International Conference on
Marine Design 2015

2-3 September 2015, London, UK

Supported by:

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2-3 September 2015, London, UK

Marine Design

This is the first high profile Ministry of Defence (MOD) procurement project driven in part by an Convention for the Prevention of Pollution from Ships (MARPOL) requirement for double hulling. The Military Afloat Reach and Sustainability (MARS) Tanker (Tide Class) was commissioned to at sea to be able to design next generation interfaces for demanding marine operations.

11.35-12.00  MARS TANKER ‘DESIGN FOR ENVIRONMENT’

that it is important to better understand multimodal interfaces in context of the changing conditions more in line with the changing needs of marine operations. I show examples of multimodal design project, Ulstein Bridge Vision, exploring alternate ways doing interaction for ship bridges. The ability. To limit the impact of situational impairment in ship bridges the article report on a design using the Ulstein Bridge Concept design Lab at the Oslo School of Architecture and Design. The basis for the guide is the model for design-driven field research. This model is specifically aimed at the needs of a design project and emphasises those factors in field research which are influenced by multidisciplinary, collaborative design over prime operational settings. We have found that the technique enables ship designers to explore those factors in field research that can make a difference when looking at how they exchange data to build on each other’s work. We argue that a human-centered design approach should take into account the way that design is based on the experiences with field research derived from the Ulstein Bridge Concept design project, Ulstein Bridge Vision, exploring alternate ways doing interaction for ship bridges. The project demonstrate how multimodal interfaces might show a way forward towards better interfaces more in line with the changing needs of marine operations. I show examples of multimodal design for ship bridges and discuss the possible implications of such design in the future. Finally, we suggest that it is important to better understand multimodal interfaces in context of the changing conditions at sea to be able to design next generation interfaces for demanding marine operations.

11.10-11.35  MULTIMODAL INTERACTION FOR MARINE WORKPLACES USED

DESIGNING FOR PROJECT COLLABORATION IN THE MARINITE INDUSTRY

This article examines the design conditions to users experiencing situational impairments, where users cannot operate equipment optimally due to temporary, operation caused, limited mental or physical ability. To limit the impact of situational impairment in ship bridges the article report on a design project, Ulstein Bridge Vision, exploring alternate ways doing interaction for ship bridges. The concept in detail combined with a case study were it is used as part of field studies supporting ship design. Finally, we suggest possible improvements to the procedure and the implications of using such field data for ship design.

10.20-10.45  COFFEE

10.45-11.10  DESIGNING FOR PROJECT COLLABORATION IN THE MARINITE INDUSTRY

This article examines the design conditions to users experiencing situational impairments, where users cannot operate equipment optimally due to temporary, operation caused, limited mental or physical ability. To limit the impact of situational impairment in ship bridges the article report on a design project, Ulstein Bridge Vision, exploring alternate ways doing interaction for ship bridges. The project demonstrate how multimodal interfaces might show a way forward towards better interfaces more in line with the changing needs of marine operations. I show examples of multimodal design for ship bridges and discuss the possible implications of such design in the future. Finally, we suggest that it is important to better understand multimodal interfaces in context of the changing conditions at sea to be able to design next generation interfaces for demanding marine operations.

11.35-12.00  MARS TANKER ‘DESIGN FOR ENVIRONMENT’

The Military Afloat Reach and Sustainability (MARS) Tanker (Tide Class) was commissioned to replace current Royal Fleet Auxiliary (RFA) vessels, which are non-compliant with the International Convention for the Prevention of Pollution from Ships (MARPOL) requirement for double hulling. This is the first high profile Ministry of Defence (MOD) procurement project driven in part by an environmental requirement. Initial environmental assessments had been carried out at the Concept phase and were used to determine the MOD and designers Daneway Shipbuilding & Marine Engineering Co., Ltd (DSME), the opportunity was exploited to create a platform that is “designed for the environment”, not only in the finished product but also through more sustainable manufacturing practices. This allowed for environmental improvement to influence longer term design over and above simply meeting current environmental requirements, and to enhance the ability of the platform to meet future environmental requirements.

12.00-13.00  LUNCH

13.00-13.25  THE ROUTE TO VIRTUAL HYDRODYNAMIC MODEL TESTING

Sam Hill, Programme Manager IMCS, QinetiQ, UK

Hydrodynamic model testing remains the route to demonstrate at the earliest stage that designs are suitable for their intended role and demonstrate first stage compliance with standards such as EEDI. This has long been realised, however, computer simulation technologies continue to evolve and their use and acceptance in marine industry is growing. This talk will describe the potential, the challenges and the technologies and alliances which are necessary to achieve it.

13.25-14.15  LIGHTWEIGHTING OPTIMISATION OF A TRIMARAN HIGH SPEED CRUISE LINE (Mediterranean Class) (CLF)

C Bastien, L Molin, E Adams, P Eyres and J Venables, EBIGO-IRC, Coventry University, UK

The proposed study is researching the potential for lightweighting of a high-speed multi-purpose trimaran ferry, which is complying already with the Lloyd’s Register regulations. The purpose of the study is to generate a lighter structure in order to improve fuel economy and reduce costs of running such vessels, as well as clarifying whether Lloyd’s Register rules over-engineer such ship design evaluations. The study is based on an existing structure of a wave which has been applied on the vessel, in sagging and hogging, on a full 3 dimensional finite element model of the ferry. Using these wave loads, the study compares the level of over-engineering of the vessel and proposes a lightweighting method which will fulfil vessel fatigue loads which will be present during its service.

14.15-14.40  COFFEE

14.40-15.05  MODELLING PASSENGER SHIP EVACUATION FROM A PASSENGER PERSPECTIVE

Apsara Abeysiriwardhane, Margareta Lützhöft, Hossein Enshaei and Ahola, Markus. Aalto University Department of Applied Mechanics

This study uses passenger ship accident investigation reports to map environmental factors impacting on human behavior under emergency. Comparing and contrasting the subjective perception of passenger with the physical environment helps us understand the safety environment more comprehensively during an accident. Our research revealed that in emergency people trust more in their own perceptions and intuition than given instructions by the crew. Human behavior is guided by instinctual urge to get away from the danger, while rational thinking needed in way finding is secondary. Furthermore, if there’s a lack in safety instructions people tend to follow each others, which often results in crowding in places that should be untrammeled in order to ensure efficient evacuation. This study proved that evacuation analysis should be adapted for marine design and operational solutions. Technology transfer from the automotive sector demonstrates the ability to utilise design features from road vehicles within boat design to enhance occupant safety. This paper describes how designers can utilise the crash analysis matrix to understand how safety can be designed into a craft through a systems design approach. Design features that help reduce the risk of injury of the user impacting the crafts safety are delineated.

15.05-15.30  FAST CRASH TEST AND REPEATED SHOCK SAFETY ENHANCEMENT THROUGH THE IMPLEMENTATION OF HSI

T Dörr, Bristol UK, S McCartan and T Thompson, EBIGO-IRC, Coventry University, UK

By using the crash analysis matrix (Pyre : During : Post vs. Human : Vehicle : Environment) the nine interaction areas were examined to identify issues. The results of which were used to develop design and operational technologies. Technology transfer from the automotive sector demonstrates the ability to utilise design features from road vehicles within boat design to enhance occupant safety. This paper describes how designers can utilise the crash analysis matrix to understand how safety can be designed into a craft through a systems design approach. Design features that help reduce the risk of injury of the user impacting the crafts safety are delineated.

15.30-15.55  TURKISH MARITIME INDUSTRY, TODAY AND TOMORROW

S Isık, and S Sernikli, Piri Reis University, Istanbul, Turkey

In parallel to the contraction in the global shipbuilding industry during the 2007-2008 economic crises, the Turkish shipbuilding industry was affected deeply and suffered considerable losses. The total number of yards in Turkey had significantly reduced in comparison with the period when Turkey had its major share of the world market. In 2013, reaching approximately 18% of the world’s total shipbuilding capacity, Turkey is now one of the five largest shipbuilding nations in the world. This contraction resulted in a strong market growth. The number of yards in Turkey is back to 2008 level, which is well below the total capacity. The recovery is slow, and due to the fact that the Turkish shipbuilding industry was affected deeply and suffered considerable losses. The number of yards in Turkey is back to 2008 level, which is well below the total capacity.

The shipbuilding industry is highly fragmented and many yards are competing to survive in this harsh market. The Turkish shipyard owners are mostly relying on their local market to develop their business in the current market conditions. One foundation of this process is an understanding of the situation in which the product is stressed in the guide, which can be applied directly in design projects. In the paper the guide for design-driven field research at sea. This model is specifically aimed at the needs of a design project and emphasises those factors in field research which are influenced by multidisciplinary, collaborative design over prime operational settings. The study concluded that the model is applicable to a variety of research projects. The study revealed that the model is applicable to different operational settings. We have found that the technique enables ship designers to explore those factors in field research that can make a difference when looking at how they exchange data to build on each other’s work. We argue that a human-centered design approach should take into account the way that design is based on the experiences with field research derived from the Ulstein Bridge Concept design project, Ulstein Bridge Vision, exploring alternate ways doing interaction for ship bridges. The project demonstrate how multimodal interfaces might show a way forward towards better interfaces more in line with the changing needs of marine operations. I show examples of multimodal design for ship bridges and discuss the possible implications of such design in the future. Finally, we suggest that it is important to better understand multimodal interfaces in context of the changing conditions at sea to be able to design next generation interfaces for demanding marine operations.

16.20-  GENERAL DISCUSSION & CLOSE
REGISTRATION FEE (Inc VAT*)

**By 03/08/15**

**After 03/08/15**

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**CONCESSIONS: (Retired/Students etc.)**

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The registration fee includes printed conference papers, lunch, refreshments, reception, a CD of the papers and presentations after the conference, and VAT.

**CONFERENCE PAPERS**

Delegates will receive a copy of the conference CD-ROM which will include the presentations, this will be posted out around 10-12 weeks after the conference.

**EVENING DRINKS RECEPTION**

Following the end of day one (02/09/15), delegates are invited to attend an evening drinks reception at the conference venue.

**ACCOMMODATION**

Upon registration you will be provided with details of a hotel booking service offering reduced rate accommodation for conference participants.

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RINA Certificates of Attendance will be issued at the event, which contributes towards the Institution's Continuing Professional Development Scheme. For further details regarding the scheme please contact Giuseppe Gigantesco, Director, Professional Affairs on Tel: +44 (0)20 7235 4622 or e-mail: membership@rina.org.uk.

**STUDENT SPONSORSHIP**

A number of sponsored places at this conference are available for Student Members of RINA. For more information, please contact Jane Powell, Professional Affairs, RINA on Tel: +44 (0)20 7235 4622 or e-mail: membership@rina.org.uk.

**PROMOTIONAL OPPORTUNITIES**

Why not use this conference to promote your company’s products and services? It provides an excellent opportunity to increase your profile and to network with a highly focused audience. We offer a number of cost effective options, including various conference sponsorship packages, exhibition space and literature distribution. If you are interested in any of these promotional opportunities please contact the Conference Organiser to discuss your individual requirements.

**CANCELLATION CHARGES**

Cancellations received in writing two weeks before the event takes place will be refunded. Cancellations received after this time will not be accepted and are subject to the full event fee. Delegates may be substituted; however, this must be sent in writing and confirmed with the conference Co-ordinator. It may be necessary for reasons beyond our control to alter the content and timing of the programme. In the unlikely event that RINA cancels the event for any reason, our liability is limited to the return of the registration fee.

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If you have any questions regarding this or any other RINA event please contact, Jade Whitelaw, Conference Organiser, on Tel: +44 (0)20 7235 4622 or Fax: +44 (0)20 7259 5912. 

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