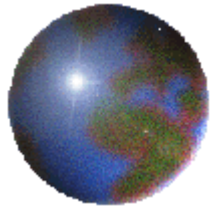


Agrifood e Chimica Verde
Sinergie, Connessioni e *Networking*
delle governance regionali
Perugia, 12 Dicembre 2017



The Bioeconomy in Europe and in Italy, and the Italian Bioeconomy strategy

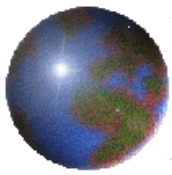
Fabio Fava

Italian Representative, i) *Horizon2020 SC2* Programming Committee; ii) "States Representatives Group" of *Public Private Partnership Biobased industry (BBI JU)*; iii) *BLUEMED Initiative* Strategic Board

&

School of Engineering, AlmaMater Studiorum-Università di Bologna, Italy
(E-mail: fabio.fava@unibo.it)

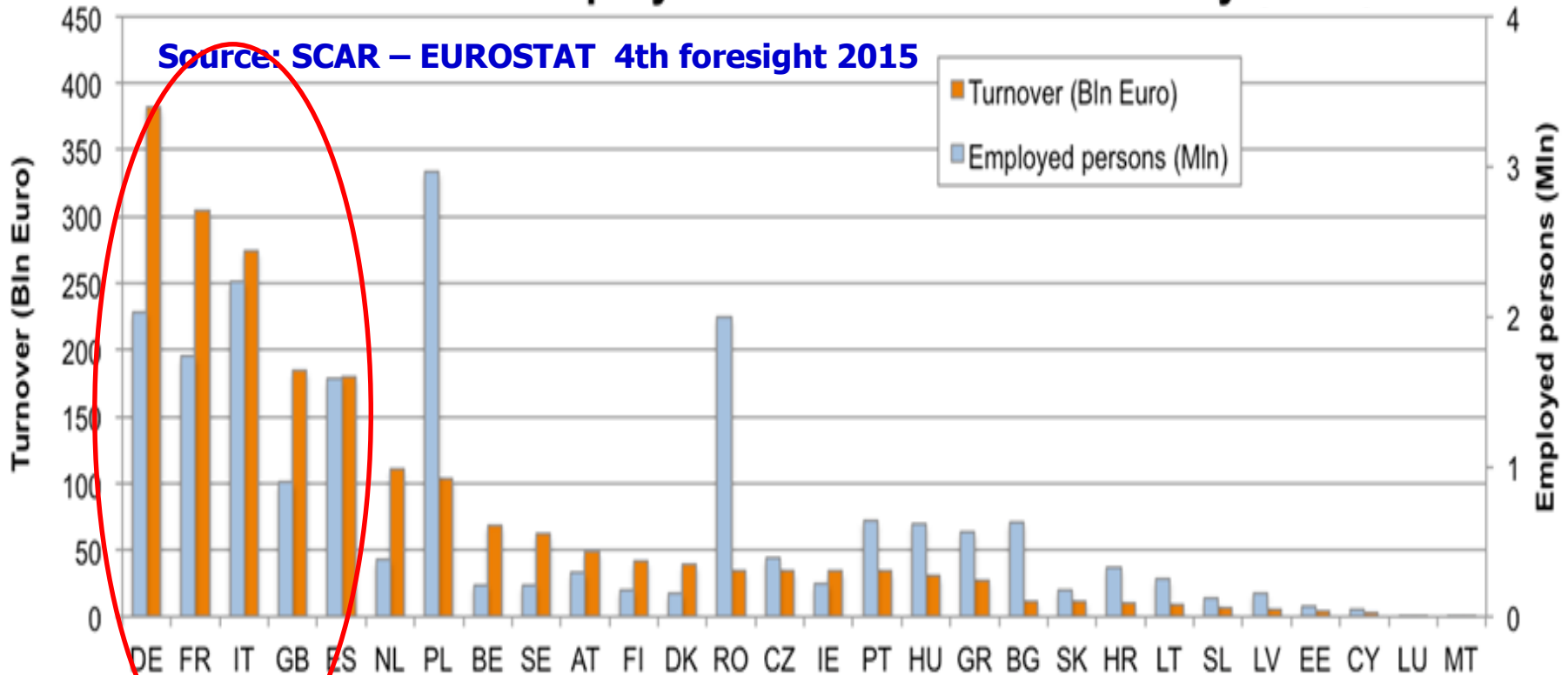


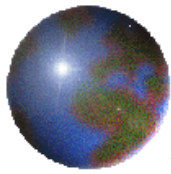


The European Bioeconomy (b)

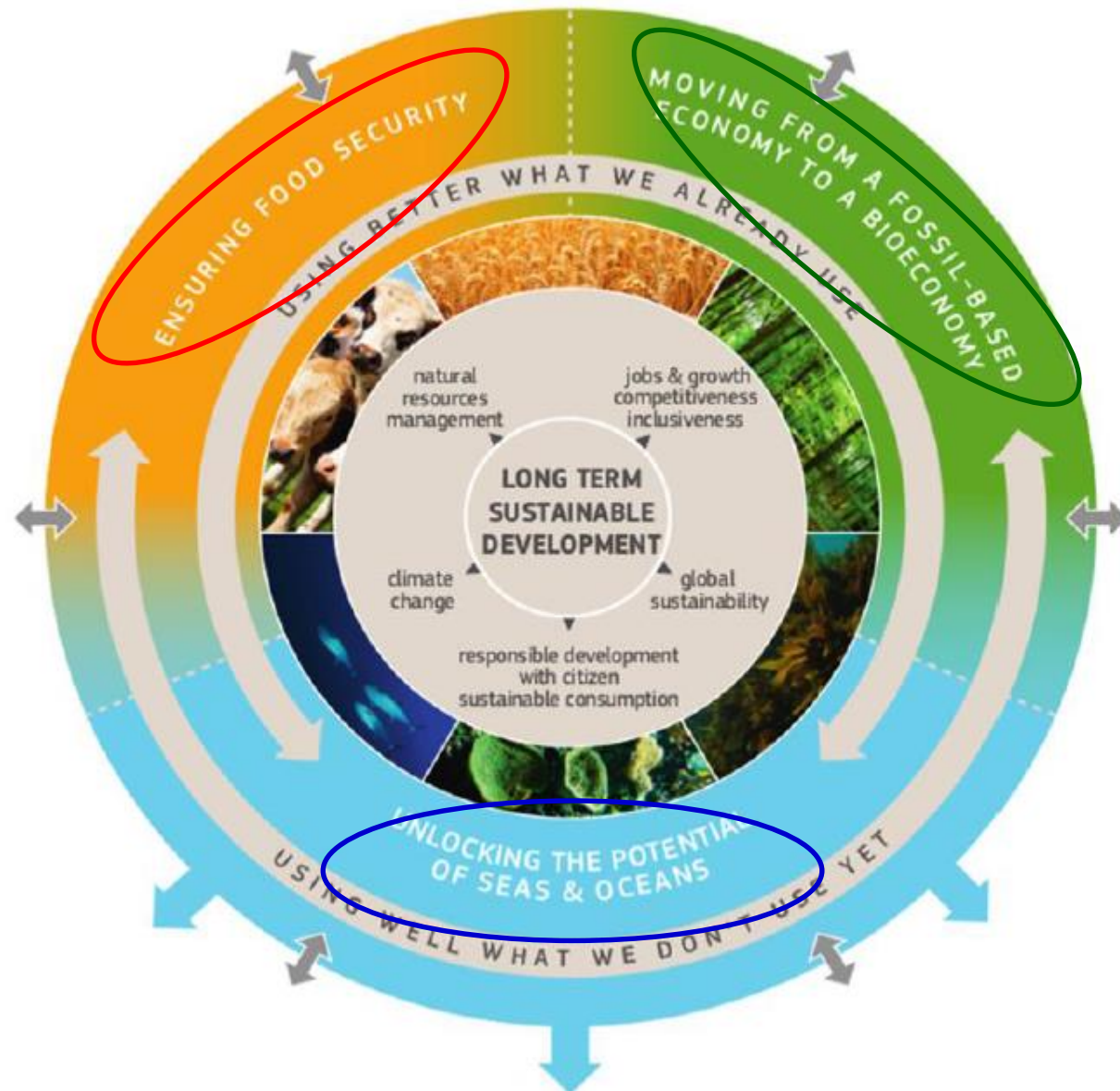
Turnover and employment in the EU bioeconomy

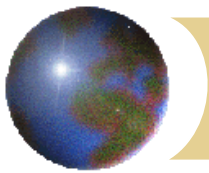
Source: SCAR – EUROSTAT 4th foresight 2015





The European Bioeconomy Strategy: main priorities (*under revision*)

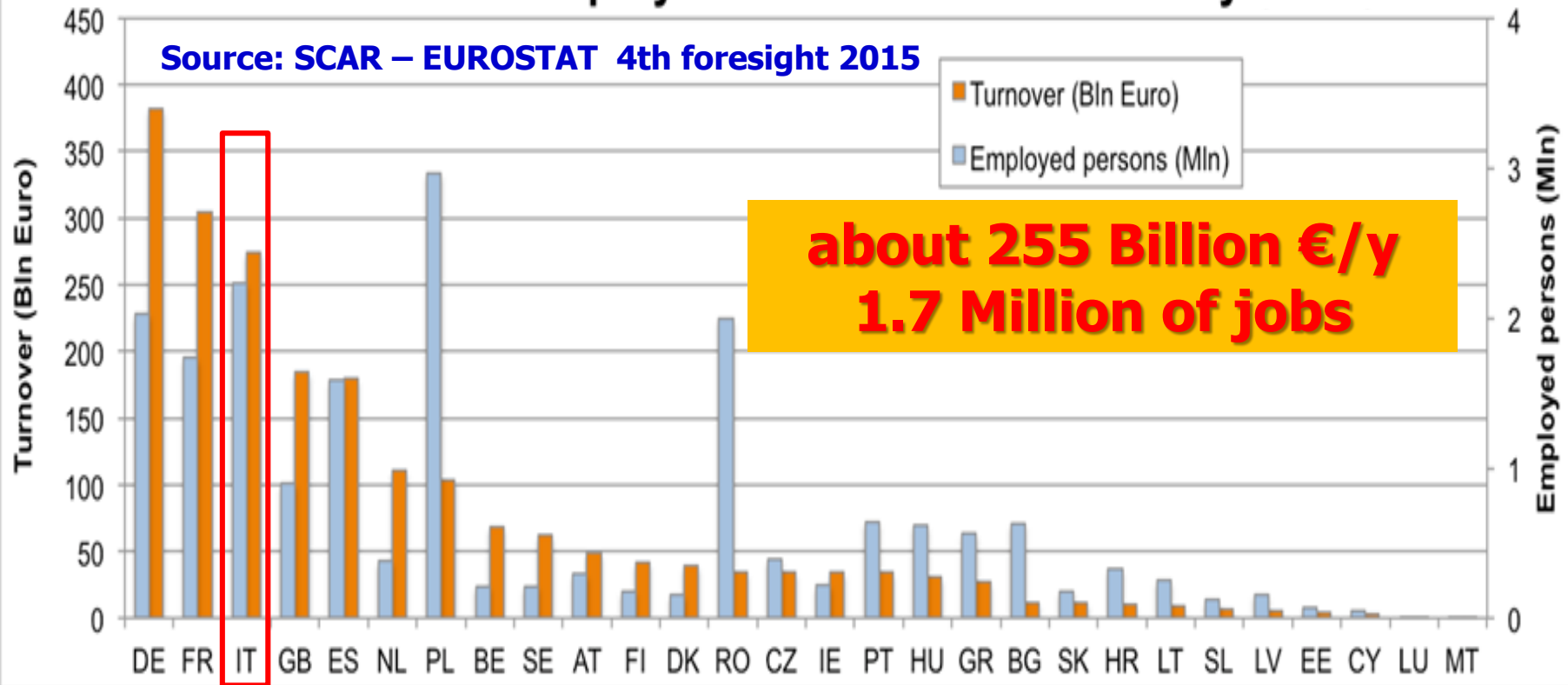




Bioeconomy in Italy

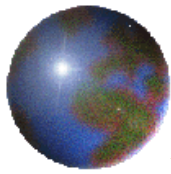
Turnover and employment in the EU bioeconomy

Source: SCAR – EUROSTAT 4th foresight 2015



about 255 Billion €/y
1.7 Million of jobs

IT is the 2nd EU-MS as success rates in Horizon2020 SC2 & BBI JU programs. Qualified R&I scores and public/private actors/stakeholders but often fragmented, lack of coordination among national policies, funding programmes and infrastructures.



Primary production: main challenges and opportunities

Agriculture, Livestock and aquaculture.

**Used land: ~13 M
ha, 90% in
rural areas**

~ 56 Billion €/y
~ 920,000 jobs

Problems:

- ❑ Limited profitability due to low average size and low revenue of farms, poorly organized value chains → abandonment, reduction of cultivated land surface;
- ❑ Poorly innovative agricultural practices and systems;
- ❑ Depletion of soil organic matter and water scarcity;
- ❑ Lack of training of farmers.

Opportunities:

- ❑ Valorize plant/animal biodiversity and ecosystem services;
- ❑ Improvements crops/agricultural practices; precision farming;
- ❑ Valorize agricultural residues and effluents.

**Forestry.
Used area:
~12 M ha**

Problems:

- ❑ Limited valorization of forest products -> abandonment with biodiversity depletion, also due to climate change;
- ❑ Lack of training of forest company managers on new opportunities and business management.

Opportunities:

- ❑ Integrated management of forest with valorization its biodiversity, ecosystem services, wood and products.



Food and biobased industry: main challenges and opportunities

Food Industry.

~132

Billion €/y
~ 390,000
jobs

Problems:

- ❑ Structural limitations (very small SMEs), lack of value chain coordination;
- ❑ Strong products counterfeiting and imitations;
- ❑ Low efficiency of food chains with remarkable food/biomass losses, energy and water consumption and by-products/waste production;

Opportunities:

- ❑ Leading position for "typical/quality" foods (DOP, IGP, STG, etc.);
- ❑ Digitalization of entire value chains (Industry 4.0);
- ❑ Use by-products as sources of ingredients/bioproducts

Problems:

- ❑ Wood processing industry based on imported raw material and on the production of medium/low value products;
- ❑ Limited availability of low cost, sustainable non-food feedstocks;
- ❑ Limited market for national biobased products; occurrence on the market of products that do not comply to international standards/labeling;
- ❑ Insufficient clarity in the labeling of bio products;

Opportunities:

- ❑ Connect locally wood production and wood processing industry and biorefineries to produce conventional and new/higher value products;
- ❑ Use biowastes (byproducts/effluents/residues/waste) as feedstocks;
- ❑ Exploit abandoned/marginal lands for producing biomass for the local biobased industry and re-covert former industrial sites.

Biobased Industry (Wood, Pulp & Paper Industry, Biorefinery)

~63

Billion €/y
~ 300,000
jobs



Marine and maritime sectors: main challenges and opportunities



About 8,000 km of coastline

~ € 43 Billion €/y
~ 835,000 jobs
~20% due to Bioeconomy

*After: V RAPPORTO
SULL'ECONOMIA DEL MARE
Unioncamere, 2016*

Problems:

- ☐ Unsustainable fishery; productions highly affected by climate changes;
- ☐ Increasing import of fish from areas with uncertain regulations and monitoring;
- ☐ Sea pollution (due to chemicals, litter, etc), presence of invasive species;
- ☐ Coastal urbanization, over- and un-sustainable exploitation of beaches.

Opportunities:

- ☐ Exploit marine aquaculture (also off shore);
- ☐ Exploit local marine biodiversity;
- ☐ Exploit potential of bioeconomy at the land/sea interface.

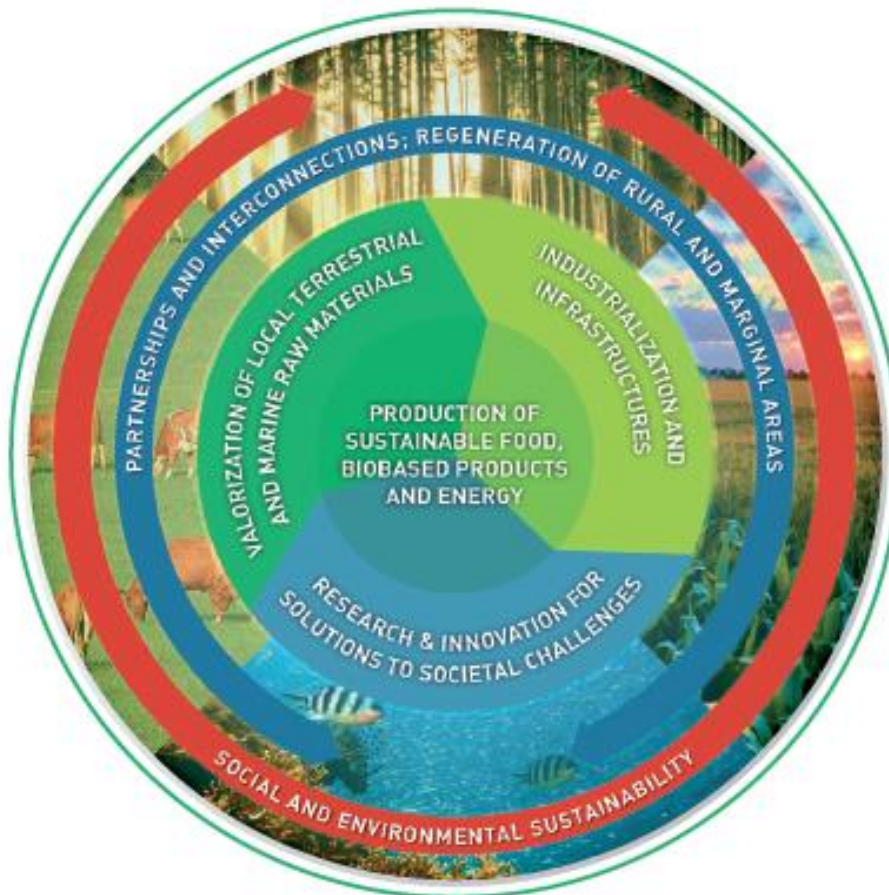
BIT

Bioeconomy in Italy

The Italian Bioeconomy strategy

AVAILABLE AT web site:

www.agenziacoessione.gov.it/it/S3/Consultazioni_pubbliche/Bioeconomy.html



A unique opportunity to reconnect
ECONOMY, SOCIETY
and the **ENVIRONMENT**

1 Bioeconomy – Basics

- 1.1 In the global and EU context
- 1.2 At Italian level
- 1.3 Bioeconomy at regional levels

2 Raw materials sources and the opportunities of biowaste

3 Bioeconomy in everyday life

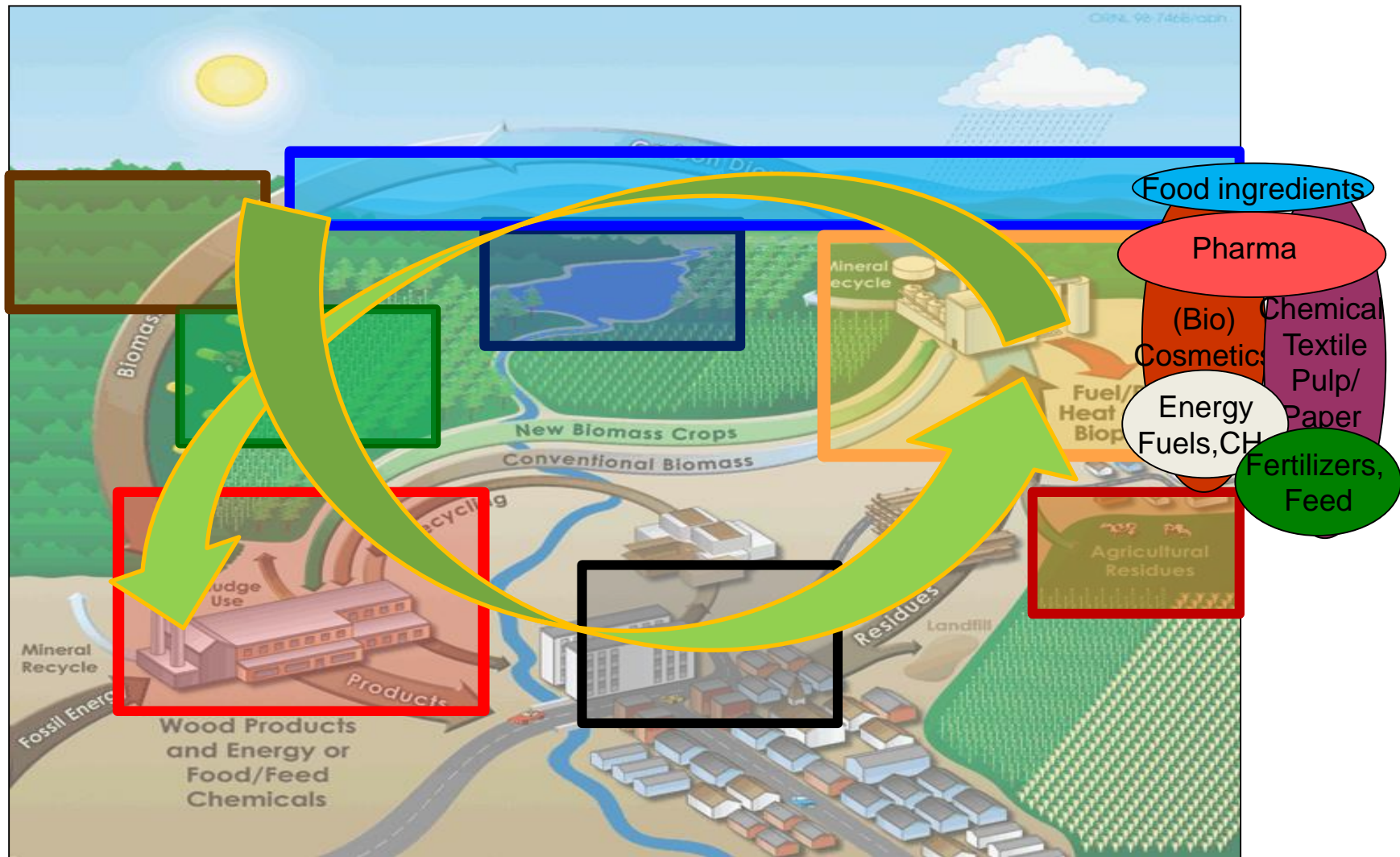
4 The social dimension of the bioeconomy

5 Legislative framework, funding measures and market pull measures

6 Challenges and action plan for the Italian bioeconomy

7 Implementation and monitoring

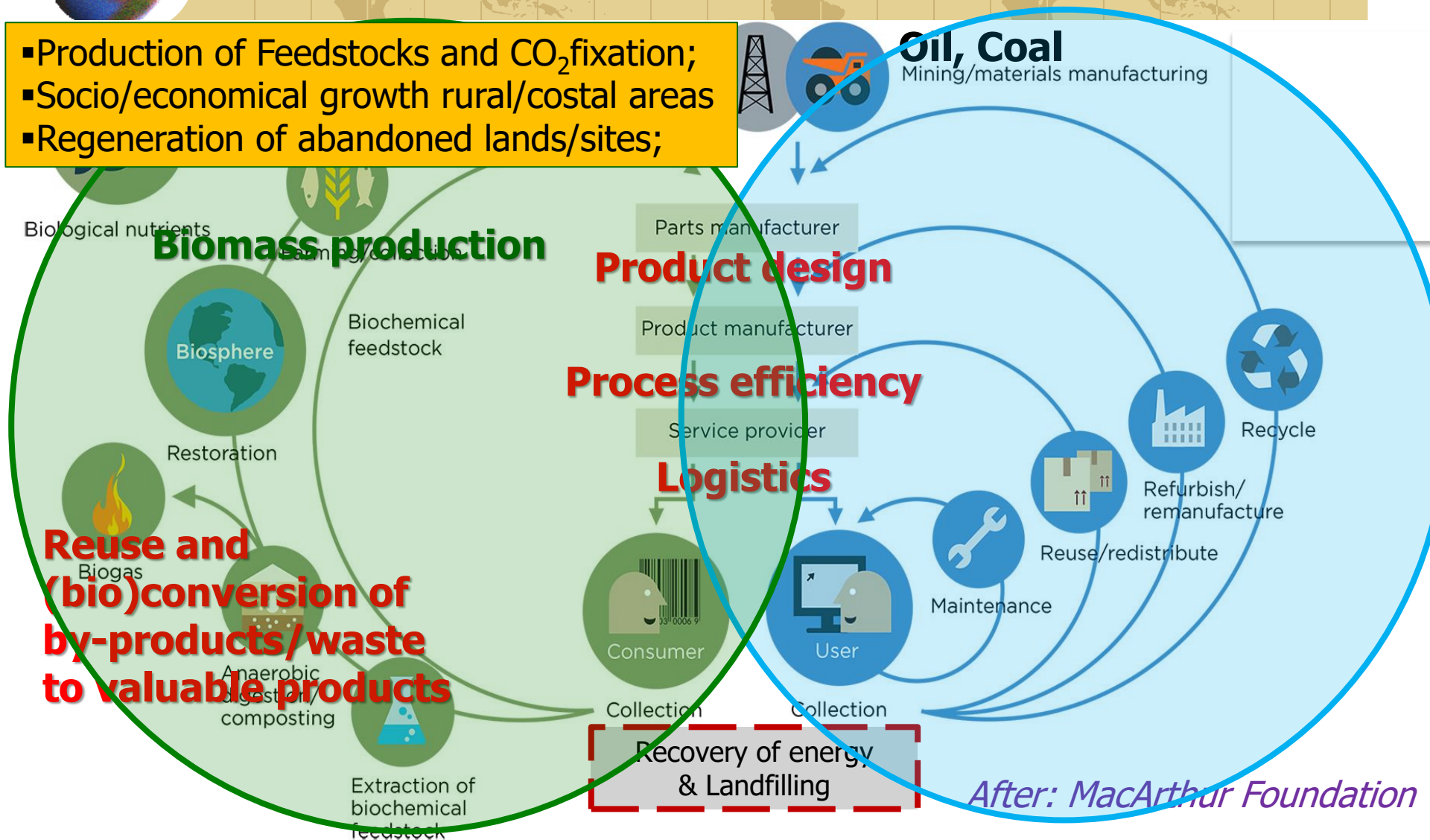
8 Actors involved and road map



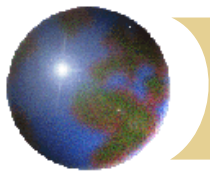


Bioeconomy & Circular Economy

- Production of Feedstocks and CO₂ fixation;
- Socio/economical growth rural/costal areas
- Regeneration of abandoned lands/sites;



Parliament Resolution: Jul 9 2015; EU adoption of Circular Economy package: Dec 2, 2015
In **EU by 2030: +30% resource saving; -50% CO₂ emission; +3% GDP; +1 M jobs**



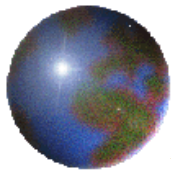
The Italian Bioeconomy strategy: main objective and priorities

Main priorities:

- a) Improve sustainably the productivity and quality of products of each of the sectors and more efficiently interconnect them, by creating longer and more locally routed value chains, where the actions of public and private stakeholders integrate across all major sectors;
- b) Exploit national terrestrial/marine biodiversity, ecosystem services and circularity, and regenerate abandoned/marginal lands and former industrial sites;
- c) Contribute to the growth of bioeconomy in the Mediterranean area via PRIMA and BLUEMED initiatives, for a greener and more productive region, a wider social cohesion and political stability in the area;
- d) Create: i) a wider and more coherent political commitment, ii) more investments in R&I, spin off/start up, education, training, communication (public engagement), iii) new and better tailored policies; iv) a better coordination between regional, national and EU stakeholders/policies, and v) tailored market development actions.

Objective:

Increase Italian Bioeconomy turnover and jobs by 20% by 2030.



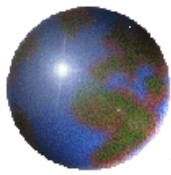
Tools for boosting IT Bioeconomy



*Cluster
tecnologico
nazionale **Blue
Growth BIG***

Mission & actions:

- ❑ Integrate major national public and private actors of the sector;
- ❑ Identification of main regional & national R&I needs and opportunities;
- ❑ Promotion of identified priorities/needs towards regional, national and EU institutions funding R&I;
- ❑ Promotion of partnerships and the participation of public R&I institutions, industry and associations in regional (PNR, FESR, FSE, etc.) national and EU (Horizon 2020, BBI JU, JPIs) agendas/programs for R&I, by reducing fragmentation and duplication, and fostering effective innovation.



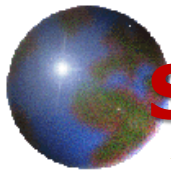
Bioeconomy: one of the Societal Challenges

Societal challenges

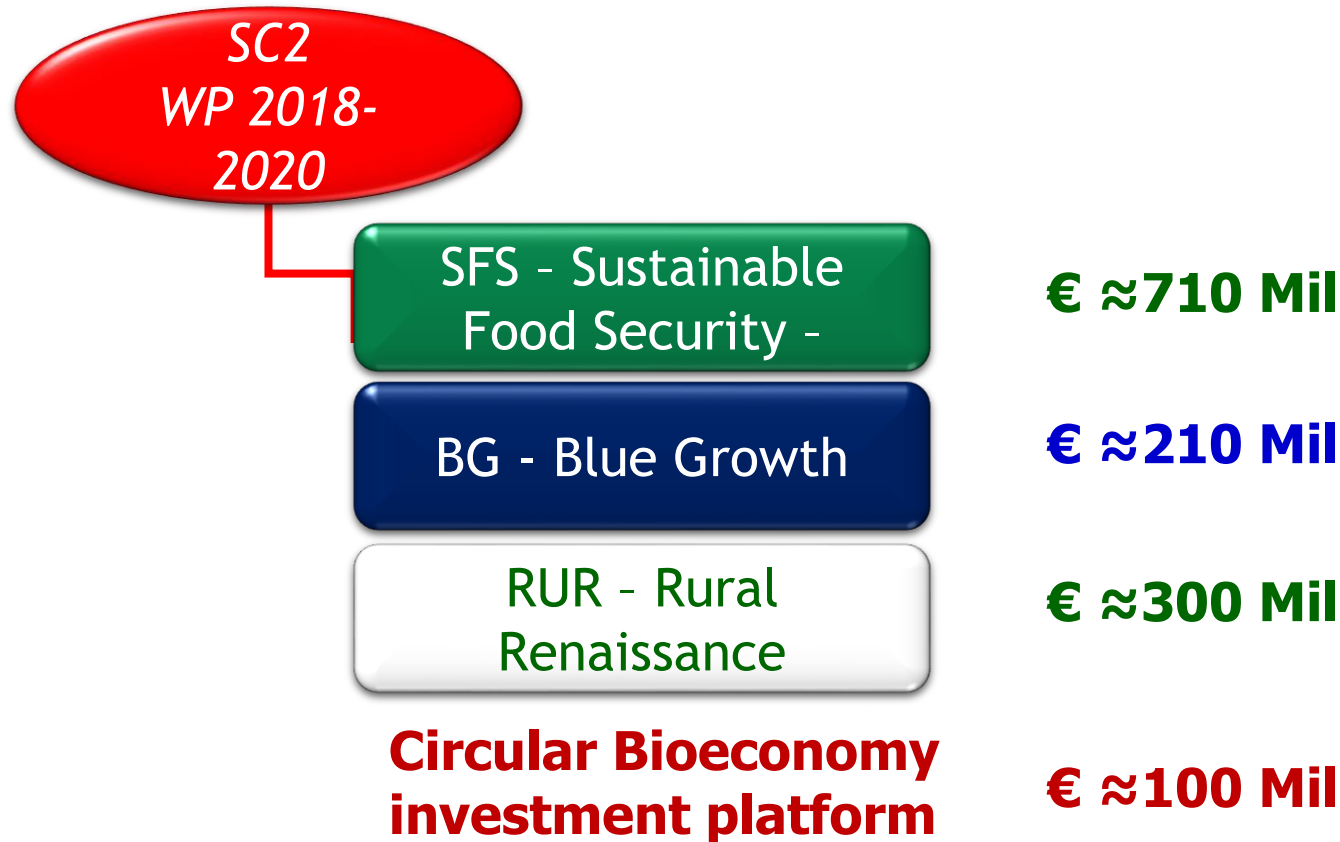


**Tackling
societal
challenges
for a better
society**

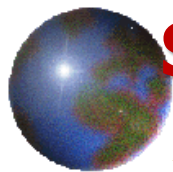
1. Health, demographic change and wellbeing (7.472 Bln)
2. Food security, sustainable agriculture and forestry, marine and maritime and inland water research, and the bioeconomy (3.851 Bln)
3. Secure, clean and efficient energy (5.931 Bln)
4. Smart, green and integrated transport (6.339 Bln)
5. Climate action, resource efficiency and raw materials (3.081 Bln)
6. Inclusive, innovative and reflective societies (1.310 Bln)
7. Secure societies (1.695 Bln)



Societal Challenge 2: the new WP 2018-2020

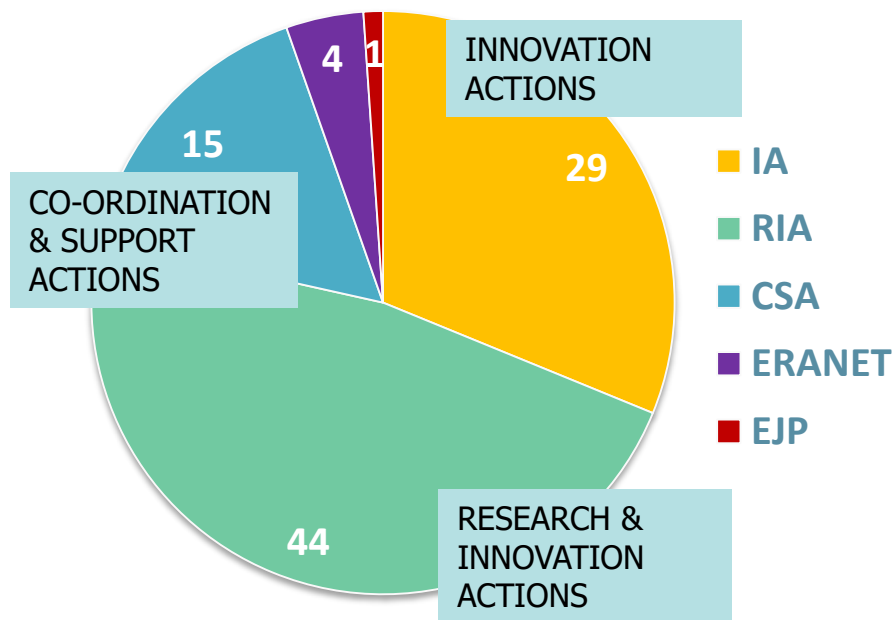


<https://ec.europa.eu/programmes/horizon2020/en/what-work-programme>

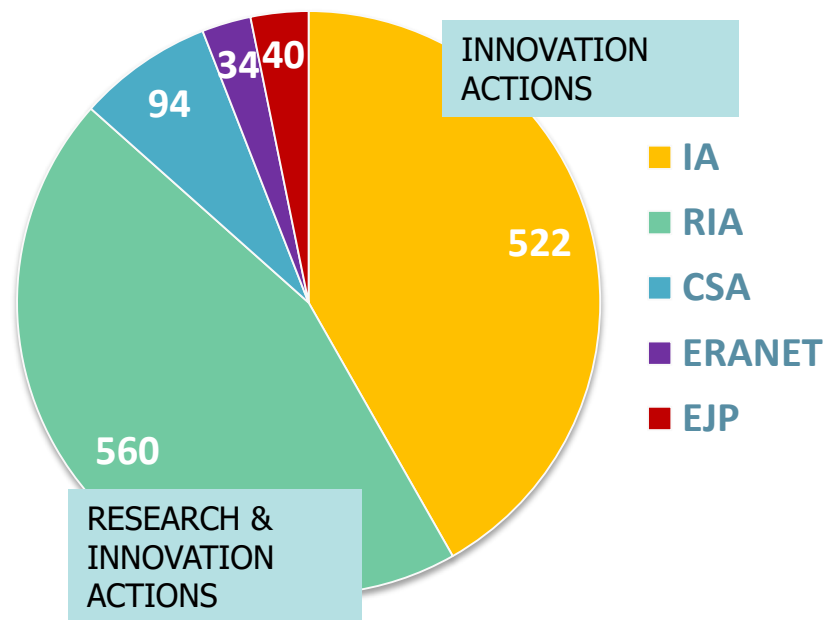


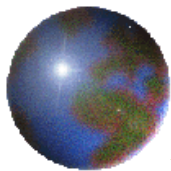
SC2 WP2018-2020: close to market actions vs investment in new knowledge

Number of actions by type of action



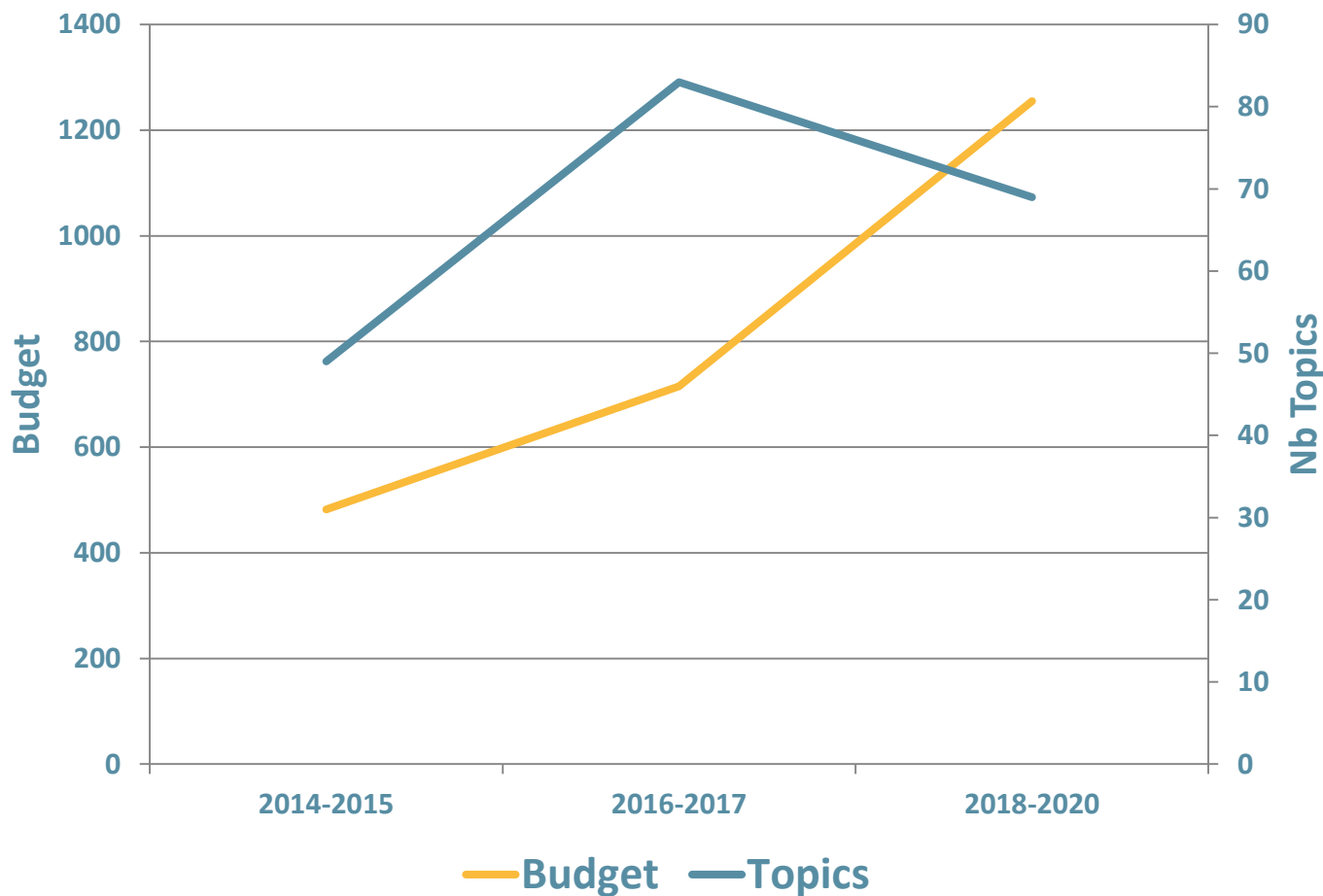
Budget by type of action (M€)





SC2 WP2018-2020: more budget and less topics, more projects funded

Evolution of SC2 calls budget and topic counts



A Public-Private Partnership on Bio-Based Industries



Realising the European Bio-economy Potential



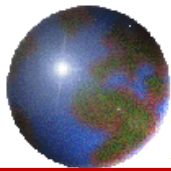
Supported by



<http://www.bbi-europe.eu/>

 Bio-based Industries
Consortium





The BBI JU: structure and priorities

Public partner
27% of
investment



€3.7
billion



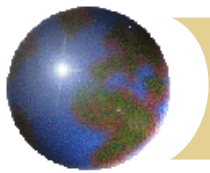
Private partner
73% of investment

A structured approach via 5 **Value Chains** (VC)...

- ❑ VC 1: From ***lignocellulosic*** feedstock to advanced biofuels, bio-based chemicals & biomaterials
- ❑ VC 2: Next generation ***forest***-based value chains
- ❑ VC 3: Next generation ***agro***-based value chains
- ❑ VC 4: New value chains from (organic) ***waste***
- ❑ VC 5: ***Integrated*** energy, pulp and chemicals biorefineries

and a marine bioresource exploitation value chain is coming...

BBI JU WP2018 WILL BE PUBLISHED IN APRIL 2018

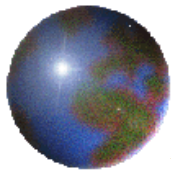


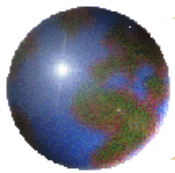
The Italian Bioeconomy

Thank You!

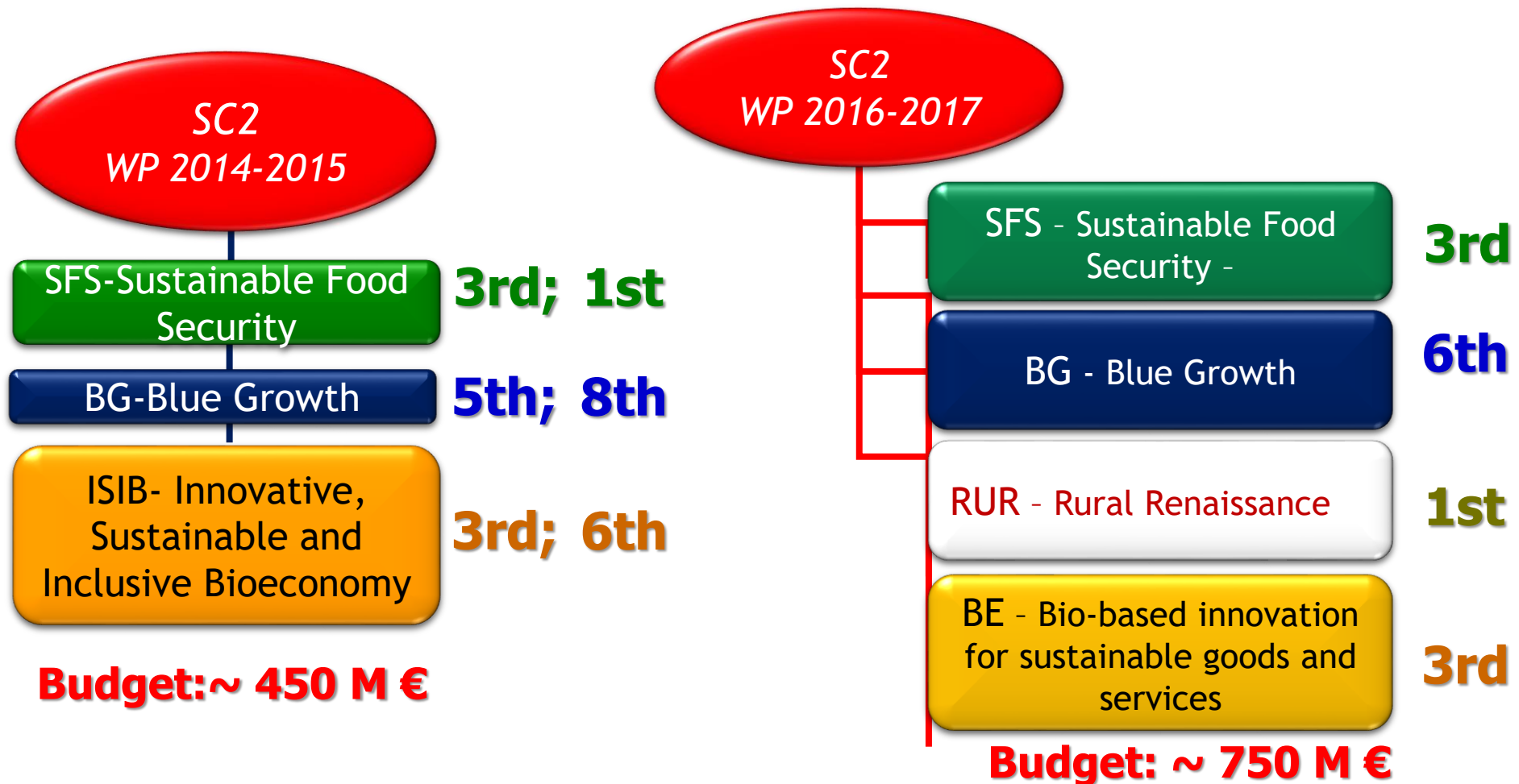


The Future is Bio-Based

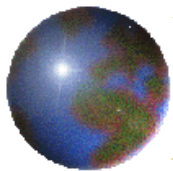




Societal Challenge 2: IT participation in 2014-2016 WPs

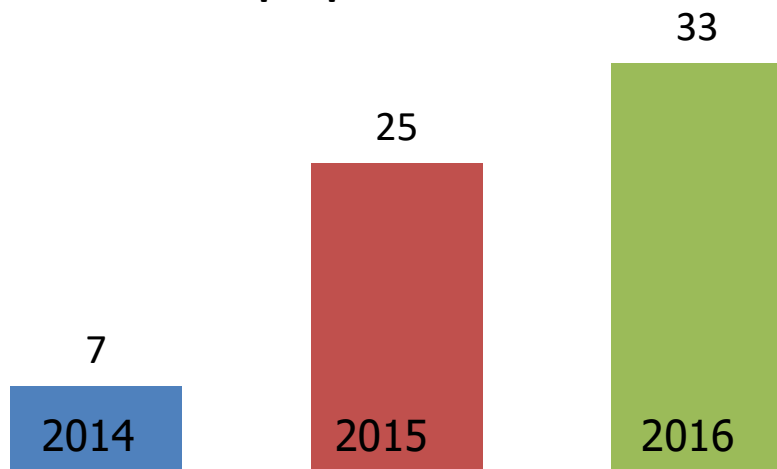


	2014	2015	2016
Success rate (%)	16,1	17,3	37,4
Ranking	4th	3th	3th



IT participation in BBI JU calls 2014-16

IT in proposals retained



ITALY
(submission)

2014 - 5th

2015 - 2nd

2016 - 1st

ITALY

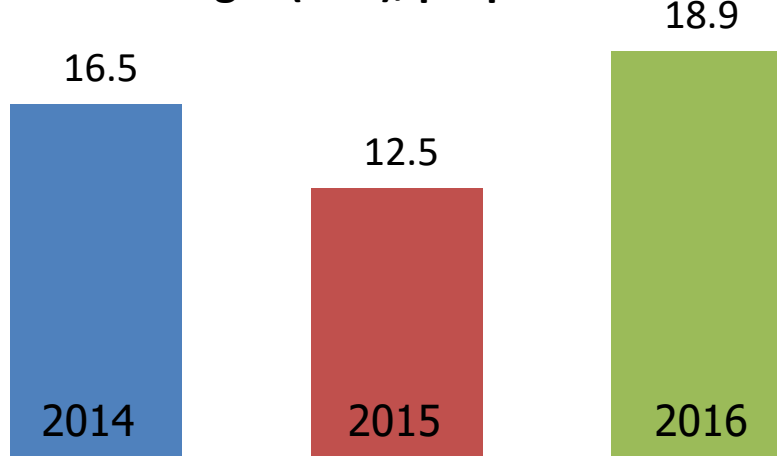
(retained)

2014 - 5th

2015 - 4th

2016 - 2nd

IT Budget (M €), proposals retained



IT Budget (M€), proposals retained

