RINA

The Royal Institution of Naval Architects

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EBDIG

Education and Culture DG

Lifelong Learning Programme

International Conference

MARINE DESIGN

14-15 SEPTEMBER 2011

ALAN BERRY BUILDING, COVENTRY UNIVERSITY, UK

day 1

08.30 - 09.00 **Coffee and Registration.**

09.00 - 09.35 **Keynote address: "Future Challenges & opportunities for the European Boating Industry",** *M Cieniewicz,EBI, Belgium*

09.35 - 10.10 **Turkey taking a lead in luxury yacht design and development**
Dr R Ziarati, TUDEV, Turkey
Mr A Sayakci, Evnde, Trukey
Design and manufacturing innovation are the keys to maintaining the competitiveness of the European boat industry. European boat manufacturers must be able to respond to their customers and offer exciting innovative products. This paper reports on the several developments in Turkey in exploiting the opportunities to design and develop luxury yachts and in its intentions to learn more from several EU funded projects including a project called EBDIG which Turkey is a partner where innovative practices in automotive industry are being identified for possible exploitation in the marine yacht design and production

10.10 - 10.45 **Design-driven Innovation: A High Speed Coastal Cruiser Superyacht for the Chinese Luxury Market**
S McCartan, Coventry University, UK
R Starkel, Studio Starkel, Trieste, Italy
J Roy BMT Nigel Gee Ltd, UK
China is the new market for superyachts, with a growing interest in the leisure boat market, due to the developing cultural association with boats and luxury. .This paper reports on a design project engaging in design-driven innovation through the application of technologically advanced high speed platform combined with the implementation of a culturally specific emotional design framework developed as part of the European Boat Design Innovation Group project . Resulting in a high speed superyacht coastal cruiser for the Chinese market, which changes the design meaning associated with superyachts.

10.45 - 11.15 **Coffee**

11.15 - 11.50 **The Future Environmentally-Sensitive Warship**
K Gravil, Design Partnering Team, UK
This paper describes the MOD Naval Design Partnering (NDP) Team's vision for the design of a vessel around the principal of increased environmental sustainability and energy efficiency. The concept has made use of many novel technologies in order to limit its environmental impact. A realistic balance has been achieved between the innovative use of existing design ideas and futuristic new technologies. The project demonstrates the feasibility of such a design, and how future naval ships can continue to operate effectively whilst being environmentally sustainable.

11.50 - 12.25 **A more sustainable hull form**
R Wilson , Faculty of Technology and Built Environment, Unitec, N Zealand
The project aims to find a planing powerboat hull form that is pushed through the water more easily than existing hull forms yet maintains or even improves practical performance factors such as sea keeping, stability, and directional stability. Two different hull shapes were tested. One design reflects the accepted approach to planing hull powerboats, the other varies its underwater shape.Model boats were towed alongside a tow boat by using an aluminium spreader to extend the tow point outbeyond the wake.Resistance was recorded by a load cell attached to the towing arm at every few seconds' interval.The results have all been recorded and averaged. The results show that the design concept is impressive; advantages include fuel saving, reduction of transversal instability (chine walking) and more.

12.25 - 13.30 **Lunch**

13.30 - 14.05 **Keynote Address: "The Relationship between customers ,marketing and design trends",** *Ing. C Nuvolari-Duodo, NUVOLARI - LENARD srl, Italy*

14.05 - 14.40 **The Subliminal Language of Automotive Design**
N Forsyth, Ladida sarl, France
The integrated and parallel development of automobiles has created an efficient design process using tools that may be applicable to yacht and boat design, streamlining the design development and improving its quality. Those sophisticated tools and methods can be made available to boat designers though a transfer of technology as promoted by the EBDIG project. When the designer has a central role in linking marketing and manufacturing, the quality of boat design can improve and the initial vision can be carried through to become a desirable Yacht.

14.40 - 15.15 **On Thin Ice -Hovercraft as an alternative logistics platform to the Ice Roads of Northwest Canada**
S McCartan and T Kent, Coventry University, UK
The Ice Road is the major transport link for the Canadian Diamond Mining Industry. Global Warming is challenging its long term sustainability, identifying a need to research logistic alternatives. This paper presents the results of an Industrial Design research and concept development project. The first phase identified the feasibility of the hovercraft platform to address the logistical needs of the Canadian Diamond Mining industry and generated a design specification to address them. The second phase produced a technically resolved design concept based on specification, addressing the key areas of cargo loading, exterior aesthetics and user centered design consideration for the operators.

15.15 - 15.40 **Coffee**

15.40 - 16.15 **Sustainable Boat Design Efforts in France**
B Jaouen, EcoNav, France
In France a trend started to create and build eco-designed boats, research for which focuses on the whole life cycle . This concept called the cradle to grave is a key concept of Ecodesign. Eco-design measures the impacts of a vessel from the extraction of raw materials, throughout its design, assembly, use, to its end of life. In the area of freight shipping, fishing, racing, pleasure boating or the navy, more and more projects with a sustainable design have come to life, implemented by several constructors. The network EcoNav works to promote and develop Green Navigation by highlighting the various projects, including those related to eco-design.

16.15 - 16.50 **Boat design with a Positive Impact**
C Schiffer , Ladida France
Many pleasure boats are reaching the end of their lifespan and pose an environmental and economic problem, as the marine industry is not currently subject to mandatory recycling of composite materials. Recent boat disposal initiatives have started to be put in place as a first step to clear. In order for these efforts to have an effect the boats will have to be designed for dis-assembly: they need to be built and assembled so that they can be disassembled at the end of life.It is the challenge to design boats with a cradle-to-cradle perspective, keeping in mind their end of life, dismantling or recycling. This paper discusses the problems faced and opportunities arising for the industry.

16.50 - **Evening Drinks Reception**

day 2

08.30 - 09.00 **Coffe and Registration**

09.00 - 09.35 **Keynote Address: "TOI opportunities for the UK industry and challenges of the global market,** *A Waddams, British Marine Federation , UK*

09.35 - 10.10 **High-end automotive tools in Boat design - Improving Ergonomics in Boats with RAMSIS**
C Schiffer, LADIDA , France
Dynamics in power boats may be more intense then those in cars. The ergonomic requirements of a helmsman are more complex than those of a driver and physical space is restricted. Most small crafts are ergonomically challenged. The ergonomic evaluation tool RAMSIS acquires and analyses physical measurements of a vessel's design, defines requirements of a target group and represents human differences. All these factors are flown into the design process and it recommends ergonomic solutions, based on the specific details of the project. RAMSIS was tested for the marine design environment and this paper's subject is to evaluate the outcome of our testing and to analyse the possibility of applying it within the marine industry

10.10 - 10.45 **Human Centric Design for Utilitarian Craft**
T Dobbins, STResearch Ltd and J Hill, Trident Marine Ltd UK
Utilitarian craft have a specific purpose and have features that reflect the requirements of it's role. To achieve the required capability, human factors and subject matter experts must work synchronously with the naval architects/designers to ensure that an optimum solution is achieved. A good design is easy to use and maintain ; generates pride in the operators equipment and enhances their performance. Therefore human centric design should be the cornerstone of utilitarian marine craft.

10.45 - 11.15 **Coffee**

11.15 - 11.50 **Inclusive Luxury: Making Motoryachts Accessible to All With Style**
S McCartan,, Coventry University, UK
D McDonagh, University of Illinois at Urbana-Champaign, USA
This paper will discuss a unique inclusive design approach that integrates a bespoke wheelchair that integrates seamlessly into the luxury environment of a motoryacht. The saloon seating area slides gracefully to allow the lift to raise the wheel chair from the bedroom in the hull. The bedroom has a larger shower room and resolved access to storage. This groundbreaking project leads the way in destigmatising disability and moving boat design towards a more inclusive field.

11.50 - 12.25 **An Emotional Design Approach to Luxury in the Design of a 40ft Sailing Yacht**
S McCartan and L Moody, Coventry University, UK
D McDonagh, , University of Illinois at Urbana-Champaign, USA
Industrial yacht design is about understanding the needs of the client. Designers must examine the understanding of the term luxury in the context of design from the perspective of the client. Clients want design functionality and usability as well as products that elicit other feelings such as luxury and pleasure. Emotional design involves developing an understanding of user characteristics, expectations, desires and needs, translating them into a sensitive and balanced design solution. This paper presents a design case study, which applied a methodology framework for emotional design to a 40ft sailing yacht for a range of European personas

12.25 - 13.30 **Lunch**

13.30 - 14.05 **On design-space exploration and design refinement by numerical simulation**
Dr P Couser, Formation Design Systems Pty Ltd, Australia
Dr.-Ing. S Harries, Friendship Systems GmbH, Germany
Dipl.-Ing. F Tillig, SSPA Sweden AB , Sweden
Naval architects draw inspiration from previous designs, literature reviews, statistical regression models and systematic series. In this paper, a complementary approach, using simulation-driven design, is presented: exploration of the multi-dimensional design-space using first-principles methods. The proposed method is elaborated using an example of a fast mega-yacht of approximately 80m in length The key benefit of the proposed method is that it allows the design team to quickly explore the design-space and build up a knowledgebase ahead of an anticipated project.

14.05 - 14.40 **The use of Supercomputing to support Advanced Visualisation Technology in Superyacht Design**
J Tabor and A Pedcenko, DIAV Research Group, Coventry University
T Thompson, EBDIG, Dep. of Industrial Design, Coventry University
This paper presents an analysis of a HPC's rendering performance,compared to conventional desktop workstations.The computing time required to produce an animation sequence for a superyacht is compared.The performance and rendering capabilities of a range of CAD packages are also discussed. Open source and industry standard CAD packages are used to create high resolution stereoscopic 3D animations that can help potential owners to fully visualise and explore their vessel as part of the client/designer design dialogue. The technology shows the potential to enhance spatial awareness in the design process, and also to be a useful tool in the ergonomic resolve of the vessels interior.

14.40 - 15.15 **'A marine designer's guide to the galaxy of materials used for the construction of accommodation areas in yachts: How to make both the owner and the regulators happy'**
M Lagoumidou , Lloyd's Register, UK
This paper aims to give marine designers an understanding of the regulatory framework related to the use of materials for the construction of the interiors for yachts of various sizes. Regulations aim to prevent or minimize fire and provide safe escape for all persons on board. The role of authorities are explained, as well as terms and sets of rules. Examples of construction are offered for better understanding of the requirements. Finally, this paper aims to offer a tool wich contributes to the construction of aesthetically pleasing and safe vessels.

15.15 - 15.40 **Coffee**

15.40 - 16.15 **Practical Small Craft Design: Combining Art With Science**
A Nazarov, Albatross Marine Design, Thailand
Paper presents retrospective of problems involved in small craft design and styling, following design philosophy and solutions from practicing boat design office. The approach to design as 'solution of particular task' is presented. Design is studied as compromise of five qualities: aesthetics, comfort, performance, safety and cost. Contemporary trends in boat styling are analyzed, architectural types of boats and yachts are defined. Influence of rules of classification societies and standards on design is discussed. Comparison of safety and comfort considerations and their effect on design are presented for two boats of similar size. Sample designs are presented as illustrations covering pleasure, small commercial and special craft

16.15 - 16.50 **Believing in Karma: developing new methodologies for supporting innovation in small and mid-sized racing yacht design**
R Shaw , C de Groot, Shaw Yacht Design, Unitec, New Zealand
This paper presents a new methodological framework for yacht design that has innovation as the central concern. The method presented encourages innovation by blending the empirical knowledge obtained through scientific techniques with experiential wisdom and artistic input. The resulting description and visualization of this new methodology for yacht design aims to encourage and support a degree of understanding and creativity in the domain by unfolding the complex web of tacit knowledge and explicit principles in a simple, communicative form.

16.50 - 17.00 **General Discussion**

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VENUE
The venue for the conference is the Goldstein Lecture Theatre, Allan Berry Building Coventry University, Priory Street, Coventry CV1 5FB

EVENING DRINKS RECEPTION
Following the end of day one 14th September, delegates are invited to attend an evening drinks reception at the conference venue.

ACCOMMODATION
Upon registration you will be provided with details about local hotels of different price ranges in the general area.

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