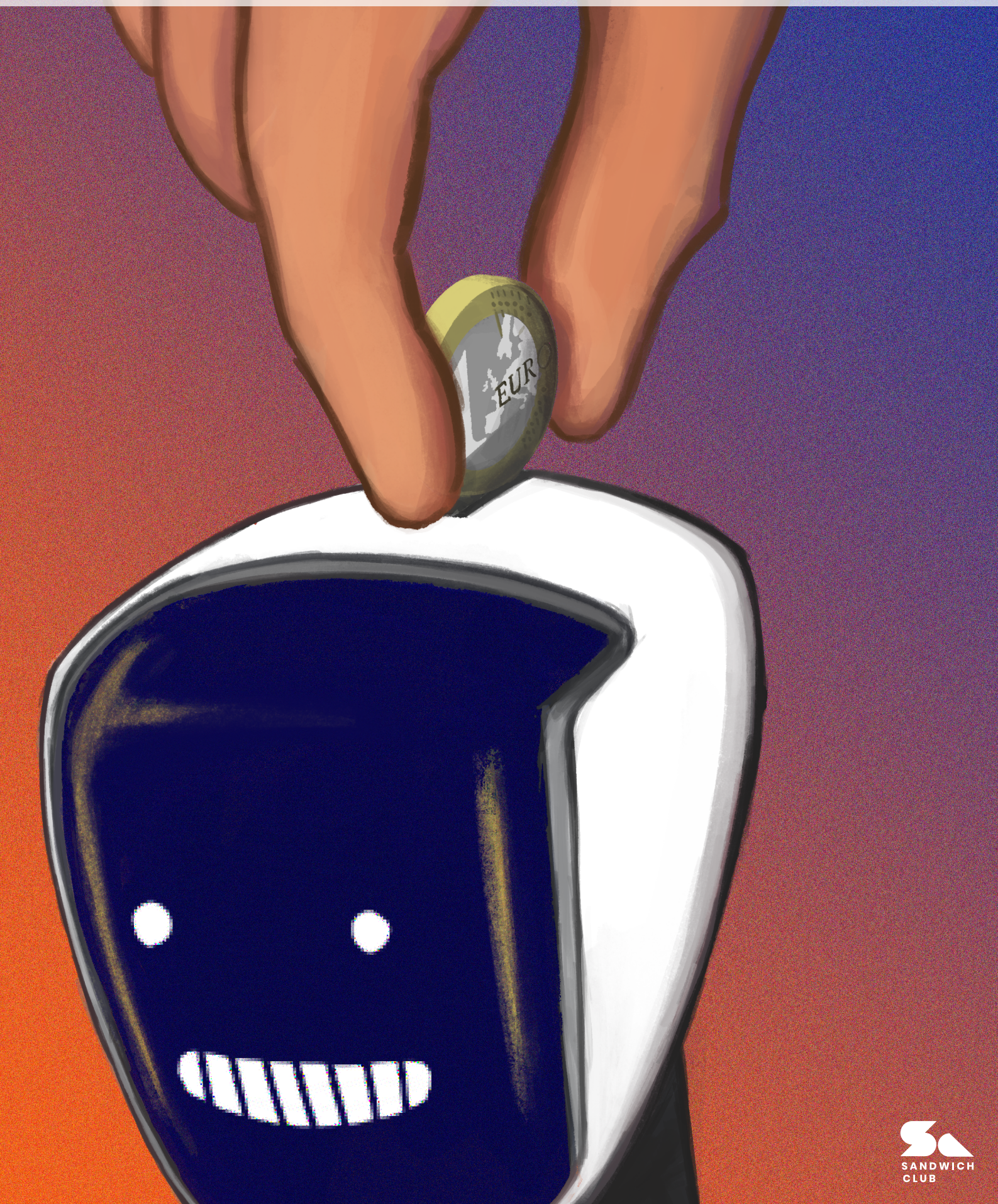
THE SANDWICHER



SANDWICH CLUB

Pickles

By Giulio Centemero

Last April kept me busy, among other things, with a tech mission in Silicon Valley. The group that accompanied me was made up of professionals from diverse backgrounds: from banking to energy, from the legal sector to tech. By visiting various companies, startups, and academic institutions in the Bay Area, I came to understand what makes this place unique. I'll highlight four elements that contribute to this uniqueness:

First, in that part of the world, failure is not a stigma. If you've had the courage to start your own business- even if it fails- you're not considered out of the game. The entrepreneurial mindset is seen as an asset; the intellectual property, skills, people, and experiences of a failed startup are often recovered and recombined in new projects.

Second, in Silicon Valley, all projects are born with a global outreach in mind. This isn't just "by the book" it's a natural consequence of the fact that, over the years, the world's most important innovation hub has attracted talent from all over the world.It becomes normal, almost effortless, to interact with friends and colleagues from the most diverse countries, gaining access to a much broader perspective than one might have from other vantage points.

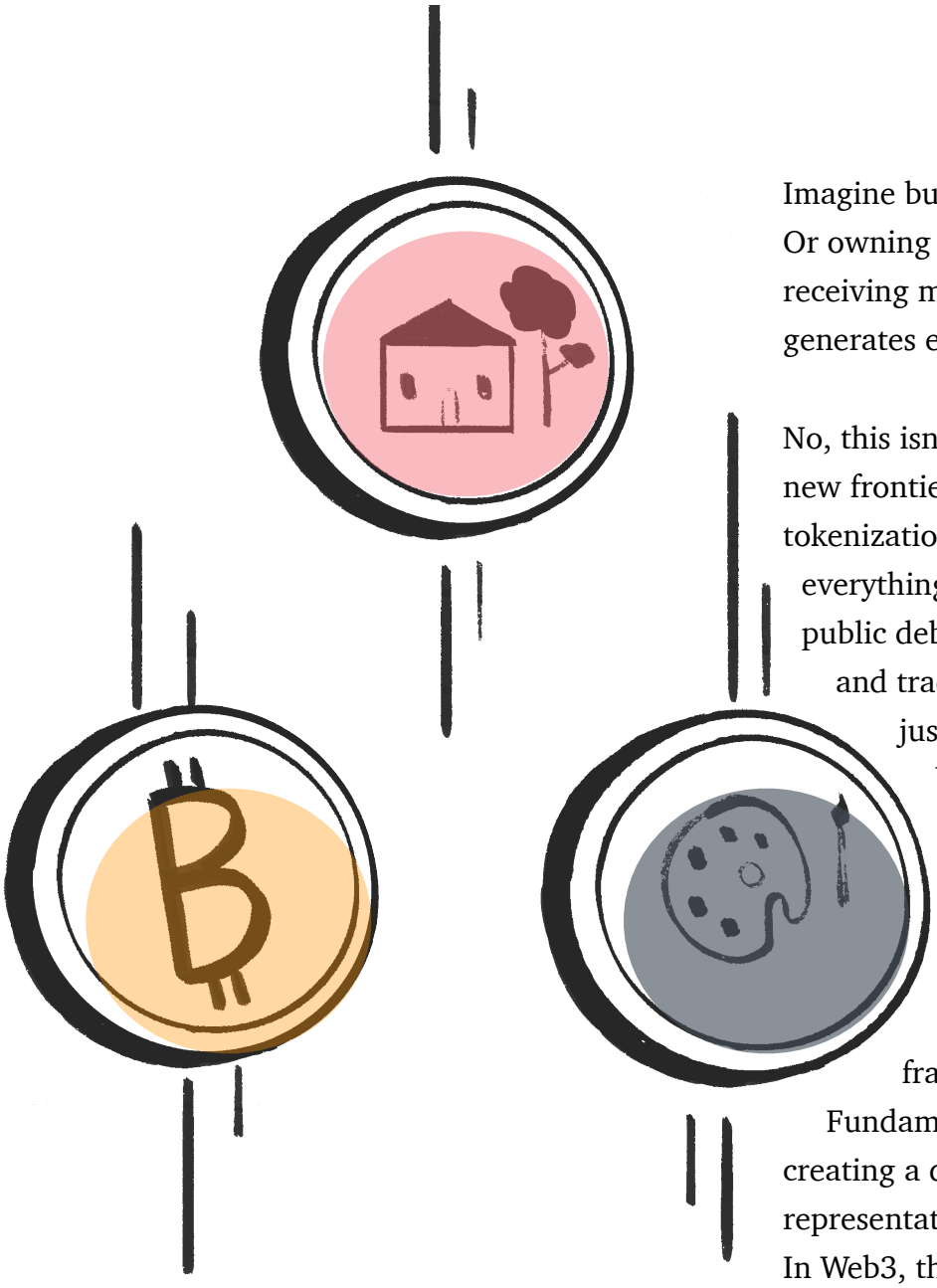
Third, this is tied to the evolution of academia: at universities like Stanford (let's not forget, the cradle of the '68 movement), entrepreneurship is lived on a daily basis. There are courses -even at the undergraduate level -where students simulate the creation of startups in class. As a young student from Maryland we met at the university said, "if you walk around the campus, entrepreneurship is in the air."

Fourth, is the geographic concentration of Venture Capital funds, incubators, and accelerators. If a group of young people has an idea, it's unlikely it won't find a financier or a good incubation/ acceleration program. This ties back to the first point: failure is not a stigma, so even if a venture doesn't succeed, investors will still "recover" the valuable aspects the experience has produced. It may sound strange, but this tech mission not only opened my mind, it also gave me hope.

While it's true that not all of the four points I've dubbed the "cardinal points of Silicon Valley" are fully attainable (at least not at that level), it's equally true that, especially in Milan and surrounding areas, we have good starting points: a strong academic base, finance that's paying attention to small caps (we need to push more on VC, but we're not starting from zero), financial markets that support exits, an excellent academic environment (just think of the Tech Europe Foundation and the transformation of the former Expo Area), and a certain degree of talent attraction. There's still much to do, especially culturally, but we're on the right track.

It's important, dear Sandwichers, that we keep striving to improve ourselves and compare ourselves with the best.

That's why I look forward to seeing you on June 6 in Franciacorta, at the Monte Rossa winery, for the first Forum of the Sandwich Club - the Forum on Innovation & Global Trends - where, among other activities, we'll present the next Tech Mission.



Tokenization: The digital Revolution asset in the world of Web 3

Tokenization 2025: The Year When Real Assets Become Liquid

-By Sara Noggler

Imagine buying a piece of a house in 30 seconds. Or owning 3% of a bottle of 1985 Sassicaia. Or receiving micro-returns every time a solar plant generates energy.

No, this isn't just another crypto gimmick. It's the new frontier of real finance: it's called asset tokenization. Welcome to 2025, the year when everything—from energy to property, from public debt to art—can be fractioned, digitized, and traded. A world where owning no longer just means signing at a notary's office, but clicking "buy" on a smartphone.

Finance Becomes Liquid: Tokenizing means transforming a physical or financial asset into one or more digital tokens on a blockchain. Each token represents a share, a right, or a fraction of the asset.

Fundamentally, tokenization is the process of creating a digital, unique, and verifiable representation of a real asset.

In Web3, this occurs through the issuance of a token on a blockchain, which can be used within protocols based on smart contracts—programs stored on a blockchain that automatically execute actions (such as payments, transfers, etc.) when certain conditions are met.

Tokens can represent practically anything:

- Physical goods, such as real estate, wine, or artwork;
- Financial assets, such as stocks or bonds;
- Intangible assets, such as intellectual properties, identities, or data;
- Digital currency (e.g., stablecoin) or digital rights (e.g., NFTs).

“Tokenization converts real and financial assets into blockchain-based digital tokens, fractionable and tradable”.

There are fungible tokens (replicable and interchangeable, like stablecoins) and non-fungible tokens (NFTs), which are unique and represent the digital proof of a right or ownership. But the real game-changer is programmability: digital tokens can be configured to perform automatic actions, such as distributing dividends, activating warranties, or managing voting rights in real-time. This makes the infrastructure far more dynamic compared to traditional registries.

From Real Estate Markets to Digital Art: Concrete Use Cases

In 2025, tokenization is an operational reality in many sectors:

- Real Estate: Residential and commercial properties fractionated into digital shares, accessible to small investors;
- Art and Collectibles: Guaranteed authentication and shared ownership, with greater accessibility and liquidity potential;
- Private Equity and IP: Unlisted shares, patents, and digital rights tokenized and manageable in digital portfolios;
- Energy: Solar or wind plants fractionated into tokens that generate automatic real-time returns;
- Agricolture: Crops, supply chains and production shares represented by NFTs, improving traceability and trust;

The Result?

It’s possible to own 2% of an apartment in Berlin or sell a fraction of an artwork in Brazil. Everything verifiable, automatic, on-chain. And all this is no longer just for technology pioneers: more and more institutions are exploring how tokenization can become the backbone of future financial services.

The Numbers Don’t Lie

- Over $6 trillion: the estimated global value of tokenized assets (source: 101 Blockchains);
- 7% of Dubai's real estate market tokenized by 2033 (source: Dubai Land Department);
- 1.5 million Italians potentially interested in models like eBits (source: Enel);
- 20% return on the tokenization operation of a Picasso painting by Sygnum Bank;
- +30% operational efficiency in post-trade processes for tokenized instruments, according to preliminary analyses by various European banking consortia;

“Benefits: liquidity, accessibility, automation”

- Finance: Funds, bonds, and digitized derivatives, with faster settlement and reduced risks;
- Identity and Intellectual Property: Tokens as immutable certificates of ownership, with decentralized validation.

Beyond the Hype: Tokenization as a Strategic Infrastructure

According to the OECD, tokenization can:

- Integrate traditional and digital financial systems;
- Enable new architectures for the European capital market;

“By 2025, purchasing small shares of real estate, art, renewable energy, and other assets will become commonplace”.

- Strengthen the competitiveness of countries that know how to regulate and innovate.

Why is it a real strategic infrastructure?

Because it touches on public policy, markets, governance, and international competitiveness. It’s a junction where finance, technology, and geopolitics intersect.

But governance, interoperability, and regulatory harmonization are needed, lest there be a risk of global fractures. While Europe and the United States proceed with caution, Singapore, Switzerland, and the United Arab Emirates are racing to become global hubs.

Where It’s Already Happening

- Dubai: Dubai Land Department's pilot project to tokenize property deeds;
- Italy: Enel launches eBits, tokens tied to renewable energy with benefits on utility bills;
- Cassa Depositi e Prestiti: first digital bond issued on blockchain, subscribed by Intesa Sanpaolo;
- Art: Sygnum Bank tokenizes a Picasso (Fillette au béret, 1964), with a 20% return and participation from over 60 investors ;
- Tokenized Funds: Eurizon, Sella, and Generali develop the first funds on blockchain, according to Assogestioni guidelines;
- Switzerland: SIX Digital Exchange enables regulated trading of tokenized assets;
- France: Banque de France tests tokenization of public debt with DLT technology;

Challenges Remain

- Fragmented Regulation: Every country has different regulations. Europe is bringing clarity with MiCAR, which harmonizes rules on transparency, governance, and consumer protection. But the gap with the USA and Asia remains significant;
- Still Clunky UX: Wallets are difficult to use, fiat on-ramps are slow and unintuitive, fees are high. There's a need to focus on user-friendly experiences, integrated wallets, and simplified onboarding;
- Underdeveloped Secondary Markets: Poor liquidity, few regulated exchanges for security tokens, little interoperability. DLT-compliant markets, shared standards, and active institutional players are needed;
- Lack of Common Technical Standards: Fragmented protocols, non-interoperable smart contracts, lack of shared frameworks. Standardization is crucial for adoption on an industrial scale;
- Education and Trust: User and investor trust requires time and culture. More digital and financial literacy, training on wallets, tokens, risks, and opportunities are necessary.

“Challenges: fragmented regulation, complex UX, limited secondary markets”.

Will the Future Be Tokenized? Yes. Not because it's cool, but because it's necessary. In 2025, owning no longer means just signing, but participating. And if even just 1% of global assets become tokenized, then finance is no longer just for the few. It's for everyone. It's here. *And it has already begun.*

How CBAM is influencing the automative industrie in europe

How CBAM is Impacting the European Automotive Industry

By Nicolò Cobianchi

The European Union's Carbon Border Adjustment Mechanism (CBAM) represents one of the key pillars in EU's strategy to achieve carbon neutrality by 2050, and most specifically to reduce greenhouse gas emissions by 55% by 2030 compared to 1990 levels. Technically, it aims at targeting "carbon leakage": therefore, at preventing that EU based companies move carbon-intensive production to countries with less tight climate policies, or that European goods get replaced by carbon-intensive imports from foreign countries less stringent on carbon regulations.

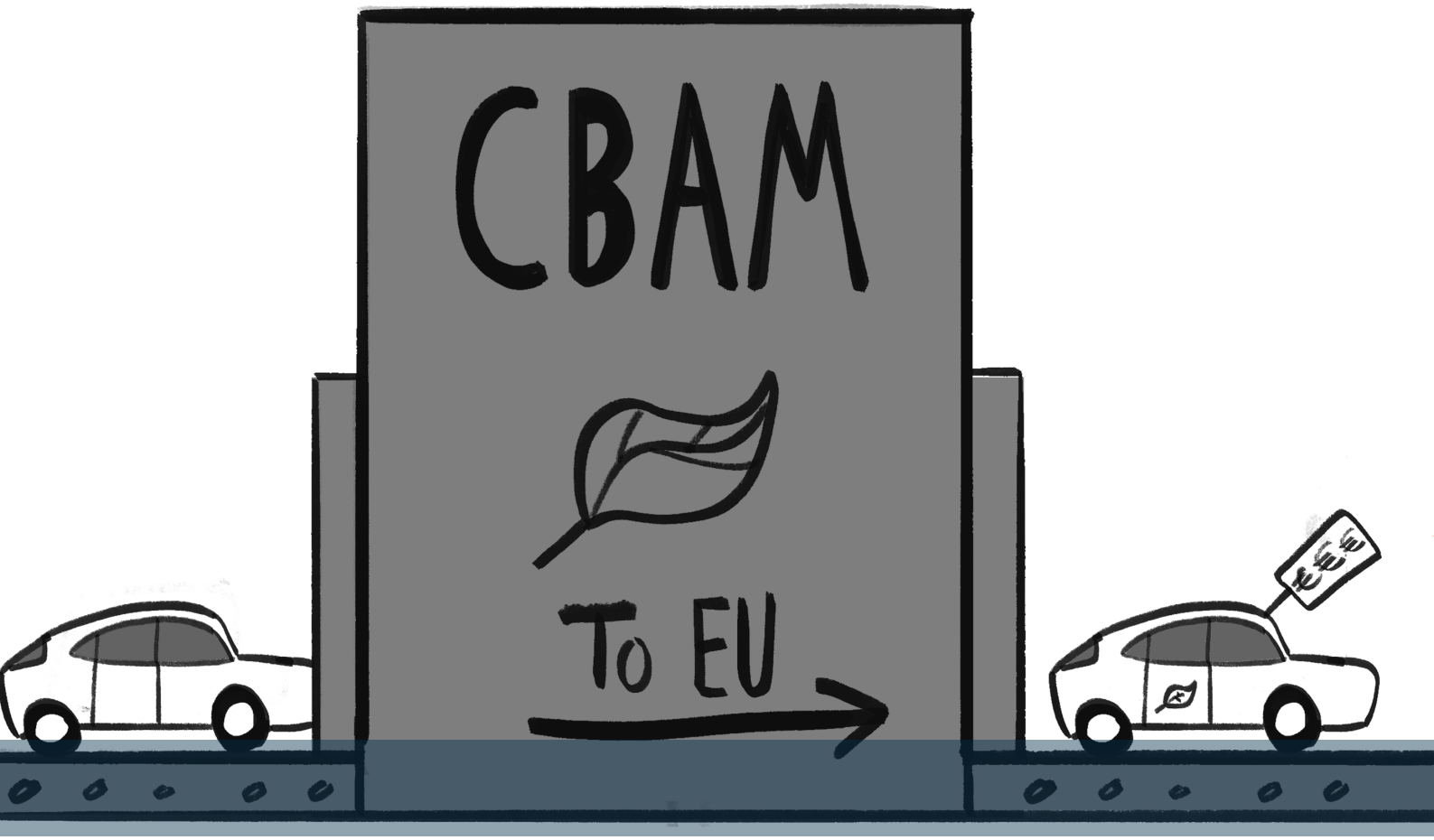
The adoption of CBAM will be definitive from 2026, after the current transitional phase started in 2023. The automotive industries, among the others, is and will be particularly affected by this measure.

Implications for the Automakers

The sector heavily relies on the import of raw materials like steel, and aluminium, which are among the commodities targeted by CBAM (being carbon-intensive in their supply). Therefore, considerable cost increases are expected to impact vehicles' production, costs

"Impacts: increased production costs, demand for greener raw materials, potential advantage for European firms investing in sustainability".

which will then be likely to be passed on final prices. The increase in the costs will affect the supply chain processes, which might need to be adjusted and partially rethought. For instance, through an increase in the demand from EU sourced primary resources, or with an indirect incentive for non-EU suppliers to invest in greener production methods not to lose competitiveness in the European market. Another consequence is likely to be that of an increased diversification in the sourcing of raw materials, with the possibility of new players with lower CBAM-related costs joining the market.



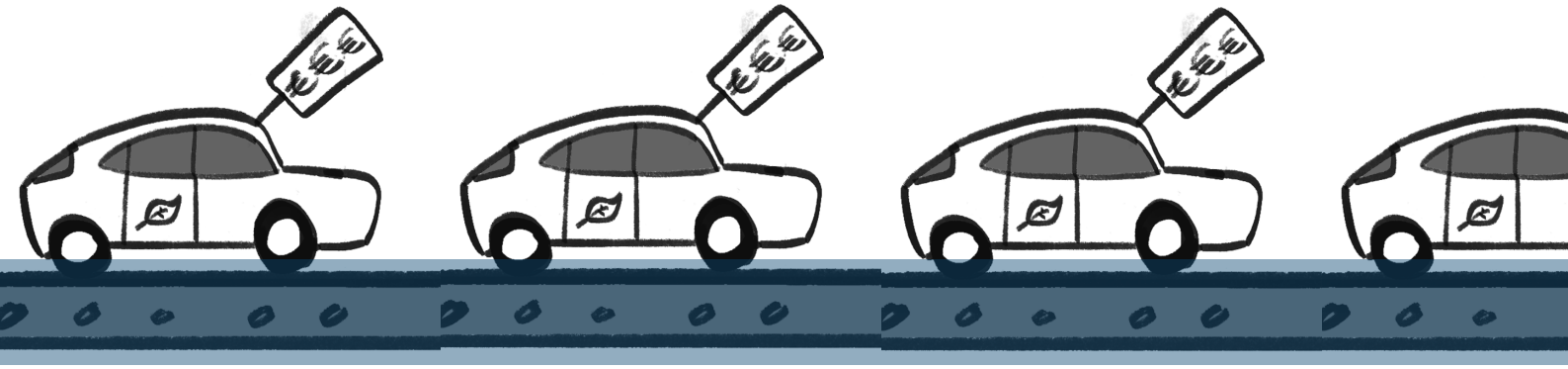
If CBAM introduces cost pressures on the one hand, it also levels the playing field on the other, by ensuring that non-EU competitors face similar environmental costs of European manufacturers. This could favour European carmakers already investing heavily in sustainability, which will no longer face the unfair competition from non-EU companies using cheaper materials with higher carbon emissions.

Recent Developments in EU Automotive Policies

On March 3, 2025, the European Commission announced an extension of two years for European carmakers to meet the 2025 pollution targets, now allowing compliance until 2027. This decision aims to provide more leeway to the automotive industry after the considerable drop of the past year in electric vehicles' sales. This extension has been already criticised by Environmental groups, who suggested that it could hamper the transition to a wider scale adoption of EVs.

"EU extended pollution target deadlines and introduced support measures for the automotive industry".

On top of this measure, the European Commission has recently presented an "Action Plan for the Automotive Industry", by introducing initiatives to boost the European car industry, including financial support for research and development, incentives for clean vehicle production, and measures to strengthen competitiveness. These efforts align with CBAM's objectives to foster sustainability while attempting to keep European automakers globally competitive.



“The EU’s Carbon Border Adjustment Mechanism (CBAM) aims to prevent carbon leakage, imposing additional costs on Europe's automotive sector”.

Conclusion

CBAM is about to reshape the European automotive industry by increasing production costs, driving shifts in supply chain strategies, and encouraging greener sourcing of raw materials. If on the one side the policy introduces financial pressures, it also levels the competitive playing field on the other, thus benefiting manufacturers already investing in sustainability – i.e.: European ones. The recent EU Commission’s proposals, with the extension of pollution targets and the introduction of an Automotive Action Plan, indicate a broader effort to balance environmental goals with industrial competitiveness. As CBAM moves toward full implementation in 2026, its long-term impact will depend on how automakers adapt: whether by absorbing costs, passing them to consumers, or innovating toward more sustainable production.

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The Dragon in the supply chain: how Europe’s defense relies on Beijing

After two decades of globalization and cost-cutting, the European Union has sleepwalked into a profound strategic vulnerability: its defense industry now depends significantly on Chinese suppliers. This dependency extends far beyond finished products to the very building blocks of modern weaponry. Research reveals that while European defense companies proudly display their sovereign capabilities in glossy brochures, their supply chains tell a different story, one of increasing reliance on a strategic competitor that could, at any moment, decide to shut off the tap.

The scale of dependency is striking. China effectively controls nearly 90% of Europe's rare earth elements supply, materials essential for everything from precision-guided munitions to aircraft radar systems. The Chinese grip extends further: 69% of global rare earth mining, 86% of processing, 74% of graphite production, and 78% of tungsten output all fall under Beijing's jurisdiction. The electronics sector paints an equally concerning picture. In 1980, Europe and America produced most of the world's printed circuit boards; today, China alone accounts for 52% of global production, while Europe's share has withered to below 4%.
This dependency has evolved tremendously over the last two decades. Initially limited to raw materials, Chinese involvement has crept upward in the value chain to include manufactured components. Even the F-35 fighter jet, the cornerstone of several European air forces' modernization plans, is not safe, as it was discovered to contain Chinese-origin magnets, requiring special waivers for production to continue.
Europe has recognized this vulnerability. In 2019, the EU established a formal investment screening mechanism, largely in response to Chinese acquisitions in strategic sectors. Following such decision, the EU further implemented the dual-use export control regime (Regulation (EU) 2021/821) to tighten oversight on critical technologies which could be used militarily by China to prevent unintended technology transfer. Germany's 2023 China Strategy explicitly acknowledges the need to reduce dependencies, while the EU's Critical Raw Materials Act aims to ensure no more than 65% of any strategic material comes from a single country. These measures signal a shift from the permissive approach of the early 2000s to a more cautious stance that views Chinese supply chain dependencies as a strategic liability.
The implications for European security are deep. The continent's strategic autonomy is compromised since critical inputs for defense

manufacturing are controlled by a potential economic and military rival. NATO's collective security posture becomes precarious when member states cannot guarantee production continuity for essential military equipment. China has already demonstrated its willingness to weaponize supply chains, restricting rare earth exports to Japan in 2010 and curbing gallium and germanium exports in 2023. The threat of similar action against Europe could constrain NATO's strategic options or compromise operational readiness.

Illustrative case studies underscore these concerns. The partnership between Germany's Rheinmetall and China's ZYNP Corporation highlights the trade-offs European defense firms have made. In 2017, Rheinmetall signed a cooperation agreement allowing ZYNP to produce steel pistons under German technology. While economically beneficial, this arrangement gave a Chinese company insights into manufacturing techniques potentially applicable to military vehicles. Similarly, components from Nuctech, installed as security screening devices in numerous European locations, including airports, ports, and border crossings, highlight how Chinese suppliers have integrated into defense supply chains through commercial-off-the-shelf components. These relationships were formed when cheaper prices were a priority and security considerations were not; shifting the strategy now proves considerably more challenging.

Technology transfer presents another risk dimension. China's military-civil fusion strategy means that even ostensibly civilian partnerships can enhance military capabilities. European firms outsourcing subsystems or forming joint ventures in China have sometimes found their technology replicated by Chinese partners. One example, albeit not European, culminated with the sentencing of a Chinese individual to 20 years of prison following an attempt to steal GE Aerospace trade secrets. This intellectual property leakage threatens to hollow out Europe's industrial base over time, transforming today's supplier into tomorrow's competitor.

The path forward requires strong Intellectual property regulation integration, as well as common ground understanding on the strategic nature of the sector on behalf of the ruling class. But beyond trade secrets, Europe must diversify primary supply sources, cultivating alternative suppliers in allied countries while investing in domestic mining and processing capacity, as well easing exploration and resource extraction regulation. One new source, which has made the headlines, comes from the ocean floor and it appears to be sediments dating several thousand of year located in international waters. Strategic reserves of such detrimental materials would create a buffer against disruptions and deter possible coercion. On the other hand, rebuilding Europe's industrial base for critical components demands substantial investment and that is no easy task to achieve in the old continent.

EU coordination offers a promising avenue for addressing these challenges collectively. Joint initiatives on critical raw materials, shared stockpiles, and coordinated contingency planning would amplify individual national efforts. Wargaming scenarios involving Chinese supply cutoffs could help prepare coordinated responses, such as reallocating supplies among allies. The strengthening of internal market infrastructure would not only be strategic but would boost economic integration too.

Europe's predicament exemplifies a broader tension between globalization's economic efficiencies and national security imperatives. For two decades, European defense firms embraced Chinese suppliers for cost advantages, only to discover that these short-term savings carried long-term strategic costs. The continent now faces a protracted process of reducing dependencies while acknowledging that complete independence remains years away. As Europe navigates this complex landscape, it must balance immediate economic considerations against long-term security requirements. The current trajectory of slow transition represents a pragmatic approach, but success will require the capability of attracting private capital to invest in the European military complex, also to avoid the government overspending so familiar in the US. After decades of courting the dragon for its manufacturing prowess, Europe must now cautiously back away without getting burned.

Renewable Energy Communities: Decentralized Organization and Civic Governance

By Lucio Brignoli

Renewable Energy Communities (RECs) are emerging as a new decentralized model in the energy sector. In these arrangements, citizens, businesses, and local administrations come together to produce, consume, and share locally generated renewable energy, prioritizing environmental, economic, and social benefits for the community over individual profit. This marks a clear departure from the traditional centralized energy system: RECs encourage direct participation by end users—both as producers and consumers—fostering grassroots networks and driving the democratization of energy. This article focuses on the Fondazione Sinergia CER,

“Renewable Energy Communities promote decentralized local energy production and consumption with participatory civic governance”.

widely regarded as a prime example of a civic DAO—an autonomous, decentralized organization operating in the civic sphere—established as a foundation shared by local governments, families, and enterprises in the Bergamo area. We will examine the foundation’s organizational framework, Sinergia’s function as a governance infrastructure for RECs, its inclusive operational methods, and its anticipated impact on the surrounding territory. Finally, we will compare this experience with similar initiatives in Europe and what emerges from current sector research.

“Fondazione Sinergia CER (Lombardy, 2024) exemplifies a "civic DAO", integrating public and private entities in renewable energy management”.

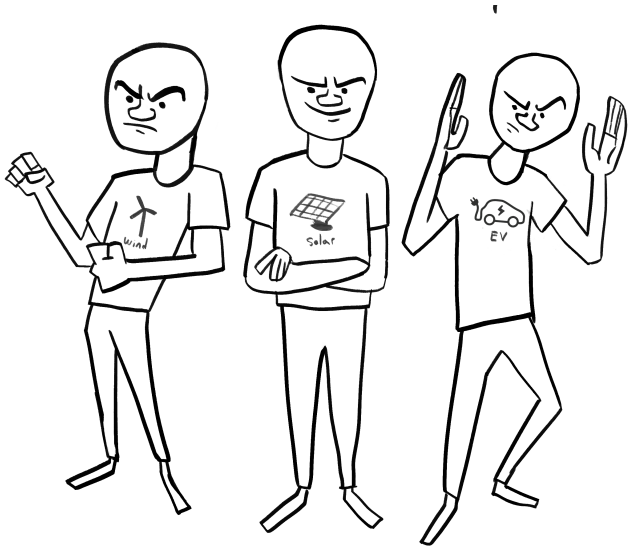
Fondazione Sinergia CER: a civic DAO with a participated governance

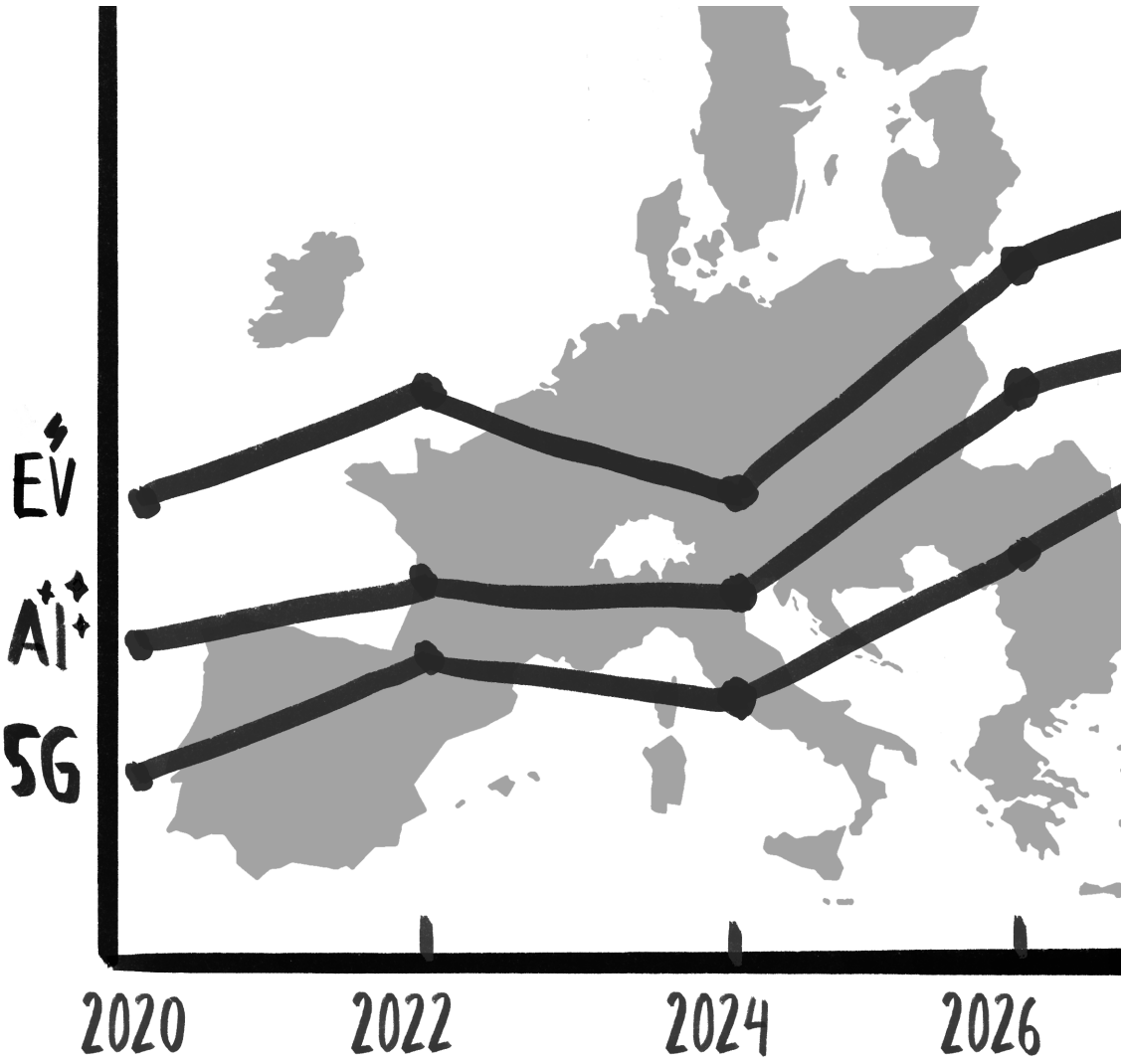
Fondazione Sinergia CER is a next-generation renewable energy community founded in Lombardy in 2024, organized as a participatory foundation. Its defining characteristic lies in merging a public body under private law with no profit motive and a model of decentralized, civically driven governance. Indeed, Sinergia is described as a “publicly supported foundation” comprising a wide range of stakeholders—municipal authorities, families, businesses, and other local entities from the provinces of Bergamo and nearby areas. Essentially, it is not a single energy community formed by one municipality or a small group of citizens, but rather a collective platform uniting numerous public and private entities in a single structure dedicated to renewable power generation and sharing. Sinergia CER was formally established on August 5, 2024, at the initiative of 23 municipalities located along the Bergamo and Lecco banks of the Adda River. Among its original founding partners are the Province of Bergamo and, subsequently, the City of Bergamo itself, the first provincial capital in Lombardy to join. Participation quickly expanded: within a few months, the number of municipalities grew from 23 to 73. Additionally, the foundation forged partnerships with academia and technical providers to oversee day-to-day operations.Describing Sinergia as a “civic DAO” means recognizing that its organization and operations reflect the core principles of

Decentralized Autonomous Organizations (DAOs) in a civic and territorial context. Although it is not a DAO in a strictly technological sense (as it does not appear to run on a blockchain), Sinergia does embody several defining features: decentralized decision-making, grassroots participation, transparency in resource management, and a shared rule set that automatically shapes its internal processes once established. Structurally, Sinergia's governance includes collective bodies and voting mechanisms that allocate decision-making power among various stakeholders (particularly local authorities), akin to how voting rights are distributed in a typical DAO. Moreover, the civic orientation is unmistakable: social and environmental goals lie at the heart of the foundation's mission statement, aligning with legal requirements for RECs and the ethos of a publicly focused, nonprofit entity. A pivotal choice here is the participatory foundation as a legal form. This arrangement enables both public and private actors to be involved in establishing capital and governance while still benefiting from private-law legal status and organizational autonomy. Thus, Sinergia is neither a for-profit company nor a standard association—it is an institutional hybrid designed for socially impactful projects, combining the long-term stability typical of foundations with the flexibility to add new members and launch collaborative initiatives, akin to associations. Opting for a foundation, rather than a cooperative, is an innovative choice in the realm of Italian energy communities, underscoring a commitment to public oversight of local energy infrastructure, without burdening municipalities with direct administration. In effect, member municipalities retain a strategic advisory and supervisory role, while operational matters fall under the foundation's purview. While Fondazione Sinergia CER's experience is pioneering, it does not stand alone: across Europe and Italy, numerous projects similarly integrate public sector leadership, active citizen engagement, and distributed energy production. Renewable energy communities like Sinergia CER highlight a novel path for rethinking the energy system at a local level: an ecosystem where production and consumption are treated as

"Challenges: ongoing public engagement, technical management, financial sustainability."

regional specifics. In this view, energy becomes a catalyst not only for technological progress but for social innovation as well. Challenges remain—ensuring continuous public engagement, optimizing the technical management of power flows, and maintaining financial viability—but the experience to date and international precedents point to a solid foundation. Fondazione Sinergia CER marks a significant step forward: developing an energy system that is truly shared, sustainable, and capable of creating community-wide value, effectively handing the "energy lever" back to the people. Ultimately, this is precisely the vision motivating European policy and the proven models emerging from successful energy community ventures in various parts of the continent.





The State of the Digital Decade Report, a new instrument for monitoring Europe's digital transition

By Giovanni Bonati

The State of the Digital Decade Report, which replaced the DESI (Digital Economy and Society Index) since 2023, is an instrument with which the European Commission annually assesses the Union's progress in achieving the objectives for the European Digital Decade 2030 and makes any recommendations.
The documents on which the report is based are the Strategic Programme of the Digital Decade, the Key Performance Indicators, the National Roadmaps.

The Strategic Programme of the Digital Decade

The Strategic Programme of the Digital Decade (EU Decision 2022/2481 of 14/12/2022) contains the manifesto to guide the digital transformation of the European Union up to 2030, with the aim of promoting a more person-centred, inclusive and sustainable transition.
Within the strategic programme, the European Parliament, the Council, the Commission and the Member States cooperate to achieve the objectives of the digital decade along 4 axes of intervention:
• digitally skilled and included population;
• efficient, secure digital infrastructures to connect all citizens;

• digital transformation of businesses to take better decisions, interact with their customers and improve business processes;
• modernization of public administration with digital services and procedures.

Key Performance Indicators

The Key Performance Indicators (EU Decision 2023/1353 of 30/06/2023) represent the compass for orienting European digital policies and for measuring the achievement of the objectives set for 2030. There are 17 indicators, grouped into the 4 axes of intervention mentioned above (see the complete matrix of indicators at the bottom of the article).

The Roadmaps

The Roadmaps, formulated by each State of the Union, contain the strategy of each Country, the actions planned to achieve the objectives of the digital decade, the expected impacts of each objective.
Italy, in its intervention programs, has demonstrated very ambitious plans even if the adoption and formal publication of its roadmap has not yet occurred.

The Annual Report on the State of the Digital Decade

The latest Annual Report on the State of the Digital Decade was issued by the European Commission on 2 June 2024 and consists of four documents:
• the Report on the state of the digital decade which reviews the developments of the digital decade policy agenda and illustrates the progress made by the European Union;
• Annex 1 “Competitiveness and sovereignty, citizens, smart greening, policy coherence and synergies”;
• Annex 2 “Update of the EU-wide trajectories for digital objectives”;
• Annex 3 “Summary reports for the 27 Member States”;
The latest annual report highlights insufficient progress in achieving the objectives and targets and excessive fragmentation among Member States.
One of the main critical issues of the European digital transformation is the limited diffusion of digital technologies outside of large cities, which generates an increase in the digital divide between businesses and citizens. Investments, human capital and digital infrastructures are often concentrated in large cities, while small towns and peripheral areas struggle to stimulate the economy, to cope with demographic challenges and to include citizens digitally.
Italy has made general progress in the 4 axes of intervention, but is not yet fully exploiting its potential, which could support a faster achievement of the expected objectives.

Digital skills

Increasing citizens' digital skills is one of the main goals of the digital decade, but today only 56% of the European population has at least basic digital skills. Despite this, 9 out of 10 Europeans believe it is important that public authorities provide adequate support to help people deal with the digital transformation. As for the number of citizens who are ICT specialists, values are far from the target and there is a persistent gender imbalance.
Italy still must overcome the challenge of digital skills and digital inclusion of citizens, finding itself below the European average: only 46% of citizens have at least basic digital skills. There is also a below-average value (4%) of ICT specialists, related to the still low interest in STEM (science, technology, engineering and mathematics) training courses. Despite some concerns, most Italian citizens are optimistic about digital progress: 71% believe that the digitalization of public and private services is simplifying their lives.

“Since 2023, the EU has monitored digital transformation progress through the Digital Decade Report, assessing goals in digital skills, infrastructure, business, and public sector digitalization.”

“Italy shows general progress but lags in digital skills (only 46% have basic skills), AI adoption, and startup growth.”

Digital Infrastructure

The report highlights how the European Union is far from achieving the objectives concerning the development of digital infrastructure.
Italy is close to the European average in terms of coverage of high-capacity networks and local fiber optic networks and is well above the average in terms of 5G, although, especially for the latter, an improvement in the quality of service is suggested.
As for the number of “edge” nodes present in Italy, it is noted that the country has 77 installations, which represent 6.5% of the European ones, but lower than those present in France and Germany.
Italy stands out among the European states in the semiconductor sector thanks to the role of market-leading companies and the presence of small specialized companies, often family-run.

Digitalization of companies

Italy is making progress in the digitalization of its production systems, remaining aligned and, sometimes, above the European average: Italian performance is superior to European performance in terms of digital intensity in small and medium-sized enterprises (61%) and cloud adoption (55%).
Our production system, however, encounters difficulties in the adoption of artificial intelligence and big data and in the number of unicorns (startups that reach a valuation of one billion dollars). There are critical issues in the dimensional growth of companies both due to an environment that is not favourable to supporting the development of startups and the absence of significant investment capital.

Digital public services

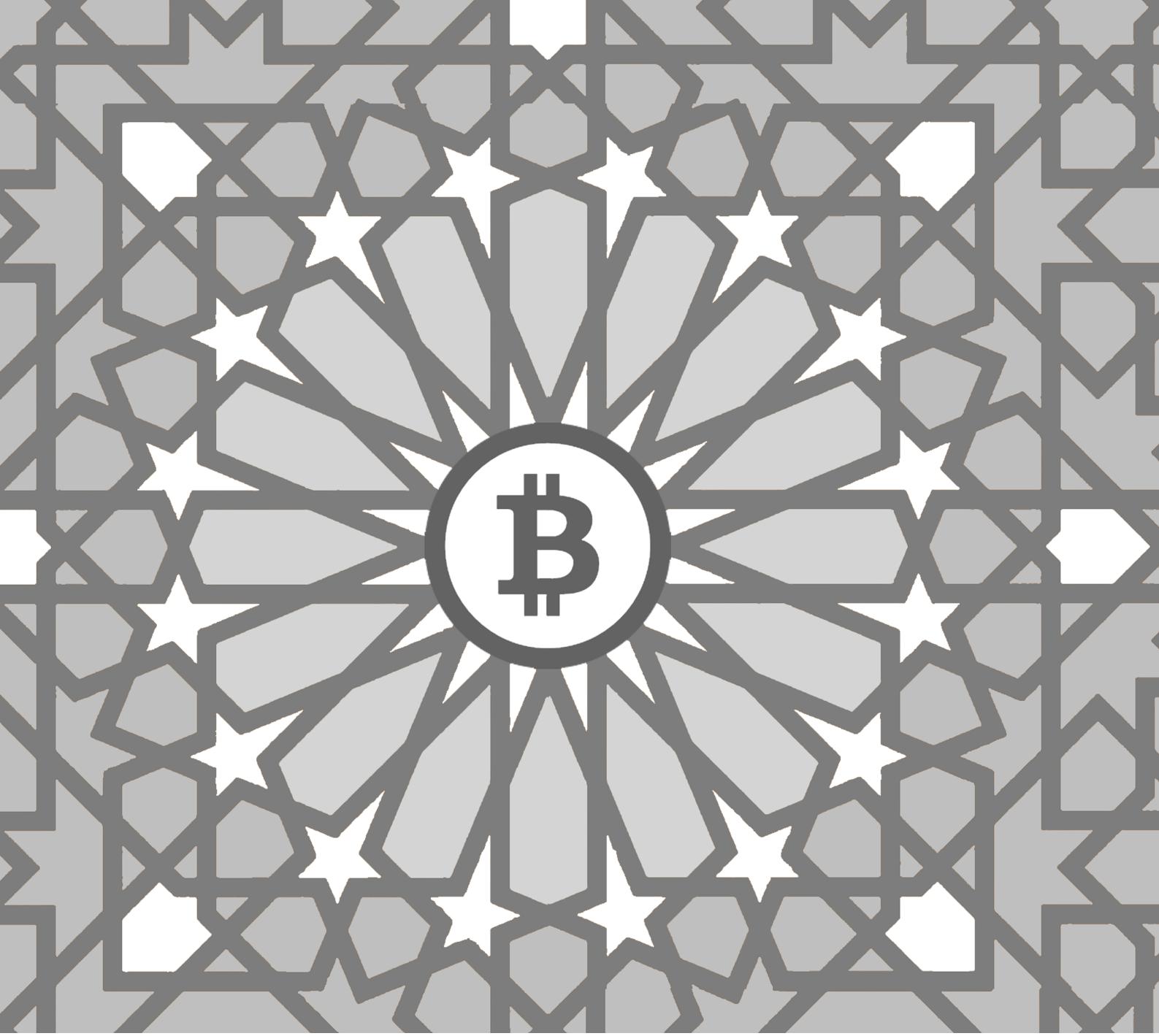
In Europe and in Italy in particular, we are witnessing a significant diffusion of digital identity, which will be further supported by the diffusion of the wallet, and a significant strengthening of services for online access to health information. However, to reach 100% of public services provided digitally to citizens and businesses, there is still a lot of work to do.
numero di unicorni (startup che raggiunge una

“More equitable investments between urban and rural areas are needed to bridge the digital divide..”

valutazione di un miliardo di dollari). In particolare, esistono criticità nella crescita dimensionale delle aziende sia per un ambiente non favorevole a supportare lo sviluppo delle startup sia per l’assenza di importanti capitali di investimento.

Servizi pubblici digitali

In Europa e in Italia in particolare, si assiste a un’importante diffusione dell’identità digitale, che sarà ulteriormente sostenuta dalla diffusione del wallet, e a un notevole potenziamento dei servizi per l’accesso online alle informazioni sanitarie. Per arrivare al 100% dei servizi pubblici erogati in modo digitale ai cittadini e alle imprese c’è, comunque, ancora molto lavoro da fare.



IsFinTech: AI, inclusion, financial literacy

By Giuliano Lancioni & Luca Battanta

Islamic finance is a form of ethical finance that has been spreading since the late 1960s in the Muslim world with the aim of developing modern finance in accordance with the ethical and legal principles of Islam. These principles impose a number of restrictions on financial transactions, notably excluding interests on loans (likened to the practice of usury, expressly condemned by the Qur'an and prophetic traditions) by providing for the lender to share in the business risk. Although it has not supplanted traditional finance and is focused on customers particularly sensitive to the ethical and social aspects, Islamic finance occupies an important niche in many Muslim countries, with peaks exceeding 20 per cent in the Gulf countries and a total value of assets worldwide estimated at $4.5 trillion, with a steadily growing trend but with significant presences in North Africa and the Indian Subcontinent. To intercept this market niche, products and services respecting the principles of Islamic finance have been developed in several Western

countries, especially countries with an Anglo-Saxon financial tradition with important Muslim minorities (e.g. the UK and South Africa), where common law practices favour the implementation of financial systems based on alternative principles agreed upon between the parties. In countries with a more regulation-based tradition, such as most EU countries, this process has been much slower also due to heavier regulatory constraints, and Islamic finance is almost absent even in countries with important Muslim communities such as France, while in Italy it is literally non-existent despite the presence of an interested market segment of Arab-speaking immigrants and businessmen.

The project idea: from theory to practice

The IsFinTech project, financed as a Project of Significant National Interest (PRIN) by the Italian Ministry of University and Research (MUR), has developed a prototype for the integrated management of the various aspects of Islamic finance in the Italian banking and financial context, constructing an interface that manages communication with customers through a chatbot in the languages most widely spoken in the Muslim communities present in Italy (standard and spoken Arabic, but also a number of minor languages, notably Bengali and Kurdish) and a back office based on an expert system that uses mixed techniques of artificial intelligence deep learning and RegTech/FinTech to process data acquired from the customer interface, producing a semi-automatic response with the different alternatives of traditional and Islamic finance(in any case in accordance with EU and national standards and guidelines), with the possibility for the operator, who follows the conversation with the customer translated into Italian and has a real-time overview of the data collected, to send it with or without modifications or to suspend it if the request requires further investigation. The project's objectives include female financial education and the integration of Muslim women, today often excluded from the Italian banking system.

IsFinTech

With the imminent completion of the project, the IsFinTech group (led by Giuliano Lancioni as principal investigator and composed of researchers from the universities of Roma Tre, Bicocca, with a research group led by Francesca Magli, and IULM, whose research unit is coordinated by Manuela Giolfo) is organising the creation of an innovative start-up to transform the prototype into a commercial service, which will help Italian banks and financial institutions to intercept the needs, at the moment completely unanswered, of a not insignificant portion, approximately 1.5 million people, of the resident population. This is a very interesting niche, also because it is currently largely unbanked or has very limited relations with the credit and investment system. In order to achieve maximum effectiveness, this phase of development requires the collaboration of one or more institutions willing to collaborate in the development of the prototype, applying it to the real needs of the financial system and potential customers, with the advantage of creating a cutting-edge position vis-à-vis this segment of the credit and financial market.

At this stage, the research group is working on the validation of the prototype in the financial sphere and the identification of partners for the development of a commercial product.

Europe's Great Gas Irony: Drowning in LNG Terminals Yet Still Paying Top Dollar

By Philip Bunford

In a twist that would make even the most seasoned energy economists scratch their heads, Europe finds itself in a peculiar situation: surrounded by underused liquefied natural gas (LNG) terminals while consumers continue to pay premium prices for their energy. This contradiction reveals the complex reality behind Europe's hasty energy pivot following Russia's invasion of Ukraine.

Since 2022, European nations have embarked

> **"Despite significant expansion of LNG infrastructure, Europe continues to face high liquefied natural gas prices".**

on an unprecedented LNG infrastructure expansion. Germany, previously without any LNG terminals, rushed to construct several floating storage and regasification units. Italy expanded offshore facilities, while Spain and France upgraded existing terminals. Collectively, these nations added roughly 70 billion cubic meters of annual import capacity in just two years—a feat of engineering and political determination that would normally take a decade.

The result? A stunning oversupply of import capacity. Current utilization rates hover around 42%, down significantly from nearly 60% last year. Germany's new Mukran terminal operates at a mere 8% capacity—about as active as a sloth on sleeping pills. Spain, despite hosting Europe's largest LNG reception facilities, consistently uses less than half its operational capacity.

Simultaneously, the LNG shipping market has collapsed. Charter rates that once commanded over $100,000 per day during the 2022 supply crisis have plummeted to approximately $3,500 per day in early 2025. This dramatic fall stems from a flood of newly delivered carriers entering service combined with shorter transport routes from the U.S. to Europe.

Yet despite this abundance of import infrastructure and historically cheap shipping, European consumers and industries remain burdened by stubbornly high energy costs. Several factors explain this paradox.

The global LNG market remains relatively tight, with Europe competing directly against Asian buyers who willingly pay premium prices during cold weather or periods of economic growth. This competition establishes a high price floor regardless of Europe's import capacity.

Internal infrastructure limitations further complicate matters. Spain's substantial LNG receiving capabilities cannot effectively alleviate shortages in Germany or Central Europe due to insufficient cross-border pipeline connections.

> **"Causes: global competition (Asia), limited internal infrastructure, geopolitical complexity".**

This fragmentation means localized surpluses fail to translate into continent-wide price reductions.

Europe's electricity pricing mechanism compounds the problem. Gas-fired power plants frequently determine the marginal price for electricity, ensuring gas costs directly influence electricity bills. Add substantial taxes, carbon pricing, and network charges, approximately 40% of electricity prices in many EU countries, and consumers see minimal benefit from temporary dips in gas prices.

“Possible solutions: terminal repurposing, investment in interconnections, electricity market reforms, stronger regional collaboration”.

The geopolitical dimension cannot be overlooked. Russian pipeline gas exports have dwindled from supplying 40% of Europe's needs to less than 10% by 2025, introducing a permanent risk premium to the market. Europe's shift toward alternative suppliers, primarily the U.S., Qatar, and North Africa, has increased procurement complexity and often comes with higher costs compared to previous Russian arrangements.

Looking ahead, Europe faces significant adjustments. Expected global LNG supply expansion between 2025 and 2027 from new projects in the U.S., Qatar, and Australia may eventually alleviate price pressures. Conversely, Europe's declining gas demand, driven by aggressive decarbonization efforts, could worsen current infrastructure oversupply, increasing the risk of stranded assets.

To navigate this landscape, European stakeholders have several options. Underused terminals could be repurposed for alternative fuels like hydrogen or ammonia. Investments in interconnectivity and storage flexibility would enhance internal market efficiency. Regulatory reforms could help decouple electricity pricing from volatile gas markets, while improved transparency around terminal usage might optimize asset utilization.

Enhanced regional collaboration among EU member states remains essential for efficient gas distribution and stronger negotiating positions in global markets. Joint purchasing initiatives could potentially secure better prices and bolster energy security.

Resolving Europe's contradictory situation now requires to find immediate supply security but also enhancing the regional mechanism of redistribution with long-term demand trends and infrastructure investments aligned with the continent's energy transition goals. For businesses and consumers caught in this paradox, the coming years will require continued adaptability as Europe navigates its complex energy transformation—proof that even with the best intentions, energy markets rarely follow the neat logic of PowerPoint presentations or political speeches.