



Can Computerising your business be simple?

a Ulysses Systems whitepaper

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CITIS 2000 awards for Innovation*

CAN COMPUTERISING YOUR BUSINESS BE SIMPLE?

Ship owners traditionally have made good decisions based on tremendously complicated technical issues. Despite this, computerisation in the marine industry has been slower than in many other industries.

There are many plausible explanations. The most likely truth however is that the value perceived in applying computerisation in the marine industry is not seen as overcoming the perceived complexity it brings.

This paper is about simplifying the perceived complications by comparing the process to other much more complicated and risky technical decisions a shipping company customarily makes and yet succeeds.

A few truths that are worth bearing in mind!

Computers and software as we use them in Ship Management are aids to human performance. In so being there are two important considerations.

- 1) Human intelligence is far more advanced than the tools it designs and builds, so memory management and intelligence of computers lags behind human intelligence and memory management tremendously. This makes certain shortcomings of computers most blatant and irritating especially to multi tasking users.

- 2) Experienced senior managers have an excellent reference frame of expertise on the matter of how well human performance can be helped by a fairly complicated solution via computer software. There is no need to understand computer science to succeed in using them to help the enterprise. To choose a successful computerization plan, the most important factor is understanding how people think and work.

From the above we can draw some rules that aid in the management of Computers and information systems.

How can computerization become cheaper and less troublesome than it seems to be now?

List your requirements simply!

Ask the most valued senior manager in your organization to make a list of two or three priorities that he or she believes can be met through computerization. More than 3 are normally too many or two detailed. An example set of priorities could be; 1) more timely reporting of accounts, 2) more transparent vessel operation, 3) enable opening an office for technical management in a less expensive location.

Or alternatively; 1) better control of purchasing, 2) reduction of crew administrative tasks on board, 3) better vetting results.

Make sure you have important goals before embarking on computerisation.

Embarking on Computerisation is like starting a fight.

You need a good reason and you need to finish the job.

Ask the most knowledgeable stakeholder!

Then take this list to the highest stakeholder in matters of cost efficiency in ship management. The highest stakeholder is anybody whose career depends on having made the right decisions in any of the priorities listed above. These people are normally third party ship managers who have to live off ship management fees and the productivity of their personnel and not for example from their ability to time their investments.

Senior Ship management personnel who have tried repeatedly to succeed with information technology are **ABSOLUTELY THE BEST PEOPLE TO TELL YOU WHAT NOT TO DO** and are also possibly the most likely to advise you well on what to do.

Do not become a computer expert!

Computer experts working in shipping companies are like engineering experts, they have enough on their hands in managing existing installations and are not normally set up to judge the positioning and design of products resulting from millions or billions of dollars of man-hours in design and execution. Technical expert input must be qualified with an approach based on references because specific technical issues in a software product or main engine design are too vast to qualify. You do not ask the average marine engineer to choose your new building shipyard or main engine purely on technical merit. A decision based on

technical merit could take decades to complete by in house staff. Alternatively a partial technical evaluation could put undue support for the wrong choice. A software decision is like a decision for the choice of main engine during the days of fast developing designs. It must be based on proper qualification of experience users in other companies. Proper qualification however is a high-level business issue as well as a technical issue requiring the right logical application of the experience of others to ones own needs.

Can you build your own software solutions?

Building your own solutions given the vast array of building tools in the software industry is attractive. However like building your own car it has its drawbacks, even if it can be unlimited in expectations and scope.

If this is not convincing, try to compare home grown computerised solutions to home grown instrumentation modifications on a ship you are about to buy. Who is going to work out how the modification was designed if the design is complicated and the designer has left? Who will update the design to accommodate current spares availability. Likewise in software, who will update the design to accommodate progress in software development?

The majority of your staff should ideally use a good software design continuously. So a poor software design will either be ignored or will cause disruption to the majority of your staff.

Most of us do not buy home made suits. We rely on established designs that we can see and test before buying. Otherwise we might have to learn to walk differently to compensate for the shortcoming in the suit.

How much can computers help us gain through recording distribution and collaboration?

People need to record knowledge that the mind selectively deletes. Computers can replace paper and add the ability for far more convenient distribution of this knowledge in the world. Humans have historically gained very substantially in matters such as collaboration and performance through the recording of information in the world in addition to what is contained in their minds. Today computers can help select and display exactly what each of us needs to see regardless of where we are in comparison with others in our organization and regardless of where the information is sourced.

This can make us far more efficient for example when we travel, and can bring tremendous gains in productivity, office location cost, labour cost, remote decision making quality, travel savings etc. Today a European based superintendent, every night, can inspect his child's homework from an e-mail connection in a shipyard in China.

How good are computers at filing and indexing?

Humans have tremendously advanced recording and retrieval mechanisms in their minds. Other seemingly mundane areas where people are tremendously more advanced than computers are; selective memory, and case based observation and reasoning. Computers are terrible at filing and retrieval of information compared to humans.

Only if they are of very advanced ergonomic design can computers and software be in any way comparable to humans in priority based handling of information.

Compare the time it takes to retrieve something from your company's file server compared to remembering (in your mind) the existence of that document and a rough idea of its contents. Humans retrieve key elements of information instantaneously in synchronisation with the goals or tasks in mind, while the same process on a file server may take minutes or even hours starting from the time of the human need to retrieve, up to the time of actual retrieval. This is an illustration of the fact that human memory organisation is centuries ahead of computer memory organisation.

And yet computers offer tremendous value in collaboration when used for indexing and retrieval of written information and data. **So indexing filing and retrieval are areas where you can do very well or very badly in your choice of Information Technology and the difference will be blatant because humans are so much better at these things.** The right choice is the package where there is a deep understanding by the software designer of how the software will be used by the final user. And the software has to "understand and identify" the information it contains.

E-mail systems or file servers, for example, do not understand and identify the information they contain.

Does it make any difference who the final user is?

Final users should be segregated in two main groups and two secondary groups.

Multi tasking versus single tasking, and high staff turnover versus low staff turnover.

Multi tasking users with high turnover will need far better software designs than single tasking low turnover users. A multi tasking vessels master or superintendent needs a far more ergonomic solution than a single tasking bank clerk.

How good are computers at calculating and bookkeeping?

People need to make repeated calculations in business, and make tremendous efforts to record figures, which the human mind naturally forgets.

Any computer software regardless of how poorly it is designed will make complicated calculation and the recording of figures much easier than through purely human effort. So you can use any accounting software and be sure it better than manual bookkeeping.

What is the greatest hidden danger in selecting software?

The greatest hidden danger is that the cost and requirement of training to use the software will be twice that of the purchase cost. Or still worse, that the software will not actually be used and thus will not succeed in the goal you set for the purchase despite the outlays for purchase cost, training cost and set up cost.

This may not be the most commonly stated risk especially as software vendors describe such risks. If you ask a ship manager with software experience however, you may get the truth.

You may think of dangers like high purchase cost as being the greatest risk. Purchase cost of any product or service that is not directly comparable (due to complexity) with an alternative, is not a critical purchase criterion. The price of a car 90 years ago was not the best comparative criterion because two cars costing the same could be tremendously different in benefits and in lifecycle cost to the owner. Software is far too complicated and far too early in its development to be a purchase based primarily on price.

But training cost can easily vary by a factor of 10 between software choices, while training cost is usually more than twice the cost of the licence or purchase cost.

So a software package costing \$70,000 for 10 vessels may cost you an extra \$140,000 in training and familiarisation cost in order for the package to succeed.

We recently heard of what seems an extreme case of a specific Planned Maintenance product requiring training figure of \$18,000/year per vessel for a

system that had already been in use for some years. Therefore a good product choice should indicate without doubt that the requirement of training is as low as practicable otherwise it will be the greatest percentage of lifecycle cost of the software.

Compatibility with your current software, or maybe integration may be what you have heard is the greatest danger. This is analogous to singling out cylinder liner wear as the greatest difference between main engines. Compatibility and integration are of course factors but nowhere near as critical as training and actual success or failure of the software in its intended use.

Conclusion:

Having thought and discussed all the above with our clients and partners we came across to the following conclusion:

Software purchasing requires similar qualities to those of choosing a main engine for your new building purchase back when marine engineering was still a fast developing expanding business: in short, very good business sense so as to judge how to qualify the experience of others and make a successful decision. Many shipping companies gained or lost tremendous competitive edge through main engine choices. Similarly many businesses outside shipping have lost or gained through information technology choices.

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