The Sandwicher

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Pickles

By Giulio Centemero

Still it moves.It is the phrase that comes to mind every time I pass by Palazzo San Macuto in Rome, not far from the Pantheon, part of the Minerva complex where Galileo pronounced the abjuration of the Copernican theory on June 22, 1633."Still it moves" was attributed to him and for me it is the most suitable expression to express an intimate certainty.

My intimate certainty is that although in Italy the mainstream debate is often defocused from the issues that really matter such as mega trends and related local impacts, there are spaces (such as the Sandwich Club but not only) where these issues are considered, analyzed and managed.
The repercussions? Some "things" do happen.
Without debate we would not have had a reform of the capital markets with the Capital Markets Law, the Centemero Act about Startups or have the first regulatory sandbox in our legal system.
Let's then talk and debate folks! And above all, read this Autumn - Winter Sandwicher, I'm sure it will fit you perfectly!

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Italian citizens and the use of electronic payments, from the adoption phase to the habit phase

By Giovanni Bonati

Electronic payments are growing significantly in our country, although Italy has not yet reached the top positions in the European rankings for the number of electronic transactions carried out by citizens.
The spread of e-commerce platforms, the Digital Administration Code and the subsequent measures for the digital transition of public administratio n, the push towards the digitalisation of citizens' lives brought about by the COVID-19 pandemic have been decisive for the development of electronic payments in our country.
From 2015 to 2022 we went from 174 billion to 400 billion euros paid electronically, with substantial parity between this type of payments and those in cash and with almost 40% of Italian families' consumption paid electronically.
The relationship between citizens and electronic payments

To analyse the use of electronic payments by citizens, especially in relations with the public administration, there are some indexes that help to describe the current situation and the actions that can be taken to rise to the top of the European ranking.
The Cashless Society Index (CSI) is an index created by The European House Ambrosetti to supervise the development of electronic payments in Italy, also compared to the European framework. This index considers the "Enabling factors" (the degree of technological development of electronic payment infrastructures) and the "State of payments" (the level of propensity of citizens to use electronic payments), divided into 16 indicators for each of which a score from 1 to 10 is given.
The latest results of the CSI supervision are reported in the 2024 report "Towards a cashless Italy: use cases and role of citizens, businesses and merchants" which highlights how the current phase of diffusion of electronic payments can be considered the mass adoption, with a percentage of citizens using these systems between 70% and 90%; two thirds of whom declare that they use them several times during the week.

Th Cashless Society

money to be transferred instantly between people.
In recent research on digital payments in Italy presented by the Digital Innovation Observatories of the School of Management of the Polytechnic of Milan, it emerges that citizens are abandoning the use of cash, increasingly preferring the use of cards or innovative tools, also to pay small amounts.
The amount of payments made by cards grew in the first half of 2024 by 8,6% compared to the same half of the previous year, with an increase in the number of transactions in the same period of 15,6% and an average receipt of € 42,80. In these payments, those made in contactless mode grow by 23%, with an increase in the number of transactions of 27% and an average receipt of € 37,50. From the point of view of the instrument used, the number of payments made with smartphones and wearables increases by 58%.
Young people confirm themselves as the category that prefers payments with smartphones even if there is widespread growth across all age groups.
Even in the use of electronic payments, there is a strong gap between the areas of the country, with the regions of the north-west at the top and those of the south struggling.
Among the factors that have accelerated the use of electronic payments are connectivity, the increase in the value of the transaction and a general increase in confidence in paying digitally.
It is interesting to note that the technology that contributed to the spread of electronic payments was the QR code, also thanks to the simplification that it led to avoiding the manual entry of information online by the citizen. QR code payments are expected to grow by 57,1% in 2025.

The influence of PNRR

The European Commission supervises the digital competitiveness of the Member States through the publication of annual reports: until 2022 the Digital Economy and Society Index (DESI) was used to provide information on the state of digitalisation based on aggregate data, while in 2023 it was introduced the State of the Digital Decade Report which supervises progress through specific targets.
In the latest editions of the two reports there are no particular references to the diffusion of electronic payments,

apart from noting how the diffusion of e-commerce increased between 2020 and 2021, reaching 13%, but still remaining below the European average.

The Report on the state of the digital decade recognizes, in particular, how the digitalisation of public services has been an important area for Italy's digital transition policies and how the country has achieved significant benefits thanks to the Recovery and Resilience Plan (PNRR). 71% of Italians consider the digitalisation of public and private services a fundamental aspect of their lives.

Inside PNRR the digitalisation of payments to the public administration has a prominent place, with the opening of a specific fund to finance the adoption of pagoPA. This is the platform for making electronic payments to public administrations, public service managers and publicly controlled companies, established with Legislative Decree 03/07/2005, n. 82 "Digital Administration Code".

The PNRR fund implements Mission 1 "Digitalisation, innovation, competitiveness, culture and tourism", Component 1 "Digitisation, innovation and security of public administration", Investment 1.4 "Digital services and citizenship", Measure 1.4.3 "Platform adoption pagoPA".

According to the 2026 digital PA Open data (platform of the Department of Digital Transformation of the Presidency of the Council of Ministers), as of mid-September 5.797 Municipalities (73% of the total) have obtained approval of the application submitted or have already completed the activities obtaining the disbursement of the contribution, with approximately 126.500.000,00 euros allocated for these organisations.

Thanks to these investments, electronic payments from citizens to the public administration are increasing significantly. From the Open data of PagoPA spa we can see how transactions increase from year to year, which were 388.356.868 in 2023 and are already 294.696.454 at the beginning of September 2024 with an average amount per transaction of € 220,00.

From the mass adoption phase

As we have seen, despite starting from the last positions, Italy is improving the diffusion of electronic payments among citizens; we are moving from the phase of mass adoption to that of habits where electronic payment becomes an ordinary service.

The benefits of using electronic payments are now recognized and demonstrated: reduction in the cost of cash management and circulation, transaction security, taxpayer fairness (emergence of the underground economy), stimulus to economic development, time saving, physical security of citizens, environmental sustainability.

Research published by The European House Ambrosetti shows that merchants have also significantly increased their propensity to accept electronic payments in recent years. Over one in two merchants even reports an increase in sales following the greater acceptance of electronic payment systems.

According to the Digital Innovation Observatories of the School of Management of the Polytechnic of Milan, the turnover generated with digital payment tools in 2023 continued to grow at a rapid pace (12%): almost 80% of digital transactions in stores are carried out via "tap & go" with contactless physical cards or devices equipped with NFC technology.

There remain some obstacles to be removed to further accelerate the diffusion of electronic payment systems, which concern the inadequacy of connectivity, the costs of use, the difficulty of acceptance by merchants, the concern about privacy, the inconvenience, the fears of computer fraud, payment traceability, the digital divide.

Working on human capital

In the second Report on the state of the digital decade, presented on 02/07/2024, it is highlighted how the country has large gaps in citizens' digital skills (only 48% of Italians have basic ones). To improve this situation, Europe has set itself the objective of bringing 80% of the population between 16 and 74 to have at least basic digital skills by 2030.

With the aim of understanding citizens' knowledge of digital citizenship tools, questionnaires were submitted at some digital facilitation points to citizens who asked for help in using digital technologies. The population sample considered is not representative but is nevertheless significant since it refers to people in conditions of "digital fragility" who ask for external assistance. As regards electronic payments, 90% of the people interviewed declared that they had made purchases online and 74% that they had made an online payment to a public administration with pagoPA. When asked how many times a year they made an online payment to the public administration, 54% declared between 1 and 10 times, 28% more than 10 times, 18% never.

In general, the available data indicates a continuously improving situation in which it is necessary to continue investing and working on skills, spreading the culture of online payments among citizens, merchants and companies.

Public decision makers seem to be aware of the need to work on human capital: in the ISTAT annual report Digital decade and human capital: Italy's delay in skills is revealed as in the three-year period 2020-2022, 58,7% of local administrations opted for specific training on the national electronic payment platform pagoPA.

It is important to use all available training tools, including civic education courses dedicated to young people, considering that the new Law 08/20/2019, n. 92 in article 5 provides for digital citizenship education as a transversal teaching. This is also in the prospect of introducing a digital Euro which will have important economic, social, sectoral and geopolitical impacts.

Will startups build smart cities?

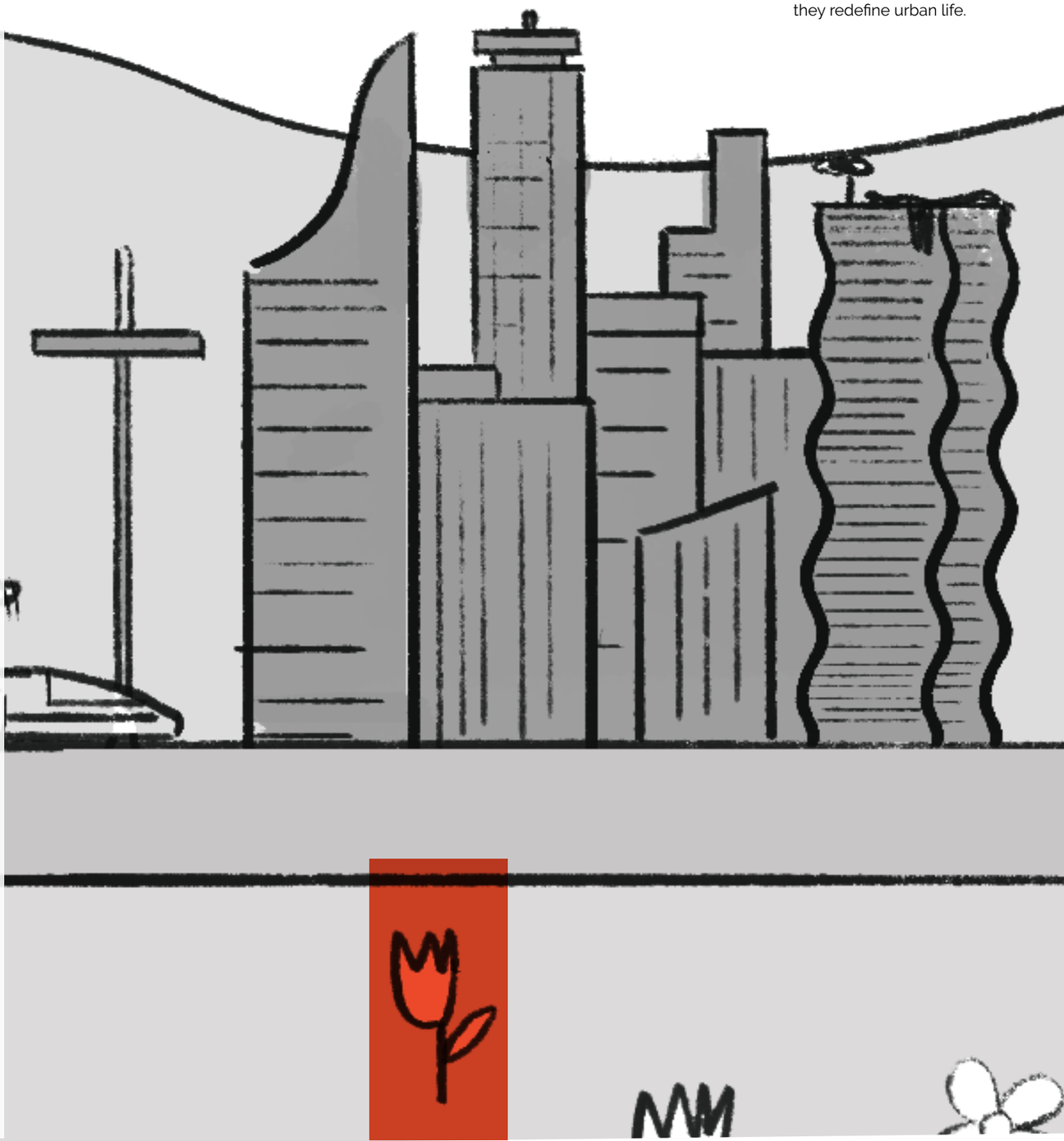
By Lucio Brignoli

Smart cities are far more than just a collection of advanced technological solutions. They represent a new urbanization paradigm, where sustainability, innovation, and citizen well-being come together. Startups play a vital role in promoting flexible solutions that adapt quickly to urban needs. From mobility optimization to intelligent waste management, they help make cities more livable and sustainable.Smart cities use IoT, AI, and blockchain technologies to improve urban living. While these technological innovations serve as enablers, the goal remains to improve the quality of life for residents. Startups play a critical role in this ecosystem by rapidly adapting to change and developing innovative solutions that directly address urban challenges. Citizen satisfaction is key to a city's "smartness." A culture of experimentation, including learning from failure, is essential for innovation.

Startups are making significant contributions to urban mobility, driving innovation and addressing key challenges in this domain. For instance, Navya, a French startup, has developed autonomous shuttles designed to transport passengers in urban areas, aiming to reduce dependence on private vehicles. Zoox, now a subsidiary of Amazon, is advancing fully autonomous vehicles specifically tailored for city environments, with a focus on reducing traffic congestion and enhancing road safety. Waymo, an Alphabet spin-off, partners with municipalities to test autonomous vehicles and integrate them into public transportation.Micromobility has emerged as another promising area of innovation, with startups such as Bird, Lime, and Voi offering solutions like rentable e-scooters and electric bicycles for short-distance travel. These initiatives are transforming urban transportation, providing flexible and sustainable alternatives for modern cities.

Another key area for smart cities is waste and energy management. Startups are developing innovative solutions to make waste management systems more efficient and sustainable. Enevo.com, a Finnish startup, has developed a system of IoT sensors that monitor the capacity of waste bins in real time, enabling more efficient collection and reducing operating costs. This type of technology allows cities to better manage their resources and reduce their environmental impact. In the energy sector, startups like Sense.com are using data from monitoring devices to improve energy efficiency in both residential and industrial settings.Connectivity forms a cornerstone of smart cities, with the Internet of Things (IoT) serving as a critical technology for monitoring and managing urban infrastructure. Startups like Telensa are developing smart streetlights that use IoT sensors to adjust lighting based on traffic or pedestrians. This approach significantly reduces energy consumption in urban areas. Similarly, startups like Breezometer are advancing air quality monitoring with IoT-enabled sensors that provide real-time data. This information empowers city authorities and citizens to make informed decisions that enhance environmental health and sustainability.Equally important, smart cities must prioritize inclusivity and foster active citizen participation. Startups are innovating to facilitate public engagement in urban governance. For example, CitizenLab offers a platform that enables residents to provide feedback and participate in municipal decision-making processes. These platforms enhance transparency and provide insights into residents' needs, supporting better public policies. They can be used to collect opinions on urban development projects, propose improvements to public services, or report local issues. By actively involving citizens in decision-making, smart cities can better align their strategies with the needs of their communities, ensuring a more equitable and people-centered urban environment.Cities around the globe are already leveraging startup-driven technologies to realize their smart city aspirations. Barcelona, often hailed as a model smart city, employs an extensive IoT sensor network to optimize water usage and public lighting. Local startups like Urbiotica contribute to smart parking solutions that ease traffic congestion. Similarly, Singapore employs AI-driven traffic management systems and collaborates with startups to refine resource allocation and enhance urban safety.Amsterdam's Smart City initiative is a beacon of public-private partnership, engaging startups to pilot sustainable mobility technologies, energy management solutions, and air quality improvements. Moreover, the city emphasizes citizen engagement through platforms that democratize urban decision-making.

Italy has also emerged as a hotspot for smart city initiatives. Milan's collaboration with startups like Helbiz has brought car-sharing and micromobility solutions to life, while Sensesquare is advancing air and water quality monitoring through sensor networks. Turin's Torino City Lab serves as a testbed for innovative solutions in autonomous mobility, IoT connectivity, and energy management. Startups such as Edoo are transforming public lighting to enhance energy efficiency and urban safety. Bologna stands out for its focus on inclusivity, using platforms like Iperbole to involve citizens in administrative decisions. Collaborations with startups like GreenApes have fostered sustainable practices through gamified rewards for eco-friendly behavior.Startups are shaping a future where technology enhances urban living while addressing humanity's needs. By fostering innovation, sustainability, and inclusivity, these agile ventures are laying groundwork for cities that not only function more efficiently but also resonate with the aspirations of their inhabitants. The question is not whether startups will build smart cities, but how soon and to what transformative extent will they redefine urban life.



Event 14/10/24: the culture of innovation - “History doesn’t repeat itself, but it often rhymes”

By Aldo Rossi

The event “The Culture of Innovation: History Doesn’t Repeat Itself, But It Often Rhymes”, organized by ValueXMatch in Milan, celebrated the intersection of technology and culture.On October 14, 2024, at ‘Do it Human’, five Italian and international leaders shared unique perspectives on innovation.
Samantha Barbero, the event moderator and founder of ValueXMatch Advisory, brought her expertise as an advisor to the European Commission’s Horizon program, emphasizing authentic dialogue and the social impact of the topics discussed. Claudia Segre, founder of the Global Thinking Foundation, inspired the audience by sharing her commitment to financial education and the economic inclusion of vulnerable communities, particularly women. Both represented AssoFintech as Secretary-General and Vice President, respectively.
Giulio Centemero, MP and member of the Finance Committee, explored the potential of NFTs and the Metaverse, topics addressed in his book “NFTs and the Metaverse in Creative Industries”. He explained how blockchain could revolutionize these industries while highlighting the opportunities and ethical dilemmas posed by these emerging technologies.
Anna Lambiase, Chairwoman of CDP Venture Capital and founder of IRTOP Consulting, spoke about “Sustainable IPOs” and the need to integrate corporate culture and sustainability to attract investment.
Giulio Ancilli, CEO of Prometeo, discussed AI as a tool for SMEs, promoting international collaboration between small and large businesses to develop advanced technologies. He also highlighted the Leonardo supercomputer’s current use to measure Siena’s sustainability.
Valerio Grassi, CEO of Atlas Advanced Technologies, shared his experience as a senior member of the team that discovered the Higgs Boson at CERN in Geneva.
During the event, a philanthropic initiative, “Fintech for Good,” was promoted in collaboration with Goodify. This initiative enabled digital donations to support social causes and demonstrated how culture and innovation can drive positive change.

The Culture of Innovation: Business Growth and Competitiveness
In recent years, innovation has become essential for corporate competitiveness. It goes beyond technologies, representing a mindset of continuous change that is vital to attract talent and build customer loyalty. A culture of innovation fosters creativity, collaboration, and experimentation, where failure is seen as an opportunity. According to Deloitte, while 80% of business leaders recognize the importance of innovation, less than half feel prepared to implement it.

Key Elements of an Innovative Culture:

01

Leadership Open to Change: Leaders must create an environment that fosters ideas. For example, Google pioneered the “20% time” concept, allowing employees to dedicate one day a week to innovative projects.

02

Employee Engagement: Motivated teams actively contribute to innovation. Gallup reports that companies with high engagement are 21% more profitable

03

Continuous Training: Training is essential to remain competitive. Amazon invests billions in upskilling programs to prepare its workforce for future challenges.

04

Digital Transformation: AI and blockchain are critical for optimizing processes and creating new growth opportunities.

The Economic Role of Innovation
An innovative culture drives tangible economic success, enabling companies to grow and create value for shareholders and society. PwC estimates that 60% of CEOs consider innovation a growth driver, while 85% regard digital technologies as essential for expansion.
The Italian Challenge
Despite its potential, many Italian companies struggle to adopt an innovative mindset. The National Recovery and Resilience Plan (PNRR) aims to accelerate digitalization and the adoption of advanced technologies.
Conclusion and Call to Action
For real change, an innovative, ethical, and cultural approach is necessary. If you want your journey to leave a lasting mark, consider how your company can contribute to the community. Join those who believe in the power of culture to transform the future!

Europe’s Corporate Sustainability Reporting Directive: Opportunity or Burden?

Byi Santi Nunnari

A new era of sustainable business practices is dawning in Europe. With the Corporate Sustainability Reporting Directive (CSRD), the European Union has laid the groundwork for over 50,000 companies to standardize and elevate their sustainability reporting. Enforced through the European Sustainability Reporting Standards (ESRS), this directive is poised to become the most comprehensive and consequential framework for corporate sustainability worldwide..

The CSRD, officially enacted on January 5, 2023, replaces the Non-Financial Reporting Directive (NFRD) and expands its predecessor’s scope significantly. In Italy, the CSRD was formally implemented on September 25, 2024, through Legislative Decree 2024/125, signaling a monumental shift in corporate transparency and governance. For Italian companies, as for others across Europe, this entails a legal obligation to report on environmental, social, and governance (ESG) impacts, fostering long-term sustainability and bolstering stakeholder trust

At its core, the directive introduces sweeping changes: expanding the range of reporting entities, mandating broader and deeper disclosures, requiring integration of sustainability information within management reports, and adopting the principle of dual materiality. This means companies must assess and report both how external factors impact their business and how their activities influence the environment and society. The directive also emphasizes ESG integration across value chains, adopts standardized European reporting protocols, and mandates a unified electronic reporting format.

While the directive might appear to some as an administrative hurdle diverting attention from financial objectives, it heralds a paradigm shift. The CSRD is not merely a regulatory compliance exercise, it is a transformative opportunity for companies to align with a market increasingly driven by sustainability.

Companies that embrace the CSRD as more than an obligation stand to gain a competitive edge. Transparent reporting of sustainability practices can enhance trust among consumers and investors, positioning firms as leaders in ethical and responsible business. This transparency also enables organizations to strengthen their reputation, build stakeholder confidence, and streamline resource management, fostering loyalty and driving growth.Incorporating ESG considerations into core corporate strategies is not just about meeting regulatory demands; it is about aligning with a societal shift that prioritizes ethical values. Customers and business partners are increasingly seeking suppliers committed to sustainability, opening new markets and driving business expansion. Furthermore, the directive’s emphasis on risk management empowers companies to identify and mitigate ESG-related threats in an unpredictable global economy, safeguarding long-term financial stability.Access to capital is another crucial benefit of CSRD compliance. Investors are progressively prioritizing ESG criteria, favoring companies that can demonstrate robust sustainability practices. Compliance with CSRD standards positions businesses to attract green financing and socially responsible investments. Moreover, many governments offer tax breaks and other financial incentives to companies that adopt sustainable practices, turning compliance into a source of economic advantage.

Adapting to CSRD standards will undoubtedly impose costs—ranging from data collection and external verification to staff training. However, these expenditures should be viewed as strategic investments that secure a company’s future in a sustainability-driven market. Businesses that fail to adapt risk being left behind, while those that do will reap long-term rewards, both financially and reputationally.

As Europe transitions toward a sustainable economy, the CSRD represents a cornerstone of this movement. It challenges businesses to think beyond short-term gains and embrace a vision of long-term value creation—one that benefits not just the bottom line but society and the planet as well. For companies willing to take the leap, the directive is more than a regulatory mandate; it is an invitation to lead in a world that increasingly values sustainability over mere profitability.

STAY POSITIVE!!!

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Low Carbon Hydrogen & its Role in the European Energy Transition

By Nicolò Cobianchi

Low-Carbon Hydrogen and its Role in the European Energy Transition

The European Commission has recently launched a consultation on the draft methodology for low-carbon hydrogen, which will integrate into existing regulations concerning hydrogen and non-biological renewable fuels (European Commission, 2024).

This initiative underscores the EU's commitment in including low-carbon hydrogen into its energy mix, a move that aligns with global trends to meet energy sustainability's goals. Both the EU and the US have set ambitious targets to produce 10 million tons of low-carbon hydrogen by 2030 (PA Consulting, 2024). The focus on low-carbon hydrogen by European policymakers is not a surprise, given that clean hydrogen is projected to constitute 95% of the global hydrogen supply by 2050 (McKinsey and Company, 2024) and represent 15% of the worldwide energy supply by the same time (PA Consulting, 2024).

.**Low-Carbon Hydrogen and Its Application**

Low-carbon hydrogen refers to hydrogen whose production requires minimal carbon emissions. It is primarily generated through methods like steam methane reforming (SMR) with carbon capture and storage (CCS), as well as through electrolysis powered by renewable energy sources (International Energy Agency, 2023). Low-carbon hydrogen can therefore play a fundamental role in the decarbonization of various industries. For instance, concerning sectors such as steelmaking, cement production, and chemical manufacturing. These are traditionally reliant on fossil fuels, contributing substantially to carbon emissions. By transitioning to low-carbon hydrogen, these sectors can reduce their emissions significantly. For instance, hydrogen can replace coke in steel production, drastically lowering the carbon footprint of this critical industry (World Steel Association, 2022). Another sector which will deeply benefit from the adoption of hydrogen in the energy mix is the transportation sector. Hydrogen fuel cells can power heavy-duty vehicles, buses, and trains, providing a clean alternative to diesel and gasoline (Hydrogen Europe, 2023). On top of that, Low-carbon hydrogen can assume a complementary role in some of the existing renewables used, since as the EU increases its reliance on intermittent renewable energy sources like wind and solar, energy storage solutions become fundamental. Low-carbon hydrogen can serve as a medium for storing renewable energy in excess. Through a process known as power-to-gas, surplus electricity can be converted into hydrogen, which can then be stored and later used to generate electricity when demand peaks or when renewable sources are insufficient (European Commission, 2020). This can therefore foster grid stability and ensure a more reliable energy supply.

The development of a low-carbon hydrogen economy also could facilitate international collaboration on energy matters. Initiatives such as the EU Hydrogen Strategy and projects like the European Hydrogen Backbone aim in fact, to create a network of pipelines and infrastructure to promote the transport and trade of hydrogen across borders. This would not only help secure energy supplies but also position Europe as a hub for hydrogen production and innovation.

Challenges and Considerations

If on the one hand low-carbon hydrogen represents a reliable and efficient energy source, on the other hand several challenges must be addressed in order to facilitate its integration into the energy mix. A major obstacle is the need for substantial investments in infrastructure, including production facilities, storage systems, and distribution networks (McKinsey and Company, 2024). The existing energy infrastructure may require significant modifications to accommodate hydrogen, as current pipelines and storage facilities are typically designed for natural gas. However, initiatives like the UK National Grid's Future Grid programme demonstrates how to tackle this hurdle. This initiative underscores the development of a more flexible and resilient grid that can support the transition to low-carbon energy sources, ensuring therefore that hydrogen can be efficiently transported and utilized across the UK (National Grid, 2023). Another additional burden to be faced is that currently the cost of producing low-carbon hydrogen currently remains high compared to fossil fuel alternatives, although technological advancements and economies of scale are expected to drive costs down in the coming years (BloombergNEF, 2024). Regulatory frameworks will also play an essential role in shaping the hydrogen market. The European Commission's ongoing consultation on low-carbon hydrogen methodologies is a step in the right direction, but clear and cohesive policies are essential to provide the stability and certainty investors need to commit to large-scale hydrogen projects (European Commission, 2024).

The Hidden Cost of AI: How Data Centers Are Shaping the Future of Global Energy& Resources

By Ada Turgot

In today's rapidly evolving technological landscape, much has been written about the impact of artificial intelligence (AI) on supply chains. But rarely does the conversation turn to the reverse dynamic: how the supply chain itself underpins and influences AI's advancement. Moreover, while the costs of AI are often framed around training, cloud infrastructure, and human resources, a crucial yet overlooked aspect is the energy consumption and infrastructure that powers it.

A recent study by Sasha Luccioni, an employee and researcher at Hugging Face, the AI hosting and development service, highlighted a stark reality: AI software consumes 33 times more electricity than traditional task-specific applications. Contrary to common assumptions, Google's data reveals that it's not the energy-hungry training processes that pose the biggest strain but the everyday use of AI models, what is known as inference or prediction tasks. This escalating power demand raises critical questions: Will the global energy market feel the strain, and will we see a surge in energy infrastructure costs as nations and companies adapt to rising demand?

Energy Prices and Infrastructure: A Complex Equation

To predict potential changes in energy prices, one might consider analyzing whether regions hosting large data centers, like Northern Virginia's Ashburn, have experienced rising electricity costs. But the reality is nuanced. Many data hubs are intentionally built in areas with pre-existing low energy costs. Though Ashburn has seen relative price increases compared to neighboring counties, energy remains affordable. Consequently, understanding AI's impact on energy markets requires examining more than just price shifts; we must consider the quantity of energy demanded. With energy consumption reaching unprecedented levels, businesses are no longer content relying solely on external suppliers. Instead, a new trend is emerging: companies are securing exclusive, long-term energy deals. Microsoft, for example, recently committed to buying the entire output of a Pennsylvania nuclear power plant for the next 20 years, a move aimed at hedging against energy shortages and price volatility. This included striking a deal with the state and other actors to restart a dormant unit of the infamous Three Mile Island facility.

Nuclear Energy's Critical Role

The implications of Microsoft's deal are broader than they seem. According to the International Atomic Energy Agency (IAEA), global nuclear power production is expected to surge 2.5 times by 2050. This growth, alongside the global push for renewable and reliable energy sources, positions uranium and thorium as critical commodities of the future.However, the strategic positioning of these elements adds complexity. Uranium resources are heavily concentrated: Kazakhstan alone accounts for 44% of the world's supply, followed by Canada, Australia, and Namibia. While Western nations can depend on Canada and Australia cumulatively providing 37% of the total trade, the geopolitical landscape remains fraught as Namibia and Kazakhstan, both housing Chinese and Russian firms more then any other country's export the majority of the resource. Kazakhstan, though maintaining ties with the West, has closer energy-related collaborations with China and Russia. Chinese interests also dominate Namibia's uranium production, as they control three out of five of the biggest extraction projects, raising concerns over supply security in a world pivoting to nuclear energy, which could sets a positive and growing trend on energy prices in the upcoming years if the oil & gas transition is successful.

Copper: The most critical resource

When it comes to energy infrastructure, copper is equally vital in the AI and data center infrastructure, given its use in power grids and electronic components. Chile, Peru, and Indonesia are the largest copper exporters, and while the BRICS nations do not dominate copper production as they do with uranium, Chinese and Russian firms have strategic stakes in multiple South American mining operations. For instance, China Molybdenum Co. holds a 24% share in Anglo American Sur's Los Bronces mine in Chile. Furthermore, Tianqi Lithium holds a 23.77% stake in Sociedad Química y Minera de Chile (SQM), a company involved in lithium and copper production.Adding to the complexity is the purity decline in copper ore, which affects global supply. Current projections suggest that copper demand, driven significantly by the construction of data centers, will outstrip supply by 2035, meeting only 80% of the anticipated global need. Such shortfalls, fueled by Asian market demand, are already reshaping prices and investment strategies worldwide. And to no one's surprise, the demand in driven by datacenters, according to Bloomberg. Building them in the future will bear exponentially greater costs as ores used to have a 1.7% concentration in the 90s and now are down to less than 0.6%, accounting for a 64% loss in concentration.

The Lithium Bottleneck

As AI-driven devices proliferate, the reliance on lithium-ion batteries becomes even more pronounced. Lithium, essential for these batteries, is derived from lithium carbonate and lithium hydroxide. Chile dominates lithium carbonate production, whereas China commands 76% of lithium hydroxide exports. The nascent Guangzhou Futures Exchange has become a key player in lithium trading, with contracts settled physically in China, in contrast to the cash-settled futures on the Chicago Mercantile Exchange. This physical settlement mechanism not only provides a hedge but also fosters long-term partnerships, with transparency serving as a strategic advantage over traditional over-the-counter contracts. China is positioning itself, through markets and production, as one of the most important players in the production of lithium batteries, and therefore also in the proliferation and adoption of new devices that support AI, including self-driving electric vehicles.

Europe's Role in the AI-Energy Nexus

Europe's infrastructure giants—such as Prysmian, Nexans, and Equinix—are integral to data centers and energy grids. Their success hinges on securing reliable raw material sources. To achieve energy and infrastructure resilience, the European Union must adopt independent and pragmatic foreign policies while bolstering their defense capabilities in order to maintain a high-degree of safety along the supply-chains. This would mitigate geopolitical risks and reduce premiums on future and insurance contracts. The stakes are high, and the future will depend on the deals, alliances, and innovations we forge today. If AI is to be accessible in the future, geopolitical independence is key.

Is Milan a good spot for camping?

By Antonio Valentinov Puzalkov

Politecnico di Milano, May 3, 2023. A tent has been set up right in front of one of the world's top engineering universities. This isn't a typical spot for a camping holiday. After some initial curious glances, a protest erupts as students raise an important question: Are housing prices sustainable?

The demonstration sparks outrage on social media, drawing the attention of politicians, students, and citizens alike. Many are furious, and more join the movement, yet few are investigating the underlying reasons beyond simple supply and demand dynamics.

Previous research by the Sandwich Club suggests that increasing the housing stock in Milan would not lead to lower prices. Instead, due to price stickiness, it could cause a temporary increase for the first three to five years. While many discuss opening new residences outside the city, we began advocating for "decentralization."

Policymakers have directed some accusations toward the "brain drain" regulation passed by the Italian government. According to their opinion, an increased inflow of competent and highly skilled workers was driving the prices up, offsetting the positive impact that such policy had.

While this might hold true theoretically, our empirical research shows no significant impact of such an influx on rising prices. Much of the demand shifted to already gentrified areas, where the impact was non-significant, leaving the rest of the neighborhoods also unaffected.

Fast forward a year: prices are still rising, and the ailment afflicting Milan's real estate market remains uncured. We decided to delve deeper into the issue, evaluating the phenomenon of "gentrification." It's no surprise that income disparities cause certain areas to attract greater wealth. But how do demographic and geographical factors affect the unevenness of demand?

Using publicly available data from the Milanese authority's statistical repository and housing prices from popular websites such as "Idealista", we compiled a decade-long dataset with monthly frequencies. Employing various spatial and panel data methods, we found that demographics are key drivers of housing prices in Milan. Counterintuitively, an increase in population in each area leads to a significant decrease in prices. In contrast, families seeking more spacious apartments—and exhibiting more inelastic demand—drive prices up. Emigration has a non-significant impact, while immigration has mixed effects depending on people's backgrounds. This phenomenon is closely linked to skill sets and salaries, leading to self-selection into poorer areas for people coming from less developed countries.

Surprisingly, spending on extensive public services, such as large hospital structures, drives prices down. The same holds true for large green areas. These latter ones' effects can be explained by the fact that these spaces are rarely fully developed. In their current state, they may have no positive effect or, worse, become magnets for criminal activities—as seen with Bosco di Rogoredo.

We saved the most significant aspect for the last: geographic dependency. If one of the twenty areas in our model experiences a price increase, neighboring areas follow suit. This impact is the most substantial in our model and forms the basis for one of our proposed solutions.

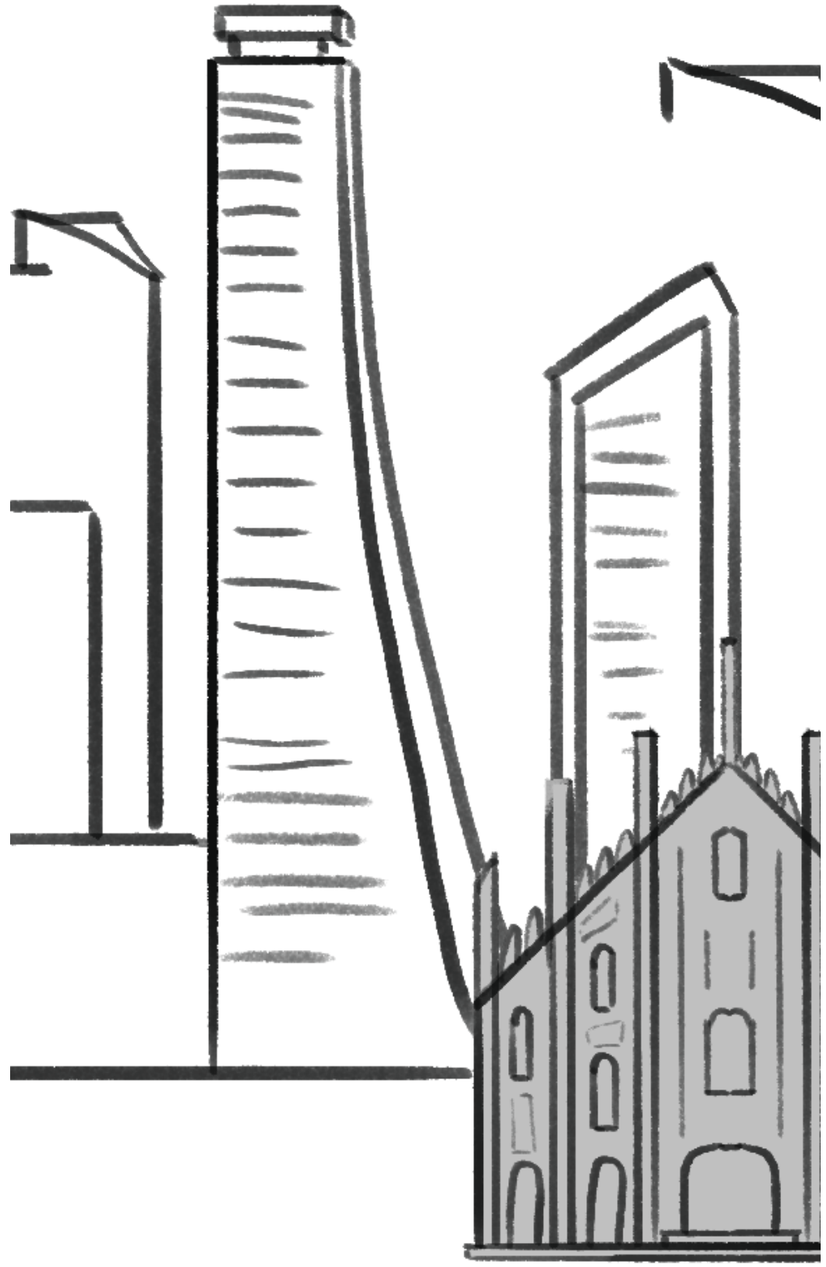
Focusing exclusively on the city center, appreciation in the "Centro Storico" has nonlinear and uneven effects on the rest of the city. For instance, a €500 surge in the price per square meter in the city center leads to a positive shock in areas like Comasina and Garibaldi for the first year and a half. Later, prices may fall below their starting point as structural demand shifts and residents potentially flee. Meanwhile, areas like Città Studi—central to earlier protests—appreciate disproportionately beyond the initial shock, and places like Bocconi experience prolonged effects, with prices peaking only after four and a half years, ceteris paribus.

To mitigate a devastating shock—often triggered because Milan is an event-driven city—we propose reducing geographic dependency. This can be achieved through the aforementioned "decentralization," enhancing both private and public transportation availability.

Regarding private means, the solution is twofold. First, improving access to parking and developing infrastructure that connects the outskirts with the center are essential for seamless traffic flow. Milan currently ranks as the fourth most congested city globally, according to the TomTom Traffic Index, surpassing larger cities like Bengaluru, New York, and Jakarta. Second, affordable micromobility options can reduce traffic and pollution, especially in the city center and near metro stations.

As for public transportation, Milan is well-positioned compared to other European cities. However, prices have risen while service quality has declined in recent years. Speed and accessibility are crucial, and to contain costs, enforcement should be strengthened. Additionally, metro stations should serve as core reference for further infrastructure development on the outskirts. Extending current lines could encourage real estate developers to invest outside the city, stimulating demand in areas yet to be developed.

By promoting decentralization through enhanced private and public transportation, the city can redistribute demand more evenly, alleviate pressure on overvalued central areas, and stimulate development in underutilized neighborhoods. To answer a few questions, thus, Milan's biggest threat is geographic dependency, centralization and many other factors, including strong population changes drive prices. And no, Milan is not a great spot for a camping holiday.



The impact of Digital market act on electronic payments

INTERVIEW with Simone Suriano (manager and journalist)

GIOVANNI BONATI INTERVIEWS SIMONE SURIANO, TRYING TO ANTICIPATE WHAT WILL BE THE IMPACTS OF DIGITAL MARKET ACT (DMA) ON CITIZENS' ELECTRONIC PAYMENTS

Good morning Simone and thank you for the time you are dedicating to us. The acronym DMA (Digital market act) refers to Regulation (EU) 2022/1925 of the European Parliament and of the Council relating to fair and contestable markets in the digital sector, applicable from 02/05/2023. The regulation aims to ensure a competitive and fair digital sector, enabling innovative digital businesses to grow and keep citizens safe online. What did persuade European Union to intervene in this sector?

European Union intervened with the Digital Markets Act to respond to a series of growing concerns related to the concentration of economic power in the hands of a few large digital players. These platforms have taken on the role of "gatekeepers", effectively controlling access to vital digital markets and limiting the possibility of competition from small and medium-sized businesses. The main objective of the regulation is to create a fairer digital ecosystem, where both startups and established businesses can compete freely and innovate, without suffering from unfair or monopolistic commercial practices.

To guarantee the competitiveness of the digital sector, the regulation aims to eliminate the constraints generated by entities called "gatekeepers" who exercise control over entire ecosystems of the digital economy because citizens' access to services provided by commercial organizations depends on their platforms. In the field of electronic payments, some companies risk becoming "gatekeepers" due to the dominant position they could assume (for example in the use of NFC technology on mobile devices). Can we cite some emblematic examples?

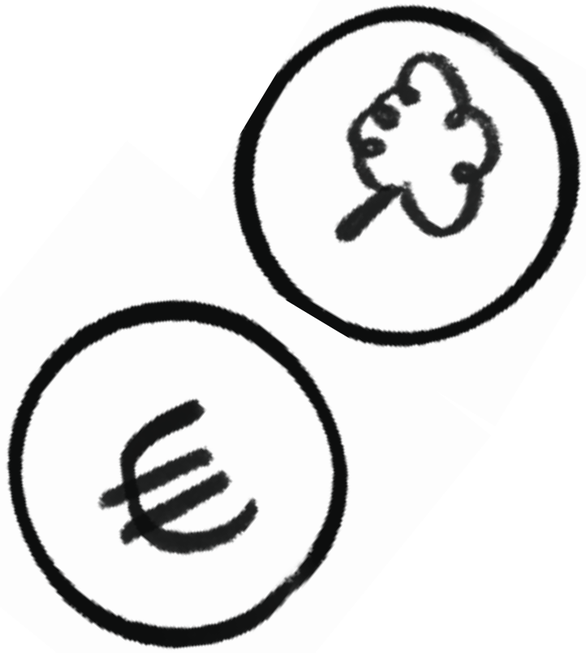
The term "gatekeeper", in the context of the Digital Markets Act (DMA), can be explained in Italian as "access controller" or "custodian". It refers to the digital platforms of great importance that control access to certain services or markets. These entities, typically tech giants such as Apple, Google or Meta, exercise significant power in the digital ecosystem because they act as intermediaries between end users and providers of services, products or content.

A key example is certainly Apple with NFC technology on iPhones. Before applying DMA, Apple reserved access to the NFC chip exclusively for its Apple Pay service, limiting the possibility of competition from other payment apps. This gave it near-monopolistic control over contactless payments, an increasingly crucial sector for financial services. It is in situations like these that the DMA tries to intervene.

In the cases we mentioned above, how does the DMA intervene to rebalance power between large digital platforms and smaller competitors?

The DMA imposes a series of obligations and prohibitions on gatekeepers. For example, again in the case of Apple and its NFC, the regulation provides that it can no longer reserve access to fundamental technologies such as the NFC chip exclusively for itself. On the contrary, it must also allow third-party apps, such as banking or payment ones, to exploit these technologies without discrimination. This allows for greater competition, as other operators in the Fintech sector can offer alternative solutions to Apple Pay on "bitten apple smartphones", encouraging innovation and cost reduction. As we said before, the main objective of the regulation is to create a fairer digital ecosystem, where both startups and established businesses can compete freely and innovate.

For citizens, the elimination of technological barriers generated by "gatekeepers" represents a great opportunity, broadening the possibilities of choice. Without these barriers, how will citizens be able to pay electronically and with what advantages?



The opening of the NFC chip on iPhones, for example, will allow citizens to choose from a wider range of payment apps, no longer having to rely only on Apple Pay. Citizens will be able to use services provided by their bank or other innovative payment apps that could offer better conditions, such as cash-back (return of a percentage of what is spent) or additional features. This will lead to greater personalization of the service and, consequently, a better user experience. Furthermore, more generally, competition promotes more competitive prices with direct or indirect benefits for consumers.

Companies producing services will also be able to achieve numerous advantages from the application of the DMA. What are the main ones?

For businesses, particularly Fintech ones, the opening of key technologies such as NFC represents an opportunity to develop new business models and innovative services. Companies that were previously cut off from the mobile payments market will finally be able to compete, offering more flexible solutions suited to customers' specific needs regardless of the brand or model of smartphone they own. This could result in a rapid evolution of the digital payments industry, with new apps, loyalty tools, digital identification services and much more. In fact, in addition to payments, the opening of the NFC chip on the iPhone will allow the use of a vast range of innovative services such as, for example, the following.

- Digital keys: keys for cars, houses and hotel rooms can be managed directly via third-party apps, allowing users to unlock doors with a simple tap on their iPhone. This feature will expand the use of digital keys to more vendors, not limited to Apple-built apps
-Company and school badges: it will be possible to use the iPhone as an identification badge for access to company buildings or university campuses. Companies will be able to develop customized apps to ensure secure access for employees or students.
- Transport cards: public transport apps will be able to use NFC to manage electronic tickets, as is already the case in some countries for contactless payment systems in public transport.
-Loyalty programs and events: NFC could be used to manage loyalty cards, event or concert tickets, simplifying access and check-in.
-Digital identifications: Apple has announced that in the future digital government IDs will also be supported via NFC, allowing the secure storage of official documents such as a driver's license or passport.

These new possibilities will make the iPhone a versatile platform for numerous services related to identity and access management, increasing convenience for users.

Before saying goodbye, tell us, in your opinion, what could make the application of the DMA difficult?

One of the main obstacles could be resistance from large gatekeepers, who may try to evade or slow down the application of the new rules. Apple, for example, may seek to maintain some form of control through technical or contractual restrictions. Furthermore, the technical and regulatory complexity associated with the regulation of global digital platforms will require a continuous monitoring effort by european authorities to ensure that the DMA is effectively respected. Eventually, legal challenges could arise, with large platforms likely to challenge the new regulations in court if they are deemed too severe.

“Diversification and Size in Venture Capital Investing”, Eurasian Business Review, Vol. 14, Pag. 475-500, 2024

By Alberto Dell'Acqua

As a well-known research work by the International Monetary Fund (Bossone and Lee, 2002) states: in finance, size matters. In the field of financial investments, a large portfolio allows access to a wider range of investment opportunities to choose from. Furthermore, the wider availability of resources to invest in an investment portfolio allows for greater diversification, with the logical consequence of a reduction in the risk to which the investor is exposed. Portfolio diversification is at the same time relevant for composing a precise strategy for optimising the relationship between risk and return. In the brilliant definition of Jake Xia, manager of the investment fund at Harvard University and professor at the prestigious MIT in Boston, diversification is the only “(almost) free lunch” in finance because through an appropriate dynamic rebalancing between the financial assets in the portfolio it is possible to obtain higher returns while reducing risk. The aforementioned concepts are fundamental in finance, well known to those who are involved in professional investment activities and constantly looking for their effective practical application. A question arises spontaneously, however: can the concepts that regulate the investment management in financial assets, traded on financial markets, be applied tout court to the private investment sector, in particular to Venture Capital (VC)? VC is in fact a sui generis investment sector, which concentrates its investments in real assets, in companies in the initial start-up and development phase, and characterized by a high failure rate. Therefore, VC fund managers do not have the possibility of diversifying their portfolio between risk-free and risky assets. Furthermore, venture capitalists cannot easily replace investments in their portfolio in order to promote a rebalancing aimed at optimizing the risk-return ratio. How can this category of investment managers intervene in their portfolio through the key principles of financial investment management? Diversification choices can still be pursued in real terms, differentiating investments for example by type of business activity, life cycle phase and geography. But are the results the same as those that a portfolio manager of financial assets can achieve? When does portfolio size matter in these cases and what is its relationship with diversification?

To answer these questions, the authors of the article empirically examine the interaction between different types of diversification (investment stage, sector, geographical scope) and the size of the portfolio, i.e. the number of investee companies, in explaining the returns of venture capital funds (VC). In the context of VC, both in academic research and professional practice, a “Hamletic” question persists. The question is whether it is preferable to follow the dictates of portfolio diversification with consequent risk mitigation, but with the trade-off of less than exciting returns on the investment, or whether to concentrate the invested capital on a few investments, to increase the possible expected return, with the potential for even exorbitant returns, but at the same time taking on a very high risk, which could also lead to heavy losses on the investment portfolio.

To date, there is no clear answer and this is due, in particular, to the highly asymmetric returns of VC funds which make a statistical approach to evaluating the risk-return relationship ineffective.

The research is conducted on a comprehensive dataset of 422 US VC funds, with an investment cycle ending until liquidation, to conduct multiple analyses over a broad time span. The results show that large portfolio size and diversification across a limited number of sectors contribute positively to fund performance, while stage and geographic diversification have no significant relationship with returns. The results of the research work can support both the practice of VC portfolio management in achieving better efficiency in capital allocation and policy makers in providing guidance for the development programs of VC funds supported by sovereign and international institutions.

Beyond Silicon Valley: Emerging GlobalStartup Hubs & Their Long-Term Potential

By Gilberto Testa

In a small, plain office in Berlin, two founders are leaning over a whiteboard, creating a roadmap for their latest idea for a mobile app. Without the deep pockets of Silicon Valley venture capitalists, they have raw creativity, affordable office space, and a network of similar entrepreneurs in the city who are just as excited to disrupt the tech landscape. The startup scene in Berlin grew at a rate like no other: the affordable alternative slowly growing into an international hub for tech, hosting several of the most promising European startups, including the Fintech venture N26, which is valued at $9.2 billion1. This is a shift in that success is no longer created or confined inside Silicon Valley. The phenomenon of startup success stories coming up anywhere is rapidly being proved right in cities across Europe and Asia.

Berlin's startup ecosystem exists upon the perfect storm of cultural openness, affordability, and significant government support. It is a real heaven for founders - not just because the barrier to entry is much lower than in other European cities, but also thanks to its inclusiveness and network effects created from such a melting pot of talents across Europe. According to the 2023 Global Startup Ecosystem Report by Startup Genome, Berlin places in the top 15 of global startup ecosystems and in the top 3 in Europe2, with strengths in FinTech, software, and AI sectors, along with a growing base in venture capitalists. Founders within Factory Berlin (a six-year-old incubator home to more than 3,000 entrepreneurs) have access to mentorship and useful resources, and Factory Berlin has partnered with Google for Startups on hands-on support. It is not Berlin alone: the Swiss town of St. Gallen is shaping its path to become a deep tech and AI hub. A lot smaller and less internationally recognized, St. Gallen has an ecosystem heavily influenced by research-driven ventures born from the University of St. Gallen, renowned in business and technology programs. Here, innovation is encouraged and facilitated with the support of a government framework that offers tax breaks and grants specifically for technology development. St. Gallen is fostering startups in medtech and AI fields, with the largest yearly student-led startup summit in Europe: the START Global3.

Outside of DACH, technology innovation has made a home for itself in Paris, a city once known for no other than its luxury industry. The government-backed initiative La French Tech has brought along this rapid growth across sectors such as e-commerce and fintech4. Startups from Paris are not small-scale operations anymore, but scaling-up ones with support from Station F, the world's largest startup incubator with over 1,000 ventures operating under one roof. Startups like Mistral AI, valued at $6.2 billion5, also position Paris as a rising force in generative AI technology. Tradition and luxury, mixed with art, have merged in this city with tech into a culture that is innovative and uniquely Parisian.

The Asian Continent

Coupled with the innovation push of the Chinese government, the ecosystem for startups in Beijing has grown, positioning it as one of the few cities around the world where technological advancements happen at a pace that is not comparable. Native giants in Beijing include Baidu and ByteDance - parent company to TikTok - but its edge doesn't derive from big players alone. The initiatives like Zhongguancun Science Park, or “China's Silicon Valley,” mean that with financial incentives and accessibility to capital, founders of small to medium-sized startups are able to scale their ideas at a considerable rate. Although restrictive policies on the internet and strong regional competition with Shenzhen test the city's potential, its government-backed tech ecosystem pushes the boundaries that only a city like Beijing can withstand2. Besides Beijing, heavy on infrastructure and located in Southeast Asia, Singapore is already an important spot for startups looking to scale within the Asian market. Competitively easy to do business, Singapore is currently ranked in the top ten global ecosystems for both fintech and medtech startups2. The total amount of investment in deep-tech start-ups increased by 260% from $160 million to $580 million from 2017 to 20196, bringing attention and investment toward the region. As an example, Grab is a ride-hailing app with a spirit that captures that of Singapore's startups for scaling up at a fast pace across Southeast Asia, securing a $13 billion valuation7.

These startup hubs are a safe indicator that global tech innovation is no longer the duty of any one region. Today, the world's most successful startups rise from local ecosystems that combine unique advantages, whether it be Berlin's affordable creativity, St. Gallen's academic depth, Paris's combination of luxury and technology, Beijing's government-backed innovation, or Singapore's business-friendly rules. The future of technology is not anchored in Silicon Valley but spread out across cities, each innovating in ways reflecting their distinctive cultures and values. This means that entrepreneurs, investors and venture capitalists will increasingly be able to find new places of doing business outside of Silicon Valley and the USA in its entirety.