# Session 3: *Promoting the social dimension of the transformation in European Regions*

**Scientific Forum 2023, Moving Towards the transformation**

Viena, 6-7 September 2023

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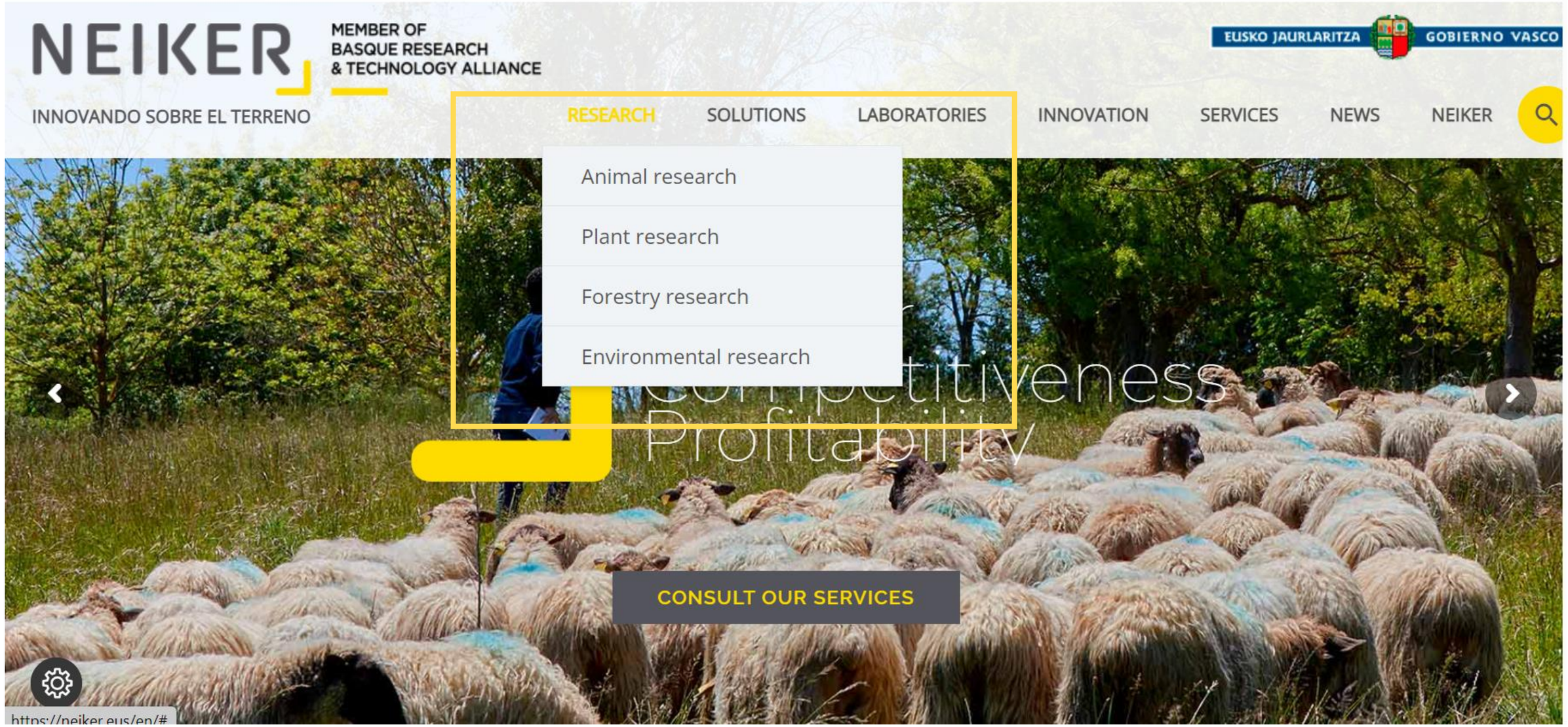
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# *Preliminary considerations*

**The final impact** we all want from the circular bioeconomy is a **real transformation in the society** we live in, in the following terms:

1.- New solutions (products, services...) accessible to the entire population.

2.- New jobs (HIGH QUALITY), new activities derived from a circular, ethical and sustainable bioeconomy.

3.- New ways of conserving and producing biomass (more sustainable, new systems based on technology...), necessary for its further transformation.

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# *Preliminary considerations*

4.- Reduction of the environmental and social impact generated by the development of other activities that are traditionally historical in our society (fuels, extraction of minerals and other raw materials...).

5.- Preventing rural depopulation.

# Basic but not enough conditions

1.- The implementation of the bioeconomy in society and the real economy is complex and cannot be considered to be done in any way.

2.- The complexity comes as there are many drivers that interfere with its implementation (we have identified key factors  (drivers) at regional level).

HOLISTIC TOPIC


**Objective of my PhD work: “Development of a tool to evaluate a region's potential in the forest-based circular bioeconomy”**

sustainability

MDPI

Article

# Assessment of the Development of Forest-Based Bioeconomy in European Regions

**Leire Barañano [1], Olatz Unamunzaga [1,*], Naroa Garbisu [2], Siebe Briers [3], Timokleia Orfanidou [4,5], Blasius Schmid [6], Inazio Martínez de Arano [3], Andrés Araujo [7] and Carlos Garbisu [1]**

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**Abstract:** In recent years, the potential of the forest-based bioeconomy to provide competitiveness, differentiation, and sustainability to the European economy has often been claimed. Interestingly, regions, as territorial units with their own political and socioeconomic strategies, have been highlighted as the most suitable targets for the development of the European forest-based bioeconomy. Here, using the case method, we evaluated the development of the forest-based bioeconomy in three European regions (i.e., North Karelia in Finland, North Rhine-Westphalia in Germany, the Basque Country in Spain), by appraising the status of 10 previously identified key drivers through primary (interviews with experts) and secondary (literature review) sources of information. In our analysis, North Karelia and the Basque Country obtained the highest and lowest score, respectively, with regard to forest-based bioeconomy development. In any case, for the successful development of the

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**Citation:** Barañano, L.; Unamunzaga, O.; Garbisu, N.; Briers, S.; Orfanidou, T.; Schmid, B.; Martínez de Arano, I.; Araujo, A.; Garbisu, C. Assessment of the Development of Forest-Based Bioeconomy in European Regions. *Sustainability* **2022**, *14*, 4747. https://doi.org/10.3390/su14084747

BIOREGIONS
Forest bioeconomy in action

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**Assessment of the Development of Forest-Based Bioeconomy in European Regions**

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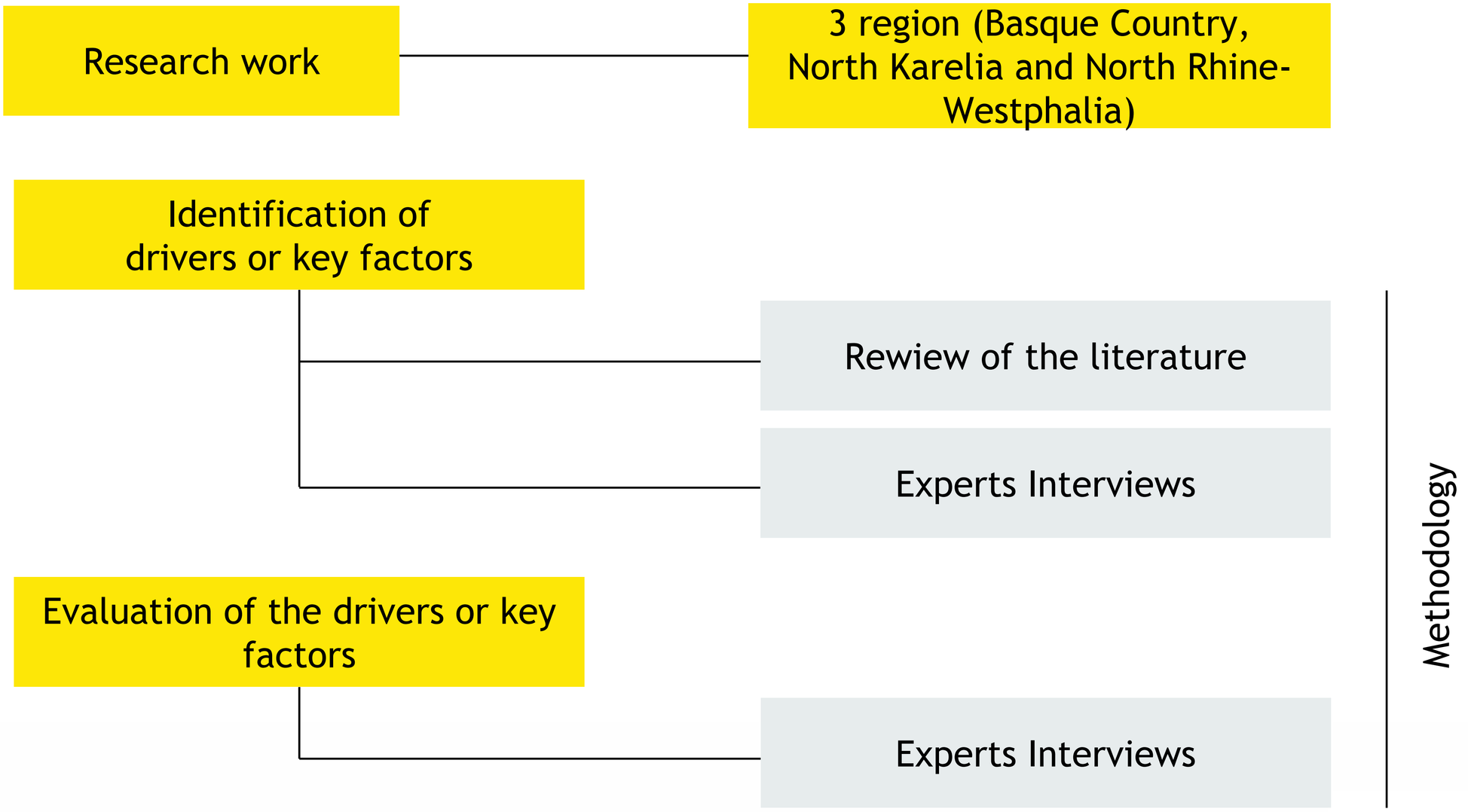


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**Table 1.** Interviews with experts by region and interviewee category.

| Category | North Karelia | North Rhine-Westphalia | Basque Country | TOTAL |
|---|---|---|---|---|
| Researchers | 3 | 3 | 5 | **11** |
| Decision makers | 2 | 1 | 2 | **5** |
| Business people | 5 | 5 | 6 | **16** |
| **TOTAL** | **10** | **9** | **13** | **32** |

# Institutional

| Driver | Description |
|---|---|
| **Government Plans and policies** | The regional government has developed plans and policies on the bioeconomy and, in particular, the forest-based bioeconomy. These plans and policies are stable over time to guarantee the long-term sustainable development of the forest-based bioeconomy. |
| **Research, development and innovation** | The region has a solid, deep-rooted ecosystem for research, development, and innovation (R&D&i). Universities and technology centres develop R&D&I on the (forest-based) bioeconomy. There is a strong commitment and substantial investment in the (forest-based) bioeconomy. This fact is reflected in the regional RIS3 strategy. |
| **Training and talent** | There are specialised training programmes on the subject at all levels of education (schools, professional training, universities) in the region. There are regional programmes to attract talent intended to boost the development of the (forest-based) bioeconomy in its territory. There is a strong ecosystem for entrepreneurship with multiple factors and agents that interact |
| **Ecosystem for entrepreneurship** | There is a strong ecosystem for entrepreneurship with multiple factors and agents that interact to promote the creation of new businesses. The regional ecosystem for entrepreneurship stimulates the generation of new ideas, goods, services, and businesses. There are financing resources that support the ecosystem for entrepreneurship. |
| **Green public procurement** | The regional government and public institutions promote green public procurement to encourage the development and implementation of sustainable products and services, such as those generated from the (forest-based) bioeconomy. |
| **Regional networks** | The region participates in European and international regional networks. In this way, the region is politically, commercially, and strategically connected to other regions with common interests and similar casuistry. These regional networks encourage cooperation between regions, e.g., regarding the development of the (forest-based) bioeconomy. |

## Supply

| Driver | Description |
|---|---|
| **Entrepreneurial capacities** | Companies linked to the various value chains related to the (forest-based) bioeconomy exist in the region and have successful ad hoc business models. The region has the entrepreneurial capacity to evaluate the economic potential talent in a given item of new knowledge and to design ways to transform such potential into realizable economic value. The region displays individual and organizational capabilities that efficiently explore, integrate, and exploit untapped business opportunities. |
| **Existence of clusters** | Cluster or cluster-like initiatives related to the promotion and development of the (forest-based) bioeconomy are present in the region. These clusters are supported by a network of companies and institutions located in the region. The clusters are based on the region's unique assets for the (forest-based) bioeconomy. These clusters can encompass an array of industries and other entities such as suppliers of specialized inputs, providers of infrastructure, manufacturers of complementary products, trade associations, governmental and other institutions that can provide specialized training (vocational training), education (universities), legal, and technical support (agencies), etc. |

## Demand

| Driver | Description |
|---|---|
| **Market awareness and demand** | The local-regional market and its consumers are actively demanding sustainable bio-based products. Ideally, these bio-based products should have the same or even better performance than those produced from fossil fuel-based raw materials. The society understands the concept of the (forest-based) bioeconomy and supports its implementation in the region, accepting the concomitant changes and consequences. If that is the case, many customers are willing to pay the extra cost of bio-based products provided they offset that economic disadvantage with other significant benefits: lower environmental impact, support of local businesses, and rural development. |

# BioMass-related

| Driver | Description |
| --- | --- |
| **Biomass** | There is a sufficient and constant supply of (forest) biomass in the region in terms of quantity, quality, and rate of generation. The biomass is used in a sustainable way, encouraging ecosystem protection and biodiversity conservation. |

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In addition to the drivers, it should be considered that the circular bioeconomy **must meet basic minimum requirements** before it can be considered a valid and sustainable economic alternative for a European region.

(i) promotes the provision of vital ecosystem services.
(ii) satisfies the growing demand for raw materials.
(iii) meets the growing meets the growing demand for raw materials for the generation of products (existing and new) and renewable energy.
(Iv) minimise the input of virgin materials and the waste production, thus closing the economic-ecological loops.
(v) Developing an information system suitable for the monitoring.

# Necessary tools and policies

1.- A clear need has been identified to define a model and integrate indicators of sustainability that gather information on the three aspects of this paradigm (environmental, economic and social) in the on the three aspects in the field of the circular bioeconomy.

2.-These indicators must be aligned with the European Environmental Product Footprint (EPF) methodology and the Sustainable Development Goals (SDGs) and allow for the comparison of products derived from the circular the circular forest bioeconomy with those of fossil origin.

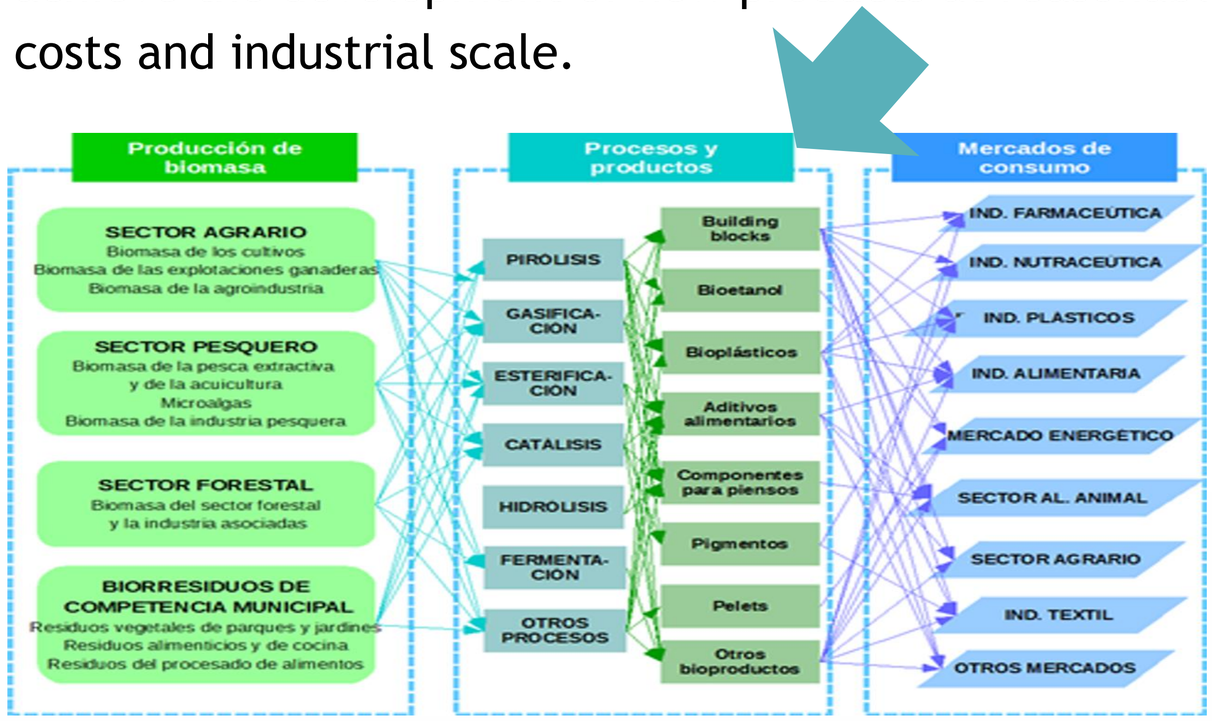
3.- It should be integrated into the evaluation of business and research projects that are specially funded by the public sector.

# The role of technology

Another essential condition is the use of new technologies in different uses.

1- To guarantee precision and regenerative agriculture (including forestry), integrating new technologies in operations.

2.- To ensure the transformation of biomass, and to achieve the development of new products at reasonable costs and industrial scale.





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# The role of technology

3.- Development of new non-conventional processes and systems for the production of biomass. Search for new ways of producing biomass (bioreactors, others) to achieve important productions in small spaces and outside the context of natural ecosystems.

# ***The role of consumers***

Intensify consumer education and information.

It is closely linked to how we ensure that communication from companies and other stakeholders ***is objective, transparent and allows purchasing decisions to be made with the knowledge that the best option is being chosen.***

# Thank you!

# For your attention

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