



## Monitoring the Bioeconomy

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Date: 10/10/2020



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 773297

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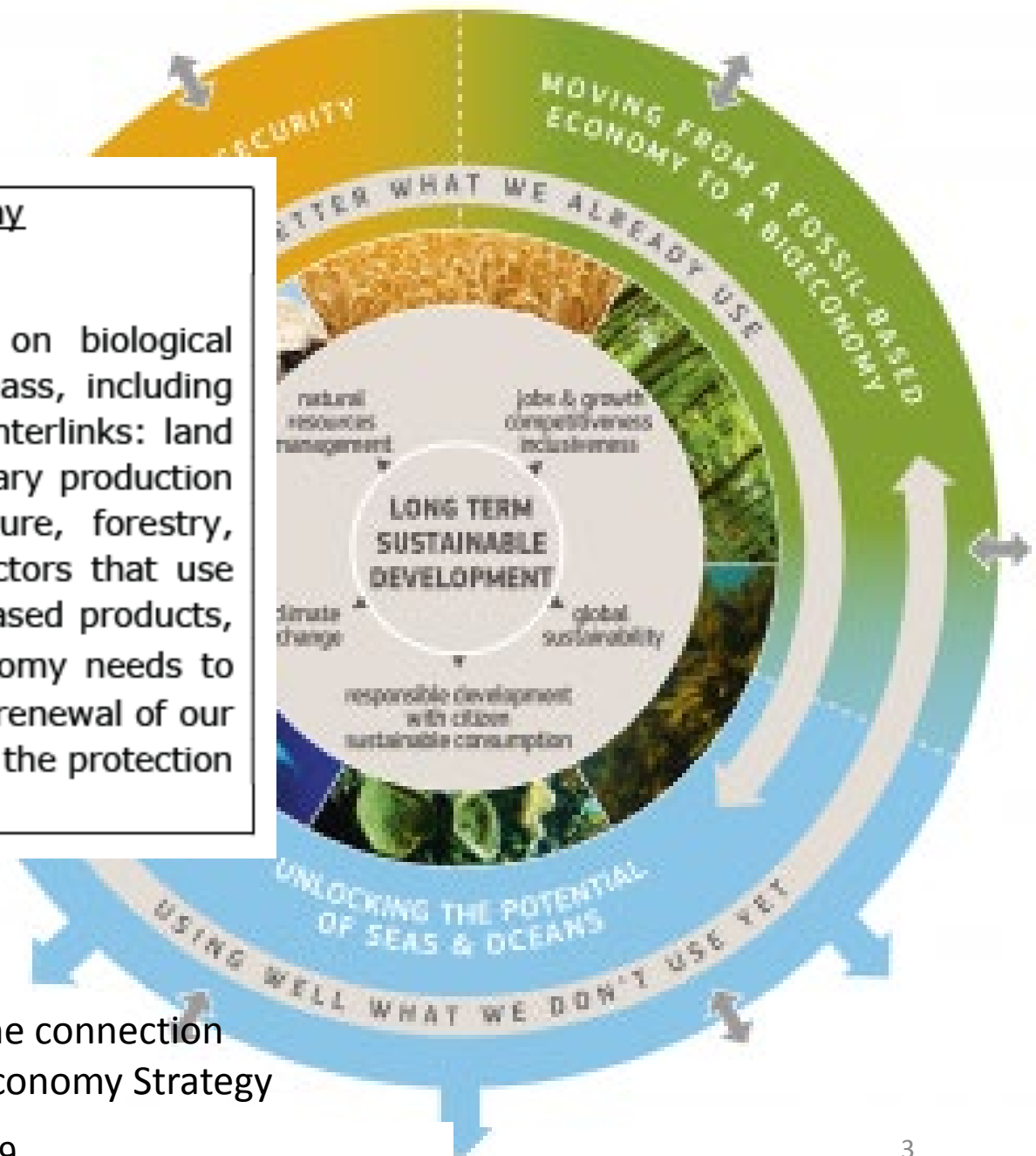
# **BioMonitor Stakeholder Workshop**

## **Cologne, 14 November 2019**

### **Welcome and Introduction**

### Sustainable & Circular: Bioeconomy the European way

The bioeconomy covers all sectors and systems that rely on biological resources (animals, plants, micro-organisms and derived biomass, including organic waste), their functions and principles. It includes and interlinks: land and marine ecosystems and the services they provide; all primary production sectors that use and produce biological resources (agriculture, forestry, fisheries and aquaculture); and all economic and industrial sectors that use biological resources and processes to produce food, feed, bio-based products, energy and services.<sup>1</sup> To be successful, the European bioeconomy needs to have sustainability and circularity at its heart. This will drive the renewal of our industries, the modernisation of our primary production systems, the protection of the environment and will enhance biodiversity.



EC (2018) A sustainable bioeconomy for Europe: strengthening the connection between economy, society and the environment – Updated Bioeconomy Strategy



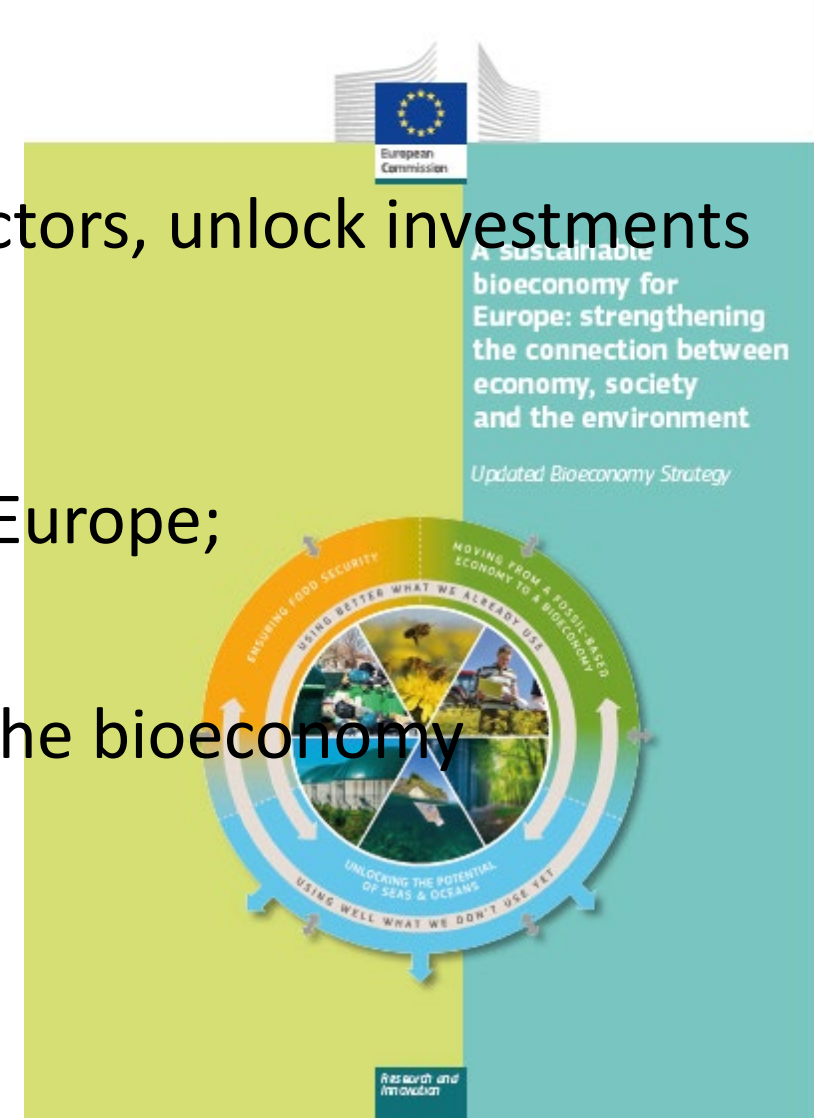
# Bioeconomy Strategy - five societal challenges:

- Ensuring food and nutrition security;
- Managing natural resources sustainably;
- Reducing dependence on non-renewable, unsustainable resources whether sourced domestically or from abroad;
- Mitigating and adapting to climate change;
- Strengthening European competitiveness and creating jobs.



# Bioeconomy Strategy - three action areas:

- Strengthen and scale-up the bio-based sectors, unlock investments and markets;
- Deploy local bioeconomies rapidly across Europe;
- Understand the ecological boundaries of the bioeconomy





# BioMonitor Objectives

The overall **objective** of the Monitoring the Bioeconomy (**BioMonitor**) project is to establish a **statistics and modelling framework for the bioeconomy** that is **effective** (supported by a stakeholders' platform) and **robust** (compatible with and implementable in existing systems of statistical and customs offices, laboratories and industries). The framework will enable the quantification of bioeconomy and its economic, environmental and social impacts in the EU and its Member States via a wide range of **indicators**. Interlinks with current CEN standardisation work related to bio-based products will be established from the outset of the project.

# BioMonitor Objectives

*Objective 1: To develop an efficient and representative data collection methodology to monitor and evaluate the development of the bioeconomy.*

*Objective 2: To develop a modelling framework to quantify the transition to a bioeconomy and its contribution to societal goals.*

*Objective 3: To create a platform for consulting stakeholders at different stages of the project and perform case studies for validating/testing the data and modelling framework.*

*Objective 4: To safeguard, communicate and disseminate the implementation and uptake of the data and modelling framework by workshops and trainings.*



# BioMonitor Conceptual Framework

## POLICIES, STRATEGIES AND LEGISLATION

- Environment
- Trade
- Agriculture
- Management
- Energy security
- GMO and R&D
- Waste Legislation
- Monitoring

## DRIVING FORCES

- Technology and Innovation
- Market organisation
- Climate and environmental change
- Demographics, economic development and consumer preferences

## USE of biomass

### (BIO)ENERGY

- Biofuels, Biogas

### (BIO)MATERIALS

- Construction materials, forest products, bio-chemicals and polymers, paper/pulp, textiles/apparel

### FOOD AND FEED

- Crops, livestock and meat, dairy products, fish, aquaculture products, animal feed

## SUPPLY of biomass

## SOCIETAL CHALLENGES

- Food and nutrition security
- Sustainable natural resources management
- Dependence on non-renewable resources
- Mitigating and adapting to climate change
- Employment and economic competitiveness

## (RE-) USE of RESOURCES

### LAND

- Spatially land use for agriculture and forestry
- Crop growth

### WATER

- Fishery & Aquaculture
- Water supply and consumption

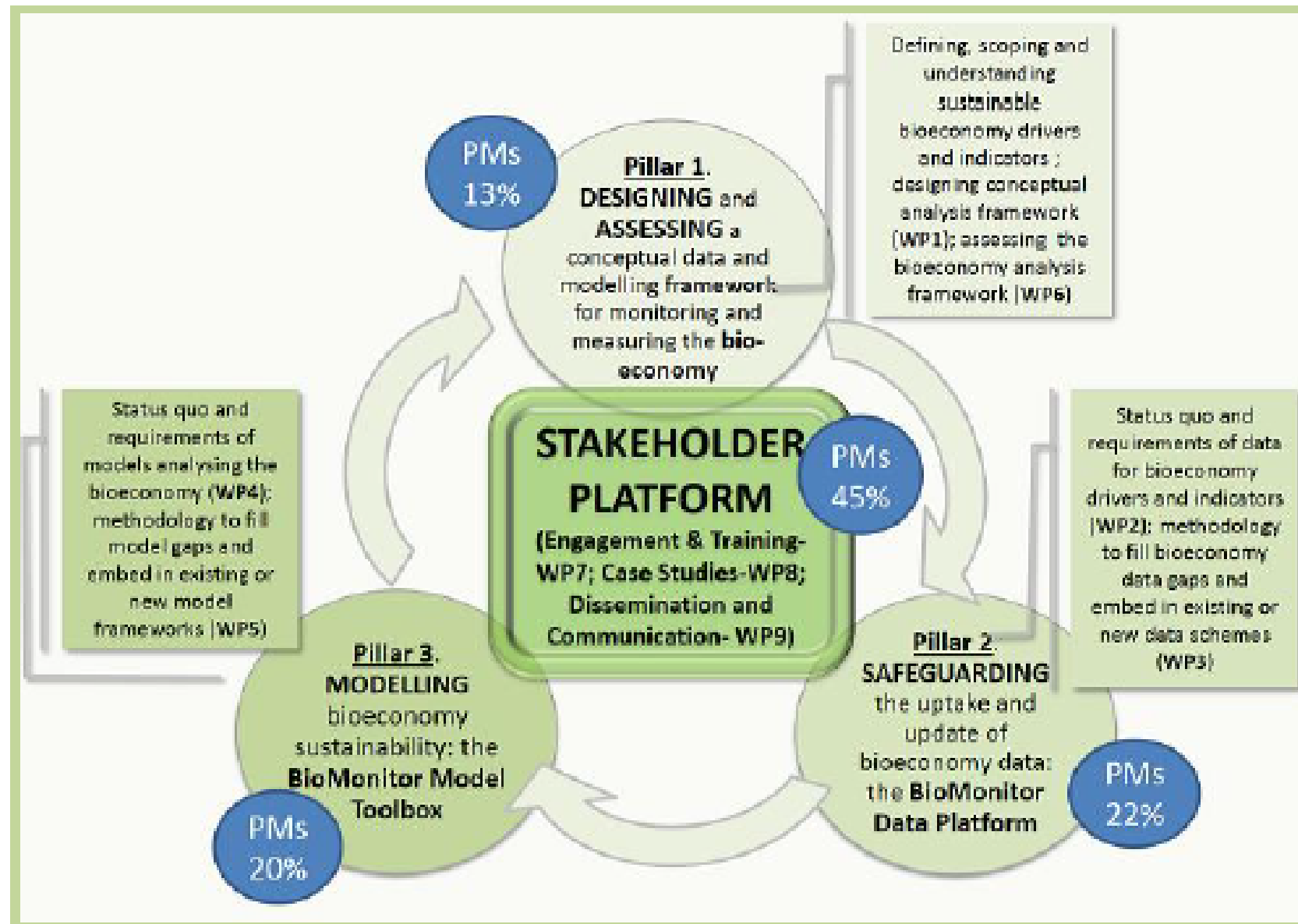
### LABOUR

- Skills demand & supply
- Demography

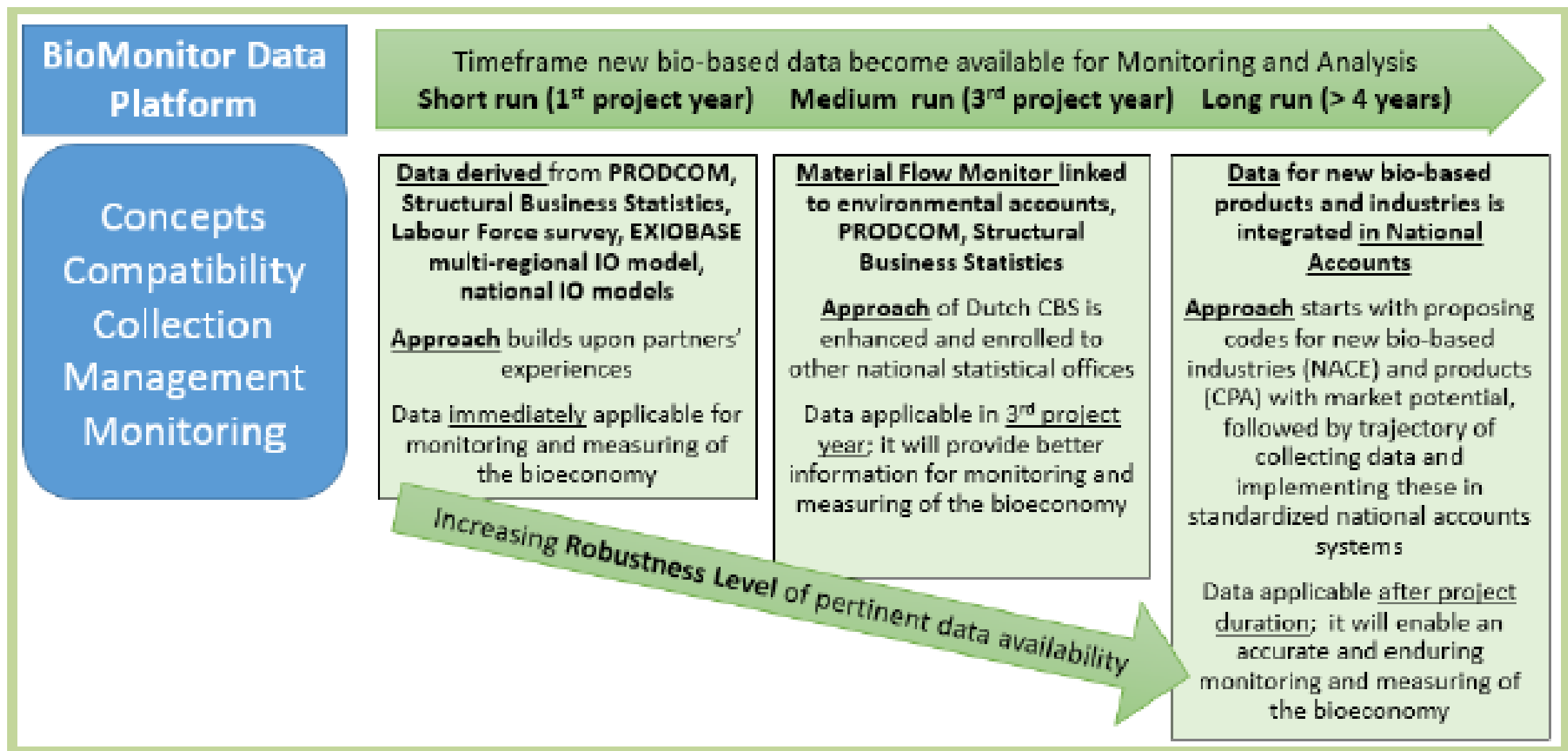
### WASTE/BY-PRODUCTS

- Forestry
- Agrofood
- Fishery & Aquaculture

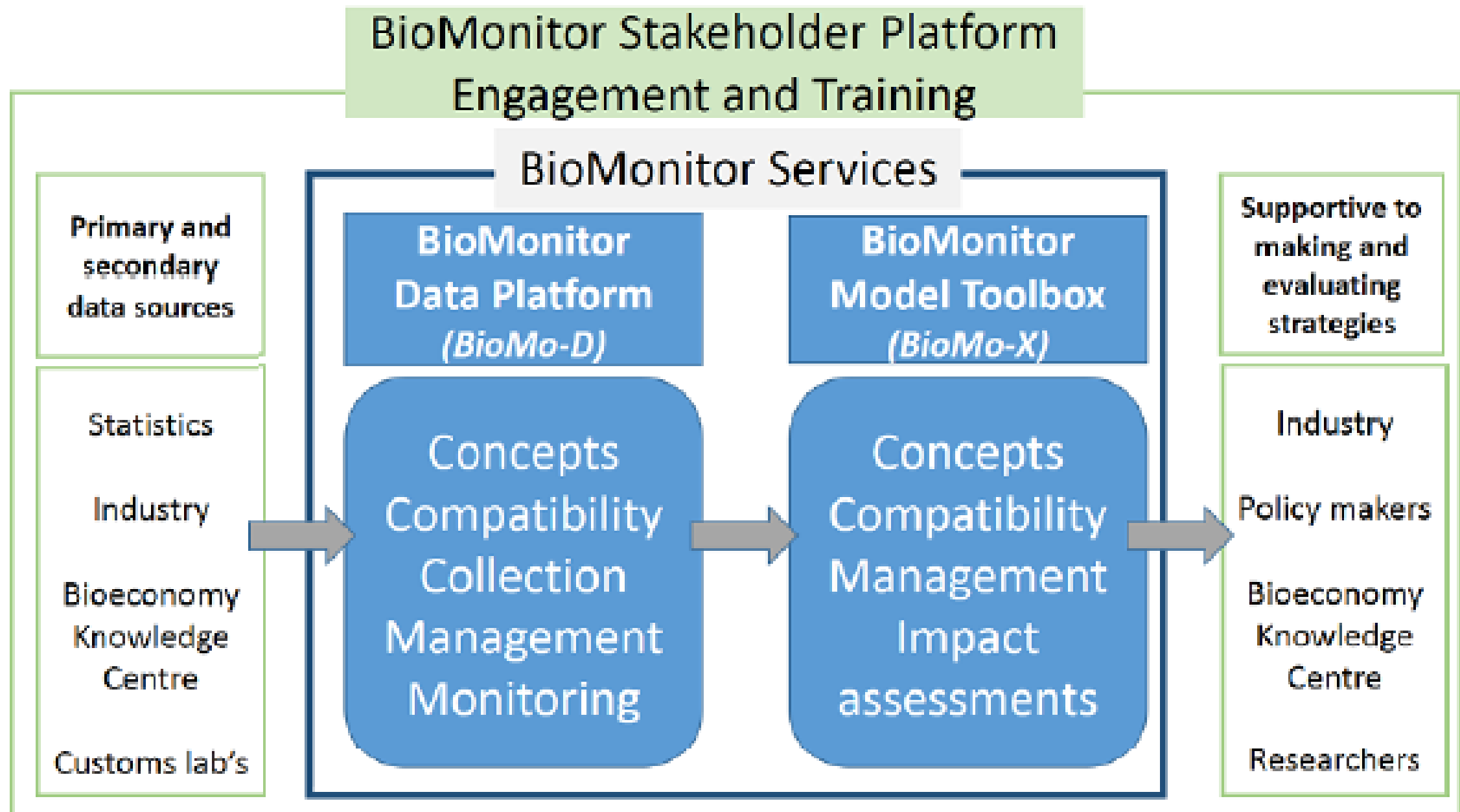




**Figure 1.2 BioMonitor Research strategy and Work Package structure for establishing a sustainable data and modelling framework for the bioeconomy**



**Figure 1.4 Research strategy for bio-based data collection and implementation in BioMonitor**



**Figure 1.1 BioMonitor Stakeholder Platform**

NACE	Fumagalli and Trenti(2014)	SAT-BBE (2015)	Efken et al. (2016)	European Commission (2018a)	Plotrowski et al. (2018)	Ronzon et al. (2017)	Our framework
A01	Crop and animal production, hunting and related service activities	✓	✓	✓	✓	✓	✓
A02	Forestry and logging	✓	✓	✓	✓	✓	✓
A03	Fishing and aquaculture	✓	✓	✓	✓	✓	✓
C10	Manufacture of food	✓	✓	✓	✓	✓	✓✓
C11	Manufacture of beverages	✓	✓	✓	✓	✓	✓✓
C12	Manufacture of tobacco	✓	✓	✓	✓	✓	✓✓
C13	Manufacture of textiles	X	✓	✓	✓	✓	✓✓
C14	Manufacture of wearing apparel	X	✓	✓	✓	✓	✓✓
C15	Manufacture of leather and related products	X	✓	✓	✓	✓	✓✓
C16	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	✓	✓	✓	✓	✓	✓✓
C17	Manufacture of paper and paper products	✓	✓	✓	✓	✓	✓✓
C19	Manufacture of coke and refined petroleum products	X	✓	X	X	X	✓✓
C20	Manufacture of chemicals and chemical products	✓	✓	✓	✓	✓	✓✓
C21	Manufacture of basic pharmaceutical products and pharmaceutical preparations	X	X	✓	✓	✓	✓✓
C22	Manufacture of rubber and plastic products	X	✓	X	✓	✓	✓✓
C31	Manufacture of furniture	X	✓	X	✓	✓	✓✓
C7211	Research and experimental development on biotechnology	X	X	X	X	X	✓✓
D35	Electricity, gas, steam and air conditioning supply	X	✓	X	✓	X	✓✓
D3511	Production of electricity	X	✓	X	X	✓	✓✓
E36	Water collection, treatment and supply	X	X	X	X	X	✓
E37	Sewerage	X	X	X	X	X	✓
E38	Waste collection, treatment and disposal activities; materials recovery	X	X	X	X	X	✓
E39	Remediation activities and other waste management services	X	X	X	X	X	✓
F41	Construction of buildings	X	✓	X	X	X	✓
F42	Civil engineering	X	✓	X	X	X	✓
G46	Wholesale trade, except of motor vehicles and motorcydes	X	X	✓	X	X	✓
G47	Retail trade, except of motor vehicles and motorcydes	X	X	✓	X	X	✓
H	Transportation and storage	X	X	X	X	X	✓
I55	Accommodation	X	X	✓	X	X	✓
I56	Food and beverage service activities	X	X	✓	X	X	✓
R9104	Botanical and zoological gardens and nature reserves activities	X	X	X	X	X	✓

✓ = Included, ✓✓ = Focus

**Table 1: List of indicators by societal objective for the BioMonitor Project**

1. Food and nutrition security	
Availability of food	
Access to food	
Utilization	
Stability	
2. Sustainable natural resource management	
Sustainability threshold levels for Bioeconomy Technologies	
Biodiversity	
Land cover	
Primary biomass production	
Sustainable resource use	
3. Dependence on non-renewable resources	
Bio-energy replacing non-renewable energy	
Bio-material replacing non-renewable resources	
Biomass self-sufficiency rate	
Material use efficiency	
Certified bio-based products	
4. Mitigating and adapting to climate change	
Greenhouse gas emissions	
Climate footprint	
Climate change adaptation	
5. Employment and economic competitiveness	
Innovation	
Investments	
Value Added of the bioeconomy sectors	
Comparative advantage	
Production and consumption of non-food and feed bio-based products	
Import and export of bioeconomy raw materials and products	
Employment	
Policies	

Sustainability dimension: ■ Social ■ Environmental ■ Economic




# Workshop Objectives

- **Inform about BioMonitor**
- **Data Collection Strategy and Related Monitoring**
- **Feedback by Stakeholders**
- **Future Stakeholder Activities**



## BioMonitor expert workshop

### Programme

Thursday, 14 November 2019		
12:45 - 13:00	Arrival and registration (Maternushaus, Cologne)	
13:00 - 13:15		Overview of the BioMonitor project <i>Justus Wesseler, Wageningen University (The Netherlands)</i>
13:15 - 14:00		Inferring data on the bioeconomy from existing statistics <i>Stephan Piotrowski, nova-Institute (Germany)</i>
14:00 - 14:30		Constructing detailed supply and use tables from EU Member States including bio-based sectors <i>David Verhoog, Wageningen Economic Research (The Netherlands)</i>
14:30 - 15:15		The Material Flow Monitor <i>Jocelyn van Berkel, CBS (The Netherlands)</i>
15:15 - 15:45	Coffee break	
15:45 - 16:30		What are emerging bio-based products and industries for being monitored and integrated in statistics? <i>Myrna van Leeuwen, Wageningen Economic Research (The Netherlands)</i>
16:30 - 17:00	Open discussion and conclusions	



# Thank you.

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European  
Commission

Horizon 2020  
European Union funding  
for Research & Innovation

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 773297