Market framework has been "very, very useful" for companies in the sector, Vasconcelos points to the constant stream of new legislation as a challenge, noting that "we would prefer a more stable regulatory environment."



The impact of the Portuguese success story ripples beyond the sector itself, as the twin tactics of innovation and internationalisation reinforce European supply chains overall, helping to keep high-value-added manufacturing here in the EU. Given the benefits of partnering with specialist Portuguese metal tech firms and the ease of doing business in the Internal Market, the big-name manufacturers are more likely to choose a European sub-contractor where in the past they may have offshored to other world regions. As they continue to innovate and deepen their trans-European partnerships, this puts Portugal's metal tech sector in an enviably strong position to face whatever the future may bring.



Nowadays Europe is considered 'our' market; it is second nature for a Portuguese company to do business with a French or German partner.



Hildebrando Vasconcelos, General Manager, CATIM

The Internal Market: the jewel in Europe's crown

For the technology industries represented by Orgalim, the EU Internal Market has provided a uniquely stable framework enabling them to grow their businesses across Europe. By facilitating seamless cross-border supply chains, it offers new opportunities for partnerships and value creation whether in the research and development, manufacturing or post-production stages.

Orgalim's advocacy activities focus on making this framework as simple and resilient as possible, based on the conviction that the rules of the Internal Market should be based on trust, transparency, inclusiveness and

confidence. Our work on compliance, standards and enforcement centres on promoting improvements to the EU's New Legislative Framework, the cornerstone of Internal Market legislation since 2008. In addition, we cooperate closely with policymakers and other stakeholders to ensure smooth implementation of product safety legislation and avoid diverging national interpretations.

By working toward an Internal Market framework that delivers both harmonisation and regulatory stability within the EU and full access to global markets, Europe can facilitate free circulation of goods across borders – while supporting the technology industries' competitiveness, enabling innovation and allowing them to deliver first-class products to the global market.



TECHNOLOGY MEETS POLICY



In conversation with Rafael Campos Pereira, CEO, AIMMAP

We sat down with Rafael Campos Pereira, CEO of Orgalim's Portuguese member organisation AIMMAP, the Association of Portuguese Metallurgical and Mechanical Engineering Industries, to talk about the success story that has unfolded in his industry over the last decade – and how AIMMAP is working to help its companies write the next chapter.

AIMMAP is the prime voice of Portugal's metallurgical and mechanical engineering industries – tell us a little about the companies you represent.

These key branches of Portuguese industry comprise a number of sub-sectors: in addition to metal technology and metal products, our companies also stem from the machinery and equipment, transport equipment and industrial subcontracting sectors. Zooming out, these firms play a very important role as qualified suppliers for major international industrial clusters – from aeronautics and automotive to green energy and beyond.

All in all, we represent around 15,000 companies,

ranging from major corporations to small and medium-size enterprises. This diversity is very much a strength of our industry, and has enabled Portugal to build an impressive presence on the international stage as a valued link in European and global supply chains.

How do you help your members to develop and maintain this competitive streak?

On the one hand, we address policymakers on the issues that matter most to the companies we represent: labour legislation, a stable regulatory environment, innovation strategies, internationalisation, education and training... the list goes on.

On the other hand, we work closely with companies on the ground to offer support services and a platform for sharing knowledge and experience. Covering everything from labour affairs to taxation, entrepreneurship to environmental policy, we deliver targeted assistance to help our members become more competitive and grow their business.



Rafael Campos Pereira

Rafael Campos Pereira has been CEO of AIMMAP – the Association of Portuguese Metallurgical and Mechanical Engineering Industries – since 2012. A lawyer by training, he has been involved with the association's work since 1989, when he began working with AIMMAP as a legal adviser. In addition, he is a member of the Executive Committee of the Confederation of Portuguese Business, and is active on the boards of a number of related organisations in areas ranging from innovation to certification to finance. Mr Campos Pereira is a member of the Orgalim Board of Directors.

Besides policymakers and company members, which other stakeholders do you engage with on a day-to-day basis?

Continuous cooperation is one of AIMMAP's guiding lights, so we have always been committed to promoting close relationships not only with our partners in industry but across society more broadly.

We also collaborate with other sectors at home as a member of the Confederation of Portuguese Business, and of course with organisations across Europe through our membership of Orgalim – Europe's Technology Industries – and a number of sector-specific associations.

Moreover, we partner with institutions that support our members in areas like technology development, vocational training or certification. For example, we are a co-founder of CATIM – the Technological Support Centre for the Metalworking Industry – and of the CENFIM Vocational Training Centre for the Metallurgical and Metalworking Industry.

When talking to policymakers on how to shape a future that's good for Portuguese industry and society, what are you emphasising as current priorities?

Our daily dialogue with firms in the metal technology and mechanical engineering sectors highlights the need to answer challenges posed by innovation, transformation and an increasingly fierce global marketplace.

When finding solutions, cooperation remains our first principle: industry, policy and societal stakeholders must work together to create an environment that will foster growth and competitiveness. And it will require a holistic approach that tackles all issues – from taxation, labour law and support for innovation, to internationalisation, education and training.

What are the strengths of the metallurgy and metal mechanic sectors in the context of the Portuguese economy as a whole?

Portugal in 2019 can be rightly proud of an internationally competitive industrial economy that is based on knowledge, innovation, highly skilled human capital and a strong entrepreneurial spirit. The metal technology and mechanical engineering sectors unquestionably play a big part in this success, responsible for around 14% of Portuguese GDP. In particular we have an excellent track record when it comes to export and international trade.

In profile: AIMMAP

Promote Portugal's metal technology and mechanical engineering industries, contribute to the dynamism of the sector, and continuously evolve to meet the needs of companies in an ever-changing environment: this is the mission set for itself by AIMMAP – the Association of Portuguese Metallurgical and Mechanical Engineering Industries.

AIMMAP represents 15,000 companies of all sizes employing over 230,000 people throughout Portugal across sectors from green energy, automotive and aeronautics, to mobility, nuclear energy and industrial subcontracting. It has recently launched the 'METAL PORTUGAL' brand to communicate more broadly on the innovation and internationalisation that characterise these branches of Portuguese industry – and how they help 'shape the future'.

Operated as a not-for-profit association, AIMMAP has been representing its members' interests at Portuguese and international level since 1957. Its goals are to support its industries in key areas such as innovation, training, internationalisation and effective cooperation. At EU level, it works closely with Orgalim on issues such as Internal Market regulation, trade, and industrial strategy.

In 2017, AIMMAP's achievements received recognition from the highest level as the association was awarded the Order of Merit of Business – Class of Industrial Merit – by the President of the Portuguese Republic, Marcelo Rebelo de Sousa.



**METAL
PORTUGAL**
DAMOS FORMA AO FUTURO

AIMMAP
ASSOCIAÇÃO DOS INDUSTRIAIS METALÚRGICOS,
METALOMECÂNICOS E AFINS DE PORTUGAL



Working closely with Orgalim, one of AIMMAP's top priorities is to promote our industries as leaders on a path to a brighter future. We want to put industry back at the top of the agenda, and achieve a legal framework that delivers for European industry and for our economy and society as a whole.

Tell us more – what is the role of exports in the economy and which are your main markets?

The sectors AIMMAP represents account for 32% of Portuguese manufactured exports, valued at €18,000 million in 2018 – and marking an impressive growth rate of 11.3%. The EU is by far the most important market, absorbing over 80% of the total, with the most significant partners being Spain, followed by Germany, France and the UK. Outside of Europe, the US was the prime destination for our exports.

Those are some impressive figures... how do you explain this success?

It's the product of the hard work, expertise and investment of small, medium-sized and large companies – a collective effort of entrepreneurs, management and employees, combining years of experience with strategic vision. Looking back over the last decade, it is clear that a combination of more innovation, more education and training and a more distinct profile has helped our companies grow their competitiveness.

I would like to think AIMMAP too has played an important role by working to develop innovation and internationalisation strategies with our members. Moreover, together with partner organisations such as CATIM, CENFIM, INEGI and PRODUTECH, we have provided technical support and vocational training to foster the sector's development over the longer term.

What kind of trends have you seen emerging over time?

Our sectors have made huge strides in the last number of years in the quality and complexity of the components they produce. The innovation factor has cemented Portuguese suppliers' place at the heart of European value chains as the focus has shifted to high added-value production. The export figures are a testament to the success of this strategy.

Another important success factor is Portugal's reputation as an excellent 'producer of engineers'. A highly skilled workforce has been instrumental in shaping the image of 'METAL PORTUGAL' – as we have branded our sector at AIMMAP – and made us a valued supplier to highly demanding international clusters such as aeronautical and automobile.

What are the biggest challenges on the horizon?

First and foremost is the question of skills: our industry rises and falls on the quality of our people, so we need to make significant investment in education and training.

Second, digitalisation: it is becoming indispensable to preserve competitiveness, but many companies are not yet able to unlock the opportunities, making a digitalisation agenda a must. Closely related is the need to step up investment in R&D&I as a way to continue adding value to our industries' offering.

Finally, we must keep shining a spotlight on environmental issues and working across our sectors to make progress towards a circular economy.

Turning to the European level, which areas of EU legislation do you think can deliver the greatest benefits to the companies AIMMAP represents?

The Internal Market plays a major role. As part of a highly internationalised sector, the companies we represent benefit from fair and well-balanced European legislation: by fostering a harmonised EU ecosystem, the Internal Market creates equal competitive conditions for all member countries while reducing the cost of doing business across borders – considerably expanding Portugal's natural market.

With the next EU budget under negotiation between the Member States, where do you think funding should be targeted?

We believe EU funding should pay special attention to training, innovation, internationalisation and research. AIMMAP has been active in this arena by helping companies in our sector tap into the opportunities offered by European financial funds – whether for R&D&I or investment in production or internationalisation.

You are a member of the Board of Directors of Orgalim: what priorities are you focused on at EU level as European elections approach in May?

Working closely with Orgalim, one of AIMMAP's top priorities is to promote our industries as leaders on a path to a brighter future. We want to put industry back at the top of the agenda and ensure we are reaching the right audiences at the highest political and legislative level. Reinforcing and complementing the deep technical experience and credibility of Orgalim, this will help us achieve a legal framework that delivers for European industry and for our economy and society as a whole.

AIMMAP has collaborated closely with Orgalim for a number of years, and I have been on the Board of Directors since May 2013. From my perspective, the top priorities going forward should be the digitalisation agenda, strengthening investment in education and training, and ensuring the stability of the EU legislative framework.

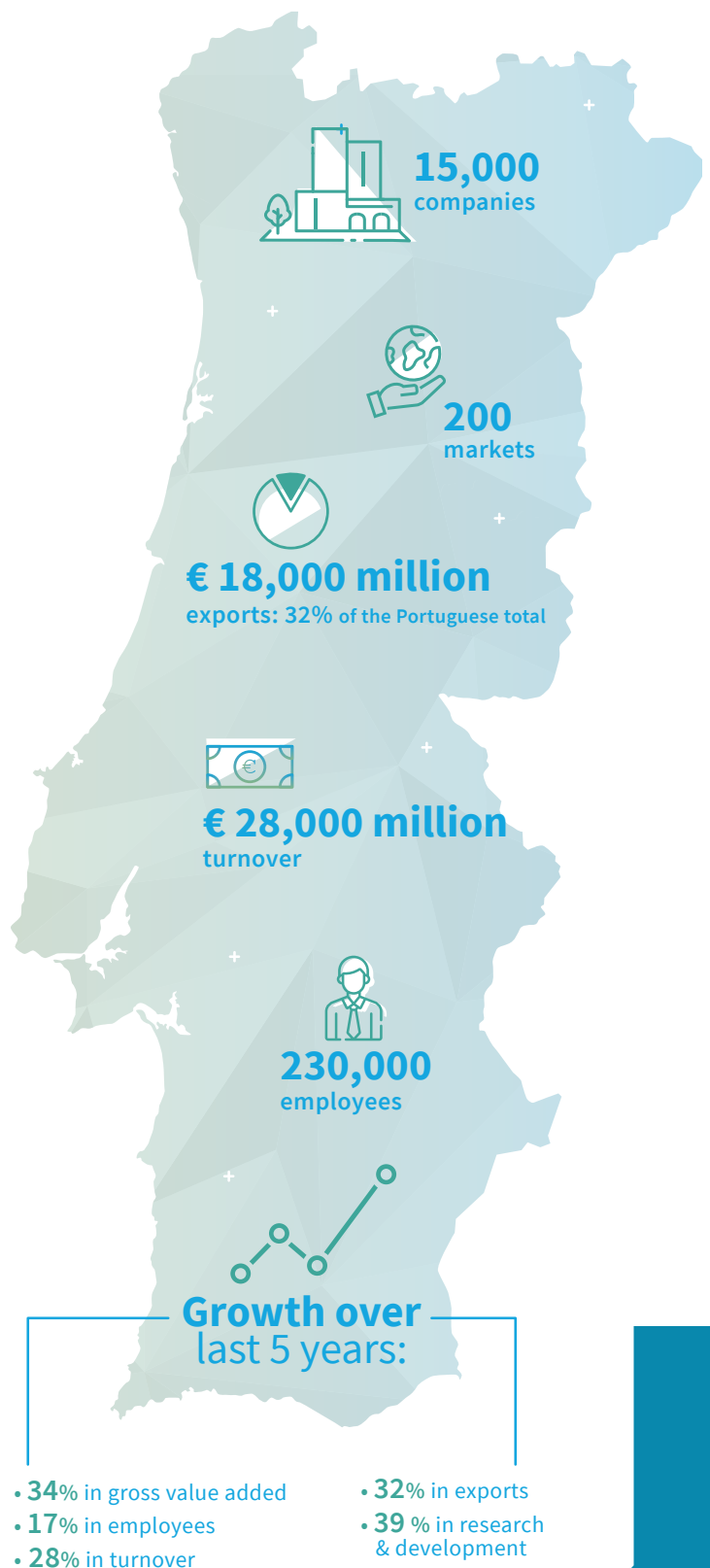
Orgalim recently presented '2030: an industry vision for a renewed Europe'. Which messages particularly resonate with you from the perspective of Portuguese industry?

Orgalim recommends action across three strategic imperatives to make our vision a reality: embrace the innovation-led transformation of European industry; create conditions to foster global leadership for our sectors; and help transform the challenges posed by economic and social change into drivers of prosperity.

At AIMMAP, we are particularly focused on promoting the digital transformation of Portuguese and European industry, with a special emphasis on issues like cybersecurity, artificial intelligence, and the importance of digital infrastructures in the context of industrial production.

Despite the challenges ahead, I am convinced this is also a time of opportunity: with the right strategies at national and European level, we can certainly achieve a new and better Europe by 2030.

The Portuguese industry at a glance



Orgalim's Technology at Heart series presents stories showcasing how the companies 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: companies that innovate at the crossroads of digital and physical technology. Our industries develop and manufacture the products, systems and services that enable a prosperous and sustainable future.

Ranging from large globally active corporations to regionally anchored small and medium-sized enterprises, the companies we represent directly employ 11 million people across Europe and generate an annual turnover of around €2,000 billion.

Orgalim commits to champion an EU policy agenda for sustainable growth; to support the industry in its transformation; and to advance dialogue between business, policymakers and citizens on the relationship of technology to society.

ORGALIM REPRESENTS:

44



Associations

23



Countries

32



National member
associations

12



European sector
associations

3



Industries:

mechanical engineering,
electrical engineering and
electronics, metal technology

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SHAPING A FUTURE THAT'S GOOD