

The Procurement of High-Speed Military Vessels in the 21st Century

Art, Science or simply good preparation, planning and collaboration?

Aims and outcomes from the presentation

- To highlight some of the key issues that need to be addressed in HSV procurement or acquisition
- To suggest a number of ways to create your own procurement process that will lead to you acquiring the right vessel for your operational circumstances
- To dispel the myth and rumour that somehow acquiring the right craft is more through luck than by judgement

Faster, harder, further! – Today's mantra!

- Consider the cumulative effects on the occupants of the vessel
- Consider the cumulative through-life effects on the vessel itself
- Consider how the vessel operators must be able to handle all of the varied routine and operational tasks that they are expected to conduct
- Consider normal navigation (day/night/bad weather/fog/confined waters), tactical navigation in the face of an enemy
- Consider all of the emergency drills associated with both normal and tactical operations conducted with the vessel

Human Factors – Harsh realities

- Imagine trying to conduct a military operation against a determined enemy in the traditional open RHIB
- Immense challenges: High seas, bad weather, long transit to the objective, tactical navigation, orders and SITREPS received, changes to the plan, operational imperatives, mental stress, sensory overload, cold and wet – now board the target vessel!!
- Reducing external factors such as those described above has a significant positive physiological and psychological effect on the operators
- Maslow's Hierarchy of needs
- A cabin or at least a wheelhouse is a good idea!

Human Factors – Harsh realities

- HSVs operated by human-beings are “intelligent” platforms
- The vessel must be a functional working platform with the needs of the human-being at its very core
- Ergonomics are critically important
- Vessel should protect the human-being against shock, vibration, environment, bullets and fragmentation (enemy action) as a bare minimum
- Benefits for on board electronics as well as the crew

The Operational Requirement

It is essential to clearly define and articulate what it is you want the vessel to do, in what circumstances, and for how long

The Operational Requirement

- Should be based on Operational Analysis – this gives an intellectual foundation to the entire process
- Operational Analysis examines how operations with similar vessels were conducted in the past, how they are being conducted at present and what will have to be done in the future – through the life of the vessel and beyond
- Done properly, it will highlight important changes or upcoming trends such as: future mother platforms (carrying capacity, craneage, davits etc), new weapons systems, new areas of operations (e.g. Africa as opposed to Norway), regional trends, predictions, indicators and warnings
- Consider allies and partner nations in this part of the process

The Operational Requirement

Collaboration with allies and partners can throw up new requirements!

CB90 on davit of HNLMS Johan De Witt



The Operational Requirement

CB90 on davit of HMS Albion



The Operational Requirement

- A Concept of Operations (CONOPS) should be created accurately describing how the vessel will be used, in what operational circumstances, in what environments and from which mother platforms
- This leads to the generation of a series of physical requirements that the vessel should contain in order to be able to undertake all operations in all circumstances described in the CONOPS
- The requirements are then weighted to clearly indicate which requirements are mission critical and which are simply nice to have
- The requirements should be validated against relevant, contemporary standards

The Operational Requirement

- Bear in mind that the vessel of the future is likely to be far more “multi-role” than the vessel of today
- Likely tasks will include: interdicting, intercepting, boarding, patrolling, guarding, beaching and a wide variety of ship to ship transfers and other administrative tasks
- The vessel is also likely to be used broadly in operations from riverine through estuarine (littoral operations) to coastal and offshore
- The vessel could spend a greater percentage of its service life at sea and could have a number of crews to permit it to remain on station / standby

Vessel Design

The vessel must be designed with the operators in mind - they are pivotal to the entire design process

Vessel Design

- Focuses on the operator and the operational requirements for the vessel throughout its service life
- Maslov's Hierarchy of Needs
- Addresses the most stringent requirements and most demanding operations
- Considers the impact of such requirements and operations when making choices about materials for hull, superstructure etc

Vessel Design

- Be careful when considering “novel” hull forms or other stability aids
- Weigh up advantages and disadvantages extremely carefully considering the operational profile and service life of the vessel
- Look at others involved in similar operations to ourselves (day/night/bad weather/heavy seas/close quarters manoeuvring/boarding) e.g. Lifeboats and Pilot Boats
- Consider which Class Society rules or Codes the vessel must comply with

Vessel design

- Consult broadly with partners and allies who have the most relevant experience with designs that you may be considering
- Adaptations based on operationally tried and proven hull forms lower risk in the project
- Avoid any vessel that has a bad safety record
- Be prepared to break away from convention if you have the necessary information to allow you to take on an identifiable project risk
- Remember redundancy in modern engine management systems

Safety and Duty of Care

Focusing on safety in design is not just a moral responsibility - it is legally mandated

Safety and Duty of Care

- The safety of your own personnel is paramount
- Mission success relies upon safety
- Vessel operators are legally responsible for ensuring the safety and well-being of their personnel
- EU Shock and Vibration legislation forms a small part of this but a holistic approach to safety is required from the outset
- Feeling safe and secure in whatever the operational circumstances is an important contributor to morale, improving team cohesion and operational effectiveness

Generating a Statement of Requirement

- The Statement of Requirement should be made as clear and simple as possible
- It should be phrased in a manner that a boat builder can understand
- It should not deviate from the Operational Requirement
- It should clearly indicate which requirements are mandatory and which are negotiable
- If anomalies appear when writing the SOR the OR must be revisited

Guiding Principles

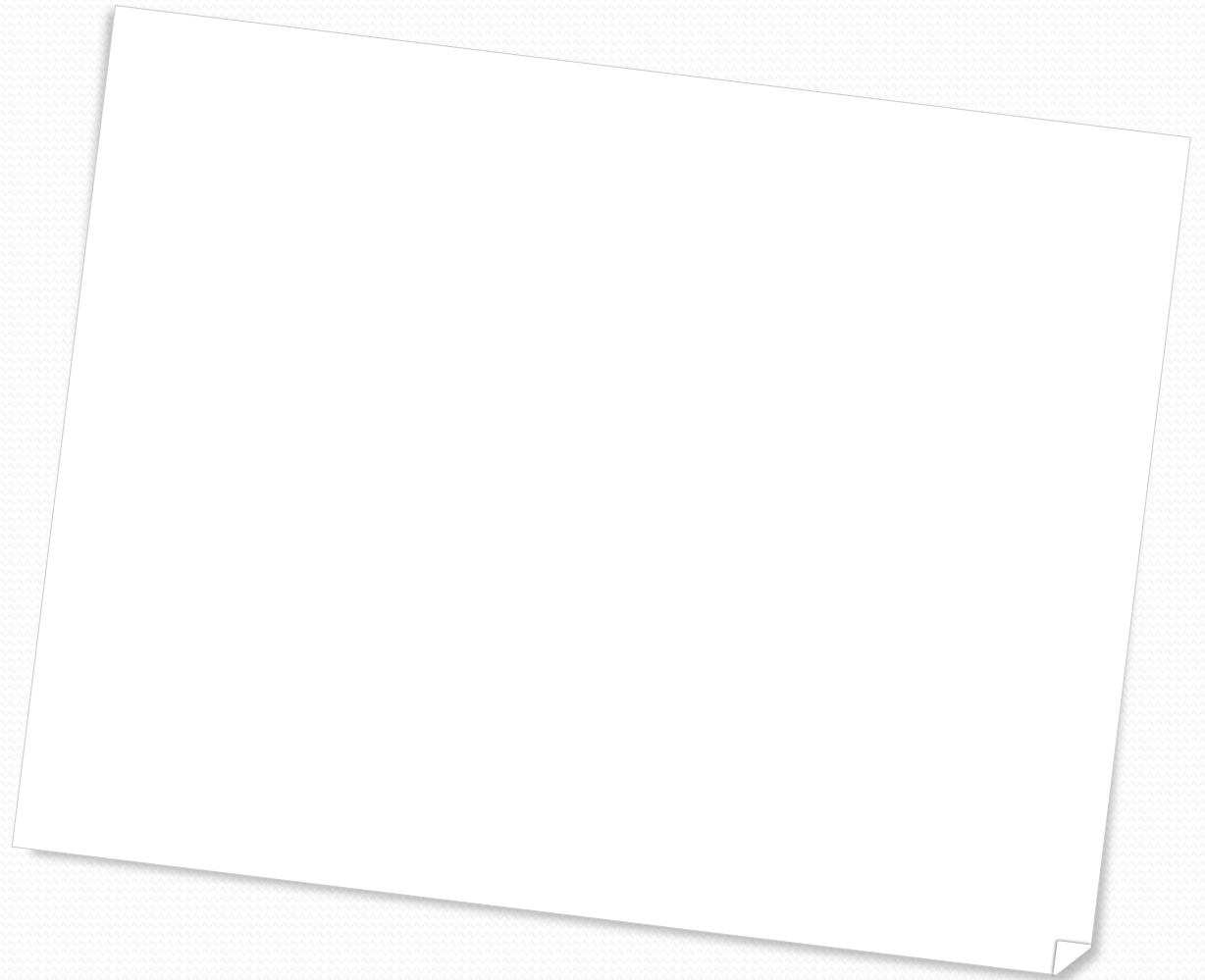
Compromise the process - compromise the product

Guiding Principles

- “Fitness for operational purpose”
- Short-cutting the process introduces project risk which can spiral out of control
- Risk must be managed collaboratively as an integral, headline item in the project management plan
- The Project Group should contain representatives from the Requirements Organisation, End Users, Support Organisation and the Boatyard
- The Project Group should retain residual responsibility for the vessel throughout its life, up until disposal

**Risk - out of
control**

Disaster



**Risk – under
control**

Success



Questions?

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