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Editorial Note

A crucial aspect to emphasize in this second 2022 issue is the fact that all of the articles published - unfortunately only three, compared to the five in pre-pandemic times - are authored by young researchers, some of whom are still PhD students. This signifies, to my delight, that the Geoprogress Association is achieving one of its objectives, which is to promote research and higher education, and also indicates a promising future for the journal. This optimistic outlook is reinforced by a second significant fact: the journal's recognition as a scientific publication by ANVUR, the National Agency for the Evaluation of the University and Research System, which independently oversees the Italian research system. This recognition was communicated to me on December 15, 2022, a few days before uploading this issue's file.

As in the previous issue, the articles in this edition tackle topics of great interest and study objects of privilege for the Geoprogress Association.

1) Mobility and its impact on urban environments, the changes brought by the pandemic, and its outlook in relation to technological advancements in transportation and work practices, these are the subjects covered in the first article, authored by Maria N. Buonocore, Federico Cuomo, and Chiara Ferro, who are PhD students or collaborators of the Department of Political Sciences at the University of Naples "Federico II".

This contribution highlights the significance of the green revolution in transportation that is currently underway in many European cities. This revolution, which is a result and a driving force of the energy transition, underscores the need for thoughtful planning in the development of our cities as a crucial aspect of territorial governance. Effective planning requires coordination among the various actors and sector policies, which may otherwise be contradictory, at the local and even national levels. To reduce waste and pollution, policies must be implemented that guide mobility, minimize unnecessary travel, and promote the production and use of sustainable transportation options.

2) The growth of "Gated Communities" is a matter of concern, not only regarding changes in urban structure and its effects on viability and collective safety, but also about the social changes that physical segregation represents. There are undoubtedly psychological reasons, of collective psychology, behind this growing segregation or the contemporary "Urban Misanthropy," as Fabrizio Aimar describes in his essay, which analyses the phenomenon through European and Anglo-Saxon cases. The growth of this phenomenon is not only due to increasing fear but also because the socio-economic divide is expanding, especially between a small number of wealthy families and a growing number of poor families.

3) The company as a driver of growth and development, for better or for worse, is another fundamental object of study for the Geoprogress mission. It is vital to understand the various organizational forms, territorial conditions (natural, socio-economic, political) of development, different behaviours, impacts, and prospects. In Italy, monitoring SMEs is particularly crucial due to their significant role in the national economy and because they "can become a driving force for innovation in a mutual exchange with the territory of which it is a part, helping to shape its economy," according to Federico Cuomo, the author of the third paper. The paper specifically focuses on innovative SMEs in the Campania region and their relationship with the territory, particularly those supported by the European Union through funding programs, incubators, and accelerators. After analyzing the state of the art and main innovation indicators for European states and Italy, Cuomo's essay concludes by focusing on innovative SMEs in the Campania region and their relationship with the territory."

Francesco Adamo, Editor in Chief

ARTICLES

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SUSTAINABLE AND SHARING MOBILITY IN EUROPE AND ITALY STRENGTHENED BY THE COVID-19 PANDEMIC. STATE OF THE FIELD AND A POSSIBLE RESEARCH AGENDA

Maria Nicola Buonocore, Federico Cuomo, Chiara Ferro*

Abstract

During the spread of the Covid-19 pandemic, many European countries have opted for restrictive measures and policies, which have consequently reduced economic activities, including road transport. This has led to a further decrease in concentrations of air pollution, especially in metropolises (EEA, 2020). Considering the negative impact of fossil fuels on the environment and on human health, it is necessary a radical change in the transport system, which may possibly satisfy both the need for cleaner air and the growing demand for mobility, especially in large metropolises. This decisive shift consists of a green and sustainable transformation, which is already taking place in several European cities. This change demands a coordinated approach, starting from different urban strategies, such as traffic congestion, public procurement of cleaner vehicles, promoting public, sharing, and sustainable mobility (e.g. cycling, sharing transport, adopting low-emission zones, etc.) (EEA, 2019).
Our investigation will primarily focus on the impact of transportation on urban environment, then move to an in-depth literature review on the new forms of mobility, analysing the convergence and divergence in e-mobility in Europe, and the sustainable and sharing mobility in Italy, with a further look at the modifications inducted by the Covid-19 pandemic. In the last section of the paper, we propose two research themes based on the current developments and possible future perspectives for urban spaces and mobility.

Keywords: sustainability; urban transformation; smart mobility; sharing mobility.

1. Introduction

Although air quality has considerably improved in Europe in recent decades, pollution continues to harm human health and the environment in numerous cities. According to the European Commission, the great majority of European citizens live in an urban environment, and over 60 percent live in urban areas with more than 10,000 inhabitants

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The present article is the result of a joint research, even though paragraphs 1 and 2 are attributed to Chiara Ferro, paragraphs 3 and 5 to Maria Nicola Buonocore, and paragraph 4 to Federico Cuomo.

(European Commission, 2021). As centres of art, science, opportunity, and idea exchange, cities - particularly metropolises - are proving to be crucial theatres of future concerns as the urbanisation process proceeds (UN-Habitat, 2020).
Since the spread of the Industrial Revolution, cities are accountable for environmental degradation due to a variety of variables such as air pollution, mobility, waste production, energy and water use, and so forth (Brauer et al., 2015).
Mobility represents a crucial component in socio-economics dynamics of cities as well as in people's daily lives. Mobility is reshaping societies today, and it is both a fundamental phenomenon to comprehend and an essential requirement to participate in social life (Vecchio and Tricarico, 2019).
Nevertheless, the transport network has a negative influence on the environment and human health. Climate forces like CO2 emissions (the primary driver of global climate change) and non-CO2 pollutants, including methane, volatile organic compounds (VOCs), nitrogen oxides (NOx), sulfur dioxide (SO2), carbon monoxide (CO), F-gases, black carbon, and non-absorbing aerosols (Ubbels et al., 2002), from the combustion of petroleum-based goods, like gasoline, represent the majority of GHGs emissions from transportation[1]. Therefore, road transport also contributes to greenhouse gas emissions (Leroutier and Quirion, 2022), which further leads to air pollution.
According to the WHO[2], air pollution is the fourth leading cause of mortality worldwide, especially in large cities, contributing to make them the epicentres of new respiratory diseases, including new coronavirus (Sars-CoV-2) (UN-Habitat, 2020). Indeed, over 1,430 cities have been hit by the pandemic and over 95 percent of all cases have been identified in urban areas (UN-Habitat, 2020). Therefore, environmental health issues (i.e. air pollution), which are strengthened by transport, have amplified the coronavirus impact, demonstrating how human and planetary health are connected (Hernandez Carballo et al., 2022; Semczuk-Kaczmarek et al., 2022).
Thus, a significant change is urgently needed: the current challenge for local administrations lies in reducing traffic congestion to improve cities' habitability and competitiveness (Demir et al., 2015). Metropolises must get "smarter" by deploying innovative technologies and solutions and adopting a transportation system that meets the demand for population and economic mobility (Di Fazio and Paradiso, 2022) while cutting emissions of climate-changing gases, to prevent environmental degradation. Indeed, *smartness* means for a city to enable its citizens and enterprises to apply new technologies to economise time, to improve individual mobility, to facilitate access to information and services, to save energy and resources, and to participate in urban

[1] Among the factors that affect air quality, one can find anthropogenic emissions of carbon dioxide (CO2) mainly result from the combustion of fossil fuels for the heating of residential, commercial and institutional buildings, and industrial purposes, also contribute to GHGs emissions, and scientific data suggests that GHGs emissions and environmental pollutants are the primary cause of climate change (World Resources Institute, Rising to the Climate Change Challenge, at https://www.wri.org/climate, retrieved on 1st November 2021). The social and economic slowdown induced by the Covid-19 pandemic has led to a short decrease in new emissions, although there is no evident influence on atmospheric levels of GHGs and their growth rates.
[2] Specifically, WHO assessed air pollution is responsible for an estimated seven million deaths: World Health Organisation, *Air polution*, at https://www.who.int/health-topics/air-pollution#tab=tab_1, (Retrived on 1st November 2021).

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decision-making processes, with the aim of making life more convenient for all inhabitants (Kunzmann, 2014).
Technological innovation, economic growth, and modernisation, that characterise modern cities (Abu-Rayash and Dincer, 2021), might support policymakers to address issues such as carbon emissions, energy usage, and transportation infrastructure to increase the quality of life in urban spaces (Hall, 2000). They are true incubators of innovation (EUCR, 2020) and crucial hubs for climate action, becoming key areas for sustainable development in addressing the aforementioned urban challenges in the latest years (Buonocore, De Martino, Ferro, 2021). In particular, smart cities represent an attempt to address the challenges faced by large cities (Shamsuzzoha et al., 2021). Table 1 shows the top ten smartest metropolises in the world, according to Smart City Rank (2021), also taking into consideration their population. In the need for more eco-friendly activities, smart cities' policymakers elaborated smarter, greener and digital solutions, which could also be considered best practices for smaller cities, in order to tackle environmental externalities responsibly, effectively, and efficiently.

City	Smart City Rank	Population
Singapore	1	5,991,801
Zurich	2	1,407,572
Oslo	3	1,056,180
Taipei City	4	2,731,208
Lausanne	5	448,304
Helsinki	6	1,316,757
Copenhagen	7	1,358,608
Geneva	8	620,131
Auckland	9	1,630,092
Bilbao	**10**	348,518
Dusseldorf	**20**	635,046
Riyadh	**30**	7,387,817
Hamburg	**40**	1,788,995
Berlin	**50**	3,566,791
San Francisco	**60**	883,255
Tianjin	**70**	13,794,450
Krakow	**80**	769,307
Mumbai	**90**	20,667,656
Makassar	**100**	1,612,249

Table 1: Smart City Rank 2021 and Population 2021.
Source: our elaboration based on Smart City Index 2021 and World City Populations 2021.

The issue of sustainable mobility represents one of the most debated topics in the context of local, national, and international environmental policies aimed at reducing the environmental impact resulting from the mobility of people and goods. In year 2001, the European Union Council of Ministers of Transport first defined a sustainable transportation system as one that "allows the basic access and development needs of individuals, companies, and society to be met safely and in a manner consistent with human and ecosystem health and promotes equity within and between successive generations"[3].

Also Covid-19 emergency showed how cities may take on new responsibilities and find innovative solutions for overcoming extraordinary and ordinary urban mobility challenges. Therefore, by establishing a set of solutions by reducing car traffic and modifying current mobility patterns, air quality in cities can be radically improved and the decarbonisation of road transport can also be boosted, making Europe the first climate-neutral continent in the world. In this context, some European cities have displayed higher capabilities to mobilise and harmonise their services and resources. In this regard, the European Commission called local governments to formulate Sustainable Urban Mobility Plans (SUMPs), which provide a vision of urban mobility that should include all the dimensions of urban development, co-produced through the involvement of a plurality of urban actors, including the managers of different sharing mobility services (European Commission, 2013), as well as the evolution of urban infrastructures.

Sharing mobility refers to the gradual shift from private transportation to "shared" vehicles to move from one place to another. Thanks to innovative technology, this peculiar mobility service offers performance similar to private transportation in terms of flexibility, availability and scalability (La Foresta, 2019).

Several cities have already planned these new mobility methods, opting for a variety of services, such as electric public mobility, hosting and investing in private sharing mobility operators, and also modifying the urban structure and infrastructure. Indeed, European local policymakers, especially in the biggest cities (Li et al., 2022), are particularly focusing on sharing mobility (Arias-Molinares and García-Palomares, 2020; Gauquelin, 2020; Wołek, 2018; Refrigeri, 2018; Rode et al., 2015) to better respond to new travel needs that see multimodality and environmental sustainability as its strengths, through the use of advanced technologies that leverage the use of Internet-connected computing devices to build a networking system.

Sharing mobility, due to the interconnection between urban players, territory, and providers, leads to a flexible service model, which might undermine the "infrastructure-based" urban model (Civitas, 2016).

This means that sharing mobility has impacts on physical networks, as it is capable of reshaping people's paths and directions and, in order to work, needs some infrastructures that inevitably transform urban spaces. Among others, car-sharing and bike-sharing stations, cycle and reserved lanes, interchange car parks, pedestrian areas, etc. (Shaheen and Cohen, 2016; 2018). Thus, one of the most peculiar characteristics introduced by sharing mobility is the high flexibility in the relationship between urban

[3] European Commission, *2340th Council meeting - Transport/Telecommunications*, 4-5 April 2001, Luxembourg, at https://ec.europa.eu/commission/presscorner/detail/en/PRES_01_131, (Retrieved on 4 January 2021).

space and physical networks. Hence, sharing mobility is included in the wider context of urban redefinition, by which the city becomes smarter and greener. In this regard, it might be considered both a means and a policy in achieving the objectives of a neutral carbon society for the cities of the future, as they have an important and crucial role in contemporary times, as scenarios for the "green and blue transitions" (Floridi, 2020).
This study plans to investigate the policy framework for sustainable and sharing mobility in Europe (1 paragraph), the ongoing mobility trends in Italy (2 paragraph), analysing services and characteristics of the sharing mobility offer, also consider the effective governance, in order to generate virtuous behaviours and a city's inclination for innovation targeted at improving people's quality of life. In light of the contemporary trends and the gap we discerned in nowadays research, in the 3 paragraph two research themes are proposed based on the current developments and possible future perspectives for urban spaces and mobility.

2. Smart mobility in Europe

Lockdown measures in businesses, restaurants, entertainment establishments, and workplaces were one of the most visible aspects of the pandemic. Since the level of traffic drastically reduced and urban centres have emptied, global transport emissions were lower but not negligible, especially considering specific areas with high concentrations. Fighting against the pandemic, numerous European countries' lockdowns and similar measures have resulted in a significant drop in national economies, including a decline in vehicle transport in many cities with a significant reduction in the concentrations of some of the atmospheric pollutants in several European capitals[4]. Because of the drastic reduction in transportation activity while the global Covid-19 pandemic swept across the planet, the EU's domestic transport emissions fell by 12.7 percent in 2020 in Europe[5]. Lockdowns offered a rare chance to evaluate whether significant changes to production practises and transportation regulation could improve metropolitan air quality in European countries (Kerimray et al., 2020).
Nonetheless, a reduction in emissions caused by the pandemic is temporary, as human activities resumed as they were before. Traffic and traffic congestion continue to affect air quality, and poor air quality cost 307,000 lives prematurely in European countries, and more than half of these may have been avoided by meeting the WHO targets on fine particulate matter (PM) pollution[6].
As the transport sector contributes to the most part of greenhouse gas emissions (Leroutier and Quirion, 2022) - transport emissions are the most significant in Europe and the United States accounting for over 30 percent of total emissions[7] - and poses an

[4] European Environmental Agency (EEA), *Air quality and COVID-19*, Published 04 April 2020, at https://www.eea.europa.eu/themes/air/air-quality-and-covid19/air-quality-and-covid19, (Retrieved on 8 February 2022).
[5] European Environmental Agency (EEA), *Greenhouse gas emissions from transport in Europe*, Published 18 November 2021, at https://www.eea.europa.eu/ims/greenhouse-gas-emissions-from-transport, (Retrieved on 8 February 2022).
[6] Chartered Institute of Environmental Health (CIEH), *Air pollution cut short 307,000 lives across the EU*, available at https://www.cieh.org/ehn/environmental-protection/2021/november-2021/air-pollution-cut-short-307-000-lives-across-the-eu/, (Retrieved on 7 February 2022).
[7] ENI, *Sustainable mobility*, available at https://www.eni.com/en-IT/sustainable-mobility/transport-decarbonization.html, (Retrieved on 10 June 2022).

intersectional problem with negative impacts on health, equality, safety, and the environment.
Unprecedented challenges require new thinking, a willingness to innovate and a capacity to experiment and adapt.
The European institutions address the issues related to air pollution thanks to the guidelines that affect the different administrative levels. Among the six priorities of the European Commission for 2019-2024 is that of trying to make Europe the first continent to achieve climate neutrality, becoming a modern and resource-efficient economy. In this regard, the European Green Deal was created as a development strategy by the European Commission to address the complex challenge of transitioning to a productive circular economy in the European Union. The European Green Deal's goal is at least -55 percent GHGs reduction by 2030 compared to 1990 levels and climate neutrality by 2050 can only be reached by implementing more ambitious measures to rapidly reduce transportation's dependence on fossil fuels and work together with efforts to achieve zero pollution and to the advancement of the SDGs of the United Nations. The European Green Deal set the basis for this radical transformation, planning a realistic and resilient decarbonisation pathway that will reduce emissions also generated by transportation activity. In order to meet agreed climate change goals and the transition to a low-carbon economy, targets must include "green" initiatives capable of shaping and adapting to the green and digital transformation into the post-crisis recovery packages to pursue this conversion in earnest and involving a change in the behaviour of citizens to be implemented through different measures such as cycling or pedestrian traffic, as well as public transport and shared mobility.
In late 2020, the European Commission presented a sustainable and smart mobility strategy which defined a roadmap of 82 initiatives grouped into three main pillars: digitalisation, resilience, and greening of mobility, in terms of both individuals and goods (European Commission, 2020).
In the context of the recovery from this severe emergency, public assistance should help mobility to "build back better" integrating new tools for a radical transformation of transport habits in the EU metropolises and moving to a more sustainable and smarter future. Greening mobility must be affordable for all and be the new licence for the transport sector to grow (European Commission, 2021).
In the context of the opportunities for a clean energy transition for the movement of people, goods, and services, electric mobility could be a "game changer for the future" (Enel S.p.A. and The European House – Ambrosetti S.p.A., 2017), playing a pivotal role as a win-win option for a green recovery. Among the principal aims of the European Commission there is also the expansion of the market for electric and hybrid cars in the next years, despite some critics (Costa et al., 2021; Lattanzio and Clark, 2020). It specifically aims to ensure that citizens have access to the infrastructure needed to charge these vehicles for short- and long-distance journeys.
Additionally, from 2026, emissions trading will be applied to road transportation, taxing pollution, promoting the use of greener energy, and reinvesting in clean technologies. Among the various policies, the EU also called on local governments to formulate territorial mobility design such as Sustainable Urban Mobility Plans (SUMPs), which, as aforementioned, include sharing mobility services (European Commission, 2013).

3. Smart mobility in Italy

Over time, Italian governments have been particularly interested in smart and shared mobility trends, where innovative technologies offer chances in using flexible, available and shared vehicles in urban centres.

At the normative level, sharing mobility was conceptually introduced for the first time back in 1998 with the Decree of the Minister of the Environment of 27 March 1998, where the terms "optimal collective use of cars" and "timeshare forms of cars destined to be used by several people" appeared, identifying car-pooling and car-sharing (La Foresta, 2019). For the following years, these two forms of shared mobility have been sharply promoted, with the aim of discouraging the use of private cars and limiting air pollution in cities.

Another important service of sharing mobility, bike-sharing, was socially and territorially introduced almost 20 years ago. The first two cities that inaugurated these sharing mobility modalities were Ravenna and Milan in 2000 and 2001 respectively, according to Osservatorio Nazionale Sharing Mobility (2021). Since then, sharing mobility has seen a progressive increase in both innovation and investments and was backed by various local administrations.

At a citizen level, as pointed out by Osservatorio Nazionale Sharing Mobility (2021), a very hard push was introduced by the invention and diffusion of smartphones and a series of practical, easy and intuitive Apps. In this regard, behavioural economics and psychology are now discussing the influence of sharing information and smart Apps' impacts on the individual "choice architecture", e.g. the set of environmental elements that influence the way people access and use information so as to determine their decisions (Vecchio and Tricarico, 2019; Kahneman, 2011; Thaler and Sunstein, 2008). Changes in choice architecture may further lead people towards new and smarter sustainable behaviour in terms of mobility. Sophisticated and innovative Apps capable of introducing and informing people about the opportunities of smarter transportation, which indeed sharing mobility is, may nudge people to opt for sustainable choices in their everyday lives. In this respect, ICTs are indeed able to shape human life, choices, and decisions (van Wee et al., 2013).

Their implications and applications in Italy are crucial also to the tourism sector: they allow tourists to know and shape their own tour, may inform them of their destination, as well as other nearby attractions and services, serve better mobility and transportation, also allowing them to connect and interact with other people (Pesonen and Horster, 2012; Mangano and Ugolini, 2017). Along with the increasing usage of Apps and the various applications of ICTs, what is also noticeable is the future and yet already the present impact of the Internet of Things (IoTs)[8] on mobility (Jell, Baumgartner, Bröring, Mitic, 2018). A recent study by Behrendt (2020) has questioned the research on the relationship between IoTs and mobility as mostly *automotive-driven*, favouring a positive discourse and further research on the relationships between IoTs and more sustainable mobility vehicles. It is not hard to consider that this openness will furtherly lead to more research on the correlations and possible

[8] The term Internet of Things (IoT) generally refers to scenarios where network connectivity and computing capability extends to objects, sensors and everyday items not normally considered computers, allowing these devices to generate, exchange and consume data with minimal human intervention. There is, however, no single, universal definition (Rose et al., 2015).

integrations between IoTs and sharing mobility, which still needs to be properly investigated.

Generally, sharing mobility is in constant growth in Italian cities (Di Fazio and Paradiso, 2022). It has registered decreases during the pandemic period, but it seems to have recovered after 2021 (Osservatorio Nazionale Sharing Mobility, 2022). However, one should notice that whereas some of the sharing mobility implementations, such as free-floating e-Kickscooters, have gained great momentum in recent years, some others, probably due to the proliferation of other means of sharing mobility, have drastically lowered, during and after the pandemic.

The year 2020 has seen a drastic decrease in general mobility, but specifically, sharing mobility services have recorded -30,6% in terms of travelled km and -22% in terms of rental services (compared to 2019), although this is a slightly smaller percentage than those registered by other transport sectors, for instance, public railway transportation (-38%) and private mobility (-32,3%) (Osservatorio Nazionale Sharing Mobility, 2021). Car-sharing demand has been more affected by the mobility restrictions due to the pandemic, registering -42% free floating carsharing and -32% station-based. This might also be due to the closure of historic and typical car-sharing operators, in 2020, such as Share'ngo in Milan (operating also in Rome and Florence) or Bluetorino, which operated in Turin and was acquired by Leasysgo[9] - that consequently expanded its services in Milan and Rome.

Instead, bike-sharing is experimenting with a smaller impact, if one also takes into consideration the rapid growth of e-bike services. Despite this, generally the bike-sharing demand is decreasing as well as services. From 2020 to 2021, Italy lost 2 services in bike-sharing, falling from 39 to 37 (Mantua and Venice lost two services). Whereas, scooter-sharing service, which is almost completely electrified, is diffused in the greatest cities in Central and Northern Italy (Rome, Florence, Genoa, Milan, and Turin) and recorded better trends than bike-sharing in the last period.

According to Osservatorio Sharing Mobility (2021), a new solution for urban travel in Italy is constituted by electric micro-mobility which includes e-Kickscooters. The relatively lower loss percentage in sharing mobility services as well as the lower demand in bike-sharing was due to the rising of the new free-floating e-Kickscooter services and demand, which has reported a great expansion in vehicles, operators and cities' services. e-Kickscooters, in fact, have become the most widely shared vehicle in the country (in 2021 one in three shared vehicles in Italy is an e-Kickscooter), also leading the Ministry of Infrastructure and Sustainable Mobility to issue a new Decree (on 18 August 2022) for the definition of e-Kickscooter usage and calling for proper and specific regulation for the circulation of these electric vehicles in rapid growth. From 2019 to 2020, the number of fleet e-Kickscooter registered a percentage variation of 86,9% (in absolute numbers, from 4,650 to 35,550) in Italy (Table 2). The rapid increase continued for the whole of 2020, increasing by 22% (from 35,550 to 45,900), including far more cities and for the first time in Sicily and Sardinia regions.

[9] For more information in this regard, on the Leasys website: https://corporate.leasys.com/italiano/news/leasys-acquisisce-bluetorino, 17 December 2020 (Retrieved on 2 February 2023).

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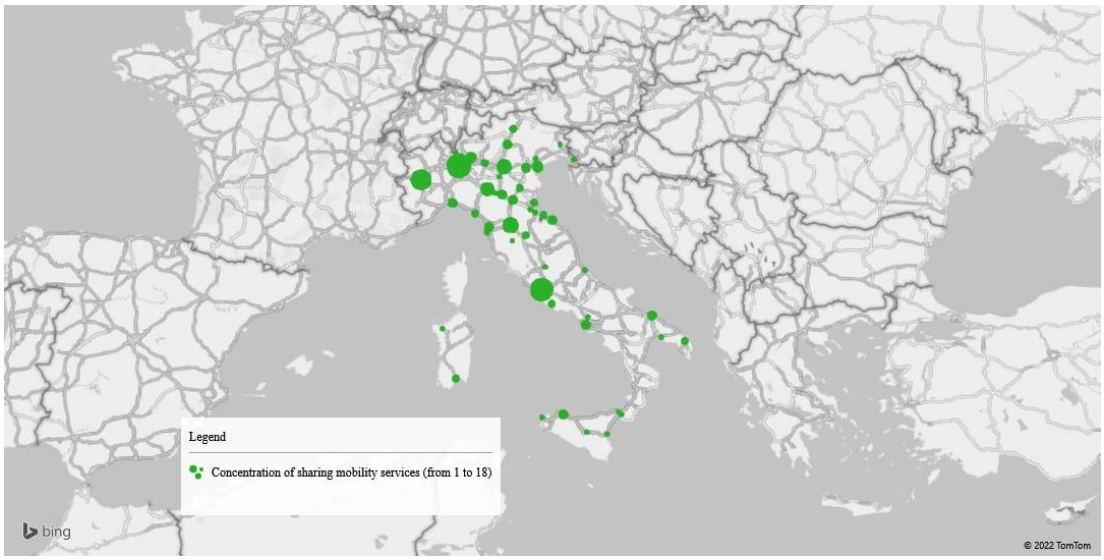
	2019	**2020**	**2021**	**Percentage variation (from 2020 to 2021)**
e-Kickscooter	4,650	35,550	45,9	22.55%
Scooter	-	7,3	8,9	18%
Bike	33,372	34,705	27,6	-25.74%
Car[10]	8.264	7,282	6,643	-9.6%
Total	46,286	84,837	89,043	4.7%

Table 2: Fleet vehicles in Italy, 2019-2021.
Source: our elaboration on Osservatorio Sharing Mobility (2021, 2022).

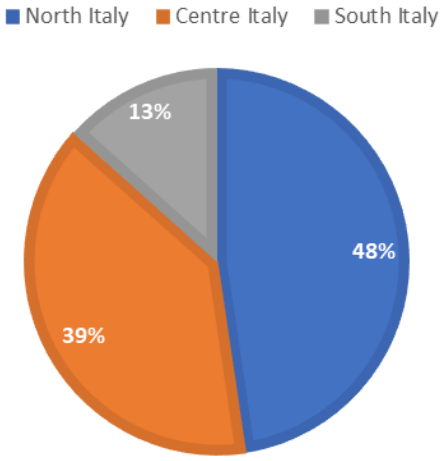
Besides, users seem to really appreciate this particular and peculiar service.
Table 2 not only underlines the constant growth of sharing vehicles, mostly due to e-Kickscooter services as already said but stresses a further and important dynamic when we refer to car-sharing and bike-sharing: these sectors, especially in the last year, are in loss, due to the closing of several operators. Car-sharing, in particular, registers a constant decline period. However, what is relevant is that the sector is rapidly going through a radical transformation, which sees the birth of more electric car-sharing services, such as Leasysgo, which replaced Bluetorino. Leasysgo is a 100% electric operator of free-floating vehicles. This may also be due not to the growing investments in this specific sector but to the people's interest in smarter and more sustainable behaviours, which implies more conscious transportation choices.
Moreover, the widespread diffusion of sharing e-Kickscooter services and demand in Southern Italy has signified a turn towards a possible homogeneity between the South and North. Indeed, since the implementation of the first sharing mobility project, the North, the Centre and the South of Italy have registered different various percentages, numbers and interests. As shown in Map 1, Milan and Turin are the top cities in Italy for typologies of services (4) and operators (18 in Milan and 13 in Turin). Rome, too, is the most served city in the Centre of Italy, with 16 services. Seven out of 16 provinces with at least two typologies of services are in Northern Italy, although the distribution is not perfectly homogeneous.

[10] The numbers take into consideration for car-sharing are both the free-floating and station-based fleet vehicles.



Map 1. Concentration of sharing mobility services per cities in Italy (2020). Source: our elaboration on Osservatorio Sharing Mobility (2021).

Also, in Graph 1 one can see the percentages in the distribution of services per macro-regions in Italy, in 2021. The gap in the offer of services is notably still very deep. Nonetheless, with the introduction of e-Kickscooter services, this difference has slowly decreased over the past two years. Indeed, this particular service has marked a significant turn in the history of sharing mobility, in Italy, also triggering possible urban modifications.



Graph 1. Percentage of services per macro-regions[11] *(2021).*

[11] Macro-regions have been merged based on the European division in NUTS1, which comprises North-western regions (Valle d'Aosta, Liguria, Lombardy, Piedmont), North-eastern regions (Trentino-Alto Adige, Veneto, Friuli-Venezia Giulia, Emilia-Romagna), Centre (Tuscany, Umbria, Marche, Lazio), Southern regions (Abruzzo, Molise, Campania, Apulia, Basilicata, Calabria) and

Source: our elaboration on Osservatorio Sharing Mobility (2022).

4. Research agenda

It is undoubtable that sharing mobility might be considered both a means and a policy in achieving the objectives of a neutral carbon society for the cities of the future, as they have an important and crucial role in contemporary times, as scenarios for the "green and blue transitions" (Floridi, 2020). So far, we have tried to analyse the European policy frameworks at the basis of the reasons why this peculiar mobility should be further analysed and integrated in a proper way; we also provided a few second data, looking at the Italian trends of the past three years. Starting from these, we consider that future research should focus on the main challenges set up by sharing mobility in urban spaces and with regard to the future transportation policies addressing global and European targets, providing two major points for future in-depth research on the issue. This is also important when thinking about the gaps identified in the literature and the demands which descend from the current tendencies, mostly influenced by the Covid-19 pandemic - and partially by the energy crisis triggered by Russian aggression in Ukraine, which may lead to delays, if the transition in energy production will be not taken into account properly.

As a proposal, we would like to specifically suggest the following as part of a possible future research agenda.

First, the transformation in urban structure and functions, triggered by the widest implementation of sharing mobility policies. Opting for sharing mobility means a radical re-design of the city, in its structure, people's behaviours and habits, as well as its flows in terms of directions and traffic. As Banister (1995) has pointed out, the evolution of transportation and mobility naturally triggers a transformation of urban areas, making it reasonable to suppose that sharing mobility policies, too, influence the shape and the way of conceiving the city, as much as the structure of the city influences the possible policies and their implementation. The transformations of the city generated by the implementation of such policies and measures are very much complex and characterised by long processes, as they are conditioned by a variety of variables such as the physical form of settlements, environmental constraints, and strategic choices that have been made over time on transport networks (Rode et al., 2017). On the one hand, one has to consider that the physical structure change of a city takes infinitely more time than it does for urban functions. This means that whereas commercial, social and economic activities might easily migrate to other spaces (including cyberspace, as happened during the pandemic), the physical process of reshaping the city and its environment is indeed a long and negotiated procedure. On the other hand, as sharing mobility signifies the shift from an "infrastructure-based" urban transport to a "flexible-services" model, this typology of mobility relates transport users to the urban space in extremely flexible and differentiated forms, because of the tight interdependence and interconnection between private and public services, territorial information, and users (Civitas, 2016). In order to work, however, it needs new infrastructures which inevitably will transform urban spaces and will create new physical networks. Moreover, one has also to consider the highest relationship between sharing mobility and digital technologies: it is of great

Islands (Sicily and Sardinia). North-western and North-eastern regions have been merged into the "North" category, and did the same with Southern regions and Islands into the "South".

importance and might have a crucial impact on infrastructures. The expansion of car-sharing and bike-sharing stations, cycle lanes, reserved lanes, interchange car parks, pedestrian areas, e-charging stations, the construction of transmission system operators and other electric and digital facilities will certainly mean the building up of a secure and sustainable power grid, which will consequently reshape the face of urban cities in a more *ICT-friendly* environment (Shaheen and Cohen, 2018; Exner et al., 2020).
Therefore, since sharing mobility might be included in the wider context of urban redefinition, by which the city becomes smarter and greener, it is of higher importance to consider studying and investigating such possible transformation, taking also into account the already ongoing trends generated by the pandemic (Buonocore, Di Martino, Ferro, 2021).
Second, understanding the relationship between the public and private sectors for shared mobility. Specifically, we refer to the idealisation of new forms of governance for these typologies of services, taking into consideration that the already implemented mobility policies and practices have contributed substantially to creating and feeding inequalities in the cities (Buck and Nurse, 2021; Privitera, 2020).
As we discussed in this paper, local authorities should act as promoters of sustainable mobility, in order to improve the quality of urban life and contain emissions. The literature already stressed that policy approaches aiming at promoting better mobility practices should provide more transport information and mobility choices, in order to shape individual preferences. This furtherly leads to strengthened cooperation between the public administration and private mobility providers.
Vecchio and Tricarico (2019) propose several steps for institutional actors to sustain initiatives in this regard: among others, recognising initiatives provided by corporations and communities that can really improve urban mobility and support development is key for local and public administration. Innovative solutions need to be sustained by public actors, not only with a simple endorsement, but rather with engagement and shared responsibilities (Feitselson and Samuelson, 2004; Stilgoe, et al., 2013).
Investigating new typologies of governance might mean keeping engaged and involving all social, political and economic actors in the re-definition of policies, normative frameworks and urban requirements, in a truly participative process. Shared-use services have enormously emerged, being one of the most rapid changes in transportation, which furtherly mean to policymakers to seize the opportunity to integrate those new mobility options into traditional transit networks in ways that benefit the government, and the private and public sectors. A new type of governance means that shared goals must be at the top of the agenda for all the actors, not just including profit, but rather greater efforts in sustainability and shared prosperity (Jackson, 2011).
Karim (2017) already pointed to the lack of literature and research when regard to public policymaking and the scalable impact of innovative mobility on traditional planning, management and governance, for the traditional forms generally exclude shared mobility trends. Luckily, in the last few years, several Italian cities are trying to include specific services in their SUMPs, but more is needed in terms of research and investments when referring to the relationship between public administration and private providers, the engagement of citizens and communities in the normative and policy design, the sharing of data and the analysis of individual behaviour and

preferences, and consequently the development, implementation and usage of innovative and smart technologies in transportation.

5. Conclusions

Climate change and environmental challenges, digitalisation, globalisation, and demographic trends are fast-changing global daily lives, and the risks from combining crises of social-ecological change and health pandemics are particularly critical for countries already dealing with a number of drivers of fragility (Quagliarotti, 2021). The Covid-19 pandemic, indicated by Partha Dasgupta as an "SOS signal for the human enterprise, bringing into sharp focus the need to live within the planet's 'safe operating space'" (Dasgupta, 2020), has plunged the world into one of its most severe crises in living memory, contributing to increasing poverty and amplifying inequalities worldwide, putting the international system to the test and highlighting the importance of multilateralism and concerted effort in addressing international challenges. Furthermore, the pandemic has changed many habits, including those related to travel. This is demonstrated by the increasing usage of e-Kickscooters, which multiplied during the lockdown and grown exponentially over the months.

Meeting the EU 2030 and 2050 targets is ambitious, but not less necessary, in this regard. The EU policies are fundamental to keep bending the emission trend while recovering from the pandemic. In fact, after two years, the pandemic seems to have given way to a new crisis that potentially leads to an economic recovery based on the two pillars of energy transition and digital transformation. However, with the increase in energy and raw material prices, the Ukrainian crisis poses significant challenges about timing and method of the post-Covid economic and social growth model's transition plans, which include urban mobility as one of their core components.

Smart mobility is essential in the sustainable development strategies and programs imagined by the European Commission with the Green Deal and the Next Generation EU. Therefore, a "business-as-usual" scenario does not allow meeting the model of development envisaged in the Paris Agreement.

Since sustainable development has become a primary focus of the United Nations' 2030 Agenda to fully address numerous goals of achieving well-being at several levels, such as people, planet, prosperity, and peace (UN, 2015), in Italy a decisive change is necessary. The process of implementing sustainable and sharing mobility in the country can be boosted by the realisation of effective cooperation between local authorities and private stakeholders, through the promotion of a radical transformation of transport habits since urban mobility shares the greatest responsibility in terms of emissions. As we have highlighted, the lockdown following the Covid-19 pandemic has led to a drastic drop in the concentrations of pollutants. It has been possible to analyse the benefits that could be obtained by reducing air pollution. Therefore, within a vehicle fleet replacement scenario, the penetration of a percentage of electric vehicles also plays a key role in reducing concentrations of local pollutants.

For this reason, it is fundamental to reflect carefully on the challenges that the National Recovery and Resilience Plan (NRRP) - which promotes also the growth of electric mobility - poses to us in this field and on the opportunities it presents.

In conclusion, as stated by the EEA executive director, Hans Bruyninckx, in the following ten years investing in cleaner heating, mobility, agriculture, and industry will benefit all Europeans, especially the most vulnerable, by improving health,

productivity, and quality of life. These investments help save lives while also speeding up the transition to carbon neutrality and strong biodiversity[12].
Changes in everyday practices can be encouraged by eliminating economic and cultural barriers that slow-moving the adoption of healthy and efficient behavioural models, in order to establish virtuous practices and urban propensity to an innovation aimed at guaranteeing citizens a better quality of life.
As a result of the Covid-19 pandemic, the evolution of urban mobility in Europe is speeding up, proving to be inevitable and influenced by new elements, as a constantly changing field. These aspects must be promptly analysed by researchers, in order to provide policymakers and urban stakeholders with the necessary tools and scenarios interpretations to design and implement better urban policies and generate best practices.

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GATED COMMUNITIES AND THE EROSION OF PUBLIC SPACE. AN ANALYSIS OF CONTEMPORARY URBAN MISANTHROPY

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Abstract

The paper analyses the social, psychological, political and economic causes of gated communities in order to understand the driving forces behind their rise both in the Western world and Italy. The implications for the design, planning and management of public space at the neighbourhood and city level are discussed, highlighting erosion, clustering and pressures for the privatisation of goods and services. European and Anglo-Saxon case studies are presented, along with security tools and protocols to regulate these walled communities. Finally, exit strategies are proposed to avoid caesuras in urban clusters that affect, inter alia, neighbourhood viability and collective security in case of emergencies.

1. Introduction

Privatopia, Golden Ghetto and Walled Communities. And *barrios privados* (or *cerrados*), *urbanizanciones privadas* and alphaville. But also *condominios fechados* (or exclusive), *quartier fermé* and *résidence fermée*. Different ways of identifying an enclave, a modern urban concretion given by the "welding of a foreign morphological element into a new lexical unit" (Devoto-Oli, 1990, p.436). Its members come together on the basis of an ideology of fear or hope, the product of which is social segregation and the consequent loss of enjoyment of public space. If the public space can be usually defined as a "space to which people normally have unrestricted access and right of way" (Sendi and Goličnik Marušić, 2012), the latter is transformed into a controlled commercial environment, while the transitional spaces are relegated to the status of leftovers.

The reduction of public spaces "to 'defensible' enclaves with selective access" (Bauman, 2000, p.94), the segregation rather than negotiation of community life, and the criminalisation of any difference stand out as relevant elements of the current urban evolutionary process. In this respect, "the 1960s and early 1970s were, according to Zukin, 'a turning point in the institutionalisation of urban fear'" (ibid.). Voters and elites ... could have chosen to endorse government policies to "eliminate poverty, manage ethnic competition" (Bauman, 2000, p.94) (in the US since the Civil Rights Act of 1964, but unfortunately still noted in the Kerner Report of 1968), and "integrate everyone into common public institutions". Instead, they chose to buy protection, fueling the growth of the private security industry" (ibid.). (ibid.), downgrading violence from a state problem to a community problem, as depicted in the film 'The Zone' by Plà (2007). In this regard, Zukin noted how "the mixing of strangers in public

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spaces and fears of violent crime have inspired the growth of private police forces, gated communities, and a movement to design public space for maximum surveillance... If one way of dealing with the material inequalities of urban life has been to aestheticize diversity, another way has been to aestheticize fear" (1995, p.2). To this day, ethnic, religious and socio-economic statuses discrimination continue to contribute to residential segregation in contemporary society. They physically mark the urban fabric through the creation of communities using methods such as clustering, "physical spatial boundaries and internal transitional spaces" (Artero, 2017, pp.69-70), and the imposition of distances. This was highlighted in Cable's (2013) study of the racial dot map, a map of US cities from the 2010 census, as well as by Kramer (2017), where physical markers of neighbourhood boundaries (e.g. major roads, rivers and railroads, among others) are associated with persistent racial boundaries. In particular, 8 Mile Road in Detroit, Michigan, was embodied as a demarcation line between the white and African American components, while in Birmingham, Alabama, it was the topography that localised the white ethnicity that had historically settled "on the mountain" (Cable, 2013). And so, in today's humus made of insecurity, uncertainty and vulnerability in the quality of physical and neighbourhood life, the blame for this decline is laid at the door of migratory flows, crime and terrorism, accepting the answers given by individualising escapes. The latter set themselves the task of "daily reshaping and renegotiating the network of mutual entanglements" of a social nature (Bauman, 2000, p. 31), slowly unhinging the notion of the citizen, who is placed in a state of captivity. As is well known, the term captivity comes from the Latin *captivitas*, a derivation of *captivus*, meaning "captive" (Merriam-Webster, n.d.).

The city, rethought in this way, is reconfigured as an amorphous set of islands in which the common holding of its connectivity, composed of an increasingly contrasting social topography, is at stake (Secchi, 2013). This is due to the oversimplification of the social complexity within, in which the emphasised difference between the identity-seeking components instead determines their philosophical opposite, namely otherness. It is the successful typological formula of controlled, market-driven and plagiarised urbanisation in a kind of neo-feudal parody.

Based on the above, this study moves from considering social segregation in public and semi-public spaces, where the attributes of public and private spaces seem to be blurred, to examining it in relation to gated communities. It aims to analyse these global phenomena and the causes of their genesis, such as the socio-cultural, political and economic context by presenting international cases, in order to offer possible exit strategies.

2. Material and Methods

2.1 Public space and sociality

"In some places, rural and urban alike, the privatization of certain spaces has restricted people's access to places of particular beauty. In others, 'ecological' neighbourhoods have been created which are closed to outsiders to ensure an artificial tranquillity." (Pope Francis, 2015, para 45). These solutions seem close to the prophetic words of Frampton: "In a society hypnotised by consumerism, balanced eco-ontological conditions can perhaps only be achieved by the strategy of creating discontinuous enclaves, that is, bounded fragments in which a certain cultural and ecological symbiosis can prevail despite the chaos of the surroundings" (1992, p.343). Such

"'safer' areas of cities" (Pope Francis, 2015, para. 45) can be equated with spatial caesuras, which they represent as bastions of the ephemeral concepts of beauty and harmony with nature. Among the possible references to 'urban archipelagos', it seems possible to include the Vertical Forest by Stefano Boeri Architetti in Milan, Italy (2014). These proposals increasingly wink at environmental ethics, with the subtle aim of creating a new exclusivity. Thus, the concept of an ecological niche is marketed by creating a place that is sold as untouched by a polluted urban environment, hiding these strategies behind deceptive greenwashing.

Bounded by tangible or intangible borders, these "do not simply frame an environment or territory" (Pilia, 2015) but rather "establish a dual status of existence concerning this border: whoever is 'inside' benefits from the advantages that the border brings, in contrast to those who are outside, condemned to small- or large-scale nomadism" (ibid.). In this way, the wall becomes part of a spatial concept from a specific geographical perspective (Lambert, 2015; Paasi, 2022). Bauman reinforces this view by highlighting the drama of refugees who do not have "their place in the common world" (Bauman in Guerrera, 2015) and consequently "their only place becomes a 'non-place'" (ibid.). This emerging spatial urban issue thus highlights the link between the right to accessibility and social inequalities in the context of political, socio-economic (Secchi, 2013) and also climatic changes. An approach that asserts a practical relativism, which seems to be a convincing exit strategy in the face of an unconditional surrender of choice. This view is supported by Frampton himself, who states: "Against this, the urban enclave now asserts itself as a viable alternative strategy, given the recent bankruptcy of planning as a projective practice" (1992, p.343).

Assuming, then, that the nature of the discipline of architecture is inherently violent "because of the way it dissects space" (Lambert, 2015, p.7), it can be said that only two urban strategies have been used "to cope with the otherness of others ... one was the anthropoemic strategy, the other was the anthropophagic strategy" (Bauman, 2000, p.101). Anticipated by Simmel, the former consists of rejecting and expelling the other, "prohibiting physical contact, dialogue, social intercourse" of a patrimonial, convivial or sentimental nature (Bauman, 2000, p.101). Today, updated and refined forms of such spatial separation and selective access, including visual ones, are evident. "La Défense in Paris (among the numerous varieties of 'interdictory spaces' ...) is an architectural rendition of the 'emic' strategy", responding to the "task of coping with the likelihood of encountering strangers, that constitutive feature of urban life", but the management of which requires and implies "'power-assisted' measures" (ibid.). Physical contiguity and the sharing of space are thus stripped of their aggregative threat in a kind of "paternalistic and gentrifying synopsis" (Aimar and Pilia, 2017). This is one of the psychic responses to metropolitan social life, no longer understood as utopian-communal (Simmel, 1903). It masks other feelings such as aversion, alienation, distrust and repulsion, which can lead to abandonment or suddenly turn into hatred and conflict (ibid.). "Some of these signs are also symptomatic of a real social decline, of the silent rupture of the bonds of integration and social cohesion." (Pope Francis, 2015, n. 46). Among these "social dimensions of global change" (ibid.), the Pope made explicit reference to "exclusion ... social breakdown, increased violence and a rise in new forms of social aggression" and a more ambiguous "loss of identity" (ibid.). In such an urban conundrum, not only does the physical notion of public space, articulated through its physical types such as parks, squares, streets and sidewalks

(Miller, 2007), seem lost, but also the mental one through the meeting place. Sennett also spoke of "dead public space" (1977, p.12), where "the erasure of alive public space contains an even more perverse idea - that of making space contingent upon motion" (ibid., p.14). Essentially, the above seems to refer to the notion of nomadism (Pilia, 2015) as a result of the capitalist process of revising the notion of public space as a common good.

2.2 "Who plans the planning?"

As a contribution to the catalogue of the Swiss Pavilion at the 14th International Architecture Exhibition in Venice (2014), the British artist Gillick offered this critical reflection, which underlines the relevance of the dilemma. Analysing the forms these actions take, it seems that reality is not too far removed from the scenarios envisaged by Orwell in '1984' (1949) and Huxley in 'The New World' (1932). "The heavily guarded enclaves bear a remarkable resemblance to the ethnic ghettos of the poor" (Bauman, 2000, p.180) but differ from them in their willingness and free choice to aggregate. Today, it is a minority that claims a free will of self-determination, where selection at the entrance of settlers becomes a privilege based on purchasing power. And this transforms security into a prerogative increasingly linked to purchasing power. "This construction technique can only produce 'communities' as fragile and ephemeral" (ibid., p.37), real social divisions that embody "shared concerns, shared fears or shared hatreds" (ibid.). They thus become a kind of "gilded cage" coveted by individuals seeking places to share and banish their fears. The handing over of power to private individuals reinforces the fragmentation of jurisdictions and such confusion in turn stimulates the creation of closed communities, which "play an important role in depoliticising class relations (Harvey, 1989)" (Duncan and Duncan, 2001, p.387). On this basis, it is possible to state how "among the elite, ... aesthetic dispositions are markers of identity" (Boersema, 2011, p.4), the mediated use of space and, at the same time, "aesthetics are thus not only used to soften the public face of the security apparatus" (ibid., p.14). Given the above, is it so provocative to say that the future will belong to "archipelagos of islands scattered along the axes of communication" (Patigny in Bauman, 2000, p.180) and to "cut-off and fenced-off, truly exterritorial residential areas" (ibid.)? Will it be something more than a warning of the future "archipel carceral" of Foucault (1975)?

2.3 An economic analysis of the phenomenon

Born in the late 19th century, the rise of these urban enclosures seems to be a consequence of the uneven social distribution of income (Hernandez Palacio, 2012). Based on the inversion of the syllogism between social justice and its redistribution mechanisms (Rosanvallon, 2011), they thus identify and polarise extremes of need and wealth.

This socio-economic correlation was theorised by the statistician Gini, who was able to measure inequality of distribution by calculating the coefficient of the same name. This coefficient lies between 0 and 1, with 1 representing extreme inequality. The countries most affected are South Africa and Namibia (0.63 and 0.591), followed by Suriname, Zambia and the Central African Republic (The World Bank, 2022a). On the other hand, most European countries have medium-low Gini coefficients, ranging from 0.403 to 0.232, with greater homogeneity in the Scandinavian peninsula but with

a negative peak in Bulgaria. In Italy, 16.2% of households were at risk of poverty in 2020, gross of the income available from the government's anti-Covid-19 measures, the unemployment fund and the citizenship income (ISTAT, 2021b). The average value of the Gini index of 0.352 in 2019 (The World Bank, 2022a) was higher than the OECD's 0.33 in 2020 (OECD, 2022). Moreover, a gap in gross income between the South and the Centre-North was confirmed (0.339 vs. 0.312), with an increasing inequality coefficient in the South (ISTAT, 2021b). On the other hand, it is interesting to note that in the United States, the birthplace of this gated phenomenon, it stands at 0.415 in 2019, confirming greater income inequality in the US population than in Italy (The World Bank, 2022b). Specifically, these inequalities emerged at the end of the period of heavy capitalism, which promoted a neoliberal economic reconfiguration in heterogeneous groups in terms of the census, ethnicity and family structure. Such ensembles, seeking the desired autonomy in their urban sphere, have claimed a more specialised and fragmented space, creating a direct link between neoliberalism and aestheticization (Lipovetsky and Servoy, 2017). The affirmation of these urban clusters is therefore based on perceived similarities in lifestyle, reinforced by similar consumption patterns rather than shared activities (Kohn, 2004).

3. Results

From the above, it is clear that the community is indeed non-inclusive and that the notion of 'identity' is increasingly giving way to a form of civic militancy, with the risks associated with reactionary and nationalist political and discursive outlooks. This spills over into public spatial planning and, thus, into politics, where mediation and involvement techniques are replaced by disengagement and routine management.

3.1 National and EU political views

Some European political parties use a self-referential and identity-driven use of the personal pronoun 'we' to extol the desire to defend the community. In 2008, an Italian election slogan offered an axiom between what happened to Native Americans during the conquest of the West and what happened to native citizens at the time, in these words: "They suffered from immigration. Now they live in reservations. Think about it". This established a link between tolerance and the risk of marginalisation in territorial enclaves, in recourse to verbal violence or its evocation "as a means of drawing boundaries when they are absent, porous or blurred" (Bauman, 2000, p.195). Unhappiness was given a form "to reforge the equally vague longing for happiness" (ibid., p.66). Such an assertion, however, is significant enough to identify immigration and fear of diversity as the triggering causes of the aforementioned Not in My Back Yard allergic reactions, within which space capital returns to the fore. It takes the form of a contemporary reworking of "moral panics" (ibid., p. 39), an artificial process whose purpose is to arouse concern and social indignation through the artful exaggeration of a problem. The rhetorical aim is to propose "(neo)communitarian closures and criticisms of the democratic institutions themselves" (Antonelli and Rossi, 2014, p.XII) as solutions that result in the passive anti-politics of the masses. It is symptomatic that, in analysing the same social 'problem', the President of the Italian National Social Security Institute instead adopts parallel but opposite positions to the previous populist ones. He explains how Italy, which will have 59.6 million people in 2020 (Eurostat, 2022), would actually "need a high number of immigrant workers to

maintain a balanced ratio between those who are pensioners and those who are working" (Caritas, 2019, p.24). With the current balance between births and deaths, the population would fall to 54.1 million in 2050, and the working-age population would fall from 68.3% in 2021 to 53.3% in 2050 (ISTAT, 2021a). These projections would therefore require the integration of new citizens in a necessary process of utilitarian integration. Such a policy of openness and citizenship, however, clashes with the ambivalent growth of exclusion towards the diverse, with the birth of different gated entities, as noted in the documentary "Live safely in Europe" by Danesch (2007). It highlighted the European behaviour of participatory militarism, likening physical spaces to those of a fortress. They are increasingly protected by physical barriers such as walls, barbed wire, razor wire and video surveillance systems, as in the cases of Calais, Ceuta, Melilla, Padua, and the Hungarian-Serbian and Bulgarian-Turkish borders, among others. Another example is the temporary reintroduction of border controls within the Schengen area (European Commission, 2021, 2022) "in a context different from COVID-19" (ibid., 2022), in which countries such as Austria, Denmark, France, Germany, Norway, Spain and Sweden have already participated. In other words, a contradictory biopolitical system that claims the right to decide on the administrative existence of others (Marcuse, 2008, p.93), relegating them to a limbo of marginality and suspension. The real risk is to trigger processes of de-democratisation (Tilly, 2007) since freedoms are not crystallised values but are in a state of constant redefinition and refinement.

3.2 European and Italian cases of gated communities

These defensive phenomena are characterised by a marked interscalarity, in the sense that from the national level, where walls exist between states (as in the case of Mexico and the US), similar dynamics are now being reproduced down to the level of the urban neighbourhood. As introduced, gated communities are a snobbish refuge for the upper class (Papa et al., 2013) in Latin American (e.g. Mexico, Ecuador, Brazil and Argentina), Asian (e.g. Saudi Arabia, Dubai, Pakistan and China), and African (e.g. South Africa) countries. In Europe, the trend is also noticeable and growing in countries such as Belgium, France, Spain, Portugal and Italy. In the latter, it is also a response to past terrorist attacks and latent discrimination against Muslim immigrant populations. Even in the new member states of Eastern Europe, such as Poland, and in the emerging countries, such as Albania, such phenomena are emerging as a viable option to forget the communist past (Figure 1 and Figure 2).

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Figure 1: Kodra e Diellit 1, a gated community in Tirana, Albania. Source: Own elaboration.

Figure 2: Rolling Hills, a gated community in Tirana, Albania. Source: Own elaboration.

Italy is not exempt from this phenomenon, although it is less affected than other countries. However, the JamesEdition website offers, for instance, "Luxury Gated Community Homes for Sale in Tuscany, Italy" (2022). Other examples include Olgiata in Rome, Villaggio Rovido in Buccinasco and the Monte Gentile and Roccamare resorts in Ariccia and Castiglione della Pescaia respectively. They also include Cascina Vione in Basiglio, in the province of Milan. The latter, renovated in 2011, has a surface area of 100,000 square metres and can accommodate more than 250 people. There are about 130 apartments, ranging in size from 60 to 600 square metres and costing between €3,300 and €4,200 per square metre. This housing model is the result of pilot initiatives launched in the 1970s in neighbourhoods such as Milano 2.
The case of Asti is different, where the occurrence of some criminal cases has led to different responses. These include the introduction of a register of private cameras (in addition to the 64 public cameras already in use and others in the pipeline) (Marchesini, 2015), the condominium camera project "Apriamo gli occhi sulla città" (Città di Asti, 2017), and the creation of Neighbourhood Safety Committees (ibid.). The latter aim to "rebuild the cooperation and social control that once existed in all small communities" (Natale, 2015) through security-type initiatives and the use of software capable of identifying suspicious behaviour and alerting public security forces. One influence on these options seems to be the induced sense of insecurity felt by the population due to the exacerbation of such incidents by the media. In fact, crime statistics reported by law enforcement agencies to the Italian judicial authorities confirm that the number of crimes has decreased from 2,771,490 in 2006 to 2,301,912 in 2019 (ISTAT, 2022). In spite of this, Italy has a large private armed security force to support the public ones. Composed of around 50,000 private security guards (Corradini, 2021), it is the fourth largest security force in the country, numerically ahead of the prison police.

3.3 Anglo-Saxon cases of gated communities

Coming back to the US, such housing communities take their cue from an anomalous re-imagining of the low-density English garden city, the result of residential decentralisation by the white upper class and then by the middle class. This settlement pattern has been consolidated by urban sprawl into today's diffuse polycentric city. However, the first such gated communities were designed and built in the 1960s and 1970s, first as holiday resorts and then as retirement homes (Blakely and Snyder, 1997). They originated mainly in the Sun Belt, in states such as California, Florida and Texas. In order to prevent the combination of housing and segregation from degenerating into something akin to dormitory neighbourhoods, the inclusion of services to meet the material, aesthetic and spiritual needs was proposed. These walled models, encouraged by the economic policies of deindustrialisation in the 1970s and accelerated by Reaganism in the 1980s, produced an economic restructuring mix of conservatism and populism. They led to significant socio-political changes because of the unequal development caused by the relocation of capital and the rewriting of social equality. The aim was to shape individual behaviour at the expense of a relational system (Sennett, 1977). It follows that, from its inception, the argument of collective justice has been a peculiar "declination of individualism rather than a consequence" of social confrontation and debate (Antonelli, 2014, p.7).
In the US, surveys show that such communities continue to grow. In 2001, more than 7 million households lived there (Mohn, 2012), while in 2015 the number had risen to

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almost 11 million (USCB, 2015), of which more than 2.2 million were in California (e.g. the cases of Bel Air and the West - East Gates) (ibid.). The legal framework for regulating these defended spaces is provided by the Common Interest Development (CID) programme. It is a zoning district in residential neighbourhoods organised around criteria such as "privacy, protection and prestige" (Blakely and Snyder, 1997, p.4). A CID "is a real estate development where property owners share a common set of financial obligations, property and easement rights established in codes, covenants and regulations" (CID Management, 2018). These include rules on customs, including bans on drying clothes outdoors and even on keeping pets of any kind or size. Similarly, other strict regulations relating to the ordinary and extraordinary maintenance of the property, with clauses requiring, for example, that the property be painted every seven years and windows cleaned every four weeks (Adams Stirling, 2022). Roads, restaurants, gardens and sports facilities such as golf courses, swimming pools and spas are built in these areas (Kaass Law, 2021). Residents voluntarily tax themselves to provide road maintenance and private security (Adams Stirling, 2022), effectively replacing the state administration in managing the public good. Now, in addition to upper-middle-class whites, like the first residents of Tuxedo Park in Orange County, New York, in the 19th century, there are also African Americans and Latinos. And it is around the ambiguous role assigned to the middle class that the variable dynamics of these enclaves play out, capable of defining their structure and evolution (Secchi, 2013). "The politics of distinction operate precisely on the middle class" (ibid., p. 38), with dual practices. They are either inclusive, concerning the more influential and wealthy social strata that already constitute them, or exclusive, broader than the former, driving this class into "progressive poverty" (ibid.) through forced aggregation with the poorer classes (Figure 3).

Figure 3: Gated residential areas in Nassau County, Long Island, New York, US. Source and courtesy: Alessandro Melis.

The erosion of both public space and the threshold concept at the expense of public space, but for private use, is a hybridisation that is worrying because of the mutagenic form it is taking, as also noted by Ergun and Kulkul (2018). The Anglo-Saxon countries, including Great Britain, continue to be the workshops for these urban processes. The latter is the originator of, among other things, the ambiguous Privately Owned Public Spaces (POPSs) (Garrett, 2015a) and directives such as Public Space

Protection Orders (PSPOs) (Garrett, 2015b). In the first case, these are spaces intended for public use, such as squares, gardens and parks, but which are, in fact, privately owned. As a result, people can be prevented from accessing or even passing through such areas through the exercise of surface rights legally acquired from third parties (Garrett, 2015a). A prohibition aimed at removing all undesirables from the ideal of social life, including the homeless. Reinforcing these policies are the aforementioned PSPOs, which aim to legally restrict certain behaviours in urban spaces, mainly public ones (Garrett, 2015b). As such, PSPOs can be targeted at specific groups or activities, which, through criminological prediction, can affect the social sphere and its freedoms. In a way, these trends are epigones of the protocols of Crime Prevention Through Environmental Design, shaped by Crowe (1991) and Secured by Design (2004). The latter supports social control through physical security, surveillance, movement control, management and maintenance, and defensible space (Design For Security, 2022). Indeed, increasing the sense of private ownership is a subtle technique to encourage owners to confront intruders and report them to the police, making it easier to identify strangers. Moreover, the methods used, such as the shape of buildings or the calibrated use of signs, barriers, paving and lighting, are useful in expressing ownership and the relative gradients of public space. One should therefore question the deterministic fragmentation of public space, including multifunctional green space, and the legitimacy of these restrictions. Are they all justified or justifiable?

4. Potential exit strategies

Both spiritual and lay approaches seem to be helpful in addressing this issue. Religious faith calls for the subordination of private property to "the first principle of the whole ethical and social order, namely the principle of the common use of goods" (Pope John Paul II, 1981, n. 19). The Christian tradition and, by extension, the centuries-old experience of European society, emphasises "the social purpose of all forms of private property" (Pope Francis, 2015, para 93) and a kind of moral obligation on the part of the state to intervene to limit and even out the inequalities created by the market.
Instead, from a secular perspective, it is crucial to avoid any erosion of the spiritual value of the public space because of the degenerative effects that this mixed and blurred model between the public and the private can have. In this context, The Guardian newspaper launched a crowdsourcing campaign in 2012 to identify POPS in the UK. It condemned the privatisation of public space because of urban redevelopment, as happened in the London cases of Canary Wharf, Granary Square and Kings Cross (Vasagar, 2012). As a possible response, it was therefore suggested to "systematically map(ping) out and use(ing) these public spaces to raise awareness about what we have – before we lose it" (Garrett, 2015a). A confirmation of this working hypothesis was provided by Senator Piano's G124 working group on Italian suburbs, where the fractioning of open space "according to the 'civic-courtyard' binomial ... caused courtyards to become enclosed spaces' (G124, 2015) in the Giambellino district of Milan. Piano offers social solutions, such as togetherness and sharing, as indispensable foundations for the establishment of a conscious, virtuous path of regeneration. The latter were also confirmed by the European project INNES: INtimate NEighbourhood Strengthening (2015). This programme aims to reduce real or perceived insecurity among citizens through meetings that promote and restore social cohesion and strengthen neighbourhood ties. A mending of separations that aims

to recover the meaning of things from their connectedness (Ermentini et al., 2015) and to ensure a fair level of privacy and security in civic life. At the same time, there is a need to establish a critical awareness of language through contextual analysis in order to discuss the social and political purposes of everyday life. It is, therefore, necessary to plan planning and land-use policies that are different from the urban zoning applied to date to limit or prevent these urban phenomena. Effectively, the integration of existing administrative regulations into local traffic practices should be supported by making binding agreements for specific road permeability. In gated environments, one could identify and agree with individual communities on a network of streets where mandatory public access is required (Wu et al., 2021). Health and fire emergencies may be a good bargaining tool to regulate their closure by providing a temporary moratorium on private roads, even under public easements. On the other hand, when analysing the medium- to long-term perspectives, which anticipate a possible scenario of continuous erosion of public space, the reduction of interstitial spaces is the already established outcome to be considered. Based on future settlement trends driven by urban strategies that predict massive densification of the built environment, the question arises as to how to act in order to at least limit this seemingly irreversible trend. The answer may lie in the application of complementary strategies, ranging from increasing the performance of road infrastructure and transit/stopping spaces, as well to their spatial and functional stratification (Leardini, 2015).

5. Conclusions

The paper shows how the wall "becomes both a symbol and a sign of the different social conditions and unequal realities of urban life" (Aimar and Pilia, 2017). By elaborating this theory, it gives shape to the "globalisation of fear" (Lavanco, 2007), an emotion attributed to the upper and middle classes towards a new urban underclass, mostly made up of migrants fleeing their countries of origin. This social class suffers the most from economic and sometimes cultural precariousness, lacking a representative political voice and subsisting on occasional work that is sometimes replaced by degrading criminal episodes. In our society, migrants, therefore, become "walking dystopias" (Bauman in IWM, 2015). Equated with "wasted lives" (Bauman, 2003), they seem superfluous compared to a necessary social integration, often too modest and confused to generate inclusion. As a result, they are subjected to an accusatory and justicialist system for the abominable content of their figure, guilty of bringing insecurity to existence that does not adorn the hope of the community. The latter is based on living conditions and welfare that are quickly reconfigured by the fluctuating geopolitical scenarios and eroded by the impotence of negotiations that lower civil expectations and labour rights. However, the building of walls and the consequent isolation in "soundproof rooms" instead of bridges (Guerrera, 2015) has been branded by Bauman as an announced failure, whose only result is the aggravation of existing social cleavages.

What consequences will the social design of these places have for the future? Meanwhile, gated communities seem to produce behavioural problems in the individuals who inhabit them, especially children (Lang and Danielsen, 1997). They give rise to moral minimalism as a substitute for community spirit (Low, 2003), opening up a necessary search for alternatives to new walls. On the other hand, they embody comforting responses to the insecurity generated by capitalism, changing socio-economic conditions, increasing globalisation and climate change. However,

they can only be useful in obscuring the disturbing backdrop of the growing numbers of disenfranchised people streaming towards the gates, both national and continental. In this regard, as many as 200,000 irregular migrants will enter the European Union in 2021, "the highest number since 2017" (Frontex, 2022), once again raising social questions that require urgent answers. Consequently, it is necessary to rethink the identity factor underlying such cases, moving from a static to a dynamic figuration. The motivational and dynamic approach to inter-ethnic relations, eliminating prejudices, can be a way forward during children's primary school years, so that social gaps do not crystallise at later ages. In this way, a process of rethinking perspectives moves from subordinating them to moral panic phenomena to recognising the prejudices of which one is a potential protagonist. The avoidable risk is the categorisation of people based on ethnocentric choices in a system that can profoundly limit the specific richness of each person and the plural nature of identity (Sen, 2006). It is, therefore, necessary to reaffirm the fullness of the human being and promote a cultural struggle in favour of the universalism of difference and against silence.

Concerning the aforementioned economic uncertainty, these walled developments take the form of a new refuge against the fluctuations of the property market, ensuring stability and a high future resale value. As evidenced by the US market, apartments in such communities acquire a surplus value of around $30,000 (Hellegaard, 2016) compared to ordinary apartments in the domestic market. These apparent positives, coupled with the outsourcing of some services provided by private companies, have convinced politicians to accept them widely because of the short-term benefits. In contrast, the mentioned study shows how the long term reveals several management perplexities (ibid.). Various facility management companies offer to help "save money, reduce risk and improve function" (Intraworks, n.d.) in the provision of the housing services to which they have voluntarily committed themselves in the deed of incorporation. In this regard, it is relevant to recall that in the case of Tirana, the capital of Albania, the monthly rent for a house in a well-known urban gated community is 5 to 13 times the minimum monthly wage. These advantages have a significant impact on the standard running costs of a house in an ungated context and lead to its revision towards high-density solutions (condominiums). Furthermore, in terms of security and crime within these urban clusters, between June 2001 and June 2005, the number of crimes committed within the gated community of Orange County, Florida, was very similar to the number of crimes committed outside the community (Kassab, 2005). In fact, of the more than 1,400 homes in the compound, there were an equal number of burglaries and car thefts but fewer acts of vandalism and petty theft. This highlights that "security in gated communities is more a matter of perception than reality" (Fletcher, 2013).

This last assumption makes it possible to think about the concept of the smart city and the possible conjugation between capital and the programmatic will underlying this image. If the smart city uses technology to improve connectivity and thus implement efficiency, achieving these standards certainly requires the investment of large amounts of capital, both public and private. The incontrovertibility of this statement is therefore at odds with the limited availability of economic resources in countries where social inequalities persist, which would make housing choices linked to improving the living conditions of the poorer sections of the population a priority. Moreover, such cities require highly educated and creative skills, the so-called knowledge workers (Florida, 2002), which, while driving growth and dynamism, also lead to gentrification

and the exclusion of classes that are no longer able to sustain the economic gains of the new K-workers. If these projections were to be adopted, the main problem would be the risk of widening these cleavages and widening the social divide. It would therefore lead to the creation of "... gated communities for an elite, skilled, upper-middle class population" (Ratnam, 2015), which would find the demand for technical efficiency the discriminating principle for its induced constitution. Mehrotra evaluates these smart solutions negatively, calling them "architectural expressions of autocracies, not democracies" (ibid.), in which the same institutional bodies exempt themselves in advance from the obligation to account for any impact on the local governance system.
Therefore, the next step is the necessary construction of a new narrative of a social and psychological atmosphere ordered in nodes and relationships, as opposed to the lure of enclaves and segregation. The aim is to revive and recreate an archipelago of human relationships that can be physically translated into public space in a kind of urban embrace. We should therefore try to design a community trajectory along which these changes can become possible and happen.

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INNOVATION, SME AND TERRITORY. DISTRIBUTION OF INNOVATIVE SMALL AND MEDIUM-SIZED ENTERPRISES IN CAMPANIA

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Abstract

Small and medium-sized enterprises play a primary role in the Italian and European economic system, as witnessed by their numbers and employment levels. This type of enterprise can become a driving force for innovation in a mutual exchange with the territory of which it is a part, helping to shape its economy. SMEs have a higher propensity to innovate due to their agility and ability to adapt quickly to changing market conditions. Their smaller size allows them to take risks that larger companies are often reluctant to take, and their closer relationship with the territory allows for a mutual exchange of knowledge and ideas that contributes to their innovative capacity. Additionally, their ability to absorb knowledge effectively also plays a role in their higher inclination to innovate.
The European Union supports innovative SMEs through funding programmes, incubators and accelerators because the innovation of these types of enterprises is a vital component of the EU economy and, therefore, substantial resources are made available to support their growth.
This contribution, after a review of the literature on innovation, SMEs and the territory, presents an analysis of the main innovation indicators for European states and Italian regions and, finally, a focus on innovative SMEs in the Campania region and their relationship with the territory. With the aim to investigate whether the belonging of enterprises to peripheral areas has an impact on their innovation capacity. The research is particularly innovative compared to existing literature on the subject as it focuses on the analysis of specific innovation indicators aiming to explore the relationship between innovative SMEs and the territory, offering a distinct perspective.

Keywords: digitalisation, distribution and location, innovation, innovation indicators, innovative SMEs, peripheral and central areas, public and private investments, research and development, small and medium-sized enterprises, territory.

1. Innovation, SME and territory

The centrality of innovation in supporting competitiveness is recognised by the Treaty on the Functioning of the European Union (Art. 173), which includes among its main objectives that of ensuring the necessary conditions for increasing the competitiveness of the industrial sector. This objective, supported by substantial financial resources, is articulated in various European programmes, such as Innovation Union and especially

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Horizon Europe (successor to Horizon 2020), which is the Union's framework programme supporting R&D investments aimed at stimulating the ecological and digital transition, challenges that are also part of the Next Generation EU. These programmes are in addition to Cohesion Policy funds, investment support provided by the European Investment Bank (Factsheet on the European Union, 2021) and other sector-specific initiatives (e.g., the Chips Act Staff Working Document, 2022).
For small and medium-sized enterprises, the issue of innovation is, if possible, even more critical (OECD, 2010) since they often appear unprepared for the transformation processes of production systems (OECD, 2000), for the exogenous shocks generated by periodic economic crises (OECD 2009) and, more recently, for the consequences of the Covid-19 pandemic (Syriopoulos et al., 2020).
In fact, globalised production processes have generated composite relationships of competition and industrial interdependence, dilating value chains but, at the same time, they have induced firms to invest in innovation, a critical factor to achieve competitive advantages (Mosey et al., 2002; Sharma, 2017) and also to ensure their mere survival (Contreras et al., 2020).
Small and medium-sized enterprises, in particular, when embarking on the path of innovation, face multiple barriers that hinder their development: high costs, lack of innovation culture, asymmetric and ineffective information flow, bureaucracy and government policies that are not always adequate, low qualification of available human resources (Demirbas et al., 2011), low dynamism of management, conditioned by frequent family management unable to attract knowledge and skills from external productive ecosystems (Ibrahim et al., 2008; Clark, 2010), difficulty in accessing credit, scarcity of demand or complexity in intercepting it effectively, competition from large companies (Duarte et al., 2017).
Gust-Bardon (2012) and Miltze et al. (2015) highlight the importance of the size element of SMEs, recognising in larger ones a greater propensity to innovate, resulting from better knowledge absorption capacities. Other scholars identify the primary driver of innovation in the company's leadership, as well as in a cultural and historical attitude to change. The positive dynamics triggered by innovation processes generate additional mechanisms that enable them to materialise, such as the acquisition of knowledge, the development of efficient management and the building of links with production networks (McAdam et al., 2013).
The system and structure of SMEs themselves are influenced by both exogenous and endogenous factors: where they, by their very nature, are faced with exogenous factors that hinder innovation, they may be able to overcome them by virtue of the willingness and ability of the enterprise to promote its own innovation process (Rodriguez-Pose, 2001). It has also been pointed out (Bilbao-Osorio, Rodriguez-Pose, 2004) how socio-economic and political factors influence the capacity of an area to exploit its production potential and investment in innovation and growth; these factors include, in addition to the aforementioned size, the cooperation between companies (Cooke and Morgan, 1998), the pre-existing economic condition of the area (Rodriguez-Pose, 1998), and the potential of the area (Audretsch, 1995; Acs and Audretsch, 1990).
In the past 20 years, the scenario of innovative SMEs has evolved significantly. The widespread adoption of digital technologies has enabled SMEs to reach new markets and customers, and has created new opportunities for innovation. Additionally, the increasing availability of E.U. funding and support programs, such as incubators and accelerators, has made it easier for SMEs to develop and bring innovative products

and services to market. The rise of the sharing economy and the gig economy has also provided new opportunities for SMEs to participate in the economy in new and innovative ways. Potential entrepreneurs consider the returns of alternative employment opportunities when choosing to start new business ventures. Applying this framework to the gig economy, the arrival of on-demand, platform-based gig opportunities dramatically reduced the riskiness of the fallback option for would-be entrepreneurs, thereby fostering the launch of new entrepreneurial activity. This does not imply that all entering entrepreneurs will be gig economy workers, of course. Rather, the gig economy provides insurance and peace of mind in knowing that it is there, if needed, and as such, affects expectations in the entry decision (Barrios J.M. et al., 2022). However, the global economic landscape has also become more competitive, making it increasingly important for SMEs to stay ahead of the curve through continued innovation.

The capacity of innovative SMEs located in the periphery compared to those in central areas has been debated in the doctrine for years, with differing opinions. The scarcity of resources and the lack of high-skilled workers, which are two of the main obstacles to development, are more pronounced in peripheral areas (Pinho, 2008; Vester and Boshoff, 2006; Romijn and Albaladejo, 2002; Miltze et al., 2015) and, moreover, since the emergence of the so-called knowledge economy, the gap in terms of growth between central and peripheral areas has been increasing (McAdam et al., 2013), which have been even more vulnerable to the changes triggered by globalisation (Miltze et al., 2015). Frenkel (2000), for example, observed how in Israel peripheral areas almost exclusively attracted traditional manufacturing firms, while high-tech firms were concentrated in central areas. Peripheral areas are characterised by being on the edge of the communication system and far from the centres of power and the economy (Goodall, 1987) and, therefore, served by a less efficient infrastructure network whose productive fabric is dominated by SMEs (Clark, 2010; Skuras et al., 2008; Nash and Martin, 2003). SMEs in these areas face higher operation and maintenance costs because they are distant from their suppliers and their target market (Anderson, 2000; Fynes and Ennis, 1997). Conversely, firms in these types of areas are characterised by a sense of belonging and connection to the territory itself (McAdam et al., 2013), generating a relational capital that is useful for triggering processes of knowledge sharing and exchange: this leads to the creation of networks of firms in the territory capable of promoting innovation (Jayawarna et al., 2011; Westlund and Bolton, 2003).

As a general feature, the literature attributes a decisive role to geographical marginality in holding back business innovation: competitiveness and innovativeness are considered to be marked by the territorial factor (Dicken and Malmberg, 2001). This also helps to explain the differences in the development of regions caused by their respective production ecosystems (Gössling and Rutten, 2007), which make it more convenient to allocate resources in the most accessible regions (Crescenzi, 2005). There are many models of industrial aggregation favoured by territorial proximity: from the industrial district (Belussi et al., 2003), to the innovative milieu (Camagni, 1991), to the regional cluster (Porter, 1994). Boschma (2005) emphasised that it is not physical distance per se that is the critical factor, but rather the lack of opportunities to exchange information and knowledge; but, as already noted, the socio-economic ecosystem and the specific cultural substrate of a given territory are more critical factors for the propensity to innovate than geographical marginality (Audretsch and

Feldman, 1996; Cooke, 2002; Asheim and Coenen, 2005; Copus et al. 2008). In other, more recent research, however, the proximity factor per se has been downgraded, also in view of the potential arising from new communication technologies (Doran et al., 2012; He and Wong, 2012).
To cope with the indicated criticalities, SMEs in peripheral areas have developed the capacity to build relationships and partnerships with different types of actors, from universities to other companies both local and non-local (Asheim and Isaksen, 2002), having identified diversity as a key success factor in the networking process (He and Wong, 2012).
A positive correlation has been observed between firms' internal innovation capacity and the degree of cooperation on innovation with actors outside the territory (Grillitsch and Nilsson, 2015; Bjerke and Johansson, 2015[13]). Bathelt (2005) emphasises the importance of the level of institutional support through targeted policies at both national and local levels, including and especially through efficient spending (Oughton et al., 2002).
Among the case studies on the topic of peripheral and central areas, the one on a Finnish region is interesting (Virkkala, 2007). In the context of rural Northern Europe, characterised by a low density of enterprise and demand, there was, in the 1980s, a modest propensity for innovation, also due to the scarcity of high-level skills: in the Oulu region, on the contrary, in the 1990s, by leveraging networking processes for the acquisition of skills from outside, the positive externalities generated by the growth of the mobile phone sector (in Finland, as is well known, Nokia was becoming the sector leader) were fully exploited. Two local companies became Nokia's suppliers and transformed and innovated their production lines: in a short time, the evolutionary process generated a cluster of innovative electronic companies, Nokia's suppliers, supported by the industrial policies and educational institutions of the area that modified their educational offerings, adapting them to the new industrial context.
Similar conclusions were reached by Natario et al. (2012) studying the most underdeveloped regions of Portugal and identifying cooperation between the area's companies as the key to profitable development in peripheral areas.
For Italian SMEs[14], the difficulty in accessing credit, also due to the lack of a solid venture capital ecosystem, the excessive bureaucratic burden (more than 300 hours per

[13] Both researches refer to the Swedish context.
[14] In Italy, InfoCamere's Registro Imprese (https://startup.registroimprese.en/isin/static/pminnovative) lists the following requirements for an SME to be defined as innovative: 1) the company's head office must be in Italy; 2) the shares must not be listed on a regulated market; 3) the company must have filed a certified balance sheet with the Companies Register; 4) the company must have an annual turnover not exceeding €50 million or an annual balance sheet total not exceeding €43 million; 5) the company must employ fewer than 250 people; 6) the company must have at least one of the following three requirements (a) R&D expenditures greater than or equal to 3% of the greater of cost and total value of production; (b) number of employees or collaborators in a percentage equal to or greater than 1/5 of the workforce of personnel holding a PhD or who are pursuing a PhD at an Italian or foreign university, or who have carried out certified research activities at research institutes; or a number of employees in a percentage greater than or equal to 1/3 of the workforce holding a master's degree c) the enterprise must be the owner or depositary or licensee of at least one industrial patent relating to an industrial or biotechnological invention, to a topography of a semiconductor product or to a new plant variety, or be the owner of the rights relating to an original computer program registered with the special public register for computer programs, provided that such industrial property rights are directly related to the corporate purpose and activity of the

year of formalities) and the high tax burden contribute to limiting internationalisation and innovation[15].

A number of scholars have delved into the issue of innovation in southern Italian regions (Calignano and Hassnik, 2016), identifying the weakness of the socioeconomic, institutional and industrial fabric as the main obstacle to development and innovation. The conclusions of the research, in confirming the initial hypothesis, highlight an increasing polarisation of innovation processes in the more developed regions, by virtue of a high level of intra- and inter-regional cooperation between the regions of the Centre-North, while in the South there is a significantly lower number of links between companies and, therefore, less knowledge exchange.

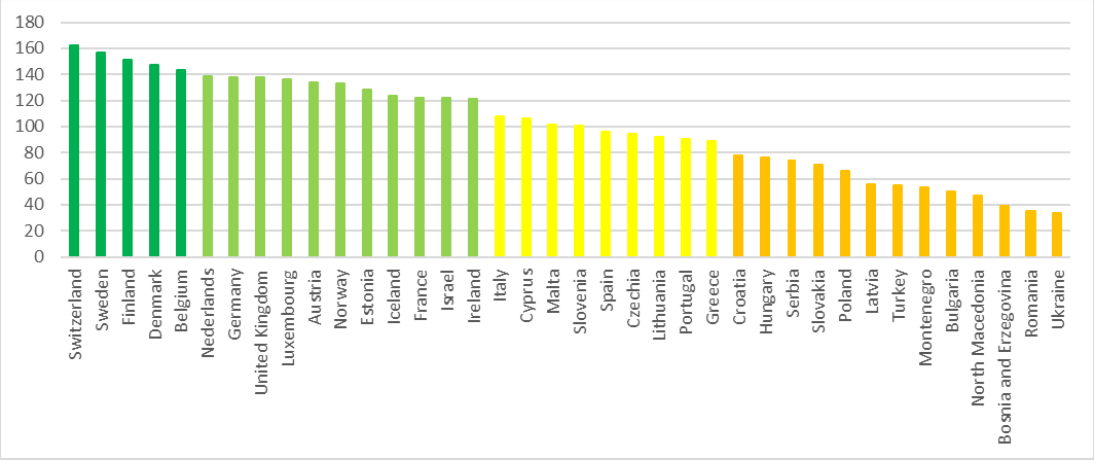
The opportunities generated by the knowledge economy and innovation models, supported by European programmes aimed at fostering cooperation between companies, are not yet fully exploited by southern territories, which thus remain on the margins of innovation processes.

2. Innovation in the European scenario

Recent statistical data show that small and medium-sized enterprises form the backbone of the European Union economy, accounting, excluding the financial sector, for 99.8% of total enterprises, 64.4% of employment and 57% of added value (Annual Report on European SMEs 2021/2022[16]).

In Italy, over the same period, SMEs account for 99.9 % of the total, employ 76.1 % of employment and produce 64.3 % of added value. Among these, however, innovative SMEs (according to the InfoCamere Companies Register[17]) represent an absolutely marginal share: 2,388 innovative SMEs, or 0.02%.

As a matter of fact (Figure 1), Italy ranks only among the so-called moderate innovation countries in the European and Regional Innovation Scoreboard 2021, an assessment promoted by the European Commission that analyses some key innovation indicators such as: the level of human resources, the level of digitalisation, public and private investments in R&D and the level of innovation of SMEs.



enterprise; 7) the enterprise must not be registered in the special section of the business register for innovative start-ups and certified incubators.

[15] https://ec.europa.eu/docsroom/documents/46080.

[16] https://www.eca.europa.eu/lists/ecadocuments/ap19_06/ap_sme_en.pdf.

[17] Registro Imprese InfoCamere database, 12.8.2022.

Figure 1. Innovation index, 2021.
Source: European and Regional Innovation Scoreboard 2021.

In the Innovation Scoreboard, Central and Northern European countries (including Sweden, Finland, Germany, the UK - in green) emerge as strong innovators, followed by the Mediterranean countries (Italy, Slovenia, the Czech Republic, Lithuania - in yellow) defined as moderate innovators and, finally, in the role of emerging innovators are the Eastern European countries, both existing EU members and candidates for EU membership (such as Serbia, Turkey and North Macedonia - in orange). Among the worst performing members are Bulgaria, Romania and Ukraine, among others.
Among the twelve macro-indicators on which the scoreboard is based, this research aimed to investigate the most significant ones: 1. the Human Resources indicator; 2. the research system attractiveness indicator; 3. the digitalisation indicator; 4. the financial support indicator; 5. the business investment indicator; 6. the business innovation indicator.
The first indicator examined is the one that analyses the level of Human Resources (Figure 2) and takes into account: 1. number of new doctoral degrees; 2. population with tertiary level education; 3. population involved in lifelong learning.

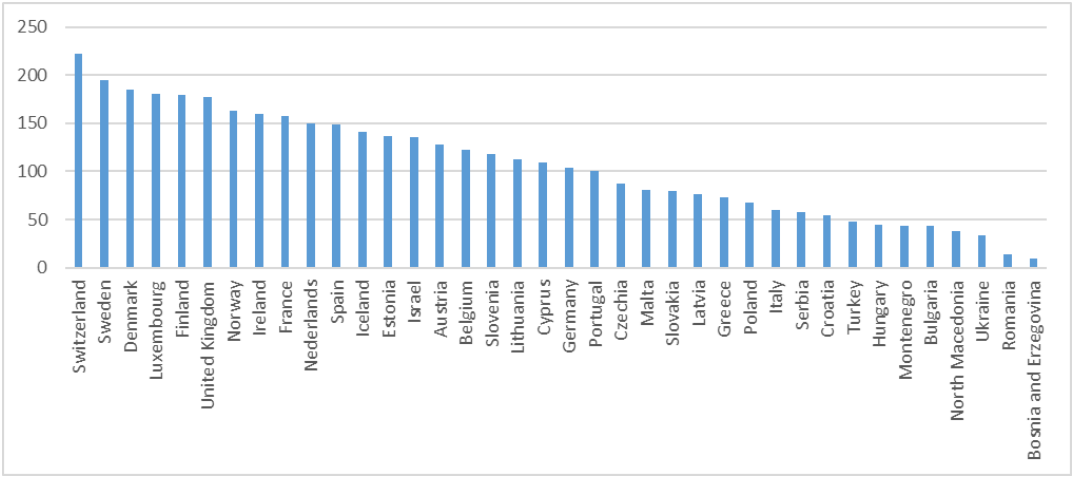


Figure 2. Human Resources Indicator, 2021.
Source: European and Regional Innovation Scoreboards 2021.

Once again, there is a deep divide between the central-northern countries and the Mediterranean and eastern countries (with the exception of Spain, Estonia and Israel). Italy lags far behind, doing better only than the Balkan countries, coming fifth to last among the EU members: its low score in terms of the rate of population with tertiary education, which is the penultimate out of thirty-six countries, ahead only of Romania, weighs heavily.
Also negative for Italy is the score for the indicator of the level of attractiveness of the research system (Figure 3), which takes into account publications in international journals, citations of publications and the level of foreign students in doctoral courses.

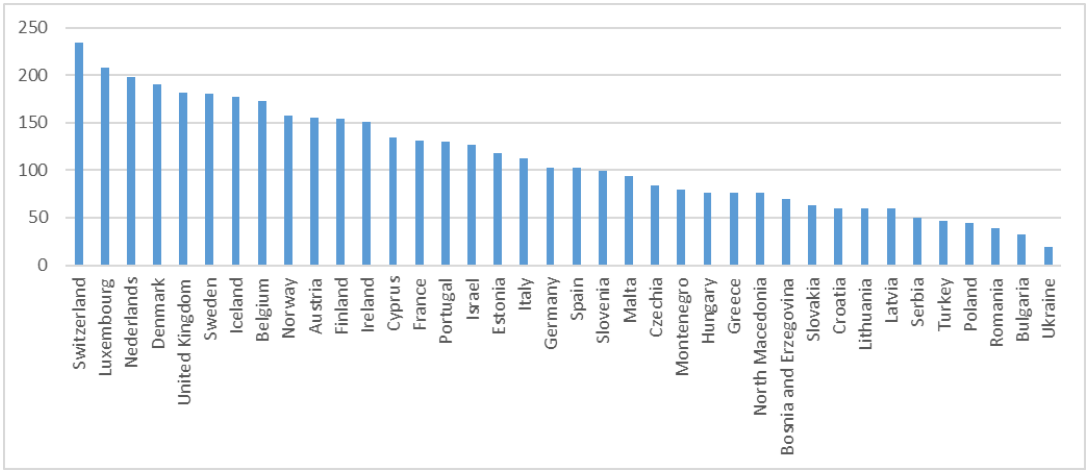


Figure 3. Research system attractiveness indicator, 2021.
Source: European and Regional Innovation Scoreboards 2021.

Italy is in eighteenth position, fourth among the Mediterranean countries, although ahead of Germany and Spain, thanks mainly to the good score of the indicator of scientific publications in the 10% most cited.
Figure 4 relates to the level of digitisation which, as mentioned, is a crucial indicator since the digital challenge, together with the ecological transition, has been identified by the European Commission as crucial for the sustainable development of member countries, both by the Next Generation EU[18] and the Digital Decade policy programme[19].

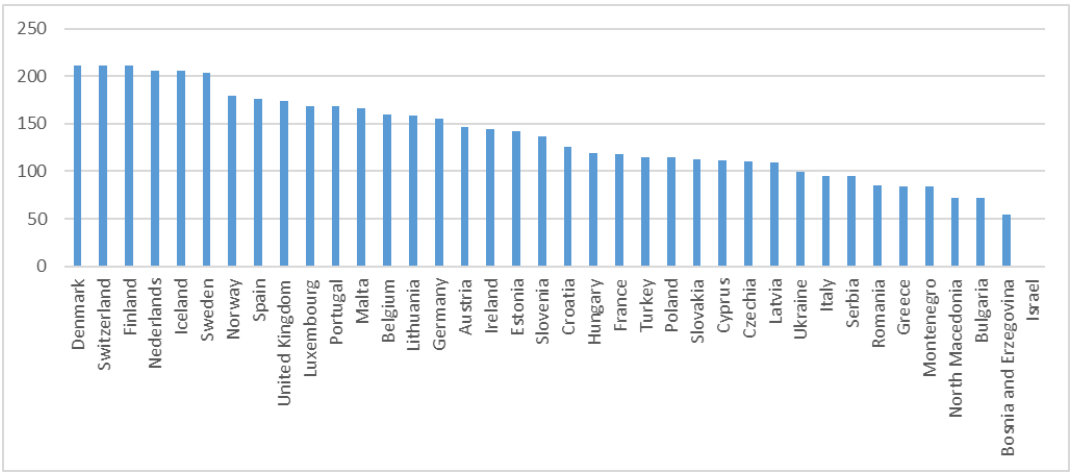


Figure 4. Digitisation indicator, 2021.
Source: European and Regional Innovation Scoreboards 2021.

The graph is of particular interest because it is representative of a broader scenario that also takes into account non-EU countries, highlighting a gap in the level of digitalisation between northern and eastern countries. Italy ranks last, performing

[18] https://europa.eu/next-generation-eu/index_it.
[19] https://digital-strategy.ec.europa.eu/en/policies/europes-digital-decade.

extremely badly in the indicators measuring the level of broadband penetration and the population's digital skills.
The indicator of financial support and investment is described in Figure 5, taking into account public investment in R&D and venture capital spending.

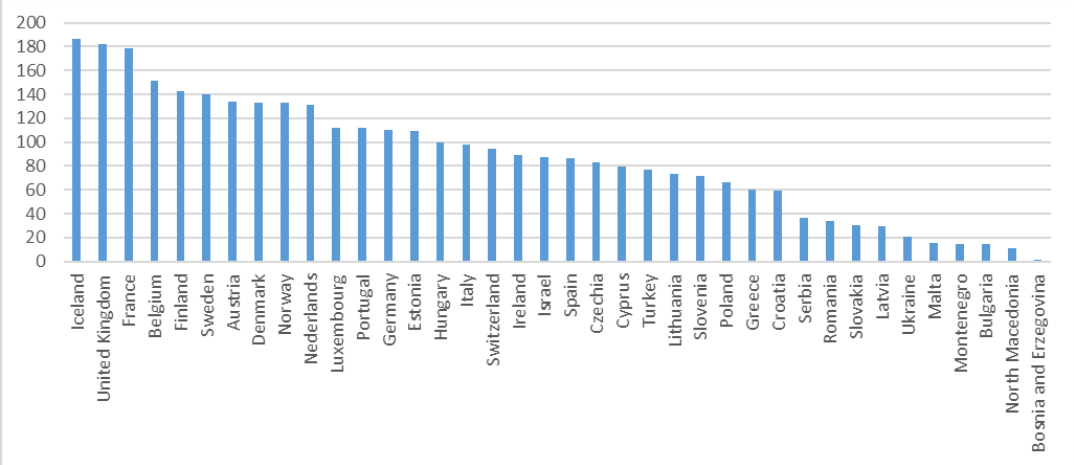


Figure 5. Financial support and investment indicator, 2021.
Source: European and Regional Innovation Scoreboards 2021.

The results show a similar trend to that observed in the previous figures, with Italy in the top half of the ranking, ahead of Switzerland and behind Hungary, although with a low level of public investment.
Figure 6 measures the level of business investment, taking into account both R&D and non-R&D investment, and innovation expenditure as a proportion of the number of employees.

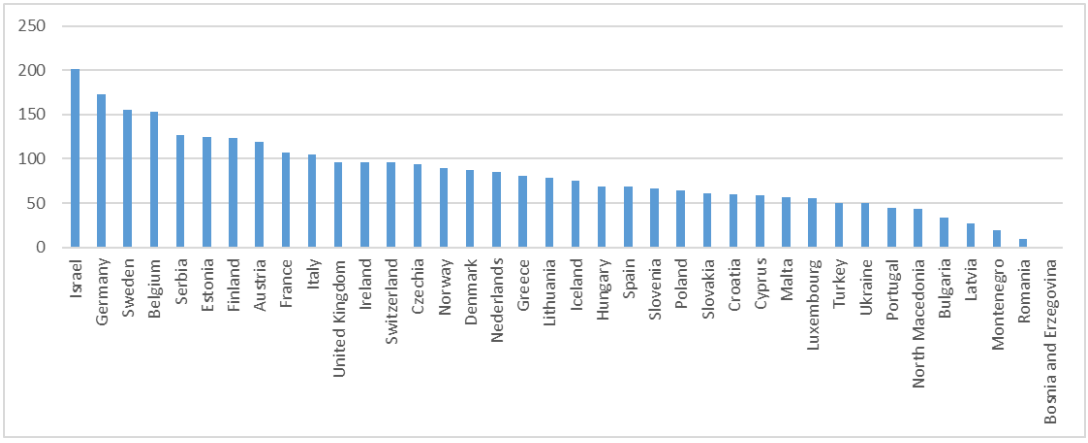


Figure 6. Business investment indicator, 2021.
Source: European and Regional Innovation Scoreboards 2021.

The picture, in this case, is different from that observed in the previous figures: in the top positions, in addition to Israel, Germany, Sweden and Belgium, Serbia also emerges (which was at the bottom in the other rankings), with the highest level of non-

R&D investment and the fifth highest expenditure in innovation per employee. Italy's result was also positive (tenth), among the top in innovation investment per employee and expenditure in non-R&D investment (the result in R&D investment was less positive).

Figure 7 below was developed by correlating the indicators for public and private R&D investment. A higher level of public investment corresponds to a higher level of private investment, thus showing how private investment by companies cannot do without public support and vice versa. Moreover, a marked difference can be observed between the public and private investments of the innovation-leading Northern European countries (Sweden, Belgium, Finland and Denmark, in dark green as in Figure 1) and the others, while the gap between the strongly innovative countries (in light green), the moderately innovative countries (in yellow, including Italy) and the emerging innovative countries (in orange) is less marked. The correlation analysis highlights the need to increase public investment in order to support private investment, so as to increase innovation potential and reduce the gap with the European leaders.

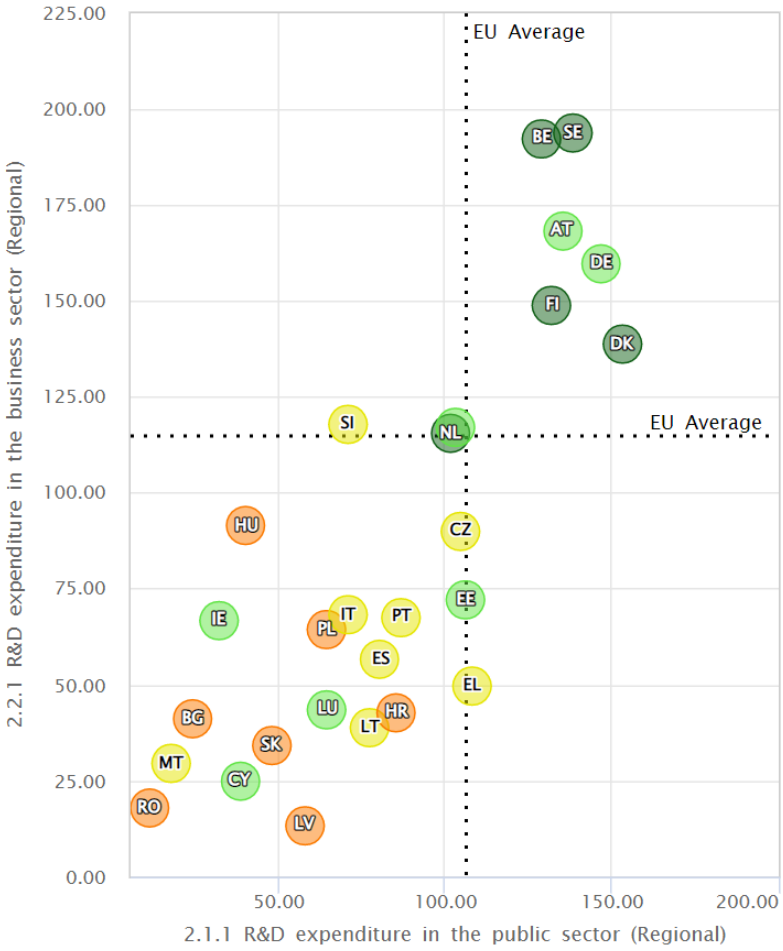


Figure 7. Correlation between public and private R&D investment. Source: European and Regional Innovation Scoreboards 2021.

Finally, the analysis on national data closes with Figure 8, which shows the indicator of the level of innovation of enterprises, taking into account both the innovative products placed on the market and the innovative production processes used.

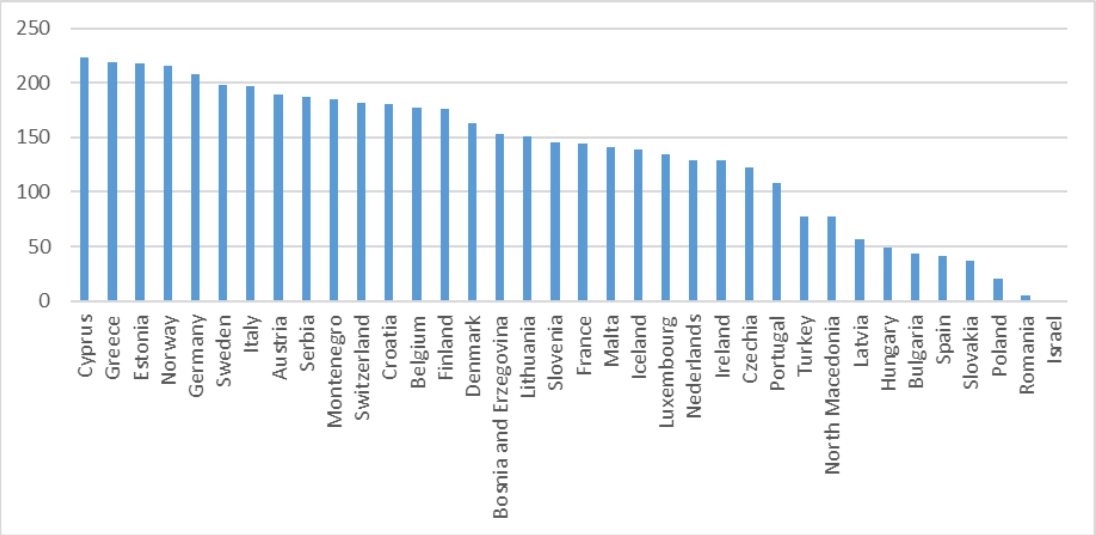


Figure 8. Business Innovation Indicator, 2021.
Source: European and Regional Innovation Scoreboards 2021.

Again, the results are different from those in the first figures, with two Mediterranean countries in the top places (Cyprus, Greece), with Italy in seventh place and with many of the leading Northern European countries around the top half of the ranking. Pushing Cyprus, Greece and Italy up are above all the indicators relating to the innovative production processes adopted.

3. Innovation in the Italian regions

After analysing the European states, it is appropriate to focus the field of analysis on the level of innovation in the Italian regions (NUTS 2). The database of the European and Regional Innovation Scoreboard presents, for this territorial scale, a smaller number of indicators but still significant for the research objectives.
First of all, it is interesting to observe, as done for the national level, the overall Innovation Index of the Italian regions (constructed with the same indicators as in Figure 1).

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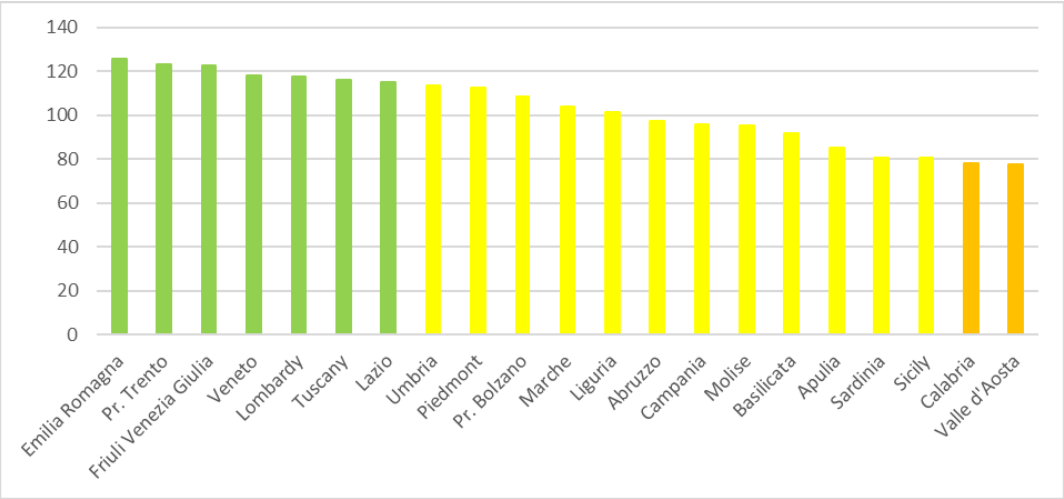

Figure 9. Innovation Index Italian regions, 2021.
Source: European and Regional Innovation Scoreboards 2021.

A clear gap emerges between North and South, especially between the North-East and island regions plus Calabria. Referring to the same definitions already used for European states, no Italian region can be defined as an innovation leader, but only as a strong innovator, while the majority (twelve regions) can be ascribed to the category of moderate innovators, whereas Calabria and Valle d'Aosta can be classified as emerging innovators. Campania is in fourteenth place, first among the regions in the Southern Italy, but still in the lower part of the ranking and a long way from Emilia Romagna in first place.

In this scenario, it is appropriate to examine in greater detail the main indicators referring to business innovation. Figure 10, which measures the level of public investment in R&D, yields results that are less homogeneous than those in the previous figure insofar as there is not a marked prevalence of northern regions compared to central-southern ones.

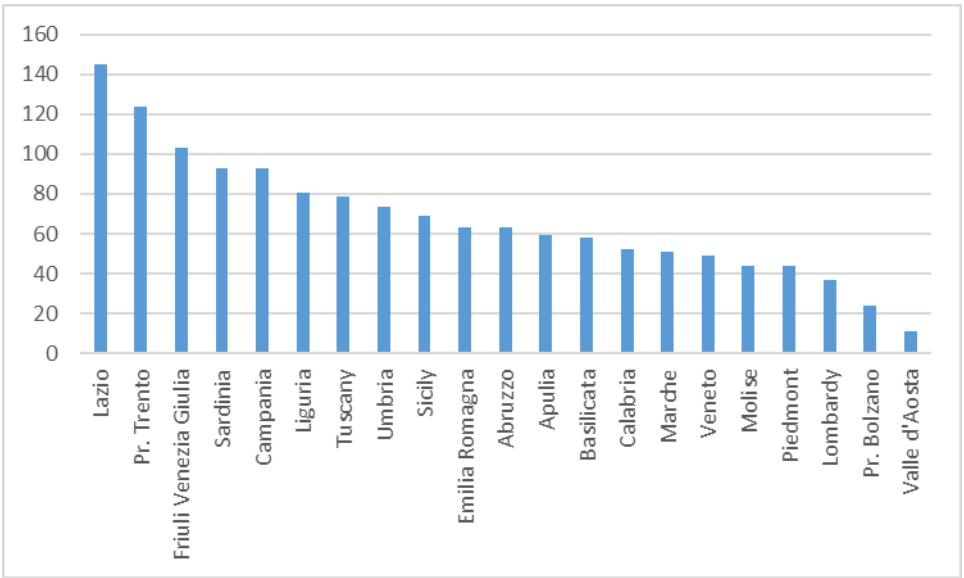

Figure 10. Public R&D expenditure Italian regions, 2021.
Source: European and Regional Innovation Scoreboards 2021.

In first place is Latium, which can count on a significantly higher level of public investment than the other regions, while in the last four positions are some northern regions such as Piedmont, Lombardy and the Autonomous Province of Bolzano (in addition to Valle d'Aosta, which, moreover, performs poorly on all indicators). Campania, in fifth place, is the second southern region (including the islands), behind Sardinia.
On the other hand, the scenario of business investment in R&D appears to be different (Figure 11), with the northern regions having a much higher level of investment than the central-southern companies (especially compared to the last ranked, Basilicata, Calabria and Sardinia).

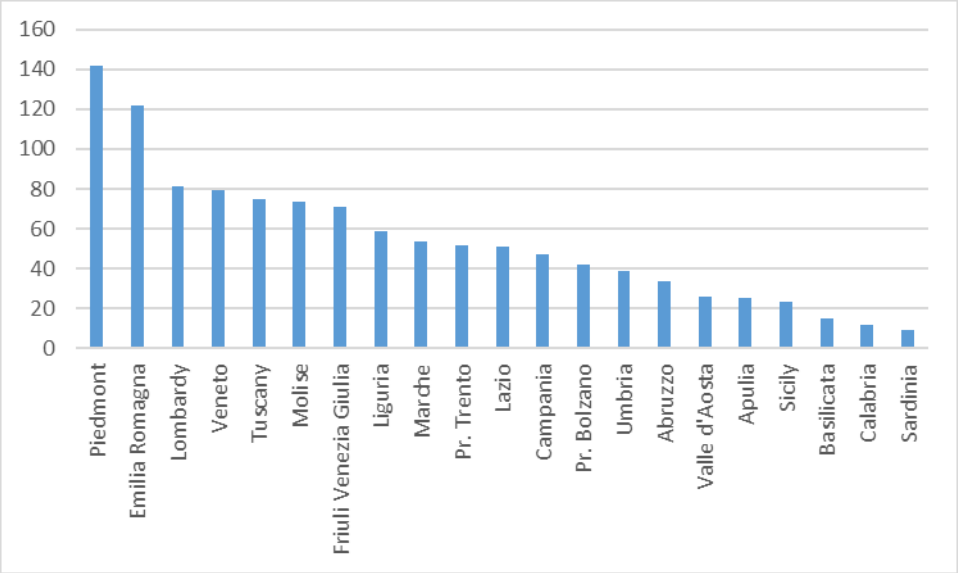

Figure 11. Business expenditure in R&D Italian regions, 2021.
Source: European and Regional Innovation Scoreboards 2021.

The top two regions, Piedmont[20] and Emilia Romagna, together account for 23.3% of the total R&D investment expenditure of Italian companies. Campania, second among the southern regions after Molise, is in twelfth place ahead of the Province of Bolzano. In Figure 12, the data of the two previous figures are presented synoptically, in order to allow an immediate comparison between public and private investments: it is evident how, for the majority of the Northern regions (with the exception of Friuli Venezia Giulia, Liguria and the Province of Trento), private investments far outweigh public ones, while the opposite is true for the Southern regions (except for Molise).

[20] Piedmont, as it is known, is driven by investments by the automotive group Stellantis, which spends 8 percent of revenues on R&D.
Https://www.affaritaliani.it/economia/stellantis-ricavi-doppi-a-300-mld-entro-2030.

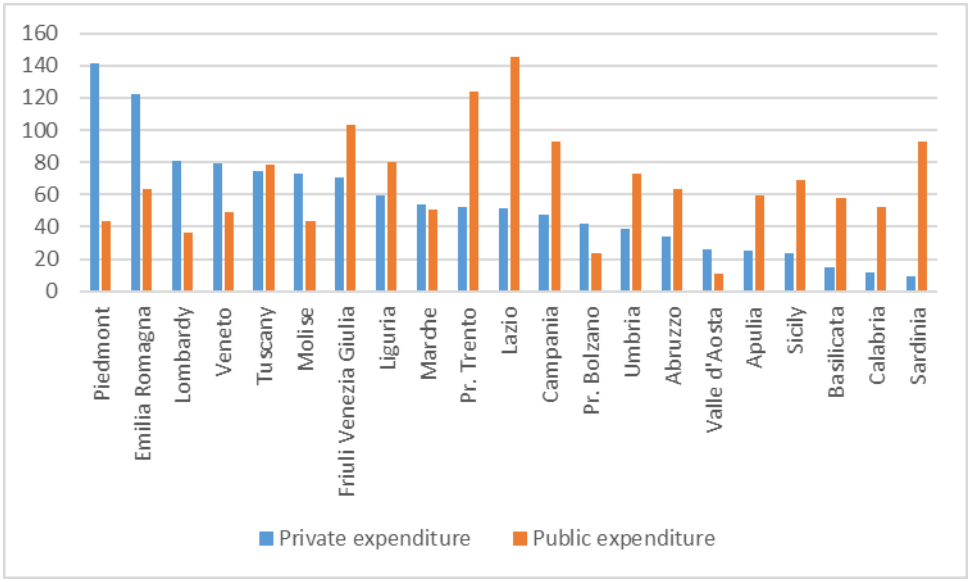

Figure 12. Comparison of public and private expenditure in R&D Italian regions, 2021.
Source: European and Regional Innovation Scoreboards 2021.

In this case (in contrast to what was observed in the previous correlation analysis), the positive relationship between public and private investment is lacking, instead a negative correlation is found: where public investment is higher, private investment is lower, while the regions with higher private investment are those that receive less public investment. It can therefore be assumed that there is an efficiency issue in public investment that makes it unproductive.
The scenario in Figure 13, which measures the level of private non-R&D business expenditure in Italian regions, is different.

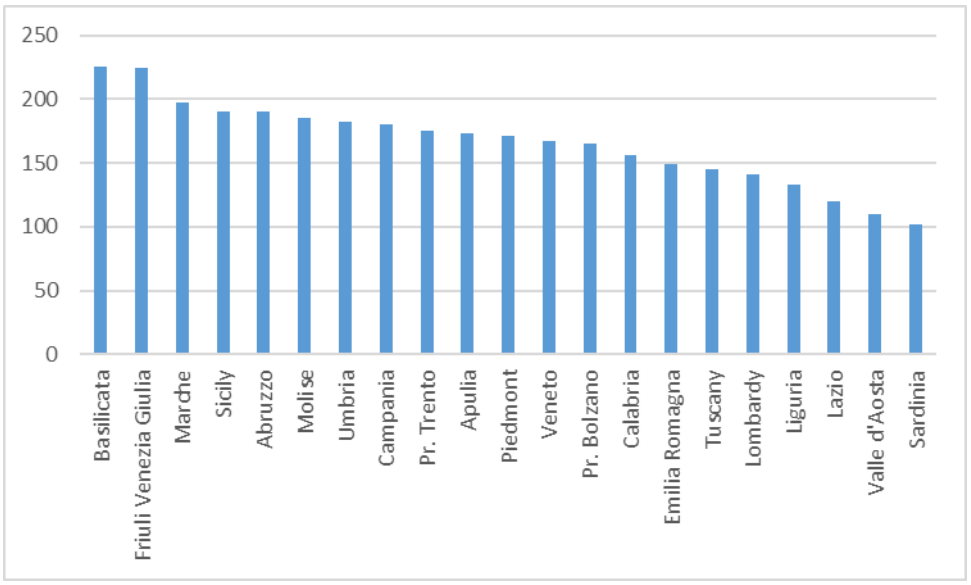

Figure 13. Private non-R&D expenditure Italian regions, 2021.
Source: European and Regional Innovation Scoreboards 2021.

There is a predominance of central and southern regions here, with Basilicata leading the ranking and Campania, fourth among the southern regions, in eighth place. In the last positions we find not only Sardinia and Valle d'Aosta, but also Lombardy and Lazio.
Figure 14 allows us to go even further into the specifics of SME innovation.

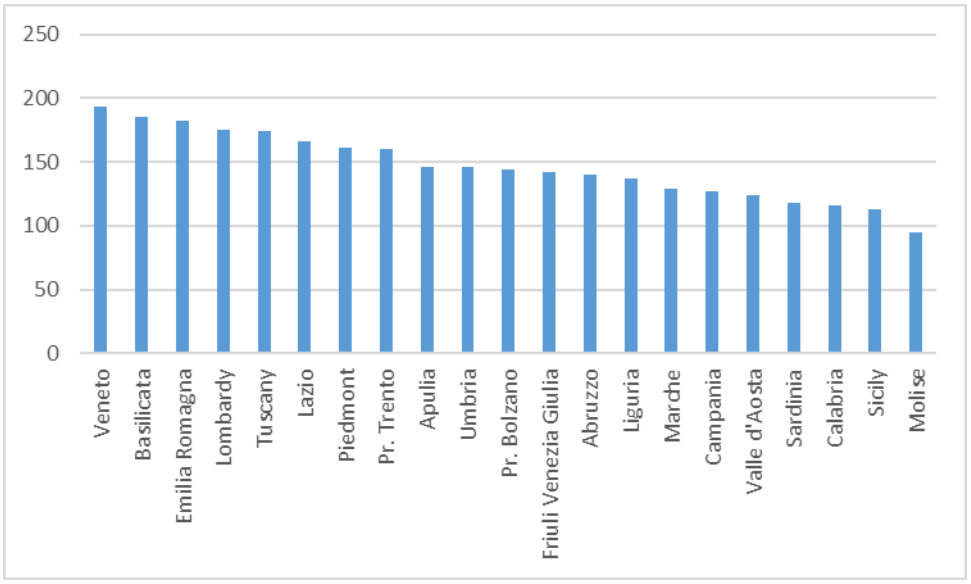

Figure 14. SMEs with innovative products Italian regions, 2021.
Source: European and Regional Innovation Scoreboards 2021.

The indicator measuring the level of innovative products proposed by Italian companies shows, once again, a gap between the North and the South of the country, with the notable exception of Basilicata, second in the ranking, which despite its low level of investment in R&D (but with the highest level of non-R&D investment), both public and private, is competitive with northern and central companies. Among the other southern areas, Campania follows, in sixteenth place. The lack of private investment turns out to be a significant limitation to the innovative development of SMEs in the southern territories that cannot be offset by public investment.
Not dissimilar is the picture offered by Figure 15, which measures the level of innovation in the production processes of Italian SMEs, with the Northeast confirming itself as the main area of development and innovation in the country, followed by the Northwest and the Centre.

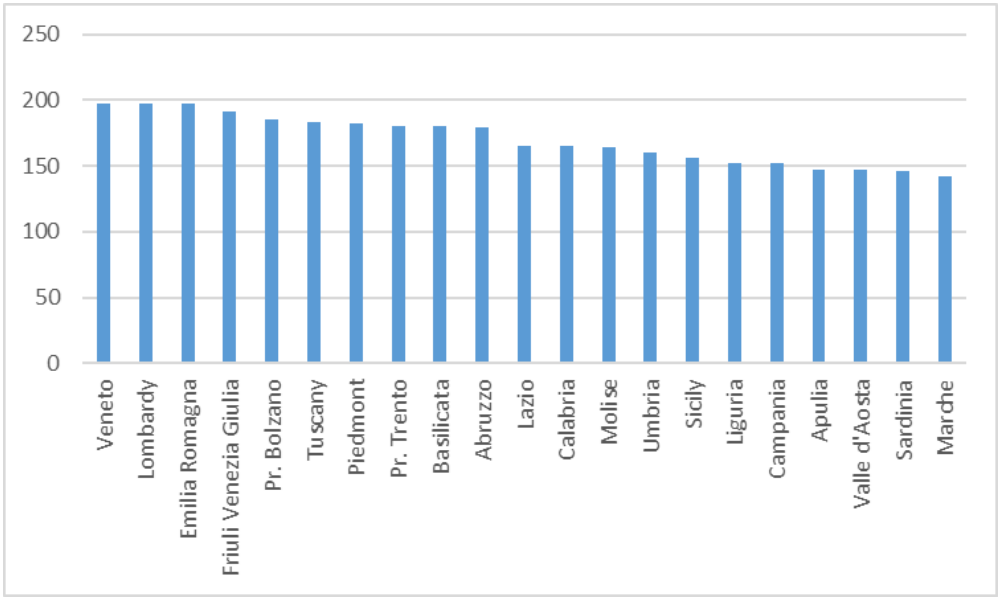

Figure 15. SMEs that have introduced innovative business processes Italian regions, 2021.
Source: European and Regional Innovation Scoreboards 2021.

Slightly better results in the South, with Basilicata still in the lead followed by Calabria and Molise. In this ranking, only Apulia and Sardinia do worse than Campania among the southern regions.
Figure 16 shows an important indicator of innovation, namely the degree of collaboration between SMEs.

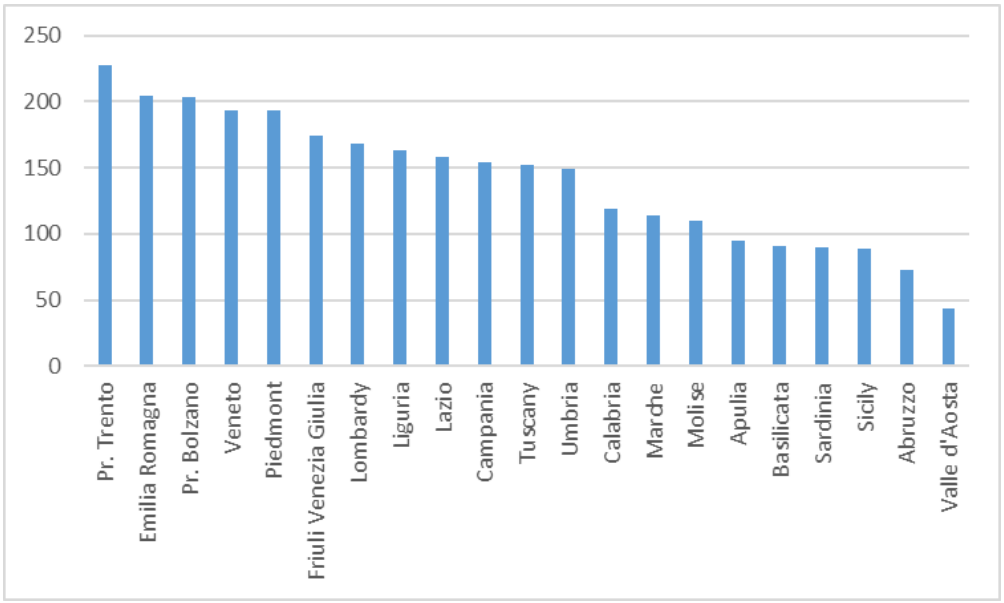

Figure 16. Collaboration between SMEs Italian regions, 2021.
Source: European and Regional Innovation Scoreboards 2021.

Once again, the North is confirmed as the country's driving force. Campania, however, boasting a valid system of industrial districts in some primary sectors (such as clothing and textiles[21]), shows a good level of interconnection between companies: although far from the northern regions, it is the first region in the South and precedes most of the regions in the Centre.
More pronounced are the differences that emerge from Figure 17, which shows data on employment in knowledge-intensive enterprises.

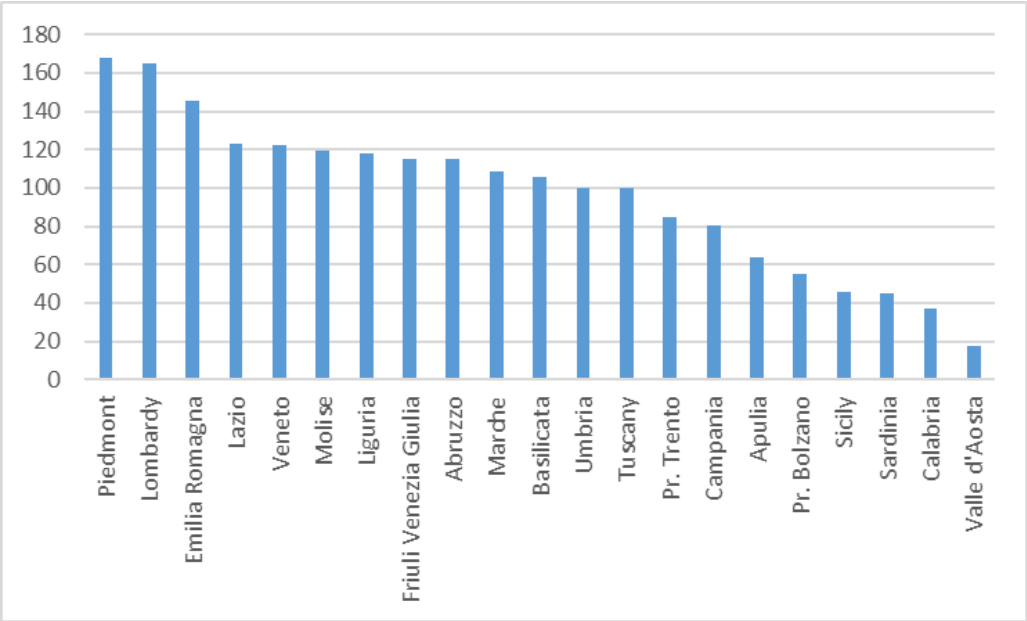

Figure 17. Employment in knowledge-intensive enterprises Italian regions, 2021. Source: European and Regional Innovation Scoreboards 2021.

Here, Piedmont and Lombardy do significantly better than the other Italian regions, especially in the South, with particular reference to the islands and Calabria, while Basilicata ranks first among the southern regions.
It is interesting to highlight the case of Basilicata, which, despite being a decentralized and still poorly connected region, ranked first among Italian regions for the "level of private non-R&D business spending"; second in the ranking of "SMEs that proposed innovative products"; first among Southern regions for "SMEs that introduced innovative business processes" and again first among Southern regions for "employment in knowledge-intensive enterprises." From the analysis of the context and data, it can be inferred that the success of innovative SMEs in Basilicata may be the result of a unique combination of factors such as a favourable economic environment, good SME access to financing and support programs, a determined entrepreneurial culture, and a cost-effective workforce.
Finally (Figure 18), the data on employment in innovative enterprises confirm the previously analysed scenarios, with the North prevailing over the South, but with a smaller margin of difference in this case. First among the southern regions is Campania.

[21] http://www.regione.campania.it/assets/documents/calzature_pelli_abbigliamento.pdf.

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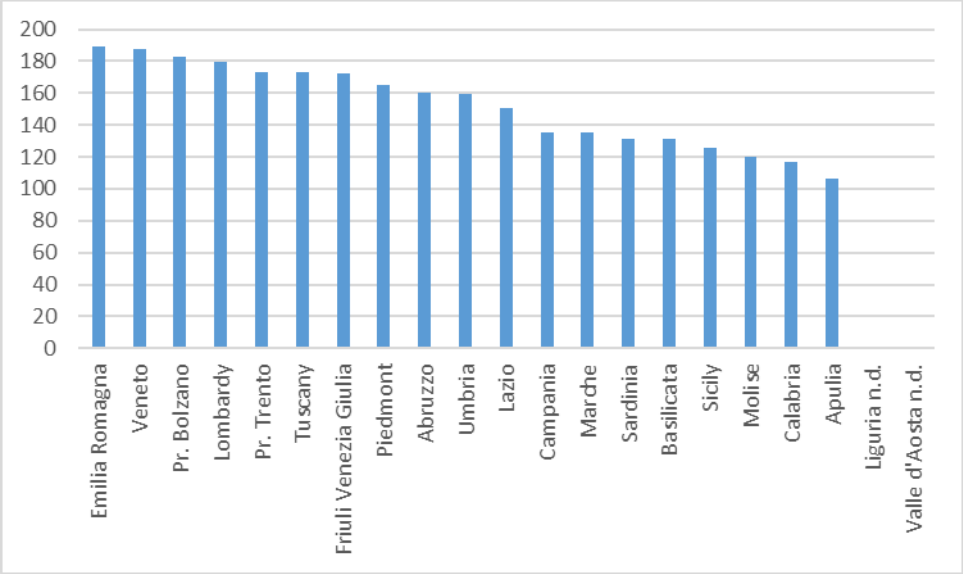

Figure 18. Employment in innovative enterprises Italian regions, 2021. Source: European and Regional Innovation Scoreboards 2021.

4. Small and medium enterprises in the Campania region

After having analysed the innovation-related indicators for European countries and Italian regions, this contribution intends to examine the scenario of innovative SMEs in the Campania region with a focus on their quantity, characteristics, distribution and location.

As mentioned, there are 2,388 innovative SMEs in Italy, of which 169 (plus three companies in liquidation) are based in Campania (7%) and 92% of them are more than 5 years old.

Table 1 shows an uneven distribution of the absolute number of innovative SMEs in Campania, with a strong polarisation: about 75% are located in the two most populous provinces (Metropolitan City of Naples 51% and Salerno 24%), while the remaining 25% are substantially equally distributed between the provinces of Avellino, Benevento and Caserta. This scenario, however, changes significantly when the number of enterprises is related to the population of the provinces: thus, it is the province of Benevento that has the highest density of innovative SMEs, followed by Salerno and Avellino.

	Avellino	Benevento	Caserta	Metropolitan city of Naples	Salerno
Number of innovative SME	13	16	13	87	40
% total	7,7%	9,5%	7,7%	51,5%	23,7%
Population	402.929	266.716	901.903	2.986.745	1.065.967
nr. companies *100.000 inhab.	3,23	6,00	1,44	2,91	3,75

Table 1. Innovative SMEs in the Campania provinces, 5 August 2022.
Source: Elaboration from Business Register and Demo-Istat data.

Aggregating the data (Table 2) and making a division between the coastal provinces (Metropolitan City of Naples, Salerno and Caserta) and the inland provinces (Avellino and Benevento), we arrive at similar results. In fact, 83% of SMEs are concentrated in the coastal areas while in the inland areas only 17%, but even in this case the analysis is reversed by appreciating the density of innovative enterprises: in the inland areas there are 4.3 innovative SMEs per 100,000 inhabitants, compared to 2.8 in the coastal areas. The inland areas thus show a fair degree of vitality, despite the disadvantageous condition deriving from the distance from the main road and rail connections. Therefore, the geographical location of Campania's SMEs in peripheral areas does not appear to limit their capacity for innovation precisely by virtue, as mentioned above, of the link with the territory and the networking capacities that enable profitable knowledge sharing and exchange processes.

	Inland provinces	Costal provinces
Number of innovative SME	29	40
% total	17,2%	82,8%
Population	669.645	4.954.615
nr. companies *100.000 inhab.	4,33	2,82

Table 2. Innovative SMEs in coastal and inland provinces, 5 August 2022.
Source: Elaboration from Business Register and Demo-Istat data.

In Table 3, in consideration of the economic, historical and demographic relevance, it was deemed appropriate to analyse in greater detail the data relating to the city of Naples (no longer considering the overall data of the Metropolitan City).

	Naples
Number of innovative SME	66
% total	39,1%
Population	922.094
nr. companies *100.000 inhab.	7,16

Table 3. Innovative SMEs City of Naples, 5 August 2022.
Source: Elaborated from Business Register and Demo-Istat data.

The regional capital is home to 39% of all innovative SMEs in Campania (2.7% on a national scale) and the density figure confirms the centrality of Naples in the regional

context, while still recording the highest number of innovative enterprises compared to the other cities in Campania (7.2 innovative SMEs per 100,000 inhabitants).
Finally, it is interesting to evaluate small and medium-sized innovative enterprises on the basis of three nodal parameters: specialization, size and value of production.
Regarding specialization, based on Ateco codes, the most frequent type of innovative enterprise (21.8 percent) is the production of non-publishing-related software (Ateco code 6201); this is followed at 8.8 percent by enterprises engaged in experimental R&D in the field of engineering and other natural sciences (code 721909); and 5.3 percent is represented by business consulting, management administration, business planning and IT-related services (code 702209); 4.7% is accounted for by experimental R&D activities in the field of biotechnology (code 7211); 4.1% is accounted for by consultancy activities in information technology (code 6202); finally, 4.6% is accounted for by enterprises engaged in the production of electrical energy and the manufacture of electric motors, generators and transformers (codes 3511 and 2711[22]).
Thus, IT related activities - from consulting and services to software production - account for more than 30% of innovative SMEs in Campania.
In terms of size, Campania's innovative SMEs are characterised by the prevalence of micro and small enterprises: in fact, more than 50% of Campania's SMEs are micro enterprises with fewer than 10 employees (33.1% have between 0 and 4 employees, while 17.1% have between 5 and 9); whereas small enterprises proper, between 10 and 49 employees, make up about 32% of the total (15.3% in the 10-19 employees class and 6.5% in the 20-49 employees class). Thus, 82% of innovative SMEs in Campania are micro and small enterprises. Medium-sized enterprises (50-249 employees) account for only 8.8% of the total[23].
The analysis of the production value of innovative SMEs in Campania is also interesting: the largest percentage is made up of companies with a production value of between EUR 100,000 and EUR 500,000 (24.9%), below this threshold 14.7% are in the EUR 1-100. 000, 13.6% have a value of production between EUR 500,000 and EUR 1 million, 14.7% between EUR 1 and 2 million, 17.7% between EUR 2 and 5 million, 5% between EUR 5 and 10 million, 7.7% between EUR 10 and 50 million and, finally, only 1.1% (two companies) have a value of production over EUR 50 million. Aggregating the data, it can be seen that about 68% of SMEs have a medium to low value of production (from zero to EUR 2 million) and only a third (32%) exceed EUR 2 million: however, it is possible to state that almost half of the innovative SMEs in Campania have a value of production in excess of EUR 1 million.

5. Conclusions

It has been observed that in Italy, compared to the total number of SMEs, innovative ones are still few and represent an absolutely marginal share: in fact, in the European and Regional Innovation Scoreboard 2021, Italy ranks only among the "moderate innovation countries."

[22] Here, 54% of the Ateco codes have been mapped in detail: the remaining 46% appear to be pulverised in other sectors attributable to further codes, not enough in number (no more than two for each sector) to make their aggregation meaningful.
[23] There is a residual share of 1.1% (two enterprises) with more than 250 employees, while the size of the remaining 7.6% is unknown.

Therefore, it is necessary for Italy to accelerate the implementation of policies aimed at supporting the growth of innovative SMEs, including: investment in research and development, access to financing, training and development of technological skills, ad hoc tax breaks, creation of ecosystems for innovation, such as accelerators and incubators, collaboration between innovative SMEs, universities and large companies, promotion of digital innovation and dissemination of the culture of innovation.
As for the Campania region, the analysis of data shows a prevalence of micro and small enterprises, often linked to IT activities, with a predominantly medium to low value of production, but with a fair degree of vitality: as mentioned, 92% of them are more than 5 years old and, although it is true that one in two companies has fewer than 10 employees and 4 out of 5 have fewer than 49 employees, it is also true that almost one in two companies has a production value of more than one million euros, a sign that investments in innovation produce positive impacts on both the efficiency and turnover of companies.
Finally, also with regard to the debated topic of the geographical location of SMEs and the correlated relationship between the centre and the periphery, the analysis of the data showed how in Campania, while confirming the centrality of the city of Naples, there are more innovative SMEs in the inland areas than in the coastal areas in relation to the population, despite the objective disadvantages in terms of logistics and transport. Therefore, the geographical location of SMEs in peripheral areas of Campania, such as those in rural or less densely populated areas, does not limit their capacity for innovation. This is because the close link that these SMEs have with the territory and the surrounding communities can provide opportunities for knowledge sharing and exchange, which can be a driving force for innovation.
In conclusion, the networking capacities of these SMEs can enable them to effectively absorb and utilize knowledge from their surroundings, which can then be translated into new and innovative products, services, or processes. Essentially, the location of these SMEs in peripheral areas is seen as an advantage rather than a limitation, as it allows them to capitalize on their close connection with the territory and the people within it.

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