



# **The Portuguese Maritime Mega Cluster: Assessment and Innovation**

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# The Portuguese Maritime Mega Cluster: Assessment and Innovation

## Summary

- ✓ Introduction
- ✓ The strategic value of Portuguese sea
- ✓ Cluster formation: input-output methodology in maritime sector
- ✓ Analysis of maritime activities in Portugal
- ✓ Mega cluster sectorial assessment
- ✓ Inter sectorial relations in the mega cluster
- ✓ Analysis of technical coefficients
- ✓ Analysis of indirect effects
- ✓ Multiplier effects of the maritime activities
- ✓ Conclusions

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## INTRODUCTION

- For centuries, the sea was perceived as a source of infinite resources.
- During 15<sup>th</sup> century, the maritime jurisdiction began to get shape and the “territorial sea” concept.
- Alfred Mahan (*The Influence of Sea Power upon History* 1890), sustained the idea of naval power superiority over land power.
- In the 20<sup>th</sup> century, the advance of science and technology led to new policies.
- During the current century, sea will be given a particular emphasis, especially due to resource scarcity.

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## THE STRATEGIC VALUE OF PORTUGUESE SEA

- Portugal's geostrategic Atlantic position;
- The presence of the maritime element was a key factor across Portugal's History;
- Portugal has at its disposal the 11<sup>th</sup> biggest surface of jurisdictional waters;
- In this way, the maritime area under Portuguese jurisdiction:
  - it will be bigger than India's land surface;
  - it will cover 40 times more territory than Portugal's land space;
  - it will represent more than 80% of EU 27 member states terrestrial area.

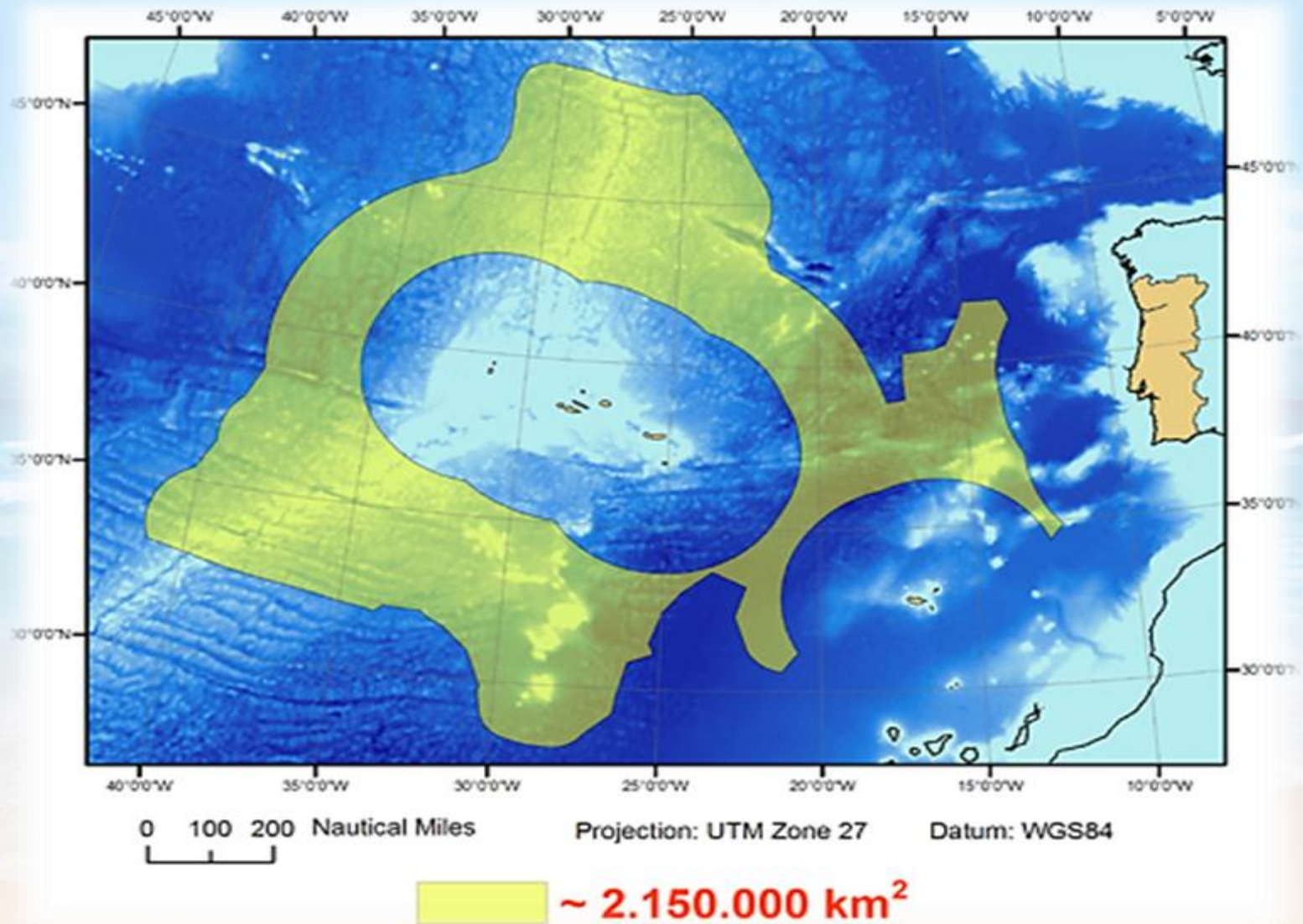
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## THE STRATEGIC VALUE OF PORTUGUESE SEA



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## THE STRATEGIC VALUE OF PORTUGUESE SEA



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## CLUSTER SECTORS

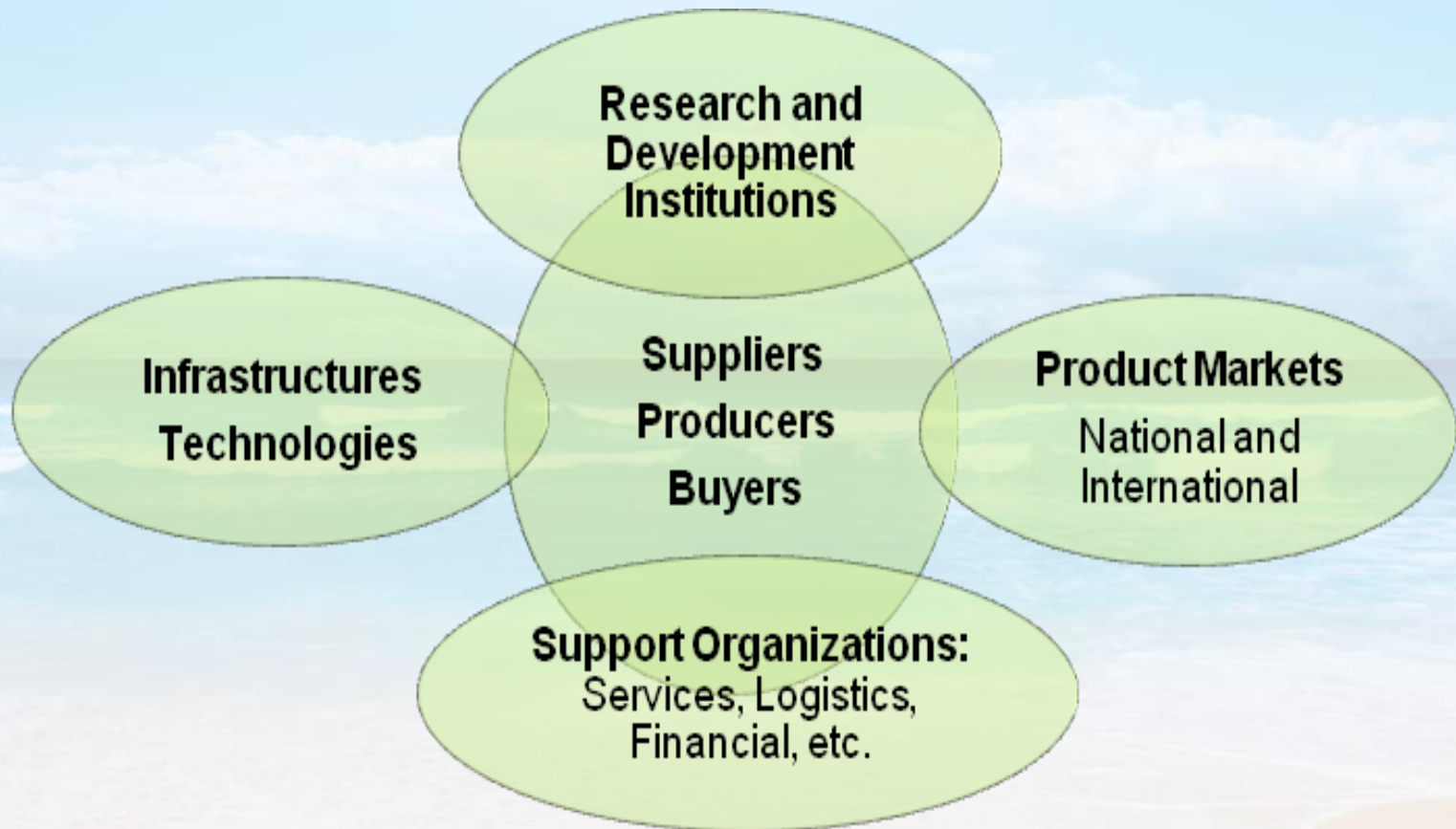
European Commission  
Maritime Cluster

Key facts of the 2001  
Valencia Plenary



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## CLUSTER STRUCTURE





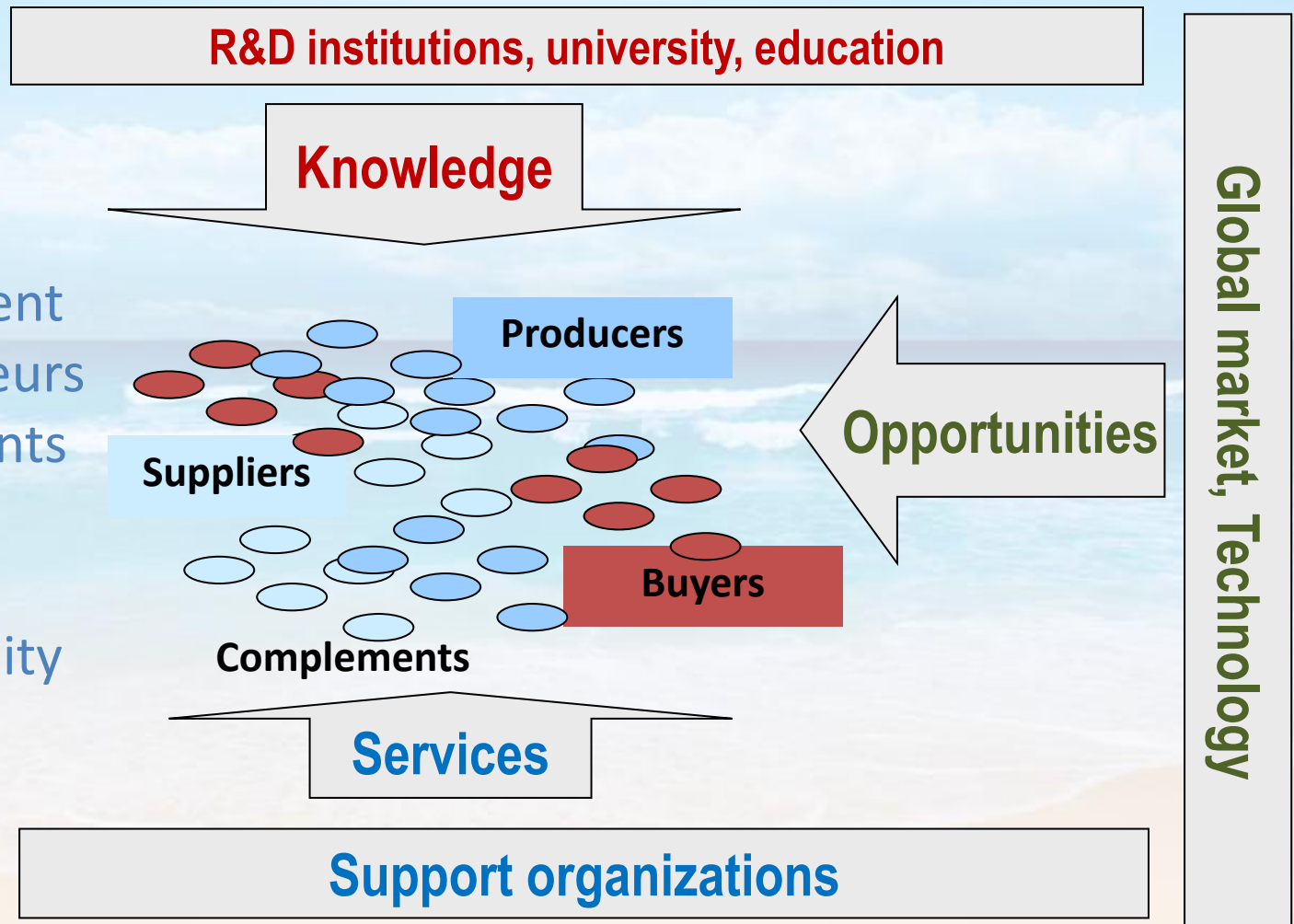
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## CLUSTER FORMATION

### Learning-knowledge–innovation

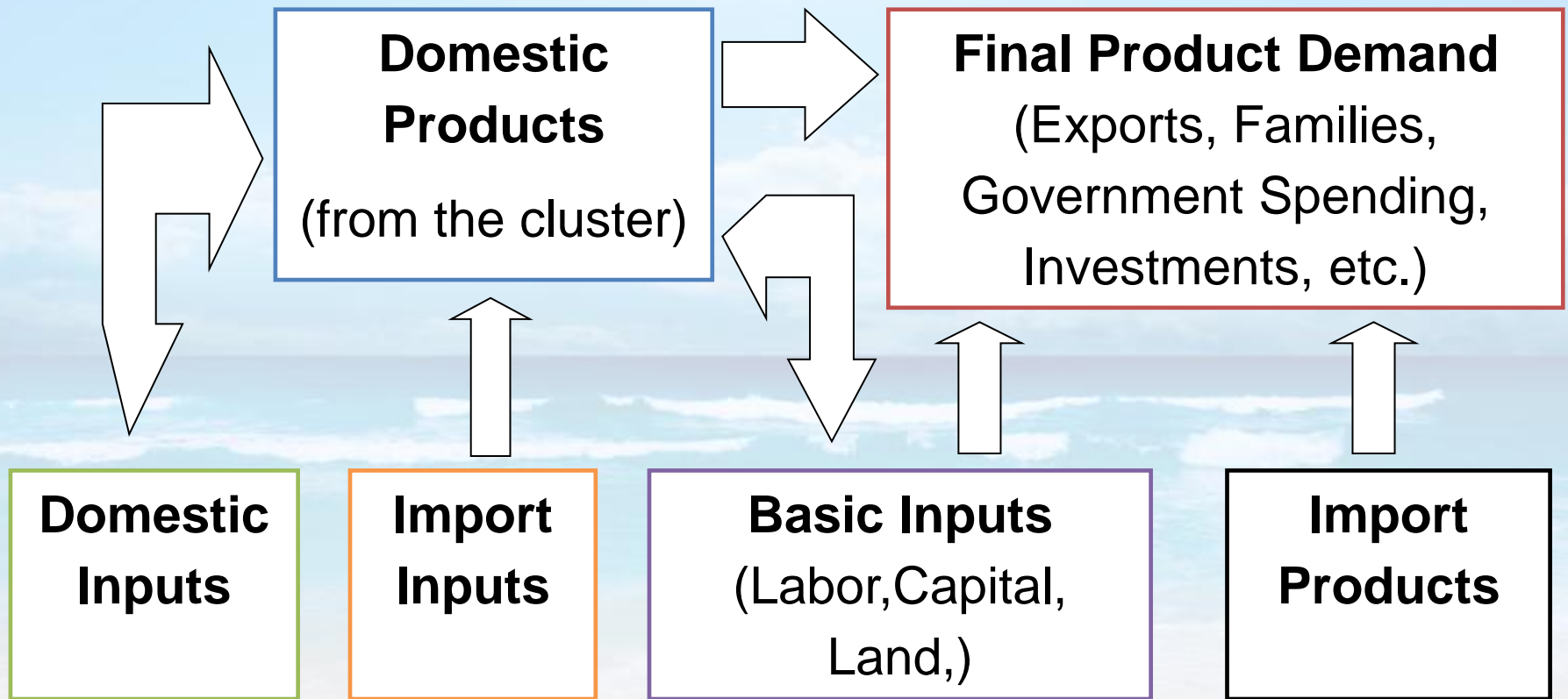
#### Identify:

- Management
- Entrepreneurs
- Governments
- Factors of collective responsibility



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## INPUT-OUTPUT METHODOLOGY



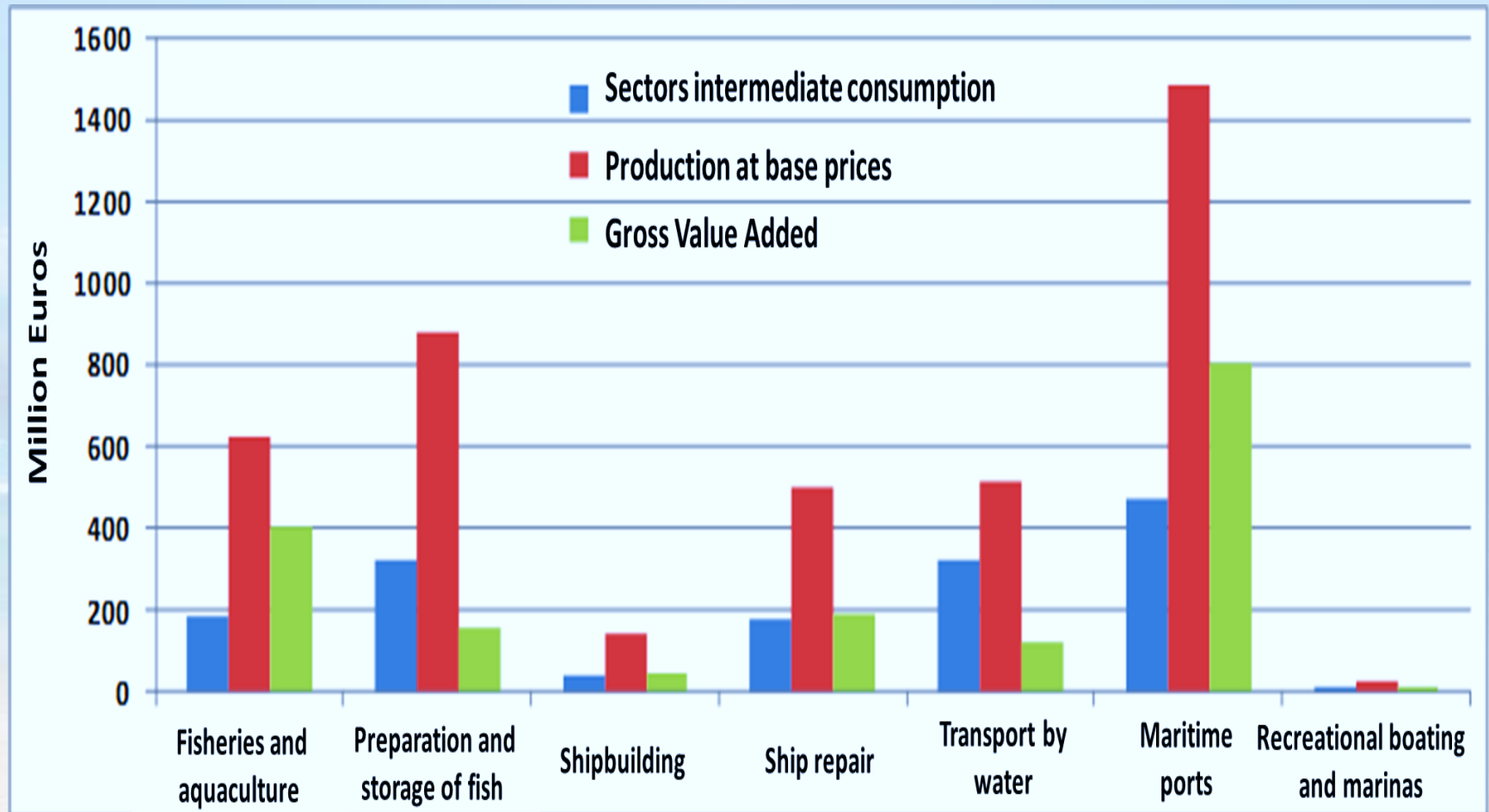
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## ANALYSIS OF MARITIME ACTIVITIES IN PORTUGAL

- Sea Input/Output Matrix (SIOM). The following sectors were considered separately:
  - Fisheries and aquaculture
  - Preparation and storage of fish, crustaceans and molluscs
  - Shipbuilding
  - Ship repair
  - Transport by water
  - Auxiliary transport activities by water (maritime ports)
  - Activities of recreational boating and marinas

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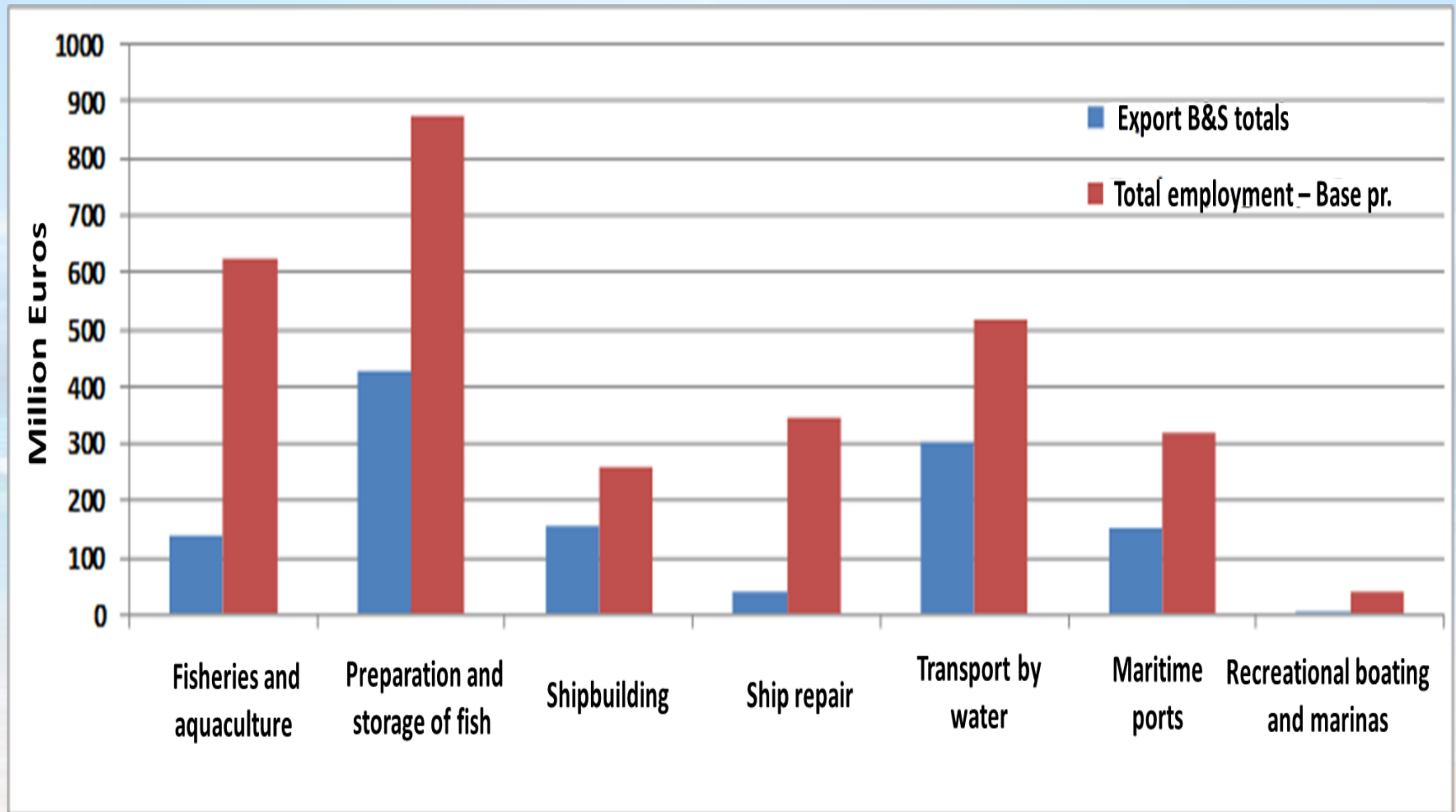
## MEGA CLUSTER SECTORIAL ASSESSMENT



Turnover, GVA and Intermediate Consumption

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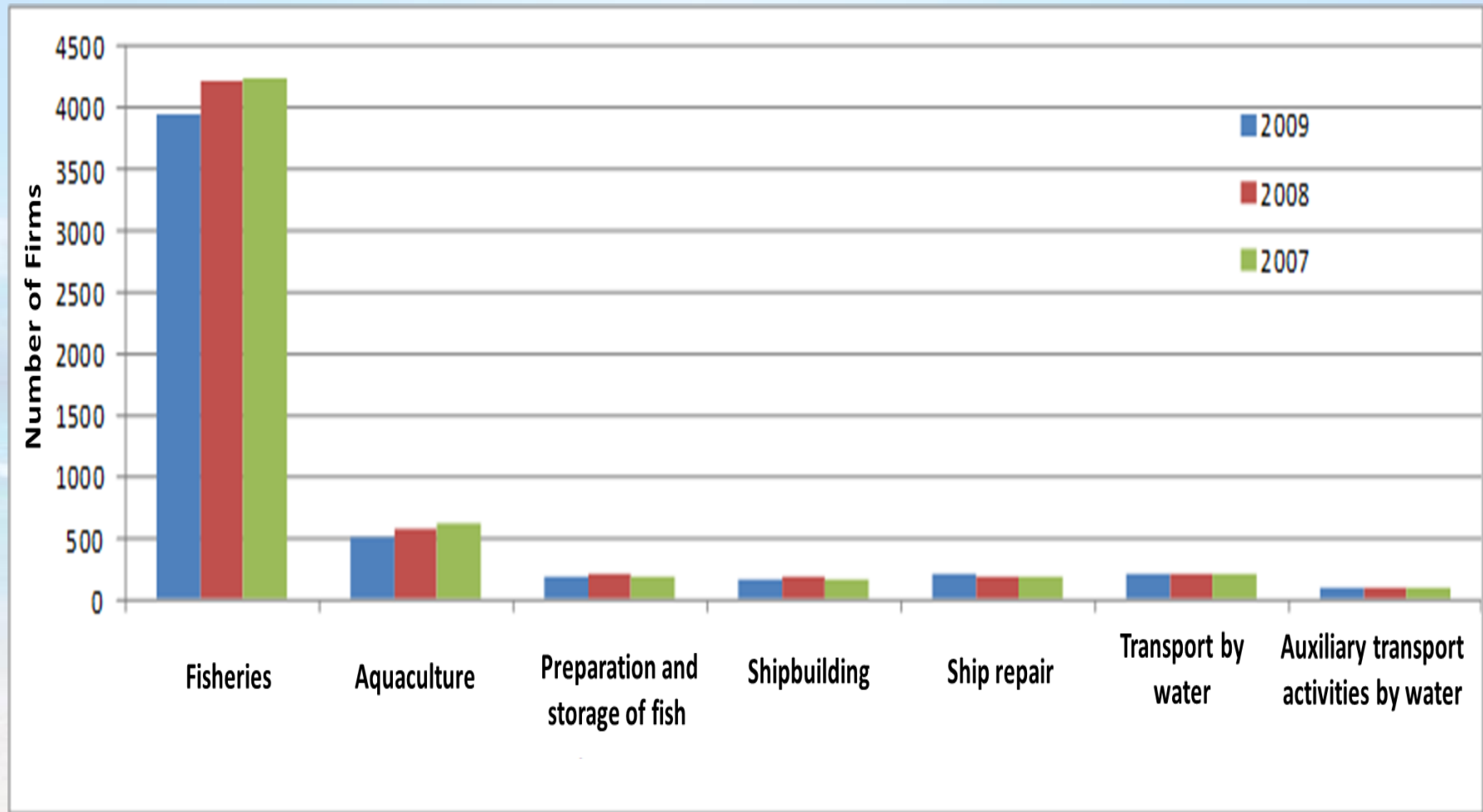
## MEGA CLUSTER SECTORIAL ASSESSMENT



### Exports and Employment

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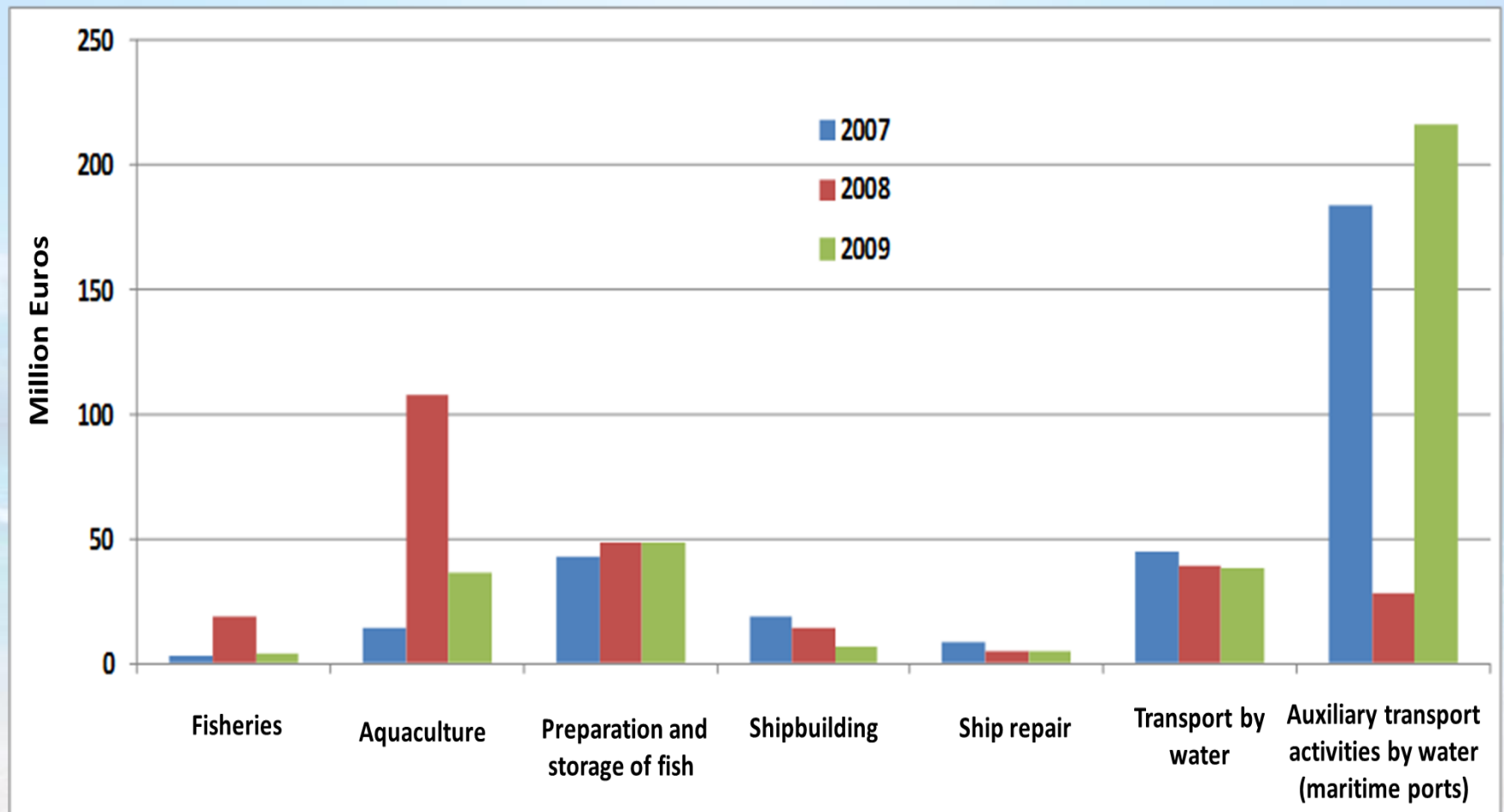
## MEGA CLUSTER SECTORIAL ASSESSMENT



Number of enterprises

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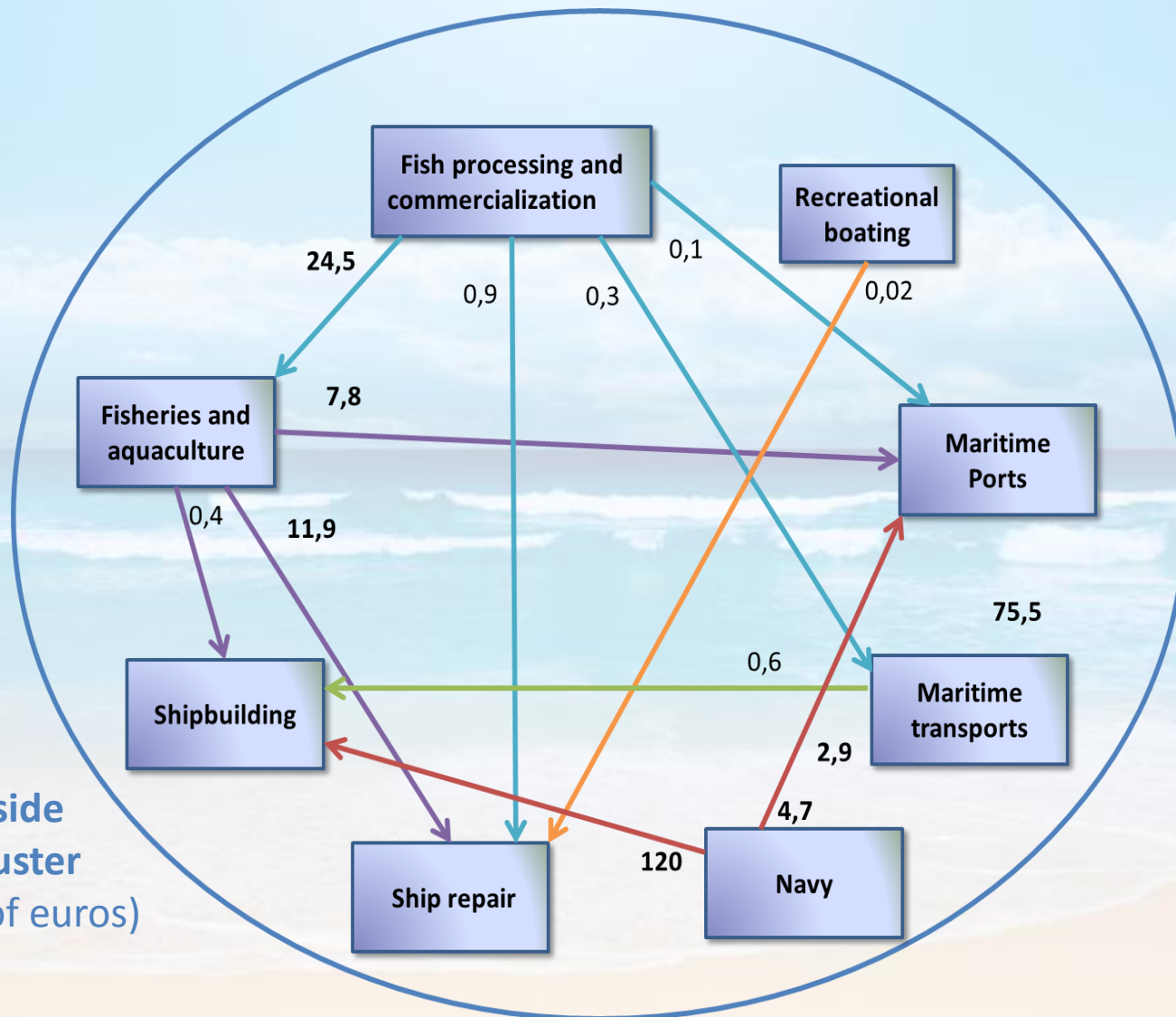
## MEGA CLUSTER SECTORIAL ASSESSMENT



**Fixed Capital Gross Formation (2007, 2008, 2009)**

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## INTER SECTORIAL RELATIONS IN THE MEGA CLUSTER



Commercial Relations Inside the Mega cluster (in millions of euros)



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## MEGA CLUSTER SECTORIAL ASSESSMENT

National GVA (M€)	Direct Value - 7 sectors	Estimated Value – remaining sectors	Total - Sea
149.311,1	1.749,7	2.446,7	4.196,5
100%	1,17%	1,64%	2,81%

**GVA (SIOM, 2008)**

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## ANALYSIS OF TECHNICAL COEFFICIENTS

<b>Product Description</b>	<b>Fisheries and aquaculture</b>	<b>Preparation and storage of fish</b>	<b>Shipbuilding</b>	<b>Ship Repair</b>	<b>Transport by Water</b>	<b>Auxiliary Transport Activities by Water</b>	<b>Activities Recreational boating and marinas</b>
Fisheries and aquaculture	0,05	0,03					
Preparation and storage of fish, crustaceans		0,12					
Ship building			0,01				
Ship Repair	0,02			0,09	0,01		
Transport by water					0,14		
Auxiliary Transport Activities by Water	0,01				0,15	0,01	
Activities Recreational boating and marinas							

### Technical Coefficients Matrix

(Orange – strong relation; green – average relation; blue – weak relation)

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## ANALYSIS OF INDIRECT EFFECTS

<b>Product Description</b>	<b>Fisheries and aquaculture</b>	<b>Preparation and storage of fish</b>	<b>Shipbuilding</b>	<b>Ship Repair</b>	<b>Transport by Water</b>	<b>Auxiliary Transport Activities by Water</b>	<b>Activities Recreational boating and marinas</b>
Fisheries and aquaculture	1,06	0,03					
Preparation and storage of fish, crustaceans		1,14					
Ship building			1,01				
Ship Repair	0,02			1,09	0,01		
Transport by water					1,16		
Auxiliary Transport Activities by Water	0,01				0,17	1,01	
Activities Recreational boating and marinas							1,00

**Direct and indirect interdependency coefficients relations**

(**Orange** – strong relation; **green** – average relation; **blue** – weak relation)

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## ANALYSIS OF INDIRECT EFFECTS

Homogeneous branches Products subject to type-1 multiplier (dir+indir)	Fisheries Aquacult	Fish Preparation	Ship building	Ship Repair	Transport by Water	Ports	Boating / Marinas
Relevant Number of Products (Coefficient > 0,01)	13	14	9	11	21	7	24
Highly Relevant Number of Products (Coefficient > 0,05)	2	2	2	3	5	2	3

**Number of Products Significantly Influenced**  
(direct + indirect effects)

## ANALYSIS OF EFFECTS

Homogeneous branches Products subject to type-1 and type-2 multiplier	Fisheries Aquacult	Fish Preparation	Ship building	Ship Repair	Transport by Water	Ports	Boating and Marinas
Type 1	1,459	1,625	1,447	1,591	2,066	1,564	1,769
Indirect Effect	0,459	0,625	0,447	0,591	1,066	0,564	0,769
Type 2	2,588	2,343	2,509	2,751	3,090	2,662	3,075
Induced Effect	1,129	0,717	1,061	1,160	1,025	1,097	1,306

### Multipliers

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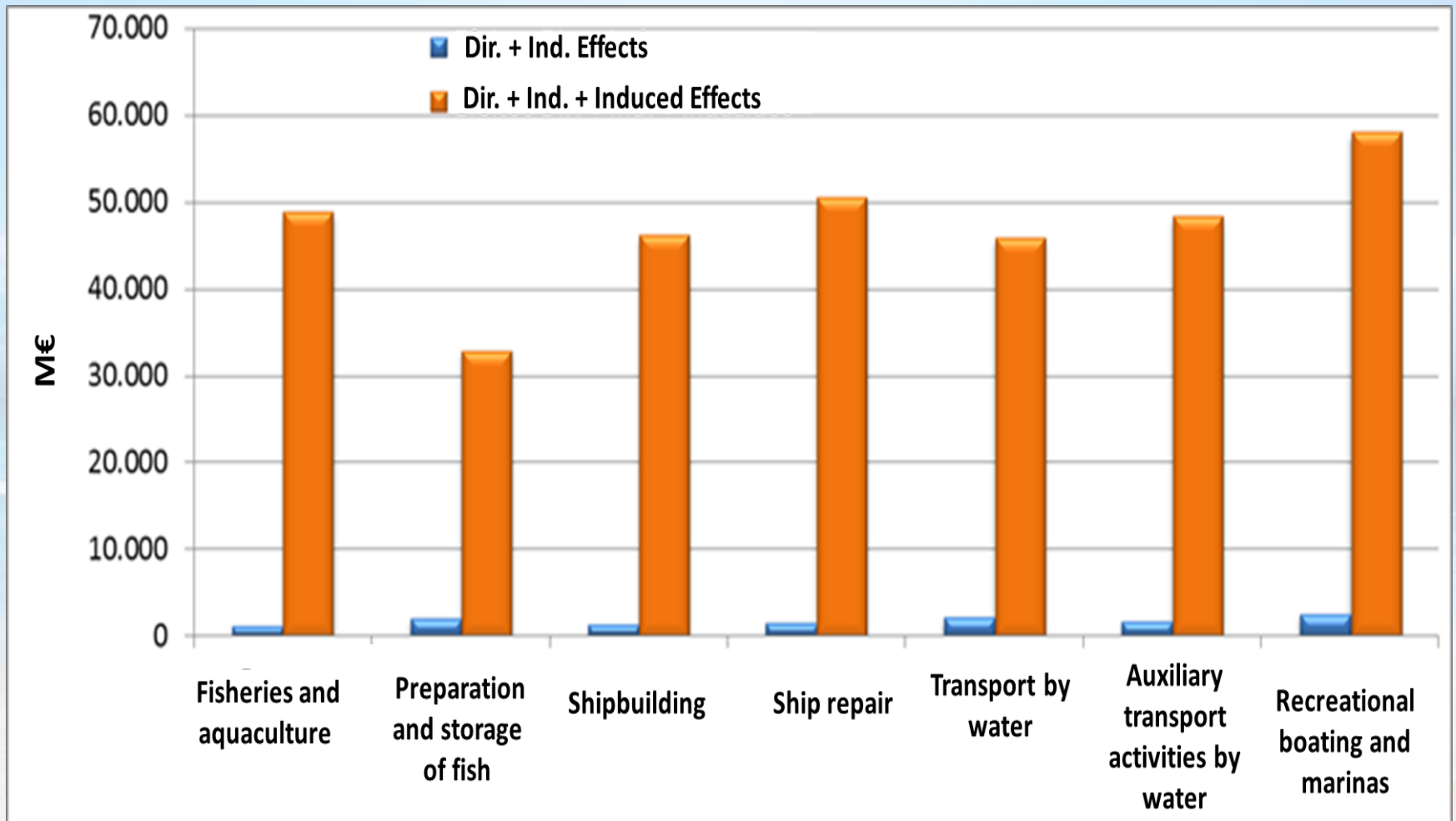
## MULTIPLIER EFFECTS OF THE MARITIME ACTIVITIES

Number of Products submitted to the multiplier	Multiplier – Type - 1		Multiplier – Type - 2	
	Relevant > 0,01	Highly relevant > 0,05	Relevant > 0,01	Highly relevant > 0,05
Maritime Sectors				
Fisheries and Aquaculture	13	2	31	7
Preparation and Storage	14	2	25	5
Shipbuilding	9	2	27	7
Ship Repair	11	3	29	8
Transports by Water	21	5	35	9
Auxiliary Transport Activities	7	2	27	6
Boating / Marinas	24	3	39	9

Number of Products/Multipliers Type-1 and Type-2

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## MULTIPLIER EFFECTS OF THE MARITIME ACTIVITIES



**Multipliers: Type – 1 and Type - 2**

## CONCLUSIONS

- Sectors of maritime activity represent only 2 to 3% for the national economy;
- Technical coefficients allowed to verify a low level of intersectorial linkages;
- Interdependence coefficients, confirm the absence of strong linkages;
- Analysis of direct, indirect and induced impacts (type 1 and type-2), verify the relevance to the transports by water, followed by boating and marinas;
- Emergence of new maritime sectors (mining; carbon storage; wave and tide energy; wind energy), which can have, in the short run, a significant impact over the national economy.





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Thank you for your attention

