

MASS – POTENTIAL APPLICATIONS IN SUPERYACHTS



ICMASS November 14 2019 Trondheim ,Norway

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Trials and Research

Yachts suited for trials and testing as they primarily provide accommodation for passengers.

Some passengers could be the technicians trying out additional/ MASS related equipment. Others may be potential customers wishing to witness the technology in action.

Upon completion of the trials vessels can be readily converted back to conventional superyacht use. This re-allocation of assets can reduce the overall costs of research projects

Some Superyachts already carry such devices as remotely operated submersibles and of course drones whose operations are similar to those of sophisticated dedicated research vessels



Photo;Feadship

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Manning

Crew members have to be provided with accommodation and facilities on board, the provision of which reduces space available for the guests.

Automation can help reduce crew numbers, however, certainly from the front of house service side it is likely that most owners are going to want to retain some human crew on board.

Use of appropriate sensors could lead to reduced lookout needs, which could cut manning, or re- designate manning to improve service.



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Training

Must ensure that all involved are properly trained - In the past the Maritime Industry has not always been good at ensuring proper training is done as new technology is introduced.

Role of operators will change away from traditional seafaring functions.

Important that the seafarers remaining on board are properly trained for their new responsibilities, especially with regard to reactions to failures in automated systems.

A major challenge is ensuring that persons know when they need to intervene due to any automation failures and they know how to do so.



Photo; Feadship

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Comfort

- Vessel routing – Improvements in weather forecasting
- Vessel Stabilisation – Both underway and at anchor
- Remote operations – Need good feedback of all aspects of human sensing in order to maintain optimum conditions



Photo; Feadship



Photo; SeaDream

Propulsion and powering

- Diesel electric propulsion is already being used by some superyachts with azimuthing propulsion and thrusters,
- Battery power for yachts is quite logical as many are only used for relatively short-range voyages and not all owners want fast yachts.
- Electric outboard motors, as well as, electric inboard motors are becoming more popular for use with tenders. Suitable systems have been developed for rescue boats.
- Most Marinas already provide adequate shore power for the domestic power requirements on yachts, Increasing capacity to cope with charging propulsive batteries should be relatively simple.
- Although many areas visited by yachts do not currently have “clean energy” supplies, there is increasingly a drive towards “clean energy”
- Proportion of sail propelled superyachts is relatively small at present.
- There is great potential with wind assisted propulsion
- Variations on traditional soft sails are continually being developed as are solid sails, rotors and turbines
- There is potential, possibly to a lesser extent for solar power use.



Photo.; Dutchcraft/Boat



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Much can be learnt and transferred from other industries with respect to developing autonomous vessels of any type.

Although yachting does not necessarily lend itself to the SMART Shipping models being developed, it is important that autonomous developments do consider more than just the yacht itself and its immediate control.

Need standardization not necessarily just within yachting/shipping.

The technology being developed to enable autonomous shipping/yachting needs to demonstrate added value to owners.



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Communications

Many superyachts already have very sophisticated communication systems to ensure the continual connectivity of business managers with their offices, the additional capacity required by MASS features can be added at relatively little extra cost.

However some owners want to switch off when on board their yacht and thus have not invested in this technology as much as others who want to keep in touch

Improved communication has over the years enabled owners and operators to exercise increasing monitoring and control of vessels.



Photo.; Selex

Operations

Yachts often have tenders of varying sizes so there are possibilities of a mother ship with remote controlled tenders.

There is also the possibility of using convoys of Super-yachts, and their tenders, for re positioning voyages, where one yacht could act as the lead vessel and others following on under remote operation. However this kind of operation will face regulatory challenge's as there are possibilities of different flag vessels being involved, as well as different Coastal and Port States.



Photo: Feadship

Security

Developments in video monitoring and movement sensing can be used on both existing vessels and newbuilds to improve vessel security.

Better overall monitoring of the vessel benefits the effectiveness of on board staff in carrying out their security functions , also could assists remotely based personnel.

With the high value assets involved cost effective security is often high on the requirements of owners and of course also of interest to insurance companies.



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Safety Equipment

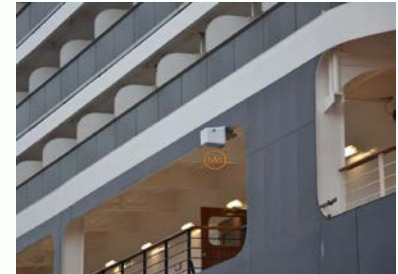
Safety equipment continues to evolve with the introduction of new technology.

The technology has to be proven to be sufficiently reliable for use in safety critical areas where the possibility of failure needs to be very small.

Some examples include; Cruise ship man overboard detection systems are under development primarily for cruise ships based on micro radars and infrared sensors

Self-propelled remote controlled Lifesaving Buoy are being developed and this technology could possibly be further developed for autonomous tracking to a person overboard and even recovery of unconscious persons.

As with any newly developed products it can be expected that the purchase costs will reduce as demand and production increases, in turn generating more demand.



MOBtronic



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Conclusions

Short term; Superyachts will potentially benefit from developments in propulsion systems associated with MASS. Also potential for superyacht like vessels to provide a platform for testing and development of new technology related to MASS

Medium term: The development of optical sensors will probably have the most influence in allowing for movement away from the traditional needs of the yachts bridge and free up space for even more innovative designs as well as possible redeployment of crew.

Longer term: there is potential for fully autonomous superyachts, however this is likely to be a very small market – probably only extremely reclusive rich people.

