



Lombardy Strategic Industrial Recovery Plan

Summary December 2022

Introduction

Lombardy's Strategic Industrial Recovery Plan is part of the process started in 2021 by the Department of Economic Development to support the recovery and transformation of Lombardy's production system with the aim of restoring Lombardy to its natural role as the nation's economic engine.

The document, in line with the new European Industrial Strategy, photographs and analyses the socio-economic situation in Lombardy - in terms of ecosystems and industrial specializations, the impact of the organisation of sustainable activities and strategic development factors - by identifying strengths and weaknesses and its positioning with respect to Europe, the Four Motors and Italy. It also takes into account the most significant regional planning dossiers for the issues in question and then identifies the resulting strategic approaches and development objectives on which future action and investment will be focussed with the aim of bridging the gaps revealed by the analysis and ensuring increasingly competitive and sustainable economic development.

The Plan is divided into three chapters and is accompanied by six appendixes. The aim was to produce a streamlined document with essential information, whilst providing the methodological and statistical basis for possible verification and in-depth analysis.

In terms of the analysis carried out the three strategic areas identified (that come under in the Regional Directorate General's remit) were:

1. **Competitiveness of industrial ecosystems and production chains**
2. **Circularity and sustainability of the economic system**
3. **Internationalisation**

All three were confirmed as being *strategic factors*.

Following this, groups of researchers and regional bodies have worked together to identify challenges up to 2030 and then onto 2050, as well as the *target indicators*.

Table 1 - Correlations between Strategic axis, Strategic factors, Challenges and Target indicators

Strategic axis	Strategic factors	Challenges to 2030 and 2050	Target Indicators
Competitiveness of ecosystems and production chains	Industrial structure	<ul style="list-style-type: none"> - support entrepreneurial activity. - increase survival capacity for new businesses - consolidate industry in Lombardy - support business networks that implement joint supply chain projects 	<ul style="list-style-type: none"> - Creation of new businesses - business survival at 3 years - industry weight on GDP
	Digital transition and skills	<ul style="list-style-type: none"> - strengthen the digitalisation of businesses, particularly SMEs, in terms of both infrastructure and skills - strengthen advanced training methods, both in terms of tertiary education and continuous training 	<ul style="list-style-type: none"> - digital skills - businesses with ultra-fast broadband - university graduates - lifelong learning

	Innovative capacity	<ul style="list-style-type: none"> - increase spending on research and development, both by companies and public bodies - promote employment and business development in high-tech environments 	<ul style="list-style-type: none"> - R&D expenditure on GDP - business R&D expenditure - high-tech employment
Circularity and sustainability of the economic system	Ecological transition	<ul style="list-style-type: none"> - increase the use and production of energy from renewable sources - promote ecological reconversion processes of companies with a view to the circular economy. 	<ul style="list-style-type: none"> - energy from RES - ISO 14001 certifications - Energy communities - Waste used as raw material - Total renewable energy
	Good jobs and quality of life	<ul style="list-style-type: none"> - increasing employment, both in quantitative and qualitative terms - promote the entry of young people into the labour market in conditions of stability and enhancement of skills 	<ul style="list-style-type: none"> - NEETs - Irregular employment - Employment rate
	Environmental externalities	<ul style="list-style-type: none"> - decrease carbon dioxide and particulate emissions - counteract and reduce ground impermeability 	<ul style="list-style-type: none"> - CO2 emissions - ground impermeability - fine dust PM 2.5
Internationalisation	Promotional opportunities	<ul style="list-style-type: none"> - promoting Lombardy as a destination for foreign investments - increasing incoming tourist flows 	<ul style="list-style-type: none"> - incoming FDI - incoming greenfield projects
	Outbound internationalisation	<ul style="list-style-type: none"> - promote exports by Lombardy companies - promote the presence of Lombardy's small and medium enterprises on international markets 	<ul style="list-style-type: none"> - internationalisation of enterprises - exports on GDP

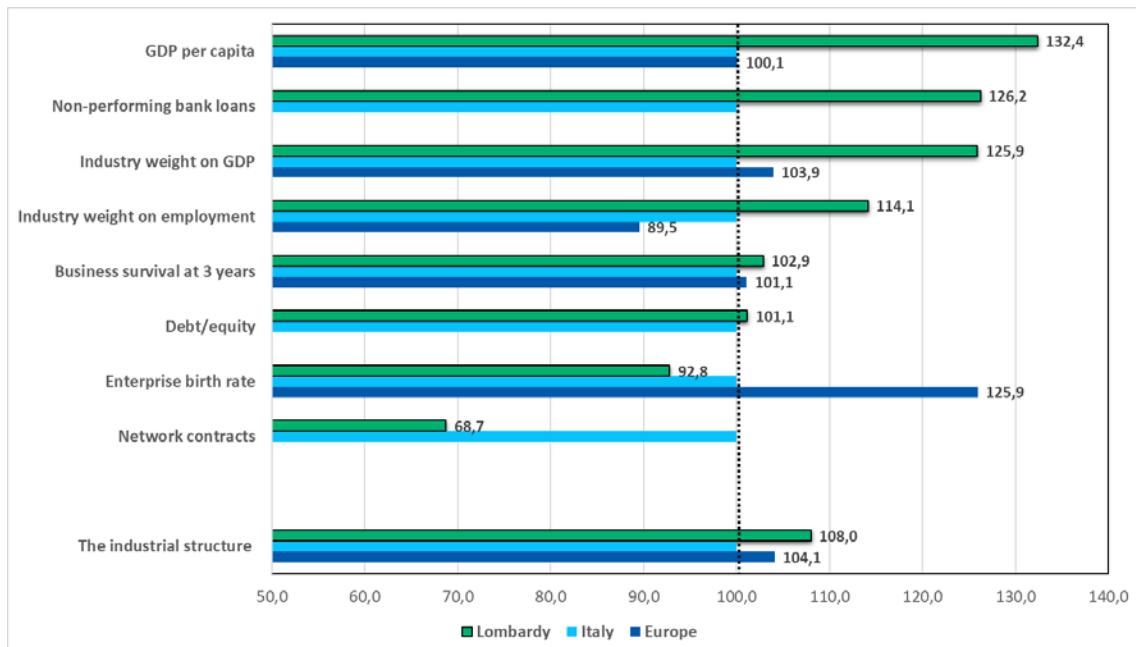
Strategic positioning- an example

Strategic positioning is the starting point in the process of identifying *strategic targets* and it is useful to illustrate, with an example, how the former was identified.

The example relates to Strategic Axis 1 'Competitiveness of industrial ecosystems' and focuses on 'the industrial structure' as the *strategic factor*.

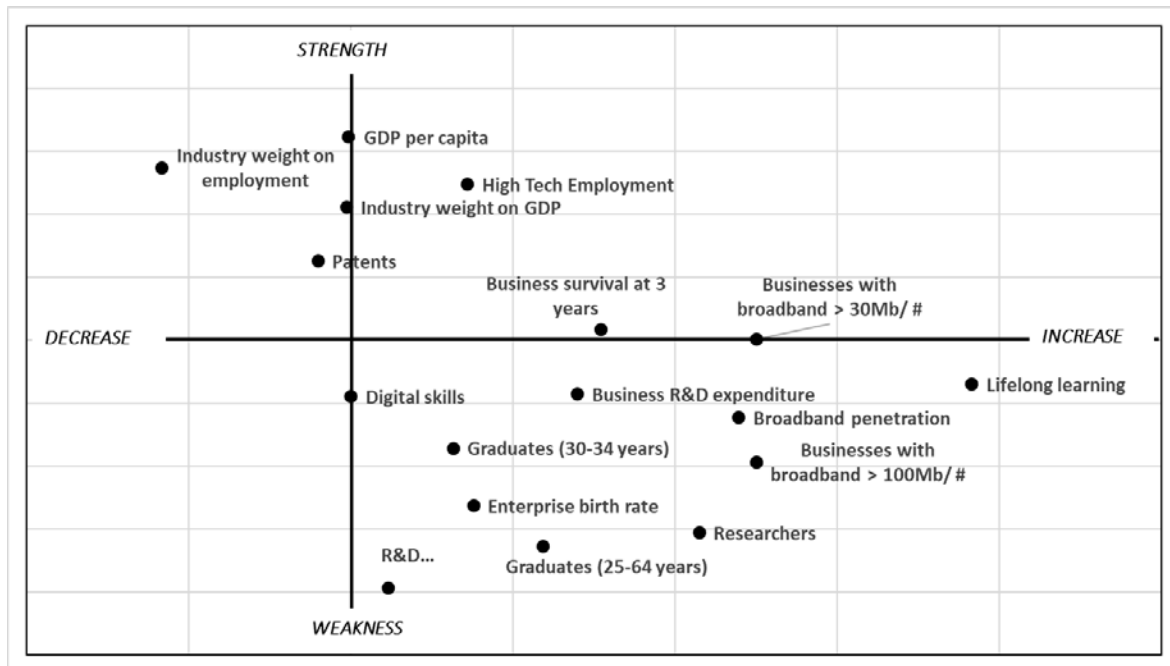
The data was examined for a series of trends representing the overall industrial structure in Lombardy and then compared with national and European levels.

Figure 1 - The industrial structure (index values, average of available years; Italy 100)



A 'SWID' (Strength, Weakness, Increase, Decrease) matrix was then constructed for the same strategic axis, making it possible to visualise not only the position, but also revealing through the individual elements how the strategic factors changed over a ten year period.

Figure 2 - The SWID matrix of the strategic axis 'Competitiveness of ecosystems and production chains' (vertical axis: strength-weakness of Lombardy vs. the EU; horizontal axis: changes over the last decade).



Lombardy's economic development strategy

Lombardy's vision for 2030 and 2050

By analysing the competitive positioning of Lombardy's industrial system and the policies and plans implemented by the Lombardy Region it is possible to outline strategies that should be pursued in the future, for 2030-2050.

A first general choice concerns the need for an approach to integrate factor policy with sector policy, to strengthen the elements of complementarity and synergy that the two policies can have.

The second strategic choice concerns the selective character that strategic choices must have, i.e., the need to focus only on certain sectors and certain factors, and within these only on certain indicators of competitive and sustainable development. Synergy and selectivity are therefore the cornerstones of Lombardy's development vision for the period in question.

Policy for strategic factors

The first strategic choice to be made in setting the objectives for the years 2030 and 2050 relates to distinguishing between target indicators and control indicators for each axis and relative factors. In fact, based on the principle of selectivity not all the indicators were numerically quantified in the two reference years, but only those for those pertinent to Lombardy's poor performance compared to the reference benchmark (Europe or if not available Italy) and where its performance was declining (SWID analysis), whilst the other indicators were just monitored.

The second consideration concerns the correctness of setting targets, even when results are better than the reference benchmark, when the strategic importance of the indicator has made it appropriate to set quantifiable goals.

Finally, the third consideration concerns the significance given to the indicator itself by the policies and planning documents examined: this consideration is used to make the choice between target and control indicators.

Axis 1. The competitiveness of ecosystems and production chains

The Lombardy Region's strategic challenges for the industrial structure over the next three decades mainly concern the business system and is based on three actions/interventions:

- **support for new start-ups**
- **increase the survival capacity of new businesses.**
- **the consolidation of Lombardy's industrial structure.**
- **supporting business networks that implement supply chain projects.**

The Region means to guarantee access to grants or financial instruments to more than 4,900 businesses (all sizes) within its borders by 2029, to strengthen their growth and competitiveness. This will include industry investment.

In the area of **digital transition and skills**, strategic challenges cover both digital infrastructure and skills and human capital:

- **strengthen the digitalisation of companies, especially SMEs, in terms of both infrastructure and skills.**
- **strengthen advanced training processes, both in terms of tertiary education and ongoing training.**

In terms of **innovative capacity**, the challenges must focus on both input and output factors of the innovation process:

- **increasing research and development expenditure, by both private companies and public bodies.**
- **promoting employment and business development in high-tech ecosystems.**

As a matter of fact, Lombardy has three indicators to monitor as they are above the European average and growing (rate of innovation, employment in high-tech companies, innovative start-ups, patents). Whilst the Region should set planned targets for R&D expenditure on GDP, the number of researchers and the R&D expenditure of companies, the value of which, although displaying a tendency towards growth, show considerable differences with Europe.

Axis 2: Circularity and sustainability of the economic system

The main challenges for Lombardy regarding **ecological transition** cover interventions and policies aimed at:

- **increasing the use and production of energy from renewable sources**
- **promoting the processes of ecological reconversion of businesses with a view to the circular economy.**

To this end, the following are identified as target indicators: the production of energy from renewable sources, business sustainability certifications, the expansion of energy communities, the reuse of waste as raw materials and the production of renewable energy. For all the other indicators relating to the ecological transition and the circular economy, only follow-up action is sufficient, as Lombardy is positioned above the national or European average.

A very different situation is evident concerning good jobs and quality of life factors; the main challenges concern mainly quantitative and qualitative aspects of the labour market:

- **increasing employment, both in quantitative and qualitative terms.**
- **enabling the entry of young people into the world of work under conditions of stability and skills development.**

Here the share of NEETs, undeclared workers and the employment rate must be the object of a policy of intervention and the setting of proper targets, whilst monitoring for life expectancy, fatal accidents at work and the Gini index is sufficient.

Negative environmental externalities represent factors where Lombardy performs badly compared to both national and European averages. The main actions must address both harmful and climate-altering emissions and land use:

- decreasing carbon dioxide and particulate emissions.
- counteracting and reducing soil impermeability.

Monitoring is only sufficient for internal goods consumption, whilst targets must be set for all other indicators. Particular attention should be paid to NOx emissions, PM2.5 particulate emissions and land consumption. It should be noted that in the case of CO2 emissions, even if Lombardy's figures are slightly better than the European level, the importance of this indicator makes it imperative to set quantitative targets (also in consideration of the fact that Lombardy is the worst in Italy).

Axis 3. Internationalisation

The first strategic factor of the internationalisation axis relates to territorial attractiveness. Lombardy's ability to attract both people and businesses and investments suggests focusing on the following actions:

- **promoting Lombardy as a destination for foreign investments.**
- **increasing the flow of incoming tourists.**

Amongst policies to attract investment, an important role is attributed to initiatives encouraging reshoring or nearshoring, as indicated in the strategies of the 2021-2027 ERDF Financial Plan, Action "Support for the development of the internationalisation of Lombardy's SMEs and the attraction of foreign investment".

In the area of **outbound internationalisation**, the main action must be aimed at:

- **encouraging exports from Lombardy's businesses.**
- **promoting the presence of Lombardy's small and medium-sized businesses in international markets.**

The final goal is to stimulate Lombardy's businesses towards recovering their leadership in international markets. This can include the adoption of digital technology to meet the needs of a global market and a 'new demand' (e-commerce, virtual showrooms) and strengthening the presence of Lombardy's businesses in valuable global chains.

A summary of Lombardy Region's strategy

As can be seen from the summary of the targets relating to the various factors (Table 2), the greatest challenge facing Lombardy concerns the circular economy and ecological transition, with 5 targets to be achieved: the production of energy from renewable sources, the environmental certification of companies, the spread of energy communities and the recycling of waste.

Secondly, four strategic targets have been identified for 2030 and 2050 to promote Lombardy's economic and social digital transition with regards to human skills and capital and technological infrastructure.

This is followed by innovative capacity and environmental externalities, two factors for which there are contrasting opinions: as far as innovative capacity is concerned (3 targets) it is a matter of maintaining/improving a situation in which Lombardy already has a good record compared to the European average (expenditure in research and development, employment in high-tech sectors).

Overcoming the current negative externalities by achieving the three targets will be strategic (pollutant emissions, soil impermeability) for two reasons: the current situation heavily penalises Lombardy and the negative impact that they have on both the quality of life and attractiveness of the region.

As far as the labour market is concerned, the objectives on which to focus attention are: the strengthening of regular employment, the reduction of informal employment and a sharp decrease in the number of young people leaving the education and training system prematurely, even when they are unemployed.

There are two other objectives to focus on, relating to the industrial structure: supporting the birth rate and the long-term survival of businesses in Lombardy.

Finally, in the context of internationalisation, two targets are highlighted: for outgoing internationalisation, the aim is to increase the number of Lombardy companies exporting their products; for incoming internationalisation, the aim is to increase the share of direct foreign investment in the region.

However, it should be pointed out that from comparisons with the reference benchmarks and the trends of the relative indicators, it is possible to add more purely political assessments, that can underline the previous challenges. In fact, it's not that all the objectives in question must have the same priority from both a time perspective and in terms of the number of resources to be allocated to them. In this case too, a choice must be made whether to operate a selective strategy or to act uniformly on all the objectives. Finally, another strategic choice concerns the choice of intervention methods.

Table 2 - Summary of the target indicators to 2030 and 2050 by strategic factor

Indicators	Target	
	2030	2050
Production structure		
Business start up rate - % of new businesses on existing businesses	9,4	10,0
Business survival at 3 years - % businesses created in t-3 survived in t	61,4	65,0
Digital transition		
Digital skills - % people with high level digital skills	54,8	60,0
Businesses with ultra-fast broadband - % businesses connected to broadband >100Mb/s	46,0	60,0
Graduates - % population 25-64 years old with tertiary education	29,1	40,0*
Lifelong learning - % participation in continuous training	47,0	55,0
Innovative capacity		
R&D expenditure on GDP - % GDP invested in R&D	1,50	3,0*
Business R&D expenditure - € per inhabitant	413,0	500,0
High-tech employees - % employed in high and medium-tech industries.	6,0	7,5 *
Circular economy and ecological transition		
Energy from renewable sources - % energy from renewable sources	17,9	30,0*
ISO-14001 certifications - number of certifications per million inhabitants	400	450
Energy communities - number of renewable energy communities	85 [†]	150
Waste used as raw materials - Tonnes/year	5.500 [†]	10000
Total renewable energy - MWatt/year	68.000 [†]	100.000
Good jobs		
NEET - % 15-24 years old not working and not studying.	10,0	6,0*
Irregular employment - % informal employment over total employment	8,0	6,0
Employment rate - % employed over labour force.	72,0	78,0
Negative externalities		
CO2 emissions - micrograms per cubic metre	5,0	4,0
Soil impermeability - square metres per inhabitant	395	390
Particulate emissions PM2.5 - tonnes per inhabitant	13,5	10,0
Attractiveness		
Inbound foreign direct investment - % FDI on GDP	3,0	3,0
Outbound internationalisation		
Internationalisation of enterprises - % exporting enterprises	5,0	6,0

*Target SRSvS 2020-30 †Target PR ERDF 2021-27

Policies for industrial ecosystems and supply chains

Policy for industrial ecosystems tends to identify the related economic sectors and production chains considered strategic for development where investments should be focussed.

The analysis of Lombardy's ecosystems has made it possible to distinguish the dominant sectors (i.e. those with the higher weight) - with their relative specialization index - from the other sectors (Appendix 3). This information combined with the GET Green, Enabling, Transitional taxonomy (Appendix 2) makes it possible to identify the sectors to prioritise based on the potential for ecological conversion at the level of individual companies. Whilst waiting for the extended and final version of this categorization, it is possible to indicate in principle the criteria used to identify which sectors should be prioritized.

Sector	Green	Enabling	Transitional
Dominant	*	***	*****
Non-dominant	**	***	****

This table, that can be created for each of the 14 ecosystems, makes it clear that there is a need to focus on transitional activities and then to scale up on enabling and green activities.

A subsequent cross-reference can be made between regional policies and the industrial structure (Appendix 6) to highlight whether and with which instruments action has been taken in the various sectors classified according to the previous methodology (ecosystems, dominant sectors, GET taxonomy).

A second strategy at the sectoral level that can be pursued can refer to the totality of the ecosystem chain by identifying two paths:

- Widening – i.e., completing or expanding the ecosystem chains by intervening on non-dominant sectors.
- Deepening – i.e., strengthening the dominant sectors that make up the ecosystem.

Table 3 - Lombardy's proactive ecosystems - widening or deepening policies.

	widening	deepening
Aerospace & Defence		
Agri-food		
Construction		
Cultural and Creative		
Digital		
Electronics		
Energy Renewables		
Energy Intensive Industry		
Health		
Mobility Transport Automotive		
Proximity, Social Economy and Civil Security		
Retail		
Textile		
Tourism		

The Lombardy ecosystems that are specifically subject to policies aimed at strengthening the supply chain in relation to non-dominant or ancillary sectors are: Agrifood, Digital, Electronics, Energy Renewables, Retail, Textile, Tourism. Whereas for the Aerospace and Defence, Cultural and Creative, Energy Intensive Industry (the entire mechanical and metallurgy sector), Mobility and Automotive, Proximity and Social Economy sectors, it is necessary to increase competitiveness and technological resources of the industry leaders and dominant sectors.

The choice of which sector to include in one or the other strategy is based on general criteria. In fact, with reference to the structure of the ecosystems, it can be noted that they are almost always:

- (a) manufacturing companies producing intermediate goods, hence B2B, or final goods, hence B2C.
- b) manufacturers supplying capital goods for the businesses in group a).
- c) service companies dealing with project/design, research activities, but also with commercialisation, particularly international, of the goods produced by the ecosystem.

For several reasons this ecosystem structure provides a rational basis for policy making. Firstly, the ecosystem structure also provides the framework for monitoring and to some extent predicting the development of the ecosystem itself. As has already happened in many Italian industrial clusters, the ecosystem can be strengthened, in each of the three groups, both by the 'natural' evolution of the market and by the policies themselves.

Strengthening industrial policies to support the mechanical industry may change the focus from "final" production industries and concentrate on the ecosystem of the businesses specialised in producing capital goods. It is interesting to consider the probable long-term effects of policies linked to the Industry 4.0 model or, more generally, policies for the digitalisation of industrial systems.

The strengthening of policies for sustainability can help group B enterprises that supply group A with technology and capital goods for production, this could generally decrease the use of energy or materials.

Recently, policy has also focused strongly on services to support manufacturing companies, particularly with reference to areas like planning, design, research, promotion of innovation, commercialisation and internationalisation. As a result of these policies the potential evolution of the ecosystem can be directed towards group C businesses developing specialisations that, in the context of increasing global interconnection between regional/national ecosystems throughout Europe and beyond, can perform on a broader scale than just regional.

From the considerations made so far, it is clearly difficult to identify quantitative targets for sectoral policies. Rather, it is a matter of directing the choices of investors and enterprises towards activities that contribute to the transition to a development model in line with the EU's environmental objectives. Generally, the preceding tables form the basis of a dashboard to monitor the evolution of the Lombardy industrial system and to broadly direct regional policy.

Table 1 – Strategic priorities for industrial ecosystems in Lombardy

	Asse 1	Asse 2	Asse3
Aerospace & Defence			
Agri-food			
Construction			
Cultural and Creative			
Digital			
Electronics			
Energy Renewables			
Energy Intensive Industry			
Health			
Mobility Transport Automotive			
Proximity and Social Economy			
Retail			
Textile			
Tourism			

The final strategic focus concerns the intersection between interventions for the competitive improvement of the Lombardy system in terms of factors and sector/ecosystem policies. These choices can act in supporting businesses in terms of size, support for the development of innovative capacity and the technological content of products for the Aerospace & Defence, Cultural and Creative, Digital, Electronics, Energy Renewables, Health, Proximity and Social Economy, Retail, Textile, Tourism ecosystems. While incentives for the transition and industrial reconversion towards sustainability and circularity primarily concern Agri-food, Construction, Energy Intensive Industry, Mobility Transport Automotive and Retail ecosystems.

