ALSC to JSS – Defining the Requirement

Andrew Kendrick

Vice President, Marine and Offshore

BMT Fleet Technology Ltd

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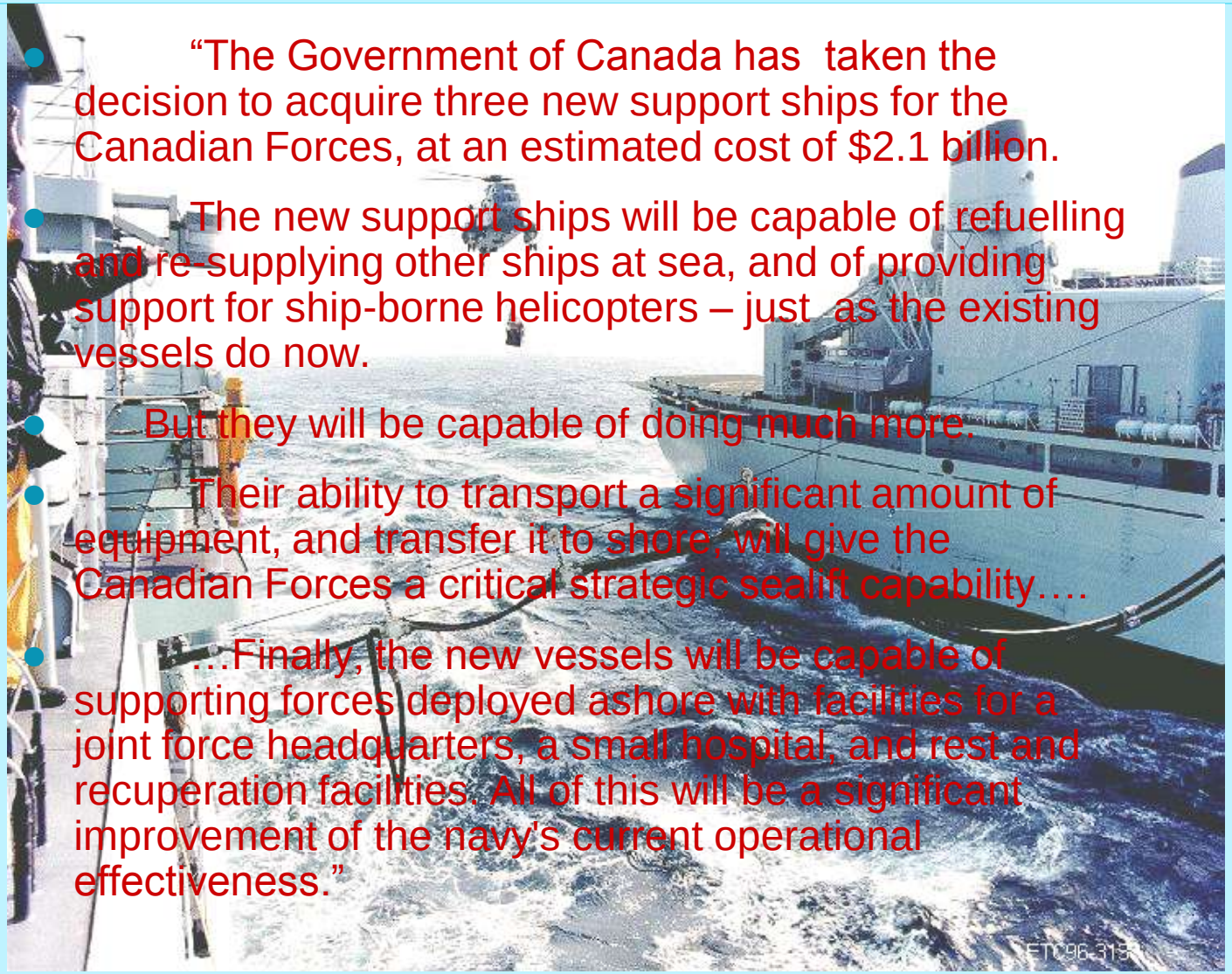


- "The Government of Canada has taken the decision to acquire three new support ships for the Canadian Forces, at an estimated cost of $2.1 billion.
- The new support ships will be capable of refuelling and re-supplying other ships at sea, and of providing support for ship-borne helicopters – just as the existing vessels do now.
- But they will be capable of doing much more.
- Their ability to transport a significant amount of equipment, and transfer it to shore, will give the Canadian Forces a critical strategic sealift capability….
- …Finally, the new vessels will be capable of supporting forces deployed ashore with facilities for a joint force headquarters, a small hospital, and rest and recuperation facilities. All of this will be a significant improvement of the navy's current operational effectiveness."

Afloat Logistics and Sealift Capability (ALSC)

- Intended capabilities:
  - Replenishment at Sea for CF/NATO/Allied warships
  - Support to Task Group Vessels (maintenance, medical)
  - Sealift of CF equipment
  - Joint Forces Headquarters
  - In-theatre medical facilities
  - R&R for forces ashore
  - Disaster relief

ALSC Options

- Newbuild, multi-role vessels (no existing model design)

- Mixed fleet:
  - AOR(+)
    - New design
    - Existing design
  - Sealift (+)
    - Newbuild
    - Conversion
    - Charter

Option Analysis – Ship Level

BMT Fleet Technology Ltd has been assisting PMO ALSC/JSS with this process since 1998:

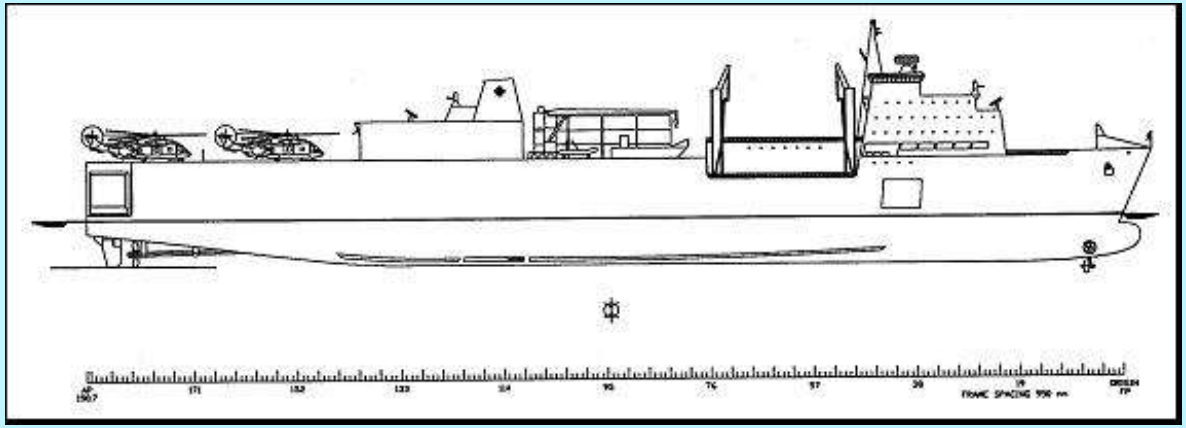
- Option Study
  - Fleet mix
  - ‘High end’ multi-role ship
  - ‘Low end’ multi-role ship
- ELMS Contract
  - Sealift evaluations
  - AOR designs
  - JSS (multi-role options)

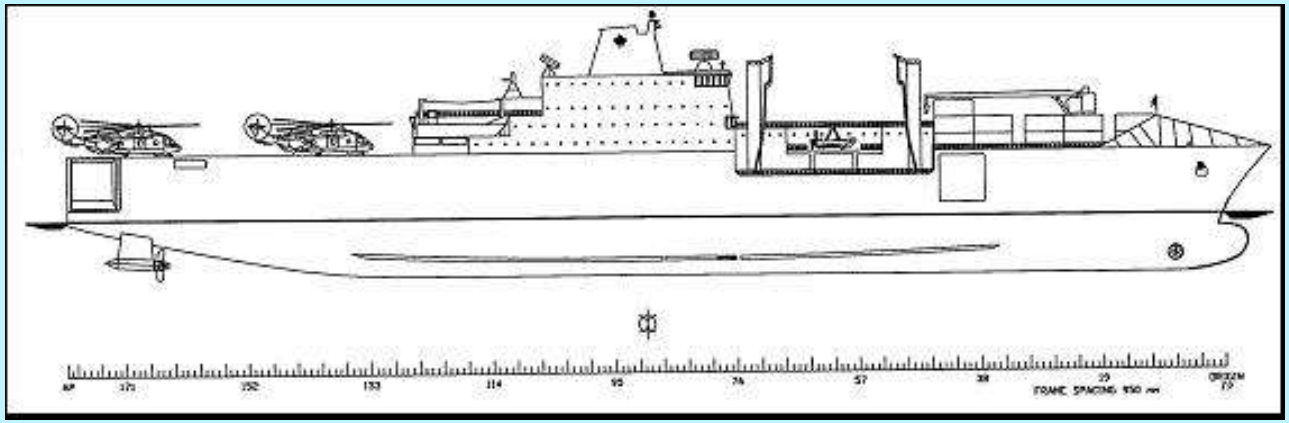
Option Analysis – Ship Level (cont)

- Ship level studies require generation of concept designs
- Objective is not optimization, but requirement validation

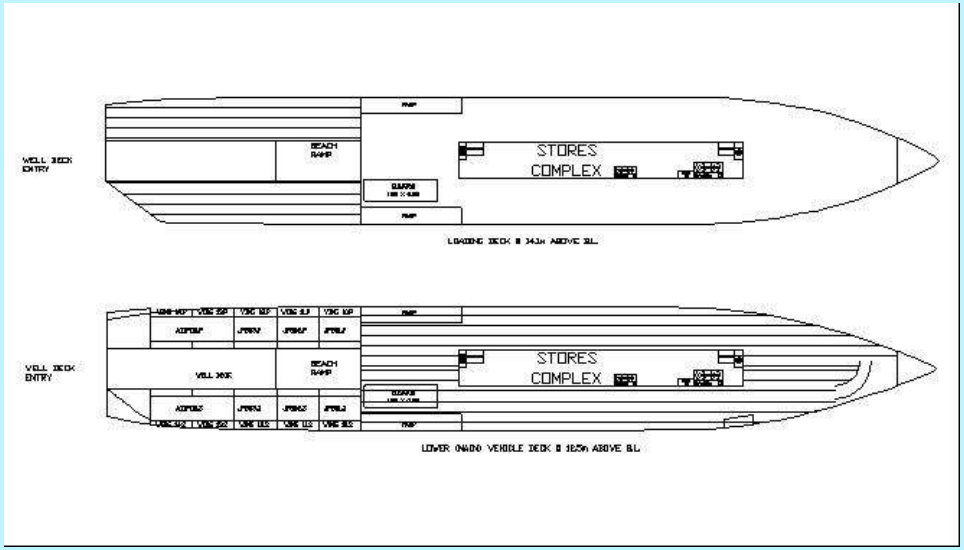
  "The requirement is to the design as the chicken is to the egg." (Sir Rowland Baker, RCNC)

Multi-Role Options

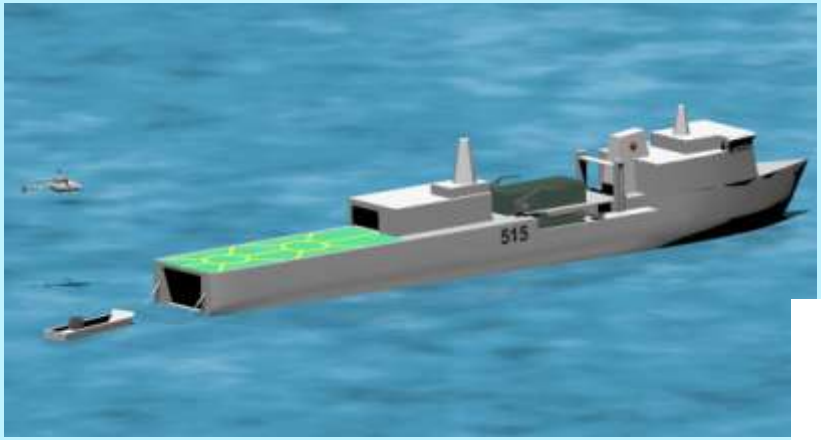


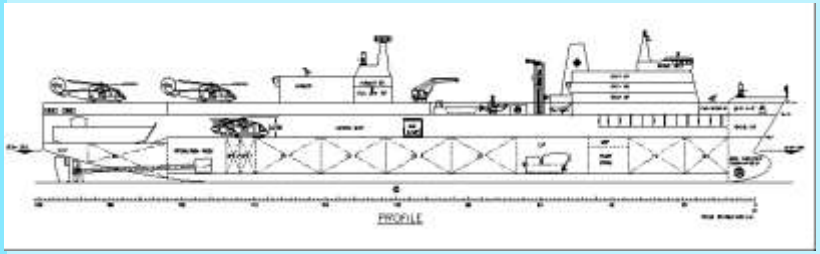


Multi-Role Options (2)



Multi-Role Options (3)





CASE NO.	OPTION SPECIFIC CATEGORIES			
PROPULSION	**Pods**	**Shafts**	**Bow Thruster**	**Speed 85% MCR**
Prop 1	2		Azimuth	21
Prop 2	2		Azimuth	18
Prop 3		2	Tunnel	21
Prop 4	-	1	Azimuth	18
RAS	**5 Tonne Dual RAS**	**2 Tonne Dual RAS**	**Liquid RAS**	**Crane RAS**
RAS 1	4	-	-	-
RAS 2	2	-	2	-
RAS 3	-	4	-	-
RAS 4	2	-	-	1
Aviation	**Hangar Capacity**	**Flight Deck**	**Army Fly-Off**	
Av 1	4	2	Yes	
Av 2	3	2	No	
Av 3	3	1	No	
Accommodation	**Permanent**	**Temporary**	**R&R**	**Over Tanks**
Accm 1	Full	Full	Austere	No
Accm 2	Full	Reduced	Austere	Yes
Accm 3	Full	Austere	Austere	Yes
Vehicle Decks	**No. of Decks**	**Full Length**		
Veh 1	2	No		
Veh 2	1	Yes		

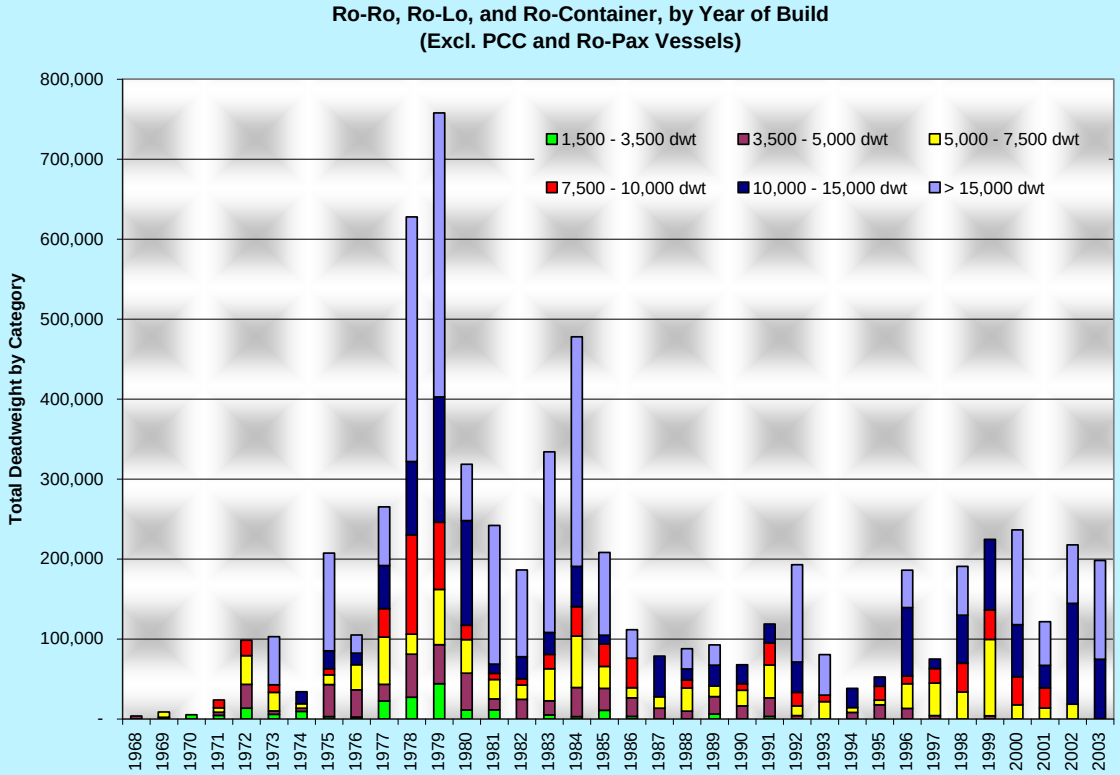
Multi-Role Options (4)

Single Role Options

- Existing AOR designs have shortfalls for Canadian requirements:
  - Age;
  - Size;
  - Speed;
  - C4I
- Sealift then requires continuing attention

Charter Availability

Much of the world's Ro-Ro fleet is elderly, and most new tonnage is not available or suitable for CF charter



Option Analysis – System Level

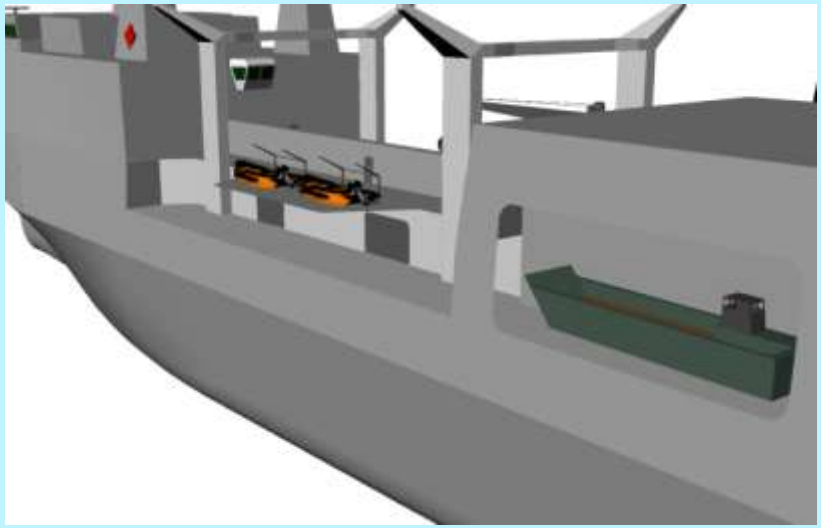
- Ship level studies highlight issues that require system level exploration in order to identify approaches that are:
  - Balanced;
  - Feasible;
  - Cost-effective (whole life).

System level studies

- Rules and standards (commercial, naval, national, class)
- Stability requirements
- RAS capabilities (storage, transfer)
- Environmental protection
- Helicopter facilities and operations
- Medical facilities
- Self-defence
- Manoeuvrability and station-keeping

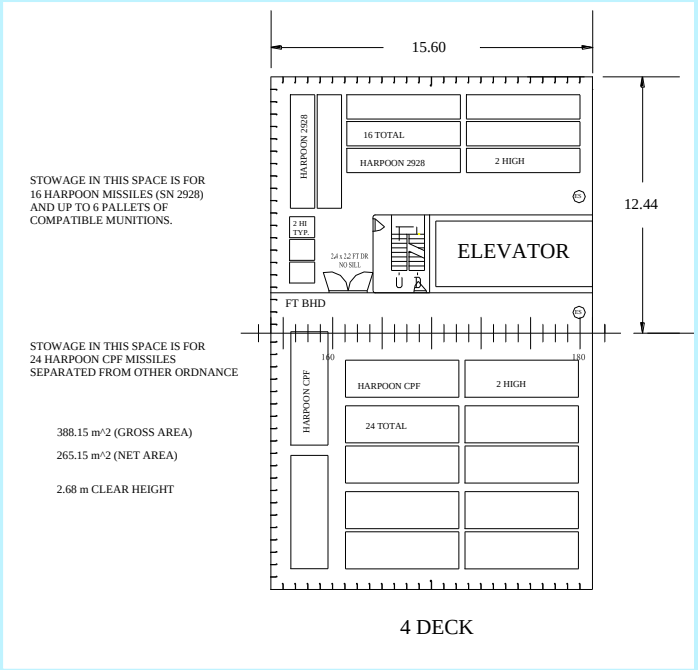
Heavy RAS

- Requires large landing areas for containers (Quadcons, weapons containers)
- RAS equipment can handle the loads, receiving ships have issues



Cargo stowage and handling

- Examples:
  - munition stowage with full containerization, traditional deep magazines, hybrid solutions
  - Sealift deck layouts for various manifests



Trade-offs

- Ensure design achieves balance addressing frequency and criticality of missions, functions
- Set cost-effective levels of performance
- Examine life-cycle issues, including margins

Next Steps (technical)

- ‘Finalization’ of Systems Requirements
  - Further studies, trade-offs
  - Specification of requirements in performance terms, where possible
  - ➢ industry comment
- Objective is to ensure issues are addressed early and openly