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Semiconductors and Statecraft: Belgium's Role in Europe's Technological Sovereignty

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Belgium's global role in semiconductors hinges not on scale but on control of a strategic chokepoint: upstream innovation. With imec at its centre, Belgium functions as Europe's semiconductor R&D engine – but this asymmetric position leaves the country structurally exposed. Without manufacturing capacity, talent diversification, or broader ecosystem scaling, Belgium risks becoming a high-value subcontractor in a geopolitical and financial game it does not fully control. To remain indispensable – and not merely useful – Belgium must convert R&D dominance into strategic leverage, push for Chips Act reforms that close the EU's coordination gaps, build scaling innovation ecosystems, and expand its influence within a fragmented European industrial policy landscape.

POLICY RECOMMENDATIONS

- *Lead the Next Phase of European Semiconductor Strategy*
- *Integrate Strategic with Key Industrial Sectors*
- *Address Talent Gaps through Migration and Education*
- *Strengthen European Strategic Autonomy on Export Controls*
- *Unlock Private and Public Investment for Semiconductor Innovation*
- *Plan for Long-Term Manufacturing Resilience*
- *Spend 4% of GDP on Research and Innovation*

FROM DECLINE TO DESIGN: HOW BELGIUM BECAME A SEMICONDUCTOR OUTLIER

During the 1980s, Belgium underwent significant political and economic transformations. Economically, the country faced serious challenges as traditional industries—such as mining, steel, and textiles—experienced steep decline.

On the political front, Belgium was in the midst of its second state reform, which transferred greater powers to the regional governments. This shift granted the regions increased autonomy in shaping and implementing their own economic strategies. In this context, the Flemish regional government (then "Flemish Executive") launched a pioneering socio-economic initiative in 1982: the Third Industrial Revolution Flanders (Derde Industriële Revolutie Vlaanderen, DIRV). Led by Flemish Minister-President Gaston Geens, the programme aimed to renew Flanders' industrial base by embracing emerging technologies—particularly microelectronics, biotechnology, and advanced materials processing.[1]

The DIRV strategy was built on two central pillars: research and development (R&D) and manufacturing. This dual approach sought to establish a thriving semiconductor ecosystem in Flanders, laying the foundations for long-term economic renewal.

In the realm of microelectronics, this strategy took concrete form in 1984 with the establishment of two key institutions:

- MIETEC, a semiconductor manufacturing company based in Oudenaarde, focused on the production of microelectronic components.

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- imec (Interuniversity Microelectronics Centre), based in Leuven, was founded as a cutting-edge R&D centre to drive innovation in micro- and nanoelectronics.

Together, MIETEC and imec embodied the holistic vision of the DIRV programme—uniting cutting-edge research with industrial capacity to position Flanders as a frontrunner in the technological age.

imec was the first Flemish interuniversity institute to follow the Stanford model of innovation, which pioneered bridging the gap between technical academic research with industry applications and technology licensing infrastructure in the semiconductor industry. Four decades on, imec remains at the forefront of global semiconductor R&D, driving innovation across a wide range of technologies and expanding to integrate its research with an ecosystem filled with investors and scientist-entrepreneurs.

The manufacturing side, however, followed a more turbulent path. After a series of mergers and acquisitions, MIETEC eventually evolved into BelGaN—the most recent iteration of the original semiconductor foundry. In 2024, BelGaN declared bankruptcy, seemingly marking the end of a once-promising manufacturing legacy.[2] As a consequence, Belgium now plays a critical role in the global semiconductor value chain, despite lacking large-scale manufacturing capacity.

The collapse of MIETEC and the thriving of imec illustrate a broader lesson: Belgium built its semiconductor identity by necessity, not design. Lacking fiscal muscle or industrial scale, it doubled down on upstream R&D. This choice—deliberate or not—shaped Belgium's path. Forty years on, imec thrives, but the absence of a strong manufacturing base remains a structural constraint.

Nevertheless, several other companies emerged within the growing Belgian—predominantly Flemish—semiconductor ecosystem, all of them fabless. Notably, Ypres-based Melexis stands out with a market capitalisation of €2.37 billion, although such scale remains the exception. The vast majority of semiconductor firms in the region are small and medium-sized enterprises (SMEs). These companies serve Belgian hardware engineers and companies that, in-turn, build the products that will create value to larger consumer markets in Europe and the world.

Belgium's contribution to the European semiconductor ecosystem extends far beyond R&D. The country is home to numerous globally active SMEs specialising in niche technologies such as sensor semiconductors, analogue designs, integrated circuits (ICs), and electronic/optical materials—all fields heavily researched by imec. Next to imec and Melexis, key players include Magics Technologies, and ICsense. The country hosts specialised materials companies, such as JSR Micro and Fujifilm, which supply critical inputs to the semiconductor value chain. Belgium also plays a quiet but strategic role in semiconductor materials. Soitec Belgium (formerly EpiGaN) develops GaN substrates for 5G and power electronics, while Umicore supplies copper electroplating systems and germanium wafers. These firms reflect Belgium's strength in both down- and upstream innovation – both critical and embedded in foreign value chains.

The lack of deliberate national strategy to scale similar firms underscores the core problem: Belgium built an R&D engine without a connected industrial pipeline. Future strategy must go beyond nurturing early-stage innovation—it must build mid-to-late-stage champions, building further on imec's and Melexis' success.

IMEC: STRATEGIC CHOKEPOINT OR FRAGILE MONOLITH?

Imec is Belgium's semiconductor crown jewel. It is one of the most advanced research institutes in the world, and by far the most strategic semiconductor R&D asset on European soil. But a jewel, no matter how brilliant, is not a strategy. The question is not whether imec is succeeding - it is - but whether Belgium is building the industrial and geopolitical infrastructure to succeed with it.

Headquartered in Leuven, imec is the world's largest independent research and development centre for semiconductor technologies. With a $5 billion pilot

R&D line and a diverse staff of over 5,500 researchers representing approximately 100 nationalities, imec has become a vital player in the global semiconductor ecosystem. It collaborates with all major players in the industry, including Intel, TSMC, Samsung, Micron, Apple, Nvidia, Qualcomm, and equipment giants such as ASML. Its appeal lies not only in its technological excellence but also in its strategic neutrality. Furthermore, its geographic proximity to ASML's Eindhoven headquarters provides it with the institutional partnership to maintain a strong advantage in cutting-edge chip research.[3] This unique position allows imec to act as an unbiased platform for international collaboration. As the CEO consistently highlights, "the [semiconductor] industry is so much coupled across the world… [it creates] so many dependencies."[4]

Over 75% of imec's annual US$ 1 billion budget is funded directly by the private sector, reflecting the high level of trust and reliance the industry places in its research capabilities. The remaining quarter comes from consistent public investment, mainly from the Flemish government and the European Union. This public-private balance allows imec to make long-term, precompetitive investments—particularly in areas such as extreme ultraviolet (EUV) lithography–where the costs, complexities, and risks are too great for any single firm or government to shoulder alone.

Unlike many research hubs, imec is not anchored to one or a few dominant national firms. This strategic neutrality allows it to serve as a global collaboration platform. But it also means Belgium's semiconductor diplomacy is mediated through a third party. At times, when forced to choose between American and Chinese partners, imec pragmatically aligned with Washington's export controls. Belgium policymakers had no purview in that decision.[5]

imec's client base is diverse, whereas the semiconductor ecosystem in Belgium is not. A disproportionate portion of funding, talent, and international visibility is concentrated in one institution. While imec's neutrality and global partnerships are strengths, they are also vulnerabilities: Belgium's R&D diplomacy risks being shaped more by international clients than a national grand strategy. The country's current position is powerful – but fragile. Imec is not the problem. Overreliance on it is. Belgium possesses in imec a true crown jewel, yet even the most precious jewel needs a complete crown or other jewels to achieve its full splendour and significance.

Furthermore, the lack of newfound original equipment manufacturers (OEMs) and stagnation of existing old customers, especially in automotive and consumer electronics, in Europe means imec and the broader Belgian chip ecosystem has increasingly become more dependent on non-EU corporate partners. This directly undermines Belgium's goal of European technological sovereignty.

Justifiably, this decision-making calculus points to the need to serve not only semiconductor manufacturers, but also integrate the cutting-edge robotics, IoT, aerospace, renewable energy, and consumer electronics companies that are shaping how humans digitally interact with the physical world. Without the growth of both old and new domestic champions in Europe, imec's research priorities and commercialisation paths remain undoubtedly influenced by the interests of non-EU private actors. In simple terms, when you *follow the money*, you go abroad.

Within Belgium's national strategy for technological sovereignty, imec serves as one of the country's strongest asset and innovation engines for tech entrepreneurs. For instance, the imec.istart incubator has supported over 300 startups, and more than 100 spin-offs have emerged from its research. Imec.xpand, its venture capital fund, helps early-stage companies access imec's cutting-edge technologies in exchange for equity, creating a strong innovation pipeline.[6] The imec.xpand venture fund, the venture capital fund which helps early-stage nanoelectronic & semiconductor startups access capital in exchange for equity, further demonstrates Belgium's strong focus to ensure research breakthroughs translate into globally impactful commercial opportunities. This deliberate approach enables Belgium to maintain sovereign capabilities in critical semiconductor-adjacent technologies while positioning itself as an indispensable partner in Europe's broader technological independence efforts.

As a result of these concerted commercialisation efforts, Belgium, through imec, has established a cohesive approach to deeptech innovation that addresses both immediate industrial needs and longer-term research challenges across multiple sectors. Companies like Vertical Compute, SOLiTHOR, eyeo, and Indigo Diabetes exemplify how imec's combination of specialised human capital, cutting-edge research, and targeted venture funding has enabled Belgium to develop sovereign capabilities at the critical intersection of semiconductor technology with biotech, aerospace, automotive applications, renewable energy, and quantum computing.

At the start of the 21st century, the global semiconductor market was valued at approximately US$ 200 billion. By 2024, annual sales reached a record US$ 627.6 billion, representing more than a threefold increase over roughly two decades.[7] The vast majority of this growth has been driven by the rise of smartphones, data centres, AI, and electric vehicles (EVs) technology increasingly coming from outside the EU. Because of that, imec has heavily invested in physical operations and university & institutional partnerships in cities like Berkeley (USA), Boston (USA), Taipei (Taiwan), New Delhi (India), and Tokyo (Japan). Indirectly, public-private collaborations with countries like the US, India, South Korea, and Japan highlight the aim of the organisation to focus on a complementary approach. imec focuses on upstream R&D, while US and Asian partners emphasise downstream product development, commercialisation and manufacturing. For instance, Rapidus, the Japanese corporation created to revitalise semiconductor manufacturing in the country, strongly utilises imec research in the pursuit of mass scale 2-nanometer chips. Undoubtedly, these partnerships abroad–particularly in the Japanese case–exemplify an important perspective: with a coherent and clear government-endorsed strategy, imec can serve as the foundation to kick-start European advanced chip manufacturing.

Separately, imec is strongly increasing its presence within Europe, as both national governments and the EU decisively show their support for the institutions and its coveted research-driven economic and technological spillovers. They have expanded to include a new lithography lab in the Netherlands, a legal research entity in the UK, a startup accelerator program in Italy, and two major R&D centres in Spain and Germany.[8] imec's pan-European presence increases the soft power of the Belgian research model while also strengthening Europe's collective technological sovereignty.[9] Furthermore, the political and financial buy-in by EU partners distinctly reinforces Belgium's ability to influence bigger and more influential Member States to allocate more funding and policy support to the chip industry.

As the US continues to streamline towards trade isolationism, European political and business leaders face the impetus to build their technological infrastructure to provide the necessary resources for their own economies and, in the long-term, improve their competitiveness in the wake of monumental challenges like the war in Ukraine, stagnating growth, and high-tech competition from China. Thus, global diversification in partnerships, operations, and customer base present a potential *balance of power* against real threats pertaining to global security and trade instability.

TALENT: BELGIUM'S HIDDEN BOTTLENECK

In Belgium, talent development is a core priority. imec hosts the world's largest Ph.D. concentration in semiconductor research—around 850 students—and numerous universities globally, including efforts in gender diversity and early STEM education. Strategic cooperation with India is also being explored. However, this prominence can also present challenges for the domestic talent pool. As a dominant player in Belgium's relatively small semiconductor ecosystem, imec risks concentrating the available talent pool, potentially limiting opportunities for other emerging ventures and institutions within the country. Furthermore, the institute has yet to develop a spin-out firm from its research to reach a market capitalisation of US$ 1 billion or more, which would be a company deemed a "unicorn."

While the institute does boast a large number of spinouts and invested in the company in its portfolio and related

funds, most remain relatively small and none have matured to be deemed as large 'scale-ups' (with 500+ employees). This is valuable because high-growth scale-ups and technology corporations (public or private) contribute meaningfully to the local economies, attract well-capitalised specialised investors, technically train next-generation talent at-scale, create and compound high-tech smaller ecosystems (Spotify in Sweden), and initiate a globally attractive economic pattern recognition effect for a region (e.g. fintech in London). This challenge is not limited to imec-driven companies – it's present throughout Europe; however, it affirms a national need to discuss and implement frameworks to sustainably scale Belgian chip-based startups. Societal discussions about risk-taking, insolvency, and tech entrepreneurship, especially by technical talent, can be the catalyst to supporting ambitious scaleups and cementing Belgium's deeptech competitive advantage (or 'moats').

Without breakthrough chip scale-ups, the innovation ecosystem misses the crucial flywheel effect where successful ventures generate capital, experienced talent, and entrepreneurial knowledge that–crucially–feed back into creating an even bigger venture ecosystem at an accelerating pace. The absence of significant scale-ups emerging from imec's innovation ecosystem represents both an untapped opportunity and a strategic vulnerability for Belgium's technological sovereignty and regional economic resilience.

In the semiconductor industry, talent is not only the solution, but also the problem. In all realms, from chip designer to systems engineers and assembly technicians, there seems to be an insatiable *war for talent*. To achieve its 2030 goals of doubling chip production, Europe needs a specialised workforce of about 600,000; yet approximately 250,000 qualified workers will be available – leaving a workforce shortage of 350,000.[10] Unequivocally, the solution to this problem requires both business and policy action. Lawmakers could, for instance, reduce processing times for industry-sponsorship candidates from around the world to 3 months maximum, as well as create a "semiconductor visa" for hardware engineers, semiconductor researchers, and experienced technicians who hope to emigrate to the chocolate-loving nation. Additionally, the offering of tax incentives for industry labourers in combination with fast-track pathways to permanent residency could further retain talent already present from imec and other notable firms.

Immigration without domestic workforce development creates profound challenges for socioeconomic inequality and political strife. Belgium, given its extensive industrial talent pool and history, should continue to promote STEM pathways from primary school to college by utilising scholarships, government-sponsored science-based summer camps, and digital learning initiatives like Brightlab, which imec sponsors. Furthermore, the country should strongly invest in upskilling and reskilling its workforce, especially in economically underserved regions like Wallonia and areas of Brussels, in skill-based positions like supply chain management, data analysis, and technician roles. Principally, all policy tools in the realm of workforce development should indeed incorporate marginalised groups like women and ethnic minorities.

FIXING THE BELGIAN FUNDING GAPS

Unequivocally, there is a major financing gap between the EU and its economic counterparts. For instance, the EU attracts just 5% of worldwide venture capital funding, while the United States dominates with 52% and China secures 40% of the global total.[11] As a result of significant legal, regulatory, and tax frictions impeding cross-border investments in the EU, Belgian startups–especially in later stages of maturity–become victims of global risk capital competition, which inherently prioritises fast growth, ambition toward market scale, globally defensible IP, and experienced technical talent (especially at other scaleups & *Big tech firms*).

Belgium along with other Member States need to also nationally advocate for *putting capital to work*. As mentioned in the *Letta Report*, the EU should begin to unlock its massively underutilised €33 trillion in private savings in the aim of meeting its profoundly urgent climate, security and competitiveness goals.[12]

This means decreasing liquidity requirements and utilising more of the large pools of capital present in Belgian pension funds, large European insurers, banks, university endowments.

While this is partially being done by the Belgian Growth Fund or regional investment companies like PMV (Participatiemaatschappij Vlaanderen), which is wholly owned by the Flemish government and invests in tech scaleups, it is certainly not comprehensive enough to fund the innovation economy of the entire country.[13] European pension funds on average invest 0.018% of total assets to venture capital compared to US pension funds which invest 1.9% of assets into venture capital.[14] Lessons can be drawn from countries like The Netherlands and Canada, which leverage substantial and sophisticated capital from pension funds and university endowments to drive strategic investments in critical technologies both at home and abroad. Through scaled investments Belgium can support its own domestic chip ecosystem by aligning public and private capital with national priorities, but also have greater international alliance influence–especially in the EU and strategic emerging markets like India and Malaysia.

Compounding the capital gap is Belgium's fragmented governance model. Economic development and innovation policy are regionalised, with Flanders, Wallonia, and Brussels each maintaining distinct investment agencies, policy priorities, and budgetary controls. This institutional structure dilutes national coherence, slows decision-making, and complicates the aggregation of strategic capital – particularly in industries like semiconductors that require scale, long-term planning, and national alignment. Furthermore, Belgium's high public debt (over 105% of GDP) constrains its ability to offer the large-scale state aid seen in Germany and France – forcing it to rely on R&D diplomacy over direct industrial subsidies.

To bridge the valley-of-death between R&D and industrialisation, Belgium should expand its innovation funding model beyond early-stage research. New instruments must support industrial pilot lines, scale-up capex, and mid-to-high TRL prototyping. A dedicated Flemish semiconductor fund could be established – modelled on PMV but focused on equity investment in pilot manufacturing, packaging, and high-value hardware ventures.

While PMV and imec venture capital have proven effective in Flanders, there is no equivalent innovation strategy in Wallonia, Brussels, or at the federal Belgian level that unites regional efforts into a cohesive national semiconductor roadmap. As a result, Belgium under-leverages its own capacity to mobilise public-private capital and negotiate effectively at the EU level, where unified national strategies attract greater Chips Act and Horizon Europe funding.

To unlock broader industrial participation, Belgium should simplify innovation project reporting requirements and allow for 5-year funding allocations based on strategic technology roadmaps and business plans. This model—already used by imec—should be extended to industrial actors with proven R&D and scale-up potential.

MUCH MORE EU FUNDING & ADVOCACY

The realisation of the Capital Markets Union (CMU) is crucial for the European and Belgian semiconductor ecosystems respectively. This long-discussed initiative aims to create a single market for capital and investments across Member States. In no short order, it would create opportunities to diversify access to capital, attract high-skilled EU & non-EU workers, reduce higher cost of capital for Belgian SMEs, and reverse the brain drain of technology-based talent immigrating to the US or other regions. In terms of geopolitical, a cohesively integrated EU capital market reduces Belgium's dependency on foreign investors, acquisition firms, and corporate partners that are themselves subject to economic shocks and government-driven export restrictions.

At the EU level, this encompasses Belgium lobbying for amendments to the InvestEU Regulation that would expand access to public funding while also reducing administrative costs for firms. Since February 2025, the Commission has highlighted that it hopes to add another

€2.5 billion to the InvestEU Guarantee (to total €28.6 billion) while also reducing reporting obligations for startups wishing to access that money by at least 25% - 35%.[15] However, this is not enough for EU cash-strapped scale-ups, let alone those in capital-intensive industries that use or focus on semiconductors.

Stakeholders throughout the Belgian semiconductor industry should also advocate for policy pressure on the Commission to boost its funding of the EU Chips Act. Approximately 53% of funding for the initiative is being financed from the reallocation of funds from existing programs like Horizon Europe and Digital Europe. This financing structure, in combination with the favouring of state aid exemption for foundries, structurally disfavours Belgian in certain segments of the EU nanotechnology value chain.

THE CHIPS ACT AND BELGIUM'S STRUCTURAL ASYMMETRY

The European Union's diminishing global position in semiconductor manufacturing represents a critical context for Belgium's sectoral strategy. The EU's share of global chip manufacturing has experienced a precipitous decline over recent decades, contracting from 25% in 2000 to merely 8% of mostly mature node or legacy chips in 2022.[16] Consequently, the European Commission has established an ambitious strategic objective to more than double its semiconductor manufacturing capacity to 20% of global production by 2030.[17] Crucially, the EU Chips Act reflects the EU's unified response to massive sovereign investments elsewhere, notably the US$ 280 billion US CHIPS and Science Act and China's US$ 95 billion Big Fund.

The EU Chips Act seeks to balance competitiveness and resilience - but in a far more volatile and multipolar world. In this context, Belgium has positioned itself as a key contributor to Pillar I of the Chips Act, which focuses on research, development, and pilot production.[18] In doing so, it retains its core positioning as deeptech research leader within the continent.

While the EU advertises a €43 billion target by 2030, the majority of funds must come from national budgets and private investment, facilitated by temporary relaxations in state aid rules. These flexibilities benefit wealthier, larger states that can allocate large subsidies for domestic chip fabrication. Smaller states like Belgium, with more limited fiscal space, tend to prioritise R&D ecosystems, public-private partnerships, and support for fabless companies.

The Chips Act was meant to unify Europe's semiconductor ambition. But in execution, it reflects and reinforces the bloc's internal disparities. Belgium is at the centre of this contradiction: critical to Europe's chip future, but sidelined by its funding structure for more ambitious, capital-intensive, projects.

The Act's emphasis on advanced nodes (e.g., 2nm technology) may also misalign with current European industrial needs, which are more dependent on mature nodes (e.g. the automotive industry). A more balanced strategy – strengthening foundational capabilities and ensuring technological sovereignty beyond immediate commercial viability simultaneously – would better position the EU in the long term.

Within this broader continental imperative, Belgium's semiconductor strategy is distinctly aligned with Pillar One of the European Chips Act, which emphasises research, development, and pilot production initiatives. Being the largest national benefactor of Pillar One of the €43 billion Chips Act, nearly €2.5 billion is invested in imec aimed at strengthening its nanoscale research capacity and establishing a third cleanroom facility.[19]

In contrast, Belgium plays no role in Pillar II, where countries like Germany and France dominate through massive direct subsidies — €5 billion for a European TSMC joint venture in Dresden,[20] and €7.5 billion for GlobalFoundries and STMicro in France.[21] These disparities reflect not just industrial specialisation or comparative advantage, but structural inequality: the Chips Act's reliance on national co-funding inherently favours larger, wealthier Member States. Unless rebalanced, Belgium's leadership will remain trapped upstream.

Finally, Europe's capacity to scale up remains constrained by its fixed budgetary framework (MFF) through 2027. Unlike the United States, which can swiftly deploy targeted funding through legislative packages, the EU's dependence on repurposed funds limits its ability to respond to rapidly evolving trade-centred, technological and geopolitical shifts. Given the potential modern-day frameworks for *weaponised interdependence*, fiscal flexibility and diverse supply chains should be policy priorities for both the Belgian government and EU fund allocators.

BELGIUM'S DIPLOMATIC PIVOT

On March 12, 2025, nine European countries—Austria, Belgium, Finland, France, Germany, Italy, Poland, Spain, and the Netherlands—formally established the Semicon Coalition in Brussels, an initiative led by Dutch Minister of Economic Affairs Dirk Beljaarts. The Coalition represents Belgium's most effective policy lever to influence European semiconductor strategy beyond imec. It marks a new level of political alignment in Europe's efforts to strengthen its semiconductor industry. With backing from national governments, the group aims to reinforce Europe's role across the entire semiconductor value chain, from cutting-edge research to advanced manufacturing and commercialisation.[22]

It is more than a coordination forum – it is a political workaround. In the absence of a truly unified EU industrial policy, mid-sized and smaller states like Belgium are using the Coalition to gain bargaining power, set standards, and coordinate funding priorities. This reflects a new model of EU governance: bottom-up industrial diplomacy aimed at overcoming structural limitations in Brussels. Belgium's leadership in this format is one of its most effective tools for compensating its manufacturing deficit.

Thanks to this robust public-private ecosystem, Belgium has emerged as a leading force in Europe's chip diplomacy and a key discourse-mover especially in areas pertaining to technological competitiveness, economic security, STEM education, and borderless research and innovation. Now is the time to leverage this innovative might into geopolitical heft. Particularly, at the European level, chip diplomacy is the targeted advocacy of legislations and regulations which benefit various semiconductor stakeholders while using their high-tech and strategic resources, from specialised human capital to lithography machines to the suppliers of semiconductors, as *bargaining chips*.

With the EU headquarters in Brussels and imec's semiconductor ecosystem both based in Belgium, the country's political and business leaders hold a uniquely strategic position in both underlining the criticality of the sector (and its interest) to the EU and balancing the economic interests of smaller private sector innovators. As Luc Van den hove, the CEO of imec states, "focus on your strengths and make sure that the rest of the world needs you for those strengths."[23] Belgium, like its culturally and economically similar neighbour, The Netherlands, should continue to routinely advocate for policies essential to European technological competitiveness, particularly in artificial intelligence (AI) development. In doing so, it can at high-level embody the realities of globalised supply chains and the industry's strength through holistic growth and mission-driven collaboration.

The coalition identifies semiconductors as essential not only to economic growth and innovation, but also to strategic autonomy and security. By improving coordination across borders, the member states seek to boost Europe's technological sovereignty and resilience amid intensifying global competition and uncertainty. This includes a shared commitment to increase production capacity, invest in research and development, and support the growth of a highly skilled workforce in this post-COVID era.

THE STAKES FOR BELGIUM

Belgium's challenge is clear: remain essential, not incidental. It is central to Europe's semiconductor future – but it is not in control of it. The country sits on a geopolitical chokepoint, but without political coordination, or a diversified ecosystem, it risks becoming Europe's most sophisticated subcontractor – mainly for global players.

Paradoxically, the European Union's Chips Act has formalised this imbalance. Belgium receives prestige research funding. France and Germany receive factories, subsidies, and industrial weight. If this asymmetry persists, Belgium risks playing a supporting role not in Europe's strategic autonomy — but in the agendas of its global competitors.

Belgium is the brain of Europe's semiconductor ecosystem. But a brain in a jar does not build power. The answer is not to abandon Belgium's strengths, but to scale and diversify them: deepen talent, shape regulation, and co-lead a diversification and scale-up strategy. Research and development give Belgium a seat at the table. If it wants to shape the agenda, it needs more than science - it needs strategy.

Notably, the revival of chip production at the former BelGaN site—backed by a €250 million commitment from a European investor—signals a small but strategic reversal of Belgium's manufacturing decline, and a timely chance to translate R&D leadership into tangible industrial presence.[24] However small, this collaborative action exemplifies Belgium's ability to lead Europe by example, as the nation envisions, learns, and builds tomorrow's world — transistor by transistor.

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POLICY RECOMMENDATIONS

Lead the Next Phase of European Semiconductor Strategy: Belgium should take an active leadership role in shaping a future "Chips Act 2.0" through the European Council, leveraging its position as the EU's premier hub for semiconductor R&D to ensure long-term continuity, expanded funding, and strategic focus beyond 2027.

Integrate Strategic with Key Industrial Sectors: Align semiconductor policy with Europe's broader industrial goals by fostering synergies with critical sectors such as health, energy, and automotive—areas increasingly reliant on secure and advanced chip technologies.

Address Talent Gaps through Migration and Education: Ease migration rules to attract global high-skilled talent and strengthen Belgium's position as a destination for semiconductor professionals. Expand specialised training programs at national and EU levels to build a robust domestic workforce capable of supporting the entire semiconductor value chain.

Strengthen European Strategic Autonomy on Export Controls: Advocate for a unified EU stance on semiconductor export controls to enhance geopolitical coherence and protect critical technologies without undermining innovation or open scientific collaboration. Belgium should demand an EU-wide strategy before it becomes collateral in US-China semiconductor decoupling.

Unlock Private and Public Investment for Semiconductor Innovation: Accelerate the deepening of the Capital Markets Union (CMU) to enhance access to long-term financing for semiconductor startups, scale-ups, and infrastructure by more effectively mobilising European private capital. On the public side, the European Commission should increase its own budgetary contributions to ensure that future Chips Act funding—such as a potential "Chips Act 2.0"—is not disproportionately dependent on state aid exemptions leveraged primarily by larger member states.

Plan for Long-Term Manufacturing Resilience: Develop a strategic roadmap (like Japan) to gradually revive advanced semiconductor manufacturing capacity within Belgium and Europe, with a focus on complementing R&D strengths and reducing overreliance on external production hubs.

Spend 4% of GDP on Research and Innovation: This entails a national investment injection to not only imec, but research labs, think tanks, global university partnerships (especially in European semiconductor hubs). Belgium already sits at the top of the EU in R&D expenditure (3.32% of GDP); however, 4% sets an ambitious target for the country to be a globally indispensable leader in the area as well as attract greater research & scientific talent due to compensation and access to funding.

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Pillar I focuses on **research, development, and innovation**, supporting initiatives like pilot lines, advanced R&D facilities, and talent development (e.g., via Horizon Europe and Digital Europe programmes).
Pillar II targets the **security of supply**, including the creation and expansion of fabrication capacity through a new category of facilities called "Integrated Production Facilities" and "Open EU Foundries," supported by state aid exemptions and national funding.
Pillar III establishes a **coordination and monitoring mechanism** across member states and the European Commission to anticipate supply disruptions, gather market intelligence, and implement emergency responses in crisis scenarios.

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