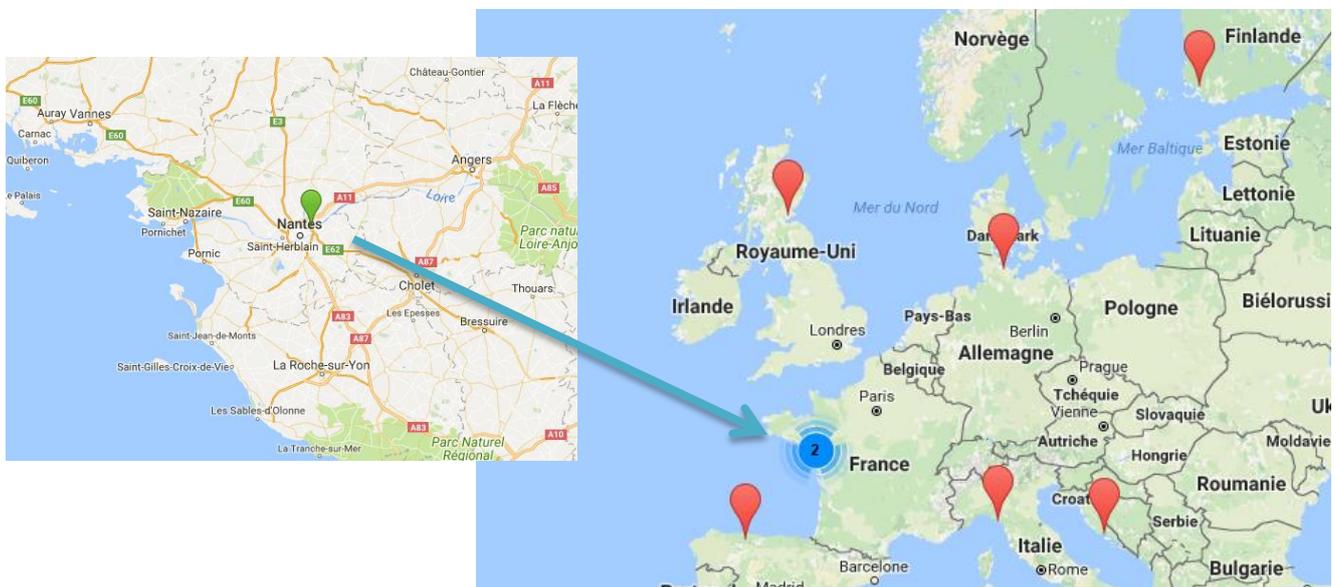


Regional analysis of maritime industries in the Pays de la Loire region - The CLIPPER Project

July 2017 - analysis conducted by the Conseil Régional des Pays de la Loire with input from ORES

SUMMARY



The Regional Economic Development, Innovation and Business Internationalisation Scheme (SRDEII) highlights the regional priority to support the emergence of high-potential sectors: the blue economy is identified as a “major source of opportunity for the Pays de la Loire region”.

The maritime tradition and character of the Pays de la Loire region and their translation as drivers of a dynamic economy and job creation are already a reality, as these key figures underline:

- 450 km of coastline
- the largest port on the French Atlantic coast, employing 25,000 people
- the birthplace of the world’s largest cruise ships, with the shipyards of STX and its network of subcontractors, which together provide more than 6,000 jobs (STX France has a €12 billion order book for 14 ships, all due for delivery by 2026)
- France’s leading test location for renewable marine energy solutions, with more than 1,000 researchers working on projects in and around Nantes in 2017
- two offshore wind parks with a generating capacity of 1,000 MW by 2020
- the leisure marine industries of the Pays de la Loire generate combined annual revenue of €1 billion

The maritime economy is therefore central to the new regional economic strategy, and one of the stated goals of the SRDEII is “to facilitate the emergence of tomorrow’s SMEs”. The Region is particularly keen to encourage SME adoption of innovation by bringing them closer to the major centres of excellence in the Loire Valley, and by helping them to integrate into the dynamic transition to the industry model for the future. Innovation is therefore the central challenge for the blue economy, as well as for every other sector.

As the driving force of economic development, the Region is contributing to the creation of an ecosystem that will respond effectively to the needs of every link in the value chain. The Pays de la Loire has the skills, technologies and industrial resources required for the future development of the maritime economy across sectors as varied as shipbuilding, the leisure marine industries and marine renewable energy (MRE). The role of the Region is to support them through these phases. Innovation is a strategic issue for any company. The challenge is to ensure that projects make a real and tangible contribution to business volumes and jobs for the companies and research centres of the region.

“Facilitating the emergence of tomorrow’s SMEs” also means putting in place targeted support for company internationalisation. To achieve this, the Region acts as an ‘aircraft carrier’ for exporting companies by working very closely with local authorities. In practical terms, this means providing support at every stage of a company’s export ‘journey’. Internationalisation is a particularly important challenge for the maritime industries, but works at very different levels for shipbuilding, the leisure marine industries and MRE.

Lastly, “facilitating the emergence of tomorrow’s SMEs” means making it easier for these SMEs to access funding by leveraging traditional resources and innovating to create effective ecosystems for growth and development, while ensuring that risk is shared fairly.

The CLIPPER project and this analysis set out to successfully address the challenges posed by innovation, collective performance, internationalisation and (financial and legal) risk sharing.

The thematic scope of the project is based on the definition of maritime industries adopted by the LeaderSHIP 2020, The Sea, New Opportunities for the Future report¹: “*all the enterprises involved in the design, construction, maintenance and repair of all types of ships and other relevant maritime structures, including the complete supply chain of systems, equipment, services and supported by research and educational institutions*”.

Overview and key figures for the Pays de la Loire maritime industries

The maritime and coastal sector of the economy covers a broad diversity of business types, from the shipbuilding and leisure marine industries to marine renewable energy (MRE), maritime transport, fishing, fish farming and coastal tourism. Within the scope of the CLIPPER project alone, i.e. the shipbuilding, leisure marine industries and MRE, this sector currently provides more than 11,000 jobs in the region².

In terms of shipbuilding, the Pays de la Loire region leads the rest of France, largely due to the presence of the leading stakeholder in commercial shipbuilding, the STX France shipyard in Saint-Nazaire. With 2,400 employees, this yard also supports an extensive network of SME and SMI joint contractors

¹ http://ec.europa.eu/growth/sectors/maritime/shipbuilding/ec-support_fr

² Access data for 2015, ORES 2016 analysis of the shipbuilding and leisure marine industries, and the March 2017 report on MRE *Les énergies de la mer : une réalité industrielle, une dynamique collective* (Energy from the sea: an industrial reality and collective dynamic) (<http://www.merenergies.fr/>)

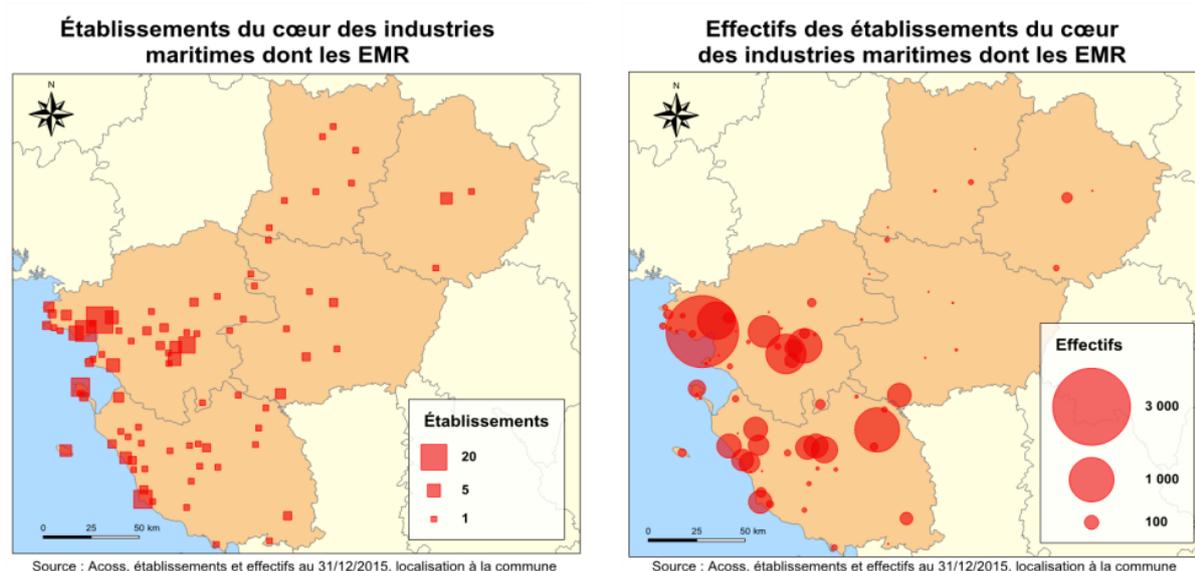
providing up to 4,200 jobs. The Pays de la Loire region is also France's leading region in terms of leisure marine jobs, thanks to the presence of BENETEAU, the world-leading yacht manufacturer, and a dense network of regional SMEs.

The MRE industry represents a source of potential diversification for the regional industrial base of mechanical, metalworking and materials sectors, with two offshore wind farm projects currently underway in the Pays de la Loire. The industrial heavyweights of the Loire Valley economy are involved in these projects, including GE Renewable Energy at its Montoir-de-Bretagne wind generator production plant, and STX France via Anemos, its dedicated marine energy unit, which manufactures substations and foundations.

In respect of the maritime industry's potential for employment, the Observatoire des Énergies de la Mer reported 874 full-time employees in the Pays de la Loire region³ in 2016, making it the leading French region in terms of this type of employment. 72% of these employees work in the fixed offshore wind power sector, 12% in floating offshore wind power, and the remainder in other MRE disciplines, including wave energy and tidal energy. The regional agency has also conducted a survey of MRE companies: of the 114 companies identified, only 50 fall within the scope of the CLIPPER project. The remaining 64 are spread across a very diverse spectrum of business activity, covering 43 subclasses of the NAF⁴ classification of French industry sectors. This extremely broad scope underlines the extent of diversification potential offered to companies in general, and SMEs in particular, by this new market.

Regional breakdown of companies⁵

- ❖ **Code 1:** activities that provide the 'hard core' of maritime industries (including MRE)
- ❖ **Code 2:** connected activities (those directly linked to the maritime industries)
- ❖ **Code 3:** associated activities (those indirectly linked to the maritime industries)

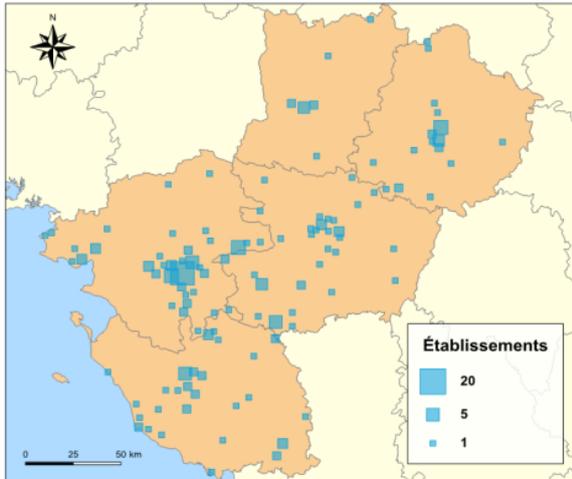


³ <http://www.merenergies.fr/>

⁴ Nomenclature des Activités Françaises (INSEE, the French National Institute for Statistics and Economic Studies)

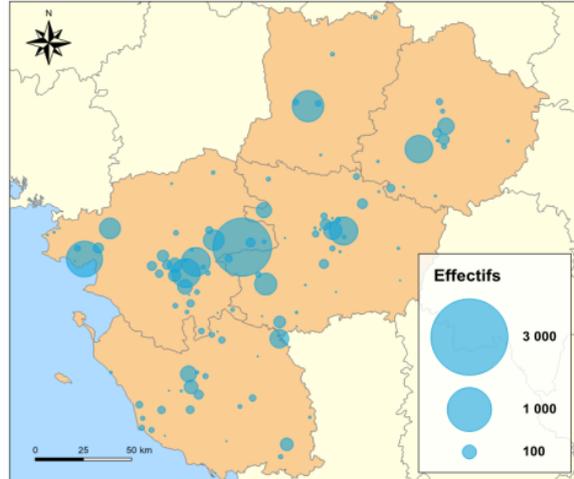
⁵ Acooss data for 2015

Établissements des secteurs connexes aux industries maritimes



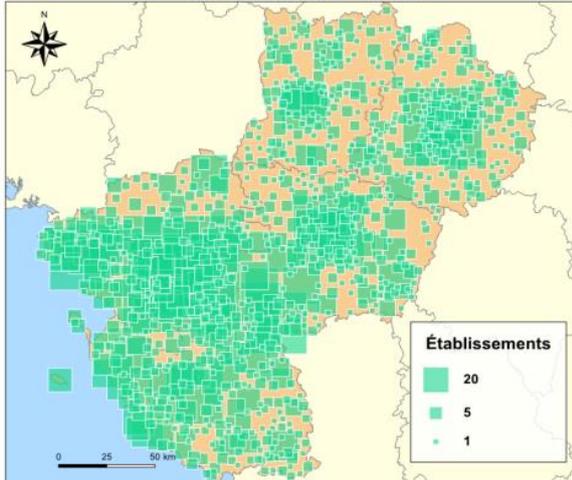
Source : Acoos, établissements et effectifs au 31/12/2015, localisation à la commune

Effectifs des établissements des secteurs connexes aux industries maritimes



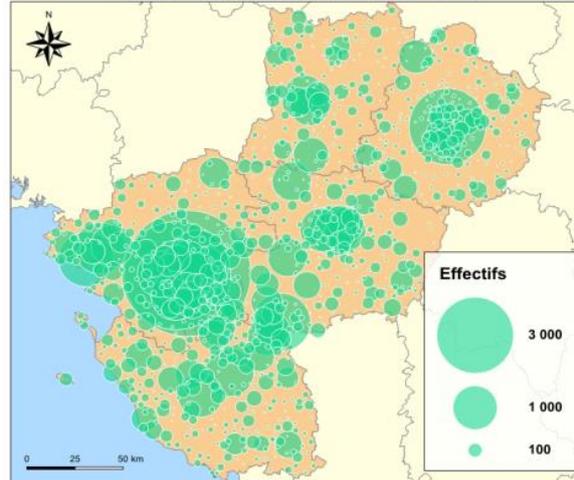
Source : Acoos, établissements et effectifs au 31/12/2015, localisation à la commune

Établissements des secteurs annexes aux industries maritimes



Source : Acoos, établissements et effectifs au 31/12/2015, localisation à la commune

Effectifs des établissements des secteurs annexes aux industries maritimes



Source : Acoos, établissements et effectifs au 31/12/2015, localisation à la commune

Effectifs au 31/12/2015

Activité	Département					Ensemble
	44	49	53	72	85	
Cœur des industries maritimes	5 846	299	19	71	3 885	10 120
30.11 Construction de bateaux de plaisance	59	245	13	16	3 393	3 726
30.12 Construction de navires et de structures flottantes	3 462	0	0	0	219	3 681
33.15 Manutention	726	40	0	55	7	828
35.11 Production d'électricité	1 051	14	6	0	16	1 087
52.22 Réparation et maintenance navale	118	0	0	0	103	221
52.24 Services auxiliaires des transports par eau	430	0	0	0	147	577
Secteurs connexes	4 451	1 337	553	720	768	7 829
28.11 Commerce d'autres véhicules automobiles	474	442	75	226	271	1 488
28.22 Fabrication de matériel de lavage et de manutention	2 896	887	14	70	473	4 340
45.19 Fabrication de moteurs et turbines, à l'exception des moteurs d'avions et de véhicules	665	0	454	407	9	1 535
46.14 Intermédiaires du commerce en machines, équipements industriels, navires et avions	53	8	10	17	1	89
50.20 Transports maritimes et côtiers de fret	363	0	0	0	14	377
Secteurs annexes	40 087	15 720	6 537	10 488	14 274	87 106
22.19 Activités de contrôle et analyses techniques	2 842	501	127	412	342	4 224
25.99 Activités d'ingénierie	8 790	1 302	326	628	854	11 900
33.20 Autres services auxiliaires des transports	2 043	872	150	874	920	4 859
41.20 Autres travaux de construction spécialisés n.c.a.	4 793	2 732	940	1 608	3 729	13 802
42.13 Construction d'autres ouvrages de génie civil n.c.a.	332	143	5	48	102	630
42.21 Construction de bâtiments résidentiels et non résidentiels	3 034	821	335	733	999	5 922
42.91 Construction de ponts et tunnels	349	0	5	0	0	354
42.99 Construction de réseaux pour fluides	1 042	162	123	210	130	1 667
43.13 Construction d'ouvrages maritimes et fluviaux	4	72	1	1	22	100
43.99 Entreposage et stockage	1 071	503	388	771	382	3 115
49.41 Fabrication d'autres articles en caoutchouc	332	878	525	813	61	2 609
50.40 Fabrication d'autres produits métalliques n.c.a.	783	499	125	161	445	2 013
52.10 Forages et sondages	18	0	0	0	3	21
52.23 Installation de machines et d'équipements industriels	2 626	825	450	489	667	5 057
52.29 Location et location-bail de machines et équipements pour la construction	532	231	47	144	222	1 176
71.12 Location et location-bail de matériels de transport par eau	3	4	0	0	0	7
71.20 Recherche-développement en autres sciences physiques et naturelles	2 150	661	103	243	68	3 225
72.19 Services auxiliaires des transports aériens	376	18	0	8	16	418
77.32 Transports fluviaux de fret	55	0	0	0	6	61
77.34 Transports routiers de fret	8 912	5 496	2 887	3 345	5 306	25 946
Total général	50 384	17 356	7 109	11 279	18 927	105 055

Établissements au 31/12/2015

Activité	Département					Ensemble
	44	49	53	72	85	
Cœur des industries maritimes	103	13	7	6	64	193
30.11 Construction de bateaux de plaisance	4	4	1	1	20	30
Construction de navires et de structures						
30.12 flottantes	14	0	0	0	6	20
33.15 Manutention	22	1	0	4	1	28
35.11 Production d'électricité	15	8	6	1	3	33
52.22 Réparation et maintenance navale	27	0	0	0	26	53
52.24 Services auxiliaires des transports par eau	21	0	0	0	8	29
Secteurs connexes	80	43	11	27	43	204
28.11 Commerce d'autres véhicules automobiles	24	23	7	19	25	98
Fabrication de matériel de levage et de						
28.22 manutention	28	17	2	3	12	62
Fabrication de moteurs et turbines, à l'exception						
45.19 des moteurs d'avions et de véhicules	4	0	1	2	3	10
Intermédiaires du commerce en machines,						
46.14 équipements industriels, navires et avions	11	3	1	3	1	19
50.20 Transports maritimes et côtiers de fret	13	0	0	0	2	15
Secteurs annexes	2 631	1 274	476	821	1 255	6 457
22.19 Activités de contrôle et analyses techniques	238	112	46	77	92	565
25.99 Activités d'ingénierie	625	191	53	110	129	1 108
33.20 Autres services auxiliaires des transports	109	37	9	31	22	208
41.20 Autres travaux de construction spécialisés n.c.a.	657	389	151	235	539	1 971
Construction d'autres ouvrages de génie civil						
42.13 n.c.a.	25	8	2	5	11	51
Construction de bâtiments résidentiels et non						
42.21 résidentiels	158	88	32	55	118	451
42.91 Construction de ponts et tunnels	4	0	1	0	0	5
42.99 Construction de réseaux pour fluides	33	5	3	8	8	57
43.13 Construction d'ouvrages maritimes et fluviaux	1	2	1	1	2	7
43.99 Entreposage et stockage	51	23	12	27	19	132
49.41 Fabrication d'autres articles en caoutchouc	9	10	4	5	3	31
50.40 Fabrication d'autres produits métalliques n.c.a.	32	24	3	3	12	74
52.10 Forages et sondages	2	1	0	0	1	4
Installation de machines et d'équipements						
52.23 industriels	168	84	26	51	59	388
Location et location-bail de machines et						
52.29 équipements pour la construction	61	28	10	18	33	150
Location et location-bail de matériels de						
71.12 transport par eau	1	2	0	0	0	3
Recherche-développement en autres sciences						
71.20 physiques et naturelles	57	26	4	11	5	103
72.19 Services auxiliaires des transports aériens	5	2	0	1	4	12
77.32 Transports fluviaux de fret	4	0	0	0	1	5
77.34 Transports routiers de fret	391	242	119	183	197	1 132
Total général	2 814	1 330	494	854	1 362	6 854

Priority 1: SME competitiveness through individual performance

To remain competitive, SMEs must constantly reinvent themselves. This reality is particularly relevant to companies in the maritime industries:

- In the historic and traditional industry of shipbuilding, companies must modernise and diversify in exactly the same way as the rest of French industry
- In the leisure marine industry, which is also a traditional industry although much younger (around 50 years), the current focus is to emerge successfully from the crisis that gripped it in 2008, and respond effectively to the new challenges posed by the changing practices and expectations of leisure sailors
- In renewable marine energy, the emerging sector that is already well established in the Pays de la Loire, the central challenge is to establish a long-term presence in an industry sector that is expanding fast and offers great potential.

1. Identifying possible levers for progress: analysis

In order to successfully complete the key stages of their development and consolidate and receive the support they need to make informed decisions about their growth and/or redeployment, all companies - and especially those in business sectors that require real diversification and differentiation in order to survive, such as marine renewable energy companies - must necessarily begin with an analytical phase to assess their current and potential individual performance. There are many sources of support and advice for Loire Valley SMEs, including Pays de la Loire Conseil, which provides multisector consultancy and advice, and DINAMIC Entreprise, which offers SMEs and mid-size companies a 9-month package of support that includes training and the provision of resources and methodologies to improve their competitiveness.

Individual economic, social and environmental company performance is a global assessment criterion within which Corporate Social Responsibility (CSR) is a component. CSR is a lever for economic performance and sustainability for those companies that choose to engage with a CSR policy. “*CSR delivers an average performance gain of around 13% (...) especially when it is adopted voluntarily, rather than imposed in the form of restrictive measures*”⁶. It is therefore increasingly included in the rating criteria applied to companies and their projects by investment funds and the Banque de France, for example.

In terms of environmental issues, in addition to ISO 14001 certification of industrial facilities, the regional shipbuilding and leisure marine industries are closely involved in innovative projects led by ADEME⁷ to develop the ‘Ships of the Future’. French yards are working on the development of more efficient, safer and more energy-efficient fishing boats, cruise ships, ferries, pleasure craft and offshore service vessels. Examples include: the ‘Ships of the Future’ call for expressions of interest (AMI) launched by the French government’s ‘Investments for the Future’ programme, the Vehicles and Transport Initiative for SMEs AMI launched by ADEME, which identifies the river and maritime sectors as eligible projects, and the Yacht of the Future project whose ambition is to produce a 100% eco-innovative sailing laboratory, and involves a consortium of 17 SMEs and 5 research centres based on, or near, the Atlantic coast⁸.

⁶ *Responsabilité sociale des entreprises et compétitivité, Evaluation et approche stratégique* (Corporate social responsibility and competitiveness: assessment and strategy), France Stratégie, January 2016, and INSEE data for 2011

⁷ Agence de l’environnement et de la maîtrise de l’énergie (The French Environment & Energy Management Agency)

⁸ Pays de la Loire press pack: Pays de la Loire, the region for the new maritime economy, 1 December 2014

2. Conquering new markets: diversification

Marine Renewable Energy... A new flagship market for the Region

The Pays de la Loire is now the leading French MRE hub, with the substantial industrial capability required to develop marine renewable energy on a large scale. The region offers all the technical (port logistics and industrial expertise) skills and human resources required to host and develop MRE, which represents a completely new sector in its own right, and one that will enable the region to build its own energy and industrial future. The Pays de la Loire region has therefore opted to engage in the process of building a long-term industrial base for MRE using the existing strengths and assets of its maritime industries. The partial diversification of the region's maritime industry stakeholders towards MRE already involves leading prime contractors, such as STX France, NAVAL GROUP, Rollix and General Electric.

New directions for SMEs in the digitalisation of the leisure marine industry

The various sectors of the leisure marine industry are seeing a profound change in consumption habits and methods. The digital transition is emerging as one of the key challenges for the Pays de la Loire leisure marine industry going forward. Such step changes can be difficult for companies to achieve; nevertheless, they are also sources of opportunity and diversification that can open the way to modernising their product and service offers, as well as their production resources. As part of embracing this process of dynamic change, the Nantes – St Nazaire CCI set up a competitiveness cluster in 2013: We are NINA (Nautisme Innovation Numerique Atlantic⁹) focuses on the interface between the leisure marine industry and the digital world in partnership with Atlantic 2.0¹⁰. It currently has around 10 young company and SME members.

Encouraging multimodal infrastructures: river freight

The development of a river freight service is designed to meet economic, urban and logistics needs and expectations. Firstly, this means increasing the level of intermodal operation to optimise the flow of goods and conditions for supplying industrial facilities. This also facilitates the development and structuring of a hinterland that is better connected to the economic and industrial environment of the Loire Valley. Lastly, by encouraging multimodal operation, river freight helps to protect the environment and promote the energy transition by reducing road traffic and congestion. River freight development is therefore an integral part of the Grand Port Maritime de Nantes Saint Nazaire strategy for 2015-2020.

3. Using available hi-tech facilities and services: Testing and feasibility

The Technocampuses

The French Technocampuses are Technology Research and Innovation platforms shared by large corporates, SMEs, research centres, academic institutions, competitiveness clusters, technical centres and other clusters. Each is structured around a key area of expertise specific to its location, but with the ambition to achieve regional, national and even international reach and influence. The Technocampus concept of co-locating a prime contractor and academic researchers offers SMEs and VSEs the opportunity to engage in a programme of innovation and benefit from an optimum level of expert resources, clear foresight of market outlets and project support. There are currently three Technocampuses:

- The Océan Technocampus dedicated to metallic materials for marine and MRE applications: the colocation of academic research teams, manufacturers and high-profile service providers facilitates a 360° project structure, and opens the door to world-class expertise

⁹ <http://www.wearenina.fr/>

¹⁰ A non-profit organisation that brings professionals from the online world and innovation together in the Pays de la Loire

- The Smart Factory Technocampus is home to the virtual reality industrial centre (CIRV): this platform facilitates many industrial applications through the use of ultra-immersive technologies and allied services
- The Composites Technocampus is a shared technological research platform dedicated to applications for high-performance composite materials.

With its presence concentrated in the Technocampuses, the Jules Verne Technology Research Institute (IRT) Jules Verne boasts shared, accessible and available research teams and facilities that complement those already present in order to support research projects addressing the challenges of four key industry markets: Aerospace, Naval, MRE and terrestrial transport.

The Weamec RFI¹¹

Weamec¹² and the region have unique and internationally recognised testing facilities. Some are dedicated mainly to MRE and more general marine studies, like the Ecole Centrale de Nantes SEM-REV centre, which tests multi-technology offshore energy concepts, and houses the engineering school's wave tank and towing tank. Other facilities, although not dedicated to MRE, are nevertheless very useful for their development, and include: the IFSTTAR (French Institute of Science and Technology for Transport, Spatial Planning, Development and Networks) centrifuge, the Jules Verne climatic wind tunnel at the CSTB (Construction Science and Technical Centre), the IFSTTAR cable fatigue test bench and the CEA Tech 800 kW power systems test facility.

The Port of Nantes Saint Nazaire also has a range of test facilities and handling equipment, including the MRE logistics hub.

It is important to note that the Loire Valley maritime industrial ecosystem is not confined to Nantes Saint Nazaire harbour, and that other regional departments are working closely with companies to develop specialist skills, including advanced production technologies in Loire-Atlantique, electronics and smart objects in Maine et Loire, virtual reality in Mayenne, acoustics in Sarthe and robotics in the Vendée. These specialist centres highlight the fact that the expertise of individual areas is being recognised and leveraged. By becoming centres of excellence in their own right, they benefit the entire Loire Valley economy.

4. Delivering R&D project success with support from public-sector stakeholders

The Innovation Development Network (Réseau de Développement de l'Innovation or RDI) has 270 generalist and technology/innovation specialist members who work with SMEs via regional agencies. The purpose of this network is to use innovation to help SMEs develop and move upmarket, beginning with project identification and continuing through post-analysis guidance to find the appropriate technical and financial support mechanisms (as listed at the end of the analysis) to the delivery of technical services.

In addition to a number of national programmes, such as the 'Ship of the Future', the Region has successfully worked at European level on the development of maritime industries, with particular emphasis on the Atlantic Power Cluster project.

¹¹ Plateforme régionale Recherche-Formation-Innovation (Regional Research, Training & Innovation platform)

¹² West Atlantic Marine Energy Center (RFI for MRE)

Priority 2: SME competitiveness through enhancement of the value chain (collective performance)

1. Competitiveness clusters

The French competitiveness clusters have been created to support company innovation at local level by bringing together large and small companies, research laboratories and educational institutions within a specific region and around a common theme. Their mission is to facilitate the development of collaborative R&D projects involving all the stakeholders. In this way, they help to create an environment that encourages companies - and especially SMEs - to innovate and grow. Nine competitiveness clusters are currently supported by the Pays de la Loire region, including the Pôle Mer Bretagne Atlantique, EMC2 and S2E2, all of which focus specifically on maritime themes.

The clusters are responsible for facilitating the emergence of strategic R&D collaborative projects with the potential to benefit from public funding, and particularly from the Fonds Unique Interministériel (FUI) single inter-ministry fund. A number of major regional collaborative naval/marine leisure and RME projects have been selected in this way. The region's economic development clusters regularly launch calls for collaborative projects that target SMEs to encourage cross-sector innovation.

The Pôle Mer Bretagne Atlantique cluster (PMBA)

PMBA brings together companies, research laboratories, research centres and educational institutions with the shared aim of ensuring that the maritime economy achieves its full potential. It has 332 members in France, 65 of which are based in the Pays de la Loire.

The cluster works with all maritime industry strategic markets and business sectors:

- Maritime safety and security
- Shipbuilding and leisure boat building
- Marine energy and mining resources
- Marine biological resources
- Environmental and coastal planning and development
- Maritime ports and transport infrastructures

The EMC2 cluster

The use of metals and composites in industrial manufacture is a key challenge for the region's major industry sectors, which include aerospace, shipbuilding, leisure boat building and the automotive industry. EMC2 is responding to that challenge by providing a centre of excellence for research in metal and composite technologies and processes, and their subsequent industrial application. Its work focuses on the aerospace, terrestrial transport, commercial and military shipbuilding and marine leisure markets, with the recent addition of the energy and industrial capital equipment markets.

The S2E2 cluster

The S2E2 smart electricity cluster encourages innovation and supports companies in their development of new renewable energy, power grid and energy efficiency products and services. Its remit spans the energy value chain via five key strategic business sectors, with particular focus on marine renewable energy sources.

2. The example of the Technopole littorale Atlanpole

The aim of the French technopoles is to stimulate and develop new and innovative business activities for existing or future companies by acting as the bridge between the world of finance and the world of

further education and research within their individual specialist areas of expertise. Atlanpole provides specialist engineering for innovative projects, and works closely with its academic partners to leverage research work on the identification, assessment and creation of innovative companies. At European level, Atlanpole supports SMEs implementing European-scale projects from identification through to submission, and helps companies to be more accurate in evaluating their ability to seek funding (especially via the Croissance Europe¹³ scheme).

3. The clusters

Clusters are company networks in which the majority of members are SMEs and VSEs with a strong local identity, often working in the same production niche and often in the same industry. They enable their member companies to draw on tailored services, such as consultancy support, technology support and market monitoring, and to pool their resources and strengths through grouped purchasing, resource-sharing, exporting and other schemes. They have an important role to play in terms of networking and new business generation.

In the context of the maritime industries, the NEOPOLIA non-profit organisation set up and coordinated by entrepreneurs now has 255 company members (62% VSE/SME and 26% midsize companies) providing a total of 30,000 local jobs. The energy and shared projects generated within this networked structure are focused on the development of six clusters reflecting the major industrial sectors of the Pays de la Loire: the Marine industries, Aerospace, Oil & Gas, Rail, Marine Renewable Energy and - very recently - Nuclear Power.

4. The RFIs

The purpose of the Recherche-Formation-Innovation (Research, Training & Innovation) schemes is to define and support shared development strategies and topic-specific skills centres with a regional identity and international recognition. The trigger to create an RFI scheme is therefore the willingness expressed by regional stakeholders within a given market to define and implement an ambitious shared strategy.

Among these initiatives, the Weamec (West Atlantic Marine Energy Center) RFI for MRE acts as a network hub for around 30 research centres and laboratories, and approximately 50 Loire Valley companies. Its remit covers the full MRE cycle. The key skills available within the network cover many disciplines, from ocean engineering and advanced generating technologies to structural status monitoring, electrical engineering and the humanities at every link in the value chain.

5. Associated services and the mechanics of the ecosystem

In addition to the obvious links with other maritime sectors, such as fishing and tourism, the maritime industries in Pays de la Loire are also supported by a number of associated activities and services useful for their regional deployment:

- Logistics, with the PASCA (Pôle Achats Supply Chain Atlantique) purchasing and supply chain cluster: a particularly important challenge for multi-stakeholder, multi-location business sectors, such as the maritime industries. The port industrial area is a concentrated focus for a set of exceptional skills in the design, construction and handling of 'non-standard' large-scale

¹³ <http://competitivite.gouv.fr/toutes-les-actualites-du-site/actualite-573/croissance-europe-un-service-dedie-aux-pme-pour-booster-leur-business-avec-leurope-1070.html?cHash=5c2eb8725358895d628b233660cb85fb>

and extremely heavy equipment that poses very special logistics challenges, in which the area now specialises (especially for MRE).

- Electronics and digital technologies, an area in which the Pays de la Loire region has a dense and diverse ecosystem: the maritime industries also have very close links to electronics, digital technology and digitalisation for the instrumentation and control of installation monitoring systems.
- Advanced manufacturing and future industrial technologies: the particularly severe conditions imposed by the marine environment mean that the maritime industries require very special materials, manufacturing processes and design resources, all of which have very close links with the advanced manufacturing technologies developed by EMC2 and the Jules Verne Technology Research Institute.
- Financial and insurance services.

Furthermore, the Region's policy of attracting new French businesses and inward international investment is another key link in the process of strengthening its value chain. Similarly, the many events organised by the Region raise the profile of its maritime industries and their regional ecosystem, as well as providing a forum for those industries to network: events such as the Vendée Globe¹⁴, The Bridge¹⁵, the FWP (Floating Wind Power) Atlantic Forum and the Ocean Energy Europe conferences and exhibitions.

Priority 3: SME competitiveness through internationalisation

1. Support for exporters

The decision to export long term has a structural impact on company strategy. In this context, support at every stage of the international journey will prove to be a useful lever for accelerating company ambitions to open new markets. Understanding local conditions, having the resources required to be 'patient' in waiting for a return on investment which may be slow, anticipating the impacts in terms of corporate plan governance and team training... all are essential requirements for the sustainable structuring of regular business flows. Achieving this requires more accurate targeting of support for strategically important industry sectors and greater assistance for companies with export potential in order to give them easier access to subsidies and measure the impact of export on their revenue. The various export support measures are shown at the end of the analysis.

2. Involvement in European projects and networks

The Loire Valley ecosystem is involved in many European projects and networks, including:

The EU Framework Programme for Research And Innovation: Horizon 2020

- MARINA PLATFORM (Marine Renewable Integrated Application Platform) is a European collaborative research and development project for multipurpose offshore renewable energy platforms
- MARINET2 (Marine Renewable Infrastructure Network for Enhancing Technologies 2) aims to accelerate the development of MRE technologies and infrastructures by facilitating access

¹⁴ This round the world single-handed yacht race is hosted every four years by Sables-d'Olonne: the most recent race left port on November 6, 2016, with the winner arriving home on January 19, 2017

¹⁵ <https://www.thebridge2017.com>

to 57 European test facilities and a range of consultancy services offered by maritime industry experts.

- Ocean Energy ERA NET Cofund: The collaborative R&D demonstration projects supported by this network of funders are focused on testing and validating MRE technologies, such as wave energy, marine turbines, tidal energy, ocean thermal energy and osmotic energy. The network partners are also engaged in implementing initiatives that facilitate the coordination of R&D funding, knowledge transfer and practical implementation of projects funded.

European Territorial Cooperation: the INTERREG projects

- **FORESEA (Funding Ocean Renewable Energy through Strategic European Action) is a Northwest Europe INTERREG programme project:** this Europe-wide project for offshore MRE experimentation invites submissions for the selection of MRE technologies to be funded for offshore test programmes.
- **INDUSTRY 4.0, INTERREG Atlantic Area funding programme:** the aim of this project is to boost the competitiveness of the marine industry by adapting the traditional production model to create an Industry 4.0 model with the ability to guarantee the long-term future of the industry within an expanding market where technological innovation is a key factor for strategic advantage. The EMC2 competitiveness cluster is a member of the project consortium.
- **CLIPPER (Creating a Leadership for Maritime industries – New opportunities in Europe), INTERREG Europe programme**

Priority 4: SME competitiveness through risk sharing

1. The legal framework for SME funding

Article 1511 of the French General Local Authorities Code permits the Region to support company development. Such public-sector involvement must be incentive-based, which means that to comply with European regulations, it must be able to demonstrate that the Regional support provided is essential to the practical realisation of the project.

The most frequently used legal regimes are:

- The *de minimis* regime under which publicly-funded support for any one company is capped at €200,000 over a period of three consecutive fiscal years
- The exempted regime for assistance provided to SMEs for the purposes of funding capital investment, seeking consultancy services, attending trade fairs, developing innovations and encouraging promising young talent
- The exempted framework regime for support dedicated to research, development and innovation (RDI)

2. The guarantee and risk-sharing mechanisms

Of all the financial instruments available, guarantees provide the most effective lever for convincing banks to accept risk. In practical terms, the informational asymmetry between bankers and companies, and between the characteristics of certain development phases, makes it necessary for funding institutions to seek security for those loans considered as the most high-risk. Those mechanisms available to Loire Valley SMEs are listed at the end of the analysis.

3. Regional financial engineering

The under-capitalisation of companies is a persistent problem in France, a factor for fragility during times of crisis, and an impediment to the implementation of development projects. The Region therefore provides equity funding through a range of different investment funds (11). Its prime goal is to maximise the leverage of private investors by avoiding their withdrawal from the most high-risk projects, even though those projects may have proven potential. It has two simultaneous roles: the first is to encourage the implementation of new offers within the region, and the second is to encourage maximum involvement of private-sector and local savings stakeholders in those areas of the market that are less well covered. Those investment funds in which the Region is involved and which are relevant to the projects of maritime industry SMEs are also detailed at the end of the analysis.

4. The new funding mechanisms

As highlighted by the Finance Innovation competitiveness cluster - the only cluster dedicated to the financial ecosystem in France: *“VSEs and SMEs still have a 90% dependency on bank lending (...). So resource diversification remains a major challenge for these businesses, and solutions dedicated to their funding needs are emerging in the shape of equity funding, new funding mechanisms for trade receivables, products tailored to optimise and secure working capital requirement... all of these and more are gradually finding their place in the market”*.¹⁶ In addition to awareness, labelling and information initiatives, this cluster facilitates access to innovative and alternative (non-banking) funding mechanisms for SMEs that either cannot secure their own funding via traditional channels, or can only partially do so. The cluster's initial successes confirm the need for companies to explore disintermediated support and more specialist finance vehicles, such as the bond market, crowdfunding, insurance-based mechanisms and savings products, in order to diversify their sources of funding and consolidate their plans. This is particularly true for manufacturing industry, which - as can be the case with the marine industries - often has specific needs in terms of high investment, significant working capital requirement, enhanced exposure to economic cycles and international competition. But in Pays de la Loire, the MRE, shipbuilding and marine leisure industries find it more difficult to access funding, and little in the way of innovative funding practices seem to be emerging, despite the beginnings of growth in crowdfunding and equity funding.

In June 2017, the SEATRACKBOX project was launched by the French WEDOGOOD crowdfunding website that emerged from Nantes in 2013 and won an award in the 2016 Global Fintech Challenge¹⁷. This project offers the only device in the world capable of tracking a container lost at sea anywhere in the oceans of the world. This unique system returns the precise location of the container, whether it is floating, semi-submerged or completely submerged.

¹⁶ <https://finance-innovation.org/nouveaux-outils-de-financement-innovants/>

¹⁷ <https://www.wedogood.co/>