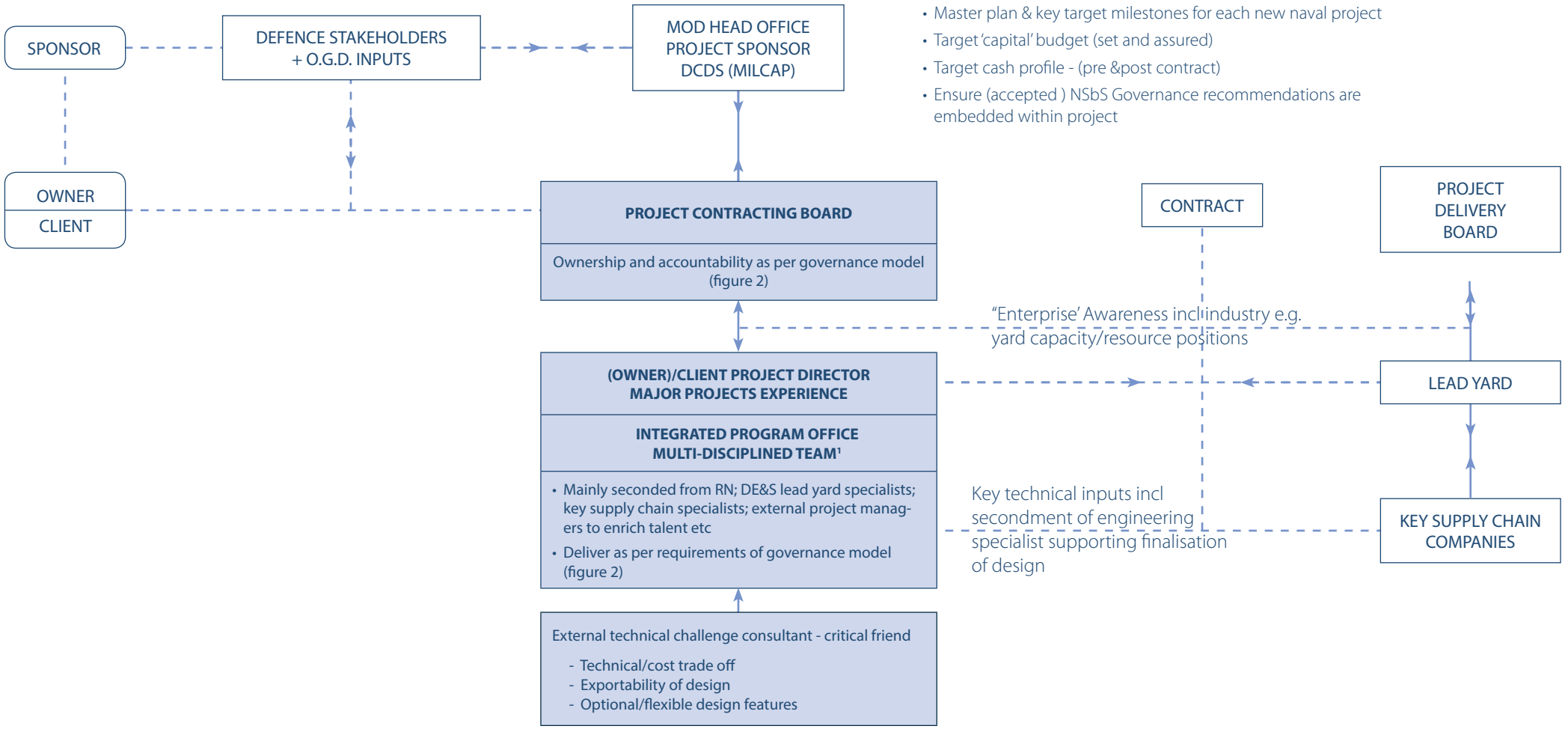
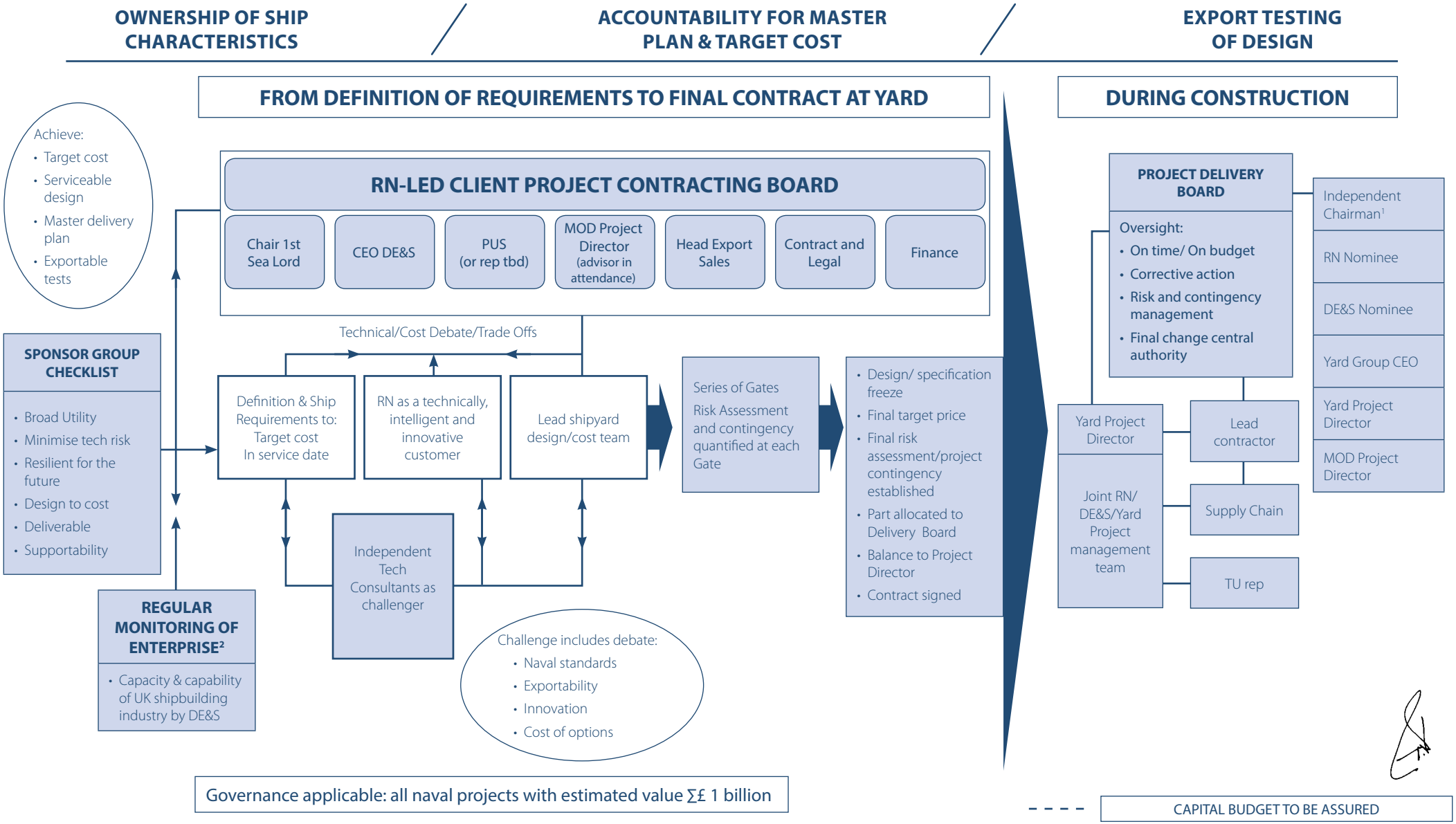
FIGURE 1 - OVERVIEW OF SPONSOR & (OWNER) CLIENT GOVERNANCE SHIP PROJECT DELIVERY SYSTEM



1 Supported as required by external project mgt/risk professionals from marine, offshore & other industries

FIGURE 2: PATHFINDER GOVERNANCE MODEL



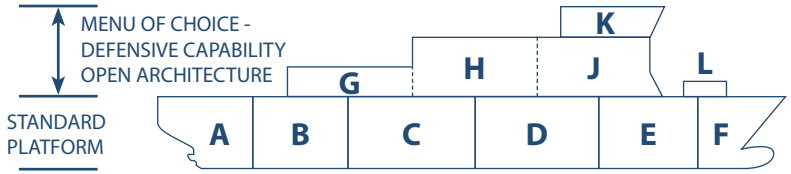
1 Independent Chairman of Delivery Board involved prior to contract, as a non-executive member
2 The enterprise is end to end from requirements to ship delivery

FIGURE 3 - GENERAL PURPOSE FRIGATE INNOVATIVE EXPORT-FOCUSED DESIGN TO SATISFY RN REQUIREMENTS AND EXPORT MARKET

TO INCREASE RN FRIGATE NUMBERS – 'EXPORT FOCUSED' VIA 'FLEXIBLE DESIGN MENU'

MARKETING

- RN badged frigate with menu of option(s) choices will significantly increase appeal to overseas navies
- RN's involvement and lead support in marketing effort - will be crucial from intelligence to demonstration of capability



BLOCKS ALLOCATED TO COMPETING YARDS AND BUILT IN SERIES

CONSTRUCTION: OPTIMISE BLOCK BREAKDOWN TO SUIT VIRTUAL SHIPBUILD (VSB)

OPERATIONAL COSTS

- Critically examine speed/fuel consumption and optimise on cost
- Aim to reduce manpower
  - Apply modern automation to high standards
  - Machinery unmanned
  - Fire Fighting: latest sensors, high fog auto release
  - Laundry equipment

DESIGN CONCEPT

- Options menu topside/defence system capability
- Standard hull and machinery and ship systems. Flexible choice electrical load
- Design for shorter life of 15 years - avoid costly refit - prepare to sell for export (earlier if necessary to support particular export sales)
- Launch of unmanned vehicles - GPFF as a platform for other capabilities
- All ships in series not fitted out to the same/desired specification
- Consideration might be given to first 2 ships with combat-spec fitted for but not with

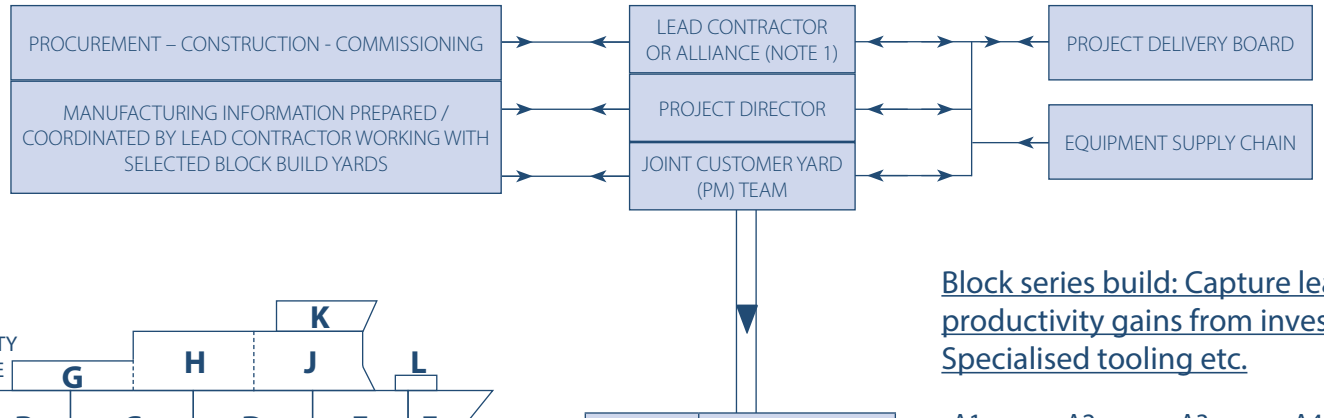
DESIGN CONSIDERATIONS

- RN standards to be rigorously reviewed, costed and incorporated only when deemed essential
- Lloyds structural and commercial standards to apply generally to systems and materials
- Design to incorporate modules - engine room, cabins, Commercial Off The Shelf galley and laundry equipment
- Ease of combat and comms systems fit out to facilitate flexibility of choice
- Through life maintenance considerations including ease of maintenance and equipment withdrawal
- Key supply chain equipment to take account of strengthening supply chain export potential
- Incorporate commissioning engineers in design team to capture their experience early in the cycle
- Design for reliability

DURING BUILD

- Inspection processes to be streamlined to ensure no in-built delays
- Aim should be to halve construction time via VSb from conventional single yard build approach

FIGURE 4 - A VIRTUAL SHIP BUILDING (VSb) INDUSTRIAL STRATEGY TO BUILD A GENERAL PURPOSE FRIGATE COMPETITIVELY WITH REDUCED CYCLE TIME



1 Companies with sufficient financial industrial capacity and capability to construct and to enter into the key sub-contracts

FIGURE 5 - EXPORT DRIVE

- Global scale of Naval ship (Offshore Patrol Vessels, Corvettes and Frigates) offers significant opportunities. Planned new ships worldwide [1]:

Vessels	OPV	Corvette	Frigate	Total
In service	777	259	469	1505
On order	135	40	69	244
Being planned	276	67	158	501

- UK export effort should be nationally coordinated via Government and via Government to Government trade deals
- Support from RN contacts, other Navies and input from Naval Attaches and UK embassies
- Export value success will take many forms:

Examples	Sale of design & manufacturing information & project management & procurement from the supply chain	Sale of training & support	UK build	Build 1st ship in UK, then overseas support	Sell from RN order book	Sell from Fleet mid-life	Sell from Fleet at design life
OPV	✓	✓	✓	✓	✓	✓	✓
Type 31e	✓	✓	✓	✓	✓	✓	✓
Type 26	✓	✓	✓	✓	-	-	✓
Each has variable value to the UK							

1 Source: UK Defence Solutions Centre 2016