



INTELLIGENT NAVAL 4.0

ADAPTATION OF
THE INDUSTRY
4.0 MODEL TO
SHIPBUILDING SECTOR



1. Priority axis

ESTIMULATE INNOVATION AND COMPETITIVENESS

**THEMATIC
OBJECTIVES
(ART.9 CPR)**

TO1.Strengthening research,
technology development and
innovation

**INVESTMENT
PRIORITY
(ART.5 ERDFR)**

IP 1b. Promoting business
investment in innovation and
research, and
developing links and synergies
between enterprises, R&D
centres and higher education [...]

**SPECIFIC
OBJECTIVES**

**1.1: Increasing innovation
capacity through cooperation to
promote competitiveness**

2. Goal

Improve the
COMPETITIVENESS
of naval sector
companies

through




the **ADAPTATION** to
productive model
towards that of
Industry 4.0



guaranteeing

the sector's **CONTINUITY** in an increasingly demanding
market where technological innovation is a key factor in
strategic positioning

3. Specific goals

-  **To validate the main “problems” or “barriers” already identified** which stop the naval sector from transforming its business model into a 4.0 one and to propose new solutions
-  **To determine the degree of maturation of existing technologies** that could be implemented in naval SMEs
-  **To transform work organization systems,** knowledge and commercialization towards an industry 4.0

3. Specific goals

-  **To train naval sector workers** in new jobs/tasks in order to move towards a new 4.0 model
-  To design **innovative strategies** to **save costs** in the implementation of technologies and detection of **new marketing methods**
-  **Practical implementation of innovations designed** under the project in selected SMEs in the participating regions

To be transformed in an industry 4.0 it is necessary to improve processes...



Collaborative
robotics



Traceability



Customization



Intelligent
communication
systems



Simulation
systems

ACTIONS



4. Actions

IN CONTEXT

This activity is the starting point towards the adaptation to a new productive model 4.0 on the basis of the existing state of the art. To do this, the following measures will be adopted:

- 1. Situation of the implementation of the factory of the future (industry 4.0) in the Atlantic Area naval sector**
- 2. Existence of technologies tailored to the particular needs of naval sector companies, in each of the paradigms of industry 4.0**
- 3. Analysis of the degree of maturation of existing technologies that could be implemented in naval SMEs**
- 4. International validation forum with agents who have collaborated in the detection process of sector needs**



4. Actions

1. Situation of the implementation of the factory of the future (industry 4.0) in the Atlantic Area naval sector

As a starting point towards the adaptation of a new productive model 4.0, it is necessary to **validate** in every participant region the **preliminary studies about the current situation of the naval sector enterprises** in all the different countries and regions of the Atlantic Area, analyzing aspects such as the level of innovation or factors that are causing a loss of competitiveness in the sector.



4. Actions

2. Existence of technologies tailored to the particular needs of naval sector companies, in each of the paradigms of industry 4.0

We will look for technologies tailored to the particular needs of the naval sector companies, in each of the paradigms of industry 4.0 which represent a feasible investment with a rapid pay-off thanks to result improvement, defining and quantifying the benefits obtained by companies after their incorporation.



4. Actions

3. Analysis of the degree of maturation of existing technologies that could be implemented in naval SMEs

Once selected the existing technologies with potential implementation in naval SMEs, it will be analyzed the degree of maturation of the same.



4. Actions

4. International validation forum with agents who have collaborated in the detection process of sector needs.

A transnational-level validation forum will be carried out, to which the agents that collaborate in the detection process of sector needs will be invited.



4. Actions

IN WORK

Workers' tasks redefinition protocol

A protocol will be developed to **define new functions/tasks for the different jobs in order to efficiently implement each of the detected technologies**, to achieve:

- _Process improvement through the implementation of collaborative robotics systems*
- _Improvement in communication systems*
- _Improvement in traceability processes*
- _Improvement in simulation systems*
- _Improvement in customization systems*



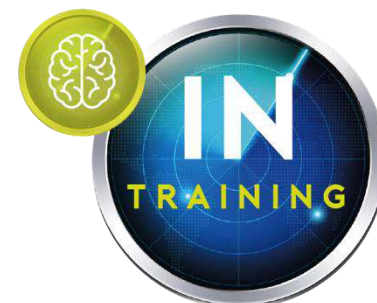
4. Actions

IN TRAINING

Training actions 4.0

The transformation into a model 4.0 is not just a technological revolution. It involves important changes in the training of people who work in this sector.

Two types of training actions will be carried out:



4. Actions

Awareness actions

A training program will be developed with at least one edition in every country, which will deal with aspects such as:

- How can we transform the traditional business model into 4.0?
- What are collaborative robotics and how can they improve my processes?
- What are intelligent communication systems and how can they improve my processes?
- How can I improve traceability in my productive process?
- What are simulation systems and how can they help me?
- How can I customize my productive process?

Training actions for workers

The following works **will be developed**:

_Study of the training needs in the naval sector in the context of Factory 4.0: senior management, middle managers, including young unemployed graduates which could participate in a **'scholarship' program** to facilitate their job placement.

_Knowledge management system: Ship Building Open Knowledge Web System

_Creation of a mentor network (Universities, technology centres, etc.) experts in the field of Industry 4.0

_Design of training modules and teaching

4. Actions

IN COMMERCIALIZATION & COSTS

Identification and development of new commercialization methods in the naval sector, as well as innovative strategies to save costs in the implementation of technologies.

This activity will involve:

_ A report on the various options for saving costs related to the acquisition of technologies

_ A study of new marketing/commercialization methods adapted to industry 4.0

_ A study for the identification and documentation of successful business innovation processes in other sectors such as ICT which can be transferred to the naval sector

_ Intersectoral forums between companies from different sectors, such as ICT, and the naval industry, to evaluate said experiences and identify their strong points



4. Actions

IN ADAPTATION

Counseling for the transformation of naval companies into intelligent companies.

We will develop a pilot **counseling program** with two companies from each country, carried out by experts in industries 4.0, which will aim at changing the traditional construction or repairing model into a 4.0 one.

For the **selection of the companies**, those which have 'enough' technology to accomplish this transformation will be better valued.



4. Actions

IN KNOWLEDGE TRANSFER

Knowledge transfer.

A **microsite** will be developed where all the studies and analysis documents carried out will be available. Recordings of all the training activities and a video about the pilot counseling program will also be accessible.

There will also be two **result presentation events**.



4. Actions

IN COORDINATION MANAGEMENT

Coordination and management.

It will include all the necessary tasks for the management and progress of the project, from an **administrative, financial justification, partners coordination and external evaluation** point of view.

Additionally, it also includes the task of **evaluating and monitoring the results**, ex-ante, intermediate and ex-post.



4. Actions

IN SUSTAINABILITY AND IMPACTS

It will involve the development of a sustainability plan and transfer of the results.



5. Results



1 Joint diagnosis for the validation of the state of art, including the sector needs over the last years



Study on existing technologies with potential implementation in naval SMEs



Report on the degree of maturation of the technologies identified



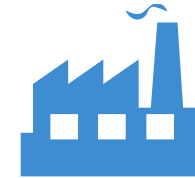
1 Transnational validation forum



1 **Workers' tasks**
redefinition protocol



1 Study of new methodologies and
commercialization tools



1 Report on the various
options for **saving costs**
related to the acquisition of
technologies



2 **training actions**
in each country



1 **Training Program**



10 **counseling** pilots



10 companies that transform their model



1 Training video and
1 counseling video



5 Result presentation events



25 work insertions for young university graduates

6. Partnership

SPAIN

DEPO
ACLUNAGA
FORO MARÍTIMO VASCO
ASIME

FRANCE

BRETAGNE POLE NAVAL
PÔLE DE COMPÉTITIVITÉ
EMC2

**UNITED
KINGDOM**

UNIVERSITY OF
STRATHCLYDE
CORNWALL MARINE
NETWORK

PORTUGAL

FORUM OCÉANO

IRELAND

CORK INSTITUTE OF
TECHNOLOGY

Budget

2.200.000 € aprox.

Duration

36 months



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