Monitoring of the Strategic Industrial Plan of Lombardy Region

December 2025

Executive summary

Index

Premise

The objective of this report is to present in a concise way the results of the monitoring of the strategic industrial plan of Lombardy for 2023. To this end, the material reported in full in the complete version of the report has been divided into three parts.

The first part summarizes the strategic positioning of Lombardy in relation to Italy and Europe regarding productive ecosystems and the eight strategic factors into which the plan is divided. The second part focuses on the objectives of the plan, highlighting: the strengths and weaknesses of Lombardy and their evolution over time (SWID analysis), the targets achieved, and the related strategic implications.

Finally, the third part summarizes the policies for the industrial development of the Region, in particular the incentives for businesses in the period 2021/2024 and the new place-based productive ecosystems policy in the Innovation and Development Areas (IDA).

1. The competitive positioning of Lombardy Region

1.1. Productive Ecosystems

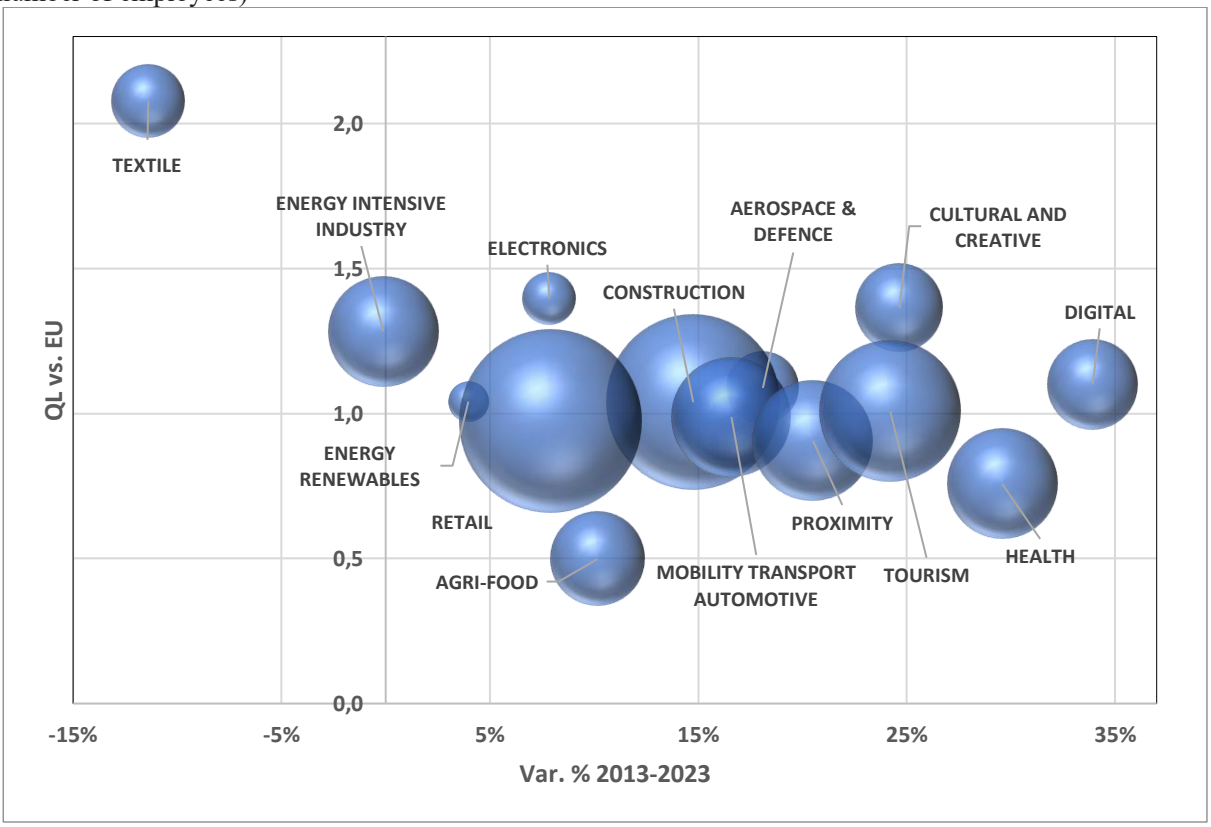
The New European Industrial Strategy, launched in March 2020, has as its core objective the transition towards climate neutrality and digital leadership.

The two transitions, green and digital, are centered around 14 different ecosystems that represent about 80% of the added value of European Union companies.

The definition of industrial ecosystems goes beyond the classic concepts of sectors or industrial divisions, codified in the traditional Nace classifications (Ateco for Italy), because it emphasizes the complex and multifaceted relationships among all actors involved in productive activities. The actors of an industrial ecosystem today are represented by start-ups, small and medium-sized enterprises, and large companies, by economic entities producing final goods and components but also by services ancillary to industry, sub-supplies, research activities, training, and regulation.

For each ecosystem, core activities - that is, the most characteristic ones—have been defined, as well as accessory activities that do not easily correspond to the NACE statistical classifications of production sectors. It should be emphasized that ecosystems, on the one hand, are connected to each other (for example, the Retail and High-Energy-Intensity Industry ecosystems provide services to almost all other ecosystems) and, on the other hand, overlap with each other, since some activities are present and significant in more than one ecosystem. These are "horizontal" activities, attributed to all ecosystems based on their specific contribution to the main activities of the ecosystems themselves. By applying the methodology used by the European Union for the definition of Industrial Ecosystems, it is possible to verify their consistency in the Lombardy Region at least in terms of employees and their trends over the last decade (Fig. 1).

Fig. 1 – The dynamics of Lombardy Productive Ecosystems
(horizontal axis: Location Quotients towards EU; vertical axis: % change in employees 2013-2023; bubble size: number of employees)



Fonte: Eurostat, ISTAT

By calculating the Lombard specializations through location quotients, we can state that the ecosystems that reveal a particular vocation of Lombardy compared to the European Union are Textiles/Clothing, Electronics, Energy-Intensive Industry, and the Cultural/Creative sector. Among the sectors that show a strong presence in terms of employees, the Commerce ecosystem (over 705 thousand employees), Construction (about 683 thousand), Tourism (490 thousand), and the Social and Local Economy (almost 350 thousand employees) should be highlighted. In terms of dynamics over the past ten years, there has been strong growth in the Digital (+33.9%), Health (+29.6%), Cultural & Creative (+24.7%), and Tourism (+24.2%) ecosystems.

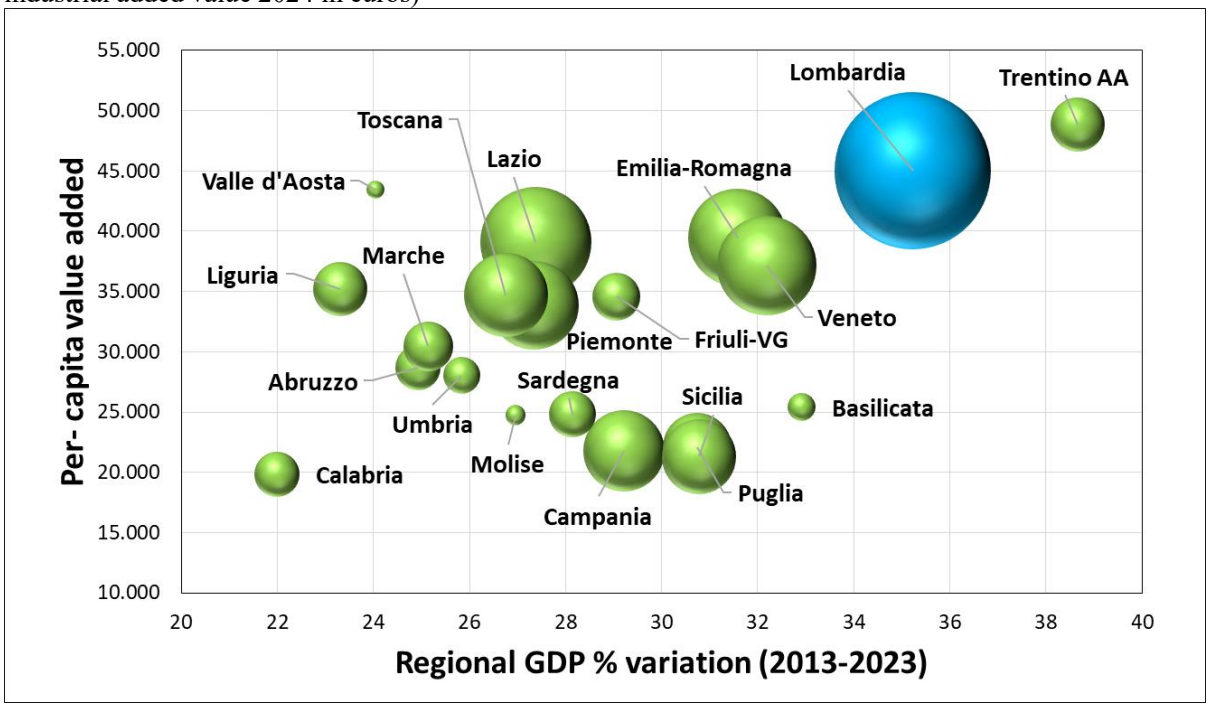
It should be emphasized that the high energy-intensive industry includes metalworking manufacturing companies, but also those in chemicals, plastics, and paper, with over 238,000 employees, and the Cultural Ecosystem groups the new productions in publishing, media, art, events, and advertising with about 189,000 employees.

1.1.1. Production Dynamics

The Lombardy Region confirms itself as the leading Italian region in terms of economic structure, with a total added value of 450 billion euros in 2024, more than double that of the second region (Lazio) and the third (Veneto). Also in terms of production dynamics, Lombardy is surpassed only by Trentino-Alto Adige, which, although having a GDP of about one-tenth of Lombardy's, grows at higher rates and is also comparable in terms of per capita added value (49 thousand euros in 2024). In Fig. 2, on one hand, the structural lag of Southern Italy can be observed, with the regions of Calabria, Campania, and Sicily showing modest levels of per capita added value as well as reduced growth, although the last post-pandemic years reveal initial signs of recovery. On the contrary, the Italian economic engines, besides Lombardy, are confirmed to be Veneto, Emilia-Romagna and, due to other characteristics related to the political-administrative functions of the capital, Lazio.

Fig. 2 - The weight and dynamics of regional GDP in Italy

(vertical axis: per capita added value 2024 in euros; horizontal axis: regional GDP growth 2013-2023; bubble sizes: industrial added value 2024 in euros)



Analyzing the industrial sector (Fig. 3), Lombardy's primacy still emerges in terms of absolute size, with around 93 billion euros of manufacturing value added, but as for dynamics and, above all, the relative weight on the entire economy, Lombardy's vocations in advanced services, finance, and generally in the new ecosystems of health, social, and creativity sectors stand out clearly. In contrast, the regions of Veneto, Emilia-Romagna, and Marche are characterized by a relatively higher weight of industry, whereas the productive areas of Trentino-Alto Adige, Tuscany, and also Campania and Puglia in the South have recorded higher growth rates in the last decade.

At the European level (Fig.4), Lombardy confirms itself as one of the four continental industrial engines, together with Baden-Württemberg (DE1), Cataluña (ES51), Auvergne-Rhône-Alpes (FRK). From Eurostat data that measures industry considering sectors B-E (production of goods, mining, supply of electricity, gas, steam, and air conditioning), we observe that the manufacturing sector of the German region, although in deep recession over the past year, still records a secondary sector share of over 27%, while the Spanish and French regions show relatively smaller industrial dimensions. In fact, over the last five years, new industrial regions from Poland (Makroregion północno-zachodni; Makroregion południowy; and Makroregion północny) and Romania

(Macroregiunea Unu) have emerged in the European competitive arena as rapidly growing production hubs. The processes of outsourcing and productive offshoring over the past twenty years have therefore reshaped the map of European industry, which, alongside the traditional hubs of the Western continental system, reveal the new specialized production areas of countries formerly in the Soviet orbit, such as Poland, Hungary, Romania, Slovakia, as well as the Baltic republics. Even in the European context, Veneto and Emilia-Romagna represent industrial areas of absolute importance both in terms of total employment and in the dynamics of the latter.

Fig. 3 - The weight and dynamics of the industry by region in Italy
(vertical axis: % weight of industry on regional GDP; horizontal axis: growth of industry employees 2013-2023; bubble sizes: industry added value 2024 in euros)

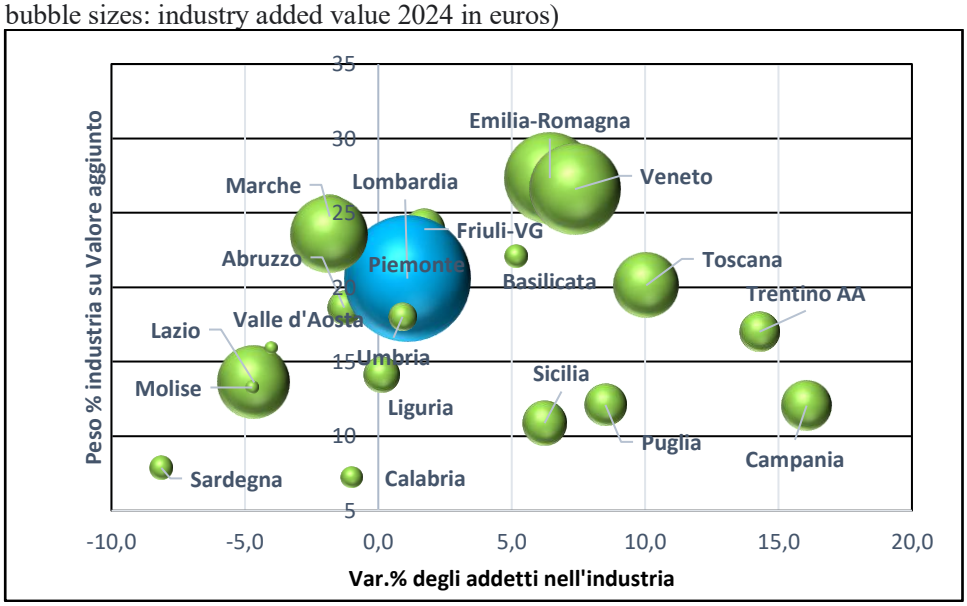
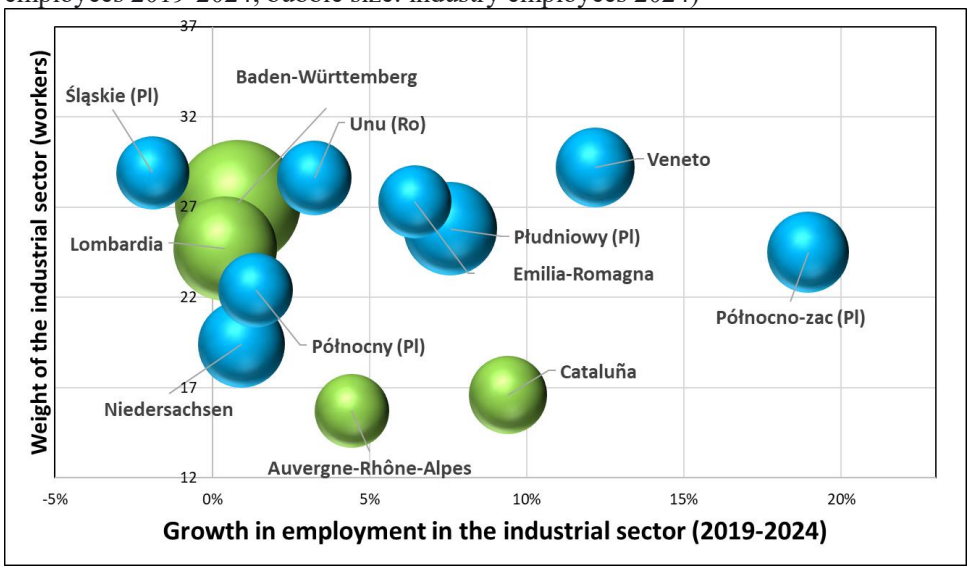


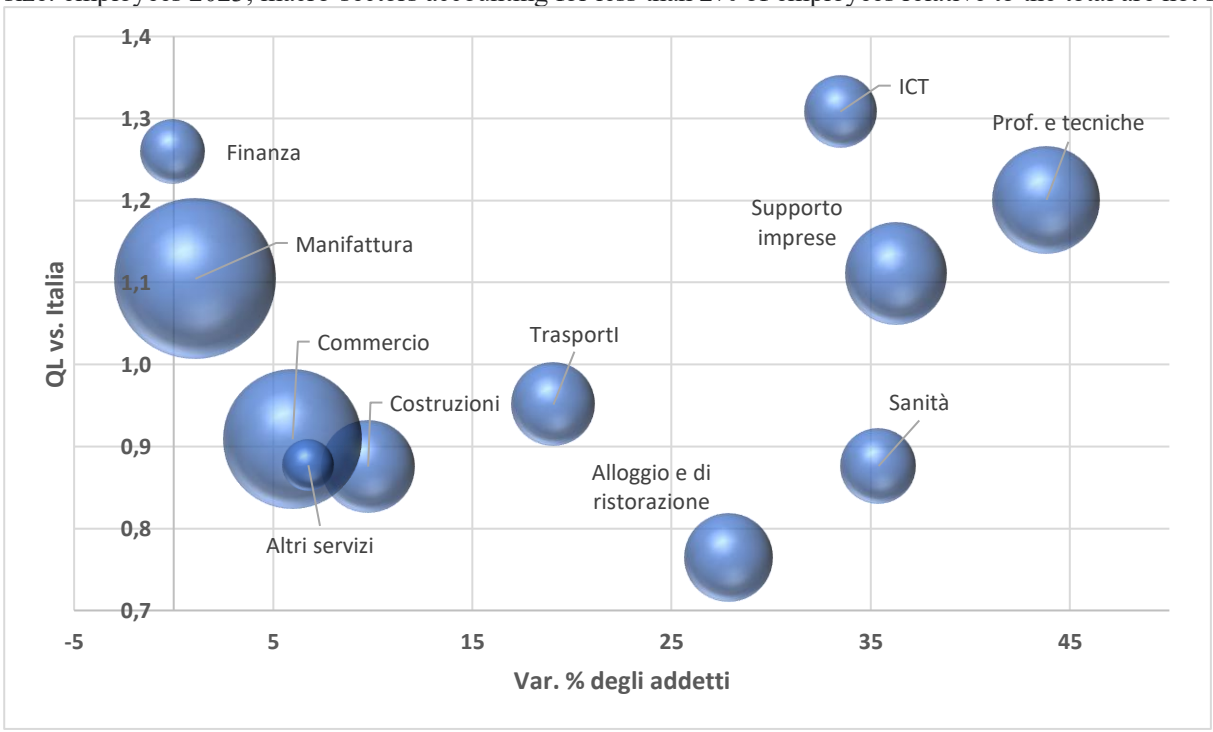
Fig. 4 - The weight and dynamics of industry in the 4 engines and in the European manufacturing regions (vertical axis: weight % of industry on the regional economy; horizontal axis: growth of industry employees 2019-2024; bubble size: industry employees 2024)



1.1.2. Productive sectors

Considering the productive sectors based on the traditional classification (Nace in Europe, Ateco in Italy), we can first highlight the most relevant sectors in terms of size, measured by employees (Fig. 5). The strong industrial vocation of the region is clearly confirmed, with over 900 thousand employees, and the consistently decisive role of the commercial sector, with about 645 thousand employees. In third place in terms of employees is the sector of professional, scientific, and technical activities, with almost 410 thousand employees, followed by business support services with almost 370 thousand employees, construction, and accommodation and food services. The sectors with higher specialization compared to the Italian average (calculated through location quotients) are financial activities, information and communications, business services, professional activities, and the manufacturing industry.

Fig. 5 - The dynamics and specialization of the economic sectors of Lombardy
(vertical axis: location quotients of Lombardy vs. Italy; horizontal axis: % change in employees 2013-2023; bubble size: employees 2023; macro-sectors accounting for less than 2% of employees relative to the total are not shown)

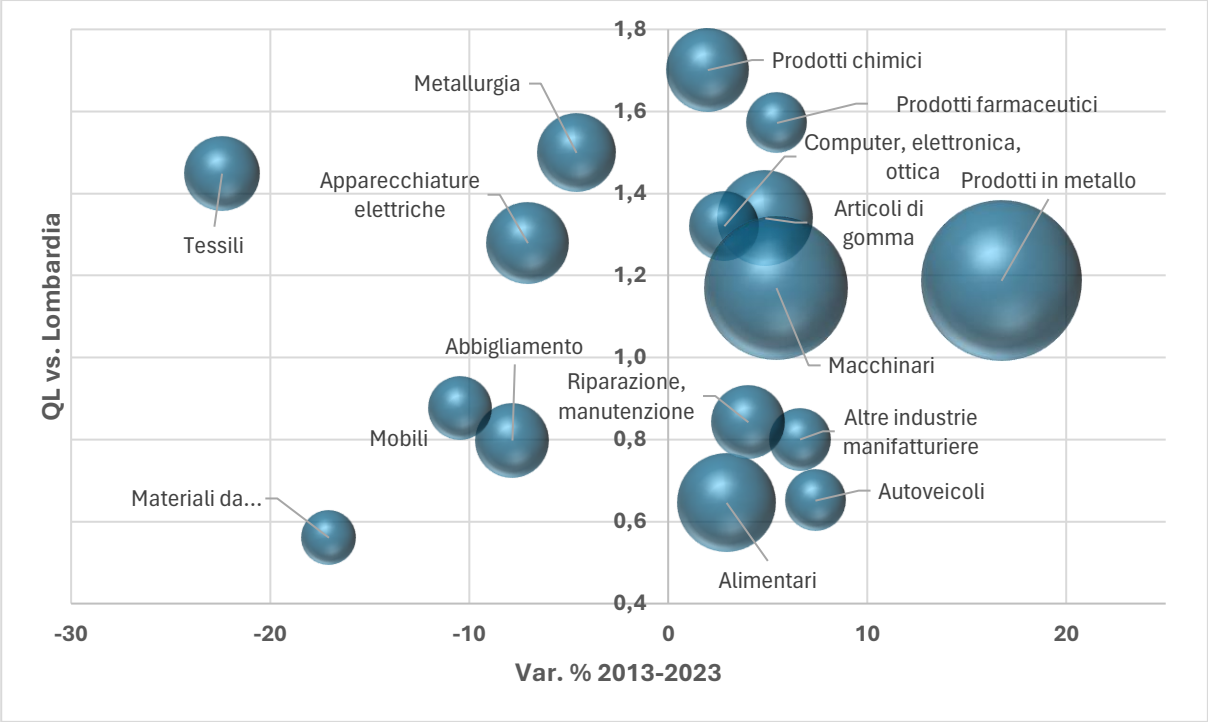


Source: ISTAT

In terms of temporal dynamics, there is a significant growth in the sectors of professional and technical activities, business services, ICT, healthcare, and tourism: this is a further increase in the tertiary sector for businesses, but also in cultural and entertainment activities and in sectors functional to collective life (water, waste, energy, education).

Within the industrial sector, it is evident how the productive sectors of textiles/clothing, wood-paper-printing, and building materials have experienced a further decline in employment, while the mechanical sector, in particular the machinery and industrial automation segment, as well as the agri-food and pharmaceutical sectors, have recorded significant increases also in terms of employees (Fig. 6).

Fig. 6 – The dynamics and specialization of the industrial sectors of Lombardy
(vertical axis: location quotients vs. Italy; horizontal axis: % change in employees 2013-2023; bubble size: employees 2023; sectors accounting for less than 2% of employees compared to total manufacturing are not shown)



Despite the significant growth of both the agri-food sector and the pharmaceutical and cosmetics sector, the mechanical sectors (machinery, metal products, metallurgy, means of transport) remain the fundamental pillar of Lombardy's manufacturing, as well as Northern Italy's, accounting for 43% of employees. However, the impact of the current automotive crisis in Europe needs to be assessed, which has primarily caused a recession in Germany and, secondly, the weakening of Italian production and exports of companies in the automobile and automotive components supply chain.

Although not being the sectors with the highest absolute size, the chemical, pharmaceutical, metallurgical, and textile/clothing sectors are confirmed as the sectors with the greatest relative specialization compared to Italian industry.

1.2 Strategic Indicators

The starting point for monitoring the Strategic Industrial Plan of Lombardy is represented by the update of the region's positioning in relation to the Plan's indicators. In this regard, it should be remembered that Lombardy's positioning can only be considered, in a very broad sense, a measure of the Plan's impact, at least for two reasons: the first is logical because the Plan's impact on such targets can only be assessed in the medium to long term, and the second is statistical, because Lombardy's positioning relative to the reference benchmarks (Italy, EU) depends not only on the region's performance but also on that of the benchmarks themselves, as it is a relative measure. Only absolute values can provide an initial indication of the impact of the strategic Plan.

The update was prepared in relation to the data concerning the three strategic axes, the 8 factors, and the 53 specific indicators (policy by factors). It is worth recalling in this regard the distinction between target indicators, that is, those chosen as specific objectives of the Plan, and control indicators, which, although not representing a specific objective, it is appropriate to monitor as they define the context in which Lombardy is positioned relative to each of the 8 factors considered; therefore, the update of the indicators was carried out for both types of indicators. In addition to the average values for the entire period, the year-by-year trend of each indicator was also taken into account.

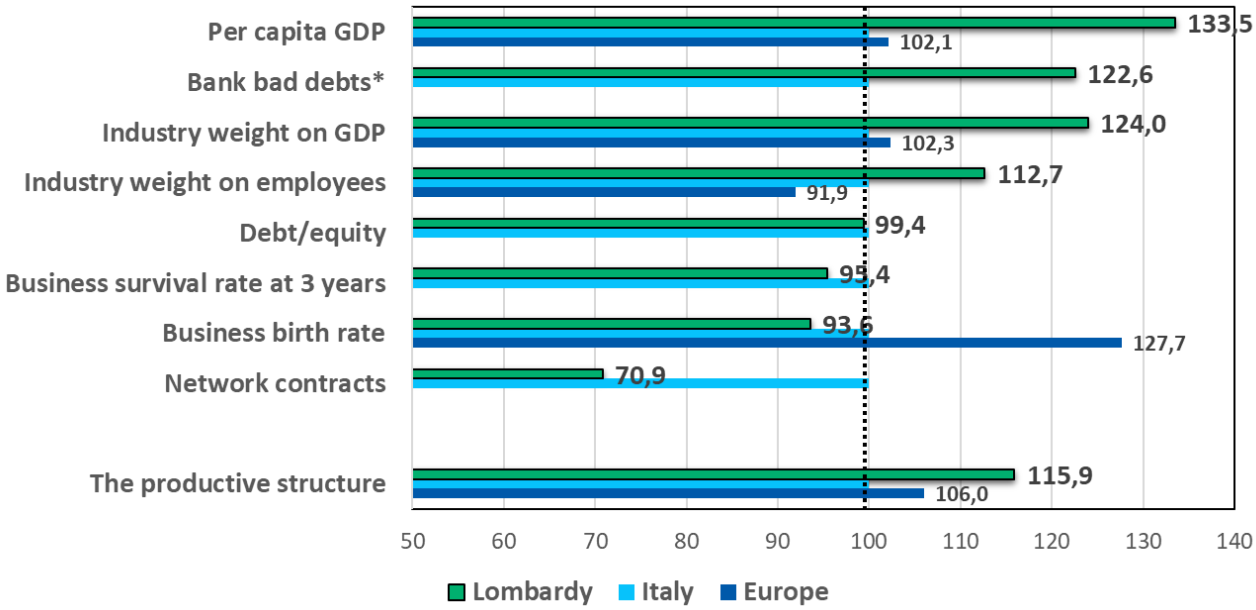
Furthermore, the data concerning the European average values were compared with those of Lombardy regarding the values indicated in the Plan, for the most recent year available, the change over the last three years, and the targets for 2030 and 2050.

Finally, to understand the positioning of Lombardy’s production system in relation to Europe and Italy, the regional economic structure in terms of ecosystems and industrial specializations and the strategic development factors connected to competitiveness, sustainability, and territorial attractiveness are analyzed.

1.2.1 Productive structure

The overall picture of Lombardy's positioning with regard to indicators related to the "productive structure" is represented in Fig. 7, which shows the average values for the available years of the indicators considered. Lombardy is in a better position than Italy for all the indicators considered except for business birth rates, the survival rate of businesses three years after their inception, and network contracts. It should be noted that regarding business birth rates, the Lombardy figure is also significantly lower than the European value. However, apart from this exception, for all indicators the Lombardy figure is better than the European one. Consequently, considering the average of the indicators related to the productive structure, Lombardy's positioning is better than the corresponding European value.

Fig.7 - Strategic Factor 1.1 – The productive structure
(index values, Italy=100, average of available years)

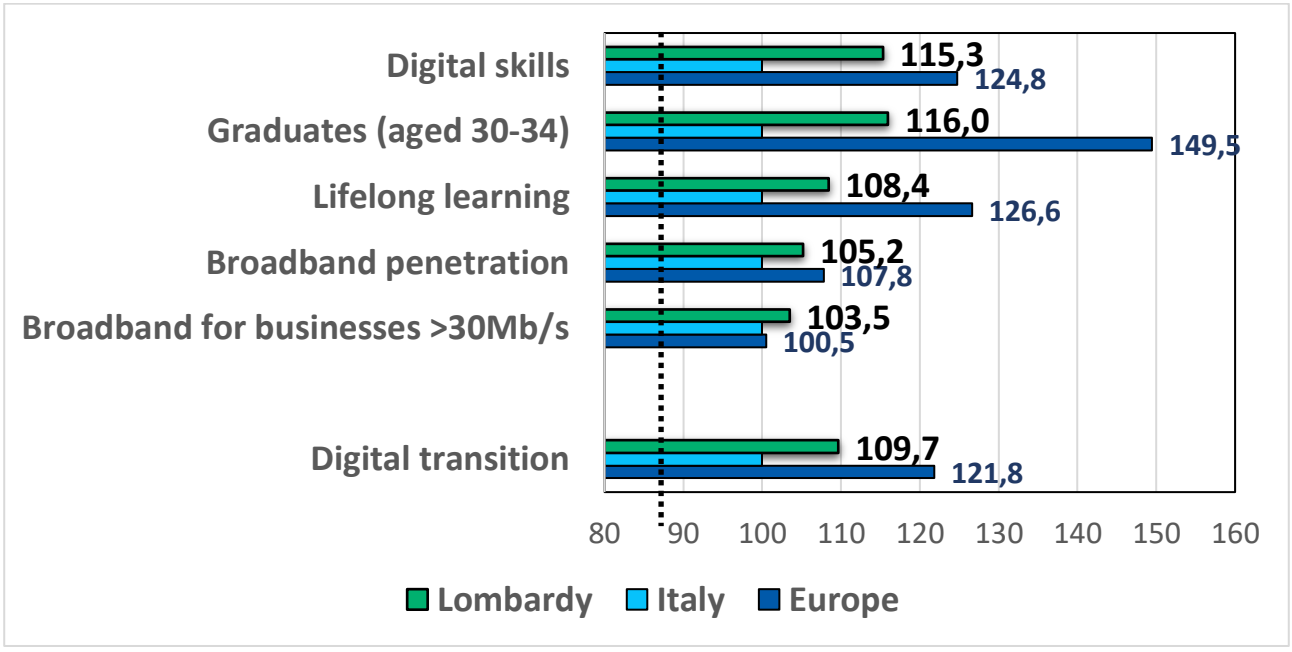


*Reverse index numbers: a higher value is better.

1.2.2 Digital transition

The strategic factor “digital transition and skills” was analyzed based on 5 indicators. Lombardy's data is consistently higher than Italy's, but much lower than the European average, with the exception of broadband for businesses (Fig.8). The differences are particularly significant concerning lifelong learning and, above all, graduates aged 30 to 34. As a result, the value of the composite indicator is lower than the European one.

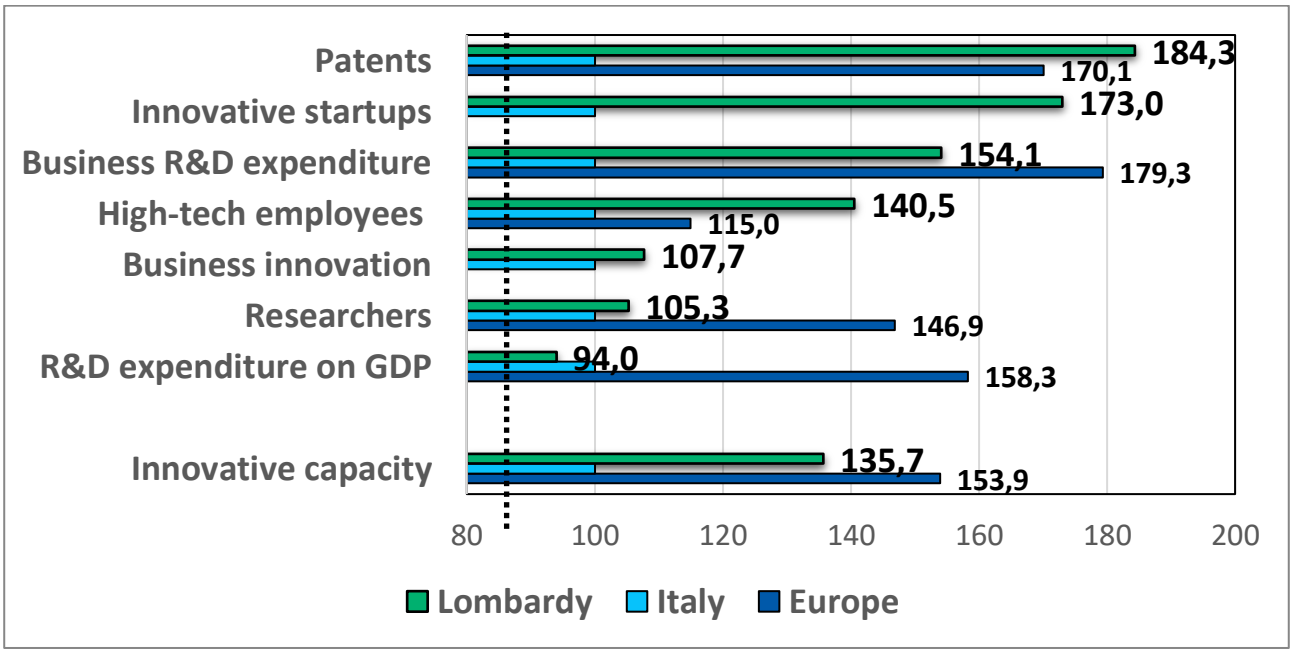
Fig. 8 - Strategic Factor 1.2 - The digital transition
(index values, Italy=100, average of available years)



1.2.3 – Innovation capacity

Lombardy's "innovative capacity" is higher than Europe's in terms of patents, high-tech employment, and business innovation, while spending on R&D as a percentage of regional GDP is substantially lower than the European values. It is precisely this last figure that causes the average of all these indicators to yield a value slightly lower than the European figure (Fig.9)

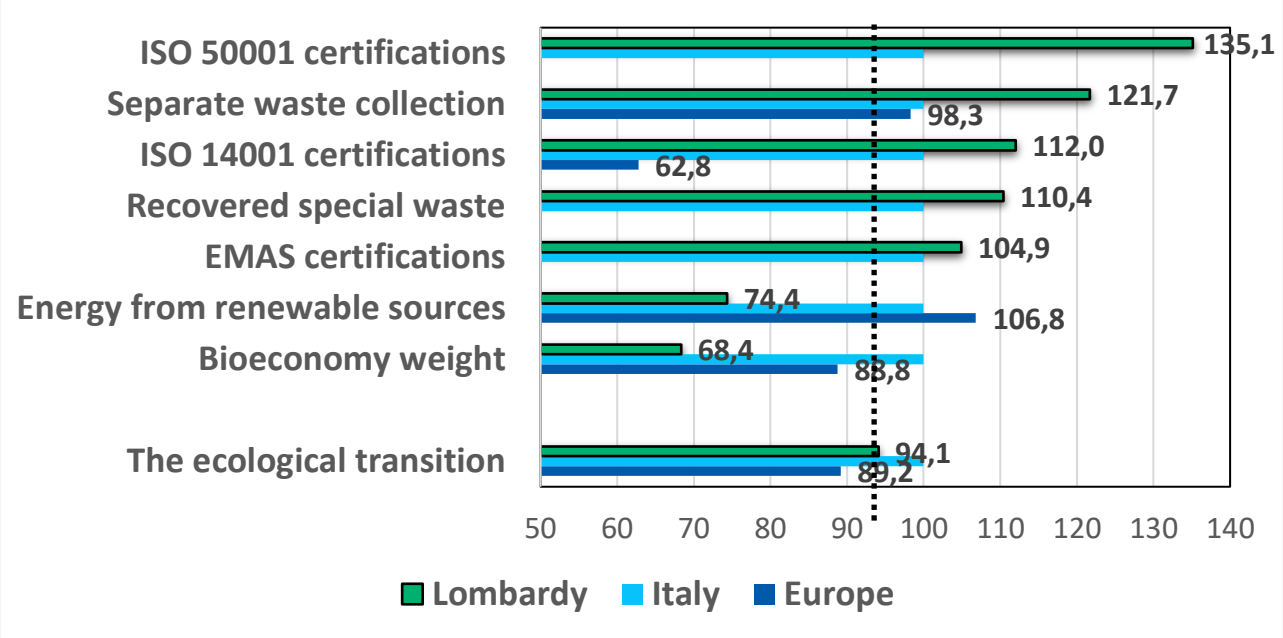
Fig.9 - Strategic Factor 1.3 – Innovation capacity
(index values, Italy=100, average of available years)



1.2.4 Ecological transition and circular economy

Lombardy's positioning regarding the "ecological transition and circular economy," measured by the average values of indicators for the available years (Fig. 10), is better than Italy and Europe for ISO 50001 certifications, separate waste collection, ISO 14001 certifications, recovery of special waste, and EMAS certifications, while it is worse than both Italy and Europe for energy production from renewable sources and the weight of the bioeconomy. Considering the synthetic ecological transition indicator, Lombardy ranks better than Europe but worse than Italy.

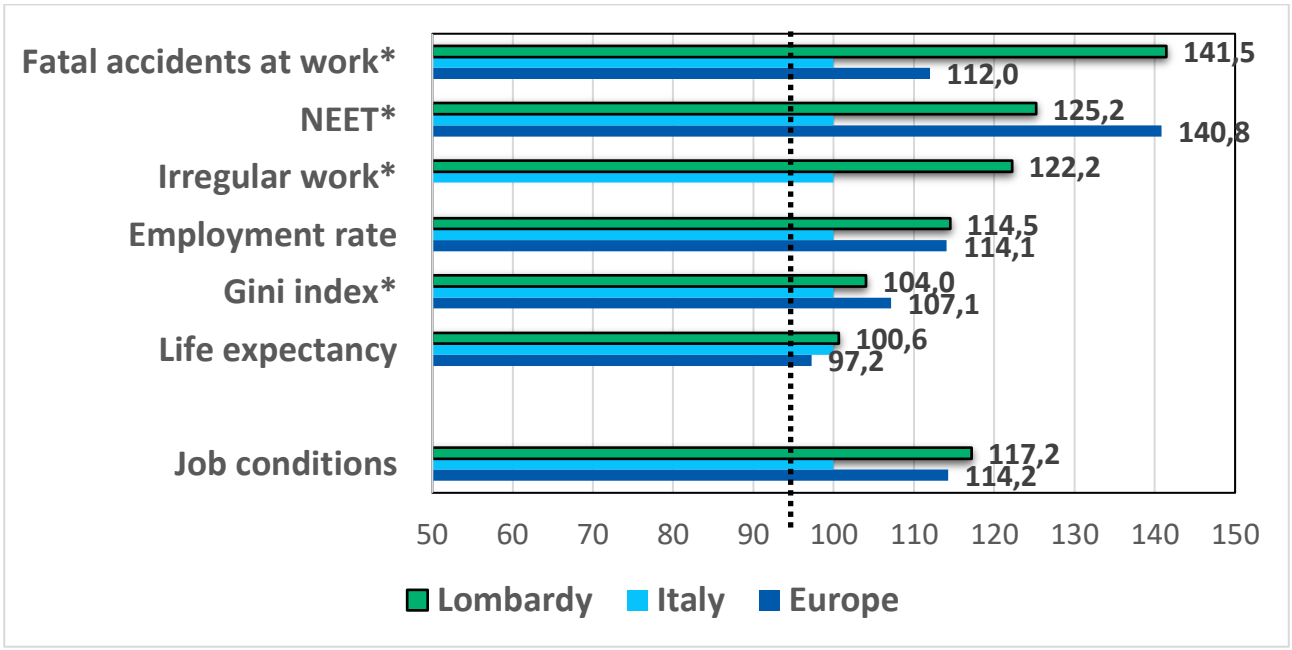
Fig.10 – Strategic Factor 2.1 – Ecological transition and circular economy
(index values, Italy=100, average of available years)



1.2.5 Job quality

The strategic factor of good work and quality of life has been broken down into six indicators: fatal work accidents, NEETs, irregular work, employment rate, income concentration (Gini index), and life expectancy (Fig.11). On average, considering the synthetic index, Lombardy's position is better than the European one. Lombardy shows better values regarding fatal work accidents, irregular work, employment rate, and life expectancy, while it ranks lower for NEETs and the Gini Index.

Fig.11 - Job quality
(index values, Italy=100, average of available years)

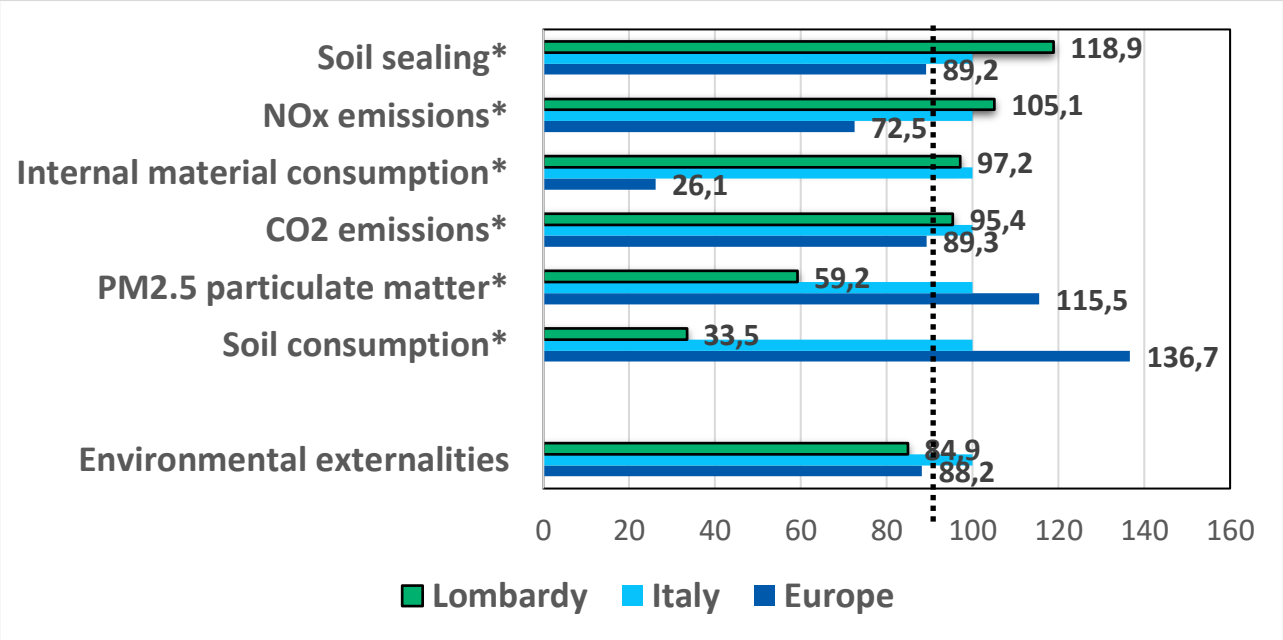


*Reverse index numbers: a higher value is better.

1.2.6. Negative environmental externalities

The data regarding soil sealing, NOx emissions, internal material consumption, and CO2 emissions place Lombardy in a significantly better position compared to Europe (for the last two indicators, however, the Italian average is slightly better than the Lombard values). Regarding fine particulate matter PM2.5 and consumed soil, on the contrary, Lombardy ranks well below the European average values. The synthetic indicator 'environmental externalities,' which summarizes the previous elementary data, appears slightly worse than the European figure and lower than the national value (Fig. 12).

Fig. 12 - Strategic Factor 2.3 – Negative environmental externalities
(index values, Italy=100, average of available years)

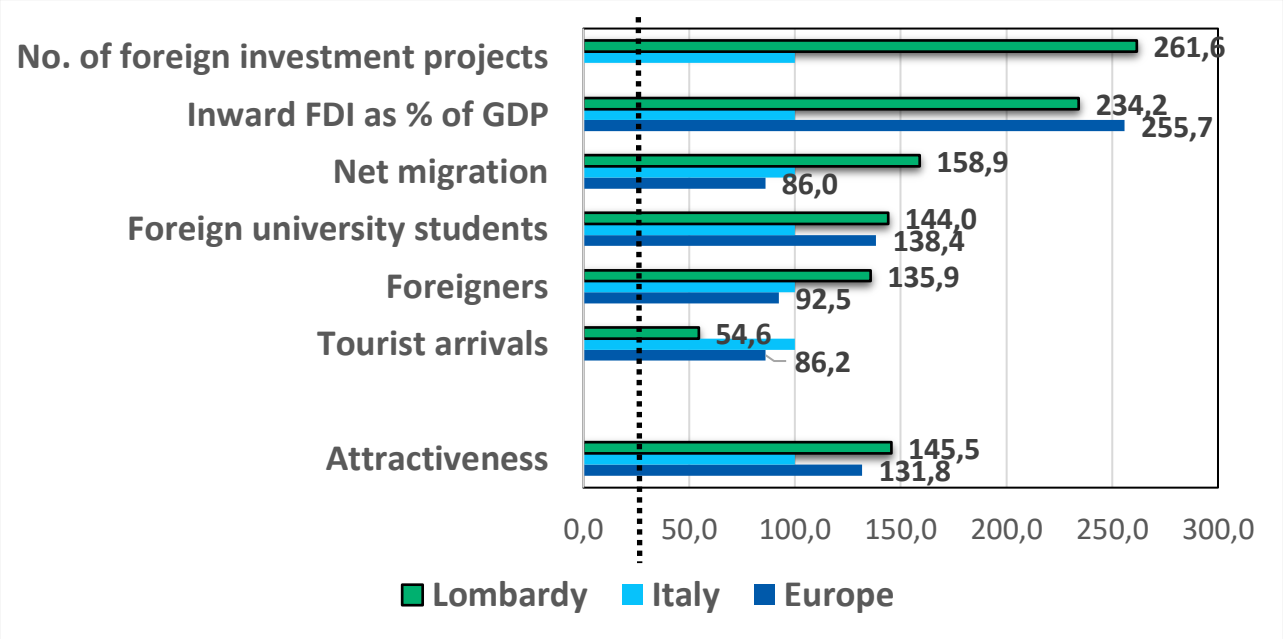


*Reverse index numbers: a higher value is better.

1.2.7 Attractiveness

Regarding the strategic factor 'attractiveness' (Fig.13), Lombardy is in a better position compared to Europe in terms of net migration, foreign university students, and the number of foreign residents, but it is penalized for incoming foreign direct investment (FDI); narrowing the comparison to Italy alone, the number of incoming investment projects in Lombardy is significantly higher than the national average. Finally, regarding the synthetic indicator of attractiveness, Lombardy's position is better compared to Europe.

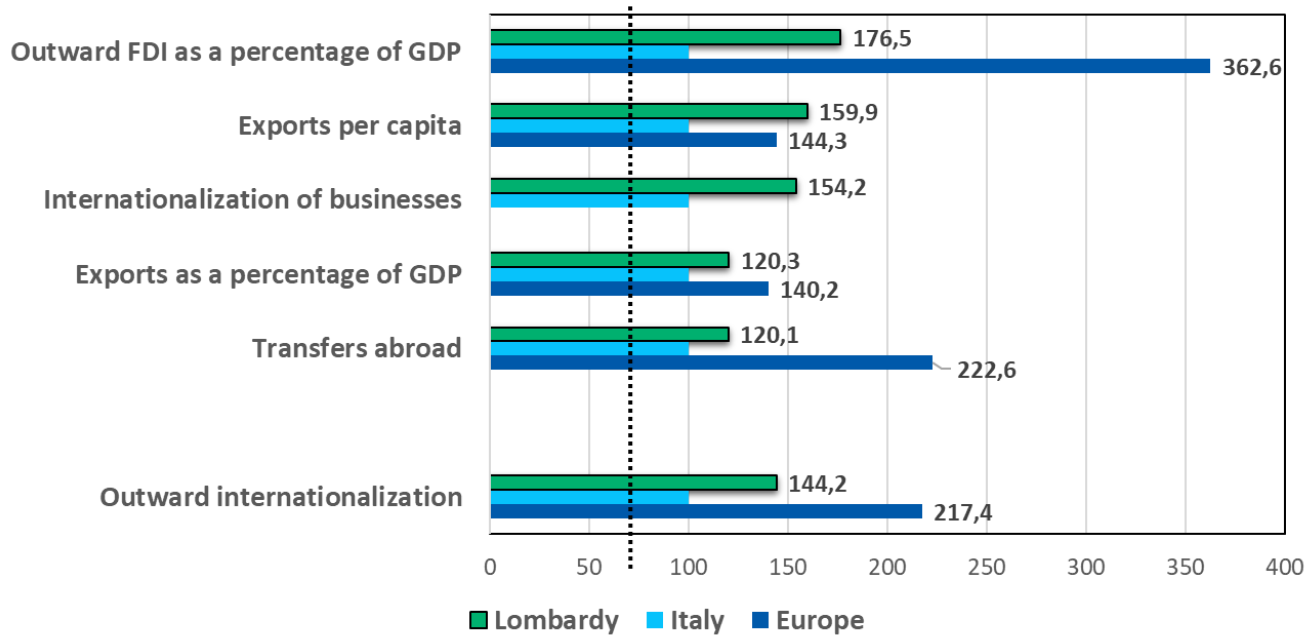
Fig.13 – Strategic Factor 3.1 – Attractiveness



1.2.8 Outbound internationalization

The factor 'outward internationalization' was analyzed based on the five dimensions listed in Fig. 14. In general terms, the synthetic indicator shows for Lombardy a value largely lower than the European one. In particular, European data are higher than those of Lombardy regarding outward FDI, exports as a percentage of GDP, and transfers abroad. Lombardy, on the other hand, shows higher values than Europe concerning exports per inhabitant and higher than Italy for business internationalization.

Fig.14 – Strategic Factor 3.2 – Outbound internationalization
(index values, Italy=100, average of available years)

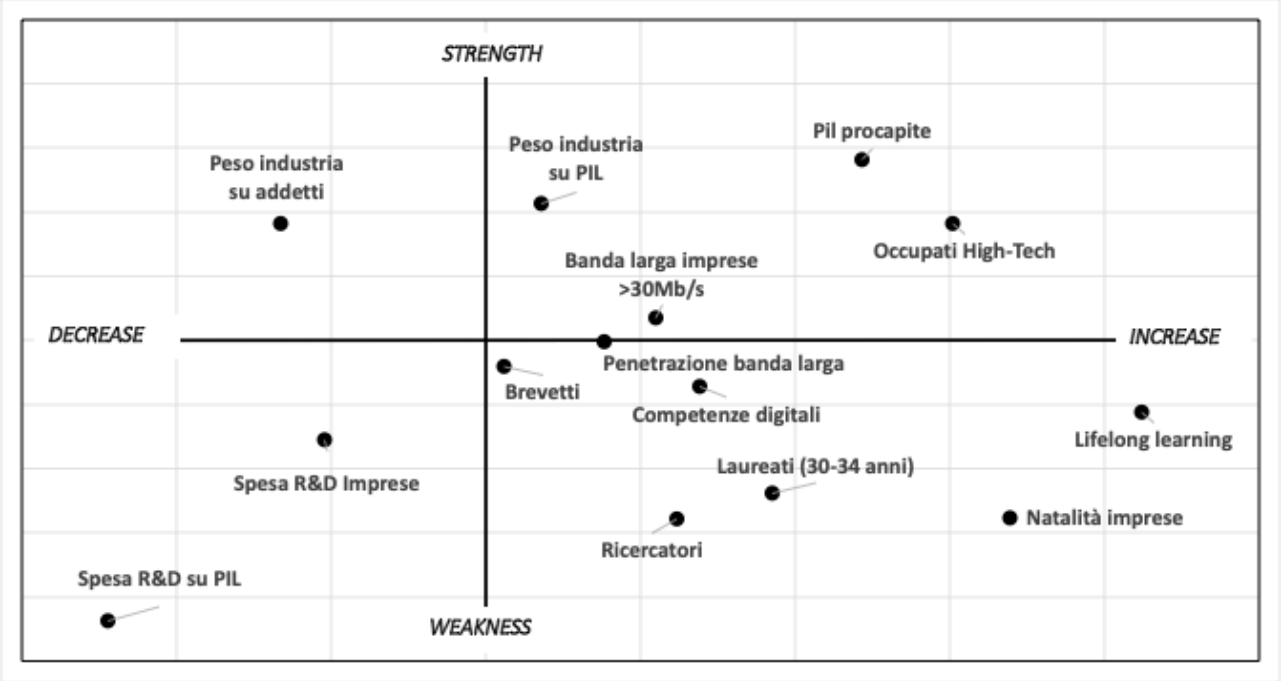


2 The Objectives of the Lombardy Industrial Strategic Plan

2.1 The dynamics of strategic indicators

To outline the first lines of a new strategic industrial plan for the Lombardy Region, it is appropriate to start with an analysis of the results achieved, summarized according to the SWID matrix (Strength, Weakness, Increase, Decrease), which displays both the relative strengths and weaknesses of the Lombardy Region compared to the European Union, as well as the dynamics of individual indicators over the last three years of data availability for each of the three identified strategic factors. It should be noted that the Plan's indicators were distinguished into target indicators, for which a quantitative goal was set, and control indicators, that is, those to be monitored regardless of their numerical quantification.

Fig. 15 – The SWID matrix of the strategic axis 'Competitiveness of productive ecosystems'
(vertical axis: strength-weakness of Lombardy vs. EU; horizontal axis: dynamics over the last three years)



Based on Fig. 15, it can be noted that out of 14 overall indicators related to Strategic Axis 1, competitiveness of ecosystems and production chains, 4 fall into the quadrant of strengths increasing, 1 into that of strengths decreasing, 7 into that of weaknesses improving, and 2 into that of weaknesses worsening.
In particular, regarding the strengths increasing, it should be emphasized that the two target indicators (industry share of GDP and employment in medium- and high-tech industries) have reached, according to the data of the latest available year, the goals set for 2030. Therefore, for these two indicators, together with GDP per capita and companies using broadband >30 Mbps, a consolidation policy should be envisioned, aimed at maintaining if not even improving Lombardy's position relative to Europe, for instance by setting more ambitious goals (higher targets).

Only one indicator is positioned in the quadrant of declining strengths: the weight of industrial workers on the total. As already mentioned, this is essentially due to the natural transformation of the economic system; therefore, considering that the level of industrialization in Lombardy is higher than the European average, in this case a policy of containing the trend can be hypothesized, specifically related to the industrial sectors where the greatest decreases in workers occur.

Seven indicators are in a weak position compared to Europe but are improving. In particular, it should be noted that for business birth rates (% of new businesses on active businesses), digital skills (% of people with advanced digital skills), graduates (% of the population aged 30-34 with a tertiary education), and lifelong learning (% participation in continuous training), the indicator values have already exceeded the 2030 Plan targets. For these indicators and especially for those related to patents, broadband penetration in households, and researchers, it is appropriate to consider a policy of improvement aimed at reaching the European average values and to shift the 2030 target if it has already been achieved.

The situation appears more critical for indicators positioned in the quadrant of worsening weaknesses. These are the companies' R&D expenditures and R&D expenditures relative to GDP, whose deterioration moves them away from both the European average and the Plan targets. In general, for these indicators, a policy to recover positions should be considered; however, since in both cases these are indicators related to the innovation process, a comprehensive reflection on the Lombardy innovation model is needed, also taking into account the data on patents (a weakness but improving) and employment in high-tech companies, which constitutes a growing strength. It is likely, in fact, that in Lombardy innovation is more the result of a system based on tacit knowledge and so-called shopfloor innovation (innovation at the workshop level) than on a formalized R&D system. As is well known, shopfloor innovation refers to the development and appl

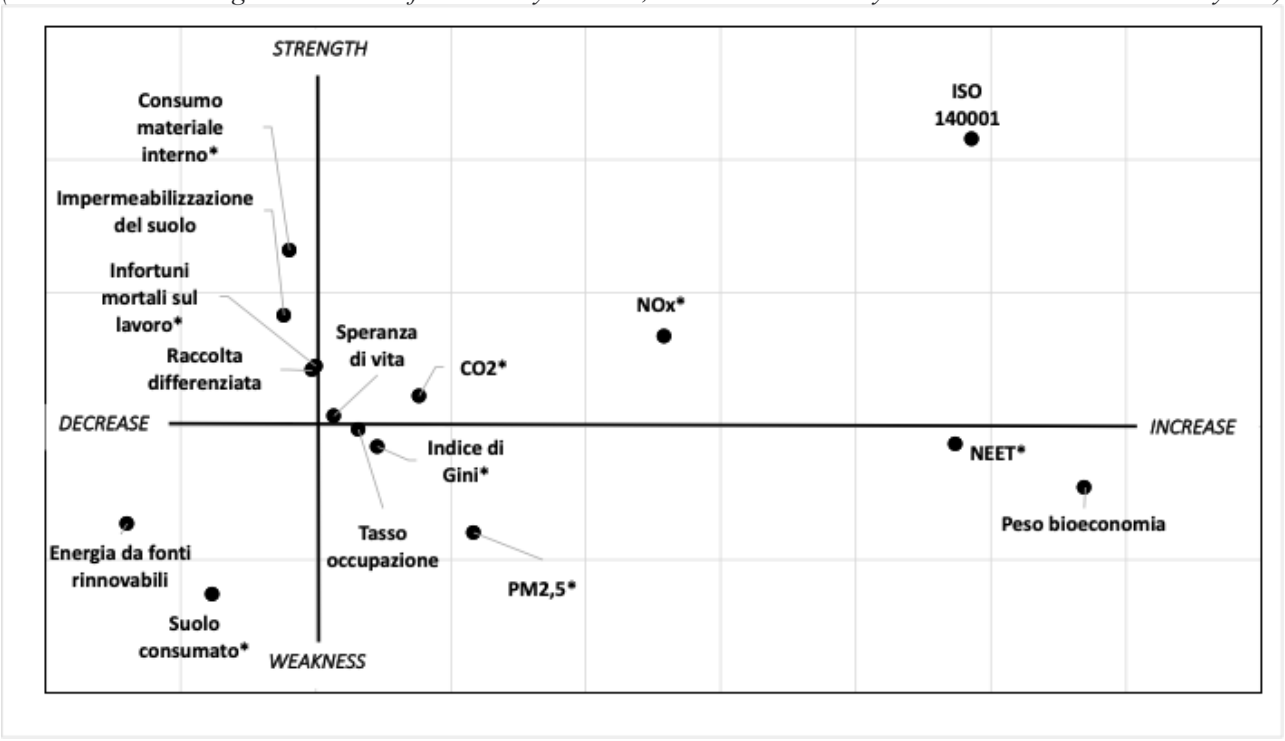
. As is known, shopfloor innovation refers to the development and application of continuous improvements in production processes, often through the Shopfloor Management (SFM) approach. This approach aims to optimize performance by identifying and solving problems directly in the workplace, actively involving employees, reducing waste, and improving communication and production efficiency (see also the data on innovative start-ups and the innovation rate of the system Fig.9).

Summarizing the strategic challenges of the Lombardy Region in the field of productive structure and the competitiveness of the system for the next three decades mainly concerns the business system and in particular:

- support entrepreneurial birth;
- increase the survival capacity of newly established companies;
- strengthen the digitalization of companies, particularly SMEs, both in terms of infrastructure and skills;
- reinforce advanced training processes, both in terms of tertiary education and continuous training;
- increase spending on research and development, both by companies and public institutions, while taking into account the particularity of the Lombard innovation model.

In Fig.16, the SWID matrix related to the indicators of strategic axis 2 - circularity and sustainability of the Lombard economic system is shown. Out of 14 indicators, 7 are identified as strengths (of which 3 are decreasing) and 7 as weaknesses (of which, however, 5 are improving).

Fig. 16 - The SWID matrix of the strategic axis 'Circularity and Sustainability'
(vertical axis: strength-weakness of Lombardy vs. EU; horizontal axis: dynamics over the last three years)



* In the case of indicators with a negative direction ("bads"), the index numbers are reversed: a higher value is better and an "increase" value means that the indicator improves

Among the improving strengths, life expectancy, CO2 emissions, NOx emissions, and ISO 140001 certifications stand out, which has already surpassed the 2030 target. In this case as well, therefore, a policy of consolidation should be considered, with the possible upward adjustment of the target related to ISO 140001 certifications. Internal material consumption, waste sorting, and fatal workplace accidents are among the declining strengths; it should also be noted that for the last two indicators, the decrease in their value is very small and places them on the edge of strengths but increasing. In this case, the most suitable policy is to contain the decreases, which are very limited in all three cases.

Among the weaknesses that are improving, NEETs and the employment rate have already reached, in their respective years of data availability, the target values for 2030. Furthermore, it should be emphasized that their value places them very close to the quadrant of strengths. The improvement policy is the most suitable for reaching the European average values and for raising the 2030 target to higher values if it has already been achieved.
The use of energy from renewable sources and land consumption are among the weaknesses that are worsening, for which a recovery policy aimed at achieving more acceptable values, at least in relation to the Plan's objectives, is therefore desirable.

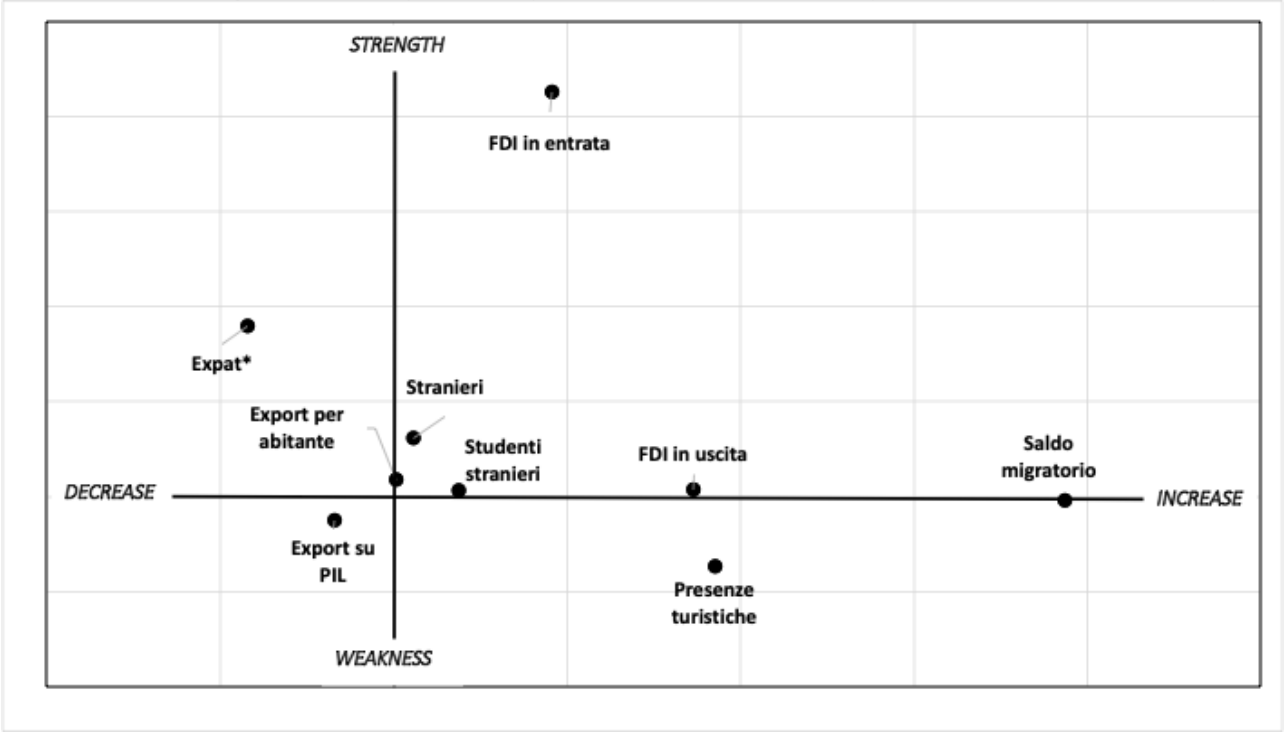
The main challenges for Lombardy in the field of circularity and sustainability of the economic system, therefore, concern interventions and policies aimed at:

- increase the use and production of energy from renewable sources;
- promote the processes of ecological conversion of businesses from the perspective of the circular economy;

• encourage the entry of young people into the labor market under conditions of stability and recognition of skills;
• counteract and reduce land consumption;
• contain the rate of land sealing.

In Fig. 17, the SWID matrix relating to the indicators of the strategic axis - internationalization of the Lombard economic system is shown. Out of 9 indicators, 6 are growing strengths, 2 are growing weaknesses, and 1 is a declining weakness.

Fig.17 - The SWID matrix of the strategic axis 'Internationalization'
(vertical axis: strength-weakness of Lombardy vs. EU; horizontal axis: dynamics over the last three years)



Among the indicators of increasing strengths, it should be noted that incoming greenfield investments, incoming FDI, exports per capita, the migration balance, resident foreigners, and foreign students have already reached the 2030 target. In general, for these indicators, a policy of consolidation should be assumed, with the possible setting of 2030 targets higher than those in the Plan.

Among the weaknesses that are improving, tourist arrivals should be noted. Although not among the target indicators but among the monitoring indicators, a policy of improvement should be assumed. Finally, among the weaknesses that are worsening, exports as a percentage of GDP should be noted, even though its value has surpassed the 2030 target; considering also the recent events related to international trade with a tendency toward a greater focus on the domestic market, it is probably necessary to rethink both policies and indicators.

Among the weakening strengths, the trend of transfers abroad is noted, which have increased in the last three years.

The actions related to the internationalization axis must focus on Lombardy's ability to attract both people and businesses and investments through:

- the promotion of Lombardy as a destination for foreign investment;
- the increase of inbound tourist flows.

Among the investment attraction policies, an important role should be given to initiatives to promote reshoring or nearshoring, as indicated in the strategies of the FESR Financial Plan 2021-2027, Action "Support for the development of the internationalization of Lombard SMEs and the attraction of foreign investments."

In the context of outbound internationalization, the main action should be aimed at:

- to promote the exports of Lombard companies, while taking into account the changes that have occurred in foreign trade;
- to encourage the presence of Lombard small and medium-sized enterprises in international markets.

2.2 The results of target indicators and the strategic implications

To understand the level of achievement of the targets of the Strategic Development Plan of the Lombardy Region / Strategic Industrial Plan, the data in Table 1 may be useful, where the target values for all indicators related to the 6 strategic factors are reported numerically. It should be noted that the number of indicators in this table differs from that of the SWIDs as it refers only to the target indicators and not to the entire set of indicators considered, which also includes control indicators. In brief, it is observed that

They thus show a worsening compared to the values of the Plan (3 indicators):Spesa R&D su PIL (% PIL investito in R&D) red color

- Business R&D expenditure (€ per inhabitant)
- Energy from renewable sources (% of energy from renewable sources)

It is stable compared to the Plan values (1 indicator) yellow color

- Inward FDI (% of GDP)

They show improvement compared to the Plan values (5 indicators) green color:

- Business birth rate (% of new businesses out of active businesses)
- Digital skills (% of people with advanced digital skills)
- Graduates (% of the population aged 25-64 with tertiary education)
- Lifelong learning (% participation in continuous training)
- Informal work (% of informal employment out of total employment)
- CO2 emissions (tons per inhabitant)

They have been found to have reached or exceeded the targets of the Plan for 2030 (8 indicators) blue color:

- Weight of Industry on GDP (% GDP from industry on total GDP)
- High-Tech employment (% employed in high and medium-tech industry)
- ISO 14001 certifications (number of ISO 14001 certificates per million inhabitants)
- NEET (% of 15-24 year olds not working and not studying)
- Employment rate (% employed on 20-65 year old labor force)
- Soil sealing (square meters per inhabitant)
- Incoming greenfield projects (number of projects per 100,000 companies)
- Exports on GDP (% export value on GDP)

Tab.1- Target Indicators: summary of results

	Europe	Lombardy			
	Last*	Plan **	Last year*	Target 2030	Target 2050
Productive structure					
Business birthrate [ABC]	10,5	7,2	7,8	9,4	10,0
% new business on active total business	(2022)	(2019)	(2022)		
Weight of Industry on Gdp[B]	16,6	20,0	20,1	20,0	22,0
% Industry on Gdp	(2022)	(2019)	(2022)		
Digital Transition and competences					
Digital skills	55,5	49,2	53,4	54,8	60,0
% people with high digital skills	(2023)	(2019)	(2023)		
Graduates[ABC]	35,1	21,7	23,5	29,1	40,0*
% people 25-64 with tertiary schools	(2023)	(2020)	(2023)		
Lifelong learning[AC]	13,5	9,3[#]	12,0	12,8	20,0
% people participating continuous training	(2022)	(2016)			
Innovative capacity					
R&D Expenditure on Gdp[ABC]	2,23	1,33	1,17	1,50	3,0*
% Gdo invested in R&D	(2022)	(2019)	(2022)		
R&D Expenditures of Business[AB]	488,3	413,0	387,7	413,0	500,0
€ per inhabitant	(2021)	(2019)	(2021)		
High-Tech Employees[B]	5,1	5,5	6,2	6,0	7,5*
% employees in high and medium tech industries	(2024)	(2020)	(2024)		
Ecological transition					
Renewable Energy	23,1	14,2	13,9	17,9	30,0*
% energy from renewable sources	(2022)	(2019)	(2022)		
CertificaztionsISO 14001	320,6	376,9	743,0	400	450
n. of ISO 14001 certificates per million inhabitants	(2024)	(2019)	(2024)		
Good Job					
NEET[AC]	9,2	15,7	8,9	10,0	6,0
% 15-24 anni not emlpoymnet and training	(2024)	(2020)	(2024)		
Irregular work	-	10,0	8,7	8,0	6,0
% informal employment		(2019)	(2022)		
Employment rate [ABC]	75,8	71,6	74,8	72,0	78,0
% employees on labor force 20-65 years	(2024)	(2021)	(2024)		
Negative externalities					
CO2 emissions	6,3	5,9	5,8	5,0	4,0
Tonn per inhabitant	(2021)	(2019)	(2021)		
Impermeabilized soil	417	288	292	300	310
Square meters per inhabitant	(2022)	(2020)	(2022)		
Attractiveness					
Inward greenfield projects	-	7,5	11,0	8	10
n. of projects per 100.000 business		(2020)	(2023)		
Inward FDI	-1,8	2,3	2,3	3	3
% on Gdp	(2023)	(2019)	(2023)		
Outbound Internazionalization					
Export on Gdp	36,8	31,2	33,2	33	37
% export on Gdp	(2024)	(2020)	(2021)		

A, B, C values in Lombardy respectively lower than Auvergne-Rhône-Alpes; Baden-Württemberg; Catalonia

*Target SRSvS 2020-30 †Target Por Fesr 2021-27 #The indicator of continuous training in the last 12 months has been replaced with the data from the last 4 weeks, as the latter is updated annually

3. The policies for the economic development of Lombardy

The Innovation and Development Zones (ZIS) represent one of the most significant transformations introduced in Lombardy's industrial policy, born from the awareness that profound technological changes and new European priorities require tools capable of strengthening not only established centers of excellence, but above all territorial networks in which businesses, research, institutions, and education can cooperate in a structured way. The objective is not to delimit areas already known for their productive vocation, but rather to stimulate the emergence of new geographies of innovation, capable of generating value by combining existing specializations and emerging potentials. In this sense, the ZIS are directly connected to European paths towards technological sovereignty, digitalization, deep tech development, and the energy transition, offering Lombardy the opportunity to make a qualitative leap in its industrial policy.

The proposed methodological model introduces a transparent and replicable analytical tool, based on a combination of quantitative evidence and qualitative assessments, which allows for the selection of ISZs through objective and comparable criteria. At its core is the construction of a taxonomy of regional industrial ecosystems that allows productive specializations to be understood not as static elements, but as nodes of a network to be strengthened, connecting mature hubs and less visible yet strategic skills. ISZs are therefore conceived as evolutionary ecosystems, oriented towards the quadruple helix model: public entities, companies, research and training centers work together to promote innovation, technology transfer, investment attraction, and skills development.

Their perimeter is defined through three levels of analysis – sectoral, technological, and supply chain – which allow capturing at the same time the productive vocation of the territories, the technological intensity of the sectors, and the capacity to build integrated ecosystems. At the same time, the methodology requires that each proposal be supported by solid partnerships, formalized by a joint Masterplan between public actors, companies, research and training centers. The quality of the partnership, the maturity of territorial relations, and the presence of knowledge infrastructures thus become central elements for evaluating the credibility and sustainability of the ZIS.

The contribution of the Ecosystem Observatory represents a key strength of the model: thanks to a rich set of indicators, it allows for interpreting the productive specialization of territories in a dynamic way, integrating structural elements – such as the competitiveness of supply chains, digitalization, human capital, and international openness – with the historical evolution of territorial performance. This approach makes it possible to distinguish territories that are already strong and consolidated from those that, while starting from more fragile bases, show promising growth dynamics. The evaluation does not, in fact, limit itself to the present, but considers the development potential and the capacity to integrate into future European trajectories.

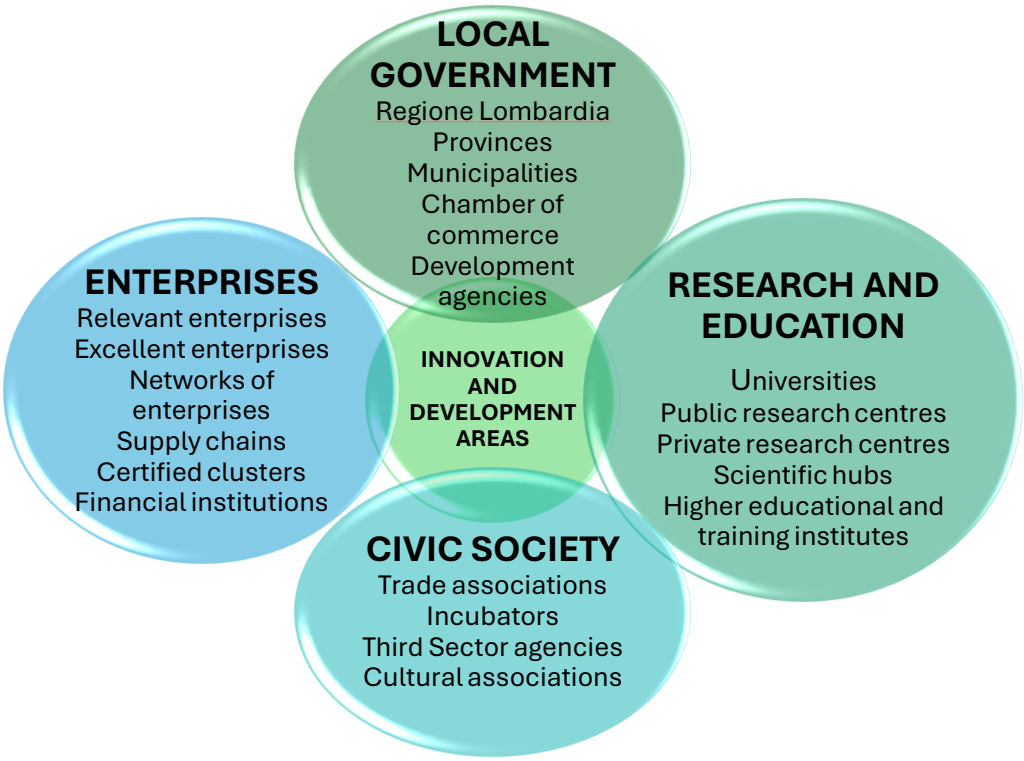
The methodology converges in an Integrated ZIS Index, designed to guide decisions objectively without reducing territorial complexity. The index combines the quantitative strength of specializations with the quality of partnerships and strategic coherence, highlighting not only the strongest territories in absolute terms, but also those most capable of generating innovation in the medium to long term.

A key component of the process is the assessment of futuribility, understood as the ability to integrate into the major European technological and economic trajectories. ZIS must demonstrate not only current competitiveness, but also adaptability to changes, availability of human capital, adequacy of training systems, and a vision of shared governance. Competitiveness cannot be based solely on the strength of companies: an ecosystem capable of attracting investments, retaining talent, and generating positive spillovers on regional supply chains is necessary.

From this system, some operational recommendations are derived:

- the opportunity to develop a regional digital platform that supports partnerships in defining the Masterplans and calculating the indicators;
- the strengthening of rewarding criteria for proposals most aligned with the S3 and European strategies; the enhancement of interprovincial initiatives, more suitable to reflect the real configurations of Lombard supply chains;
- structural investment in training and skills, so that the ZIS become places of continuous learning as well as productive innovation.

THE ACTORS: FOUR-WINGED HELIX MODELi



In conclusion, the creation of the Innovation and Development Zones marks a new phase for Lombardy's industrial policy. The IDZs are not merely territorial recognitions, but tools to build a more integrated, resilient industrial system capable of facing global challenges. The proposed methodological model offers a solid framework to guide this transformation, combining rigorous analyses with strategic vision. The future challenge will be to move from the selection of IDZs to their realization as true engines of change, capable of enhancing established specializations and exploring new technological trajectories, strengthening Lombardy's role in European industrial systems.