Digital Ship Hamburg 2015
Hamburg, Germany
19th March 2015

Rainer Droste, M.Sc.
OFFIS - Institute for Information Technology
2 Motivation

- eMIR implements the German demonstrator for civil maritime technologies and is the reference implementation of the NMMT working group Civil Maritime Technologies

- eMIR is an initiative of the German maritime industry for
  - Improving safety and efficiency in maritime transport
    - Avoiding groundings/collisions/...
  - Better monitoring and integration of environmental aspects
  - Improving logistical aspects of the maritime transport chain
  - Development of new e-Navigation/e-Maritime technologies and products
    - Rapid prototyping in simulation environments
    - Testing and demonstration in real environments
3 eMIR - Overview
4 eMIR Structure as a Living Lab

eMIR Testbed Services

**HAGGIS**
- System modelling, analysis and validation
- Traffic simulation
- n-Body simulation
- sensor Simulation

**LABSKAUS**
- Experimental traffic management
- Mobile bridge
- Mobile traffic monitoring
- Reference waterway
- Research harbour

**Research Port Rostock**
- Positioning technologies
- Maritime simulation centre

International integration & cooperation

More initiatives
5 Research Port Rostock

- Maritimes Ground Based Augmentation System (DLR)
- Real-time plausibility check of AIS Data (DLR)
- SEA-GATE (RST-EADS / HERO)
- MSCW Maritime Simulation Centre Warnemünde at the Department of Maritime, Wismar University (HSW)
- ISSIMS - Institute for Innovative Ship Simulation and Maritime Systems
LABKAUS is a physical test-bed for


The platform is used for

- Testing of concepts and software systems
- R&D
- Demonstration
- Scientific grounding
HAGGIS is a platform for

**co-simulated verification of safety and efficiency of transport systems.**

The platform is used for

- Testing of concepts and software systems
- Optimization regarding factors like performance and risks of shipping lanes
- Analysis of the occurrence of rare events
- Error induction e.g. sensors failures
- Model validation
8 Implementation Approach based on eMIR

Implementation and assessment based on a virtual co-simulation environment

Simulation in HAGGIS

Sea Trials in LABSKAUS

and assessment based on a physical testbed

Development Process for new e-Navigation Technologies
9 Decentralized Organization

- Building up eMIR Testbed Services by projects (industry and research)
- Usage of eMIR Testbed Services within projects
- Providing project results within eMIR after project ends
- Strategic control via steering board and management board
- Alignment of project ecosystem
European Impact

- Usage of eMIR Testbed Services around Europe
- Development of new e-Maritime services based on eMIR around Europe
11 European Vision
eMIR will promote
- connections to international testbeds
- flagship projects, demonstrations, reference projects

eMIR will strengthen research and development of new e-Maritime technologies

eMIR will support
- export of new technologies and market development

eMIR will be a platform for
- system integration and strategic partnerships
13 Vision

- cooperation with German maritime industry
- cooperation with international maritime industry and testbeds
- cooperation with German maritime research institutes
- cooperation with international research institutes
Rainer Droste, M.Sc.
rainer.droste@offis.de

OFFIS
Institute for Information Technology
R&D Division Transportation
Escherweg 2
26121 Oldenburg
Germany

To contact the eMIR team:
Prof. Dr.-Ing. Axel Hahn

web: http://www.emaritime.de
email: emir@emaritime.de
phone: +49 441 798 4480