



# Integrated Coastal Zone Management via Increased Situational Awareness through Innovations on Unmanned Aircraft Systems

## Kick-off event

Thursday 21st June 2012

Town hall Municipality of  
Woensdrecht



2 Mers Seas Zeeën

INTERREG IV A

FRANCE - ENGLAND - VLAANDEREN - NEDERLAND



**"Investing in your future"**

Crossborder cooperation programme

2007-2013 Part-financed by the European Union  
(European Regional Development Fund)



Integrated Coastal Zone Management via  
Increased Situational Awareness through  
Innovations on Unmanned Aircraft Systems

# Allyn Thomas

- Chairman of the day.





# Program

Time	Subject
10.00 -11.30	<b>3i Guest Speakers, Approval ceremony , Demonstration</b>
11.30-11.45	Coffee Break + 3i poster presentation
11.50-12.45	<b>3i Guest Speakers, Opening ceremony</b>
12.45-13.15	Lunch + 3i poster presentation
13.30-14.45	<b>UAV Guest Speakers</b>
14.45-15.00	Refreshment break & Info market
15.00-16.00	<b>Interactive workshop</b>
16.00-18.00	Info market, drinks and informal meeting
18.00	End of Kick-off Event
15.15-20.00	<b><i>Site Visit D&amp;MS &amp; Boat Tour Port of Rotterdam</i></b>



Integrated Coastal Zone Management via  
Increased Situational Awareness through  
Innovations on Unmanned Aircraft Systems



# Speakers Morning Program

Subject	Person
Welcome at Woensdrecht and Aviolanda	Major of Woensdrecht- Marcel Fränzel
Interreg 2 Seas Cross Border Cooperation Program & Review by the 2Seas Steering committee	2Seas Joint Technical Secretariat- Gianluca Ferreri & Ministry of EL&I - Jan Willem van Wijngaarden
Introduction 3i project	REWIN -Stefan van Seters
Security issues in World Port of Rotterdam and approach area of Channel & North Sea	Port Of Rotterdam-Jan Gardeitchik
Research & Development at the TU Delft and Overview of Dutch participation in 3i	TU Delft-Prof. Max Mulder
Information demonstration of Unmanned Aircraft System	TU Delft-Bart Remes
Overview of French participation in 3i;	Telecom Bretagne - Gilles Coppin
Overview of UK participation in 3i;	University of Southampton - Jim Scanlan



# Speakers Afternoon Program

Subject	Person
Wrap-up morning, Start afternoon program	Stefan van Seters-REWIN
Aviation & maintenance park Aviolanda Woensdrecht & Video	Business Park Aviolanda -Rob Sturm
Launch of Dutch UAV project “Unmanned Aircraft Systems Maintenance Valley”	Fokker Services – Marc Huyzer
Example of UAV applications in The Netherlands	KLPD - Gerard ter Buuren
Interactive workshop: Initiate new projects on UAV applications and UAV technology-innovations	In2Nova - Rob van Nieuwland & Innovatie fabriek – Henk van Dijk

## Extra

Site visit 3i-partner Digital & Media Solutions BV

Boat trip on the ‘Nieuwe Maze’ in Rotterdam harbor +  
diner





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Gemeente **Woensdrecht**

# Marcel Fränzel

- Major of Woensdrecht
  - Welcome at Woensdrecht!



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# 3i project Kick-off 21, June 2012

Marcel Fränzel  
Mayor of Woensdrecht



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# Welcome to the municipality of Woensdrecht



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Gemeente **Woensdrecht**

# 75 years runway and air base





# Military and civil aviation activities in the Woensdrecht region

- Royal Dutch Airforce (Pilot school)
- Logistic Center Woensdrecht (Maintenance)
- Fokker Elmo (Wiring Harness)
- Fokker Services (Maintenance)
- The National Aerospace Laboratory (Research)
- Dutch Aero Services (Engine Maintenance)
- Terma (Electronic Warfare)
- BOEING (Rotary Wing)
- Elbit Systems of America (Avionics)
- Aircraft End of Life Solutions





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# Business Park Aviolanda

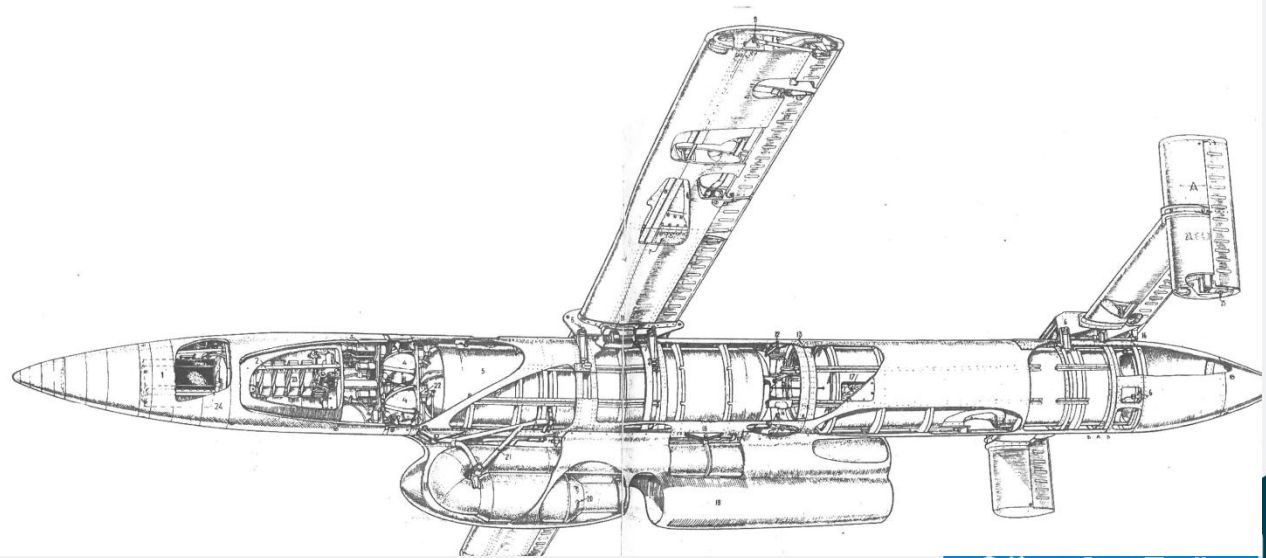
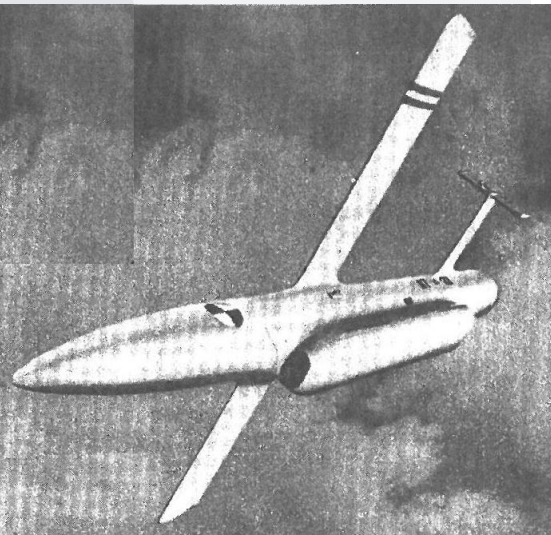




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# Unmanned aircraft 1956

## 'Aviolanda AT-21'



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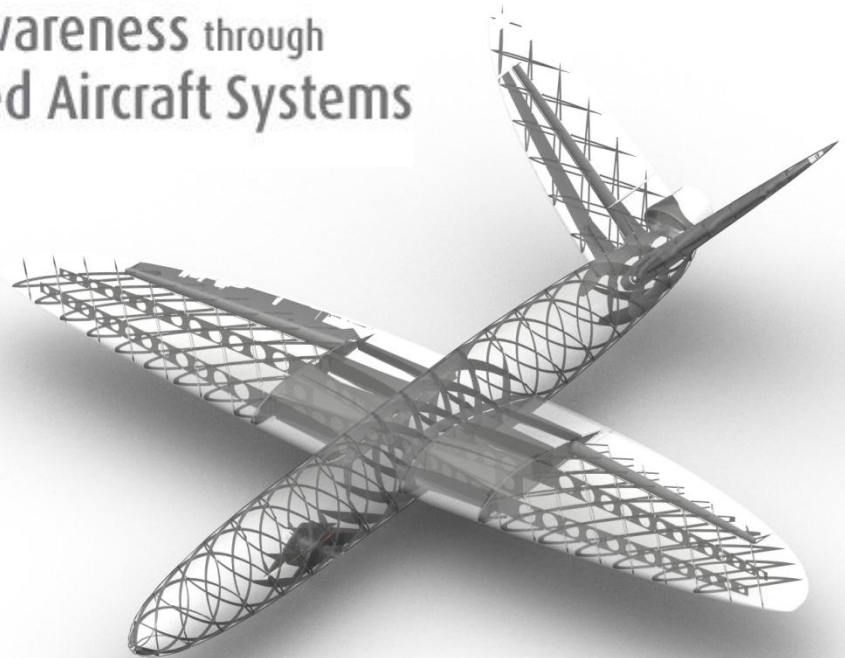


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# Unmanned aircraft 2012



Integrated Coastal Zone Management via  
Increased Situational Awareness through  
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# Integrated Coastal Zone Management via Increased Situational Awareness through Innovations on Unmanned Aircraft Systems

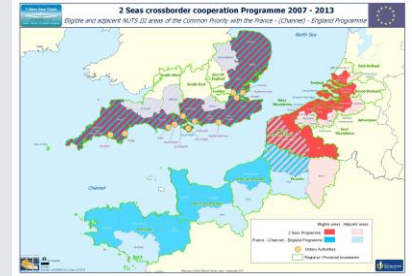
## Thank you all for your attention!



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# Gianluca Ferreri

- 2Seas Joint Technical Secretariat
  - INTERREG IV A 2 Seas Programme
  - An introduction and a bridge to the future





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# Gianluca Ferreri

- Local ppt



Woensdrecht, The Netherlands 21st June 2012



**NOTIFICATION OF THE INTERREG IVA 2SEAS PROGRAMME  
STEERING COMMITTEE – 9TH CALL FOR PROPOSAL –  
PROJECT 09-004-3I**

Evaluation of the Interreg IVA 2 Seas Programme Steering Committee on the 17<sup>th</sup> of April 2012, by Jan Willem van Wijngaarden, Ministry of Economic Affairs, Agriculture & Innovation



Ministerie van Economische Zaken,  
Landbouw en Innovatie





Woensdrecht, The Netherlands 21st June 2012



## NOTIFICATION OF THE INTERREG IVA 2Seas PROGRAMME STEERING COMMITTEE – 9TH CALL FOR PROPOSAL – PROJECT 09-004-3I



The project 3i – Integrated Coastal Zone Management via Increased situational awareness through Innovations on Unmanned Aircraft Systems - is approved by the steering committee on 17th April 2012.

The eligible costs incurred during the implementation of the 3i project will be reimbursed by the Interreg IVA 2 Seas Programme up to a maximum:

# € 1.854.571,=

from the European Regional Development Fund (ERDF)





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# Stefan van Seters

- REWIN
  - Introduction 3i project: Origin, goals, partners, activities, planning





# Origin of 3i project

- Roadmap Aviolanda-Woensdrecht (2009)
- Workshops REWIN & WCM (2010)
- Set up of Joint Industry Project funded by Ministry of Economic Affairs & Provinces Brabant and Zeeland ('UAS Maintenance Valley') (2011)
- Contacts of REWIN with Dutch national UAV user groups: (2011)
- >> Need for European cooperation
- >> Start of 2Seas project development (2011)



# Important goals development 3i project

- Accelerate the European UAV knowlegde
- Gain practical knowlegde on UAV operations for end-users
- Develop the UAV business opportunities for European SME
- Create open platform for research and for open communication/publicity



# Joint project development & Partner search

- With common interest and right knowlegde:
  1. Rewin > Police Rotterdam
  2. Police Rotterdam > Police Kent
  3. Police Kent > Rewin
  4. Rewin > TU Delft
  5. Rewin > Port of Rotterdam
  6. Police Kent > University of Southampton
  7. TU Delft > Telecom Bretagne
  8. Telecom Bretagne > TBI & ENSTA & Deev
  9. Rewin > AM&TS
  10. AM&TS > D&MS



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# Final: Project partners & supporting partners



Delft  
University of  
Technology



Aircraft Maintenance  
& Training School  
Case Part 147-ML, 142, 217A



ENSTA  
Bretagne



Kent  
Police



World Class Aviation Academy



TECHNOPÔLE  
BREST-IROISE



vts Politie Nederland



Business Park  
Aviolanda  
Woensdrecht



Aviolanda  
woensdrecht

2 Mers Seas Zeeën

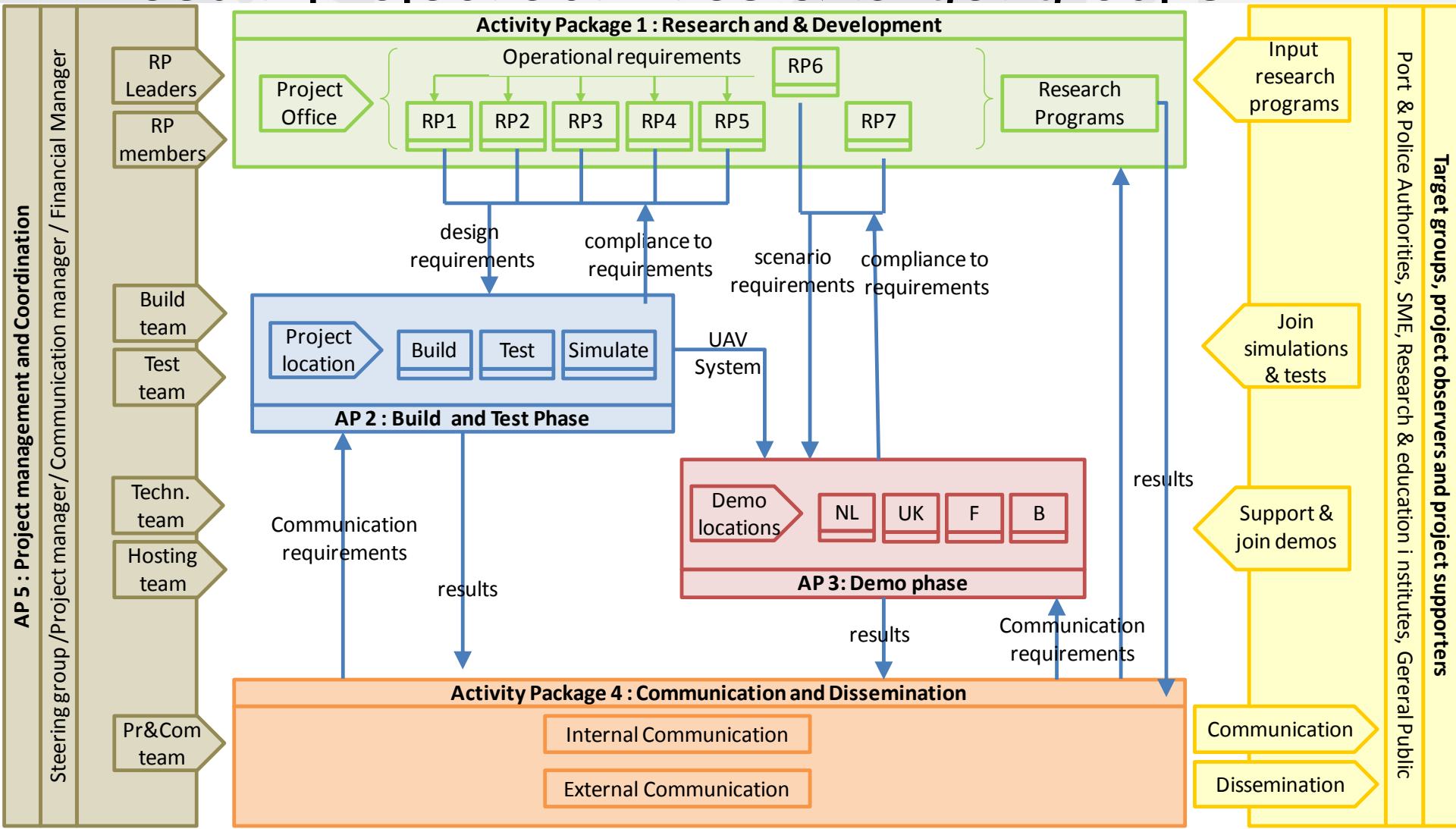
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# Result: project activities & target groups





# Project Planning

Activity	2012-1	2012-2	2013-1	2013-2	2014-1	2014-2
<u>Activity 1:</u> <b>Research &amp; development</b>						
<u>Activity 2:</u> <b>Build and test</b>						
<u>Activity 3:</u> <b>Demonstrations</b>						
Project Management & coordination						
Communication & Dissemination						



# Integrated Coastal Zone Management via Increased Situational Awareness through Innovations on Unmanned Aircraft Systems

## Thank you all for your attention!



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# Jan Gardeitchik

- Port Of Rotterdam
  - Security issues in World Port of Rotterdam and approach area of Channel & North Sea





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# Jan Gardeitchik

- Local ppt





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# Max Mulder

- Delft University of Technology
  - Research & Development at the TU Delft and  
Overview of Dutch participation in 3i





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# Max Mulder

- Local ppt



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# Bart Remes

- Delft University of Technology
  - Demonstration of Unmanned Aircraft System





## Bart Remes – TU Delft

- [http://prezi.com/oj9puwlqp7cx/mavlab/?auth\\_key=2cc853f659bae24208f20f559c80b7fd976e4021](http://prezi.com/oj9puwlqp7cx/mavlab/?auth_key=2cc853f659bae24208f20f559c80b7fd976e4021)





# Integrated Coastal Zone Management via Increased Situational Awareness through Innovations on Unmanned Aircraft Systems

Thank you all for your attention and  
you are invited for coffee/thee and  
the 3i info market!



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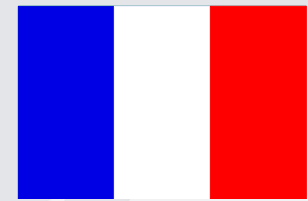
# Gilles Coppin

- Telecom Bretagne
  - Overview of French participation in 3i






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# Overview of French participation in 3i



TECHNOPÔLE  
BREST-IROISE

**Main contributions:**

- Coordination of local partners
- Input scenario research
- Hosting demos



[WWW.TECH-BREST-IROISE.FR](http://WWW.TECH-BREST-IROISE.FR)



TELECOM  
Bretagne

**Main contributions:**

- Design man-machine interfaces
- Data communication systems



[WWW.TELECOM-BRETAGNE.EU](http://WWW.TELECOM-BRETAGNE.EU)





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# Overview of French participation in 3i



**Main contributions:**

- Man-Machine Interaction
- Multi touch Interface Design



[WWW.DEEV-INTERACTION.COM](http://WWW.DEEV-INTERACTION.COM)



**Main contributions:**

- Research on Autopilot algorithms
- HWIL (Hardware in the Loop) simulations



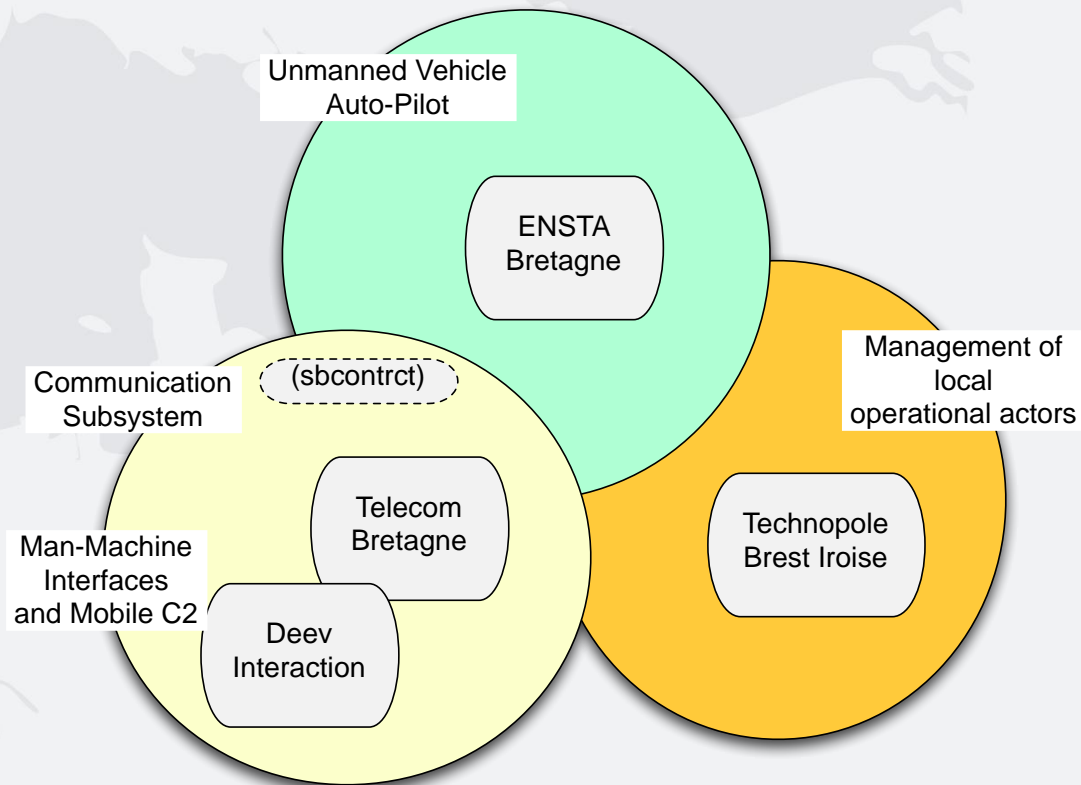
[WWW.ENSTA-BRETAGNE.FR](http://WWW.ENSTA-BRETAGNE.FR)







# French Partners positioning





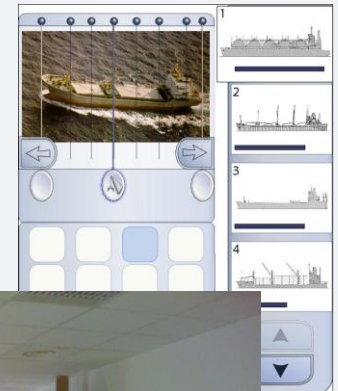
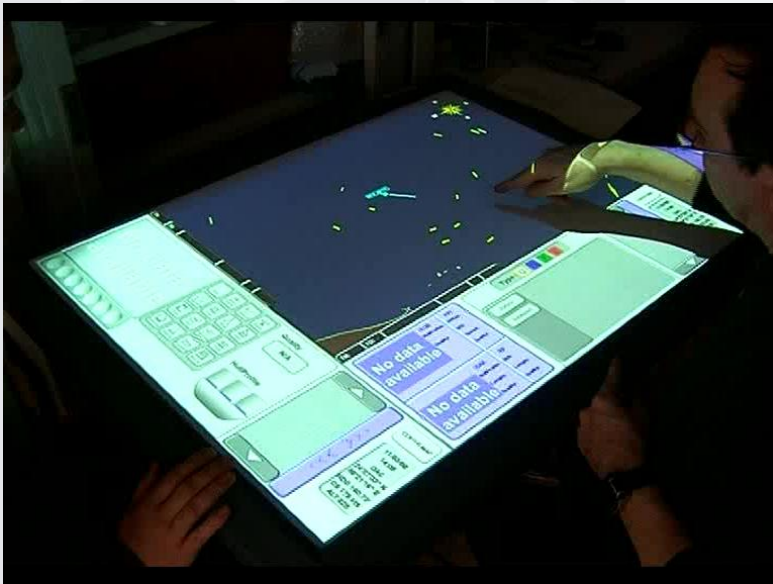
# Telecom Bretagne

- French « Grande Ecole » specialized in IT
  - Digital communications
  - Mission systems
  - Advanced man-machine interaction
- Expertise in Maritime Surveillance
  - ATOL – joint lab with Thales on Maritime Surveillance



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# Telecom Bretagne





# Deev Interaction

- Spin-off of Telecom Bretagne
- Design and Evaluation of innovative interaction systems
- Specialized in multitouch digital tabletop interaction
- Expertise in Command & Control





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# Deev Interaction



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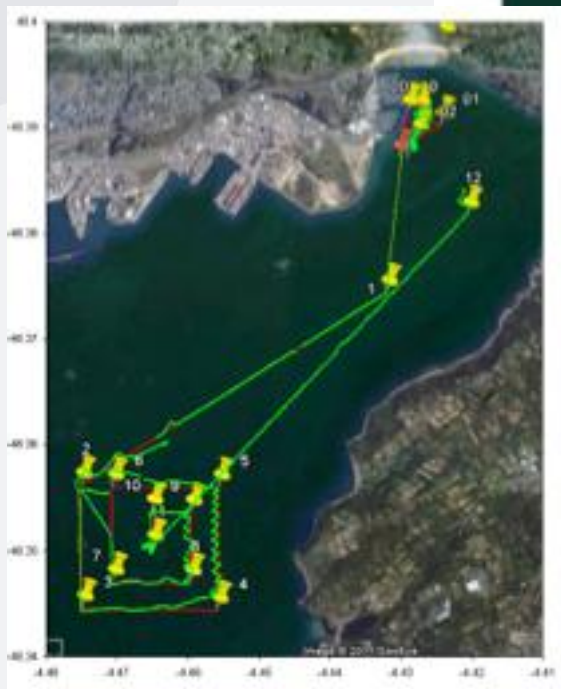
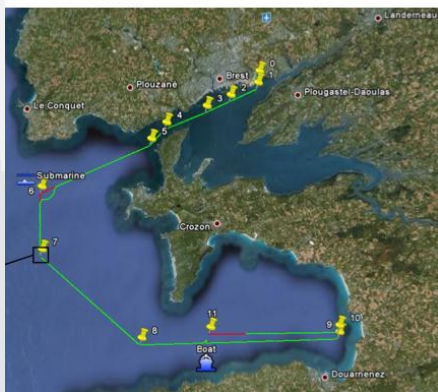
## ENSTA Bretagne

- French « Grande Ecole » specialized in military systems and robotics
- Expert in control theory and robust guidance algorithms and embedded systems
- French main contributor to autopilot techniques



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# ENSTA Bretagne





# Technopôle Brest Iroise

- Industrial, technical and scientific facilitator in Brest and West Brittany area
- ICT and bio-marine activities
- Unmanned robotics and UV





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# Technopôle Brest Iroise





# Integrated Coastal Zone Management via Increased Situational Awareness through Innovations on Unmanned Aircraft Systems

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UNIVERSITY OF  
Southampton

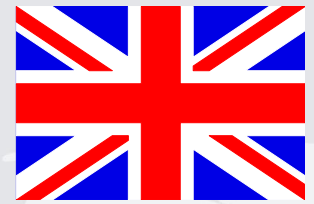
# James Scanlan

- University of Southampton
  - Overview of UK participation in 3i





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# Overview of UK participation in 3i:

**UNIVERSITY OF  
Southampton**

**Main contributions:**

- Scenario selection
- Design & build airframe
- Power plant selection



[WWW.SOUTHAMPTON.AC.UK](http://WWW.SOUTHAMPTON.AC.UK)

**Kent  
Police**

**Main contributions:**

- Maritime Safety scenario research
- Hosting demonstrations
- Communication results

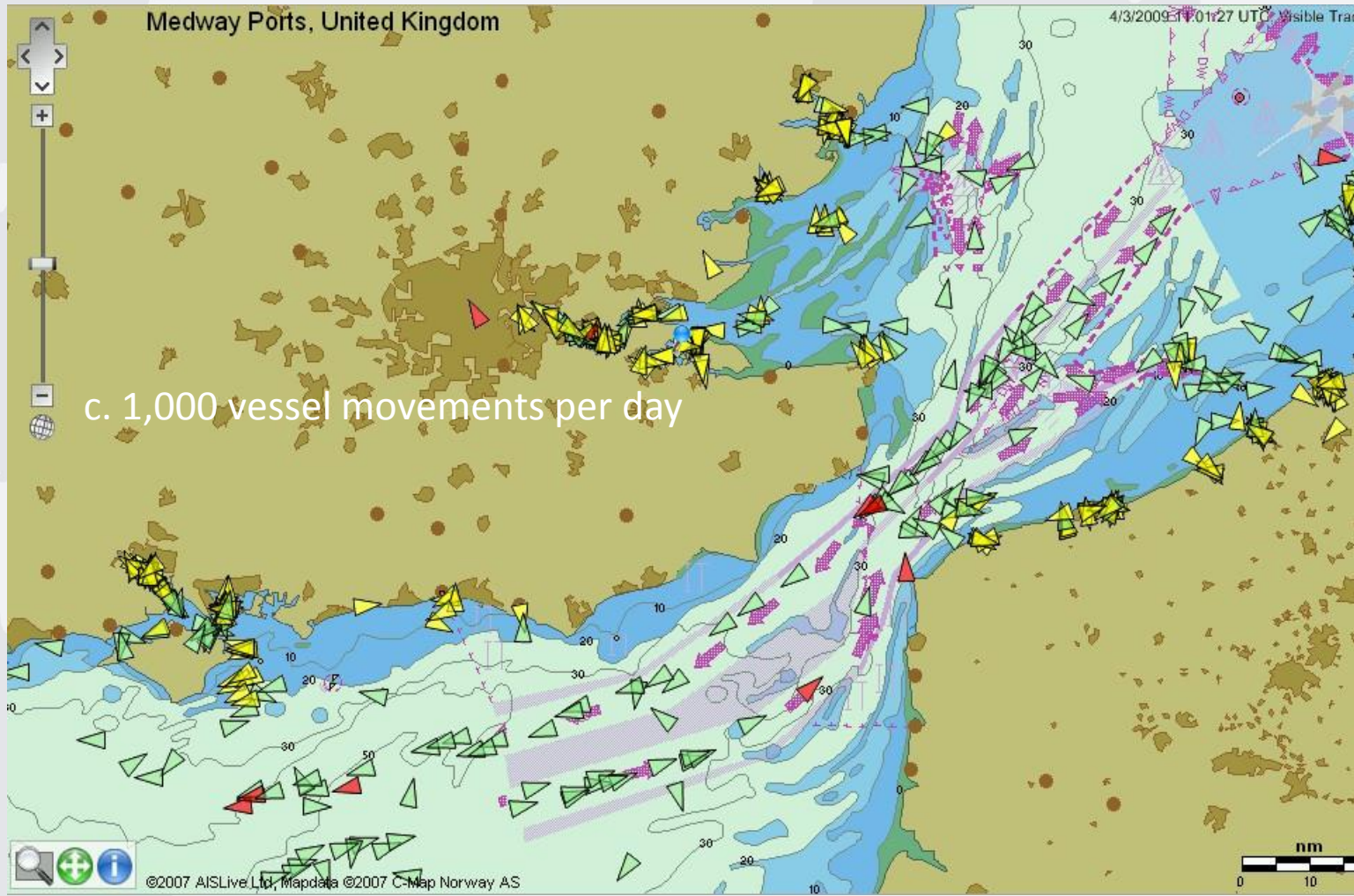
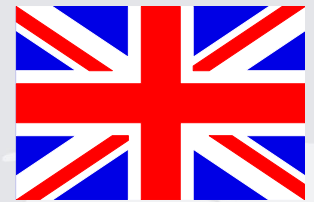


[WWW.KENT.POLICE.UK](http://WWW.KENT.POLICE.UK)





# Ports Policing - Maritime







# Integrated Coastal Zone Management via Increased Situational Awareness through Innovations on Unmanned Aircraft Systems

## 2Seas Project

### University of Southampton University

Prof Jim Scanlan, Marc Bolinches, Mario Ferraro



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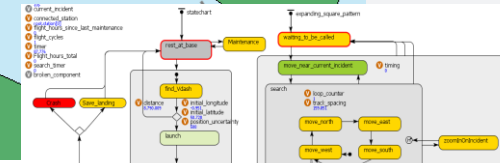
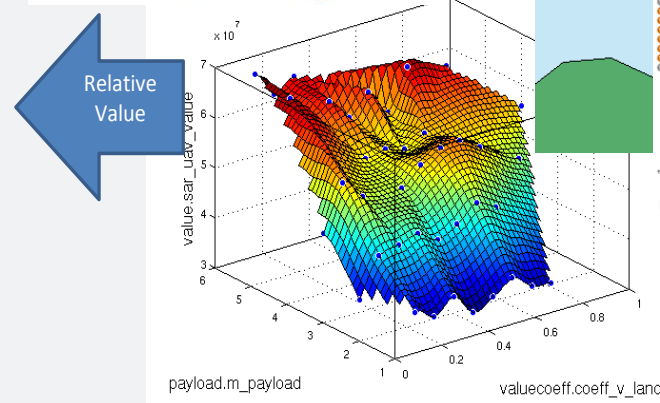
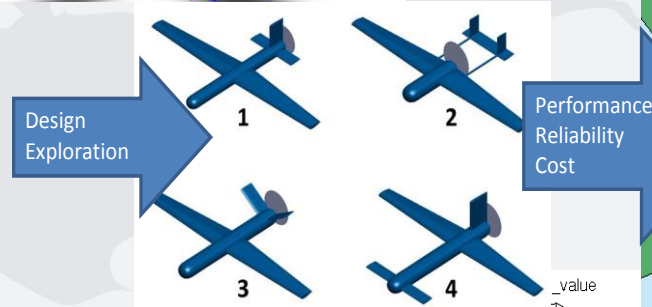
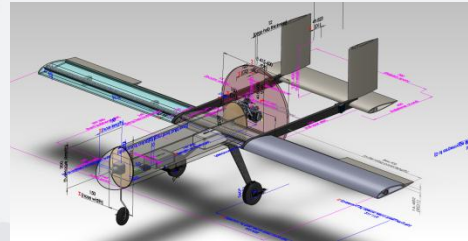
# Context

- DECODE (Decision Environment for COMplex DESign)



# Maritime Search and Rescue UAV

- “Value” assessment
- Concept through to performance prediction using high and low fidelity analysis (CFD, FE etc)



# Experience of Rapid Prototyping

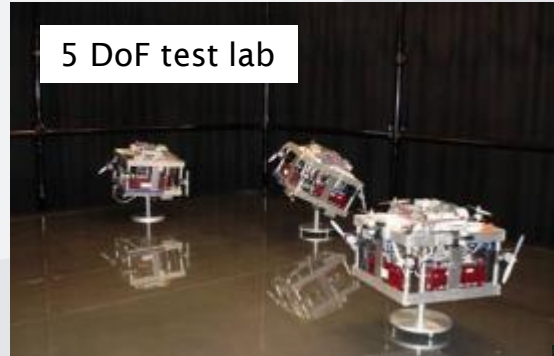




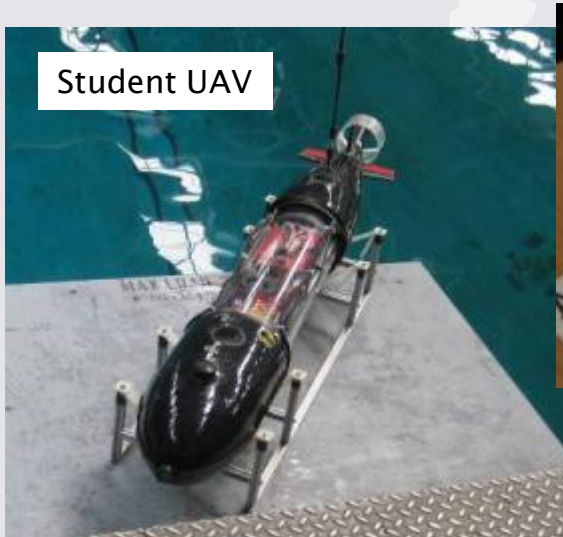
# Other University Unmanned Technology



Autosub



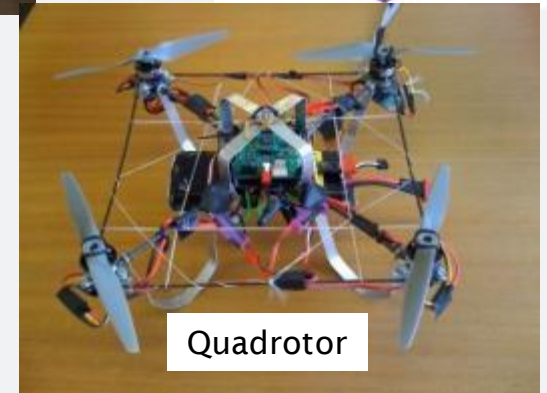
5 DoF test lab



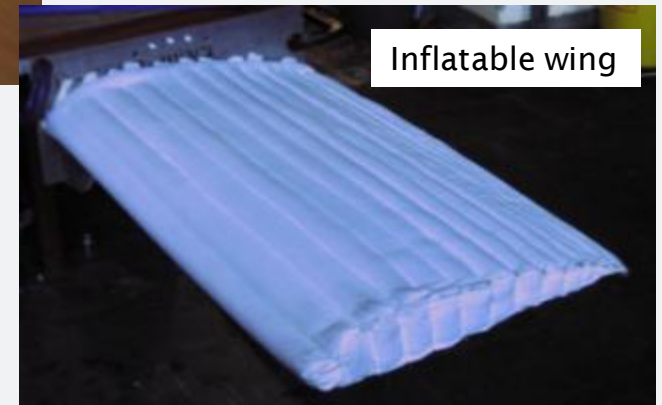
Student UAV



Autopilot



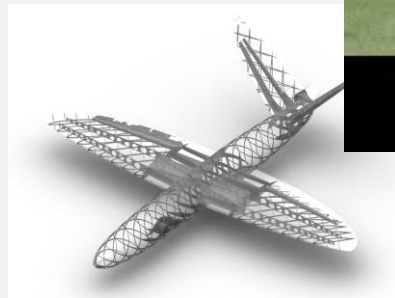
Quadrotor



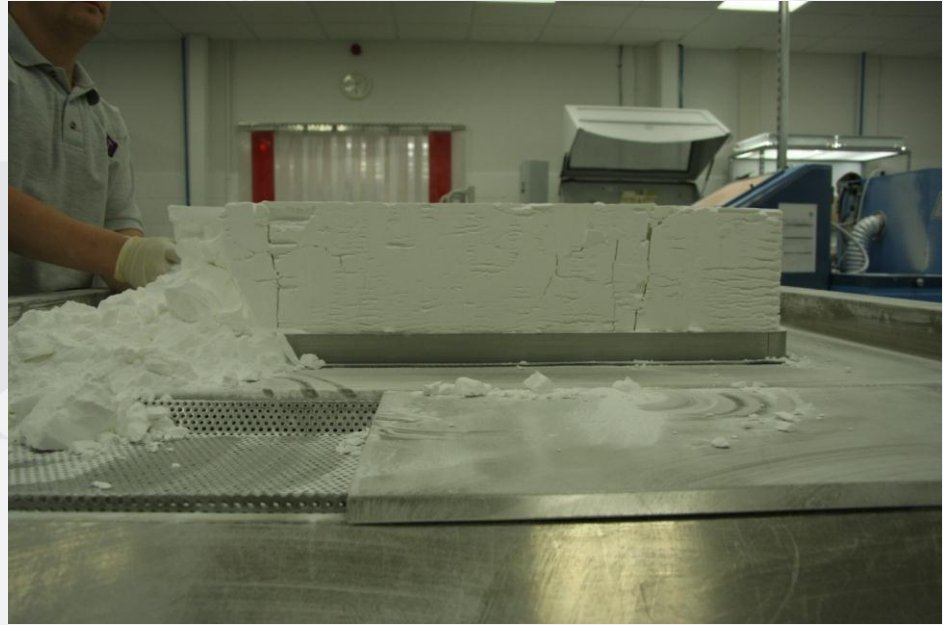
Inflatable wing



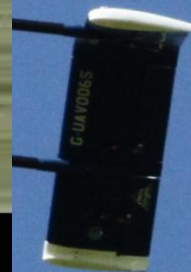
# Sulsa (Southampton University Laser Sintered Aircraft) Overview



# Hinges and moving parts printed in place



# Finally; BBC aircraft!







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## Thank you all for your attention!



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# Opening Project Office







## Why a 3i project office?

- Joint research on maritime unmanned aircraft (UAV) applications and UAV technology
- Joint Building and Testing of the prototype UAV System.





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# Welcome to the project partners:

Project partner	Persons present today
Technische Universiteit Delft	Erik Jan van Kampen & Bart Remes
ROC West Brabant /AM&TS	Willem Braat
Digital & Media Solutions	Jan Derksen
Ensta Bretagne	Benoit Clement
Kent Police	Andrew Little
Politie Rotterdam Rijnmond	Paul de Kruijf
Technopôle Brest-Iroise	Jeremie Bazin
Havenbedrijf Rotterdam	Reinout Gunst
Rewin	Stefan van Seters
Telecom Bretagne & Deev Interaction SAS	Gilles Coppin
University of Southampton	James Scanlan & Team



# Special UAV Mission



GCS

Nav Maps Help Mentor

WGS84 51.441937 4.329319 0.44



**Mentor**

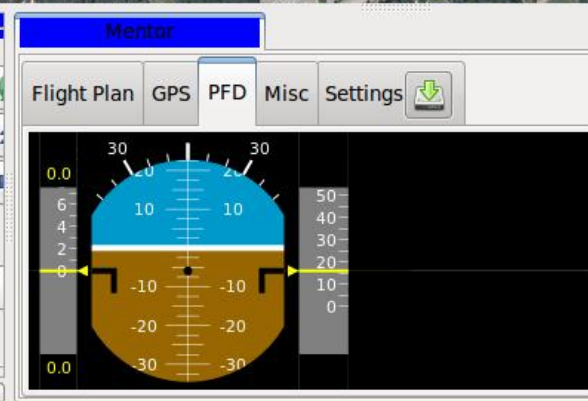
00:00:00 0.0m/s 0% Holding point Nav

Bat	Status	AGL	Block
12.5	AUTO2	0	00:47
	NONE	+0.0	00:46
			ETA N/A

Link 3D /Target Alt -34m 16m / 50m

Mark

TE



10:27:44 Mentor, Geo init  
10:27:44 Mentor, UNK  
10:27:45 Mentor, mayday, kill mode  
10:27:49 Mentor, AUTO2  
10:27:53 Mentor, Select Touchdown Point  
10:27:54 Mentor, Holding point

Mission: Open Project office

Start





# Integrated Coastal Zone Management via Increased Situational Awareness through Innovations on Unmanned Aircraft Systems

Thank you all for your attention  
Please enjoy the lunch and info  
market!



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# Wrap-up morning, Start afternoon program





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# Speakers Afternoon Program

Subject	Person
Aviation & maintenance park Aviolanda Woensdrecht & Video	Business Park Aviolanda -Rob Sturm
Launch of Dutch UAV project “Unmanned Aircraft Systems Maintenance Valley”	Fokker Services – Marc Huyzer
Example of UAV applications in The Netherlands	KLPD - Gerard ter Buuren
Interactive workshop: Initiate new projects on UAV applications and UAV technology-innovations	In2Nova - Rob van Nieuwland & Innovatie fabriek – Henk van Dijk

Subject	Person
Site visit 3i-partner Digital & Media Solutions BV	D&MS- Jan Derksen & International guests
Boat trip on the ‘Nieuwe Maze’ in Rotterdam harbor + diner	Port of Rotterdam & International guests





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# Rob Sturm

- Business Park Aviolanda BV
  - Business development at Aviation & maintenance park Aviolanda Woensdrecht





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# Rob Sturm

- Local ppt





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# Marc Huyzer

- Fokker Services BV
  - Launch of Dutch UAV project “Unmanned Aircraft Systems Maintenance Valley”





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# UAS Maintenance Valley

“Pieken in de Delta”

Thursday 21 June 2012

Marc Huyzer



# Agenda

- Project goals
- Project Structure
- Partners
- Planning



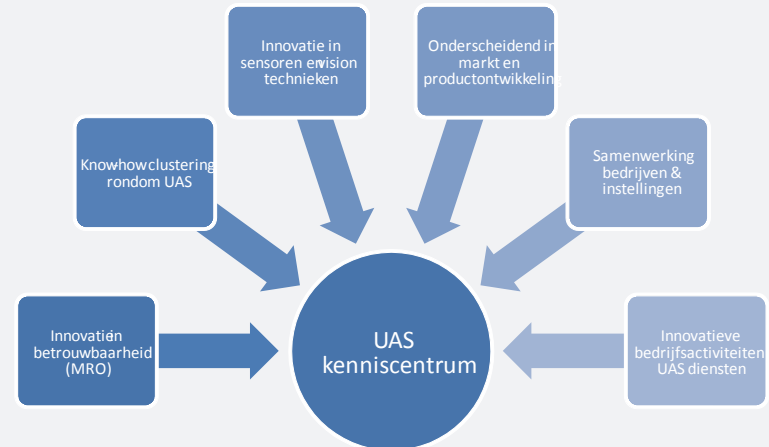
# Project Goals

- Acceleration UAS development in the Netherlands
  - UAS Knowledge Centre
  - UAS Innovation
- Yearly UAS Roadmap
- Independent continuation after project



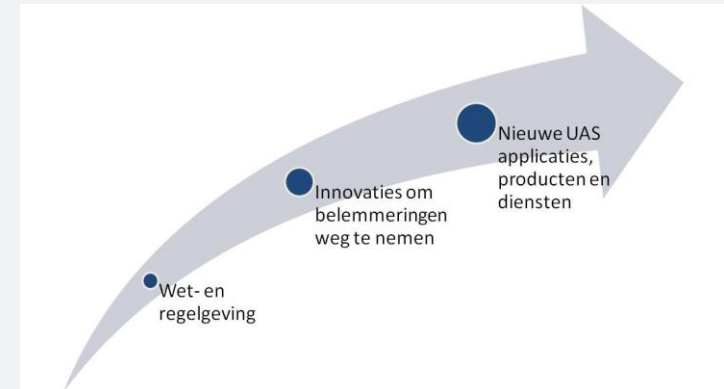
# UAS Knowledge Centre Woensdrecht

- Channel information to and from UAS community
- Contributions from partners
- Vision development: NL UAS Roadmap
- Projects foreground knowledge sharing
- Creating awareness
- Advise
- Demonstrate
- Initiation of new projects
- Evaluation of innovations



# UAS Innovation Woensdrecht

- Feasibility studies innovative technologies  
“which technologies to improve?”
- Research on innovative technologies
- Prototyping/testing/certifying



# Target groups

- (High) Tech
- End-users
- Authorities



# Partners & Participants

- 50 partners and participants
- Core team
  - DIWCM – Project Coordinator
  - Rewin
  - In2Nova
  - Fokker – Project Management





# UAS Maintenance Valley Planning

- Kick-off UAS Event – June 28<sup>th</sup> 2012
- September 2012
  - Frozen scope of projects
- Duration Project
  - September 2012 – December 2014
- Point of contact
  - DIWCM – Kees van der Hoop
  - Fokker – Marc Huyzer



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## Thank you all for your attention!



**“Investing in your future”**

Crossborder cooperation programme

2007-2013 Part-financed by the European Union  
(European Regional Development Fund)



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# Gerard ter Buuren

- Korps Landelijke Politiediensten
  - Example of UAV applications in The Netherlands





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# Gerard ter Buuren

- Local ppt



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Innovations on Unmanned Aircraft Systems



# Program

Time	Subject
10.00 -11.30	<b>3i Guest Speakers, Approval ceremony , Demonstration</b>
11.30-11.45	Coffee Break + 3i poster presentation
11.50-12.45	<b>3i Guest Speakers, Opening ceremony</b>
12.45-13.15	Lunch + 3i poster presentation
13.30-14.45	<b>UAV Guest Speakers</b>
14.45-15.00	Refreshment break & Info market
15.00-16.00	<b>Interactive workshop</b>
16.00-18.00	Info market, drinks and informal meeting
18.00	End of Kick-off Event
15.15-20.00	<b><i>Site Visit D&amp;MS &amp; Boat Tour Port of Rotterdam</i></b>





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I



II

# Evening Programs

Subject	Person
Interactive workshop: Initiate new projects on UAV applications and UAV technology-innovations	In2Nova - Rob van Nieuwland & Innovatie fabriek – Henk van Dijk
Info market, drinks and informal meeting	

I

Subject	Person
Trip to Oud-Gastel (0:26 min)	VIP & International guests
Site visit 3i-partner Digital & Media Solutions BV (factory tour 3x15 persons)	D&MS- Jan Derksen, VIP & International guests
Trip to Port of Rotterdam (0:41 min)	International guests
Boat trip on the 'Nieuwe Maze' in Rotterdam harbor + diner (55 persons)	Port of Rotterdam & VIP& International guests
Trip back to Hoogerheide (0:59 min)	International guests

II





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# Interactive workshop by:



Henk van Dijk



Rob van Nieuwland





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# Henk van Dijk

- Local ppt



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# UAS Maintenance Valley (Pieken in de Delta)

Two sub programs:

## UAS Centre of Expertise, Woensdrecht

- Channel information to and from UAS community
- Contributions from partners
- Vision development: NL UAS Roadmap
- Projects foreground knowledge sharing
- Creating awareness
- Advise
- Demonstrate
- Initiation of new projects
- Evaluation of innovations

## UAS Innovation Projects

- Feasibility studies innovative technologies  
“which technologies to improve?”
- Research on innovative technologies
- Prototyping/testing/certifying





# Inspiring notes workshop!

- Class 1 use only
- Expansion to Class 2
- Development of Acceptable Means of Compliance
- Development of Safety Management System Light for UAS
- Your contribute to UAS expert centre
- Expansion flight endurance (fuel cells)
- Creation Qualified Entity UAS
- Mission preparation
- Sense, detect and avoid (sensors/transponders)
- New applications/payloads





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de iNNOVATIEFABRIEK

# Conclusions and further actions

2 Mers Seas Zeeën

INTERREG IV A

FRANCE - ENGLAND - VLAANDEREN - NEDERLAND



# Program

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Gemeente **Woensdrecht**

# Anton van der Wijst

Day ending & invitation to reception, on behalf of:

**TU Delft** Delft University of Technology



**D&M**

**Deev**  
Interaction

**TELECOM**  
Bretagne

UNIVERSITY OF  
**Southampton**

**ENSTA**  
Bretagne



**POLITIE**

**REWIN**  
PROJECTEN BV

Gemeente **Woensdrecht**

**World Class Aviation Academy**

**TECHNOPÔLE**  
BREST-IROISE



**REWIN**  
WEST-BRABANT

**POLITIE**  
vts Politie Nederland

**Business Park**  
**Aviolanda**  
Woensdrecht

**Aviolanda**  
woensdrecht



# Integrated Coastal Zone Management via Increased Situational Awareness through Innovations on Unmanned Aircraft Systems

Thank you all for your presence!  
Hope to see you back in further  
meetings!



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