



Maritime Europe Strategy Action

E-LASS – MESA Workshop
Lightweight Structures in the maritime Industries
Boras, 8-9 Oct. 2013

Existing Networks and their Role
**CMT Network and Joint Industry Projects in
Germany**

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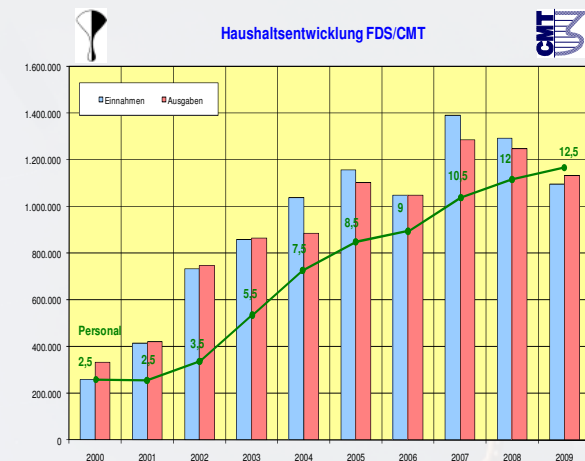


History and Development:

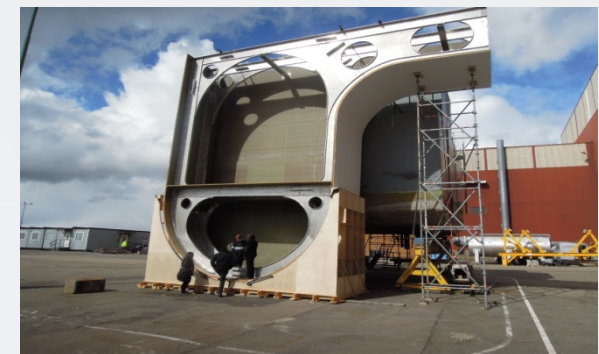
- Successor of **Forschungszentrum des Deutschen Schiffbaus (FDS)** – founded 1965;
- **CMT founded in June 2003** as a joint initiative of industry, research and the German administration
 - strong focus on Europe (75..80% turnover);
 - all maritime sectors (shipbuilding, shipping, offshore);
 - own research activities in strategic fields.
- ca. **13+ employees, ca. 1.3 Mio € turnover** (2012)
use of resources from network

Services for Members:

- **contact point** for innovative ideas and technical questions;
- **Information** on RDI funding programmes, projects and competences;
- **strategy development** and **political support** in Germany and Europe;
- **R&D network** and joint development of **competences**;
- **technology transfer** and **application of R&D results**;
- own resources for **contract research** and development.



- Unique combination of a **none profit association** and a **research centre**
- **Association:**
 - **Services to members** financed through member fees and income from commercial services;
 - Definition and support for **EU RTD**; Facilitation of **Joint Industry Research** Program; Information around **maritime RTD**.
 - Added value for CMT members:
 - . Experience **across funding programmes**
 - . broad **technical overview**
 - . extensive Europe-wide **network**
 - . Centralized **administrative skills and services**
- **Research Centre:**
 - Following own **strategic agenda** elaborated with members;
 - Using **external network** of labs and industry to conduct research





Center of Maritime Technologies e. V.

Members:

- Total of **85 Members**
- **38** Universities, Associations and Public Bodies
- **47** Companies:
Yards, suppliers and service providers, operators

Bodies:

Directors: Dr. A. Nürnberg (HATLAPA)
Prof. R. Bronsart (Uni HRO)

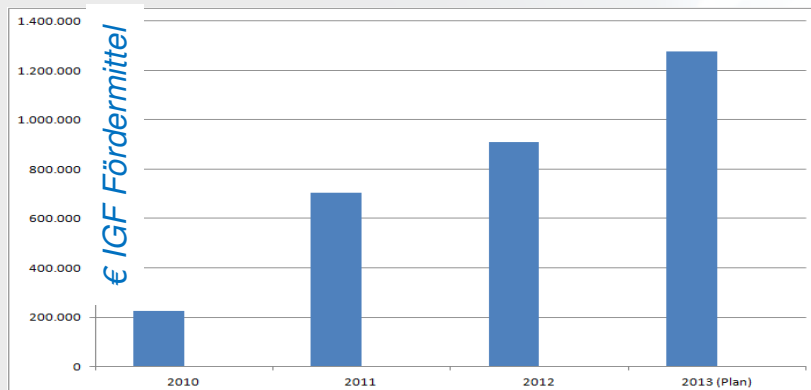
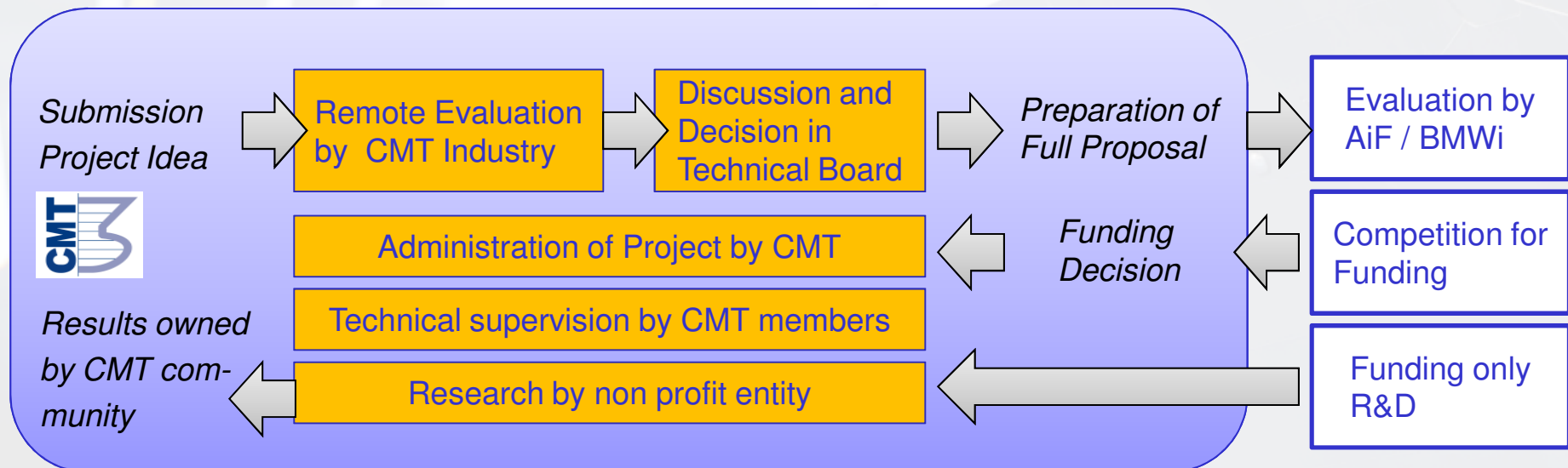
Board: 11 members

TWA: 29 members

General Assembly



... open for German and European members



	2010	2011	2012	2013*
Number projects	7	11	15	11
Funding [k€]	226	705	910	1.278

- smart, industry driven, small projects;
- 75% of CMT members in project boards;
- specifically dedicated to small and medium enterprises;
 - strong focus on production and materials;
 - average volume + 500 k€, duration 2 years;
 - totally > 300 research reports;
 - increasing focus on usable results;
- How can results be used beyond CMT community ?

“Standardisation of highly elastic steel aluminum and FRP-steel bonded joints for shipbuilding”

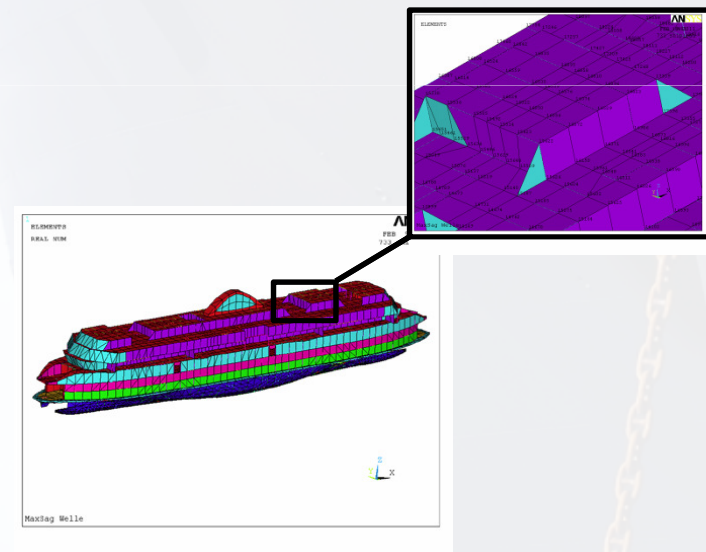
Research institute: Fraunhofer IFAM, Bremen (Dr. Brede) and CMT

Duration: 01.11.2010 - 31.05.2014

Problem: Procedures for qualification of adhesive joints in ships are known (e.g. BONDSHIP) but still require a time consuming and complicated case-by-case approach, which withstands a wider application by smaller companies.

Procedure: Tests under typical **environmental** and **loading** conditions accompanied by calculations for standard joints between aluminum and steel. Discussion with class societies. Establishment of a **data base of pre-approved joints and procedures** available for industry.

Results: Procedures and information to be recorded identified and data base structure set up. **Data base** in the process to be filled and tested by users. Process models and data base intended to be used in other projects within the **CMT frame**. **Time to market** for adhesive joints thus drastically reduced, especially for SMEs.



“Structural behaviour of large windows on board of ships”

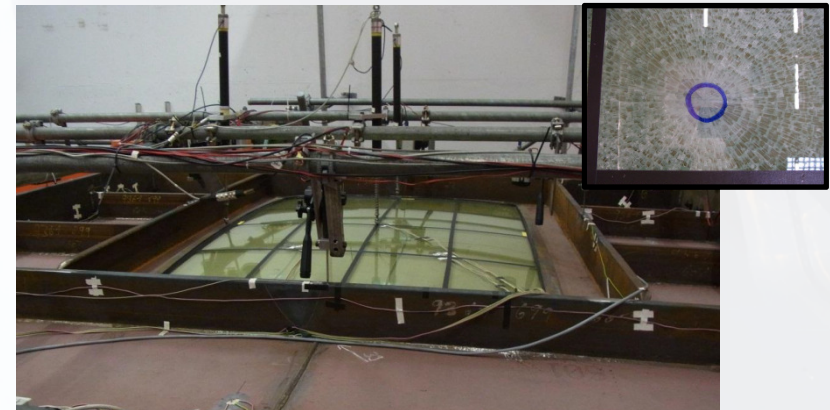
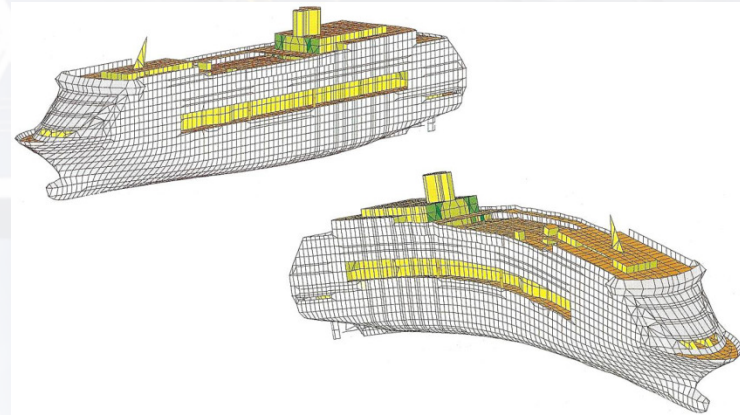
Leading research institute: Technical University Hamburg-Harburg (Prof. Fricke)

Duration: 01.11.2010 - 28.02.2013

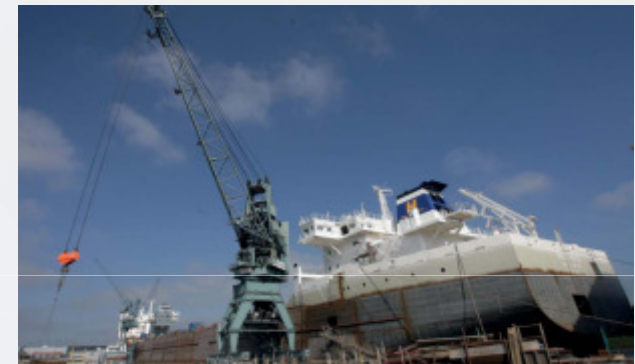
Problem: Large windows are used in passenger vessels and mega-yachts to an increasing extent with **limited knowledge** about their contribution in the **global structural strength**

Procedure: the **load carrying behaviour** under lateral pressure as well as the **structural behaviour** under shear load was investigated **experimentally and numerically in original scale**.














Results: Measures to effectively increase the **ultimate strength of ship windows** and development of **procedures** for the determination of the contribution of glass windows to the **stiffness of the ship structure** with respect to class and industry requirements.



- Research is following a **Strategic Agenda** which is regularly updated together with our members;
- **Engineering services** for members and **European** companies within and outside funded R&D projects;
- **Proposal preparation** and **project management** of national, EU and private projects for industry;
- Since 2002:
 - ca. 50 involvements in funded RTD Projects;
 - ca. 45 direct industry contracts;
 - ca. 40+ German Joint Industry Projects (SME).
- Main **Fields of Expertise**:
 - **Production** and **shipyard organization**;
 - **Lightweight structures** (metallic and composite) and new materials;
 - Ship concepts and **Life Cycle Performance** assessment (cost, environment, safety);
 - Onboard **energy management**, fuel cells;
 - Central **Design and Tool Platform**.covered with own expertise and through the CMT network.



Fotos: VSM

	Design of improved and competitive products using an integrated Decision Support System for ship production and operation (bis 09/2009)	
	BeKaS - Entwicklung neuer Technologien zur Herstellung beschichtungsgerechter Kanten im Schiffbau durch thermische Bearbeitungsverfahren (bis 12/2009)	
	Developing lightweight modules for transport systems featuring efficient production and lifecycle benefits at structural and functional integrity using risk based design (bis 01/2010)	
	MARSTRUCT - Network of Excellence on Marine Structures (bis 01/2010)	
	Innovative Concepts realized by advanced Design & Production to improve total efficiency of new generation Short Sea Shipping (bis 04/2010)	
	... Innovative and competitive Cargo Vessel Concept ... (LZ: 09/2009 – 04/2012)	
	Breakthrough in European Ship and Shipbuilding Technologies (LZ: 09/2009 – 02/2013) CMT: Life cycle Assessment, Laser Fatigue, Lightweight Materials, Laser Equipment, Ship Logistics, Project Management	

	ThroughLife - Development and proof of new approaches for through-life asset management based on next generation of materials and production technology (04/2011 – 03/2014)	
	Kleben - Standardisierung von elastischen Alu-Stahl und FVK-Stahl-Klebverbindungen für den Schiffbau (11/2010 – 12/2013)	
	MoveIT! – Modernisation of Vessels for Inland waterway freight Transport (11/2011 – 10/2014)	
	Adam4Eve – Adaptive and smart materials and structures for more efficient vessels (01/2013 – 12/2015)	
	Hilda – High Integrity Low Distortion Assembly Friction Stir Welding von Stahl (09/2012 – 08/2015)	
SMARTYards	Smart Technologies for Productivity Improvement of European Small and Medium Sized Shipyards	

- **Central and specific Information Platform:**
 - not just another generic RTD project data base;
 - including technical news (incl. from projects), Who is who, partner search, discussion
 - shared efforts to maintain data base independently from funded projects
- **Extending our Network:**
 - towards material suppliers and developers, other industry sectors, offshore, ship operators;
 - Synergies in conference and workshops (dissemination activities)
- **Joint Projects:**
 - beyond the „main stream“: regional (BalticSea), trans-national (MARNET, CORNET),
 - other EU priorities than transport (NMP),
 - group sponsored studies and smaller projects ?
- **Common views on (material) standards and (maritime) regulations ?**
- **„Jointly used R&D results“ ?**
 - catalogue of results with „terms of usage“ and contacts ?
 - common agreement on „favourable terms of use“ ?
- **Access shall be restricted based on contribution and within EU ?**

Thank you for your attention!

Questions and comments are welcome !

Complete lists, statistics and TTG03 preparatory documents at CMT



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