Dual Competent ships' crew compliment – how viable and value adding.

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ABSTRACT

This paper, examines a number of basic issues connected with Dual Competency scheme including, the effectiveness of the scheme and the efficiency of dual certified officers on board. The study also reviews the paradigm shift in the shipboard management model i.e., the model in which role of the Captain or the traditional Master of the vessel is viewed as that of a CEO/MD of a profit centre and those of other officers as managers of the floating profit centre. The attitude of the ships officers to this conceptual change is also examined.

KEY WORDS

Dual Competent; Polyvalent; Dual certified; Nautical & Engineering; Combined competency;

INTRODUCTION

The shipboard organization structure, conventionally, comprised of two distinct and separate streams of competency – the engineering and the nautical.

The late seventies and the early eighties, however, threw up quite a few challenges to the shipping industry in the form of spiraling fuel prices, excessive tonnage and the consequent mothballing of ships and the acute shortage of trained and certified man power to man the ships.

It was during this period when the industry was in turmoil of sorts, that the idea of polyvalent training and dual competency certification (PT&DCC) for mariners took birth.

The advent of advanced technology and reliable automation, further fuelled the option of combining these two competencies into a single crew individual, emerged as a possible proposition.

The IMO along with several maritime administrations of advanced maritime nations took a conscious and bold decision to introduce, with abundant caution, the polyvalent training and dual competency certification programmes for the seafarers.

A number of advanced seafaring nations and the shipping majors of these countries, adopted the fancy PT&DCC programmes with gusto, probably as a cost cutting measure.

The STCW 95 convention, with its radical functional based approach, also formalized the dual competency through its Chapter VII of the Convention for alternative structures and certification, by establishing standards for the same.

In due course, however, for reasons unknown, some shipping companies switched back to the traditional training and manning pattern while some continued with the PT&DCC scheme, leading to a situation of intrigue.

The aim of the paper is to evaluate the pros and cons, and present the long term economic viability and value addition if any, of having a Dual competent shipboard organization structure.

THE MOOT ISSUES

There are many very basic issues about Dual Competency that come to one's mind:-

a) How effective is the Dual Competency?
b) How efficient can it be to have Dual Certified officers.
c) Is it the sign of changing times on Ship Management model where the Captain is replaced with a M.D./CEO leading a team of generic ship managers?
d) Do seafarers have a problem with "change"?
e) Is it a tool to cut costs and manning levels?
f) Is there really a need to tinker with a 'perfectly' good traditional system?
g) Will it be a good preposition to be only "dual trained" and not practice as "dual competency officers"?

h) Are we mixing up two individual personalities that go with an Engineering function and the Nautical function?

THE DUAL COMPETENCY COURSE

The dual competency pre sea training course at our University is a 4 year B.E. (Marine Technology) course.

The course provides students with the knowledge and skills to serve onboard ships as competent Dual Officers. They are not only trained in the running and maintenance of marine machinery and safe navigation of ships but also to demonstrate professional responsibility, good work attitude, leadership quality and team spirit.

The course aims to train very competent and dedicated 'Maritime Leaders" with technical and management skills over and above what is required of the traditional navigator and engineer officer.
The scheme, while ensuring proficiency in basic navigation and technical skills, also focuses on organizational skills, personal competence, teamwork and functional flexibility.

Support by shipping companies

A.P. Moller – Maersk group has given unequivocal support for this course.

In their continued endeavor to keep ahead of their business, and with the level of advancement in technology onboard their vessels, they believe that the dual concept is central to the successful operation of their fleet.

By this support for the Dual Course, A.P. Moller – Maersk have guaranteed to give sea training for all their Dual Cadets at Amet in their ships.

The Dual Officers Scheme also is accompanied by changes in the organizational structure of the ship, as it is dedicated to the requirements of A.P. Moller – Maersk fleet.

Most of the vessels in the Maersk Ship Management fleet sail with a fully integrated manning model: Dual Captain, Chief Maritime Officer (CMO), two first Maritime Officers (MO1), three junior Maritime Officers (MO's).

Unique course structure

The course is a 4 year course **sandwiched** between periods spent at the University and on board foreign going merchant ships.

During the periods that they serve at sea, they serve on board as Dual Officer Cadets under dedicated ship-board training officers and trained in performing the duties of Officer i/c (NW) **and** Officer i/c (EW).

The sequence of training is :

Phase 1 - 12 months at AMET
Phase 2 - 5 months sea service
Phase 3 - 18 months at AMET
Phase 4 - 12 months sea service
Phase 5 - Examination / Orals

After this they go for Certificate of Competency Examinations.

On the Navigation side they are exempted for written examination and do just the orals; however on the Engineering side they have to do both the written examination and orals.

They then obtain Certificate of Competency as junior dual watch-keeping officer in compliance to STCW 95' II/I **and** III / I.

All modules in this course are in accordance with IMO Model Courses 7.03 and 7.04. and is approved by the Indian Administration as well as the Administration of flag state countries that the Maersk fleet flies.

The unique dual course syllabus

Semester – I

Theory Courses:	Sessional/laboratories
1. engineering maths	1. engineering graphics-i
2. applied mechanics	2. workshop practice –i
3. marine engineering –i	3. workshop practice –ii
4. navigation	4. p.t.&games
5. shipknowledge&safety (pssr)	

Semester - II

Theory Courses:	Sessional/laboratories
1. principles of mech. science	1. basic ship repairs
2. marine engineering- ii	2. seamanship (pscrb)
3. ships stability	3. stcw courses (1.0)
4. ocean navigation	4. p.t.& games (0.5)
5. meteorology	

Semester - III
Sea training

Semester - IV

Theory Courses	Sessional/laboratories
1. thermodynamics	1. engineering graphics – ii
2. electrical engineering-i	2. advanced fire fighting
3. instrumentation & control	3. p.t.&games (0.5)
4. marine control system	
5. celestial navigation	
6. cargo work	

Semester - V

Theory Courses	Sessional/laboratories
1. electrical engineering –ii	1. marine workshop practice
2. thermal engineering	2. electronic navigational lab
3. ship powering & construction	
4. auxiliary machinery	
5. electronic navigational systems	
6. coastal navigation	
7. shipping business-i	

Semester – VI

Theory courses	Sessional/laboratories
1. marine electro technology	1. marine electrotech lab
2. ic engines & boilers	2. marine comm lab
3. plant diagnostic	3. p.t.&games
4. marine communication	
5. ship operation	
6. shipping business –ii	

Semester – VII
Sea training

Semester – VIII
Sea training

THE INDIAN ADMINISTRATION SUPPORT FOR DUAL COMPETENCY

M.S. Notice 18 of 2008 issued by the Director General of Shipping, Government of India, in its Preamble states as below:

In the changed scenario in world shipping, availability of quality man power is becoming scarce and costly. A new concept of training to produce a technical officer having combined knowledge of both fields of Nautical & Marine Engineering has taken birth. Such a dual certificated "Polyvalent" course is perceived to be a need for the future in International Shipping. The content of such a training will have to be the right mix of Nautical and Engineering branches.

Considering the need of multi-skilled officers as future need of the International Shipping Industry and to make Indian seafarers more versatile with unified training, the Director General of Shipping had a meeting on 03rd February, 2003 with the members of Indian National Shipowners' Association (INSA), Foreign Shipowners and Shipmanagers Association (FOSMA), Maritime Association of Shipowners and Shipmanagers (MASSA) along with the Heads of Pre-sea Training Institutes. The decision was taken that Marine Engineering Research Institute (MERI), Mumbai shall conduct such training and shall design and develop suitable course material called as B.Sc. (Maritime Science).

The course is suitable for officer at operational level and meets the requirements of certification of operational level officers under provision made in the Chapter - VII of Volume I & II of the META manual. Every candidate for certification at the operational level under the provisions of Chapter VII of the Merchant Shipping (Standards of Training, Certification and Watchkeeping for Seafarers) Rules 1998, shall be required to complete relevant education and training and meet the standard of competence for all the functions, prescribed in either M-II/1C or M-III/1B.

After completion of 3 year B.Sc. (Maritime Science) degree course at MERI, Mumbai they shall have approved seagoing service of not less than 18 months, and such service shall include a period of at least six months performing engine room duties.

The functions of Navigation are required to be performed for a period of 12 months, of which at least 6 months shall be performed in bridge watch keeping duties. These cadets are to undergo structured onboard training as per TAR book.

After completion of 18 months structured onboard training, cadets may appear for 2nd Mate (Foreign Going) Certificate of Competency written and oral examination of the Nautical stream **or** Class IV Part 'B' Certificate of Competency written and oral examination of the Engineering stream.

The cadet has the option to appear for **both** the examinations and obtain Certificates of Competency of **both the disciplines**. The common subjects need to be passed by candidate only once in either of the discipline.

As the cadets are awarded B.Sc. (Maritime Science) degree by Mumbai University, they are eligible for exemption from Part "A" examination of Marine Engineer Officer Class IV Certificate of Competency, as well as exempted from the foundation course for Second Mate (Foreign Going) Certificate of Competency. They are also exempted from the preparatory course requirement for Second Mate (Foreign Going) and Marine Engineer Officer Class IV Part 'B'.

THE ANALYSIS

Two batches of cadets from our University have already now sailed on board in the embedded sea time structure of the course and their experiences coupled with feedbacks on their performances are in.

So also, I have for his paper, carried out my own exhaustive research on the subject, which collates from actual authentic voice of long experience of dual certified officers, as well as reference to various documented research on the subject.

The Voice of Experience

In the early nineties, Companies who were sponsoring dual cadets included; BP, Shell, Trinity House, P&O Containers, Clyde Marine and Cunard.

Shell had the vision of a Ship Manager who would assume responsibility for a single ship unit. He could be either a Master or a Chief Engineer but would have experience and training in both disciplines. Shell had experience in the offshore industry where a similar system is employed on rigs to good effect. Ultimately, it was hoped such a system could lead to a more efficient management model and a further reduction in manning levels and costs.

The experience was, that the companies failed to properly explain their vision for the future, to those at sea. The dual cadetship was often misunderstood by those at sea who qualified via a different more traditional system of training.

Seafarers generally have a problem with change and in the absence of a proper explanation they are left to make up their own reasons why their company should choose to change what in their eyes amounts to a "perfectly" good traditional system of training that was already in place.

The natural conclusions drawn are that the companies were trying to cut costs and manning levels, meaning their livelihoods were at risk. This was not the best foundation upon which to build a new training programme.

How did the system work in practice?

The overall length of the dual cadetship was shorter than the traditional cadetship on the basis that there was a large amount of overlap between disciplines.

The pass rate for dual cadets was higher than that of single discipline cadets, certainly on the Deck side. This may be indicative of the more rounded practical training one received as a dual cadet.

The vast majority became Deck Officers, a few Engineer Officers, and the remainder, stayed as Dual Officers for a short time. Generally this was the individual's choice occasionally forced upon them by their results.

For some, their company intended for them to be dual trained as a cadet and then become a Deck Officer once qualified.

In Denmark, they have stopped deck cadets training in favor of dual competency training, while the engineering cadets do their engineering training. The dual cadets become Deck Officers once qualified. On this basis there is an obvious distinction to be drawn between "dual trained" and "dual officer".

After the cadetship, officers were sent to vessels in pairs, the idea being that they would replace the 3rd Officer and 4th Engineer (no reduction in manning levels). Once onboard, they switch roles.

The switching of roles, however, experience shows, done on a monthly basis, was a real disaster. The senior staff at the time also did nothing to help the situation or plan the change. This meant that the first watch was invariably with little or no handover. Each month felt like one were starting from scratch, and this lack of awareness compounded the arguments of the critics of the scheme.

The system of changing departments mid trip though was better, but still, without any handover it was perceived as hard work.

The final improvement to the system was to do a trip-by-trip basis. This initially, appeared to be the best solution. Effectively one was joining as 3rd Officer or 4th Engineer. The system however, started to fall down as the manning crisis started to bite and one could end up sailing 3 or more trips as one discipline and not the other.

The only people benefiting from the system at that time were the manning companies who had a pool of dual officers at home, doubling up the options available to them for reliefs.

Does Dual Training help?

Yes it does. It is often said that a Deck Officer with engineering knowledge is more useful than an Engineer with the ability to navigate. The engineering knowledge for the Master is of great assistance to understand engine related problems whilst on stand-by or maneuvering, an insight which is always welcomed in high pressure situations.

Similarly, on Gas Tankers. Gas tankers often carry a dedicated cargo engineer. Dual certification on this occasion is tailor made for the deck officer of a gas ship who would be well disposed to conduct maintenance tasks at sea and cargo watches in port.

Benefits also accrue for those who later work ashore. A dual certified officer is perfectly suited to many jobs ashore, which include vessel superintendents, inspectors and surveyors.

Research findings

WMU Journal of Maritime Affairs, 2005, Vol. 4, No.1, 5–33 carried research paper on Shipboard Manning– Alternative Structures for the Future?(Michael L. Barnett 2005)

1995 revision of the STCW Convention fundamentally changed the emphasis for standards of training for merchant vessels by requiring competence-based skills for all shipboard tasks. It also takes a functional approach by dividing the shipboard

organization into three levels: support, operational and management. Functions relating to these three levels are clearly defined. As a result of STCW '95, it was now possible to consider shipboard organization on a purely functional basis at different operational levels. This radical new approach inspired this research paper that got published in the WMU Journal.
It was clear from the literature review that few organizations have explored the potential of Chapter VII of the Convention for alternative structures and certification.
Two major issues stemmed from the study.

• The type and level of manning is inextricably linked to the level of technology available.
• The type and trade of vessels are highly significant factors in determining the manning strategy on vessels.

The main conclusion was that, although technically feasible, unmanned vessels were unlikely to appear in the foreseeable future for commercial and political reasons. Human presence on board would be there but there were differences of opinion on its main function and how that presence should be organized.

One alternative produced a clear structure for the future ship personnel where the ship would be run by a ship manager, whose background may be in navigation, mechanical or electrical engineering The other personnel consist of an assistant manager (watch keeping) and assistant manager (technical), with watch keeper, technician and assistants to the latter two.

Another alternative produced a new structure for personnel which was also very much in line with STCW 95. Retaining the title/position of Master with a Chief Executive Officer who takes responsibility for all technical operations, there are two personnel at operational level who take overall charge of the daily operational matters including acting as duty officers from 0600–1200 and 1200–1800. A further three personnel alternate as duty officers for six hours periods between 1800 and 0600 and carry out all other support level duties. All are Dual certified.

The most favored alternative, as per this research finding, continued to be the one that stayed along, broadly speaking, traditional lines, with the traditional deck and engineer hierarchical system.

However, on closer examination, there were some fascinating issues raised, particularly from the non-traditionalist viewpoint. Even those who have a strong traditional leaning will concede that there are some considerable changes that might be made to exploit the revisions evident in STCW.

The Intrigue Continues…

In our experience too, the intrigue that Dual competency throws up, also seems to turn out to be true. Maersk , as of this year 2009, while continuing Dual training at its Danish and UK training centers, which cadets predominantly man the Danish fleet, has discontinued Dual training course at our University and reverted back to single stream competency, which cadets predominantly man the Singapore fleet. However, the strong ties between our University and Maersk continue unabated, dual course discontinuation notwithstanding.

CONCLUSIONS

Nobody would or could argue that the scheme is without flaws.

What is needed is that we use the plusses to our advantage and not continually complain and take swipes at those following this route.

Any scheme is only as good as the people following it.

There are some that are working extremely hard and are a credit to dual certification.

I could also say that there are those that are not.

But, can we say that these two characteristics are exclusive to dual training alone?

I think not.

"To Change – May we always see it as an opportunity and never as a threat"

Thank You.

ACKNOWLEDGEMENTS

Shiptalk interview with Rob Bruce - The Dual Trained Officer - 10 January 2005

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