ACESSIBILITY & TRANSPORTS

Project nr 2008-1/049

duratiNet

Durable Transport Infrastructures in the Atlantic Area Network

Manuela Salta
Project Leader

European Union
European Regional Development Fund

Investing in our common future

ATLANTIC AREA
Transnational Programme

Project CONTEXT

EU strategic and priority action guidelines

- European Cohesion policy and Lisbon agenda
- European transport policy (EU Decision 884/2004/CE, 29 April 2004)

Trans-European Transport Networks(TEN-T)
Interoperability of european transport Networks

- Gothenburg (Kyoto protocol) agenda
- Environmental policy (6th EAP-EU 2002-2012)

- ➤ Strategic position of Atlantic Area to east–west connections
- ➤ Relevance of AA on maritime highways
- ➤ Intermodal transportation
- ➤ Reduction of environmental impact and to improve the energetic efficiency
- ➤ Infrastructures repair /rehabilitation needs

Project CONTEXT

Atlantic Area Transport Infrastructures

-High number of structures with > 30 years
-Most structures needs repair /rehabilitation
-Some structures repaired shown low repair performance
-Sustainability of construction (energy and environment impacts)

DURATINET PROJECT

The main goal of the project is to create the network of excellence DURATINET

➢to facilitate an efficient exchange and transfer of knowledge on maintenance of concrete and steel structures namely as it concerns the assessment and repairing of structures

> to promote the durability, safety and sustainability of transport infrastructures in the **Atlantic Area**,

turning these regions more attractive to live in, to work and for competitive business

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PRIORITY 3. Improve the acessibility and internal links

OBJECTIVE 1. promote the interoperability between different transportation

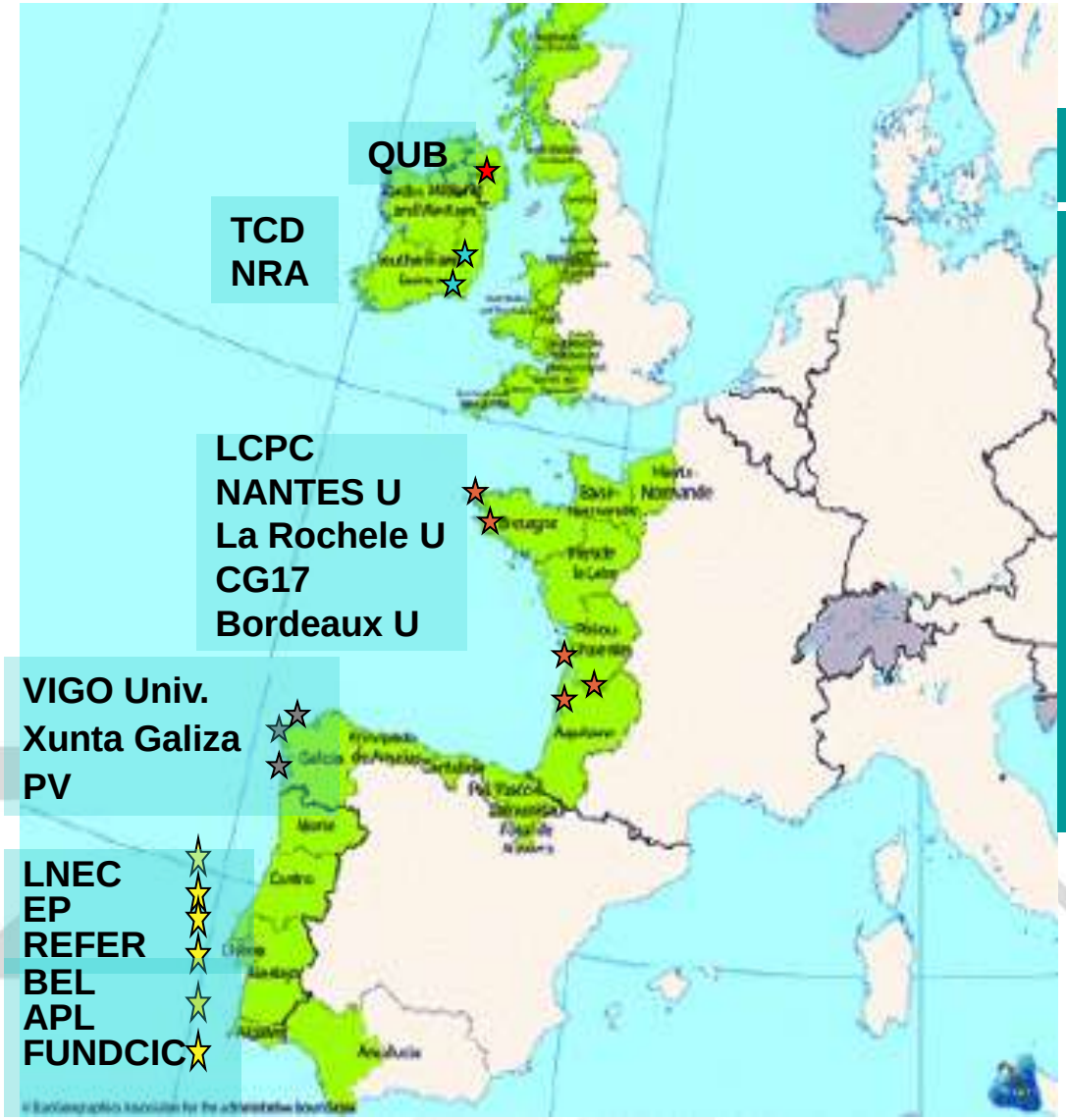
ACESSIBILITY & TRANSPORTS

Project data:

5 Countries PT,SP,FR,IR,UK
17 Partners

2009-2011

TOTAL PROJECT COST- 2. 570 M€
TOTAL ELLIGIBLE COST-2. 480 M€
ERDF FUND (65%) -1. 612 M€

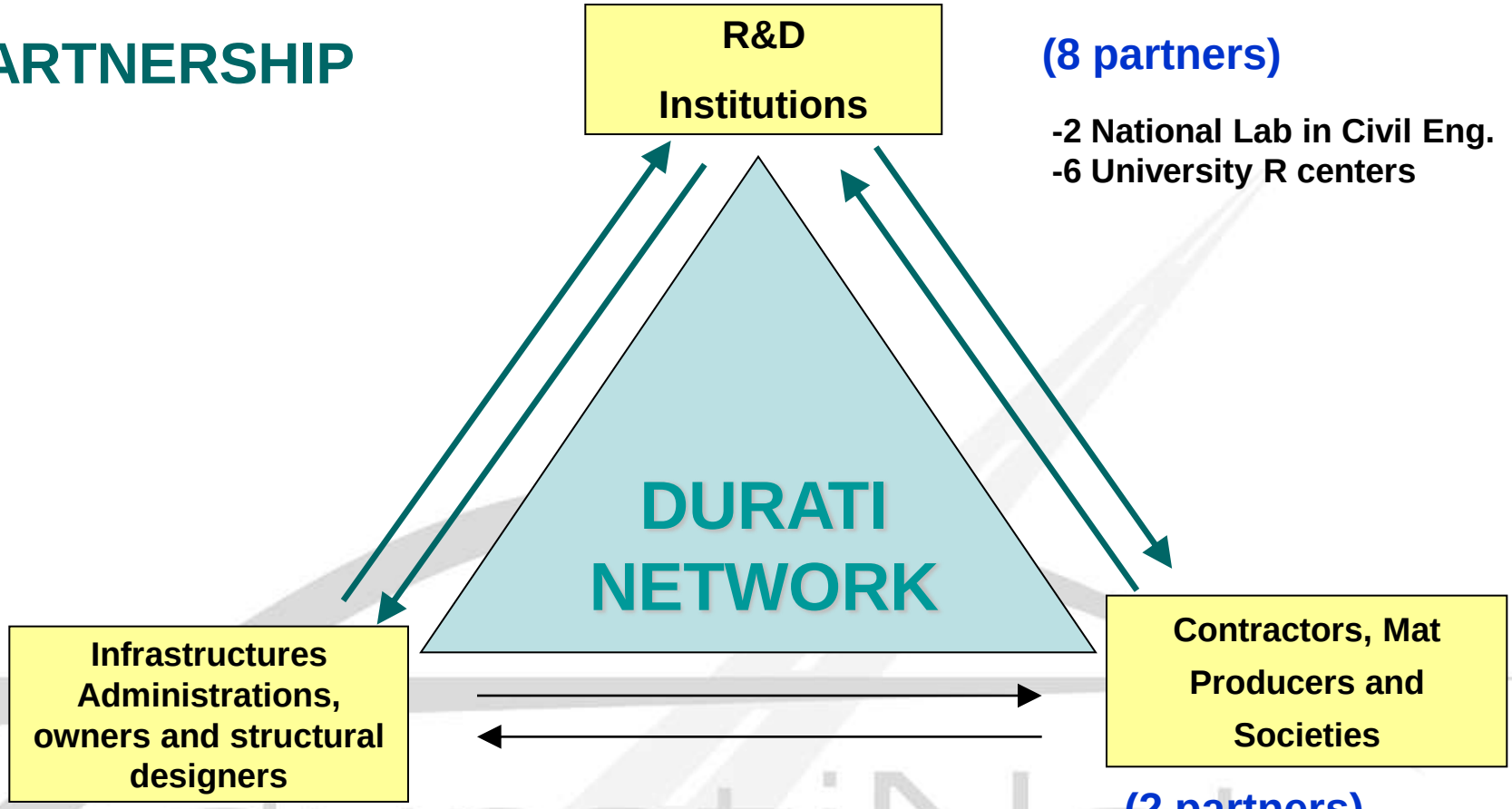


PARTNERSHIP

17 Partners

Portugal (6)
Spain (3)
France (5)
Ireland (2)
United Kingdom (1)

PARTNERSHIP



(8 partners)

-2 National Lab in Civil Eng.
-6 University R centers

(7 partners)

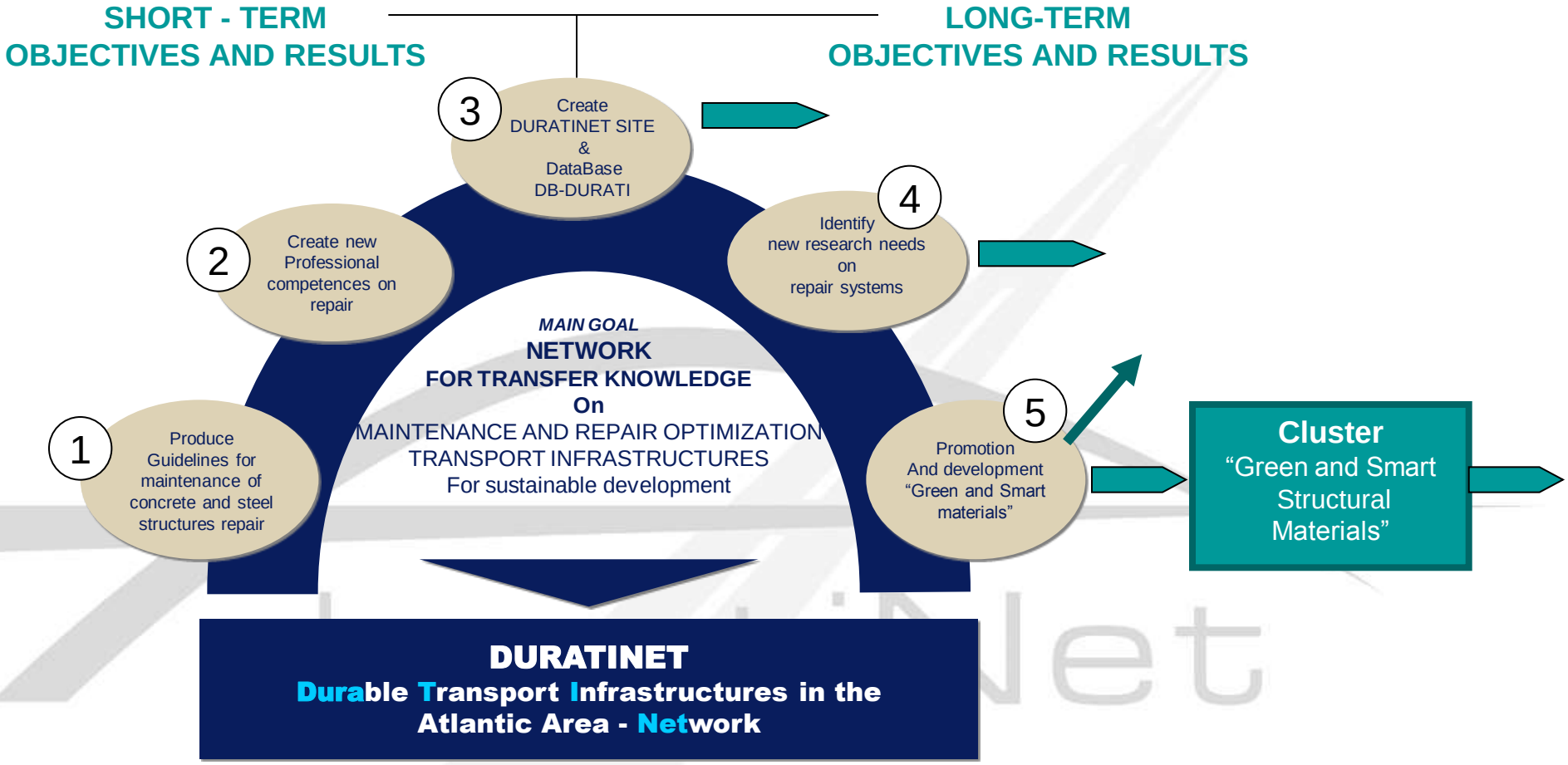
- HIGHWAYS
- PORTS
- RAILWAYS

(2 partners)

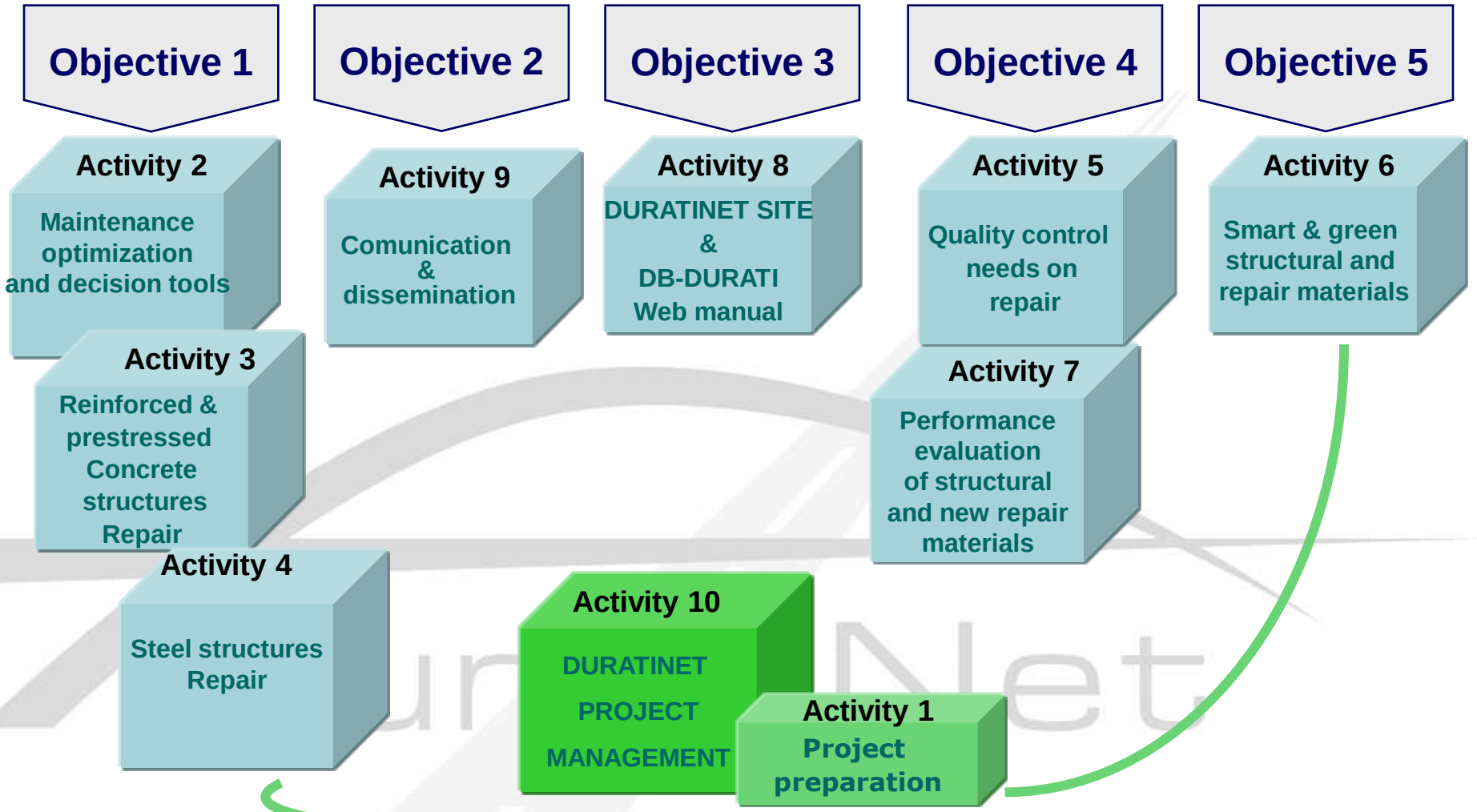
- REPAIR CONTRACTOR NON PROFIT SOCIETY

+ 3 associated partners

Project Objectives



PROJECT ACTIVITIES



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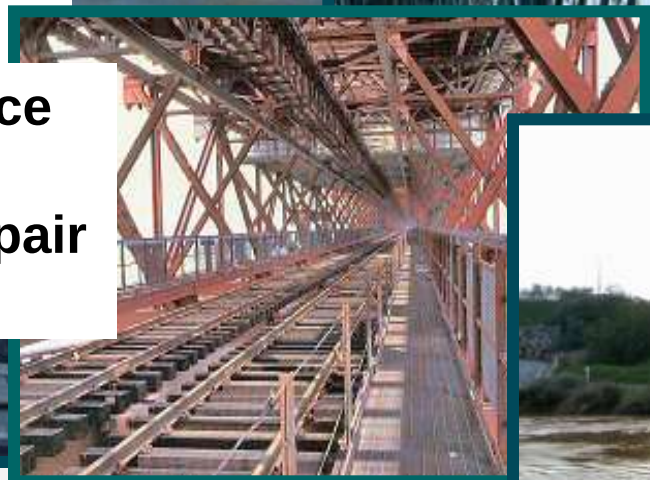
ACTIVITY 2

Maintenance optimization and decision tools

- Requirements for maintenance and repairs optimization
- Methodologies to support repair decisions



End-product

✓Web version
✓Printed version

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Activity 3

Reinforced and prestressed concrete structures maintenance/repair

- Durability requirements
- Types and degradation mechanisms
- Inspection and diagnosis
- Prevention and service life modelling
- Repair techniques and
- Performance/cost/environmental impact

End-product

✓Web version
✓Printed version

ACTIVITY 4

Steel structures maintenance

- Durability requirements
- Damage mechanisms of steel
- Inspection and evaluation, NDT
- Protection/ repairing

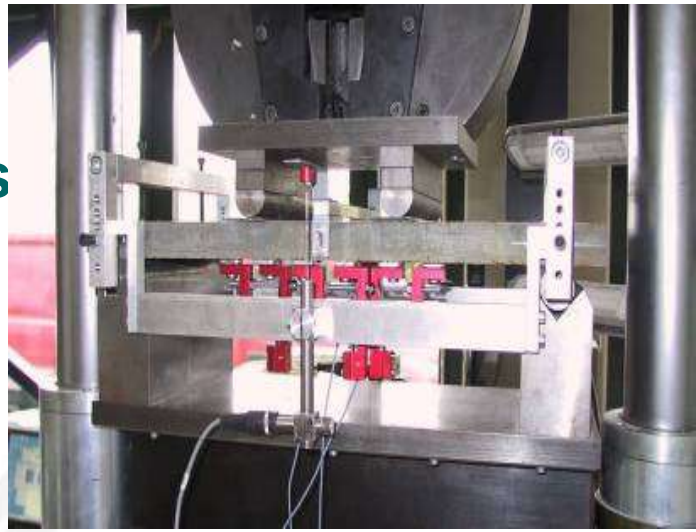
End-product

Steel structures
Guidelines
on repair

✓Web version
✓Printed version

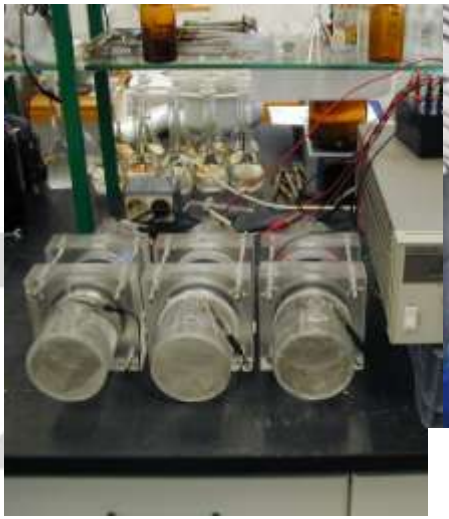
ACTIVITY 5

Quality control needs on repair systems



- **Implications of harmonized standards on quality control at level of the contractors**

- **Implications of harmonized standards on quality control at level of materials producers**



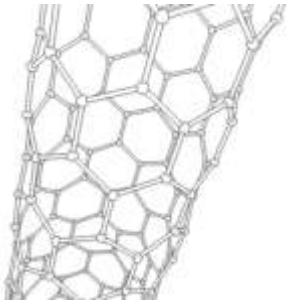
End-product:

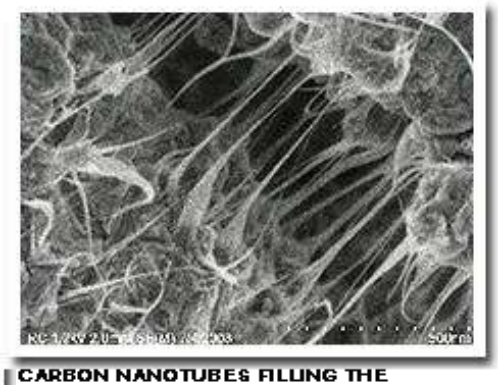
Technical report

ACTIVITY 6

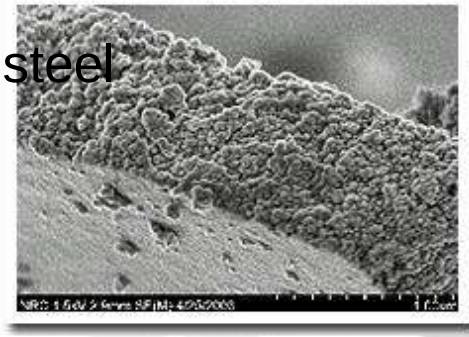
Smart & green structural and repair materials

- Concrete with mineral by-products and recycled agregates
- Water solvents based coatings for steel protection
- Cement with nano particles and nanofibers (Carbon nanotubes)
- Nanomaterials coatings with specific performance properties, easy to clean/Self cleaning and nanoproducts for protection of porous materials
- FRP in new structures and in repairing





CARBON NANOTUBES FILLING THE CRACKS IN A CEMENTING COMPOSITE



CEMENTING NANOPARTICULES OBTAINED BY THE TECHNIQUES OF "SOFT CHEMISTRY"

NANOLAYERS OF CALCIUM ALUMINATE

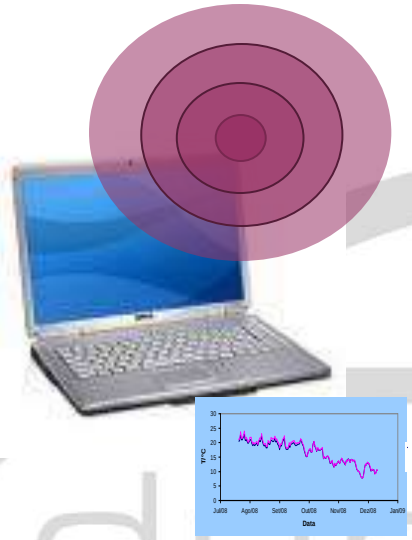
End-product:

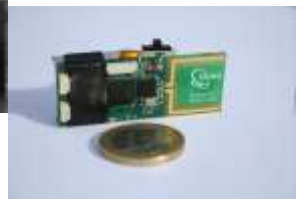
State -of –the- art Reports

ACTIVITY 6

- On-line Monitoring wireless systems

SMART STRUCTURES





Wireless sensor network
Wireless data transmission

End-product:

- **State- of –the- art- reports on sensors development**

ACTIVITY 7

Performance evaluation of structural and new repair materials

- In situ aplication of new repair products and systems
- Collecting data from materials performance from structures(bridges, wharves) and from the natural experimental site exposure, to fill dB-DURATI

ACTIVITY 7

Estruturas em estudo

> BARRA Bridge (Portugal)

> Ferrycarrig Bridge (Ireland)

ACTIVITY 8

CREATION duratiNet WEBTOOLS

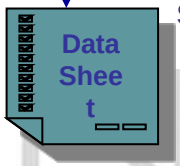
WEBPLATFORM WEBSITE DB-DURATI & Manual web -version

www.duratinet.org

Private domain for project partners
Management & communication

Public Domain
Project activities/results, project events, publications final results

Database
Data on materials & repair performance and structures inspection



service life modelling

OPEN to Contractors & material producers
performance systems technical data

OPEN to Administrations
for new materials and products for repair and good experiences on their infrastructures repair activities

Cluster
"Smart and green materials"

Web Forum on Infrastructures Maintenance/repair

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Project promotion , divulgation and dissemination actions

ACTIVITY 9

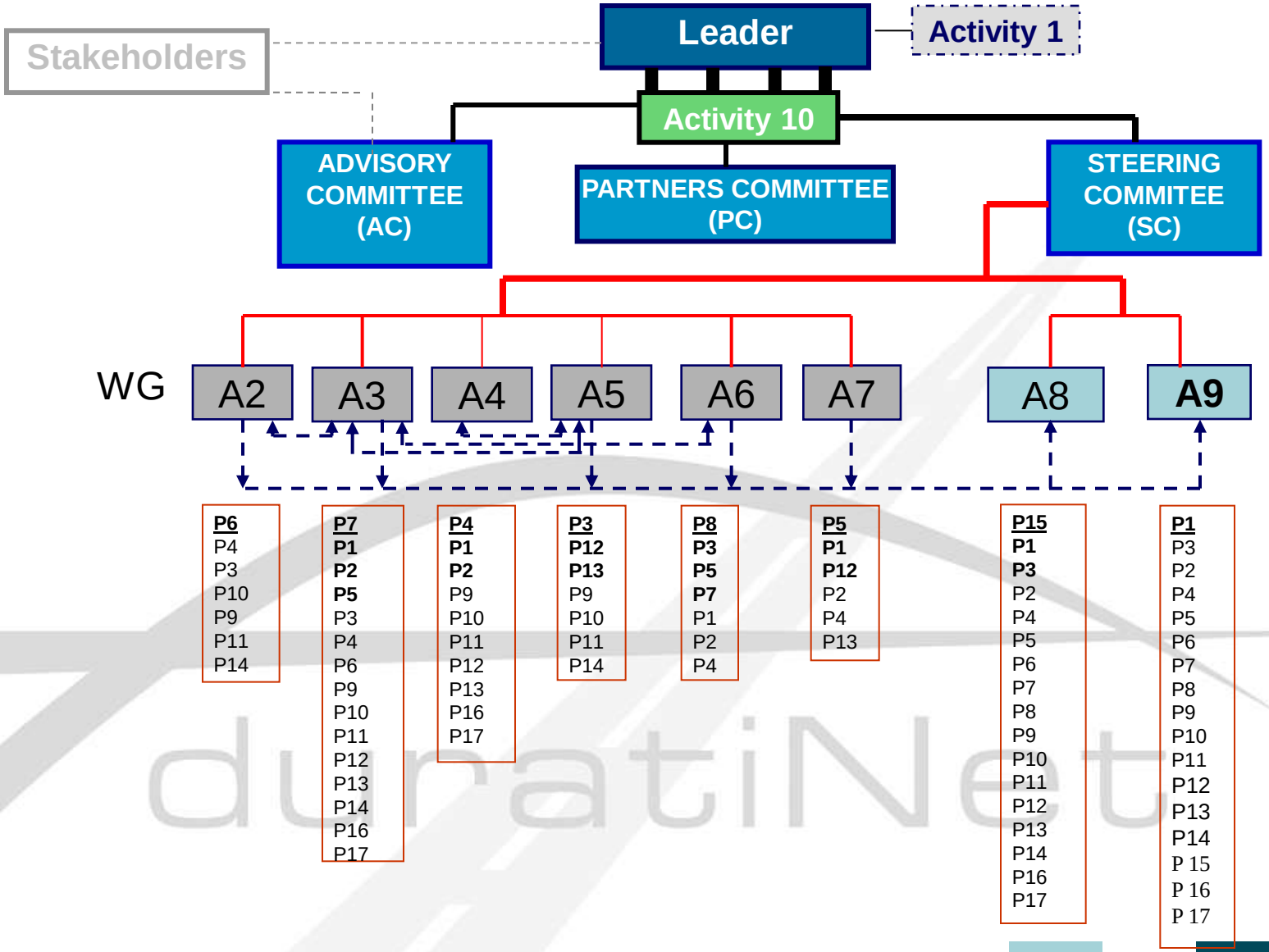
Organization of EVENTS for dissemination of project activities and results

>**6 Trans-national Workshops for stakeholders and end-users (LIsbon, Belfast, Bordeaux, Dublin, Vigo, Nantes, La Rochelle)**

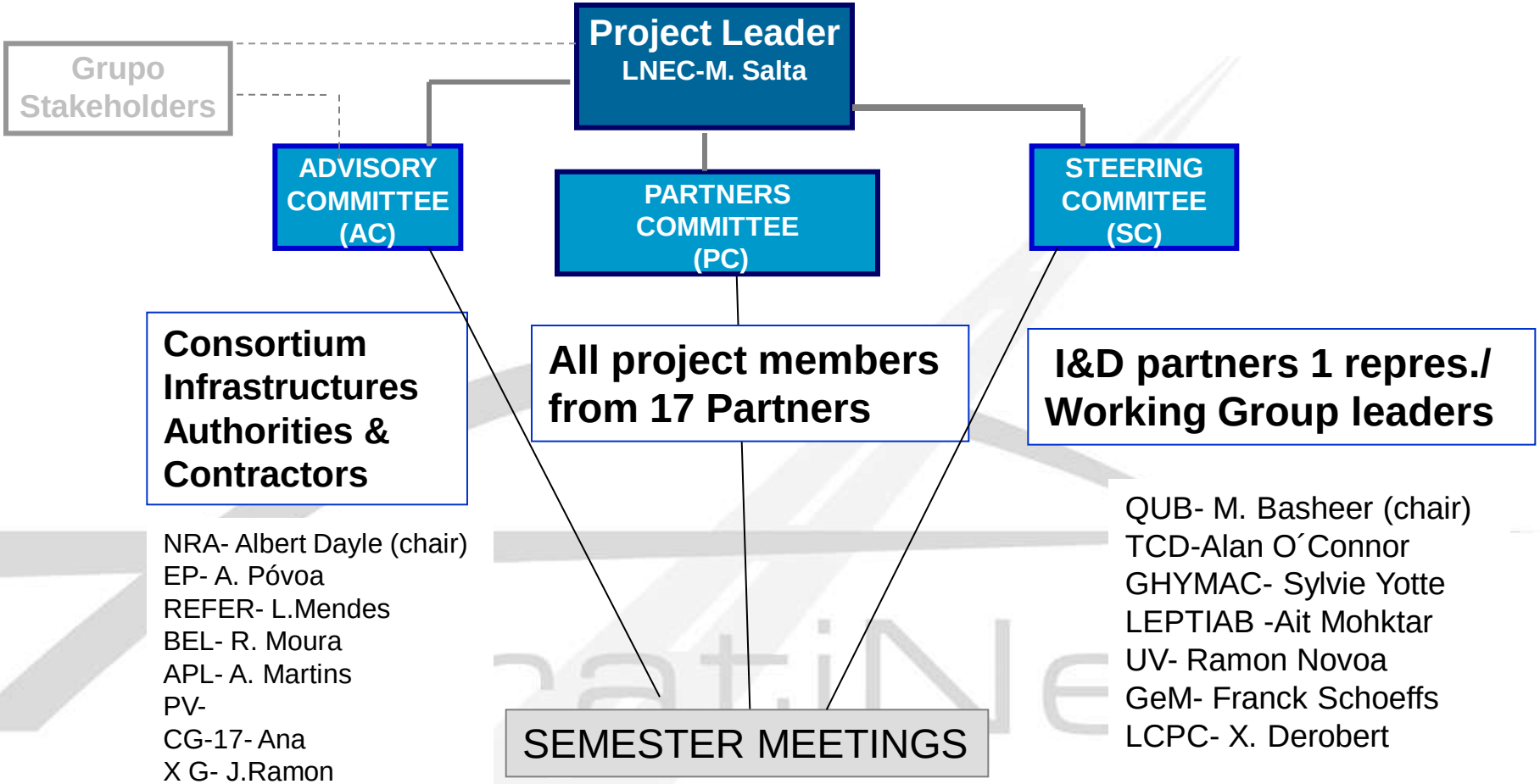
>**International Congress DURATINET – 1st semester 2012**

>**Course on inspection techniques and diagnosis and demonstration actions on repairs –2nd semester 2011**

ACTIVITY 10


Stakeholders
Leader
Activity 1
Activity 10
ADVISORY COMMITTEE (AC)
PARTNERS COMMITTEE (PC)
STEERING COMMITEE (SC)
WG
A2
A3
A4
A5
A6
A7
A8
A9
P6 P4 P3 P10 P9 P11 P14
P7 P1 P2 P5 P3 P4 P6 P9 P10 P11 P12 P13 P14 P16 P17
P4 P1 P2 P9 P10 P11 P12 P13 P16 P17
P3 P12 P13 P9 P10 P11 P14
P8 P3 P5 P7 P1 P2 P4
P5 P1 P12 P2 P4 P13
P15 P1 P3 P2 P4 P5 P6 P7 P8 P9 P10 P11 P12 P13 P14 P16 P17
P1 P3 P2 P4 P5 P6 P7 P8 P9 P10 P11 P12 P13 P14 P 15 P 16 P 17

Activity 10


Grupo Stakeholders
Project Leader
LNEC-M. Salta
ADVISORY COMMITTEE (AC)
PARTNERS COMMITTEE (PC)
STEERING COMMITEE (SC)
Consortium Infrastructures Authorities & Contractors
All project members from 17 Partners
I&D partners 1 repres./ Working Group leaders
NRA- Albert Dayle (chair)
EP- A. Póvoa
REFER- L.Mendes
BEL- R. Moura
APL- A. Martins
PV-
CG-17- Ana
X G- J.Ramon
SEMESTER MEETINGS
QUB- M. Basheer (chair)
TCD-Alan O´Connor
GHYMAC- Sylvie Yotte
LEPTIAB -Ait Mohktar
UV- Ramon Novoa
GeM- Franck Schoeffs
LCPC- X. Derobert

PROJECT RESULTS

➢DIFFERENT KIND OF PUBLICATIONS

Web version
CONCRETE & STEEL
Guidelines Manual

Flyers

Posters

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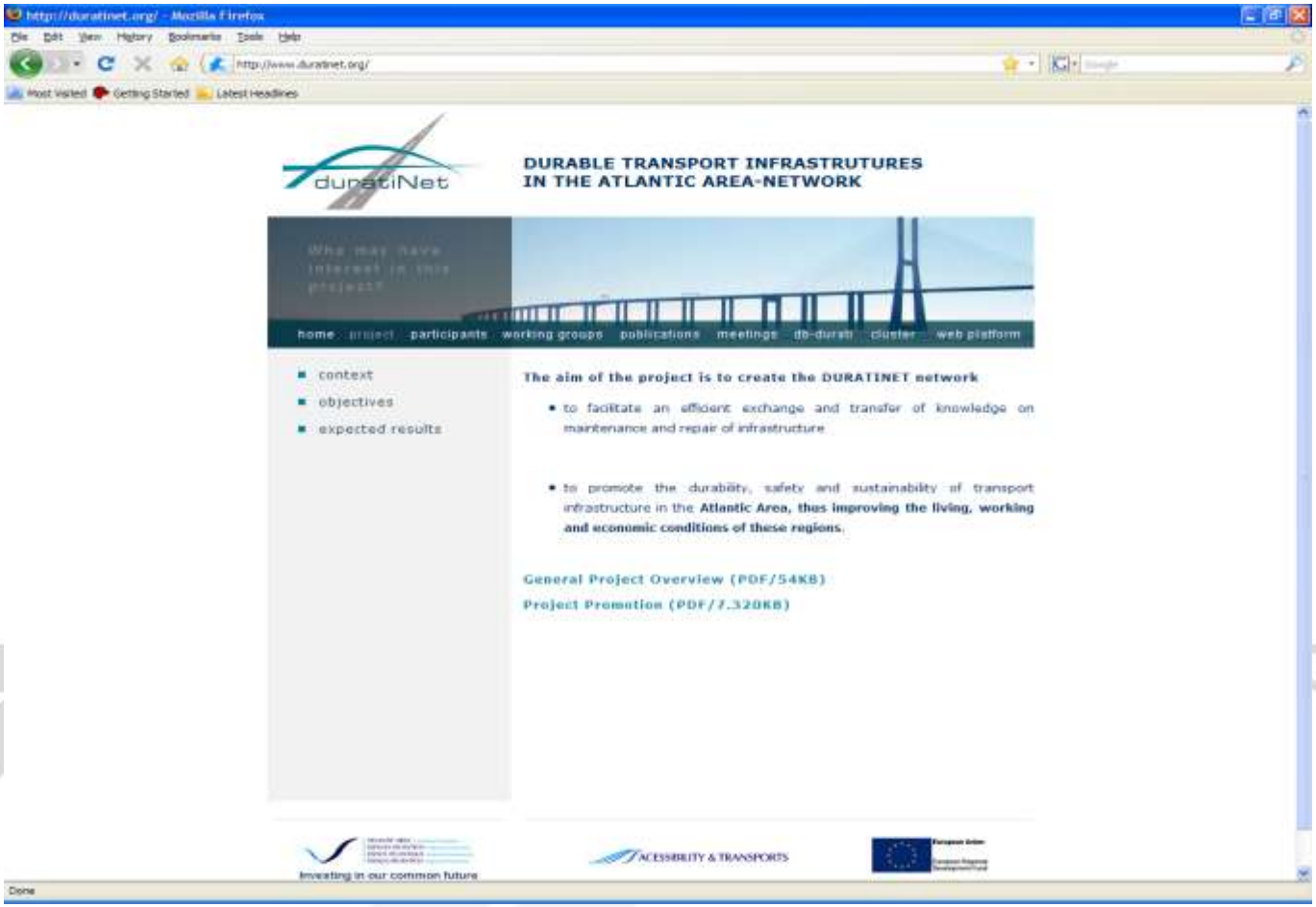
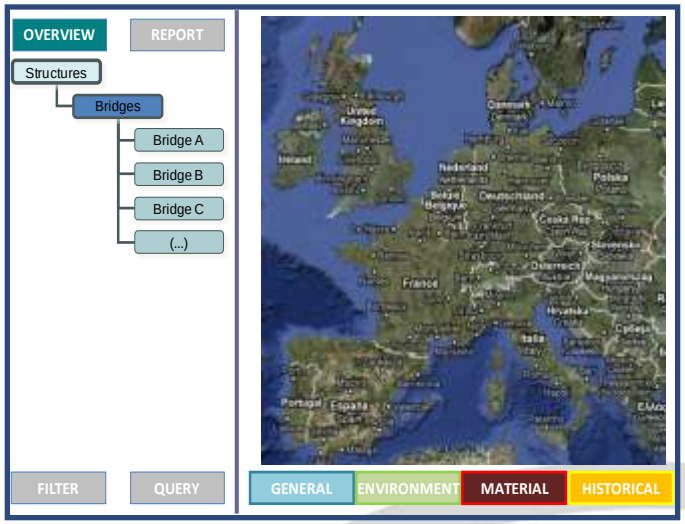
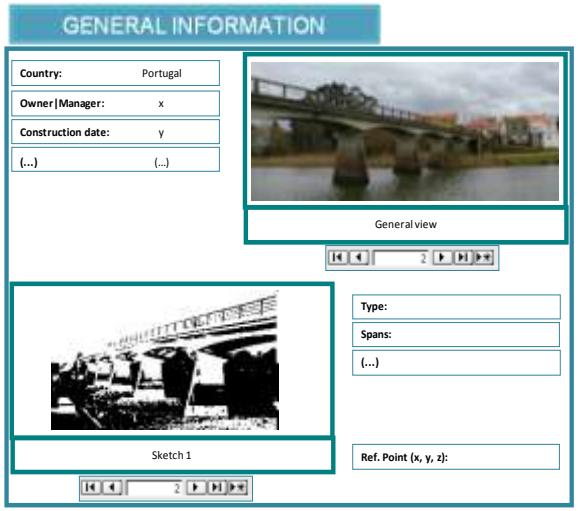
DURATINET WEBSITE

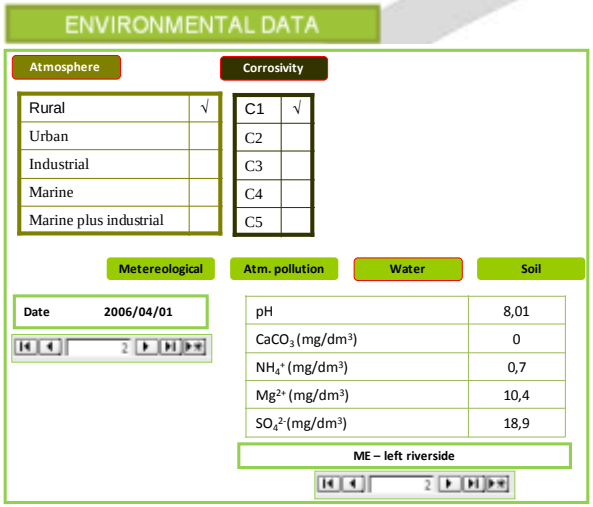


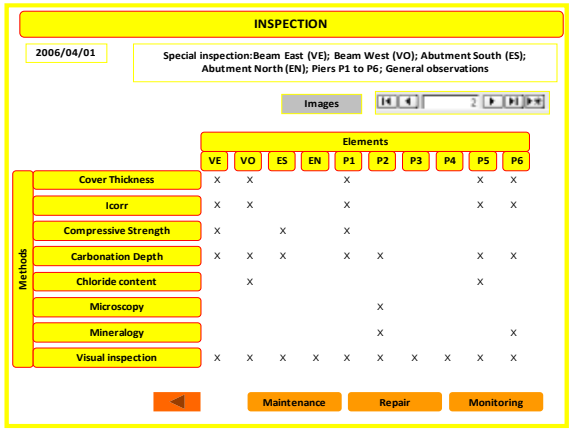
IN ENGLISH, PORTUGUESE, FRENCH, SPANISH

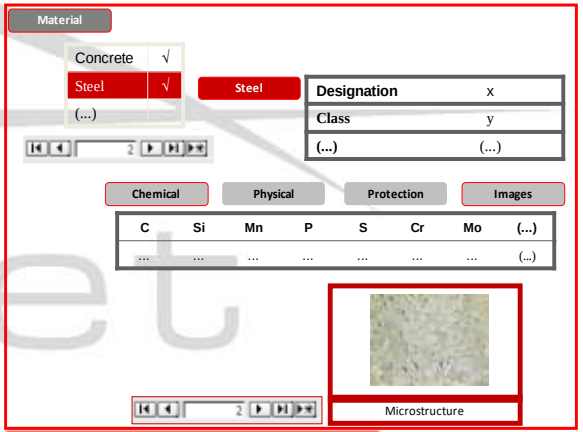
DB- DURATI











HISTORICAL – INSPECTION DATA

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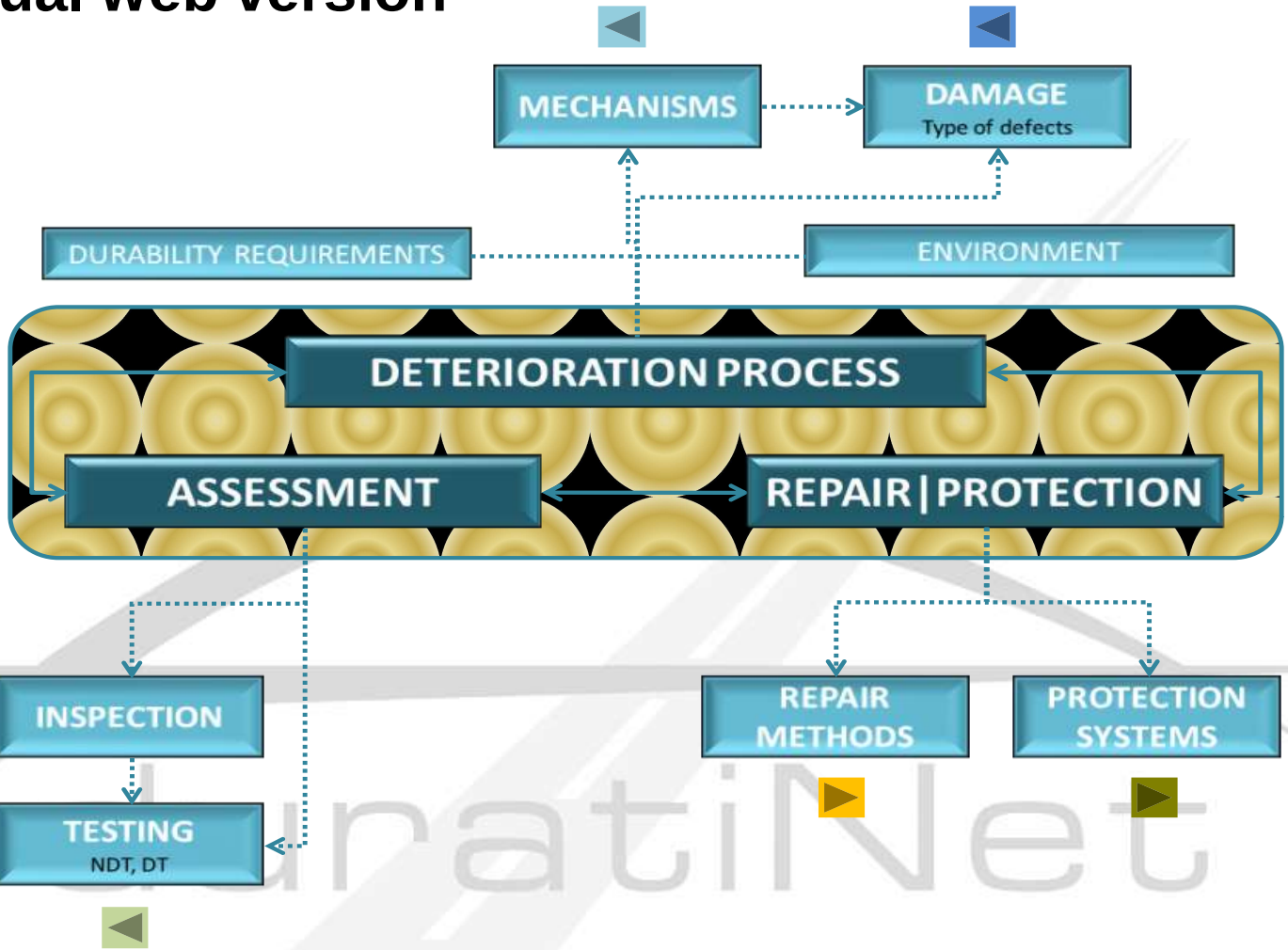
Manual web version



Manual web version