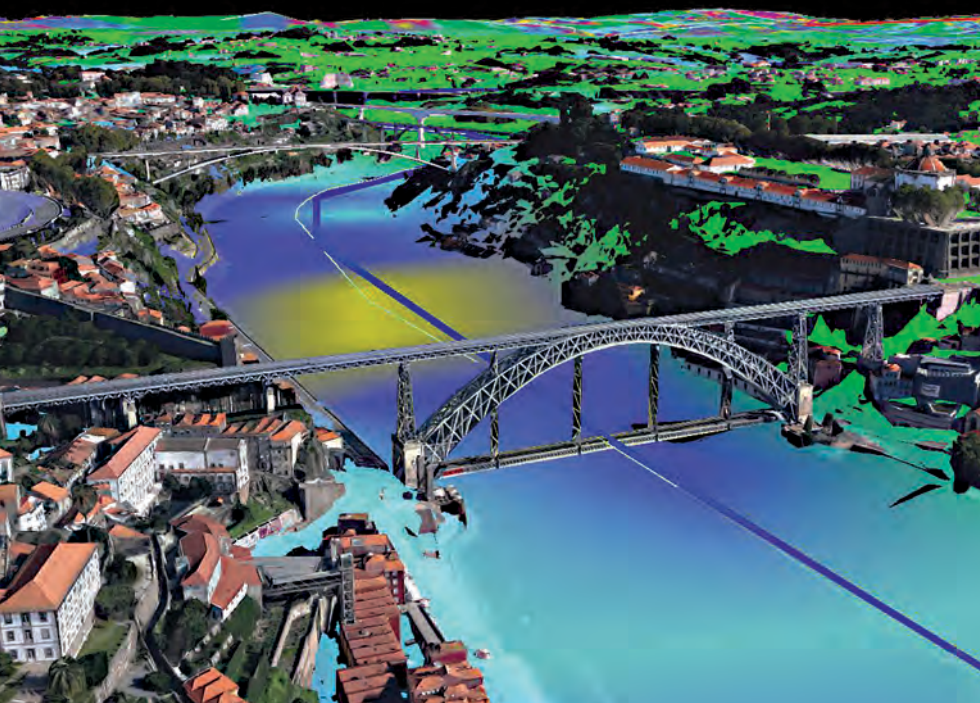


# **DRIW2020**

## DOURO RIVER INLAND WATERWAY



**INESCTEC**  
TECHNOLOGY & SCIENCE



# DRIW2020

## DOURO RIVER INLAND WATERWAY

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### AIM

This project aims to upgrade Douro's waterway navigability, assuring an effective cross border link with the "Atlantic Core Network Corridor", through the implementation of River Information Services (RIS), according to Directive 2005/44/EC, such as fairway information, traffic information, traffic management, calamity abatement support, information for transport logistics, law enforcement information, statistics and waterway charges and harbor dues.

The resulting RIS are integrated and supported by APDL's information systems architecture, composed by applications such as JUP (Port Single Window), LSW (Logistics Single Window), 3PORT (GIS) and SAP (Corporate ERP).

### INESC TEC MAIN CONTRIBUTION

INESC TEC was contracted by APDL to act as prime contractor, technically coordinating a team of experts who studied RIS implementation, addressing issues like: marine VHF coverage, Automatic Identification System (AIS) provisioning, Differential Global Positioning System (DGPS) signal availability, wide area network data communications, Closed Circuit TV (CCTV), Aids to Navigation (AtoN), meteorology and hydrology sensors, Control Centers design and operation, remote site design, remote site location planning, systems integration, IT security and risk analysis and, finally, evaluation of waterway telecommunications coverage (digital terrestrial TV, mobile networks and emergency network).

Several results were obtained: preliminary studies addressing RIS in Douro's Inland Waterway, two funding submissions addressing its implementation (which were approved), technical specifications for procurement and for required permits and licenses.

**START DATE** SEPTEMBER 2014

**END DATE** SEPTEMBER 2015

### CLIENT

APDL - Administração dos Portos do Douro, Leixões e Viana do Castelo, S.A.

### PARTNERS

DUFINAV, SIGNALRAD, Eng. Gil Coutinho, PBS, SEGURTI, WAVECOM e DOURO AZUL.

### FUNDING

This project was co-funded by the European Union/ CEF - Connecting Europe Facility Programme.



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# WIDERMOS

WIDE INTEROPERABILITY  
AND NEW GOVERNANCE  
MODELS FOR FREIGHT  
EXCHANGE LINKING REGIONS  
THROUGH MULTIMODAL  
MARITIME BASED CORRIDORS



# WIDERMOS

## WIDE INTEROPERABILITY AND NEW GOVERNANCE MODELS FOR FREIGHT EXCHANGE LINKING REGIONS THROUGH MULTIMODAL MARITIME BASED CORRIDORS

### AIM

The project aims at facilitating the homogeneous connection between Motorways of the Sea and the TEN-T core network corridors throughout several activities highlighting an IT Corridor Management Platform acting as a Logistic Single Window (LSW). The LSW acts as a network of interoperating platforms, for the integration of sea - based transport services in the logistic chain, considering all types of freight operations, in order to allow a seamless shipment management and communication between all the actors of the supply chain.

### INESC TEC MAIN CONTRIBUTION

INESC TEC was responsible for defining the conceptual model, as well as for identifying business scenarios and requirements. Moreover, INESC TEC developed the reference implementation of the interoperable platform for the Logistic Single Window.

**START DATE** DECEMBER 2014

**END DATE** DECEMBER 2015

### PARTNERS

LA SPEZIA PORT AUTHORITY // LA SPEZIA CONTAINER TERMINAL // INTERPORTO PADOVA CIRCLE // AGENZIA DELLE DOGANE // UNIVERSITÀ DEGLI STUDI DI GENOVA // REGIONE LIGURIA CIMNE // ISTITUTO TECNOLOGICO DE ARAGÓN // CORPORACIÓN MARÍTIMA // A.S.T.A. LOGISTIK PORT OF KIEL // PORT OF ROSTOK // KOMBIVERKEHR // APDL // SOGEMAR

### FUNDING

THE PROJECT WAS CO-FINANCED BY THE EUROPEAN UNION//TRANS-EUROPEAN



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## **BEACONING**

BREAKING EDUCATIONAL  
BARRIERS WITH  
CONTEXTUALISED,  
PERVASIVE AND  
GAMEFUL LEARNING



**INESCTEC**  
TECHNOLOGY & SCIENCE



# BEACONING

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## OVERVIEW

BEACONING sets a forefront in multifaceted education technologies through large-scale piloting of a digital learning platform that blends physical and digital spaces. The BEACONING platform will be a ubiquitous solution that exploits advances in user experience design, mobile communication, location-based and context aware systems, procedural content generation, pedagogy-driven gamification, learning analytics, and cloud technology through innovative integration towards a blended learning space. The BEACONING demonstrator will facilitate, assess and author gamified learning activities, integrating existing educational tools and services of the participating organisations. Large-scale pilots will validate and inform the development of the BEACONING ecosystem that democratises learning across and among fully abled and those with mild to moderate physical and mental impairments (age 15 to 24), undergoing general and vocational training. BEACONING anticipates the benefits of making cross-subject matter more understandable, fostering the application of subject specialism to other domains.

## GOALS

1. To integrate technologies, pedagogical and social perspectives of using pervasive, context-aware, and gamified approaches.
2. To develop, implement, and validate the BEACONING platform.
3. To explore and measure the level of engagement, effectiveness, and impact that is enabled by BEACONING platform.

## TECHNOLOGY APPLICATION

The project will exploit pervasive, gamified, and context aware technologies to support "anytime anywhere" learning, extending the learning context and experience from the classroom settings to the outdoors and personal spaces. Partners are bringing in expertise and technologies, which will be integrated to provide an infrastructure for pervasive play-learn.

**START DATE** JANUARY 2016

**END DATE** DECEMBER 2018

## PARTNERS

Coventry University, United Kingdom (Coordinator); Herriot-Watt University, United Kingdom; BIBA Institute, Germany; INESC TEC, Portugal; UCM, Spain; ORT, France; SUCCUBUS, France; ATS, Romania; IMAGINARY, Italy; GEOMOTION, Spain; IFINITY, Poland; PLAYSOFT, France; SEBIT, Turkey; Hands-Free, United Kingdom; SIVECO, Romania.

## FUNDING

This project is co-funded by the Horizon 2020 Framework of the European Union BEACONING Grant Agreement 687676



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# 3PORT

GEOREFERENCED  
MANAGEMENT SYSTEM  
FOR PORT BUSINESS  
PROCESSES SOFTWARE  
LABORATORY



**INESCTEC**  
TECHNOLOGY & SCIENCE



# 3PORT

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The goal with this project was to develop a state of the art tool for the technical services of Port Authorities that would help them manage and support Port Authority business processes in four major areas: Asset management, Monitoring and maintenance of maritime and land based infrastructures, Navigation safety procedures and Environmental regulation compliance.

**GOALS** The idea was to create a system that was fully aligned with the business process of the Port Authority so that the system adapts to the processes and not the other way around, a common problem in other solutions. The system was also developed to be an interoperability enabler, providing easy access to information in a georeferenced, integrated and consolidated way, interconnecting strategic areas.

**THE MODULES** The 3Port is based on eight modules, seven of which are used by the Port – Hydrography (dredging and navigable areas), Port traffic, Domain Management (licenses and concessions), Studies and Construction Work, Security, Environment, Assets Management –, and Live Map used by the general public.

**LEADING PARTNER** The leading partner was TRIEDE TTI, a company with more than 10 years of experience in the development of Environmental Management and Port Systems. TRIEDE TTI promoted the project and is now commercialising the solution focusing on the Community of Portuguese-Speaking Countries (CPLP) and Latin America.

**INESCTEC MAIN CONTRIBUTION** INESC TEC was the innovation partner and the booster of the technology transfer triangle. This technology transfer triangle was composed of INESC TEC (producer of the innovation), TRIEDE TTI (producer of the solution, integrating the innovation) and APDL (user of the solution and the one identifying the requirements).

Services provided by INESC TEC were crucial to ensure the integration of state of the art technologies and their alignment with Port Authority business processes. The final result was an innovative solution that will increase TRIEDE TTI's market competitiveness and already made Leixões and Viana do Castelo Ports some of the most innovative worldwide in terms of R&D.



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QUADRO  
DE REFERÊNCIA  
ESTRATÉGICO  
NACIONAL  
PORTUGAL 2007-2013



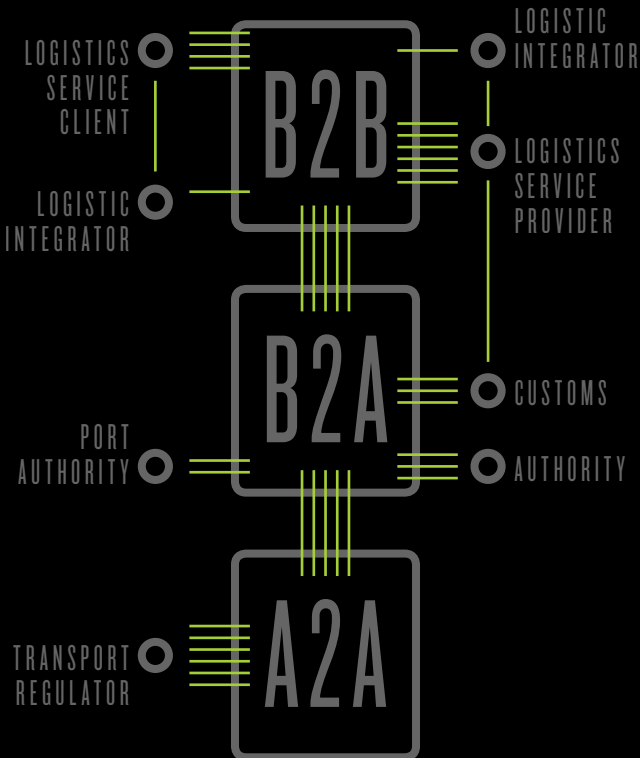
UNIAO EUROPEIA  
Fundo Europeu  
de Desenvolvimento Regional





# MIELE

MULTIMODAL INTEROPERABILITY  
E-SERVICES FOR LOGISTICS AND  
ENVIRONMENT SUSTAINABILITY



# MIELE

## MULTIMODAL INTEROPERABILITY E-SERVICES FOR LOGISTICS AND ENVIRONMENT SUSTAINABILITY

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### AIM

The goal was to implement a Logistic Single Window as a network of inter-operating platforms, built by different organisations and commercial realities, capable of providing clients with integrated Door-to-Door logistic services with Business-to-Business and Business-to-Administration integrations.

### INESC TEC MAIN CONTRIBUTION

INESC TEC was responsible for defining the conceptual model, as well as for identifying business scenarios and requirements. Moreover, INESC TEC created an interoperable platform for the Logistic Single Window and a Mobile Application for transport operators to manage Bookings and Status reports. The systems are supported by the ECoNet – Enterprise Collaborative Network concept and by the GS1 Access Points in order to comply with the new GS1 messages.

**START DATE** SEPTEMBER 2010

**END DATE** DECEMBER 2013

**BUDGET** ~16 M€

### PARTNERS

RINA // ITALIAN MINISTRY OF TRANSPORT // GRIMALDI // TSG // IB // CAP  
CYPRUS PORT AUTHORITY // JACOBS UNIVERSITY // SIGNALIS // DBH LOG  
PORT AUTHORITY OF GIJÓN // CIMNE // COMPASS // PLAZA  
IPTM // APL // APDL

### FUNDING

THE PROJECT WAS CO-FINANCED BY  
THE EUROPEAN UNION // TRANS-EUROPEAN TRANSPORT NETWORK (TEN-T)



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APDL



# SCOPE

## ELECTRONIC PORT COMMUNITY SYSTEM



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ACSU 200329  
22G1

8

MAX.GR.  
TARE  
NET

30.480 KGS  
67.200 LBS  
2.185 KGS  
4.820 LBS  
28.295 KGS  
62.380 LBS

37

CU.CAP

33.2 CU.M.  
1.173 CU.FT

# SCOPE

## ELECTRONIC PORT COMMUNITY SYSTEM

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### AIM

The project aim was to design and implement an integrated organisational model to manage the processes related to electronic data transfer regarding cargo passing through the Leixões Seaport for the two main business documents: Bill of Lading & Cargo Manifest.

### ACTORS

Globally, all Port Community Actors (Port Authority, Customs Administration, Forwarders, Shipping Agents, Customs Agents, Shipping Lines, Original Shippers, Consignors & Consignees and also Software Houses) were involved in this project.

### GOALS

The main goal was the conceptual development and validation of a system which needed to be open, critical, inter-operative with heterogeneous environments, flexible, scalable and compatible with UN /CEFACT standards.

The system was also developed to solve the limitations detected in existing solutions, namely intrinsic quality certification, intelligent process monitoring, actor performance measurement and added-value services, such as compensation and certification. This was the innovative domain of this project, with its focus on process innovation (associated to Bill of Lading and Cargo Manifest), enabling product innovation (through associated supporting software applications) and promoting sector modernisation.

**START DATE** OCTOBER 2002 **END DATE** JULY 2005 **BUDGET** -3 M€

**PARTNERS** APDL // ALFÂNDEGA // INESC PORTO // AGEPOR (ASSOCIAÇÃO DOS AGENTES DE NAVEGAÇÃO) // APAT (ASSOCIAÇÃO DOS TRANSITÁRIOS DE PORTUGAL) // TCL // TCGL // BURMESTER // E A MOREIRA // EURONAVE // IBERO LINHAS // NAVEX // GARLAND // SOFRENA // PINTO BASTO // DAVID JOSÉ DE PINHO // PORTOCARGO // RANGEL // TREVOMAR // LAROZE // NASCIMAR // INTERMESUM // SOPORCEL // APIE // ATLANTA // MAEIL // FCR // IBS

**FUNDING** UNDER THE OPERATIONAL PROGRAMMES FOR SCIENCE, TECHNOLOGY AND INOVATION (POCTI) AND FOR THE SOCIETY OF INFORMATION (POSI) FINANCED BY HE ERDF AND BY NATIONAL FUNDS (MINISTRY OF SCIENCE AND TECHNOLOGY)



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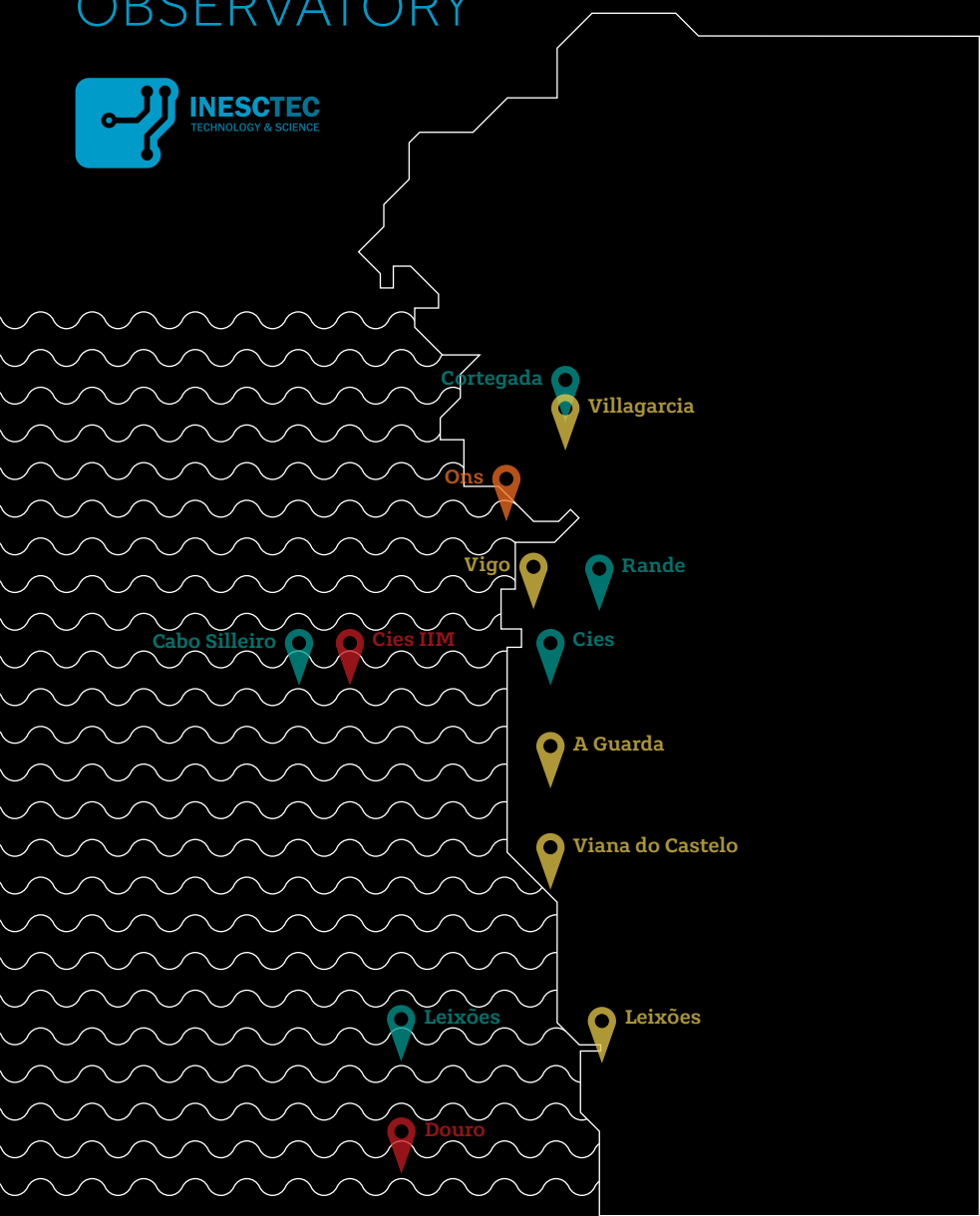
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# RAIA

## IBERIAN COAST OCEANOGRAPHIC OBSERVATORY



# RAIA

## IBERIAN COAST OCEANOGRAPHIC OBSERVATORY

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### AIM

Implementation of a cross-border oceanic observation network to consolidate operational oceanography in the Iberian coast and to create new scientific and technological opportunities that would foster the sea economy.

### INESC TEC MAIN CONTRIBUTION

Creation of a distributed data services infrastructure, enabling a sensor geographic network for planning and decision support. This data infrastructure uses international standards (ISO19100, OGC) and best practices, and complies with the INSPIRE EC Directive.

**START DATE** JANUARY 2009

**END DATE** DECEMBER 2011

**BUDGET** -2.5 M€

### PARTNERS

METEOGALICIA // INTECMAR // IEO // CSIC-IIM

CETMAR // UNIV. VIGO // CIIMAR // INEGI

FEUP // IH // UNIV. AVEIRO // FCUP

### FUNDING

INTERREG IV-A

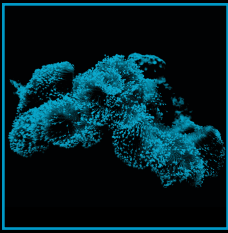
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# SeaBioData

PORTUGUESE SEAMOUNTS  
BIODIVERSITY DATA  
MANAGEMENT



**INESC TEC**  
TECHNOLOGY & SCIENCE

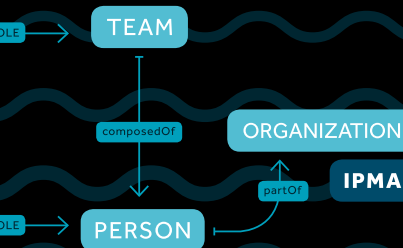
SEABIODATA  
OUTPUTS



MOBILE CLIENT  
[LABTABLE]



SEABIODATA  
PC CLIENT



# SeaBioData

## PORTUGUESE SEAMOUNTS BIODIVERSITY DATA MANAGEMENT

### AIM

Development of an adequate technological framework for the effective and efficient monitoring of particular ecosystems such as seamounts, providing adequate and timely information to stakeholders. Thus contributing for the establishment of the Good Environmental Status (GES), the monitoring of resources and the promotion and preservation of Portuguese marine environment and their biodiversity.

### INESC TEC MAIN CONTRIBUTION

Conception and development of an adequate technological framework to ensure that the biological material and associated information, collected in the project BIOMETORE (EEAGrants, PT02\_Aviso2\_0001) about the biodiversity of seamounts and their ecosystems, namely in the Madeira-Tore and Great Meteor, is compiled and fully accessible. The system will ensure the integration, organization and long-term preservation of relevant data for marine information systems, enabling prompt and uniform data access to researchers at a local and national level.

Seabiodata (EEAGrants, PT02\_Aviso5\_0002) will provide new means to store and access original datasets and a set of interoperable services to disseminate observation data, thus providing baseline information for sustainable management of the Portuguese marine environment, as well as to the development of the marine strategies for the continuous assessment and maintenance of the good environmental status (GES).

**START DATE** JULY 2015

**END DATE** APRIL 2017

**BUDGET** 229K€

### PARTNERS

IPMA – INSTITUTO PORTUGUÊS DO MAR E DA ATMOSFERA (PORTUGAL)

IMR – INSTITUTE OF MARINE RESEARCH (NORWAY), AS CONSULTANT

### FUNDING

SEABIODATA WAS CO-FINANCED BY EEA GRANTS, EUROPEAN ECONOMIC AREA FINANCIAL MECHANISM, JOINTLY FINANCED BY ICELAND, LIECHTENSTEIN AND NORWAY



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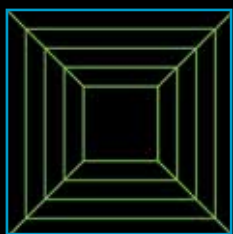
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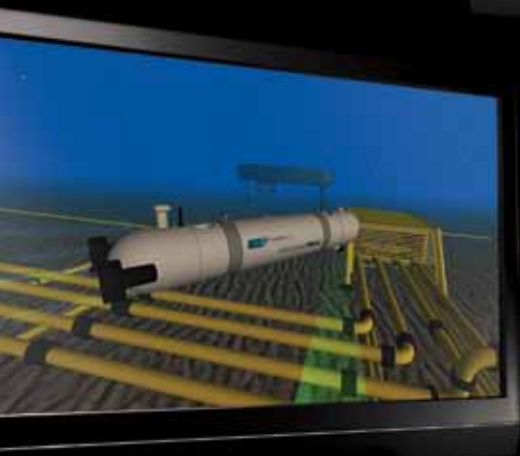


# SERIOUS GAMES AND VISUAL SIMULATORS

SPECIFICATION AND DEVELOPMENT  
OF SOLUTIONS FOR EDUCATION,  
TRAINING AND CERTIFICATION



**INESCTEC**  
TECHNOLOGY & SCIENCE



# SERIOUS GAMES AND VISUAL SIMULATORS

SPECIFICATION AND DEVELOPMENT OF SOLUTIONS  
FOR EDUCATION, TRAINING AND CERTIFICATION

---

## DESCRIPTION

Specification and development of Serious Games applications and Visual Simulators for Education, Training and Certification, based on 3D virtual environments controlled by rule engines and enabling multiplayer interaction.

## ADVANTAGES

- Reduces training and certification costs
- Avoids interaction with costly equipment in early training/certification phases
- Allows the simulation of complex or hazardous situations
- Enables flexible and remote training/certification
- Allows more training hours per trainee
- Increases the interest, the engagement and, therefore, the success of participants

## MAIN FEATURES

- 3D virtual environments
- Rule-based engine
- Multiplayer
- Web technologies, enabling remote use

## EXAMPLES

- F-16 aircraft engine maintenance simulator for teams
- Sea search and rescue AUV (Autonomous Underwater Vehicle) simulator
- Car driving simulator

## POTENTIAL USERS

- Armed Forces
- Civil Protection
- Flight Schools
- Aircraft Maintenance Companies
- Aircraft Industry



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# SOFTWARE VERIFICATION AND VALIDATION

SOFTWARE VERIFICATION  
AND VALIDATION  
FOR THE SOFTWARE INDUSTRY



**INESCTEC**  
TECHNOLOGY & SCIENCE



# SOFTWARE VERIFICATION AND VALIDATION

## SOFTWARE VERIFICATION AND VALIDATION FOR THE SOFTWARE INDUSTRY

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### ACTIVITIES

Model-based testing (automatic test generation from formal models and UML models for API and GUI testing)

Verification & validation process improvement

Software model checking

Static analysis and contract-based verification

### SERVICES

V&V consulting

Test automation



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