

# OASIS AND NESS

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## ABSTRACT

The ADP systems OASIS (on board) and NESS (ashore) provide facilities for information management, maintenance management, engineering administration, and ARM data collection. DES(N) sponsors the introduction of these systems into the Fleet.

## Introduction

The current manpower-intensive admin systems required at sea have become a growing burden as ships' staff become less and increasingly complex equipments are introduced which demand more documentation.

The situation is exacerbated by:

- (a) The increase in demands on ships and equipments to meet operational commitments, which have necessitated the extension of upkeep cycles.
- (b) The introduction of condition-based monitoring, requiring more returns to be sent ashore.
- (c) The implementation of 'Health and Safety at Work' requiring more detailed records of safety and more frequent testing.
- (d) The need for accurate modification records down to PEC (Panel Electronic Circuit) level which is demanded by 'Repair by Replacement' policies.
- (e) The need accurately to define the equipment fits in order to achieve the correct level of stores holdings, and to properly manage assets, equipment changes and modifications.
- (f) The increasing need for ARM data to be collected in order to identify and correct shortcomings in equipment design and support.
- (g) The desire by central staff to have more assertive control on the management and direction of the ships.

This article covers two of the ADP systems being introduced into the Fleet areas in order to help overcome some of these problem areas. OASIS is the 'Onboard ADP Support In Ships' and NESS is the shore-based 'Naval Engineering Support System'. An earlier stage in their development was described by Clifton<sup>1</sup>. DES(N), as the sponsor for engineering support IT systems in Fleet's area, is responsible for confirming that the users' requirements are met, and for monitoring the progress in development and the implementation of these systems when applied to engineering matters.

## Background

OASIS is the Admin Computer in the Fleet. It has three functions:

- Stores Accounting;
- General Administration;
- Engineering Administration.

Stores accounting has been on the OASIS computer for several years and is fitted and operational in most ships and submarines. Part of the General Administration is at sea and the remaining part, together with the Engineering Administration, is being developed to go to sea in 1989. The first ship will

be a Type 22, H.M.S. *Campbeltown*. NESS ashore will initially be the interface between the ship's OASIS and the various projects, but is expected to develop to cover all the Fleet Engineering positions.

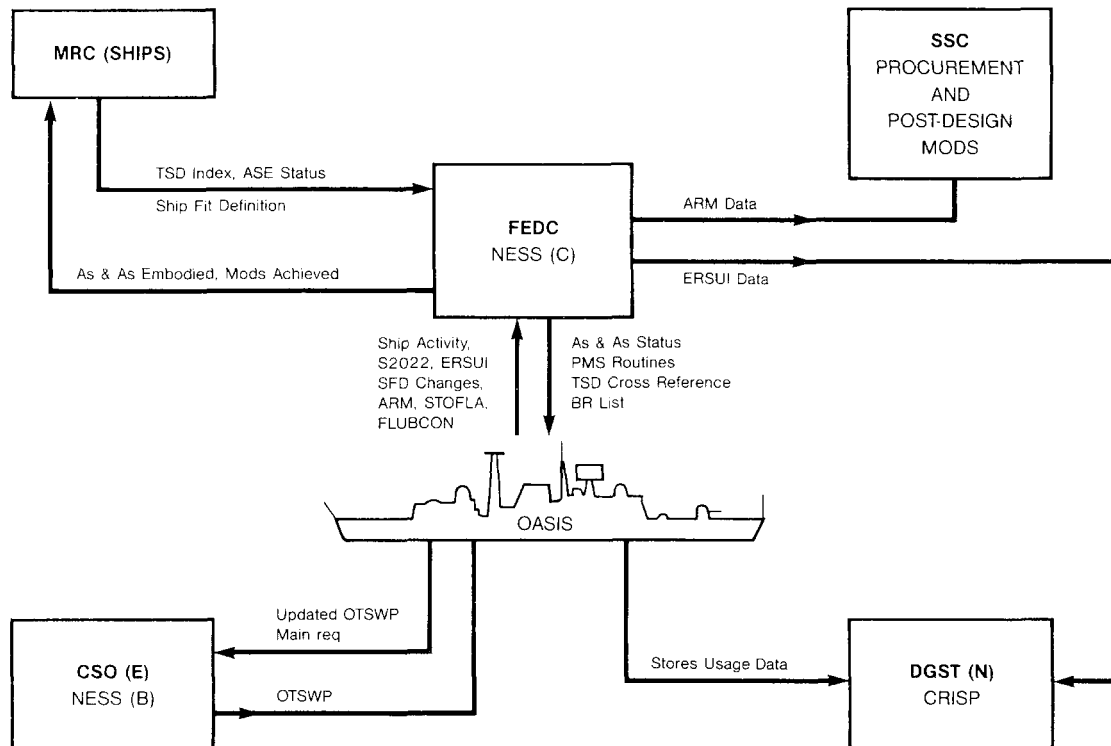


FIG. 1—INFORMATION FLOW, OASIS AND NESS

ARM: Availability, Reliability, Maintainability information  
 ASE: Ancillary Support Equipment  
 BR: Book of Reference  
 CSO(E): Chief Staff Officer (Engineering)  
 DGST(N): Directorate of Supplies and Transport  
 ERSUI: Equipment Related Stores Usage Information  
 FEDC: Fleet Engineering Data Centre  
 FLUBCON: Fuel and Lub Oil Consumption  
 MRC(Ships): Master Record Centre (Ships)  
 NESS: Naval Engineering Support System  
 OASIS: Onboard ADP Support In Ships  
 OTSWP: Original To Ship Work Package  
 PMS: Planned Maintenance Schedule  
 SFD: Ship Fit Definition  
 SSC: Sea Systems Controllerate  
 STOFLA: Statutory Tests of Fixed Lifting Appliances  
 TSD: Temporary Support Documentation

The principal aims of the Engineering Admin System (EAS) (FIG. 1) are to:

- (a) Reduce significantly the administrative and clerical load on the engineering staff onboard.
- (b) Improve the efficiency of ARM data collection.
- (c) Provide an onboard maintenance management system.

The EAS is one application in the overall ship's system. Everything is controlled by the one issue of central software.

The underlying philosophy is that:

- (a) Data is only input once.
- (b) Small software blocks are used to build complex systems.

The simplicity and modularity of this approach allows each program and functional area to be tested during the building phase so that the complete application is built from proven blocks.

The system will be used by:

- (a) Any member of the ship's company for the entry of defects.
- (b) Maintainers to obtain equipment information and stores availability
- (c) Section Senior Rates for preventive and corrective maintenance planning, the production of reports and work packages.
- (d) Technical office staff for maintenance and daily abstracts, the completion of routine returns and accessing details of temporary support documentation (TSD) (e.g.: E lists, Drawing Numbers, etc.).
- (e) Departmental officers for monitoring progress and for long-term planning.

### The Need for EAS

Why is the introduction of OASIS (EAS) and NESS so important? One of the key aims of the Chief of Fleet Support and C-in-C Fleet is to maximize equipment availability. Today this has to be achieved with less money, fewer men and less direct control over the maintenance processes. To maximize availability, it needs to be measured in quantitative terms. Over the past 12 years the U.S. Navy has been able to increase their equipment availability from 30% to nearer 75%. A major contributor to this achievement has been the quantitative measurement of availability. This impressive increase has reduced support costs and has been an indispensable part of their programme to produce a 600 ship rather than a 450 ship navy. With OASIS and NESS the Royal Navy will at last have the capability of measuring equipment availability. An increase in availability by say 10% would in theory allow for 10% more ships or 10% fewer spares or at least the ability to balance the books better.

Trident submarine and the Type 23 complements have been reduced in anticipation of EAS. Some of the savings envisaged are:

- (a) Reduction of some 300 man-hours/month in a frigate.
- (b) Reduction of about 75% in the time to produce reports and returns.
- (c) Reduction in time for producing work packages (150 hours).
- (d) Easier identification of support documentation.
- (e) Improvement in equipment availability.
- (f) Reduction in stores holdings.
- (g) Removal of a large amount of paperwork (estimated as 7 tons in a frigate).
- (h) Better management of modifications, A & As, maintenance, stores ranging due to an improved ship fit definition.

### Future EAS Fits

The system to be installed in H.M.S. *Campbeltown* will be called OASIS System 5 and will be fitted in new construction large warships and Trident SSBNs from 1989. After a year's evaluation a case will be made to retrofit the system into large warships from approximately 1991 onwards.

A modified EAS to meet the needs of the Minor War Vessels and the remaining submarines is being developed. This will be called OASIS System 7 and is likely to be deployed from 1991 onwards. Stores and General Admin. requirements peculiar to tender vessels will be integrated into the same software package.

In support of the ship systems a NESS computer will be installed ashore. Initially this will be NESS 5, but it will rapidly develop to embrace the Fleet

Engineering Staff and Base requirements, and be called NESS 6. It is expected that NESS 6 will take over some of the present NESS 1, CEDRIC and DIRK facilities.

### Summary

With the growing requirement for Support IT (Information Technology) and the continuing pressure on funds it is particularly important that the introduction of these essential facilities is co-ordinated. This has led to the DES(N) strategy to utilize OASIS and NESS.

The OASIS Engineering Administration System is being developed to provide the facilities for:

- (a) Information Management.
- (b) Maintenance Management.
- (c) Engineering Administration.
- (d) ARM data collection.

The EAS at sea will be supported by the NESS ashore. NESS will assemble and process data inputs to the ship and process and distribute outputs from the ship to all interested parties. NESS is likely to evolve into the support system for all engineering applications ashore in the Fleet area.

OASIS (EAS) will be at sea in 1989 and will gradually be introduced across the Fleet.

### Reference

1. Clifton, N. T.: Computer support for engineering administration afloat; *Journal of Naval Engineering*, vol. 29, no. 2, Dec. 1985, pp. 294-300.