

MITIGATING HARDSHIPS OF SAILORS ON BOARD SHIPS THROUGH INFORMATION TECHNOLOGY INITIATIVES AND WELFARE MEASURES

Dr. D. Arivazhagan

Abstract

Due to revolution in Information technology there have been more changes in all walks of human life including Industry & Business sectors in the last ten to fifteen years - than the preceding 100 years. Today, Google, Face Book and Twitter users are more than the physical population in about half the countries of in the world and they have brought about revolutions! So, Information technology plays an important role in all sectors of Industry & Business and Maritime Industry is no exception. However, proper linkage strategies are required to integrate the three main aspects of Maritime life- the marine engineering technology, the IT and the Human Resources. Some general welfare measures have also been discussed in this article.

Key Words: hardships, mitigation, on-board facilities

Introduction

Business leaders recognize that long term prosperity can be achieved only when operational needs and the requirements of Human Resources go hand in hand. Today the Information Technology (IT) has emerged on the business horizon, as a watershed development in addition to improvements in traditional technologies.

Ivancevich (2001)^[1] highlighted that "prior to the Industrial Revolution most people worked either close to or in their homes. However, mass production technologies changed this concept and people began to travel to work locations or factories". Computer technology, especially the Internet, changed that. Today, there is a move for many to work from anywhere; people are no longer necessarily anchored to one place. Thus Information technology is increasingly becoming an important factor and fundamental to support business processes in organization

In maritime environment, people interact with technology, the environment and

organizational factors. But the improvements in these verticals have been at best lop-sided.

- On the one hand , in the last 40 years or so, the shipping industry has focused on improving ship structure and reliability of ship systems in order to reduce untoward incidents. As a result, today's ship systems are technologically advanced and highly reliable.
- On the other hand, it appears that less than proportionate attention is given to the Human Resource that mans all these; and the Human Resources have to maintain excellent skills and more so excellent physical & mental fitness. While business leaders , in theory accept that in shipping industry, manpower is essential, they gloss over the fact that manpower needs to be groomed and nourished well

failing which it tends to succumb to fatigue, communication fax paus, lack of technical assistance , decisions taken based on inadequate information, working environment, stress, sensory deprivation and loneliness.

Cost of neglecting Human Resources

On sea, there are human problems that can cause lot of damages to the shipping industry and ship owners. Studies show that human error contributes to ^[2]:

84%-88% of tanker incidents
79% of towing vessels groundings
89%-96% of collisions
75% of fires and explosions^[3]

For a more graphic understanding of potential of human errors, let us look at a case study described below.

The “Diamant” and “Northern Merchant” Collision [*Report on the Investigation of the collision between Diamant/Northern Merchant - Marine Accident Report. No. 10, 2003*]^[4]

The circumstances : On the morning of 6th January 2002, two ferries were crossing the Dover Strait in reduced visibility of less than 200 metres. The “Diamant” had sailed from Oostende and was heading for Dover. The “Northern Merchant” was heading to Dunkerque from Dover. Both vessels were travelling at close to normal cruising speed. “Diamant” a high-speed craft was travelling at 29 knots, and the “Northern Merchant”, a Ro-Ro ferry, was travelling at 21 knots. If both vessels had continued their course and speed, their paths would have taken them to within half a mile of one another. However, at just over a mile apart, the bridge teams started to question the

assumptions they had made about each other’s probable course of action and started to implement course changes, but not speed changes, that would, they believed, put a greater distance between themselves. At 0952 they collided. The MAIB report-16, listed down 18 possible causes and contributing factors in this accident, including the unsafe speed of both vessels, bridge team failures in risk assessment, violation of collision regulations and adherence to an “unwritten rule” that high speed craft should keep clear of all other craft.

The analysis : This case is similar to previous collisions in reduced visibility in which the participants have violated regulations and operational practices. Both teams are making assumptions about the intentions and actions of others and, at the speeds involved, have little time to rectify the developing crisis situation when they realise what is actually happening. However, this case also raises questions about the solution to such problems, specifically, the ability of operator training to prevent/ avoid such accidents.

The actors in this case were all experienced and professional officers who knew the collision regulations perfectly well but, for one reason or another, violated them-probably as a matter of routine. The root causes of these violations may not be resolved simply by sending “offenders” on remedial training in radar interpretation or the collision regulations. Organisational culture plays an important part in reinforcing the appropriate behaviours required on board. If an organisation’s shore-based management team pays “lip service” to its own operating policies and procedures by failing to implement them on the vessels and, at the same time, tacitly accepts or rewards deviant behaviour, then

MITIGATING HARDSHIPS.....

Dr. Arivazhagan

the individual officers on board will adopt a similar cultural attitude.

Lessons : The human factor is most essential and critical for any type of job. Shipping industry is no exception. With the growing technology and automation, some of the critical factors which cause unsafe incidents can be avoided. Today's technology can eliminate many operational problems ; but the Shipping Industry, the regulatory bodies and ship owners must take initiative to overcome human resource problems like stress, fatigue miscommunication etc.

The Study

To identify the human resource expectations and limitations an extensive

survey about facilities required for sailors on-board ships was conducted. The study which was focussed on expected Vs. available facilities was conducted with sailors of India who are working in various ships like NYK, A.P. Moller, AMET Cruises, Wallem ships etc. Data was collected from hundred samples.

The study comprised of 3 major areas:

1. What are the hardships at sea life?
2. What are the expectation of sailors regarding facilities to be provided on-board?
3. What are the facilities actually provided?

Hardships of Career at Sea

Table :1 Frequency distribution of the hardships of career at sea

Aspects of Hardships	Yes, it is a problem	Not a problem	Total
Long-time separation from the family	84	16	100
Communication issues	85	15	100
Too much paperwork	90	10	100
Fatigue	93	7	100
Fear of being booked on criminal charges (like pollution charges)	93	7	100
On-board living conditions	84	16	100
On-board working conditions (like repetitive work)			

Difficult to keep in contact with home	77	23	100
Lack of shore leave	89	11	100
Crew are too small to share workload	88	12	100
No regular career (all contractual appointments depending on market conditions)	97	3	100
Loneliness	90	10	100
Concerns about accidents at sea	89	11	100
Lack of on-board recreational facilities	87	13	100
No privacy	97	3	100
Piracy	89	11	100
Bullying by Seniors	97	3	100
Cross- cultural issues	96	4	100

The next part of the study examined the expectations regarding facilities required in the minds of the sailors. The data is presented below.

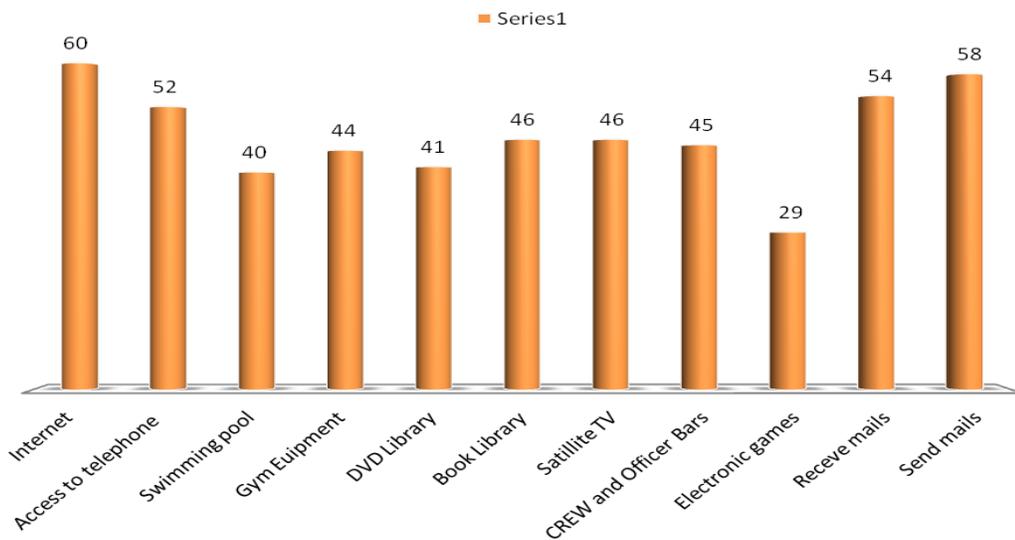
Table -2 Frequency distribution of on-board Expected Facilities

Facility	Not required	Yes, it is required	Total
Internet	40	60	100
Access to a telephone/mobile	48	52	100
Swimming pool	60	40	100
Gym/Exercise equipment	56	44	100
DVD Library	59	41	100
Book Library	54	46	100

Satellite Television	54	46	100
Crew and Officer's Bars	55	45	100
Electronics Games	71	29	100
Can receive Emails	46	54	100
Can send Emails	42	58	100

Figure 1 Chart diagram for On-board Expected Facilities

Number of Sailors expecting the facility from employer (N=100)



The next step comprised of identifying the facilities actually provided by the employer⁵

Table-3 Frequency distribution of on-board facilities accessible to sailors

Facility provided	Not provided	Yes - provided	Total
Internet	68	32	100
Access to a telephone	67	33	100
Swimming pool	78	22	100
Gym/Exercise equipment	56	44	100
DVD Library	79	21	100
Book Library	74	26	100
Satellite Television	85	15	100
Crew and Officer's Bars	58	42	100
Electronics Games	87	13	100
Can receive Emails	72	28	100
Can send Emails	74	26	100
None of the above	92	8	100
All of the above	94	6	100

The same facts are represented diagrammatically Figure :2

Number of sailors enjoying the facility given by employer (N=100)

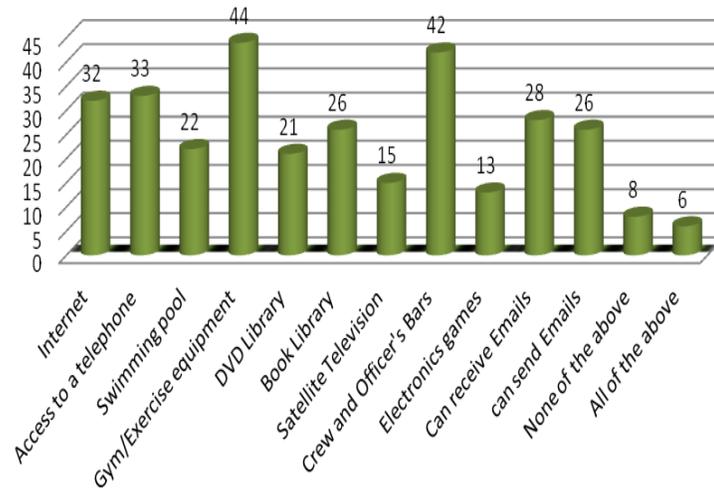


Figure 2: Chart diagram for On-board Facilities given by the Employer

Findings

- It is really worrisome that more than 50% of Indian sailors are not getting Crew and officer's bar facility, even though it is usual in sailing community that all crew will get this facility onboard with any flag. But most of shipping companies reduced this facility as cost cut measure.
- The Gym/Exercise equipment facility is available in most of the ships, but not in good condition.
- Only 30% of the crew are allowed for restricted Internet access and access to telephones. Only captain of the ship is having Internet facility through satellite, which is costlier compared to the internet

facility available on shore. Some of the shipping companies allow crew members to send and receive mails through Captain's mail account of the ship.

- People who are working in passenger ships always have swimming pool facility. Old cargo ships don't have that facility. The ships constructed after 80's are having swimming pool facility. But this is not available to all crew members, only for people above certain ranks enjoy this facility.
- TV's and DVD players are available in all ships. But this facility will be provided based on rank and work nature. Getting live channels is not possible in ships.

MITIGATING HARDSHIPS.....

Dr. Arivazhagan

- Some of the passenger ships are having live channels facility. The investment is more in international water to get this facility.
- Most of the ships are having library facility, but this facility is generally available for officers' rank only.
- Apart from that, electronic games facility is available in only a few ships. Only few highly ranked crew members are enjoying this facility.
- The foremost thing that they want is Internet facility and access to a telephone. The next most

important facility required by them is mailing facility for sending and receiving mails to their family and friends.

- Apart from that, they will get job satisfaction if they will be provided with the rest of the facilities like Gym, swimming pool, DVD library, Live television, equal treatment in food and dining facility and electronic games.

Data analysis

Table 4 – Correlations between various parameters

Factors	Onboard facility given by the employer	Hardships of career at sea	Improvement of IT infra structure
Onboard facility given by the employer	1	.197	.115
	.	.050	.255
	100	100	100
Onboard expected facility	.358(**)	.150	.435(**)
	.000	.138	.000
	100	100	100

Factors	Onboard facility given by the employer	Onboard expected facility	Hardships of career at sea	Improvement of IT infra structure
	.000	.000	.000	.000
	100	100	100	100
Hardships of career at sea	.197	.150	1	.327(**)
	.050	.138	.	.001
	100	100	100	100
Improvement of IT infra structure	.115	.435(**)	.327(**)	1
	.255	.000	.001	.
	100	100	100	100

**Correlation is significant at the 0.01 level (2-tailed).

Hypothesis 1

0.05(0.000<0.05).

H₀: There is no significant relationship between the “on-board facility given by the employer” and the “Onboard expected facility”

Hypothesis 2

H₀: There is no significant relationship between the “Onboard expected facility” and the “Hardships of career at sea”

Inference: The bivariate Correlation is undertaken between the respondents. The result shows that there exists a positive relationship between the on-board facility given by the employer and on-board expected facility, since $\gamma = 0.358$ and the two tailed significance value less than

Inference: The bivariate Correlation is undertaken between the respondents. The result shows that no relationship exists between the Onboard expected facility and the hardships of career at sea , since $\gamma = 0.150$ and the two tailed significance value greater than 0.05(0.138>0.05).

Hypothesis 3

H0: There is no significant relationship between the "Onboard expected facility" and the "Improvement of IT infrastructure"

Inference: The bivariate Correlation is undertaken between the respondents. The result shows that there exists a positive relationship between the Onboard expected

Hypothesis 4

H0: There is no significant relationship between the "Hardships of career at sea" and the "Improvement of IT infrastructure" "facility and the Improvement of IT infrastructure, since $\gamma = 0.435$ and the two tailed significance value less than $0.05(0.000 < 0.05)$.

Inference: The bivariate Correlation is under taken between the respondents. The result shows that there exists a positive relationship between the hardships of career at sea and the Improvement of IT infrastructure, since $\gamma = 1$ and the two tailed significance value less than $0.05(0.000 < 0.05)$.

Conclusion:

The analysis shows that If the IT infrastructure is implemented in the ships like shore, it leads to better quality of life

Not everyone gets on-board facilities like internet, communication facility and entertainment facility. This leads to Human resource problem like stress, strain and fatigue etc.

Providing virtual home facility may help mitigate concerns regarding the family. Virtual reality is an artificial environment that is created with software and presented

to the user in such a way that the user accepts it as a real environment.

The information Technology allows all kinds of simulations. So the shipping companies can develop the experience of sailing as simulation and show it to the University/college students to make it more realistic learning. They can even develop and exclusive model for each ship and show it to the sailors in induction programme. This will give a great simulated learning to the sailors.

It is recommended that, the shipping companies should train the youngsters and groom good sailors through virtual classroom education. Virtual environments are already in use in the training programs for the military, the space program and even medical students.

Entertainment in land like TV serials, movie channels, cultural programs etc. can be broadcast on the ship, through file transfer if the network is established between land and ship. Information Technology and Communication can even provide virtual tour, which will partially reduce the shore leave problem.

Information Technology can address the malady of too much paper work, by replacing the paper work through software and mailing facility, Server Client Concept and intra net facility. Even the data transfer from ship to shore is also possible provided the network established between the parent company and the ship through internet.

References

1.Ivancevich, J. M. (2001). Human resource management (8th ed.). Boston, MA: McGraw- Hill/Irwin. Page No:52

2. Human Error and Safety, Dr. Anita M. Rothblum, U.S. Coast Guard Research & Development Center (2004) Page No:1-8

3. McCallum M.C.,Raby M., Rothblum A.M (1996)- procedure for investigating and reporting human factors and fatigue contributions to casualties, Washington.

4. Marine Accident Investigation Branch (MAIB): Report on the Investigation of the collision between Diamant/Northern Merchant. In: Marine Accident Report.No. 10, 2003.

About the Author

Dr. D.Arivazhagan - Head, Information Technology Department, AMET University, Chennai. He has obtained Ph.D. from AMET University on HR & IT issues of Maritime industry: it_manager@ametindia.com