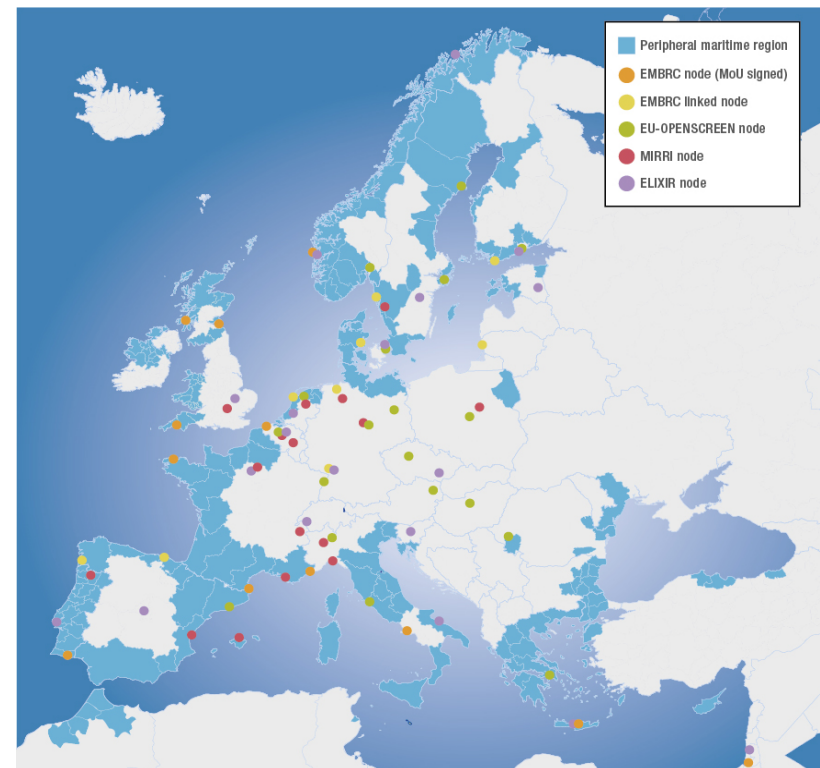


European Marine Biological Research Infrastructure Cluster (EMBRIC)

- **Marine Biotechnology:** an emerging domain which aims to coordinate itself and build a coherent and connected community
- EMBRIC aims to promote new applications derived from marine organisms in fields such as drug discovery, novel foods and food ingredients, aquaculture selective breeding, bioremediation, cosmetics and bioenergy.
- The EMBRIC consortium comprises **27 partners of 4 different types** (academia, research institutes, non-for-profit organizations and industry).
- EMBRIC partners are distributed in **7 EU member states** and **2 associated member states**.
- www.embric.eu



Node distribution of RIs involved in EMBRIC
Source: EMBRIC Vision Document, 2016

Challenges for Research Centres moving from national to European contexts

- Like many other domains, in Europe, marine bio research centres have been in the transition from operating in national context, to **operating and coordinating at the European Level**
- For Marine Biotech research centres in Europe that **wish to build a community**, two critical intelligence challenges arise:



Two challenges for Marine Biotech research centres in Europe that wish to build a community:

Challenge 1: how do individual research centres position themselves in the overall “Ecology” of European research centres (in Marine Biotech)

- Research centres cannot be a Jack of all trades, thus they specialise.
- There is heterogeneity in Europe
- **SOLUTION:** Create activity profile that reveal the specialisations (and the de facto strategies of the centres)

Challenge 2:
How do you capture the territorial socio-economic impact of a research centre

- The move from scientific excellence to relevance means socio-economic impact of research centres needs to be qualified.
- There are pressured to link up with their regions smart specialisation strategies.
- **SOLUTION:** Use the activity profiles to create territorial embedding analyses



Challenge 1

Activity Profiles



Analyzing blue biotechnology regional research driven clusters

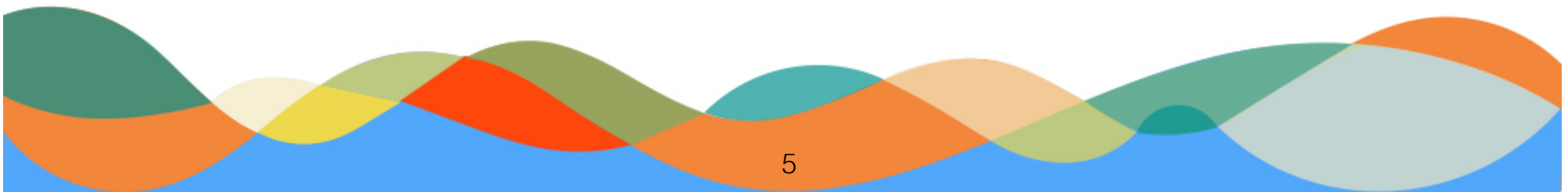


Operationalisation

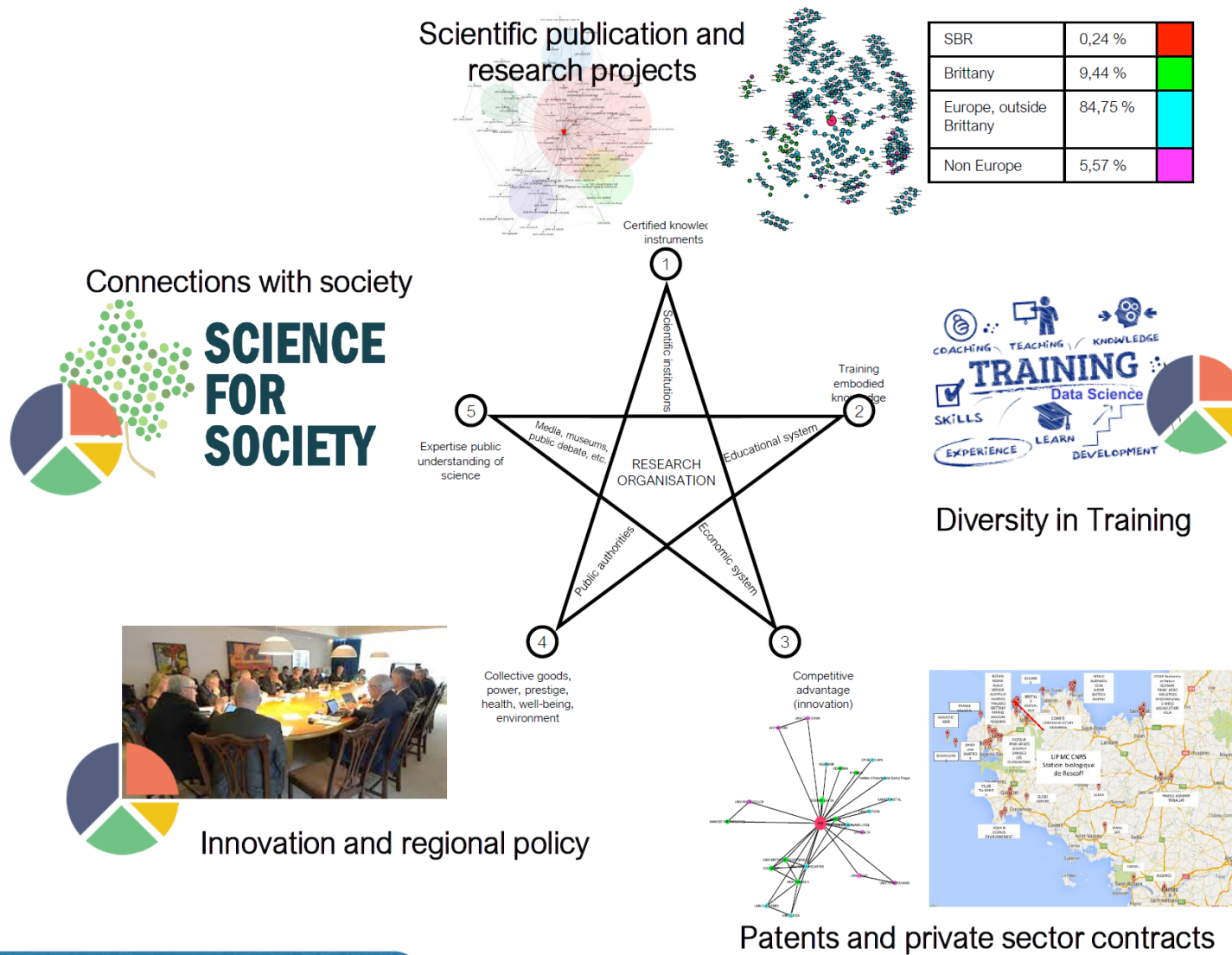
Analyzing blue bioregional clusters =
Characterising Territorial Embedding of EMBRIC centres



- Develop relevant descriptors to **profile** the different regional / national / international **positioning** of the research centre
- Planned Output :
 - Harmonised Activity Profiles for **individual centres**
 - **Global** EMBRIC research centre ecology and typology



Multidimensional – 5 axis



Profiling centres through a variety of data and analyses.
(Table on next slide)

Gathering Data

Data set	Description	Data requirements
1. Publications	Peer-Reviewed scientific publications identified as broadly linked to Marine Biotechnology and/or Marine Biological Resource Management	List of publications from the institute for the period 2010 – 2015, including <u>author names</u> , <u>title</u> , journal, doi
2. Competitive Funded projects	Public funded projects, most often from public funding organisations (European Commission, national research councils) but can also include regional funds, foundations.	<u>Project name</u> , <u>project date</u> , <u>name of funders</u> , <u>instrument</u> , <u>name and location of partners</u> , <u>budget</u>
3. Contracts with private sector	Economic relations between the research centre and the private sector. This includes contract research, consultancy, service provision, provision of a PhD student, commercial use of infrastructure, etc.).	<u>names and location of partners</u> , <u>date</u> , <u>frequency (if more than 1)</u> , <u>budget</u>
4. Patents	Patents as broadly linked to Marine Biotechnology and/or Marine Biological Resource Management	<u>patents no.</u> , name of applicant, title, address of applicant, application date
5. Training	Professional and academic training activities broadly linked to Marine Biotechnology and/or Marine Biological Resource Management	<u>Professional training</u> , <u>bachelors</u> , <u>masters</u> and <u>post graduate</u> ALL including name of programme, partners (if applicable) and number of participants and starting date of the scheme.
6. Connections with policy for market creation	Participation in standards organisation, in regional committees, etc.	<u>name of forum</u> , <u>years of participation for the institute</u> , <u>outreach (regional, national, international)</u>
7. Connections with civil society	Links between the research centre (and individual researchers) and civil society.	<u>In house museums</u> , <u>open days</u> , <u>other self-organised processes of outreach</u> , <u>participations in externally hosted public debates</u> .

Looking for differences and similarities in de facto strategies

Example of Economic profiling



Economic Embedding

- **FOCUS:** types of relationships between the RC & firms 
 - (1) Consultation / Contract Research
 - (2) Services
 - (3) License agreements
 - (4) Collaborative Research groups / labs
 - (5) Hosting Companies (not spin offs)
 - (6) Start-ups / Spin Offs
 - (7) Product development / Commercialisation
- **FOCUS:** portfolio of links:
 - with many small firms (e.g. SB Roscoff)
 - with large multi-national (e.g. Obs Banyuls)
 - through Start-Up/Spin Off (to be explored)
- **FOCUS:** regional / national / Europe

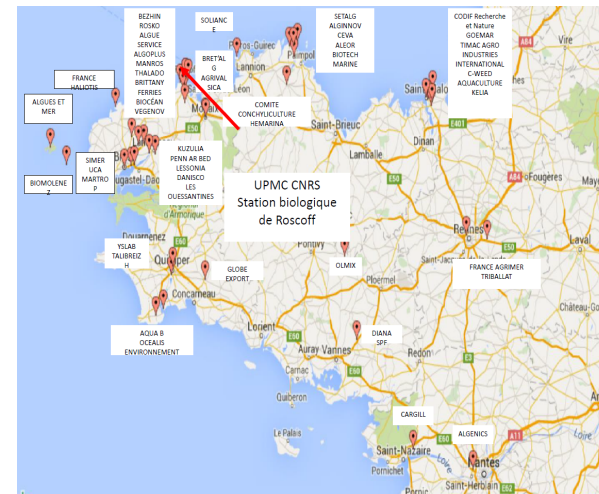
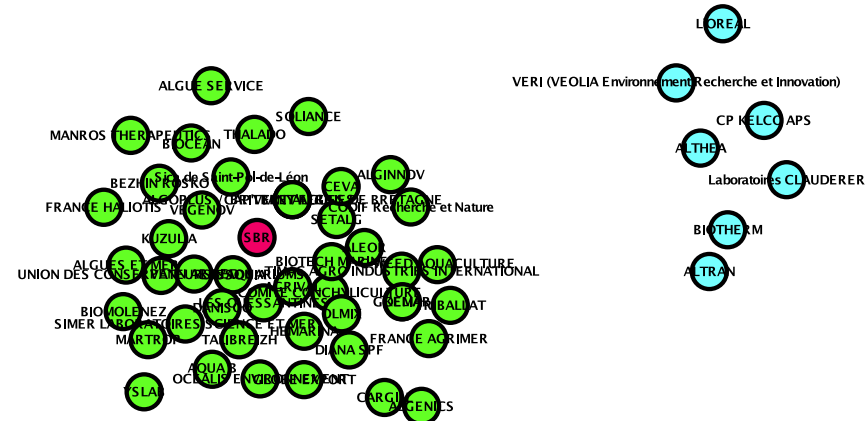
Contracts with many firms (SB Roscoff)

From 2010:

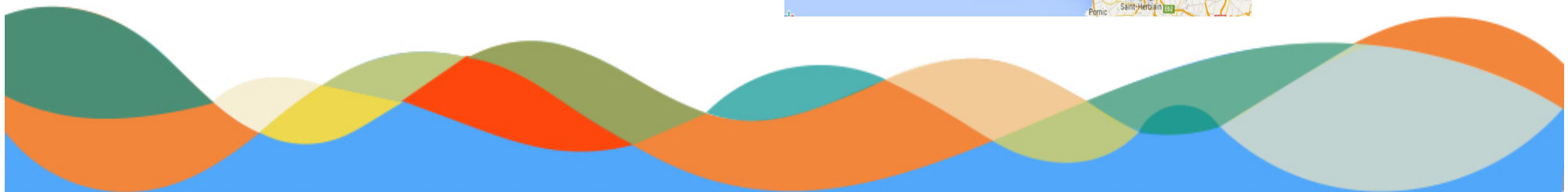
- 57 contracts / partners
- Clustering based on geographical proximity
- Processed with CorText

SBR	1,75 %	
Brittany	80,7 %	
Europe, outside Brittany	17,54 %	
Non Europe	0 %	

% of nodes according to geographical location



LINAGRAN
GREENTECHS SA
EOLIS-EAU



Strong and enduring relationship with large firm (Obs. Banyuls)



Usually a progressive engagement

- First contact as service provider
- Leading to closer collaboration
- With a possible resulting Common lab – with EU projects and publications



Key issues in this work

- Harmonisation is a key challenge for the heterogeneous research centres across different countries, languages and research cultures
- Reference databases are key to position these activities:
 - Publications (LEIDEN)
 - Patents (UPEM)
 - EU FP projects (AIT)
- Plus means for visualisation and interrogating the data (CORTEXT)



Challenge 2

Territorial Embedding

Work in Progress (Summer/Autumn 2017)



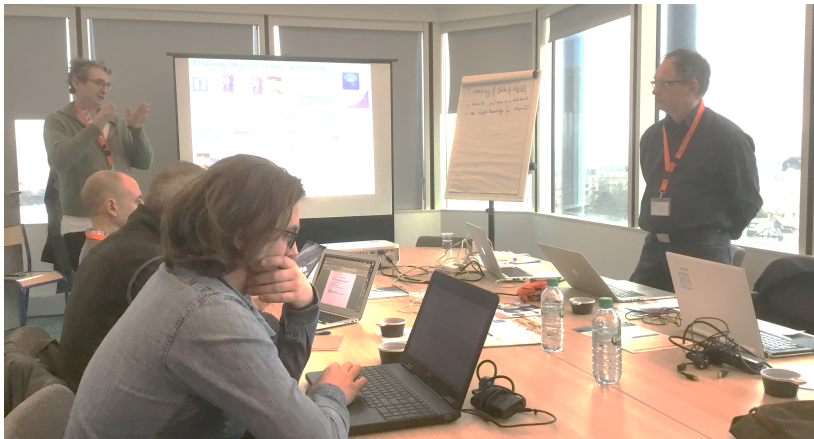
Territorial Embedding

- Strategy:
 - To co-create indicators of territorial embedding with Marine Biologists (see next slide)
 - To use these “lenses” to understand the activity profiles as sources of data



Indicators ~~in the wild~~ *by the sea*

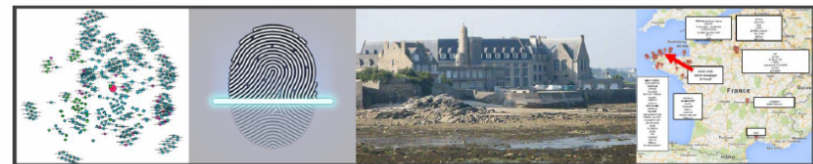
Trainings in Analytical Techniques



- Capacity building within Marine Scientists
- Techniques to analyse publication data using CorText platform, Leiden database and EU PRO (cf. RISIS)

Co-developing positioning indicators

TERRITORIAL EMBEDDING WORKSHOP



3rd – 5th May 2017, SB Roscoff, France

A workshop on territorial impact assessment will take place at the Station Biologique Roscoff. Under the aegis of WP5, a number of partners have been constructing their territorial impact “finger print”, profiling their organisations impacts with regards to research, training, economic, regional policy and societal aspects. This meeting will focus on presenting the findings so far, sharing experiences and further discussions on next steps.

Those wishing to participate must register following the link below.

The official start of the workshop will be at 14h00 on Wednesday 3rd May (See preliminary agenda below). Note that a shuttle will be provided from Brest Airport to Roscoff at 13h45 and will depart on Friday for Brest at 12h00 sharp.

- Collective co-creation of positioning indicators bespoke to the marine biotechnology contexts



Example

Training as direct economic contributor to the territory



Embedding through Training

- Why should we be interested in training?

Capacity building is key to competitiveness!

- Combination of:
 - Academic training:
SB Roscoff example: Bachelors (Biology & Maths). Masters in Ecology & Earth Sciences / Integrative Biology (BI) / Cellular & Molecular Biology
 - Professional degrees
SB Roscoff example: Professional degree in Food Science
 - Continuous prof. development & life-long learning
SB Roscoff example: Blue Train (next slide)



Blue Train (Roscoff and Brittany)

Creation of an alternate professional license in marine biotechnology

Place: Roscoff Biological Station / Pierre & Marie Curie University

Creation of a professional course within the framework of the Master's program 'Biology and Marine Bioresources'

Location: Roscoff Biological Station / Pierre & Marie Curie University

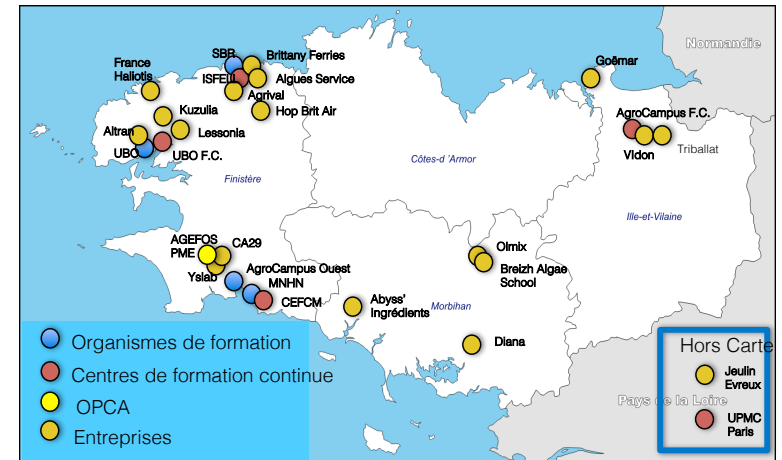
Internationalization of the Master 'Biotechnology of marine resources'

Place: European University Institute of the Sea / University of

Western Brittany

Creation of a training course in agro-food engineering, including a course in marine biotechnology

Location: Ecole Supérieure d'Ingénieurs en Agroalimentaire de Bretagne-Atlantique / University of Western Brittany



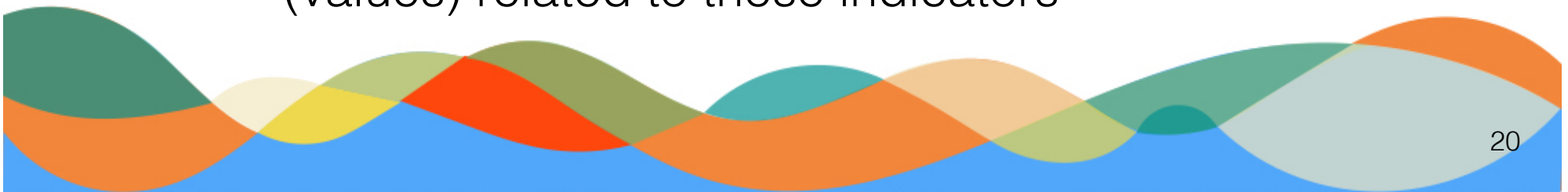
Initial and ongoing
training for the
development of the
blue bio-economy

Conclusion



Conclusion

- Activity profiles as a means of understanding the European ecosystem of marine research centres and towards a typology (sensitive to de facto strategies)
- Co-creating positioning indicators (and building analytical capacity) with the marine biotechnology community themselves to both:
 - create appropriate indicators
 - be reflexive on the origins, nature and politics (values) related to these indicators





douglas.robinson@esiee.fr

antoine.schoen@esiee.fr

Extra Slides



Contributions

% of nodes according to geographical location

Geographical origin	Publications (for the top 100 nodes)	Scientific partnerships in projects	Patents	Contracts with firms
SBR	1%	0,24 %	4,17 %	1,75 %
Brittany	13%	9,44 %	33,33 %	80,7 %
Europe, outside Brittany	65 %	84,75 %	37,5 %	17,54 %
Non Europe	21 %	5,57 %	25 %	0 %

Summing up the results

% of nodes according to geographical location

Geographical origin	Publications (for the top 100 nodes)	Scientific partnerships in projects	Patents	Contracts with firms
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Non Europe	21 %	5,57 %	25 %	0 %

Global research
collaborations

Spread co-
patenting

Local firm
contracts

Policy links

FOCUS on types of linkages:

- 1) Participation in Research Policy (Agenda setting)
- 2) Participating in politics of a particular domain (Parlement de la Mer)
- 3) Building markets (setting Technical Standards)
- 4) Produce data for policy (experts informing climate change policy)

Reach of linkages

- Regional / National / European



Policy links – some examples

	1. Research Policy	2. Domain Politics	3. Building Markets	4. Policy Relevant Data
Regional	Smart Specialisation	Parlement de la Mer		TEA Reports
National				
European	H2020		CEN	

