# Seafarers and the Internet
# E-mail and Seafarers' Welfare

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The analysis presented in this publication is the author's

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**Acknowledgements**

## 0. Summary

This report summarises an earlier document published in May 1997, which considered the feasibility of using the Internet to improve the welfare and education of seafarers. In particular it focuses on the potential of one aspect of the Internet – electronic mail or E-mail.

A considerable drive for using this technology is coming from various sections of the seafaring community as well as organisations who have an interest in their welfare. In simple terms the Internet can be seen as a source of information and as a means of exchanging messages. Comments and feedback from the seafaring community suggest that the main interest is in the increased use of electronic mail or E-mail at sea.

A growing number of seafarers already have Internet facilities at home and are aware of the opportunities that its use can generate. This group is also aware that once on-board a ship and at sea, using the Internet takes on a different dimension due to technical constraints and company policies. The shipping industry in general has been very slow to adopt computer and telecommunications facilities, especially on board their vessels. Once away from land, the majority of ship communications are via the Inmarsat satellite communications service. Many vessels are using low speed communications links which cannot cope with accessing Internet based information. Even if simple E-mail is used it can result in relatively high costs. Shipping companies are interested in maximising the amount of company data that can be transferred at any link up rather than exploring new communications developments and the needs of crew members.

An increasing number of shipping lines are however accepting the importance of information for the day to day running of their vessels and the subsequent need for data exchange via high speed digital satellite communications systems. Some companies are considering the future data communication needs of their crews and take this into account when calculating future bandwidth requirements. There are others who for obvious reasons will not let crew members use any of the ship's communications facilities for personal use.

Much of the present interest from seafarers relates to the use of the Internet to improve communication with friends and family at home. It enables them to remain part of the family and take part in its day to day activities even when away at sea. E-mail exchanges have a permanency which is not possible from telephone calls. The study supports this view and urges the further development and uptake of E-mail.

In considering possible applications, thought must be given to the use of such developments by the whole seafaring community and not just the minority of crew, mainly officers, who are computer literate. Certain aspects of the Internet do offer viable benefits to seafarers in the near future. They relate to the communications aspects and information services which can be accessed when in port or at home.

Bearing in mind the limited and often expensive communications facilities on vessels and the reluctance by some ship owners to allow crew member to use data communications facilities it is recommended that two pilot projects be established. The first would investigate the benefits of providing shored based Internet facilities with Seamen's Missions. The second project would seek to overcome the reluctance of certain shipping lines to provide E-mail facilities for seafarers by establishing the technical and cost implications of opening up corporate E-mail facilities to use by crew members.

## 1. Introduction

Within both the domestic and business scene, increased access to information and information based services has been a feature of the final decade of the century. Personal computers have become an accepted feature of the home, school and business environment bringing an extraordinary capability to generate, process and distribute information. Information is seen as one of the most valuable resources of the 1990s and it is being made available in a wide range of formats from text and graphics through to audio and video. The rapid growth in the use of the Internet has provided a low cost and easy way of linking many of these computers together, providing a core component of what is generally known as the information super highway.

Businesses are making increasing use of the combined power of computers and the Internet to seek out and generate new business and replace traditional paper based trading processes with electronic equivalents. In the home, private individuals can now link into an information age which provides them with fast and cheap communication through the use of E-mail and the Internet, Communications costs are typically based around a local telephone call rate and the prohibitive call charges traditionally associated with a phone call from say the UK to New Zealand are no longer a factor inhibiting contact with distant friends or relatives.

The Internet and in particular the World Wide Web (WWW) has enabled information to be made readily available in a very visually acceptable form. Whatever the interest, be it sports, a hobby, general new items or business, there are computer linked to the Internet which can provide information.

Educational establishments are continually looking for developments allowing alternative means of delivering educational material. The audiences for their courses were typically constrained by time and location but CD-ROM based courses and more recently Internet Based Training (IBT) have broken the mould for delivery of educational and training course. Time and distance become irrelevant and individuals can work at their own pace wherever there is a suitable computer and communications link.

Seafarers are of course a special case. They are faced with lengthy periods away from home and the drive for greater utilisation of vessels means less time spent in ports. Whilst new telephone developments have made communications easier for seafarers who operate in costal water, for most vessels, communication is based on satellite links traditionally supplied through Inmarsat. The project sets out to establish the feasibility of using the Internet to improve the welfare of seafarers especially on-board ship or in ports.

For readers of the report with little knowledge of the Internet and E-mail, a basic guide is to be found in Appendix I.

## 2.    Doing The Study

A press release was issued by the Electronic Commerce Innovation Centre (ECIC) to a wide range of journals, magazines and newspapers with a seafaring connection.  This resulted in subsequent wide press coverage.  Interviews were still continuing even as the project drew to an end.  Of particular interest to the research team were the views of seafarers.  The article printed in the June 1996 *Telegraph* resulted in many expressions of interest and support from this group.  These came over a period of time from seafarers who were mainly Europe based but were as far afield as Australia and North America.  Some of the comments were received as phone calls or faxes but something like 50% were received as E-mail messages sent via the Internet,  (Examples of such E-mail messages can be found in Appendix II.)

The press release was also placed on the World Wide Web (WWW) pages of the ECIC site.   Details of the project and/or hypertext links to the ECIC material were subsequently established from other WWW sites around the world.  Project details and links were established on the International Transport Workers' Federation (ITF) WWW site.  The Union of Service and Communication Employees in Sweden (SEKO) have provided links from their WWW site.  The ITF-affiliated Marine Engineers' union in the USA wrote an article for one of their telex news services that they send to ships.  A WWW site in America for merchant mariners known as Merchant Marine and Maritime was also asked to host the material.

The material from the press release was also used in a presentation to North America's Apostleship of the Sea Chaplains which explained the possible role of information technology and the Internet in improving the welfare of seafarers.  BP Australia sent details of the article to various staff with an interest in the area.

The number of companies in the shipping industry who have their own WWW sites is growing and this enabled information and contact material to be gathered in a much shorter time frame and without the need for excessive phone calls and exchange of letters.  Accessing the Inmarsat Web site provided links to most of the satellite service providers around the world, to which E-mails were subsequently sent requesting information on their Internet services.

The Internet was not the only tool used and more traditional research approaches were also used.  Visits were made to a number of service providers such as Inmarsat, BT Inmarsat and Telenor as well as other parties with an interest in satellite communications such as Ocean Communication Information in France.  Information searches were made of magazines and publications concerned with satellite communications and developments in the Internet arena.  Contact was made with shipping companies as well as product and service providers.

### Contact with Seafarers

Most research projects get some publicity but the response to press releases tends to be limited.  This project has produced a good level of response from interested parties and this continued throughout the feasibility study.  Letters, faxes, telephone calls and E-mails have been received from around the world, either expressing support or interest, seeking clarification or making offers of help.

The responses have tended to come from three sources:

- Professional people who have an interest in seafarer's welfare, chaplains, reporters, welfare workers;
- Professional people who's work takes them to sea: scientists on research vessels, oil rig workers;
- Seafarers.

The fact that expressions of interest were received from interest seafarers presented an opportunity to obtain clearer understanding of their needs, perceptions and areas of interest. A brief questionnaire was therefore designed and distributed to all seafarers who made contact. The questionnaire was distributed in three ways. As an electronic attachment to an E-mail message for those seafarers who had such links; as a fax message or in paper format; on ECIC's WWW site with a hypertext link from the press release. Once again links and copies of the questionnaire were placed on other WWW sites. A copy of the questionnaire can be found in Appendix III and details of the analysis of questionnaires is contained in section 4.

*Contact with Shipping Lines*

Contact was made with various shipping lines in Europe, North America and also in the Pacific Rim. This was usually done by either phone, fax or E-mail and sometimes a combination of all three. They were selected to ensure a wide geographical spread. The companies included:

- OOCL
- APL
- P&O Containers
- Maersk
- CSX
- P&O Cruise Liners
- BP
- Anglo Eastern

Requests for information were made to several more shipping companies but no information was forthcoming despite subsequent follow ups.

This part of the study was not intended as an in-depth survey into possible future Internet strategies by shipping lines. It was meant to give an indication as the whether the Internet was in any way the subject of discussion within such companies and what their present policy on its use might me.

In most cases Internet use, either in respect of the day to day business of a vessel or as a communications option for seafarers had been the subject of discussions but the issue had not been taken further.

*Contact with Welfare Organisations*

Prior to the study the International Christian Maritime Association had discussed the use of the "Net" in their Seafarers Centres and discussions were subsequently held with the Canon Ken Peters and two of his colleagues.  The North American arm of the Apostleship of the Sea were also interested and they were contacted for their comments.  In searching for maritime related sites a number of Seafarers Missions were fund to have a site of the WWW such as the one in Saint John, New Brunswick.

*Contact with Service Providers*

Inmarsat Service providers such as BT Inmarsat and Singapore Telecom have recently launched E-mail services based around their Inmarsat facilities which have links into the Internet.  A detailed discussion and presentation from BT provided useful input material as did the information from Singapore.  Requests for information on similar services were requested from a range of signatories ranging from Swiss Telecom and Teleglobe Canada to Telstra in Australia and Emnratel in Brazil.  NewsEast provided details of their E-mail services with Internet access which was being used by members of the North America fishing fleet.

Inmarsat were contacted on many occasions and discussions held with a wide range of staff covering the objectives of this study as well as developments which are taking place within Inmarsat.  Inmarsat extended an invitation to join one of their project teams examining the broadcasting of information via satellite links and this was accepted.

Contact was made with companies providing data communications software for the maritime sector, in particular those who claimed to offer Internet as one of their land-based network connections.  The information supplied was disappointing with much of the documentation failing to make any reference to the "Net".  A selection of well known companies were identified and further contract made by phone, fax and in one case via their Internet E-mail address.  This again proved to be a fruitless exercise reflecting their uptake of the Internet at the time of the study.

*Contact with Professional and Representative Bodies*

Professional organisations such as The Marine Society were contacted to obtained their views.  E-mail messages were sent to educational establishments with an interest in the Maritime sector.  On the basis that North America tends to be a year or so in front of Europe, E-mails were sent to such bodies as the California Maritime Academy, the Massachusetts Maritime Academy, the Canadian Institute for Marine Engineering and the US Merchant Marine Academy.  In addition contact was made with the Australian Maritime College, St John's Nautical College Newfoundland and the World Maritime University, in Malmo, Sweden.

### 3.    E-mail.  The Internet and Shipboard Communications System

*E-Mail*

Many who contacted the project team during the study indicated that they or their families use E-mail as a means of communicating when away from home.  "E-mail is a life line to family and friends".  "The availability of E-mail was one of the reasons why I had no problems coming to the other side of the world from my family in Australia".  Few indicated that they were using the Internet as an information service, "surfing the Net" for various sources of information.  Such is their understanding of the use of Inmarsat and the cost implications, that many will have dismissed using the Internet for information access apart from when they are at home.

Even where ships can send or receive electronic mail, the access varies widely.  Some ships appear to operate a relaxed environment in which the crew can both receive and send E-mails freely.  Others allow the ship's E-mail system to be used to send messages from the crew to Internet mailboxes but have a total ban on the crew being sent E-mails.  This applies to messages from both the crew member's family or even a member of the company who knows a member of the crew.  The explanations for limiting the use of existing facilities vary.

For some companies security is a major issue with oil rigs being a typical example.  Apart from secure data being transferred from within the company which has been suitably virus checked no other outside data can be passed over their communications links.  For other companies, capacity is a consideration.  The volume of company data that is exchanged during any link-up is so high that there  is no spare capacity for any messages to or from the crew.  For some shipowners, the basic issue is cost and any use of their facilities is seen as increasing costs and is therefore prohibited.  The use of E-mail communications is a very recent phenomenon and certainly one which did not feature when specifying the use and capacity of most on-board on shore based messaging systems.

### *The Development and Growth of the Internet over the Last Year*

Such is the speed of developments in the Internet world that it is often said that an Internet year is the equivalent to three months in any other arena.  There have been a wide variety of Internet surveys undertaken over the last year, concentrating on potentially different aspects of Internet use and development.  Some are interested in the number of users, other the tools being used to access the Internet.  A further group are more concerned with the business potential for the "Net".

Without doubt all surveys seem to conclude that the Internet is one of the fastest growing IT developments.  According to *Matrix Information and Directory Services* there are approximately 57 million users of the Internet as of January 1997 and 71 million with access to E-mail.  They predict that by the year 2000, this will have risen to 707 million and that 827 million will have access to E-mail.

A further survey from *Cyber Dialogue* claims that 51 percent of Internet users would buy an Internet/TV device as a future means of access the "Net", thus spreading the use of Internet to those families with PCs.  *Asia Pacific Internet and Interactive Services* claim that the number of Internet users in the Asia/Pacific region is set to triple in the next five years and there will be more than 28 million users by 2001.  Thirty per cent of households in Japan, Taiwan, Australia, Korea, Singapore and Hong Kong will subscribe to Internet or on-line services.

However, revenues from Internet based services are expected to top $63 billion by 2002, will come predominately from North America and Europe claims *Internet Voice: Opportunities and Threats*. Forty eight per cent of the 2002 revenue will come from North America and 33% from Europe.

Whichever survey is considered, high growth rates and usage figures are predicted and the number of E-mail users is set to reach 50% of the US population within five years. The Internet appears to be set to become an every day part of many families lives over the next few years.

Developments are taking place at a rapid rate. In May 1996 for example, Inmarsat launched another new satellite which is eight times more powerful than its predecessors. When complete, the new constellation of five satellites known as Inmarset-3 will see the development of cheaper satellite communications and smaller terminals for users. Read any maritime newspaper and accounts of price reductions for maritime satellite communication charges are regularly being reported. However, even with competition there is a level below which it would be difficult to see call charges drop for the existing Inmarsat services.

The following diagram illustrated the level of uptake of the different system as was applicable at the start of the study:
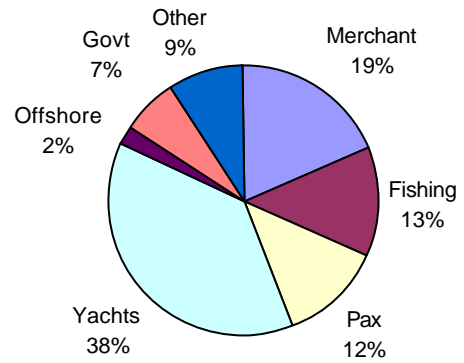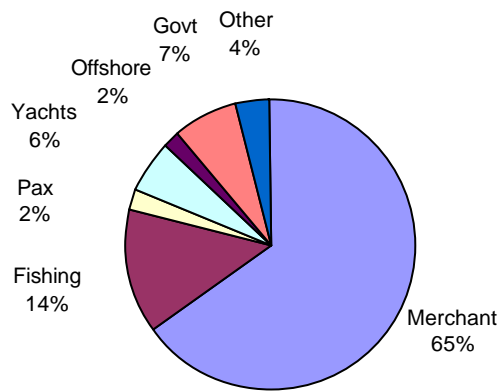
Inmarsat-A
Fittings at end 1995
Total 17,8000
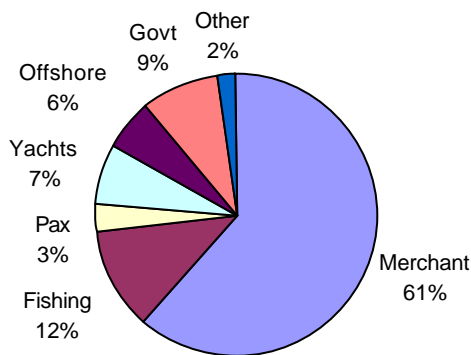
Inmarsat-B
Fittings at end 1995
Total: 600
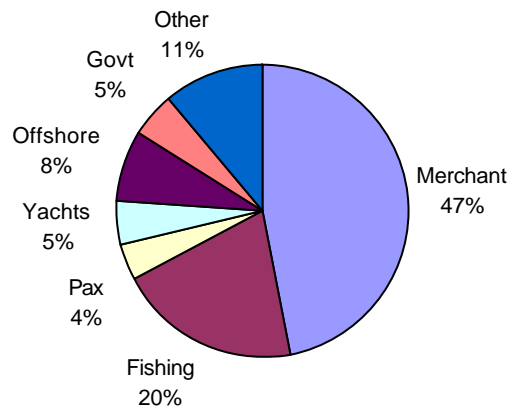


Inmarsat-C
Fittings at end 1995
Total: 13,500

Inmarsat-M
Fittings at end 1995
Total: 1,500

Left pie chart:
- Merchant 65%
- Fishing 14%
- Pax 2%
- Yachts 6%
- Offshore 2%
- Govt 7%
- Other 4%

Right pie chart:
- Merchant 19%
- Fishing 13%
- Pax 12%
- Yachts 38%
- Offshore 2%
- Govt 7%
- Other 9%

Source: Ocean Voice
January 1996

## Services Provided by Third Parties

As Inmarsat services are sold via third parties such as British Telecom or Singapore Telecom so such service providers are looking at ways of adding value to the basic communications service. The last year has seen a number of such companies offering E-mail services in which users can benefit from these communications developments without having to install their own facilities. The service will normally interface to a wide variety of proprietary E-mail system as well as the Internet. Such developments are still at an early stage with BT Inmarsat's Satmail service still only having a limited number of world-wide users. These services make use of the low speed messaging capabilities of Inmarsat C.

Singapore Telecom launched Sentosa Mail 65 in March 1996 but even by the end of the year were still unable to provide detailed information for this study. There has been more success in North America as one would have expected with the high Internet usage at home resulting in a greater acceptance of using E-mail NewsEast Wireless Telecom in Canada claim many thousands of users in North America, with the commercial fishing industry showing a particular liking for the service.

## The Future and Other Communications Developments

The maritime world will remain a number of years behind developments of land based communications and Internet developments. The potential market size is too small to be attractive to major developers compared to the land masses of Europe, North America or the world market. However, both general and maritime specific developments are beginning to which offer opportunities for the Internet in the future. The use of Global Service for Mobile (GSM) phone services allows individuals to use their own phone in many countries around the world. At present it is not always a cheap option when being used abroad, more of a convenience. However, developments in data transfer via GSM data cards might open up Internet opportunities in the future, although these cards can cost £400. One seafarer specifically mentioned his use of GSM to link to the Internet.

Supporting GSM and other telecommunications developments are the growing number of low orbit satellites which it is predicted will provide a world wide umbrella of cheap satellite communications options by the early part of the next millennium. As increasing use is made of satellite communications, so prices will fall. Inmarsat M for example, now offers a mobile service using low cost equipment which might provide a cost effective solution allowing ships crews to have their own communications links. Inmarsat P using portable equipment will be the next development but like the M service aimed at a world market and not just the maritime sector.

As the volume of information being transmitted to ships increases, the concept of "open" satellite links are being mentioned. For a specified (and potentially high fixed fee) ships could have a virtually continuously open communications link whenever required. Selling communications capacity in this way would have an interest for providers as they could have a more guaranteed income stream whilst benefits in lower unit costs could be passed to the shipping lines. The more use being made of the communications facility the lower the unit cost.

Vessels are increasingly having networks installed, linking the different computers and computer based systems on board. This helps in the working of the ship but still leaves it remote from land based operations and other vessels in the fleet. With greater reliance on computer systems to run vessels, so accurate and up-to-date information becomes more valuable. Information exchange between ships and shore based operations and between ships becomes more important. The latest high speed data services allow ships to operate as part of the corporate network – they become just another remote office. The fact that the office might be moving around the oceans makes no difference.

When this situation is reached, full Internet use becomes more of a reality. Mirror sites could be set up on ship based computers. Internet sites which are regularly accessed both for ship's business ore recreational purposes could be downloaded to the ship and updated on a regular basis.

The situation is starting to change but for a small number of modern vessels only. As information becomes accepted as a vital component for the day to day running of such ships, so high speed, wide band data communications facilities are put in place or planned for replacement vessels. They still make use of Inmarsat but with the newer, high speed digital data services. Crew members could well benefit from such developments but it has to be said that the number of seafarers in such positions is still very limited.

Whether crews should be charged for using such services or not (both for incoming E-mail or outgoing) is still open for debate. The present usage levels are still very low and therefore usage costs could be absorbed. When charges are made, the costs can be less than a typical telephone call. One crew member claimed that after a voyage his bill for 42 E-mails of about a page each was £27.

## 4.    E-mail and The Seafarer

The term seafarers is used to cover all officers and ratings.  Although the project addressed the feasibility of Internet access for all seafarers it has to be said that over 90% of the contacts which were established during the study came from ship's officers rather than from ratings.  There was a strong indication from the respondents that other parties with an interest in the Internet were fellow officers although it was felt that other crew members would follow their example it more facilities were available.

The response from seafarers indicates that many officers are already starting to think about the Internet when on leave, in port and in increasing numbers from on-board their vessels.  The seafarer's views reported here show both the potential and current limitations.

Comments from seafarers:

*… in this way (with E-mail), my children can send me a note or my wife can write a letter and close family connections can be maintained.*

*My company take a very proactive view of seafarers using E-mail.  They provided me with an E-mail address at the office and I have full contact with my messages, mostly twice per day  .This was one of the reasons why I had no problems coming to the other side of the world from my family in Australia.*

*Our company Procedures Manual states that "Whilst our (E-mail) system has the ability to connect to the Internet, this was established to allow business related communications.  It shall not be used for personal E-mail".  Recent questions raised abut this issued make it likely that the rule cited above will be strictly enforced.*

Seafarers also provided some useful suggestions on how the Internet could be used, notably the possibility of convenient access to computers in ports.  They were aware of the costs and sometimes technical limitations of shipboard use in current circumstances and identified that shore based facilities might be the cheapest and easiest solution.

A typical contribution came from M Rossiter, First Officer Navigating who was working on the Mediterranean/Australasia container routes.  He regularly makes enquires at Ports that he calls at, as to what Internet facilities are available.  Facilities are still few but are normally provided by CyberCafes in a number of larger cities providing a mix of social and technology services.

M Rossiter referred to the "NetTrek" Café in Freemantle and the "Dark Zone" in Melbourne.  He felt strongly that one of the first steps in making seafarers aware of the Internet should be the production of a database of CyberCafes and their facilities in the ports around the world.  Prices for accessing the Internet from such facilities are reasonable, typically £2 - £3 for a half hour session and there certainly is a social spin-off.  The prices for using such facilities relate to local phone call rates.  Any use of the Internet whilst at sea is obviously charged at satellite communications rate.

*Analysis of Questionnaires*

Seafarers who contacted the project team were asked to complete a simple questionnaire. It contained 12 specific questions regarding use of the Internet as well as a general question asking for details of other possible contacts. Although the number of satisfactorily completed questionnaires was small the responses were suggestive.

*Question 1 – what use do you currently make of the Internet whilst at home?*

Ten of the respondents used the E-mail facility and all used the Internet for information access. Only two respondents had developed their own WWW home pages.

*Question 2 – Do you have E-mail facilities whilst at sea?*

Only three of the respondents had E-mail facilities on board their vessels which they could use. Of these three, one was abroad a research vessel and one used E-mail via cellular radio and this service was limited to 50 miles from the coast when available.

*Question 3 – How frequently would you wish to send or receive messages?*

The answers varied widely from those that would wish to send and receive at least six messages per day to those who wanted to send two or three messages per month. Most indicated they would send and receive equal numbers of messages. If the extreme of six messages per day is ignored the average number of messages which seafarers would wish to send and receive is approximately 12 per month.

*Question 4 – How important do you rate Internet E-mail and information access on a scale of 1 – 5? 5 being very important.*

The results from this question were interesting as the respondents indicated that to them the provision of E-mail was more important than information access, with most giving E-mail a rating of 5. The average rating for E-mail was 4.5 and information access was 3. The responses could be a true reflection of seafarers thoughts although it is felt that their replies were tinged with an understanding that wider use of E-mail was possible whilst information access has numerous hurdles still to overcome.

*Question 5 – If accessing information (from the Internet) what option would you find acceptable?*

Three options were given – interactive sessions, receipt of textual information only and receipt of broadcast information. In the main respondents indicated that the second and third options would be acceptable with 45% indicating they wanted interactive sessions.

*Question 6 – what broadcast type applications do you think would appeal to seafarers?*

This question sought seafarers views on the type of Internet based information which might be broadcast to vessels if this was a viable option. Two topics were raised time and time again – news and sport.

*Question 7 – Would a single Internet point on board ship be suitable?*

81% of respondents indicated that a single point would be acceptable, whilst the rest thought more than one point was required.

*Question 8 – What is the full complement and how many would use an Internet facility?*

The full complement ranged from 10 to 37 and the number of potential users as a percentage of the overall complement varied widely. Some replies reflected the views gained from face to face discussions during the project. In other words, in a complement of 24, four or five of the officers might use the Internet facilities. Other respondents indicated that all officers and crew would use the facility if it was available and the crew were trained to use it. Nothing conclusive could be gained from these replies.

*Question 9 – What do you think your companies main concerns would be?*

To most seafarers the biggest concern for their companies were the cost or rather their lack of knowledge about cost and the implications for providing seafarers with Internet E-mail facilities. Other concerns included the possible spread of computer viruses and security.

*Question 10 - Possible Internet applications for day to day running of vessels.*

This question gave seafarers the opportunity to comment on how the Internet might support the day to day running of their vessel. Suggestions included:

- Cheaper communications generally for ships business;
- Contact with port engineers and material buyers;
- Stores ordering;
- Planned maintenance;
- Port information;
- Weather information;
- Spares, cost of fuel, ports etc.

One respondent commented that whilst Inmarsat A and C are being used – there is little that can be achieved!

*Question 11 – what would be the maximum cost for sending or receiving an A4 E-mail?*

Figures varied and the responses were in a mix of dollars and pounds sterling. At the bottom end the maximum figure was $0.30 - $0.50 (20p – 30p) per A4 whilst at the top end it was £3. The average figure was about £1.25 page.

*Question 12 – what would be the maximum cost you would be willing to pay to receive a copy of the Electronic Telegraph?[1]*

In most case, seafarers felt that this should not be a cost they should have to carry. It is something the company should provide as part of their welfare service. Those that did indicate a figure suggested something in the order of £1.

This is interesting when compared to the response for the previous question. For private E-mails seafarers expected to pay but general, broadcasted Internet information they expected the company to absorb the costs.

### Findings from Shipping Lines

Unless they are using third party mail services for which the uptake is currently very low in the shipping industry, seafarers had to rely on using corporate facilities to send or receive E-mail messages to or from the Internet. The only other option was for an individual seafarer to connect his own computer directly to the ship's Inmarsat satellite facilities but during the whole of the study, this approach was only found on one occasion.

The following are comments from a range of shipping lines or ship management companies reflecting their policy towards use of the Internet.

### A major UK company who achieved widespread press coverage for their use of modern communications facilities:

Although mention was made in a press article about the use of modern communications facilities by this company, seafarer access to such facilities is forbidden.

### A large international container ship operation:

Will not let seafarers use their own Internet ID and set up communications links via the ship's Inmarsat equipment. This would need extra equipment linked to the Inmarsat equipment and occupy usage time which may in turn affect the safe operation of the ship.

Sending and receiving private messages to or from families of seafarers is quite common. Our policy is not to ban such use as long as it does not affect ship's business. Family members send E-mail messages to the company's internal mail system via its Internet link and the company will relay the family messages to the designated recipients immediately upon receipt.

At the moment only two or three seafarers are using the system out of 23 operating vessels carrying 20 to 22 crew on each.

They do not charge seafarers for relaying private E-mails using their gateway.

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[1] The Electronic Telegraph is an Internet version of the UK's Daily Telegraph newspaper

*European container line:*

No Internet E-mail access allowed.

*A Pacific-Asia based shipping line:*

We would have no objection if staff on board used E-mail to communicate with their friends and families, but you will realise that the deterrent is the Comsat or Inmarsat satellite connection which remains expensive, even for short bursts, because you pay for the handshake time as well.

E-mail is a viable option but browsing (surfing) is excluded because of the expense. We know that some of our staff use E-mail to communicate with their families in the US or Canada, however, on our 75 vessels under management, the majority of staff are either Indian or Filipino, and in both these places, the Internet providers are few and unreliable and the Internet address holders even fewer. Our staff are however very switched on in respect of this possibility and awaiting developments.

*A US based carrier:*

Individual employees of the company or its subsidiary companies do not have company E-mail addresses via the Internet.

*A UK, European and world wide shipping line:*

We have a corporate E-mail facility which is used to support the day to day operation of our vessels. We do not allow relatives or staff to send E-mail messages to each other via the corporate system.

*An International Oil Company:*

Our new generation of vessels which will be coming on stream towards the end of the decade will have far more advanced data communications facilities as information links to our vessels becomes more important. High speed and wide band data links together with on board networks will make use of E-mail by seafarers more of a possibility.

However we are aware of the current interest amongst our crew in using E-mail.

*Results of Discussions with Welfare Groups*

The possible use of the Internet had been raised in a number of discussions groups but at the time of the initial contact nothing had been done due to lack of funds. One particular area of interest was the establishment of a directory of the 700 or so Seafarers Missions as a net site. This would have the long term objective of reducing the cost of printing this directory and also ensuring that only the very latest information was being made available

A subsequent meeting with staff from the Mission explored a range of other opportunities. Most related to possible services for seafarers which would enable them to keep in better contact with their families or provide an alternative and innovative facility for seafarers using their missions. As a result of these and other discussions suggestions on the types of services that the seafarers mission might wish to provide are contained in Section 6 of this report.

This interest from Church Welfare groups was expressed in other messages of support we received. Deacon Albert Dacanay, Apostleship of the Sea, Port Chaplain for Toronto, Canada who read of the project in the "Telegraph" was supportive of any moves to combat seafarer's isolation.

A very supportive and lengthy E-mail was received from the Christian Hospital Ship M.V. Anastasis which indicated that Internet E-mail is a life line between the ship's crew and volunteers and their family and friends.

*Discussions with Service Providers*

Although the data communications survey cannot in anyway be considered a comprehensive exercise, it did reflect the trend for the use of communications facilities in the maritime sector to lag behind land based companies. Whilst for many the use of E-mail means the Internet, the emphasis in the maritime sector is for solutions based around an international standard for interworking of messaging systems known as X.400.

Traditionally, the problem faced by E-mail users has been linking different systems together. Companies could operate in-house corporate solutions but linking to E-mail systems in other organisation was difficult and frequently impossible. The development of X.400 was seen as a solution to this problem and a way of moving E-mail forward from an inter-company communications medium to an intra-company one. Despite X.400 based solutions first being introduced in the 1980's it has not become the panacea that people thought it would be due to its complexity and cost implications. It remains primarily a solution for large corporates who wish for a very secure and ?audible solution. The dramatic upsurge in the use of E-mail is due to the Internet both for domestic and business use. It provides solutions at an affordable price although not providing the functionality, checks and controls of an X.400 based system. Examining details of communications products offered to the maritime sector, X.400 based solution was widely mentioned gut there is little evidence that Internet compliant systems are available.

Frequently when asking such suppliers for their strategy on the Internet, concern was expressed about the security of such systems and the possibility for importing viruses. These are issues but ones which the terrestrial data communications companies have overcome or are addressing with technological solutions.

*Discussion with Other Institutions Involved with Internet Assess at Sea*

Whilst repeated attempts were made to obtain information on various Scandinavian developments such as the broadcasting of electronic newspapers to Swedish vessels, only very general information was forthcoming. Most input came from Maritime Research Institutes who were extensive users of the Internet.

The following section provides a synopsis of a discussion with staff at the Natural Environmental Research Council (NERC). It epitomises the use currently being made of the Internet by staff and crew on their various research vessels as well as giving a vision of what might be possible for seafarers in the future. What was found at NERC is typical of other research organisations based in Europe and North America.

The initial use of the Internet E-mail system by NERC was for vessel management and this is the way that most vessels start. It was a simple data transfer via Inmarsat A which started in 1987/88. Vessels then began to download scientific data such as satellite images which would help with their research work. Although downloading the images might cost £80 per time the money saved in vessel running costs was significantly greater. Ad-hoc personal E-mail then started to grow and overtook the ship management traffic.

Internet E-mail is now accessed daily and something between 20/30 personal messages are exchanged. Large attachments are also sent with E-mails but the person on board is responsible for the cost of both incoming and outgoing message costs. It is low cost to send a message to the shore based NERC vessel mail box but then Inmarsat costs are incurred. All NERC vessels still have Radio Officers and it is their responsibility to use a stop watch and charge accordingly, based on a time for total transfer and number of bytes each message contains as a percentage of the overall data transfer. All messages, regardless of content and intended recipient, are bundled together as a large file and shipped out via Inmarsat link.

The use of E-mail has grown over the last two years and NERC are ahead of commercial operations because most of the scientific staff on vessels have been used to E-mail in an academic environment and expected it on the ship. East ship has its own mail box. The subject line of a message contains details of the intended recipient. There is an increasing level of sophistication by users who are sending messages to the ships. Messages are created off-line using Word, WordPerfect and other word processing packages. This causes a communications overhead as the WP functionality commands are also exchanged. It is cheaper to use a simple text editor or the facilities within the E-mail package. On board the vessel, crew members create text files on their own PCs and take them to the radio cabin to be batched together for transmission. Using extra compression techniques is not beneficial. 200K files are reduced to say 50K as a result of the standard Zip and Unzip utilities within the ship's E-mail system.

The cost per message gets cheaper the more data that is being exchanged. This is due to the overhead of the initial communications handshake and close down. This overhead is lower when spread over more messages. A figure of £1 per A4 E-mail was quoted. People's lives still go on when they are at sea and E-mail allows this to happen. Contact by E-mail remains longer than a telephone call – it is more permanent and details such as leave arrangements can be made much easier by E-mail. Research vessels also talk to other research vessels by E-mail.

The British Antarctic Survey (BAS) have a number of ships and bases which make extensive use of E-mail. Staff moral is a major issue with posting to the Antarctic for two years or more. Keeping in touch with home and friends is seen as important. Staff can even send E-mails to people without computers. Such messages are sent to the BAS headquarters and if there is no E-mail address, it is printed out and sent by surface mail.

They still have the potential for problems with Marine Operations regulations and the fact that the master or the radio operator acting on his behalf, has the right to see all incoming messages. However, this right is not invoked and the volume of messages now being sent is such that there would be too much for the master or radio operator to read. All E-mail messages are archived and therefore if a rumour or breach of confidentiality is said to have resulted from an E-mail, it is possible to check back and find who was responsible. Crew members who wish to use E-mail need education and a set of basic parameters within which they can work.

As the amount of business traffic to vessels increases it becomes very cheap to add personal E-mail and these non-priority messages can be used to optimise the size of data packets being sent.  It is thought that for every crew member a certain amount of "time" should be free and above that they should be charged for.

Examples were given of how in the future vessels should make better use of the Internet for ships business.  Mention was made as an example of those ports putting berth information on the Net and having on-line booking which could be used by the ship rather than land based staff.  In their vision of the future NERC saw their ships becoming an Internet Information Provider – just another part of the University with a mirror site on the vessel.  Pages of information which might be required for ship management or which the crew might like for recreations purpose would be downloaded daily or weekly to the ship.  Internet facilities for the crew would be built on the back of improved business links for the day to day operation of the vessel.

## 5.    Conclusions

The use of the Internet is growing and the numbers of users are more than doubling in size each year. A 1997 survey found 71m "net" users with E-mail access and predicted 827m users by 2000.

The use of the "Net" within the shipping industry in general, is still very much in its infancy. The latest computer and telecommunications developments have had a slow take-up. The industry relies upon expensive satellite links for ship-shore communications.

There is strong evidence to suggest that where E-mail links to seafarers on their vessels are possible, it plays a significant part in keeping seafarers in touch with family and friends. E-mail facilities enable seafarers to remain part of the family even when away at sea and E-mail exchanges have a permanency that is not possible from telephone calls.

There is still widespread ignorance in the shipping industry of the implications and costs of allowing seafarers to use Internet E-mail facilities and many shipping lines are forbidding seafarers to send or receive E-mail messages even when such facilities are used for company business.

Some companies still claim the right to read all incoming messages including E-mail messages. In practice this power is seldom invoked and in practical terms as the use of E-mail grows the pure volume of messages being exchanged would make this impracticable to implement. The ability to retain a full audible log of messages sent and received would remove the need for such an imposition.

More forward thinking shipping lines are planning for improved communications capabilities in their next, generation of vessels. They appreciate the importance of information and communication links and are including the needs of seafarers in their calculations for future bandwidth requirements. However, the number of such companies is still small. Meantime, a high percentage of vessels have communications capabilities based around Inmarsat C.  Whilst being a relatively low cost system to install, the associated slow speed makes it relatively expensive to send E-mail messages.

A number of service providers such as BT Inmarsat and Singapore Telecom are offering E-mail services via Inmarsat C systems. These services have links to the Internet but they are at a very early stage in their uptake, the number of users is still small and the prices charged are not attractive to most seafarers.

While perhaps helping to improve the general safety of vessels, the adoption of GMDSS has resulted in many vessels implementing a basic Inmarsat C system to conform with regulations. A consequence of this could be a reluctance to invest in any additional satellite communications facilities that may be more suitable for the future information needs of the vessel and her crew.

Improving the use and availability of Internet based E-mail is seen by seafarers as being of more importance than providing Internet "surfing" facilities. They would also be willing to pay for E- mail facilities whilst they would expect their employers to pay for Internet based information services.

Seafarers would benefit if they had access to details of Internet facilities available in the many ports around the world even if they were only used to send or receive E-mail. There are an increasing number of Cyber Cafes and similar businesses that seafarers could use whilst in port.

The various Welfare Organisations such as the Seamen's Missions have an important role to play in promoting the use of E-mail amongst seafarers. They could also enhance the present level of facilities they provide to seafarers by providing shore based Internet access.

E-mail could be used to link to educational tutors. As such it could provide an additional communications channel whilst seafarers are away from home. However, the wide spread use of such facilities will only take place when the core issue of Internet E-mail access have been resolved.

## 6.       Recommendations

### *Introduction*

Whilst the general conclusion from the study is that the present use of E-mail by seafarers is low, there are a number of actions that can be taken which it is believed will benefit seafarers. Behind these recommendations is a belief that something needs to be done in the short term, which is feasible, affordable and which has the potential to achieve the greatest benefit for the largest number of seafarers. It would provide an interesting research project to develop and trial many of the ideas for Internet information access. However, until the uptake of high speed, wide bandwidth satellite communications networks are adopted by more shipping lines there would be little benefit to seafarers. This community would be better served by making greater use of the Internet based services that existing communications links can handle and by providing better facilities for accessing the Internet when in port. Once E-mail is available and being used there could be other uses to which this technology could be put. For example, seafarers could keep in regular touch with an educational establishment if undertaking education or training whilst away from home.

There is apparent ignorance within the shipping companies that needs to be overcome. As one seafarers commented "there is a lot of opposition within shipping companies, some still do believe the Internet is only the playground of hackers".

We suggest therefore several small-scale pilot projects are conducted with ship owners, ship managers and seafarers welfare agencies and voluntary organisations in line with the recommendations below.

### *Recommendation 1 - Proposal for a pilot project demonstrating the possible use of shore based E-mail facilities within a number of Seamen's Missions*

At the present time it is not expected that many shipping lines will invest in seafarers E-mail facilities. A second best option would therefore be to provide facilities in seafarer's welfare centres. This would present both computer users and non-computer users with opportunities to benefit from E-mail. Computer literate seafarers with their own PC's could create messages on board and send them as E-mail attachments once shore side. These would typically be messages to family or friends who have their own E-mail facilities. They could also create messages on computer facilities within the centres and send them accordingly.

The possibility of non-computer literate seafarers wishing to send messages home is smaller but can be accommodated. It should not be forgotten that many such seafarers have children at home, who are much more familiar with the technology and regularly use the Internet.

On such occasions use might be made of computer literate volunteers who help run the centres and who could "key-in" messages on behalf of seafarers.

This still leaves a large number of seafarers from less well technology developed countries that might appear to be once again missing out. As with many technology developments it soon becomes apparent that whilst full Internet E-mail facilities may not offer everyone benefits, hybrid solutions might be more appropriate. Take for example what might be possible if Internet facilities were available in a mission in Southampton and say Manila. Filipino seafarers visiting Southampton could ask for a message to be sent to the Manila mission. Once received it could be printed out and put into the local surface mail system, thus saving several days and cost against sending a normal letter home.

It may also be possible, subject to availability, for the shore based Internet facilities to be used for "surfing" the Internet for information with a small charge raised for such use. "Cyber café" developments could easily be grafted on to existing centre facilities.

A number of seafarer's families are to be found in port communities. Members of families could use the E-mail access facilities whilst their husbands, fathers or partners are away at sea. They themselves could then access their E-mail either from their vessel if this was possible or when they call at the next port with E-mail access facility.

Issues to be addressed in such a pilot include:

- The most appropriate and suitable way to set up individual E-mail users;

- How using the links from shore based facilities should be charged for;

- Who can and should maintain such services;

- How to make seafarers and their families aware of the facilities available;

- Identifying those patterns of ship movement, between ports which might benefit most from such facilities;

- The use of hybrid solutions;

- How the seafarers mission might benefit from use of such facilities.

The cost and technical specification of such a pilot can only be determined once the scope has been agreed with interested parties. Internet access and facilities are not seen as an expensive technology and certain costs could be recovered through charges made for the use of such services. The majority of the supervising and running of the project would be undertaken by the Seamen's Mission who may wish to seek funding from interested parties.

***Recommendation 2 - Proposal for a project investigating the full implications for shipping lines providing Internet E-mail facilities for their seafarers.***

Sending Internet E-mail messages to and from ships is possible and the feasibility study identified a number of examples of where this was happening. E-mails from the Internet can be sent through the companies internal systems or via third party E-mail services such as offered by BT Inmarsat or NewsEast Wireless Telecom. The internal company system offers the potential for cheaper exchanges than using third party services.

However, the number of such uses is still limited and in several cases whilst technically possible to establish such links, company policies and rules prohibited their use. Whereas shipping companies are well versed in recharging for phone calls and the impact seafarers use can have on voice communications facilities, E-mail is still an unknown quantity. The second recommendation is for a pilot project to examine in detail Internet E-mail links to a vessel which currently uses an E-mail facility for ships business but which prohibits its use for seafarers. The pilot would look at a number of issues:

- How the Internet E-mail can be linked with the company system;

- The implication, technically and financially for such links;

- Methods of recharging costs to seafarers;

- Ways in which seafarers can access their E-mail and also create messages;

- Examine the legal, financial and regulatory historical constraints which are currently being used to prohibit E-mail use;

- Develop a methodology for implementing E-mail for seafarers in such circumstances.

Such a pilot would require input and support from shipping companies, E-mail system provider, ECIC and possibly members of the ships crew. (The pilot could be the subject for a dissertation for a seafarer taking some form of higher education qualification, especially in radio and telecommunications area).

Once again the full scope of the project can only be determined in discussion with interested parties. The pilot should be run on a small number of vessels but the knowledge gained disseminated to a wide audience.

# Appendix I

# A Basic Guide to the Internet and E-Mail

**A Basic guide to the Internet and E-mail**

The following provides a very simple introduction to the Internet and E-mail for readers of the report who are not yet conversant with these developments. The material is based around a booklet from Future Publications entitled "the Knowledge – the complete beginners guide to the Internet" and supplemented by comments from the report's authors.

*The Internet*

The Internet as we know it today is the outcome of a research programme of the USA's Department of defence (DoD). One of DoD's main interests was to develop a computer network technology that could survive catastrophic damage, for example to enable the USA's national defence command and control network to survive a nuclear attack. Today the Internet is a different animal, used by millions of people for business and personal use. It provides a mechanism for exchanging messages electronically as well as a vehicle for accessing a very wide range of information provided once again by both the business community and private individuals.

The term Internet literally means "a mechanism for connecting for bridges different networks so that two communities can mutually interconnect". Over time, more and more networks adopted the same protocols forming the Internet as we now know. Its worthy of note that what drove the early success and growth of the open Internet wasn't all what DoD had in mind. In years to come the Internet may well come to be seen as the most significant result of the cold war and the atomic bomb.

The Internet is not a single network but rather a "network of networks", all conforming to a common set of "protocols" for connection and traffic handling purposes. In computing and communications the work "protocol" means very much the same as it means in diplomacy – its just a recognised way of establishing who does what and in what order things happen.

The Internet protocol known as TCP/IP has been accepted world wide as a robust and very useful set of standards for connecting computers and for supporting interactions between them. Because of this, TCP/IP methods are used widely outside the Internet as well as on those networks that are "part of" the Internet.

In simple terms the Internet can be looked upon as an information provision and dissemination facility made possible by the interconnection of vast number of computer systems. Recently the term Internet has almost become synonymous for some people with the term the World Wide Web (WWW), a way of displaying information which not only contains text but also other information "objects" such as image, video and even voice. Information displayed in this manner is much more acceptable than simple text based information as was originally used on the Internet. Companies, organisations or individuals can become information providers by displaying information on Web pages or use the WWW to find information. A further development of the WWW is a concept known as hypertext, a way of linking information can be found on different computer systems anywhere in the world.

*What is E-mail?*

E-mail could be said to come in two forms. The form most people are familiar with is the internal variety used in companies that they work in. Then there's Internet E-mail.

Both do the same things, although slightly differently.  But as far as the user is concerned the differences are disappearing as many company have now hooked their office E-mail into the Internet.  This means its now possible for small companies to benefit from a global E-mail system, something only huge multinationals were able to afford.

But personal users can benefit as well.  Some families now use E-mail to keep in touch with each other (its cheaper than the phone and faster than post – and you can "talk" daily if you like).  The Internet E-mail has been used widely alert the world to natural disasters, like the Kobe earthquake in Japan.

So E-mail is simply a way of sending text messages to other people who have Internet access.  It's a bit like using a fax machine, only without the funny glossy paper or the engaged tone on the machine as the other end, or the need to print out your message once you have typed it in.  In fact, it's nothing like using a fax machine because you can E-mail several thousand at the touch of one button, and do other things like join Internet discussions groups.  E-mail is fast (messages can be delivered to the other side of the world in less than five minutes – although equally, it can sometimes take three days), it's cheap) the cost of a local phone call no matter where you are sending it) and it is also of the most efficient ways of communication in this electronic day and age.

Not only can you send straightforward text messages, you can also attach computer files to be sent alongside the E-mail message.  It is the electronic equivalent of attaching a paper file to a letter with a paper clip.

When you open an account with an Internet providers, it normally provides E-mail facilities as standard, You agree with the service provider your E-mail address by which you will be known by the rest of the world.  Incoming mail messages are not delivered direct to your own computer but to your electronic mailbox provided by your Internet providers.  Your messages are stored until you log on and download them.

E-mail addresses can look confusing, but they are easy to understand when you know what all the parts mean.  For example **nmerritt@futurenet.co.uk** means the following, starting with the part after the @ (which is known as the "domain").

**Uk** means the domain is on a computer in the United Kingdom.  Every country has a two-letter code known in the Internet trade as the top-level domain code.  You won't see the **us** code for US used very often because of the following reasons …..

**Co** means the domain belongs to a company.  Alternatives are **ac** for academic institutions such as a university, **gov** for government domains and **org** for organisations such as charities (Greenpeace is at greenpeace.org, for example).  Just to make things a little more confusing, companies in the US just use **com** instead of **co.us** and US universities use **edu** instead of **ac.us.**

**Futurenet** is the domain name which Future Publishing registered with the Internet Society which approves names and hands out Internet Protocol numbers to go with them.  Every computer on the "net" has an Internet Protocol (IP) address and the domain name is mapped on to this.

**Nmerritt** is the users name.  The Internet doesn't know or even care how many people live in the **futurenet.co.uk** domain, it just delivers messages there and the **futurenet.co.uk** mail computer delivers all the mail to the individual users.

# Appendix II


# Examples of E-mail Messages of Support Received from Seafarers and Other Bodies

Date sent: Sat, 14 Dec 1996 11:13:01 – 0800
From: ADM_CHMATE@ccgate.apl.com (ADM CHMATE)
Subject: Internet access at sea
To: PARFETT@cardiff.ac.uk

Dear Professor Davies,

The ability to access the Internet at sea via the vessel's SATCOM system has been a tremendous boon to our morale and well being.  Although I work for a contract company of the International Organization of Masters, Mates and Pilots (USA) and have never experienced the horrific conditions I so often read about in "The Sea", it nevertheless, has made the fast turnaround life of a container ship Chief Mate much less isolated and lonely.  We aboard "American President Lines" vessels, are basically the only US flag carrier that has computerized to the point where Internet access is available to all officers and crew.  Though not "officially" sanctioned by corporate headquarters (who at this moment are locked in a struggle with MARAD and the Unions aboard to either slash pay and benefits by 42% or flag out) since we open the E-mail box twice daily to conduct company business, our Internet traffic adds no cost to the daily SATCOM air time charge.

If you wish to respond, or ask any particular questions I'll be aboard the "PRESIDENT ADAMS" UNTIL 3 Jan 97.

Cheers!
Mike Brown

Date: Sun, 2 Jun 1996 11:58:01 –0400
Subject: NUMAST telegraph article (June'96)
To: Professor Tony Davies DaviesAJ@cardiff.a.uk

Professor Davies,

I would be interested to hear your views and know of any developments or ideas that evolve from your research.

I am a second engineer currently employed with a large oil company and tend to spend approximately 7 months in any year deep sea.  I have only just acquired a modem (V.34) and intend to use it in conjunction with my notebook computer for sending/receiving e-mail via satellite whilst I am on board.  The vessels I am on are typically thousands of miles away from the UK.  (Often in the Far East or Caribbean).  The cost to an individual using the Internet for anything else via satellite at present is liable to be prohibitive as far as I am aware.

All of our vessels do have e-mail via satellite systems in use, but at present there is no facility for accounting for individual use and it is used solely by the Master for Company business.

Date:          Tue, 4 June 96 12:40:02 +0100
From:         amackay@cali.co.uk(amackay)
Organization: Calico UK
Subject:      Internet for Seafarers
To:            daviesaj@cardiff.ac.uk
Priority:       normal

Very interesting to read about your 'Internet' research project. Recently I purchased a Modem and then got connected to the Internet through a local provider.

The reason for this is to keep in touch with my family by E-mail which is sent to my Company and the ship collects the mail on Mondays, Wednesdays and Fridays. The ship carries about 18 scientists so with the fair amount of E-mail sent and received the cost is spread and relatively cheap. This way my children can send me a note or my wife can write a letter and that close family connection can be maintained.

Now, to read about your research and the possibility of reading just a Daily Newspaper over the 'Web' whilst at sea seems like Manna from Heaven to me and I'm sure most if not all seafarers.

All the best,

A.V. Mackay MBE

Date:          01 June 96 13:15:21 EDT
From:         Mike Harrison 100417.744@CompuServe.COM
To:            Professor Tony Davies DaviesAJ@cardiff.a.uk
Subject:      Internet at Sea

Dear Professor Davies,

I was interested to read in the NUMAST Telegraph about the research you are conducting into the use of the Internet at sea.

After 25 years at sea I now run a Marine Software company as well as being a relieving Master. I use the Internet and our home page extensively and would dearly love to be able to correspond with our many customers at sea using the Internet as well as using it for personal e-mail. At present we use Satellite Fax and Telex for communications, which are both expensive and time consuming. Proper access to the Internet at sea would be a great boost for many seafarers!

Please do contact me if I may be of help. Best wishes to your project.

Regards,

Mike Harrison, Master Mariner, Dolphin Maritime Software Ltd
(Telephone & Fax 01524 841946)

Date:           Tue, 11 Mar 1997 07:41:45 –0800
From:           Mike Schmeisser mike@schmeisser.com
To:             daviesaj@cardiff.ac.uk
Subject:        Press Release – Seafarers need to "surf" away their loneliness

Dear Sir,

With my background, in short since 70 radio amateur, 76 working with the first processors, 78 using the first computers for radio communication – I did transfer my residence to Southeast Asia in 82. Due to my remote residence I did very early realise the importance of communication, did start in 85 to work with internet e-mail, even as that time we had been looking at expenses of 100$/hr at 2400 bps. Meanwhile I am looking at over 10 years of Internet experience, had been also active in the development of the internet in the Philippines.

My main target had been to introduce e-mail within the shipping companies. The main problems encountered are however:

The age structure of European officers, most are shortly before retirement and interest in starting to learn about computers extremely limited to my regret. Computer training, if any, was widely limited to a short course on company software, the computer basics however had been widely ignored. In this respect, a lot of officers still do have their problems with this technology, not being properly trained, unable to handle even minor problems as they may arise with any PC.

From the office side, I experienced a wide objection against the Internet communication. Again the age structure might be one explanation, but a lot of companies do use e-mail already for their internal communication. I cannot avoid the impression that shipping companies are widely not interested to promote any internet communication for seamen, as a well informed seaman might not be in their interest, especially in view of the upcoming shortage of officers.

A career at sea is one of the loneliest occupations in the world but it could become less isolated if seafarers could log on to the Internet, the computerised global information network.

This is absolute correct – I so far didn't have the pleasure, but I did learn about some very positive comments from some masters which do have e-mail on their vessel, which did enable them to cheaply communicate with the beloved ones and friends.

"With the price of communications links tumbling and the uptake of the Internet rising at an unprecedented rate, it seems unsatisfactory that such services cannot be made available to seafarers, and at an affordable price,"

There had been no support from the companies I did work for, so far any communication via any of the Inmarsat services has to remain very limited due to the expenses. New technologies might bring a change, like the one offered by http://www.orbcomm.net.

I happened to initiate and set up the first mailing lists operated in the Philippines. Unfortunately I could not attend to the necessary list maintenance while at sea – these lists are now handled by a group in the UK. The main list does carry the official news by the Philippine News Agency, made available to everyone free of charge. I had sent some news samples to a few vessels with Philippine crew. They would be very much

interested in receiving this news on a regular basis, especially as these news do include a lot of the local items, not available abroad.  To avoid the high inmarsat expenses.  I suggested to some companies to collect  these news and to forward these on diskette with their regular mail to their vessels.  Those companies asked did widely claim to be interested, but all in a line did not attend to this possible service for their crew.

"Tragically, the Internet is not available to seafarers who number almost one and a half million worldwide.  Yet it has the potential to break down their isolation whilst they're at sea or away from their home port, and to make a substantial contribution to their psychological welfare, learning and development."

In an environment of less crew, extreme short stays in ports, its not only the isolation, the lack of information is even getting more and more evident.  Even as it might the exchange of information about the individual companies or the job market, it cannot be ignored that a range of scrupulous crewing agents and ship managers are taking at present their advantage out of the situation, in which seafarers are widely insufficient informed.

I only hope that the communication and information on board will improve.  I am however afraid, it might be a long way to go.  There is a lot of opposition within the shipping companies, some still do believe the internet is only the playground of hackers.  As we also pretty well do know, as the magic letters 'ITF' do appear behind any efforts to make internet services available on board, it might only give a wide range of shipping companies some further reasons for not making this technology available to their seafarers.

Best Regards

Mike Schmeisser
Mike@schmeisser.com
Cebu-City, Cebu, RP

# Appendix III


# Copy of questionnaire sent to seafarers

*To the numerous seafarers and other interested parties who responded to our press release on the possible use of the Internet by seafarers*

As a result of the recent press release we have received numerous E-mail messages and telephone calls expressing interest in the project. To help us with our project I would appreciate a little more of your time in answering a brief questionnaire.


Name:
Address:
Internet address:
    Normal sea based occupation or role:

1. What use do your currently make of the Internet whilst at home? Please tick

   - E-mail
   - Information access
   - Own home pages

2. Do you have E-mail facilities now which allow messages to be forwarded to your whilst at sea if so how do they operate?

3. How many and how frequently would you wish to use E-mail? Please give figures for both sending and receiving.

4. Of the basic Internet services – E-mail or information provision, how important would you rate each facilities for seafarers. Please score on a basis of 1-5 with 5 being very important.

   - E-mail
   - Information provision

5. If accessing information what options would you find acceptable? Please tick if acceptable.

   - Interactive sessions
   - Receipt of textual information only
   - Receipt of broadcasts information e.g. bulk download of daily newspaper

6. What broadcast type application do you think would appeal to seafarers?

7. Would a single Internet point on board a ship be suitable? Y/N

8. What is the full complement of staff on your vessel? What category and number of staff do you think would use Internet facilities if available?

9. Do you see the company or organisation for whom you work being receptive to such developments? If they had any concerns what do you think they would be?

10. Describe any possible applications which Internet links could be used for in the day to day operation of the vessel in which you sail or have sailed.

11. What would be the maximum cost you would be willing to pay for sending or receiving the equivalent of an A4 Email?

12. What would be the maximum cost you would be willing to pay to receive a copy of the Electronic Telegraph or Times?

13. Can you provide details of names and addresses or Internet addresses of any contacts who might also be willing to answers this basic questionnaire. Are there an Internet cub/bulletin boards for seafarers or their interests? Please give details.

Please feel free to distribute this E-mail to any other interested party who may be willing to provide information.

This questionnaire can be found on the Internet at the following URL.
http://www.cf.ac.uk/uwcc/masts/ecic/seaquest.html

Completed questionnaires can be E-mailed to Parfett@cardiff.ac.uk or sent by mail to:

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