



# **The Bioeconomy in Italy: facts and figures**

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# Agenda

**1** The bioeconomy in Italy: 2016 updated estimates

**2** A first look on bioeconomy in Lombardia

# Bioeconomy: which definition?

- ❑ First step: we used the European Union definition<sup>1</sup> of bioeconomy that includes a large variety of sectors: **agriculture, forestry, fisheries, food and pulp and paper production, as well as parts of chemical, biotechnological and energy industries.**
  
- ❑ Second step: we added the **management and recovery of biodegradable waste** considering the relevance of this activity in a logic of circular economy.
  
- ❑ Third step: in the last edition of the Report<sup>2</sup> we introduced the **water cycle**, considering the relevance of water as an input for standard bioeconomic industries (agriculture, food, paper etc...) and as an output, if depurated, in terms of sewage sludge, an important source of biomass, energy and bio-based products.

1) *European Commission (2012) Innovating for Sustainable Growth: A Bioeconomy for Europe; 11 final.*

2) «La Bioeconomia in Europa. 4° rapporto» Intesa Sanpaolo- Assobiotec; marzo 2018.

# How to measure bioeconomy at national level?

The methodology used in our analysis considers:

- ❑ **official statistics** for the following sectors:
  - ✓ Agriculture, forestry and fishing (source Eurostat)
  - ✓ Food products, beverages and tobacco products (source Eurostat)
  - ✓ Paper and wood industry (source Eurostat)
  - ✓ Biofuels (source Eurostat)
  - ✓ Bioenergy (energy production by source);
  
- ❑ **estimation of the production of textiles** only from natural fibers and leather (estimation on PRODCOM and Eurostat data);
- ❑ **estimation of the production of pharmaceutical products** from natural origin (estimation on Eurostat data);
- ❑ **estimation of bio-based chemicals** quantified with PRODCOM data and I/O tables<sup>1</sup>;
- ❑ **estimation of biodegradable waste**;
- ❑ **estimation of the water cycle.**

1) The methodology was developed with CREA, Assobiotec, Cluster Spring and the collaboration of Federchimica, SMI and Farindustria.

# The bioeconomy in Italy: €260 billion in 2016

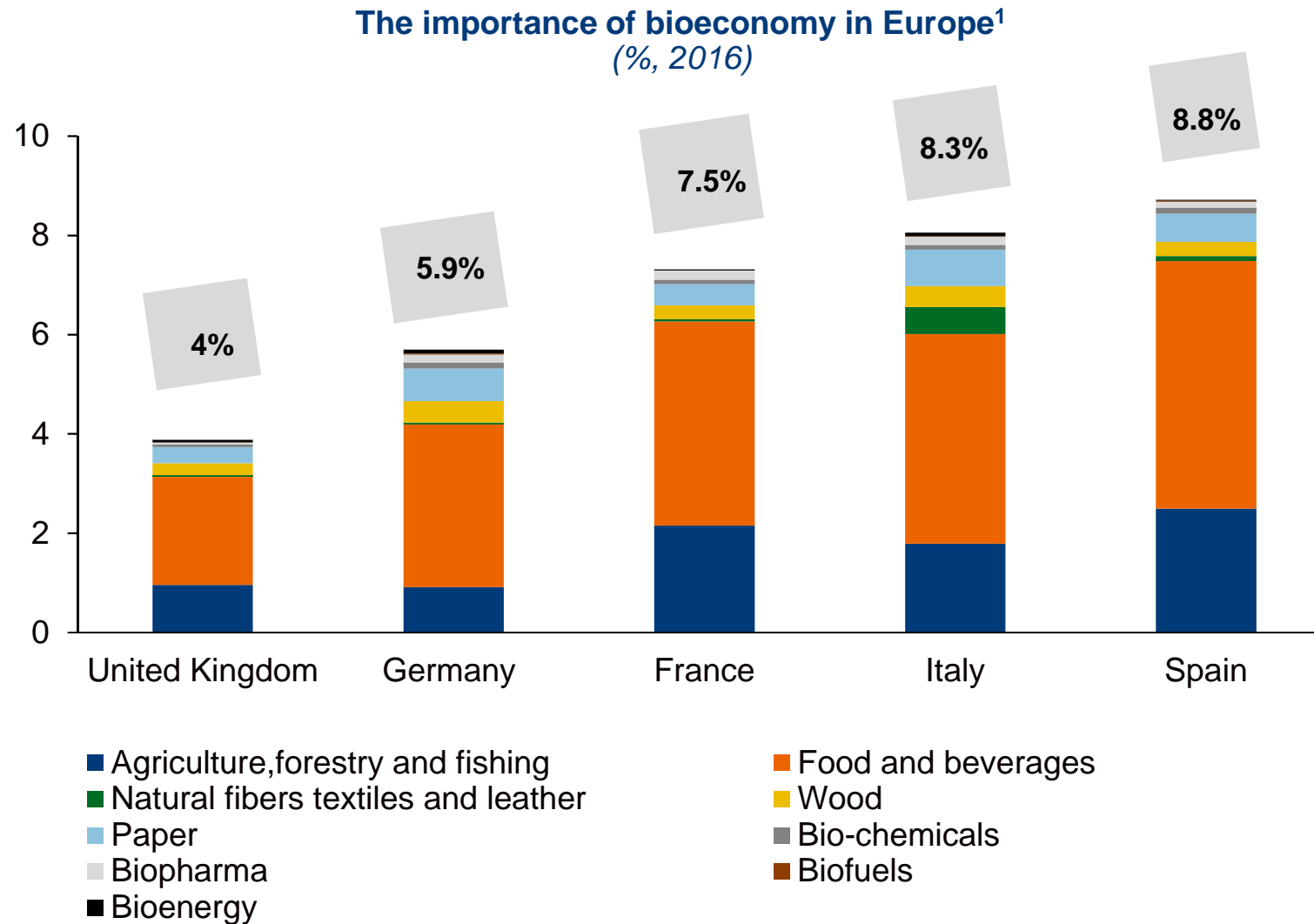
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## Bioeconomy in Italy (production, € billion)

	2015	2016	Composition 2016 %
Agriculture, forestry and fishing, of which:	58 232	56 003	21.5
Agriculture	54 946		
Forestry and logging	1 491		
Fishing and aquaculture	1 795		
Food, beverages and tobacco products	130 281	132 801	51.0
Textiles from natural fibers and leather	16 873	17 153	6.6
Wood	12 713	13 156	5.1
Paper	22 361	23 098	8.9
Bio-based chemical products	2 900	3 037	1.2
Bio-based pharmaceutical products	4 830	5 107	2.0
Biofuel	316	350	0.1
Bioenergy	2 174	2 237	0.9
<b>Total production of bio-based products</b>	<b>250 680</b>	<b>252 942</b>	
<b>% of bio-based products on total production</b>	<b>25.9%</b>	<b>26.3%</b>	
Management and recovery of biodegradable waste	7 049	7 366	2.8
<b>Bioeconomy total</b>	<b>257 729</b>	<b>260 308</b>	<b>100</b>
<b>Bioeconomy in % of total economy</b>	<b>8.2%</b>	<b>8.3%</b>	
Water cycle	9 745	10 026	
<b>Bioeconomy and water cycle</b>	<b>267 474</b>	<b>270 334</b>	
<b>Bioeconomy and water cycle in % of total economy</b>	<b>8.5%</b>	<b>8.6%</b>	

Source: elab. Intesa Sanpaolo on various sources

# The bioeconomy in Italy: an important role ...

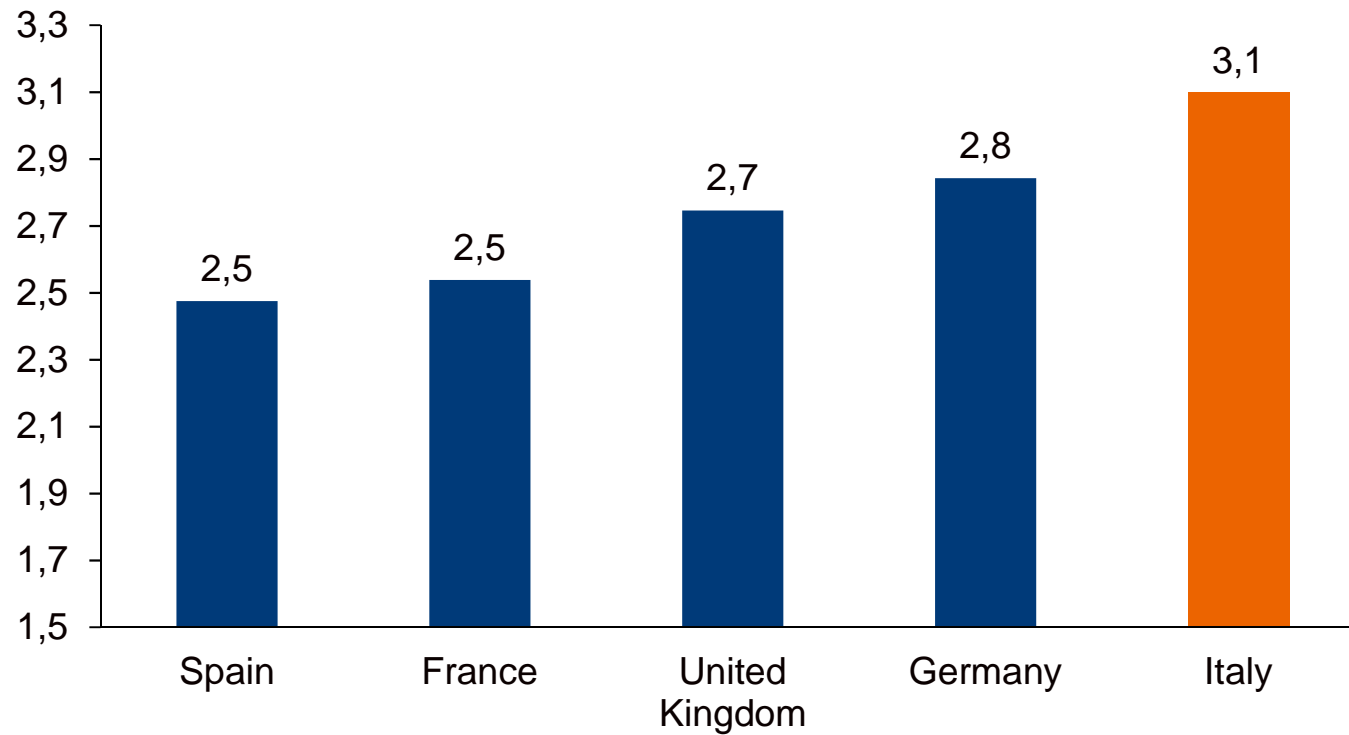


1) Net of water cycle.

Source: elab. Intesa Sanpaolo on Eurostat

# ... and a higher sectoral diversification

**The sectoral diversification**  
*(2016, inverse of Herfindahl index)*



Source: elab. Intesa Sanpaolo on Eurostat

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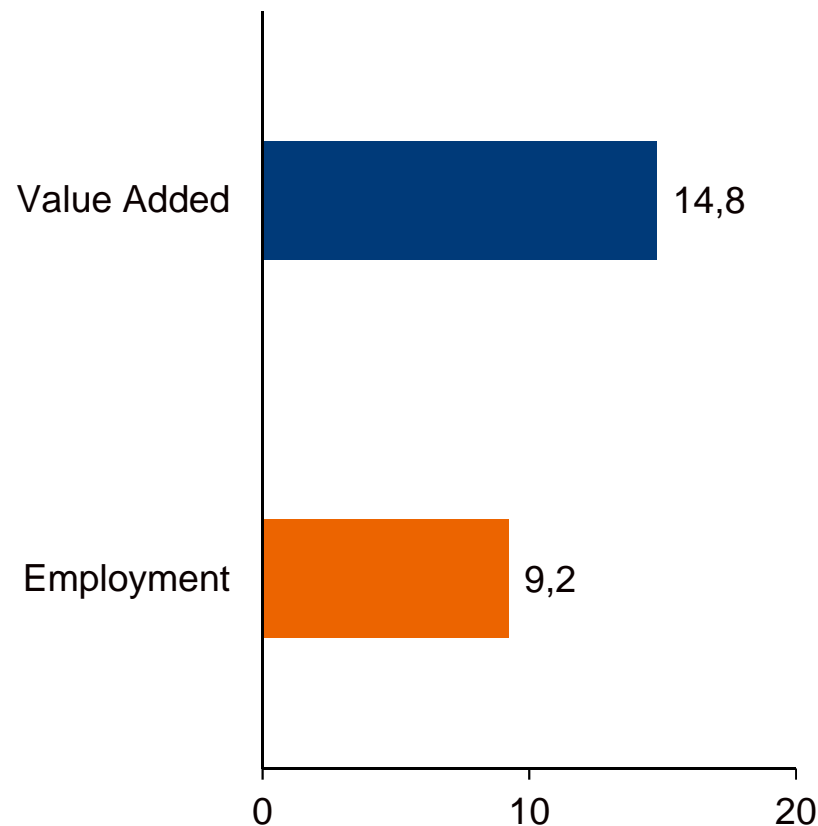
## Which is the value of bioeconomy in Lombardia?



- ✓ Official statistics at regional level are not available for all sectors of bioeconomy (for instance bio-chemical industry), so it's not possible to estimate the value of bioeconomy in Lombardia using the same methodology used at national level.
- ✓ It's possible however to analyse some economic indicators that help to describe the regional economy according to a bioeconomic view.

# Lombardia: the agri-food industry weights about 15% on the Italian total sector...

Lombardia: the weight of agri-food industry on Italian agri-food  
(%, 2015)

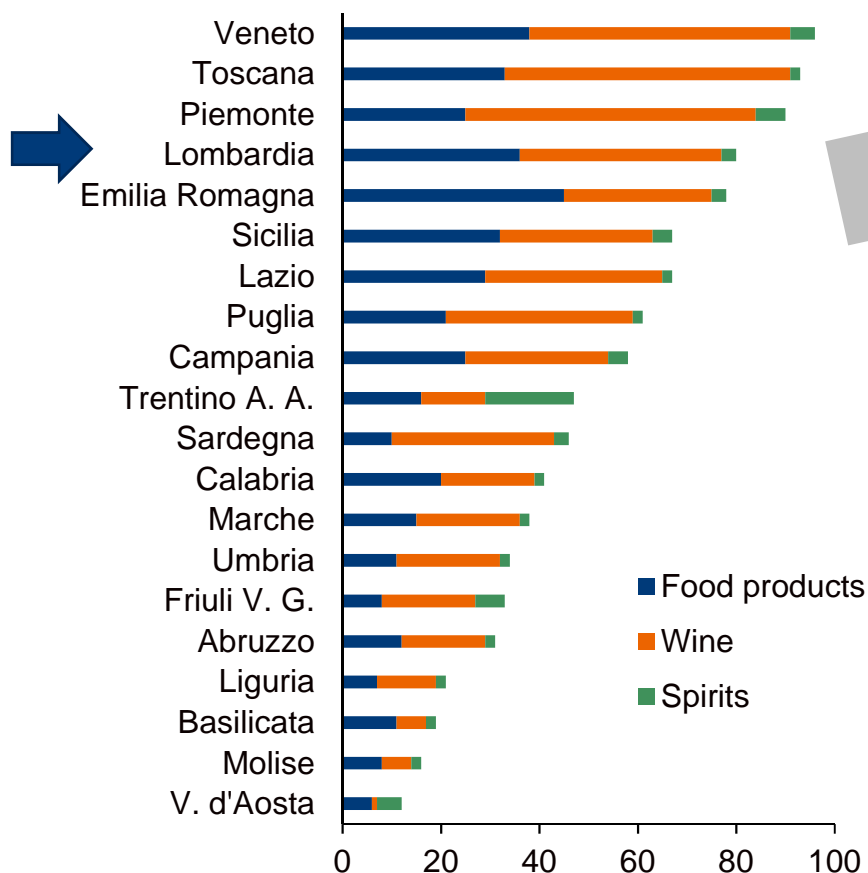


✓ In Lombardia the agri-food industry accounts for 8.3 billion euro.

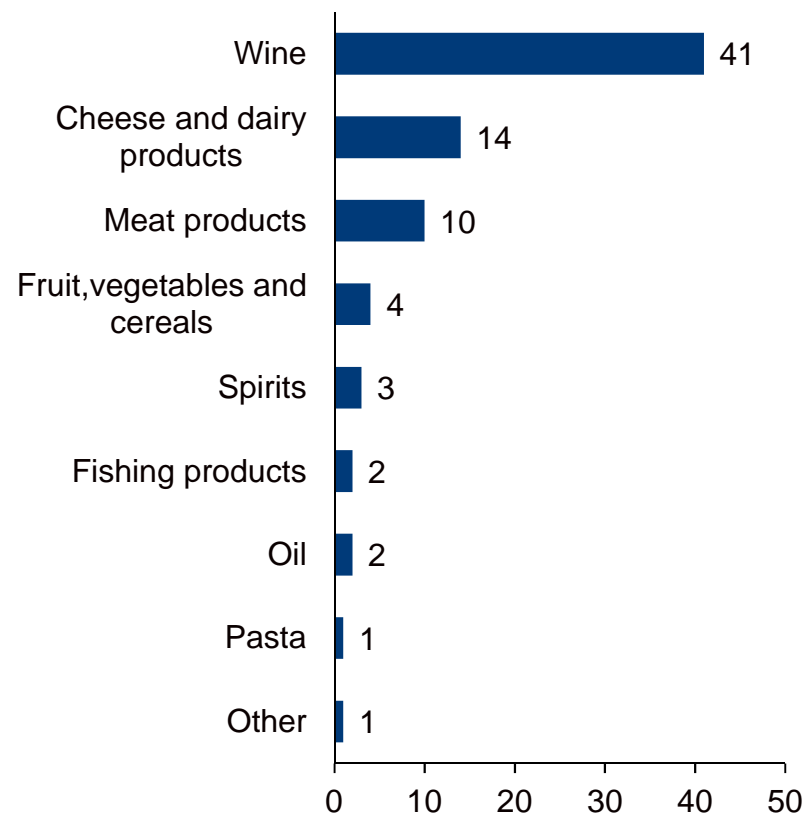
✓ People employed in agri-food in Lombardia are more than 124.000, 9.2% of Italian agri-food employees.

# ... and it's characterized by the high quality of its production

PDO, PGI and TSG products by region<sup>1</sup>



PDO, PGI and TSG products in Lombardia, details.

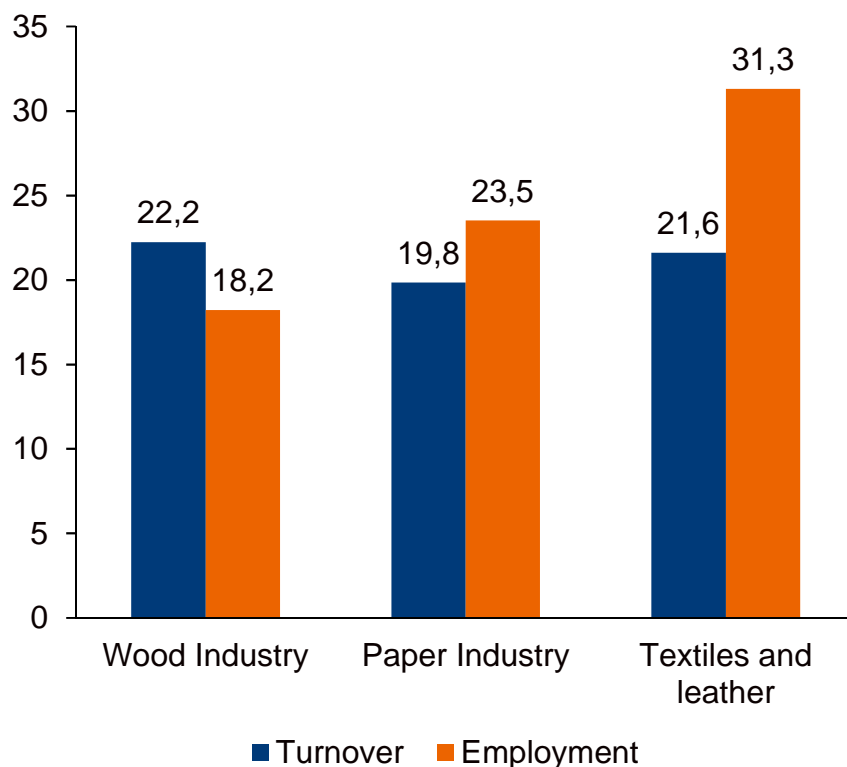


Note: Protected designation of origin (PDO), Protected Geographical Indication (PGI), Traditional Speciality Guaranteed (TSG).

Source: elab. Intesa Sanpaolo Qualivita (2018) e Mipaaf (2017) data

# A relevant role both for traditional sectors...

**Lombardia: the weight of some traditional sectors on Italian ones**  
(%, 2015)



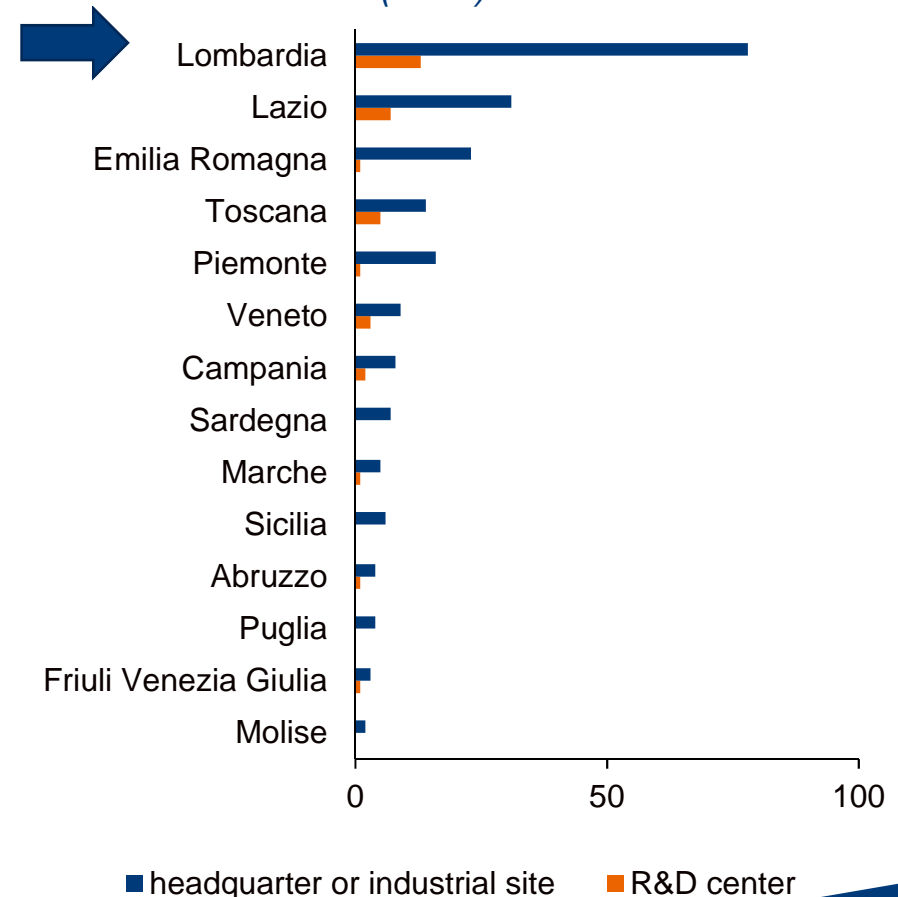
- ✓ The Lombard industry of textiles and leather weights in terms of employment about 30% on Italian sector (22% in terms of turnover).
- ✓ Lombardia has an important tradition on textile industry, with a specialization in natural fibres as showed by the presence of 3 important economic districts specialized in natural textiles: Silk of Como, Textiles of Val Seriana and Textiles of Gallarate.
- ✓ The Lombard industry of wood and paper represents about 20% of Italian wood and paper industry in terms of turnover and employment.

Source: elab. Intesa Sanpaolo on Istat data

## ... and the high-tech industry

- ✓ Lombardia is specialized in **pharmaceutical industry**, in particular in the province of Milano, Monza, Varese, Pavia, where multinationals are present.
- ✓ The presence of big players helps the development of new products and fields of research as **biotech pharmaceuticals**.
- ✓ Lombardia is the first region at national level for number of firms and R&D Centers of biotech pharmaceuticals.

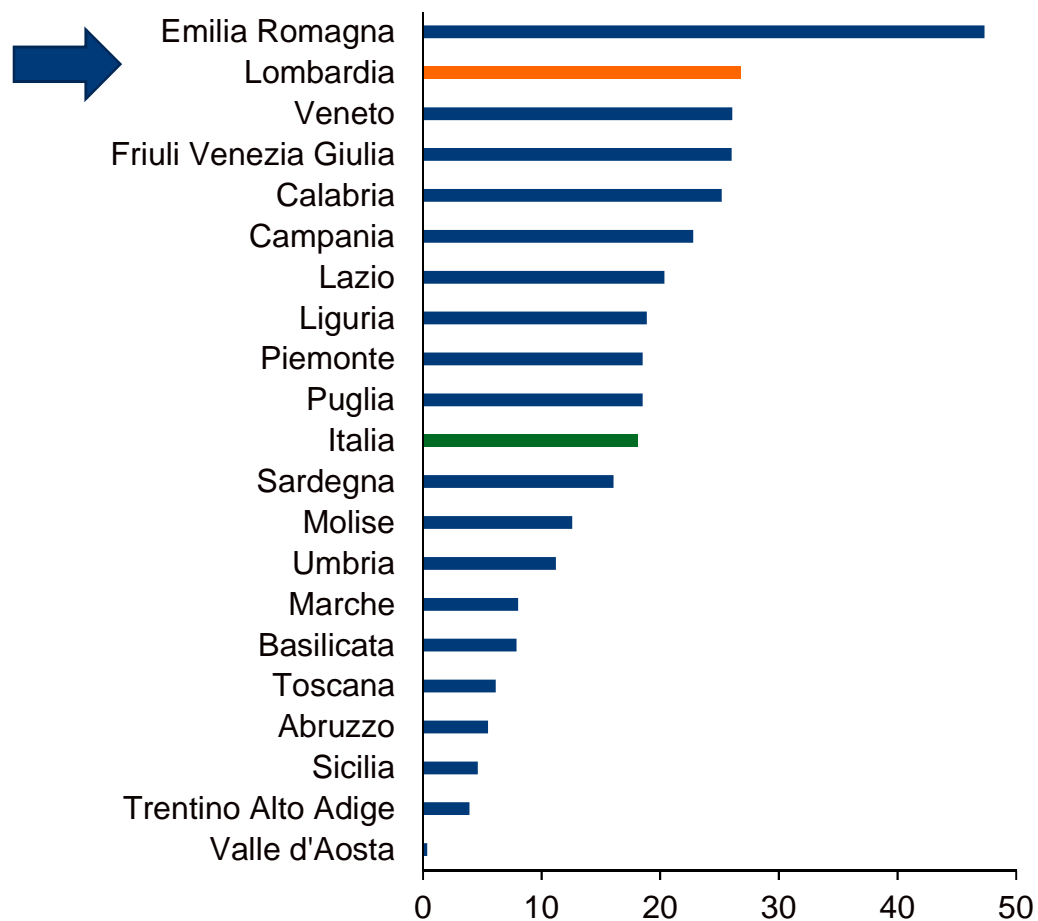
Number of firms and R&D centers of biotech pharmaceutical by region (2017)



Source: elab. Intesa Sanpaolo on Farmindustria data.

# Lombardia is the second region for bioenergy

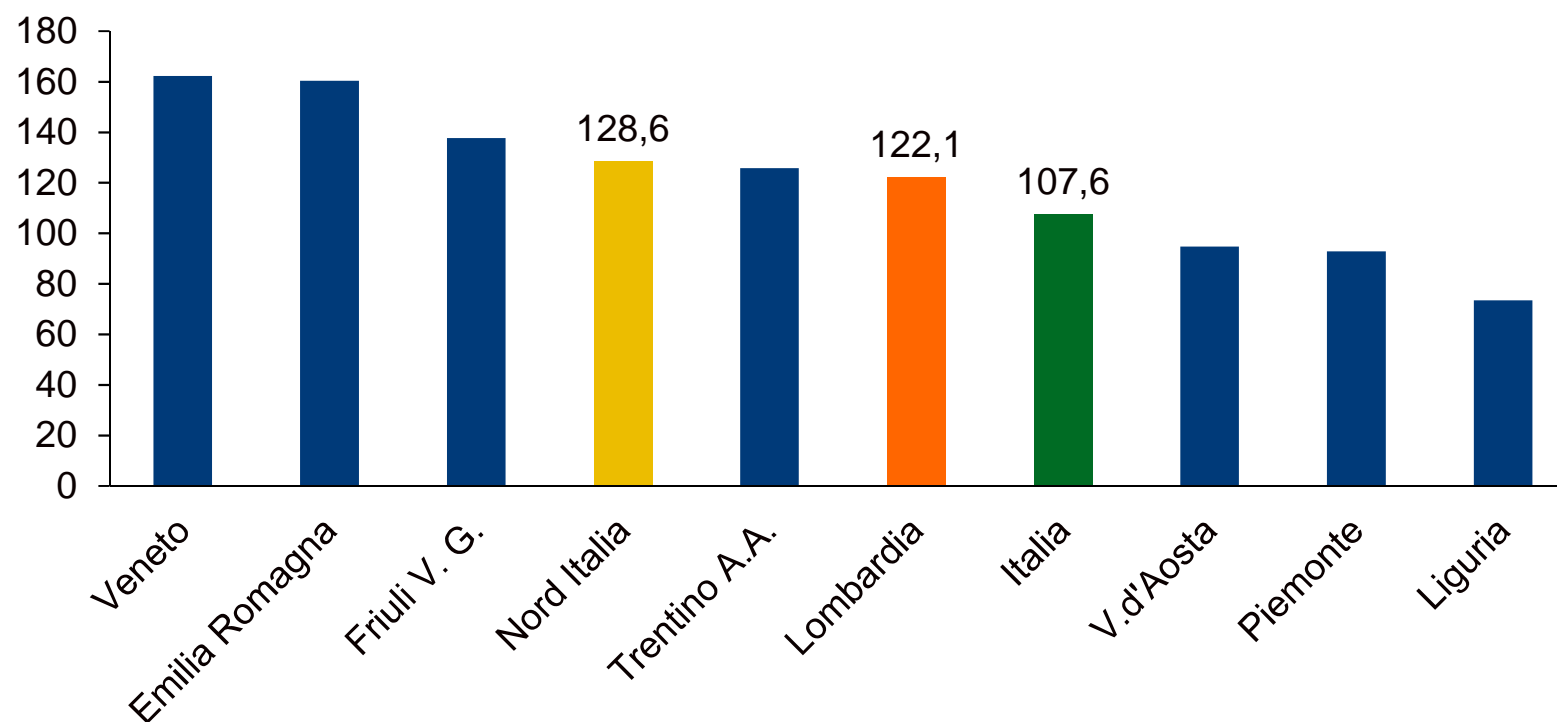
Incidence of production of bioenergy on  
total production of energy by regions,  
(2016)



Source: elab. Intesa Sanpaolo on Terna data

# There is a good management and recovery of biodegradable waste

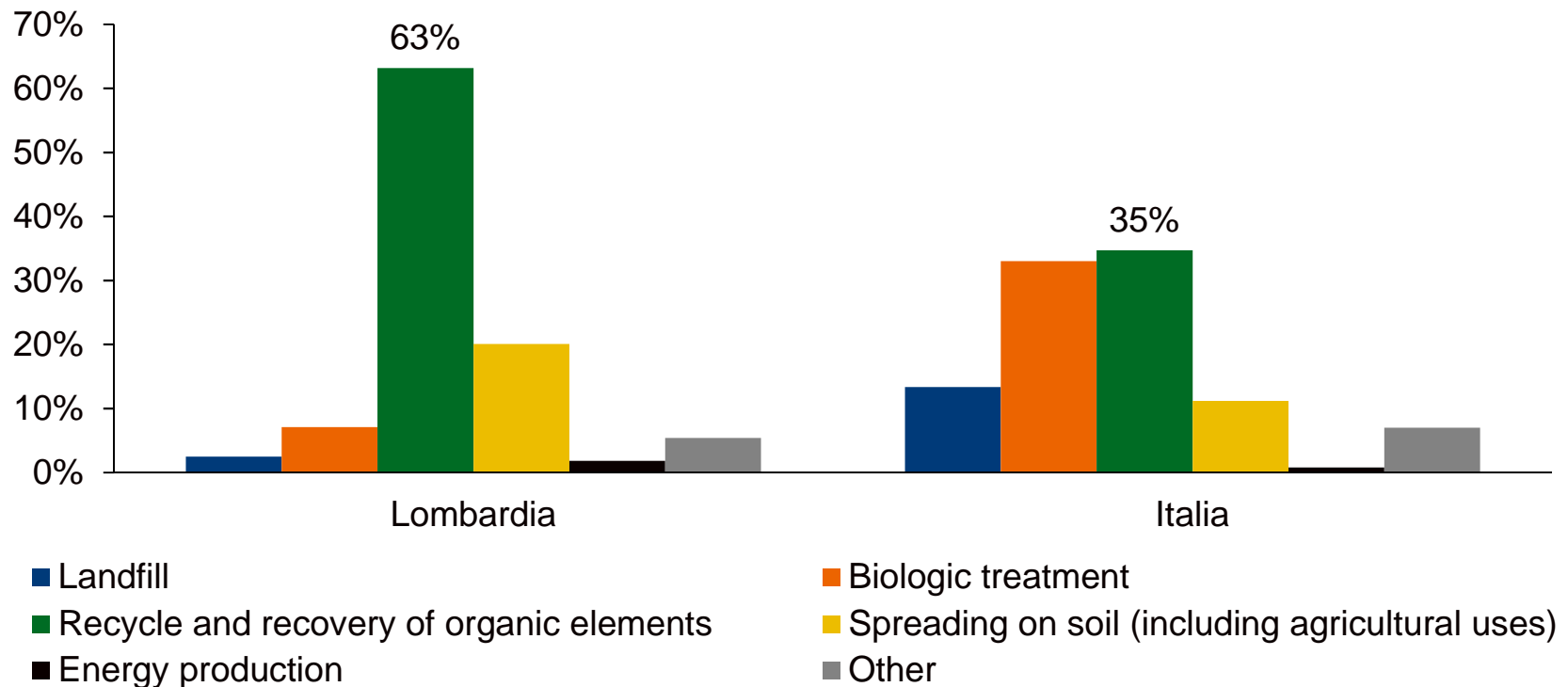
Share of organic waste per-capita by region  
(kg/ inhabitant , 2016, northern regions)



Source: elab. Intesa Sanpaolo on ISPRA data

# ... and a high level of recycling and recovery in the management of sewage sludge

Management of sewage sludge by typology  
Lombardia versus Italia  
(%)

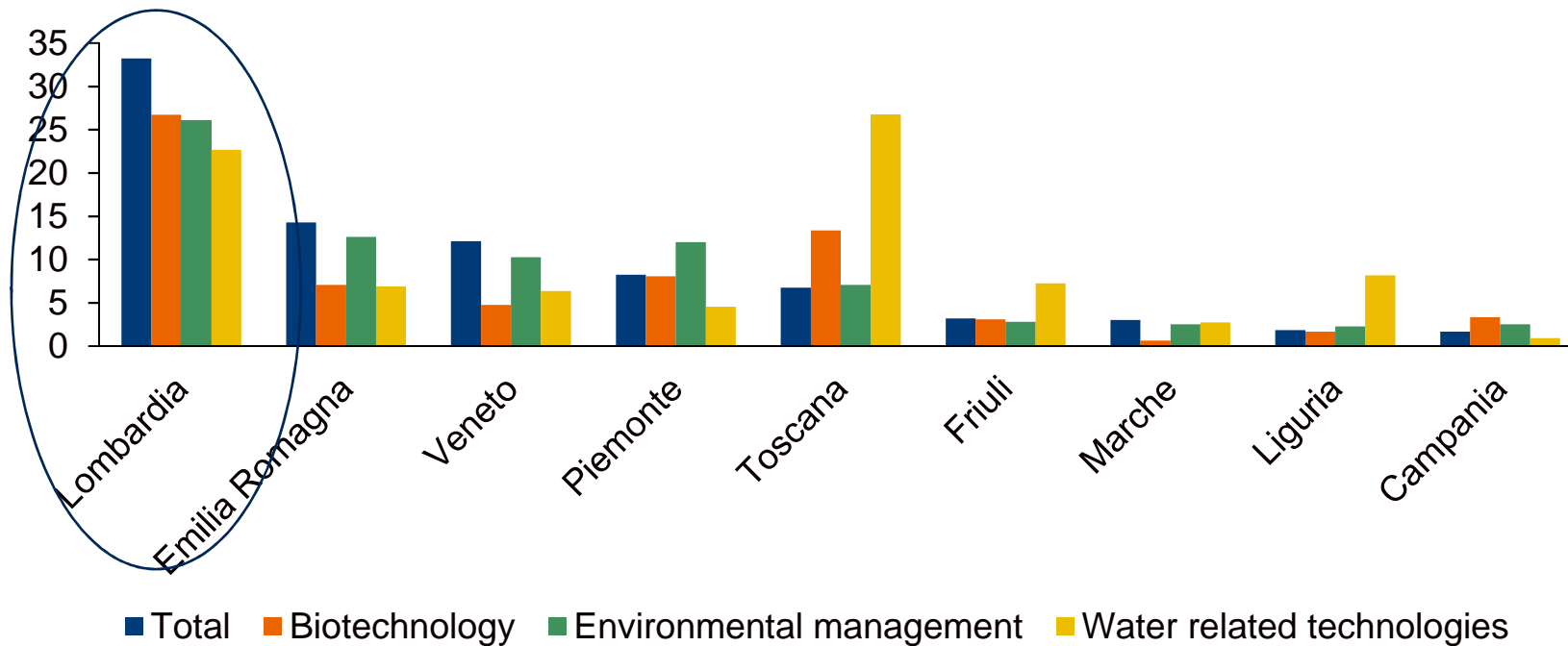


Source: Intesa Sanpaolo on ISPRA data



# A high-potential for bio-based industry in Lombardia: a strong innovative system... <sup>16</sup>

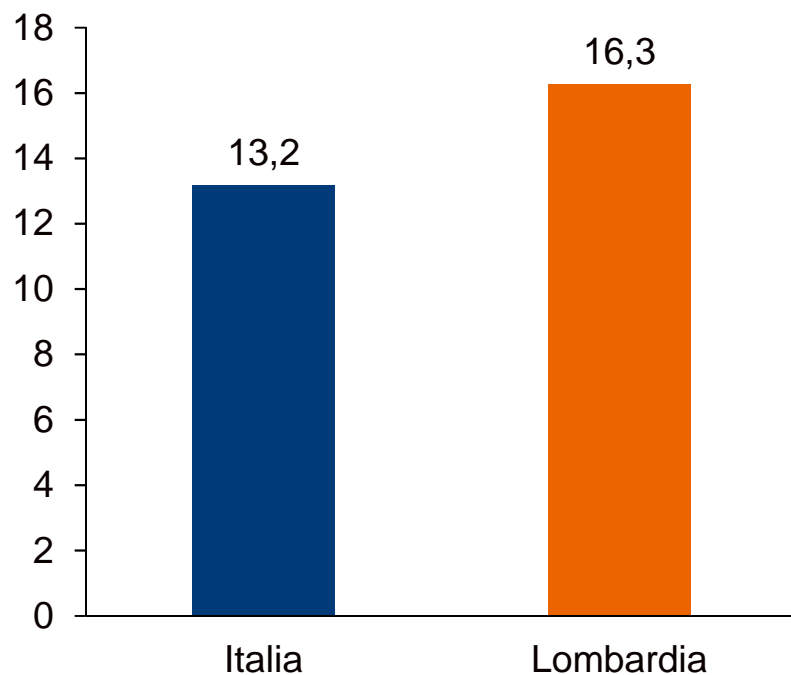
Share of regional patents on total Italian patents by technology  
(% , 1998-2013)



Source: Intesa Sanpaolo on InfoCamere data

## ... supported by high skills...

Share of graduate students in the field of  
science and technology  
(% , 1998-2013)

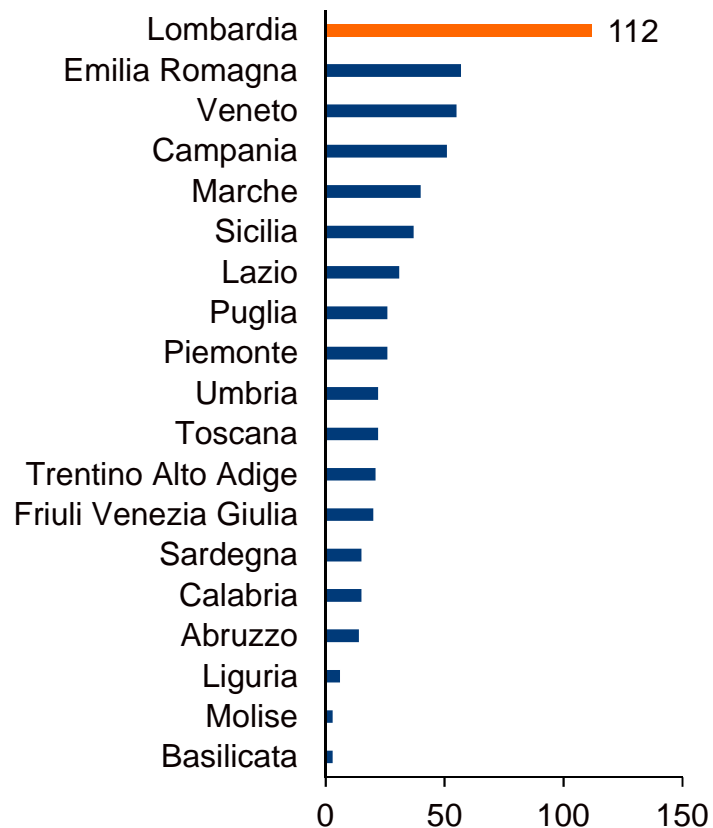


In Lombardia the  
presence of  
scientific and  
technological  
graduate  
courses is very  
high

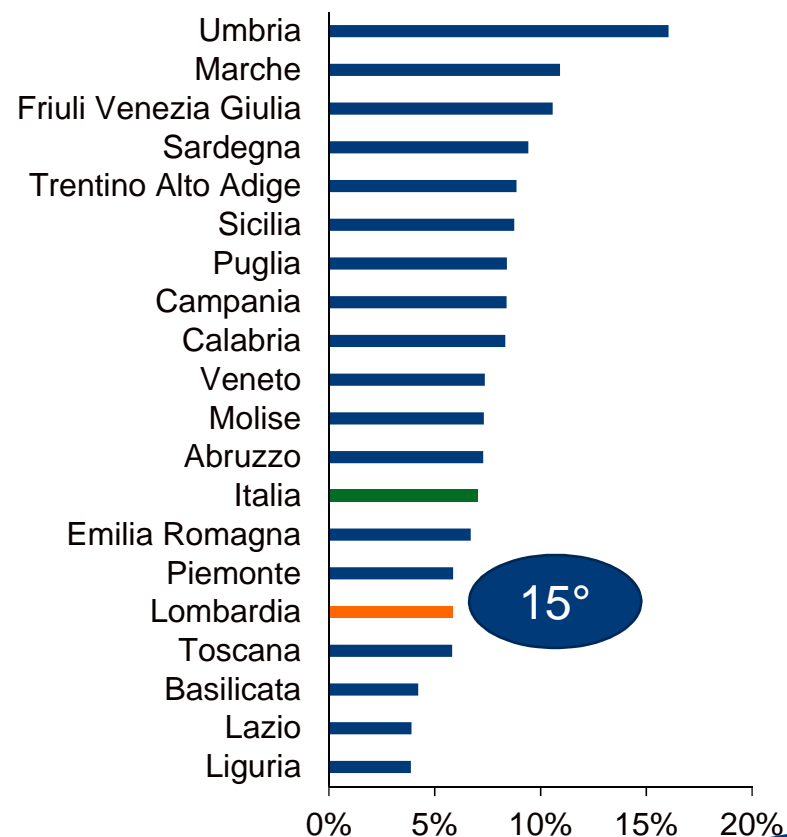
Source: Intesa Sanpaolo on Eurostat data

## ... and by an intense start-up activity

Numbers of bioeconomic start-ups,  
by region  
(2017)



Share of bioeconomic start-ups on  
total innovative start-ups  
(%,2017)



# Conclusions

- ❑ Bioeconomy includes a large variety of activities and it has a relevant role on Italian economy
- ❑ Lombard economy is characterized by a huge variety of bioeconomic specializations (both in the traditional and high-tech sectors) and it is supported by an innovative system, rich in skills and know-how with effects on the start-ups activity.
- ❑ It is not possible to estimate the value of regional bioeconomy using the same methodology used at national level because of lack of data: we need a new approach.
- ❑ In this sense it is important to involve all the stakeholders (institutions, firms, research centers, universities, the agriculture system etc.) to find the main and relevant indicators that can be used to map all the experiences that belong to bioeconomy at a regional level.