

# THE CHANGING BUSINESS ACTIVITY OF UK MARITIME INSTITUTIONS

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**Abstract** UK Maritime Institutions have had to adapt their business to fit the educational demands of the UK education system as well as meeting the demands of

the shipping industry. UK examination targets at high school level are the General Certificates of Education (GCSEs) at 16 and a higher advanced level examination (A Levels) taken at 18 years of age. Traditionally the UK Merchant Navy recruited from a pool of GCSE students at age 16, however this diminishing pool has required that 18 year olds with A levels be targeted. The reduction of the UK fleet has meant that the flow of UK seagoing students to UK nautical colleges and universities has declined and UK maritime institutions have therefore had to adopt new strategies in order to remain viable. These strategies have taken a variety of forms. Non UK students have been attracted to MET programmes; new programmes have been devised taking in the wider maritime industry and various entry routes have been developed leading to careers in the Merchant Navy. This paper explores the effects on the business activity of UK MET institutions created by the changing educational requirements within the UK and the needs of UK shipping companies and the wider maritime industry.

**Keywords** maritime institutions; Cadets; business activity; MET; educational requirements

## 0 Introduction

Maritime and marine education and training can be traced back in the UK for over 250 years (Higginbotham)<sup>[1]</sup>. In Liverpool 150 years ago many seagoing officers and ratings started their seagoing careers on the training ships moored in the river Mersey (MMM)<sup>[2]</sup>. In 1892 the Liverpool Nautical College started to educate Master Mariners and this is the foundation of the maritime and marine section at Liverpool John Moores University. Other maritime colleges and universities in the UK have similar beginnings having developed from training establishments of the 19th and 20th centuries. Maritime education and training clearly developed as demanded by the evolving industry at the time. However the nature of the education and training today is different from that of past decades and centuries partly because the maritime industry has changed but also the pool of those wishing to enter the industry has altered. To some extent the concept of a career has blossomed taking over from the “running away to sea” idea that existed many years ago. Whilst some people will enter the industry for a short period many people do see the maritime industry as a way of life that they wish to follow for the whole of their career, even if not always afloat.

The idea of “running away to sea” perhaps leads to the understanding that in the UK it has always been possible and still is today to reach the highest ranks from very lowly beginnings. The preferred route by employers and academics has been that prospective seafarers should attend college/university and then sign articles or a contract to a voyage or term at sea. Some people however still do develop their careers from lowly beginnings, although such routes take far longer, and naturally they have to pass the STCW examinations.

## 1 Requirements of the UK seagoing and shore based maritime industry

There have been many studies into the manpower needs of the UK maritime industry (Gardener et al.)<sup>[3]</sup>, (DFT)<sup>[4]</sup>, (Glen et al.)<sup>[5]</sup>, (Glen et al.)<sup>[6]</sup>, (McConville)<sup>[7]</sup> (Moreby et al.)<sup>[8]</sup> to mention just a

few and these have found that there is a continuing demand for UK seafarers in the shore based jobs and careers as well as at sea. The level of demand for UK seafarers in these positions has tended to fall (Gardener et al)<sup>[9]</sup> with employers finding that they can use other people than seafarers for some jobs. Jobs have been “downgraded from the essential to advantage category”(IBID). For many years there has been maritime education for shorebased jobs for those not wishing to go to sea (Dinwoodie)<sup>[10]</sup> but still wishing to find a career in the maritime industry.

## 1.1 Careers

The UK economy is the fifth largest in the world since China became the fourth largest in April 2006 (Hoon)<sup>[11]</sup> and has unemployment at about 980,000 people (Treasury)<sup>[12]</sup> or around 2% of the working population. This means that young people leaving school and those in the early years of working life have many more opportunities other than those offered by the Maritime Industry. Entry to the UK Merchant Navy from UK school leavers has been falling for many years and the UK Chamber of Shipping has acted to reverse this decline through the lobbying of the UK Government. This lobbying has focused on support for cadet training through the Tonnage Tax measures and the setting up of the Sea Vision campaign with its regional voluntary bodies as a way of raising the profile of the maritime industry with the general public and schools.

The maritime industry is much wider than just seagoing although traditionally this has been the high profile occupation and the one considered by many as the most significant. It is also the one where the training and education has been the most specific. This is because of the IMO and national certification systems where competence through certification is legally required. Elsewhere formal training can be taken in areas such as in ship broking but this is not absolutely necessary to be able to work in ship broking or legally required.

Some of the careers available in the Maritime Industry are listed in Table 1.

Table 1 Careers available in the maritime industry

Career	Dinwoodie <sup>[10]</sup>	Gardener et al <sup>[3]</sup>
Seagoing	×	
Ship broker, Charterers & Agents	×	×
Port Management	×	×
Transport Management	×	
Import/ Export	×	
Marine Insurance	×	×
Ship & Crew Management	×	×
Maritime Law	×	×
Freight Forwarding	×	
Marine leisure	×	
Classification Societies		×
Consultants/Surveyors		×
Towage/ Salvage/ Dredging		×
Ship Finance		×
Marine Equipment & Information Technology		×
Marine Engineering		×
Ship Owners and Operators		×

Maritime Schools		×
Miscellaneous		×

Table 1 takes its data from one report and one journal paper. The report (Gardener et al)<sup>[3]</sup> inquired into the shore-based careers available to seagoing officers hence the reason it didn't identify seagoing as a career. On the other hand the journal article (Dinwoodie)<sup>[10]</sup> considered perceived careers available to maritime business students, hence the reason engineering and technical careers were not cited.

Table 2 lists the areas covered by member firms of the UK Society of Maritime Industries. There are too many individual products and services to list here but the range of areas and consequent careers available can be contrasted with those identified in Table 1. These two tables show the vast scope of job opportunity in the maritime field.

Table 2 Maritime industry product and service categories (SOMI 13)

	Product or Service Category	Number of products/ services listed
1	Marine Science and Technology	2
2	Equipment and Services	18
3	Offshore Equipment and Services	6
4	Ports, Related Services and Equipment	11
5	Professional Services and Consultancy	20
6	Maritime Services	17
7	Shipbuilders and Ship Repairers	3
8	Pollution Control Equipment Services	8
	Total number of products and services	85

There are 122 individual members of the UK Society of Maritime Industries indicating the scope available for those wanting to work in the industry.

## 1.2 Educational requirements (age profile)

Education in the UK is legally required up to the age of 16 when most students take General Certificates of Secondary Education (GCSEs). Most disciplines have a GCSE standard and all students must take English, Mathematics and a Science. Along side these core subjects other subjects of the students own choice are taken. It is general for students to take 8 or 9 GCSEs with many taking 11. These GCSEs are graded between A\* and G with grade C being a watershed above which students are considered to have a reasonable pass. The UK Government and individual schools provide statistics on the number of students achieving 5 or more GCSE passes at grade C and above. UK Merchant Navy Officer entry can still be gained with a minimum of 4 good GCSEs in at least English, Mathematics, Physics or Combined Science (MNTB)<sup>[14]</sup>. Clearly entry is then available to 16-year old school leavers via this traditional HND route.

From September 2006 entry is also available via a Foundation Degree (FD). This new qualification was introduced by the UK Government in 2001 (DES)<sup>[15]</sup> and was the first new higher education qualification for 25 years. It is designed to be a work-related degree and time in the workplace is a major part of the syllabus and operation of each individual FD. Foundation degrees have been taken up by many disciplines and are widely available in all areas of the UK.

The UK Chamber of Shipping has championed a FD in Nautical Science and Marine Engineering and the four main nautical colleges have developed FDs as part of this initiative with four universities in their geographical area providing the underpinning validation requirements. Entry qualifications to these FDs are for the nautical colleges and universities to decide, however the Merchant Navy Training Board (MNTB) recommendations are for a minimum entry of 120 UCAS (University and College Admissions Service) points in unspecified A-Levels plus good grades in GCSE English, Mathematics and Physics or Combined Science (MNTB)<sup>[14]</sup>.

A-Levels are the next tier of examinations in the UK after the GCSEs. They are taken at secondary school or further education (FE) college with most students taking 3 but many taking 4 or 5 at age 18. Students have a free choice in subjects and the combination of A-Levels obtained by students can be random and individual to each student. The A-level course is 2 years.

For many years there have been undergraduate (Bachelor) degrees in Nautical Science or similar names. These degrees have combined both academic study and the necessary underpinning knowledge to obtain the STCW OOW certificate of competency (CoC). The short course requirement for the CoC is obtained through a NC which of recent years has often meant that the early years of the BSc (Hons) seagoing degrees have been spent at a nautical college rather than at a university. Entry requirements to these degrees are via A-levels with a tariff point total of around 200 points or close to twice that of the FD.

There are FDs and Bachelor degrees for marine engineers although these are not so widely available and the Bachelor degree is usually a BEng rather than a BSc. There is always an entry requirement for A level Mathematics to these BEng. programmes.

### **1.3 Tonnage tax**

The UK government introduced to the world wide maritime community the concept of a UK Tonnage Tax as part of its Finance Act 2000. The Tonnage Tax regime is an offer to shipping companies that any vessels registered under the UK flag can be considered for a reduction in corporation tax that would have been necessary, calculated on the “daily profit of each qualifying ship—and the net tonnage of the ship” (Finance Act)<sup>[16]</sup>. There is also a link to training in that a condition of gaining tonnage tax is a commitment to training. This commitment can be seen as:

- (1) The training of one trainee per year for each 15 officers employed, or
- (2) Payment in lieu to the Maritime Training Trust,
- (3) The trainees must be British or EEA nationals and ordinarily resident in the EU (MCA)<sup>[17]</sup>.

This commitment has thus seen the UK cadet numbers rise from around 400 per year in 1998 (DFT)<sup>[4]</sup> to around 620 in 2003-4 (Orrell)<sup>[18]</sup>. The Maritime Training Trust is a limited company administered by the Chamber of Shipping to provide funding for cadet training and the development of cadet training in the UK. Shipping companies may only pay into this Trust if there is no other way of them fulfilling the training requirement. They cannot opt for this payment as a way of avoiding cadet training.

## 2 Structure of UK maritime & marine education and training

Maritime and marine education and training in the UK is divided amongst several further education (FE) and higher education (HE) establishments. These establishments almost exclusively have a long history and have developed their portfolio of courses from the changing nature of maritime education over the last century or more. In the 1960's (Bonsall)<sup>[19]</sup> the major maritime colleges developed degree programmes to conform to the UK educational policies and direction at the time. This meant that in the 1970's and 80's two types of maritime education establishments emerged: maritime universities and nautical colleges.

### 2.1 Nautical colleges and maritime centres

Nautical colleges are where Merchant Navy Officers and Ratings are taught from Cadet and EDH to Class 1 Master Mariner or Chief Engineer. They are all FE colleges and sit within that sector in the UK educational system. The UK MCA controls the course syllabus and updates it as necessary by reports from committees of IAMI (International Association of Maritime Institutes). This latter body is essentially a UK organisation although Cork College from Eire is a full member. The underpinning knowledge of the UK (CoCs) is studied within the framework of an HND (Higher National Diploma). Specific knowledge such as Lifeboat Skills, First Aid and Ratings' training is provided outside of this framework in the form of short courses. The colleges that are involved in seagoing training are listed in Table 3.

Table 3 shows that there is maritime seagoing training in all parts of the UK except Wales and Northern Ireland. The scope and level of training varies between the colleges with some such as Warsash and South Tyneside providing a full gamut of programmes including marine engineering. Others such as Fleetwood Nautical College (FNC) only provide deck training but at all levels. Lowestoft provides OOW and Chief Mate plus offshore and dynamic positioning whilst NW Kent College provides EDH plus some statutory STCW deck and engine room officer courses plus short courses and open learning.

Table 3 UK colleges covering seagoing training

No	College <sup>[20]</sup> Jackson	Training Areas Covered	Part of UK
1	Banff and Buchan College of Further Education	Pre Sea & STCW Officer Deck & Engine. EDH. RYA. STCW Short Courses	NE Scotland
2	Blackpool and the Flyde College. Fleetwood Nautical Campus	Pre Sea & STCW Officer Deck & Engine. EDH. Fishing. RYA. STCW Short Courses	NW England
3	Plymouth Maritime Training Centre	STCW Officer Deck EDH. Deck & Engine L2 support. STCW Short Courses	SW England
4	Lowestoft College of Further Education	Offshore; Dynamic Positioning	England. East Anglia
5	NW Kent College of Further Education (National Sea Training College)	EDH. STCW Short Courses	London & SE England
6	South Tyneside College	Pre Sea & STCW Officer Deck & Engine. EDH. Fishing. RYA. STCW Short Courses. BSc BEng	NE England

7	Warsash Maritime Centre. Southampton	Pre Sea & STCW Officer Deck & Engine. EDH. Fishing. RYA. STCW Short Courses. BSc. BEng	South England
8	Glasgow College of Nautical Studies	Pre Sea & STCW Officer Deck & Engine. EDH. Fishing. RYA. STCW Short Courses. BSc. Eng Degree.	Glasgow. Central Scotland
9	Lairdside Maritime Centre	Advanced Short Courses some bespoke and not necessarily statutory.	NW England
10	North Atlantic Fisheries College.	STCW Short Courses. Deck & Engine.	Shetland

## 2.2 Maritime universities

Separate to the nautical colleges there are several universities that have maritime sections or provide at least one maritime or marine degree and these, are listed in Table 4. The table shows that only 3 universities offer seagoing degrees and the same 3 offer maritime management degrees.

Many more universities offer marine engineering and/or naval architecture degrees. Those marked with a star (\*) would not consider themselves “Maritime Universities” as the maritime programmes have not developed from a historic link with seagoing training. Those without the star have maritime programmes that have developed from previous seagoing training and Southampton Solent is closely linked with Warsash Maritime Centre, which is listed in Table 3. Greenwich University is a comparatively new University but is housed in the old Greenwich Palace that was formerly a Royal Navy Officer training centre. The maritime section is linked to the NW Kent College listed in Table 3. Many of these universities offer other maritime or logistics or leisure degrees at both the undergraduate and postgraduate level. They also offer PhD study.

Table 4 shows that there are many UK universities offering postgraduate maritime management, business or law programmes and few of these would consider themselves “maritime universities”. Still more offer postgraduate marine engineering programmes but again the majority of these would not consider themselves maritime universities.

Table 4 Universities offering maritime or marine undergraduate degrees (UCAS)<sup>[20]</sup>

No	University	Seagoing	Maritime Management and/or Law	Marine Engineering and/or Naval Architecture
1	Glasgow*		× PG	× UG/ PG
2	Greenwich 1		× PG	× UG
3	Plymouth	×	× UG/PG	
4	Southampton (Solent)	×	× UG/PG	× UG
5	Liverpool John Moores	×	× UG/PG	× UG/ PG
6	Bournemouth*			× UG
7	Newcastle Upon Tyne*		× PG	× UG/ PG
8	Strathclyde*		× PG	× UG/ PG
9	University College London*		× PG	× UG/ PG
10	Southampton *		× PG	× PG
11	City University (London)*		× PG	
12	London Metropolitan		× PG	

13	Cardiff		× PG	
14	Hertfordshire*		× PG	
15	Nottingham*		× PG	
16	Wales (Swansea)*		× PG	
17	Bristol*		× PG	
18	Portsmouth*		× PG	

Table 5 Maritime research groups and their activities

No	Research Group/ Centre	Associated University	Research Activity
1	Centre for International Transport	London Metropolitan	International Transport Management
2	Maritime Research Group	Southampton (Solent)	
3	Institute for Employment Research	Warwick	Employment
4	Marine Institute	Plymouth	Biochemistry, Bioscience, Marine Policy, Marine affairs, Marine Science
5	Marine, Transport and Offshore Research Group	Liverpool John Moores	Risk assessment. Operations of Ships, Offshore Installations and Ports. Logistics
6	Seafarers International Research Centre	Cardiff. School of Social Sciences	Seafarers, Their lives and employment.
7	Transport & Shipping Research Group	Cardiff Business School	Short Sea Shipping. Maritime Economics/ Simulation
8	Maritime Research Group	Napier University (Edinburgh)	Maritime Economics
9	Legal Studies Research Group	Wolverhampton	Maritime Law
10	Maritime Ergonomics	The Ergonomics Society	Ergonomics
11	Fishermans' Safety at Sea Working Group	Banff and Buchan College	Fishermens' Safety

### 2.3 Research centres

There are several maritime research groups and centres in the UK. Often but not always these are within the university sector and are associated with teaching groups. Tables 4 and 5 list maritime universities and many of these were former nautical colleges, which now find themselves as part of a university and as such have stopped seagoing teaching and are becoming more involved with research. Research is considered a main-stream activity alongside the delivery of academic degrees and this research tends to underpin the teaching activity. Table 5 lists a number of the maritime research centres, groups and institutes: Some of these have long histories.

The Centre for International Transport and London Metropolitan University was opened by the Secretary of State for Transport in 1992, however the Cardiff Business School Transport and Shipping Research Group is possibly the oldest tracing its roots back to research carried out in the old Department of Maritime Studies that was closed in the late 1990s. The Marine Centre at Plymouth University was opened in the spring of 2006 and has 80+ academics and researchers. It is a virtual umbrella body with links to many schools in Plymouth University. This follows, although

does not directly replace the Institute of Marine Studies (IMS) closed a couple of years ago when its elements were dispersed to individual schools in the University.

### 3 Developments and future needs of MET in the UK

MET in the UK is very varied in its delivery and venue. It is found in colleges of further education and universities with some places delivering only short courses and others providing three or four year degrees. This is a dynamic area partly because qualifications in the high school sector and tertiary colleges are undergoing change and also because entry into the shipping and maritime industry in the UK is under constant change. There are new qualifications developing in secondary schools under the “diploma” heading. These will affect all students and the maritime, shipping and transport industry is finding it hard to keep abreast of these changes. By 2013 all students in high schools will be able to study a general diploma or a specialised employer led diploma (Hertfordshire CSF)<sup>[22]</sup>. The former diploma will be awarded to those gaining 5 A\*-C grade GCSEs including English, Maths and ICT and the latter will be in the form of one of 14 specialised areas considered of importance to the UK. These specialised diplomas are not intended to relate to any particular industry but to emphasis basic core skills that can be used anywhere. It is unfortunate for the UK Maritime industry that there is not a Transport and Logistics specialised diploma. However there is not one in either Law or Science hence Transport and Logistics has not necessarily been forgotten.

The Foundation Degree (FD) will also become established from September 2006 and it remains to be seen if employers feel that this qualification meets their expectations of new entrants. The colleges and universities have embraced the concept and positioned themselves to allow prospective students the opportunity to enter the industry via this route. The HND route will continue for some years and a final date for the finish of this qualification has not been set. One problem with the FD is that it requires entry at 18 with A-levels. There still remains a strong feeling in some parts of the industry that entry at 16 is desirable and complete closure of this route is not desired by some employers. This means that entry to the industry will be complicated for some time to come.

There is also a Maritime Studies qualification currently under development (Jackson)<sup>[23]</sup>. This qualification raised by NW Kent College in 2004 provides the knowledge related to seafaring skills required by all industries and focuses on pathways into industries particularly the maritime industry. At a foundation level in the UK two bodies, the Learning Skills Council (LSC) and the Sector Skills Councils (SSC) oversee skills and qualifications. The LSC has government funding and paid employees whilst the SSCs are employer led bodies concerned with the skills and business needs of a particular sector. These two bodies have supported the Foundation Degree developments, which include FDs in ports and logistics, maritime studies, nautical science and marine engineering.

In Liverpool the sector champion Mersey Maritime has started a Ship broking apprenticeship. This is recruiting on an annual basis a small number of 16 year old school leavers into the Liverpool shipping companies to develop their understanding of the office practice of shipping and transport. This apprenticeship can lead to the Institute of Chartered Shipbrokers (ICS) qualifying examinations. These examinations are longstanding and international and are usually studied by distance learning under the ICS Tutorship scheme. The three main maritime universities usually

offer the opportunity for their maritime business students to also sit these exams. Holders of the maritime degrees can usually obtain some exemption from these exams.

#### 4 The business of UK maritime universities

The previous discussions have covered nearly the full gamut of education and training available in the UK. The business of UK maritime universities can be seen to be consolidating on the undergraduate, post graduate, PhD and research elements. Seagoing is included in the undergraduate area and many seafarers, both deck and engine room, study for the postgraduate MSc qualifications in either maritime business or its clones (with engineers also being able to take the engineering MScs). These universities, which are really only the maritime sections of the Universities of Plymouth, Southampton (Solent) and Liverpool John Moores, are closely linked to a maritime training provider and this link seems to be important to them as it allows for the continuing seagoing connection.

These three universities also have links with universities and/or colleges in other countries nearby i.e France, Holland and Scandinavia. Lecturers from Liverpool John Moores and the other maritime universities also teach overseas in such places as Greece and Iran. This widening of the remit of lecturers seems to be a developing requirement for staff working in these areas. The programmes offered by these universities cover the areas of maritime business, maritime technical and increasingly the courses for the growing maritime leisure industry. Liverpool John Moores has also developed a series of Certificates of Professional Development (CPDs) allowing students to study full time for a semester or less. These are taken by students studying on maritime or transport programmes in their own universities but needing to study for some of their time overseas in the UK.

Table 4 also showed that there are several other universities that do not necessarily consider themselves as maritime universities (in the full sense of the term) but have specific maritime programmes usually at the Postgraduate level. The number of these programmes is increasing slowly and thus in future the indication is that more UK universities will be considered under the heading of a “Maritime University”.

#### 5 Conclusion

The paper set out to investigate the changing nature of the business of “Maritime Universities” in the UK. Initially it was necessary to distinguish universities delivering higher education from nautical colleges delivering further education, within which is the bulk of seagoing training and education. It is found that the delivery of MET in the UK is quite complicated with academic degrees and postgraduate education in many cases being separated from seagoing training. The delivery of MET in the UK is longstanding having a history dating back over 150 years however the delivery of that training has changed during that period with some quite dynamic alterations occurring at the present time. For the first time in the UK maritime training, and thus the Certificates of Competency (CoCs), will in future be mainly acquired via a degree education rather than diploma education. This starts in September 2006 hence it will be some time before the effect of this change is known. During that time a small number of students will continue to study

under the BSc (Hons) Nautical Science degrees whilst many more will continue with the HND route.

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