PITY MY SIMPLICITY

BY

COMMANDER P. F. DRISCOLL, R.N., C.ENG., A.M.I.MECH.E.

Even important people are shy. They seem to be particularly shy when it comes to using new words to describe new things or ideas. Often the words are not so much new but unused. This has proved something of a stumbling block to many who have been invited to study papers on Information Systems.

The sort of words coming into this category include:

availability; ADP; apportionment; cost effectiveness; usage; managerial; functional; practicability and rationalized.

Also included are:

maintainability; quantified and quantitative; optimize and optimization; and feasibility.

Most people have an inherent dislike of using such words in everyday speech and their dislike of reading anything containing some or all of these words is so intense that they refuse to read at all. This is a pity.

In response to numerous requests, this little offering is put forward in an attempt to explain the ideas behind an information system without using unfamiliar words and without using mathematical presentation.

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Ships break down unexpectedly. Something ought to be done about this. They break down even though people try really hard to keep them in order. If there is a new way to overcome the shortcoming it ought to be tried.

The problem can be separated into various bits. The first bit is to set down exactly what a ship is expected to do, also when and where. This must be done over the whole time the ship is to be on hand between launch and scrapping.

Once this bit of the problem has been done in detail (it's a big job) it is possible to cast various designs which would satisfy it. These designs can be discarded if they are obviously no good. If they show promise, a final selection must be made. In the comparisons which need to be made, various things must be taken into account, like:

Whether it's possible to make it and if not, what further study must be done to enable it to be made.

Whether it's possible to use it with the type of men who will be in service when it is launched, and whether the 'garage' routines and facilities will be good enough to keep it going.

Whether the cost of the whole thing—not just the purchase price but also the cost of running, repairing, depreciation, further studies, etc. as well—makes it sensible to pursue it.

These various points impinge on one another and cannot be kept separate when reviewing the designs. It is important to give due weight to each point and by a process of comparing the various combinations possible, to arrive at the best answer. This is a big task for so complex an item as a ship which is made up of so very many bits and pieces, each of which, or each group of which, will need to have similar attention before deciding that the correct selection has been made.

Clearly a routine to follow would help in arriving at this correct selection. (This routine is called—believe it or not—systems engineering).

This routine is new. At present designers—or those who choose designs—do not take all the points mentioned into their considerations or, if they do, one is given too much emphasis, e.g., first cost to the exclusion of other costs.

One aspect which causes difficulty when comparing things is a lack of definitions which all concerned accept. Agreed definitions of words like system, defect, failure, etc., are necessary so that everyone knows what anyone means. Here then is a need which must be filled.

Another aspect is a lack of information about what has happened to ships and the contents of ships in the past. Such information as does exist is patchy and inconsistent and of little use to a designer. The real importance here is the knowledge that virtually all new designs are developed from existing components or equipments, or a rearrangement of them. Information about past behaviour is more useful than ever as recently, i.e., within the last six years, people have developed theories and laws which enable the likely behaviour of new assemblies to be deduced, given the correct information (data).

Thus armed with the correct data and using the systems engineering technique mentioned, there is a prospect that a marked improvement in design will be achieved and with this, a similar lessening of the unexpected breakdowns which so bedevil the Fleet and so embarrass the operators.

The missing parts before this process can begin are, then:

A set of definitions.

A bank of information of past behaviour of ships, equipments and components.

A similar bank of information concerning costs.

Some information about people—their number and type—who can be expected to be available in the future.

The foregoing is required before confidence in design can prevail.

Although 'nothing is certain until it has happened', it is possible to predict things. It is accepted that the more that is known about a subject, the more likely it is that predicting will be successful and, if predictions are correct, actions (decisions) which depend on those predictions can be taken with confidence. In assembling the data necessary to design reliable equipment, and ships which can also readily be kept going, it is apparent that data can also assist in backing other decisions which have to be taken by naval management. From this has come the concept of having an Information System which could be used by the various divisions of naval management. This system would draw in data from ships, dockyards, design departments, commands, armament stores, spare gear stores, manning departments, operating departments, etc. It would be capable of processing this data to satisfy the enquiries likely to come from Naval Management sources.

Such a system would most likely make use of computers which can process and retrieve information very quickly. For this reason, if for no other, the information requires to be measured in mathematical units which cannot be contested and which are objective.

This outline tries to impart in simple language the ideas behind the suggestion that we should have a 'Co-ordinated Naval Management Information System', part of which would be a 'Ship Upkeep Information System', dealing primarily with technical matters. This information would enable systems engineering techniques to be used to design ships with the best prospect of them being available when wanted and in a reliable condition, easily maintained for the least cost considered over their entire lives.

Whether it is possible to obtain the necessary data, and process it, is a matter for study. It is this study that the Fleet Maintenance Department started upon for the Ship Upkeep Information System (SUIS). The Study began by finding what enquiries major users of the System are likely to make so that the output of the system may be determined. Subsequently a Ship Upkeep Information Study Team was formed which has recently prepared the SUIS Report.

To get money for the Navy in future it seems likely that some formal demonstration to show that good value for money will be obtained, will be needed before funds are provided. Systems Engineering methods and Information System outputs would be essential, and normally worked with, aids to provide such demonstration, apart from any aid to material improvement.

In due course, the previously little-used words (jargon) with which the literature associated with these activities is spattered will no doubt appear no more peculiar than such words as transistor, micronic filter, fluidics, COSAG, etc., have now become in the technical field.