Alteration Figure of Merit (AFOM) Non-SEAPOWER 21 Benefit Structure Definitions

Capability: The ability to execute a specific course of action. Capability refers to "Warfighting" whereby a ship change is envisioned to provide a measurable improvement in combat capability such as speed, firepower, rate of fire or the ship change fills an identified "gap" in requirements that is not currently filled.

CNO N6/N7 normally identifies gaps via the Naval Capabilities Development Process (NCDP) via Campaign Analysis and the Fleet Forces Command (FFC) Sea Trials initiative.

Suitability: The degree to which a ship change can directly support a mission capability, or impact a ship system or component with respect to reliability, availability, compatibility, transportability, interoperability, wartime usage rates, maintainability, safety, human factors, manpower supportability, logistics supportability, documentation, and training requirements.

- **Reliability:** The probability that a system or component will perform its mission in a specified interval of time without a functional failure. This value is expressed as the **Probability of Failure (F) or the Probability of Survival (R)**. The average or "mean" time interval that a system or component is predicted to operate until failure is expressed as **Mean Time Between Failure (MTBF).**

  Note: Suitability should be evaluated in a mission context in order to provide meaningful results.

- **Quality of Service/Quality of Life (QOS/QOL):** Ship changes that provide improvements to moral, welfare, recreation or reduce sailor workload in maintenance, cleaning, preservation, facilitate Distance Support, or otherwise enhance Sailor operational performance.

- **Reliability, Availability, and Maintainability (RAM):** Reliability requirements address mission reliability and logistics reliability. The former addresses the probability of carrying out a mission without a mission-critical failure. The latter is the ability of a system to perform as designed in an operational environment over time without any failures.

  1. **Availability** requirements address the readiness of the system. Operational availability is the measure of readiness of a system or component to fulfill its assigned function (the ability to be committed to operation). Quantitatively, **Availability** called (Operational Availability or AO) is expressed as the quotient of Uptime over Uptime + Downtime.

  2. **Maintainability** requirements address the ease and efficiency with which servicing, preventive and corrective maintenance can be conducted; i.e.,

the ability of a system to be repaired and restored to service when maintenance is conducted by personnel of specified skill levels and prescribed procedures and resources. Maintainability is quantitatively expressed as the **Mean Corrective Maintenance Time (MCMT)** or the **Mean Preventative Maintenance Time (MPMT)** and account for total repair time including logistics delays in obtaining parts.

- **Supportability:** Supportability specifically addresses logistical issues such as **Technical Obsolescence or COTS** insertions strategies as part of Program Spiral development.

- **Habitability:** Ship changes that improves living, messing, berthing, and cleaning conditions and/or requirements aboard ship. These changes generally improve QOS/QOL.

- **Human Systems Integration/Human Computer Interface (HIS/HCI):** Ship changes that improve sailor interface/usability, enhance Sailor Performance, facilitate Distance Support or reduce operator workload/cumbersome workflow issues on shipboard weapons control, launching, communication, network, systems, etc.

- **Manpower and Training:** Manpower addresses the benefit of a ship change in reducing manpower requirements aboard ship; e.g. the addition of an automated control system that replaces an operator would be an example. Training addresses ship changes that provide measured improvements in training including integrated training systems, team trainers, etc.

- **Distributed Systems Margins:** Distributed Systems include the following shipwide support systems such as HVAC, chilled-water, firemain, potable water, FOCP, 60 and 400Hz power, weight & moment, etc. Ship changes that improve or restore minimum or reserve capacity in these systems may be assessed under this category.

- **Personnel Survivability:** Ship changes that provide a measured improvement for individual or group survivability in the case of combat damage, fire, flooding or sinking. Examples include life-preserving equipment, man overboard systems, etc.

Safety (Ship and Personal): Ship systems that reduce the likelihood of fire, flooding, grounding or other adverse conditions. Personal safety would include ship changes that reduce or eliminate shock, hearing loss, or other death or injury producing event to sailors.