Support for Maritime Training (SMarT) Scheme

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OXFORD ECONOMICS

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Executive summary

In response to one of the key recommendations of the 2015 Maritime Growth Study (MGS) (Mountevans et al 2015) the Department for Transport commissioned Frazer-Nash Consultancy Ltd (Frazer-Nash) to conduct this review of the Support for Maritime Training (SMarT) scheme. Frazer-Nash were supported in this study by Oxford Economics.

Context

The UK maritime industry is an important contributor to the UK economy and of strategic importance:

- It comprises the transport of goods and passengers and off-shore work. 95 % of UK imports and exports including 40% of our food supply are transported via sea.
- The 'maritime cluster' covers related services including on-shore maritime infrastructure support and financial services. The UK is at the heart of many international institutions. Many maritime services are based in the UK; maritime research (and safety / accident investigation), financial, insurance services are deeply rooted here.
- As an island nation the UK relies on the maritime sector for continued trade, and national security, where the importance of the UK seafaring profession is recognised.

Within the international maritime community, the UK is still recognised as a leader for its seafaring history and strong reputation for the high quality of its seafarers.

A complex sector

Employment and training in the shipping industry is globalised, complex and competitive:

- Global competition in the shipping sector is high. It is relatively easy for shipping companies to make commercial and strategic choices to use cheaper foreign labour or other nations' regulatory regimes. Many companies train and recruit from several nations.
- Countries such as Singapore are investing heavily in seafarers and the maritime cluster, while also providing industry with incentives such as advantageous tax arrangements similar to the UK tonnage tax. Many of our key international competitors subsidise seafarer training (such as tuition fees and training allowance), so some level of UK intervention is necessary to maintain a position.
- The shipping industry perceives the cost of training and employing UK seafarers to be high compared with other nations.
- An international standard (STCW) defines the minimum acceptable level of seafarer training, but each country has its own curriculum which may build upon this minimum requirement.
- Many ex-seafarers contribute to the maritime cluster on-shore. The maritime cluster benefits from their skills and experience but is not required to fund the training of seafarers, although some parts of the industry support cadet training through charities.

Government support

The government recognises that UK seafarers and the standard of training in the UK provide a strong foundation for the UK's maritime sector and is fundamental to maintaining or increasing its growth. However reviews of SMarT funding are dated and it is timely that an updated case is made for the value of government funding in this area.

The UK government has a number of support measures in place to support training:

- The Support for Maritime Training (SMarT) scheme provides funding for training of officers and ratings, and is paid to shipping companies.
- Tonnage tax is a scheme that offers a preferential tax regime to companies; a requirement for being part of tonnage tax is that companies commit to training seafarers.

The close relationship between these two government support schemes means their effects cannot be isolated from each other. However it was clear from our consultations with the shipping industry that SMarT is influential in deciding how many UK cadets are trained. The work described in this report looks at the effect of SMarT and whether changes to it could influence the training uptake in the UK. It is noted that the UK already trains more cadets than other comparable European seafaring nations.

In 2015, the budget for SMarT was £15 million. SMarT1 represents the majority of this subsidy. It provides industry with approximately 30% of the cost to train officer cadets to the 1st Certificate of Competence (1st CoC). This has declined gradually as a proportion of the cost of training from a peak of around just under 50%. The weighted average cost of training calculated as part of this review is £59,150. The governments of our main competitors provide support in different ways. Mostly this consists of paying tuition fees and providing a training allowance; in the UK both of these costs are borne by industry. UK's SMarT scheme offsets some of the costs but the other countries we examined subsidise the cost of training to a greater extent.

There is no central repository of integrated, good quality information about the training and career paths of cadets against which to measure SMarT's impact on the industry.

Value of training

Cost analysis carried out for this study suggests that training seafarers still represents good value for money. For every £1 the government spend on SMarT1 (the majority of SMarT funding) there is a £4.8 return to UK GDP (central scenario).

The desire for UK seafarers

There remains a desire by the shipping industry to employ a proportion of UK officers and ratings. In their early career UK seafarers are considered to be expensive compared with other nationalities. However, as they gain experience, this wage difference is both less significant and less important as UK seafarers are perceived to offer high value.

Future need

A Seafarer Projections Review (SPR) was carried out in parallel with this review (Oxford Economics 2016). It found the projected global labour requirements will increase at 3.2% per annum for officers and 1.3% for ratings. There is currently a demand for Deck and Engineer Officers of any nationality in the UK shipping industry and this demand will increase in future. Employment in the UK shipping fleet is characterised by the increasing employment of non-UK seafarers and an ageing UK national workforce.

There is still a need for ex-seafarers in on-shore roles for the maritime cluster. However there is anecdotal evidence that companies are finding alternatives to using qualified seafarers and developing staff through other routes.

The SPR predicted that to close the future gap between demand and supply, the number of newly qualified Deck and Engineering officers joining the industry each year would need to increase to between 1,500 and 1,600. This is currently more than double the number of officers that qualify through UK funded training scheme, highlighting an opportunity for UK employment.

Meeting the need

The case for policy intervention in assuring the UK maritime skills base has been made in previous work on strategic and competitiveness grounds (Deloitte 2011). If the UK government wishes to continue to support the maritime sector (both on-shore and off-shore), then SMarT has a significant role to play in ensuring a pipeline of trained professional seafarers. However, in order to meet any demand the capacity of the training system needs to be large enough. The following are the key variables:

- The number of cadets applying - our work indicates that there is a healthy supply of cadets applying for training to meet the current need, but a significant increase in demand may limit the choice of quality trainees.
- The number of college places - our work indicates that there is currently capacity in the academic system and opportunity for some growth.
- Demand from industry – our work has shown that this is dependent on:
    - Cost of training – the demand for cadets from industry is strongly influenced by cost due to their ability to source labour from other nations.
    - The number of berths for sea training - our work indicates training berths are at a premium but there are opportunities to use them more efficiently through changing the phasing between the academic and seafaring periods.
- The pass rate of cadets - there may be opportunities to improve pass rates but further work is needed to distinguish actual cadet failures from unclaimed entitlements to SMarT payments.

The demand from industry is probably the most important of these variables and the cost of training is the most significant factor affecting it.

If there is a demand to train a significantly larger number of UK seafarers (for example to the levels identified in the Seafarer Projections Review (SPR)), the supply of applicants, college places and berths would be put under severe pressure. However, it is likely that industry would need a significant incentive (such as a reduction in their contribution to the cost of training) for them to respond to such a demand.

Options

A number of options to improve SMarT were explored during the review. These focused on:

- The size of the SMarT budget, based on the value for money and future need for seafarers.
- The scope of the SMarT scheme, including a review of other countries' schemes and options for refocusing the funding for officers and ratings.
- The management and administration of the SMarT scheme.
- Fundamental changes to how seafarer training could be funded.

From an assessment of the options nine recommendations have been made.

Findings

- It is clear from this review that the wider economy gains significantly more from qualified officers than it contributes to their training. There is also a strategic defence requirement for qualified seafarers which must include skilled ratings as well as officers.
- SMarT is a valuable incentive but has lost some of its value in real terms, due to increases in training costs including tuition fees.
- Without increased levels of government intervention, the UK seafarer population will continue to decline. If this trend continues, it will be detrimental to the economy and defence interests of the UK. Therefore the authors support increasing the number of seafarers in the UK.
- During this review we have been unable to find consistent and integrated management level information about the progression of trainee ratings and cadets. It is our view that better data management of the progress of trainees and seafarers is of high importance to the industry and government, to assist in strategic and tactical decision making for the future of the industry.

Recommendations

Recommendations are discussed in Section 12 of this document. The key recommendations are summarised below.

We recommend SMarT funding is retained. If the desire is to increase the number of trainees the subsidy should be increased. Depending on the size of the increase, this could have the effect of either slowing or reversing the downward trend in the size of the seafarer population. If the desire is to maintain a similar number of trainees to the current throughput, the subsidy should be maintained at its current level relative to

the cost of training. This is likely to have the effect of continuing the downward trend in the size of the seafarer population.

We recommend the development of an industry database to collect data from colleges and sponsors to track trainees and seafarers through their careers, to provide good quality robust data on which government and industry can base strategic and policy decisions.

We recommend changes to the current arrangements for funding ratings training.

We have recommended a number of smaller technical changes to the operation of SMarT and some areas for further study.

Contents

1. Introduction

1.1 BACKGROUND

In response to one of the key recommendations of the 2015 Maritime Growth Study (MGS) (Mountevans et al 2015) the Department for Transport commissioned Frazer-Nash Consultancy Ltd (Frazer-Nash) to conduct this review of the Support for Maritime Training (SMarT) scheme. Frazer-Nash were supported in this study by Oxford Economics.

SMarT replaced a number of earlier funding initiatives, and the original rationale for the introduction of SMarT was set out in the government's white paper 'Charting a New Course' in 1998. This recognised the decline in the UK maritime skills base and the consequential effect on the maritime cluster. SMarT and the tonnage tax scheme were put into place shortly afterwards. Maritime and related industries are considered to be an important part of the UK economic and strategic future. SMarT was introduced to financially support merchant navy training and to encourage an adequate supply of UK seafarers. It also supports companies which are part of the UK tonnage tax scheme. These companies are required to train seafarers as part of their commitment to being in the tonnage tax scheme. SMarT offsets some of this training cost.

In 2015 the MGS underlined the importance of the maritime cluster including port services, financial and legal services, research and development as well as the shipping sector itself (carrying goods and passengers).

The MGS made 18 recommendations including:

- Refresh previous assessments of the future need for trained UK seafarers.
- Review the SMarT scheme to ensure it could continue to support the future need for seafarers whilst providing value for money.

This review of the SMarT scheme has been developed in response to the second of these. The Seafarer Projections Review (SPR) (Oxford Economics 2016) addresses the first.

1.2 PROJECT SCOPE

The Department for Transport (DfT) requested this review of SMarT should be carried out against four objectives:

1. Examine the costs of training for officers and ratings, establish the barriers to entry for the maritime sector and what interventions could overcome these barriers.
2. Identify alternative approaches for supporting seafarer training comparing other countries and other industry sectors.

3 Determine the current value for money (VfM) of SMarT training, considering the level of funding and altering the design of SMarT.

4 Determine the impact of SMarT on the growth of the UK's maritime sector.

1.2.1 Out of scope and boundaries

This work is concerned with SMarT but it is noted that there are a number of other activities which also influence the development of UK shipping and the maritime cluster.

Currently, tonnage tax's training requirement is closely linked with uptake from industry of SMarT. A detailed review of the tonnage tax training requirement is outside the scope of this work but some understanding of the relationship between these regimes has been sought and described where it is considered to be helpful.

There are a number of policy initiatives to promote European seafarer training by the European Commission (and individual Member States). These are not directly related to SMarT.

Apprenticeship schemes are not a part of this review, and are specifically excluded from the SMarT scheme. However a high level commentary on apprenticeship schemes is made.

All of these measures interact, to varying degrees, with seafarer training in the UK. We recommend that these issues are considered alongside this review of SMarT to account for these interactions to avoid unintended consequences.

Our focus has been on reviewing information since the previous review of the economic requirement for UK trained seafarers produced in 2011 (Deloittes/Oxford Economics), and following the core remit of reviewing SMarT and not the whole shipping industry.

This review is based on literature reviews and discussions with a group of stakeholders who could be contacted within the timescales of this work. Clearly this imposes a constraint on the study but nevertheless we have attempted to ensure that a good breadth of opinion on the subject has been captured.

This review is focussed on gathering balanced opinion supported by quantitative information where available. This approach is a result of the wide diversity of stakeholders with an interest in seafarer training. Qualitative arguments about government support for maritime training have been developed from this.

1.3 TERMINOLOGY

There is a Glossary at the beginning of this document but there are a few terms which are of particular importance in reading this review. These are outlined below.

The maritime sector includes a broad range of services across many industries including leisure, fishing, commercial transport, energy, scientific research, and national security. It includes both onshore and offshore elements. For the purposes of this review it is convenient to consider two sub-sectors.

- Shipping sector: the shipping sector carries goods and passengers or provides support functions such as dredging, hydrography, offshore construction and support to oil platforms.
- Maritime cluster: the maritime cluster includes activities that support the maritime sector onshore. It includes ports, repair activities, marine equipment supply chain, maritime research, training, legal and financial services. It is based onshore.

The term 'cadets' refers specifically to trainee officers. Prior to qualification, ratings are referred to as 'trainee ratings'. The term 'trainees' refers to both cadets and trainee ratings together.

The focus of this report has been on officers primarily, because the majority of SMarT funding is directed towards their training:

The SMarT scheme funds cadet training to 1st Certificate of Competency, officer professional development to 2nd Certificate of Competency and rating training for merchant navy seafarers. It is only provided to UK individuals or those EEA nationals who are ordinarily resident in the UK. The scheme does not provide training support to other areas of the maritime sector (e.g. the maritime cluster).

Training is provided in phases of onshore academic training and experience at sea, where accommodation arrangements (berths) are required. There are some differences in the terminology used in the industry. In particular the term 'training provider' has been used to refer to the providers of academic training and the cadet's sponsoring company. This document avoids the term 'training provider' and uses the following definitions:

- Colleges provide academic training.
- Sponsors facilitate the training of cadets/ratings including provision of training berths. They fall into several categories:
    - Shipping companies. Commercial companies carrying goods and/or passengers. They provide placements for cadets on their vessels. Trainees are supernumerary i.e. they are not part of the minimum complement for the vessel.

- Shipping management companies: These are contracted by shipping companies to manage significant elements of ship operations, and this can include training.
- Training management companies. These are contracted by shipping companies/charities to manage, recruit, train cadets; administer cadet applications; administer the SMarT scheme etc. Many shipping companies use training management companies to run their UK cadet training schemes.

- Charities provide a valuable element of funding to training. They are reliant on industry partners for provision of berths.

1.4 DOCUMENT STRUCTURE

This report is structured as follows:

Section	Title	Description and Purpose
1	Introduction	A brief introduction to the review, terminology and scope.
2	Industrial Context	Describes the shipping industry in the context of SMarT. Provides background required to assess alternative approaches (Objective 2) and options for change (Objective 1).
3	Methodology	Overview of the activities taken in this review. Justifies the approach and identifies the balance between qualitative and quantitative assessment.
4	Overview of SMarT and stakeholders in seafarer training	Overview of SMarT. It provides a quantitative and qualitative baseline for assessment of SMarT in support of objectives 1, 2, 3 and 4.
5	Cost of training and value for money	Summary of economic analysis describing the cost of training (objective 1) and the cost:benefit of UK seafarers and impact on the maritime sector (objective 3 and 4).
6	Smart – Future Need	Describes high level outputs from the Seafarer Projections Review including background information to Objective 4.
7	Barriers to entry and provision of take up of training / seafaring roles	Reviews barriers to the provision and take up of training (Objective 1).
8	Alternative training models by other seafaring nations	Overview of some of the most comparable overseas training regimes (objective 2).
9	Comparison of training with other UK professions	Overview of some other key funding approaches to training in the UK (objective 2).
10	Interventions and options for the future of SMarT	Describes options for changes to SMarT (objective 1) including interventions related to the barriers identified in section 7, the review of other nations' maritime training schemes (section 8), and the review of other UK training schemes (section 9).
11	Conclusions	Overall summary of the Review including summary against objectives 1, 2, 3, 4.
12	Recommendations	Recommendations and other findings.
13	References	
	Glossary of key terms	
A1	Annex A	A copy of the cost and value for money assessment conducted by Oxford Economics under this contract (detailed report in support of objectives 1 (cost of training) and objective 3 (value for money).
A2	Annex B	Other Nations' Training Models (supplementary to objective 2).
A3	Annex C	Main stakeholders contacted in this review.

1.5 MAPPING TO OBJECTIVES

This review draws together a review of SMarT from a cost, Value for Money and qualitative perspective drawing on the views of stakeholders and open sources to come to a view of the effectiveness of SMarT and making recommendations for improvement. These elements are complex and interwoven. This section summarises the main chapters and sections that meet the objectives of the review.

	Key Chapters/ Sections
Objective one should examine the costs of training for both officers and ratings. The contractor should establish whether the barriers to entry for the maritime sector, including those found by the Maritime Growth Study, can be evidenced; and what interventions would be needed to overcome these barriers, Particular consideration should be given to the factors which deter young people and women from entering the sector. It should specifically identify the availability of training berths and how that impacts on the costs of and accessibility to the sea time periods of training.	Chapters 2, 5, 7, 10 Conclusions 11.2, 11.3
Objective two should identify alternative approaches for supporting seafarer training and highlight the advantages and disadvantages of each approach. The contractor should draw on comparative material from other countries and sectors (particularly STEM). The alternative approaches identified should be compared, using both quantitative and qualitative VfM methodology, against SMarT. This should consider different levels of funding per trainee seafarer against the number of seafarers trained, the cost of training, the level of training and vocational models compared to academic pathways. Analyses must include maritime training available through other routes such as Trinity House, Maritime Training Trust, the Slater Fund, apprenticeships, RFA training with the Royal Navy/ Royal Fleet Auxiliary and the numbers trained through these routes in addition to SMarT.	Chapters 8, 9, 10, Annex B Conclusions 11.4
Objective three should determine the current VfM of SMarT training. It should suggest how the VfM could be improved by changing the level of funding and by altering the design of SMarT. This should draw on both quantitative and qualitative evidence from training providers, shipping companies and others who employ trainees on completion of their training or later in their careers. The contractor should analyse whether SMarT funding closes the skills gap and targets the necessary groups at an appropriate stage in their careers.	Chapters 5, 10, (Detail in Annex A) Conclusions 11.5, 11.6
Objective four aims to determine the impact SMarT has on the growth of the UK's maritime sector. In order to do this the contractor should investigate the career paths of SMarT trainees with the intention of identifying areas of the economy which benefit from those who receive seafarer training early in their careers but leave the sea later and move on to use their seafaring skills in other sectors. Attention should also be given to whether there is an optimum academic level of training that should be reached for a maximum return on investment.	Chapters 2, 5, 6, Conclusions 11.7

2. Industrial context

In carrying out this review it was important to understand why the maritime sector is important, what differentiates it from other industries and whether these differences justify special treatment.

The shipping industry is of economic importance to the UK, and the production of seafarers is important to the national interest.

Other countries also appreciate the importance of a home-based shipping industry and this has led to inter-governmental competition to attract industry in the form of subsidies, tax and policy initiatives.

The competitiveness of the UK government's intervention is influenced by the reputation of UK seafarers, cost of training in the UK, numbers of sea berths, training quality and global competition.

Seafaring is a high risk occupation and imposes a unique combination of physical and emotional demands. Trainees may only recognise their suitability for this career when exposed to time at sea.

This section provides context for our assessment of barriers to training (objective 1), alternative approaches (objective 2), options for change (objective 1), and subsequent conclusions and recommendations.

This chapter establishes the context against which the SMarT scheme was established and is operated.

2.1 STRATEGIC CONTEXT

As an island nation the UK has always relied on the sea for a significant part of its trade as well as its defence and it remains an important part of our economy.

- More than 90% of the UK's food imports arrive by sea (http://randd.defra.gov.uk) .
- It is estimated that in 2014 the Maritime industry generated at least £13.4bn for the UK economy and employed at least 111,000 people (DfT).
- In both business services and maritime education the UK continues to be one of the market leaders.
- 1.5% of world commercial shipping is owned by UK-based companies and a further 3.2% managed by UK-based companies (CIA world fact book 2016).
- It is further suggested that 80% of sales within the UK maritime sector are from outside the UK (PWC 2015).

- Internationally, significant bodies such as the IMO locate their headquarters in the UK. This is linked to the UK's seafaring history.

The security of the UK is also an important factor. The Ministry of Defence has stated that the current availability of British seafarers was sufficient to meet operational requirements, but it has noted "that the trends are adverse, not only in terms of the continuing fall in numbers (in particular of ratings), but in the increasing average age of British seafarers."

It observed that "such trends take a long time to reverse and, unless they are reversed, a point will be reached where military operations in defence of our vital interests may be put at risk" (http://webarchive.nationalarchives.gov.uk).

The number of British officers has fallen over last 100 years. From around 500,000 in 1914 the number of registered seafarers had dropped to 79,000 by the time of the Falklands conflict in 1982. Numbers have continued to decline (Butcher 2010).

Figures 1 and 2 show the current position.

	Total
UK nationals holding Certificate of Competency	10,930 (5,040 Engineer and 5,890 Deck)
Overseas nationals holding UK Certificates of Competency	13,870
Overseas nationals holding Certificates of Equivalent Competency	11,230

Figure 1: Numbers of UK seafarers, (UK Department for Transport - Statistical Release - Seafarer Statistics 2015)

Numbers for ratings are expressed in Figure 2 below.

Deck ratings	3,060
Engine room ratings	740
Catering/hotel	4,890

Figure 2: Numbers of ratings (UK Department for Transport - Statistical Release - Seafarer Statistics 2015)

(As a comparison, estimates vary, but there appear to be about 1.5 million seafarers globally of which a little over half are officers).

Whilst there are no nationality requirements for UK registered ships all officers must hold a valid UK Certificate of Competency (CoC) or Certificate of Equivalent Competency (CEC) issued against an overseas certificate.

2.2 INTER-GOVERNMENTAL COMPETITION TO ATTRACT THE SHIPPING INDUSTRY

The modern shipping industry differs notably from other large industrial sectors. The mobility of maritime labour and the ability of their associated employers to move to advantageous jurisdictions is a major feature of the industry. Shipping companies can choose where they manage, train and employ their staff according to the subsector they operate in, the skills required, the cost of training/employment, National regulatory regime etc. The regulatory and policy context in which a business entity operates will always be a significant influence in its choice of location. Given the globalised nature of the shipping industry these factors are more significant still.

Many countries in the world actively seek the strategic and financial benefits of an indigenous shipping industry. Typically this is not achieved organically, but instead by offering incentives to attract industry from other countries. Such incentives include:

- Beneficial tax regimes.
- Paying for tuition fees (often as part of wider universities system) as well as providing subsidies to cover the other costs of training (living expenses, travel etc.).
- Support to industry at the highest levels of government (policy).
- Relaxed employment legislation.
- Investment in infrastructure.

Many countries have been successful in attracting industry, as demonstrated by the 244 ships which left the UK Shipping Register (Maritime Growth Study, Mountevans et al 2015):

- 33% reflagged in Singapore: aggressive focus on attracting shipping industry has meant the Singaporean government are reducing costs to industry by reducing tax liabilities and offering subsidies for seafarer training, as well as developing a sizeable maritime cluster to support industry.
- 28% reflagged in Liberia: relaxed labour laws mean there is no minimum wage for employees and regulation of vessels is light. This allows shipping companies to reduce their operational costs.

The UK cannot realistically compete with open registers offering low cost labour. However, it should aim to compete with similarly developed countries.

Since the introduction of the UK tonnage tax scheme many of the UK's main competitors such as Singapore, and Hong Kong have responded in kind by introducing similar systems. Modifications to the tax, training and employment systems in the UK may increase demand from industry for UK seafarers.

2.3 INTERNATIONAL LABOUR IN THE SHIPPING INDUSTRY

2.3.1 The international shortage of seafarers

Much research over the last ten years has forecast that there is likely to be a significant short fall in the number of trained seafarers (Caesar et al 2015) in future decades. The recent Seafarer Projections Review (Oxford Economics 2016) discussed in Section 7 reinforces this view. The reasons behind this shortfall are complex and multifaceted but include changes in the mechanisms that create and supply seafarers, and retention issues as officers seek shore side employment due to factors such as the length of separation from family.

Therefore although UK numbers of seafarers have fallen global seafarer requirements are increasing.

2.3.2 Quality and standards

The comparatively low margins available in many sectors of the industry have driven shipping companies to seek to reduce costs in order to maximise their profitability. Labour and training cost are one of the few elements of spending where the ship owner has a degree of control (PWC 2015).

Historically seafarer training was nationally focused, funded by both government and industry to provide a national pool of skilled labour for integrated national companies. With the advent of ship management companies however; owners often subcontract responsibility for crewing and training to third parties. Hence the employment status of the individual seafarer raises some anomalies. Ship owners may be less inclined to invest in training when the resulting skilled labour force is employed by another party. Equally ship managers may have less long-term interest in the provision of training when the supply of sea berths, essential for training, rests with the owners (Leong 2012).

The increased complexity of the vessels which make up the world's fleet and the growing regulatory burden placed upon seafarers and criminalisation of professional errors (Kanev 2014) logically drives demand for higher quality seafarers. This, however, creates a tension between the need to cut costs whilst maintaining standards. The lack of a clear focus for training responsibility will, left unchecked, have an adverse effect on the quality, standards and scale of training.

2.3.3 The unique demands of a seafaring career

The practical elements of a seagoing career place demands on its practitioners that are unique in the UK economy. The International Labour Organization summarises the occupational challenges faced by the seafarer as follows:

> *"Many seafarers ply waters distant from their home. Seafarers and ship-owners are often of different nationalities, and ships often operate under a flag different from their origin or ownership. Seafarers are also frequently exposed to difficult working conditions and*

particular occupational risks. Working far from home, they are vulnerable to exploitation and abuse, non-payment of wages, non-compliance with contracts, exposure to poor diet and living conditions, and even abandonment in foreign ports"(www.ilo.org).

Despite improvements in occupational safety standards at sea, seafaring remains a high risk occupation. Mariners face exposure to maritime accidents and disasters, piracy, high shipboard stress levels including fatigue and isolation, communicable diseases and exposures to hazardous substances. It is not possible for trainees to appreciate many of these factors until they undertake training at sea (and direct physical issues such as seasickness may prevent them from continuing with seafaring as a career).

Furthermore, they routinely face significant separation from families, long physically demanding working hours and communication problems owing to the multicultural nature of modern seafaring (Oldenburg et al 2015). They have little in the way of social life whilst at sea, and there is an increasing trend towards criminalisation of professional errors.

There is clearly a further tension developed between the need for shipping companies to keep labour costs (training and employment) down in a highly internationally competitive industry and the need to adequately incentivise officers and ratings in a personally challenging career. Outside the seafaring industry, UK companies often find it difficult to hire cheap overseas labour in the UK. This may be, for example, because their employees must gain security clearance (engineering industry) or pass background checks (teaching). Another reason is the difficulty faced by non-EU individuals in obtaining a work visa to take employment in the UK.

As seafarers do not work ashore, companies are not constrained in who they employ. Therefore UK seafarers face much greater competition for jobs in the UK seafaring industry from overseas labour than is the case in other industries.

2.4 SEAFARER TRAINING

2.4.1 The international nature of seafarer training

Global shipping companies train officers and ratings all over the world, and a contingent of these are UK nationals. As an example, one company we spoke to was training cadets in 14 countries, the UK comprising just under 5% of the trainees. These companies are able to shift the balance of nationalities in training with relative ease, tuning their cadet intake in each country to maximise the benefit they gain from economic incentives offered by different governments and the strategic needs of their business. Just as the UK employs foreign nationals, UK seafarers appear on the vessels of other nations.

The SMarT initiative and tonnage tax Minimum Training Obligation (MTO) was created as a policy intervention in order to exert influence over the seafarer training market to encourage an increase in the number of UK seafarers being trained; a situation that market forces in isolation were failing to address.

2.4.2 The UK training baseline

The general approach to funding cadet and rating training in the UK is for the costs to be met by sponsoring shipping companies, or charitable organisations, with the UK government providing support in the form of the SMarT subsidy (Leong 2012). The actual costs of seafarer training in the UK will vary for individual sponsoring companies depending on their approach to managing their training.

Training requires a mix of academic shore-based tuition and training at sea. The provision of sea training berths is quoted by multiple stakeholders and within the literature as one of key factors limiting the continued growth of cadets training in the UK (Maringa et al 2015, Caesar & Cahoon (2015).

For many companies the relationship between the SMarT subsidy and the tonnage tax scheme (section 2.5) is very important in making training decisions. Companies who take advantage of tonnage tax have an obligation to train seafarers in the UK. Most but not all companies who support training in the UK are also linked to the tonnage tax regime. Such companies provide the sea berths and associated practical training. In 2010-2011 approximately 87 companies were actively providing sea training (www.publications.parliament.uk). There are approximately 70 companies in the tonnage tax scheme.

2.4.3 The value of UK seafarers

The UK officer's seafarer training programme has a particularly good reputation, in highly specialised and technical roles (Oxera 2015). As a result, courses have remained in demand. UK nationals have the advantage of being native English speakers whose certificates are recognised around the world. This makes them highly desirable to companies who flag their fleets across different jurisdictions.

At senior levels, British officers are considered to be of high quality, while their salary expectations are in keeping with similarly experienced officers from other countries. However, while junior officers are also considered to be high quality, they have much higher wage demands than similarly experienced officers from other countries. (From MNTB supplied figures).

For ratings, the difference in wage expectations between British and other seafarers is even more significant (Mackinnon 2014). However where highly experienced British ratings are found they generally appear to be highly valued, and their English speaking skills are again perceived to be an asset.

UK Engineer Officers

- UK marine Engineer Officers are, in general, accepted as particularly well-trained and professional seafarers.

- The skills of the Engineer Officer and Electro-Technical Officer (ETO) are directly adaptable to shore roles both within the maritime cluster and in the wider economy. Our consultations with industry indicate there is therefore a greater turn-over in engineering personnel than is the case with Deck Officers.
    - Many engineers have been lost to the oil industry where they had the opportunity to earn significantly higher wages than through standard seafaring. This is likely to have diminished given the current industry climate following the drop in oil price. The continued training of engineer cadets remains of particular importance to the UK if a pool of marine engineers is to be retained.
    - The UK no longer maintain a major ship building and ship repair industry. In almost all of the UK competitor nations these industries continue to provide a supply of ship-aware personnel that can be re-skilled to work at sea.
- Technological changes, often driven by regulatory requirements such as emission regulations, increase the complexity of modern shipping. The advent of computerised engine management systems, liquid natural gas (LNG) as a ship fuel, diesel electric propulsion units as well as increasingly complex navigation aids will heavily influence the requirement for high quality engineers in the future.
- Currently college engineering departments are generally staffed with mechanically biased marine engineers augmented by electrical officers as required. The new ETO are more electronically focused and have the skills to support the increasingly technical equipment found on modern ships. ETO training is a relatively new option, but as yet not a compulsory requirement on many safe-manning certificates and hence demand is yet be fully understood. Hence training of ETOs may be lower than is required to meet likely demand.
- It is noted that the progression route for ETOs is currently limited, due to the absolute requirement for chief engineers to hold mechanically biased marine engineering qualifications. This situation could make the route less attractive to potential seafarers.

2.4.4 Availability of sea training berths

Basic qualification standards for masters, officers (Deck and Engineer) and watch personnel on merchant ships are stipulated by the International Maritime Organization through the STCW Convention. Availability of sea training facilities is an implied requirement of the STCW agreement. The limited availability of such facilities and the impact on numbers of trained seafarers is noted in literature from around the world.

Some nations such as India and Taiwan are considering the provision of “Trading cum training” vessels which provide sea training whilst trading profitably (Mohan 2014). Such vessels have been widely used in the past to provide sea experience in the UK.

2.5 OTHER UK GOVERNMENT INCENTIVES - TONNAGE TAX

2.5.1 Background to the tonnage tax

The UK tonnage tax system was introduced to create a beneficial fiscal environment in which shipping companies can operate by offering a permanent reduction in tax liabilities of those who participate.

To qualify ships must be both strategically and commercially managed in the UK. This test is not defined in law; however sufficient elements of operational processes must be based in the UK to make it clear that shipping activities are centred in Britain and not elsewhere (Watson, Farley and Williams). There is a minimum ten year commitment to enrol in tonnage tax. In addition to the benefits bestowed by membership of the UK tonnage tax scheme there is a clear liability to undertake seafarer training during the period that owners are members of the scheme.

Although tonnage tax initially reversed the decline in the numbers of UK registered ships, it now appears that the number of 'deadweight tonnes' managed in the UK has been dropping since 2009. There were 90 companies on tonnage tax in 2009 compared to 70 today. It is not clear what the cause of this is, though economic recession and international competition are likely to be significant contributors. DfT/HMRC (Her Majesty's Revenue and Customs) enquiries concerning companies who left showed the reasons included forgetting to renew, disposal of all vessels, or liquidation/ in administration. There is also a suggestion that recession has caused some companies to merge or be taken over.

Many other nations now operate a tonnage tax scheme of some sort to support their maritime industry, including Singapore, Hong Kong, Germany, Netherlands, Norway and Greece.

2.5.2 The impact of tonnage tax on training

The requirement on participating companies to commit to a Minimum Training Obligation (MTO) was until recently a unique feature of the UK tonnage tax scheme. This commitment originally required companies to train one UK national or EEA cadet for every 15 officers on a company's books. India followed the UK system of linking tax with training with a MTO of 1 cadet to every 10 trained officers in 2004. (www.dgshipping.gov.in/Content/viewNotice.aspx?noticeid=69).

This original training requirement did not account for the UK's strategic requirement for ratings as well as officers – vessels require skilled labour at both levels for safe navigation. In 2015 a trial scheme began allowing the option to train three ratings for each trained officer on the company's books as an alternative to one cadet, although there remain some issues with the interpretation of this change.

In the UK scheme if the training ratio cannot be met the company must make a payment in lieu of training ('PILOT') to the Maritime Training Trust (https://www.gov.uk/government/collections/tonnage-tax-minimum-training-commitment) (Tonnage tax minimum training commitment: clarification and guidelines). The PILOT payment is only acceptable if the company cannot meet its training obligations. The PILOT scheme was not designed as an alternative option to the training commitment.

According to DfT, tonnage tax minimum requirements account for around 1800 training berths (over the full three years of entry). This minimum requirement approximately covers two-thirds of the cadets who begin training each year.

Shipping companies who are registered on tonnage tax are able to quickly reduce their training requirement by removing ships from the tonnage tax scheme whilst still benefiting as far as possible from the tonnage tax. As countries compete to attract industry and introduce new incentives, it is anticipated that the UK tonnage tax scheme will become less competitive and the number of available berths will fall having a knock on impact on training.

2.6 THE IMPACT OF EXITING THE EUROPEAN UNION

Currently little is known about the negotiating positions of the EU and the UK, and how the UK's eventual exit from the EU will affect the UK maritime sector. Regulatory regimes may become more, or less favourable to UK companies and hence our competitiveness could be positively or negatively impacted due to tariffs and exchange rates.

However, during our review with stakeholders we discussed how they expect exit from the EU to affect the UK's shipping industry in the context of training and recruitment. Whilst only a snapshot the following points emerged:

- In some respects the challenge of increasing trade with other non-European nations was considered to be an opportunity as the requirement to transport more goods over long distances is likely to be increased.
- Leaving the European Union Customs Union could mean imports/exports between the UK and the EU are subject to tariffs and additional administration. This may reduce trade between the UK and the EU and negatively impact the UK maritime industry.
- Fluctuation in currency levels has seen the recent fall in the value of the British Pound benefiting industry. If this is sustained the cost to industry of employing UK seafarers may be lower.
- A large proportion of the UK's seafarer population are not UK nationals, but instead hold CECs. It is understood that these individuals do not require work permits and therefore shipping companies will still be able to hire these individuals if tighter immigration controls are put in place by the government.

- It is understood that a significant proportion of students at UK colleges are non-UK nationals. If the government were to impose tighter immigration controls on students entering the UK, colleges may see a reduction in the number of students subscribed to their courses. This could affect colleges financially, which could in turn impact their ability to deliver courses to UK nationals.

In short, it is too early to assess how exiting the EU could impact on the UK's future demand for seafarers, however the uncertainty is clearly unsettling for trade and this may affect decisions over training. It will be important to keep this situation under review as events unfold and the implications for the maritime industry become clearer.

3. Methodology

3.1 INTRODUCTION TO OUR METHODOLOGY

This review was carried out using public domain literature reviews and discussions with representative stakeholders representing trade bodies, unions, educators, and industry and Government bodies associated with the scheme.

Training schemes from other countries and UK industries were examined for useful comparisons.

The data collected was analysed to examine the cost of training, value for money, success of the SMarT scheme and options for improvement.

3.2 OVERVIEW

This SMarT review was carried out by Frazer-Nash and Oxford Economics. The work consisted of a mixture of public domain research, stakeholder engagement, economic modelling and analysis, including development of scenarios to identify potential improvements to SMarT.

The stages of the methodology are described in Figure 3.

3.2.1 Reminder of objectives

The review of SMarT was carried out against four objectives:

- Examine the costs of training for officers and ratings, establish the barriers to entry for the maritime sector and what interventions could overcome these barriers.
- Identify alternative approaches for supporting seafarer training comparing other countries and other industry sectors.
- Determine the current value for money (VfM) of SMarT training, considering the level of funding and altering the design of SMarT.
- Determine the impact of SMarT on the growth of the UK's maritime sectors.

3.3 STAGES OF REVIEW

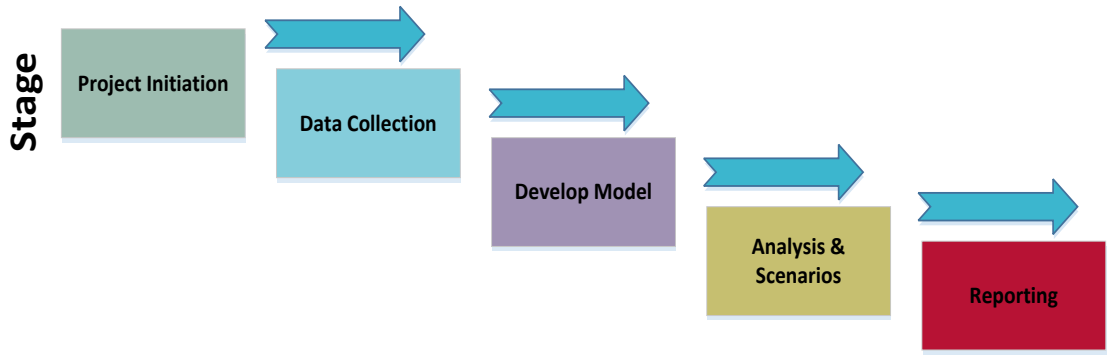


Figure 3: Methodology

The tasks conducted in the review are described in the remainder of this section.

3.3.1 Project initiation

During this stage Frazer-Nash and Oxford Economics:

- Attended a project initiation meeting with DfT and MCA and presented the approach to the work.

3.3.2 Data collection

During this stage Frazer-Nash and Oxford Economics:

- Identified and selected key stakeholders for the review (the stakeholders are described in Section 3.4).
- Gathered information from DfT/MCA regarding the numbers of trainees.
- Carried out a public domain literature review and consulted with stakeholders across the maritime sector to gather information on:
  - The cost of training for industry and academic institutions.
  - What barriers exist to the provision of training? (Capacity, financial, time, quality etc.)
  - What barriers exist to trainees for the take up of training? (Access, finance, awareness, motivation, opportunity, work-life balance etc.)
  - Seafarer salaries.
- Reviewed government schemes with a selection of other seafaring nations to identify any advantages compared with SMarT.
- Reviewed a selection of other UK industry training approaches to determine any advantages compared with SMarT.

- Reviewed the Seafarers Projections Review (Oxford Economics 2016) to identify the likely need for seafarers in the future. The SPR was a separate piece of work carried out by Oxford Economics for the DfT and delivered towards the end of this study.

The wide diversity of stakeholders with an interest in seafarer training has required that this review is focussed on gathering balanced opinion supported by quantitative information where available. Qualitative arguments about government support for maritime training have been developed from this.

3.3.3 Model development

During this stage Frazer-Nash and Oxford Economics:

- Developed an economic model using the available information on cadet numbers, drop-out rates, costs, salaries, and future need for seafarers (in shipping and the maritime cluster) and used this to make a value for money assessment based on the current scheme.
- Estimated the value of training based on future productivity throughout their career.

3.3.4 Analysis and scenarios

During this stage Frazer-Nash and Oxford Economics:

- Reviewed the barriers to the provision and take up of training identified in the data collection stage and decided which represented true market failures.
- Reviewed the SPR output and the information available about the training scheme capacity and take-up to comment on whether skills gap may exist.
- Using the information from the data collection stage, developed options for the future of SMarT.
- Assessed the alternative scenarios and identify possible improvements for the future use of SMarT.
- Shared recommendations with a stakeholder group and collected feedback.
- Developed final recommendations.

3.3.5 Reporting

During this stage Frazer-Nash and Oxford Economics:

- Produced a draft report on the work carried out.
- Collected feedback from DfT.
- Updated the report to final issued version.

3.4 STAKEHOLDER GROUPS

Frazer-Nash carried out a programme of stakeholder engagement to canvass the range of opinions about how effective the SMarT scheme is in meeting its broad objectives, how well the system operates and how it is administered in practice. The opinions and data from our consultations are distilled in this report and were used to understand the training system and develop options for change.

The stakeholder community is complex and therefore our approach was to carry out a broad but high level review to get representation from the majority of stakeholder groups. Section 4.2 explains how we have considered the relationship between the stakeholders in the context of SMarT.

We initially issued open structured questionnaires in order to gather specific quantitative data and gather qualitative information surrounding the subject. These were followed up with either telephone interviews or face to face meetings. The follow up meetings were partially structured to clarify the questionnaire answers but also to explore the broader context of the issues and identify common themes across stakeholder groups.

Annex C lists the main non-governmental stakeholders we consulted.

3.4.1 Trade associations and representative bodies

We conducted face-to-face interviews with Nautilus, RMT, the UK Chamber of Shipping and Merchant Navy Training Board.

3.4.2 Shipping companies and shipping management companies

We contacted a range of shipping companies, selected to represent a cross-section of the industry covering cargo, cruise, liquid carriers, smaller owner operated companies, ferries.

Of those we contacted eight agreed to take part. All companies that agreed to take part completed questionnaires and agreed to a follow up interview.

3.4.3 Cadet training management companies

We contacted all of the major cadet training management companies. All completed the questionnaire and undertook an interview.

3.4.4 Charities

Our review of charities was limited to a desktop review of five of the main charitable bodies who contribute to seafarer training in the UK.

3.4.5 Colleges

We contacted four of the major cadet training colleges who agreed to take part. All provided both written and verbal evidence in response to our requests.

3.4.6 Cadets

We also undertook an online survey in order to develop an understanding for the training system from the perspective of the cadets themselves. This survey generated a limited sample size of 24 responses. With such a small sample size this evidence is clearly not definitive. However it is indicative of the views of the younger seafarer community.

3.4.7 Government

During the review we consulted the Maritime and Coastguard Agency (MCA) and the Department for Transport (DfT) to understand the influence of tonnage tax on training, how the SMarT scheme runs and the award of CoCs.

3.4.8 Summary

The stakeholder sample we contacted are actively involved in training, management or representation of a large proportion of cadets. MCA information estimates 819 1st year cadets were subsidised under SMarT1 for the entry year 2014/2015:

- Three colleges provided good numerical data representing 523 first-year cadets from the 2014/15 intake. They provided data on numbers of new starters, drop-out rates, completion rates and employment rates for other intakes in 2014/15. A fourth college representing a further 148 cadets provided useful data on numbers of new starters.
- The data from shipping companies and training management companies represented 622 of the first year cadets taken on in 2014/15. Drop-out rates, completion rates and employment rates were also from 2014/15 and represented previous intakes.

Data from colleges represents between 64% and 82% of the overall UK cohort of cadets, while data from shipping companies and training management companies represents 76% of the overall UK cohort of cadets. Thus, we believe we have canvassed opinion from a good cross-section of companies representing the shipping industry. Discussion with trade bodies has given us confidence that these views are balanced.

Section 7, describing the barriers to entry, draws out the dominant themes from the stakeholder discussions.

It should be noted that there is substantial interest in the maritime sector in the UK at the moment with multiple studies being carried out in parallel to this one. This is encouraging but has affected our ability to access some stakeholders who declined to take part as they had participated in other similar studies.

4. Overview of SMarT and stakeholders in seafarer training

SMarT is a subsidy scheme designed to underpin the training of officers and ratings.

SMarT in combination with tonnage tax has the overall aim of encouraging the industry to invest in training UK seafarers.

Tonnage tax and SMarT both play significant but different roles in the decision to train UK seafarers.

SMarT has broad aims but not quantifiable targets to measure success.

The information in this section was developed from government documents and discussions with the Department for Transport (DfT) and MCA. It provides a quantitative and qualitative baseline for assessment of SMarT in support of objectives 1, 2, 3 and 4.

4.1 OVERVIEW OF SMART

4.1.1 SMarT and its aims

SMarT government funding is currently provided to subsidise the cost of training officer cadets and ratings. The SMarT scheme, in combination with a tonnage tax scheme, aims to ensure an adequate supply of high quality, qualified seafarers to the UK maritime sector and UK maritime cluster. It was established due to a shortage and ageing supply of UK seafarers.

Whilst there was an aspiration to train in the region of 1,000 new entrants (Review of Government Support for Maritime Training' Steering Committee) SMarT guidance does not provide a specific quantifiable target based on government aims / objectives against which to measure success.

The following paragraphs give an overview of SMarT training and funding routes but are not an attempt to replicate the full detail of the governing documents (see section 4.1.2).

4.1.2 Types of SMarT funding

MCA manages the scheme and holds the budget for SMarT, although it is administered by an independent third party on their behalf.

The arrangements for the government's financial support scheme Support for Maritime Training Scheme (SMarT) are contained in Marine Guidance Note MGN 455 (M) and supplemented by Marine Information Note MIN 486 (M). These documents outline details of eligible courses and associated funding levels. The documents state the government commitment to ensuring that the mechanisms and infrastructure are in place to enable the maritime industry to build on its historic achievements.

SMarT is split into 5 areas as follows:

- **SMarT 1**: This is for officer trainees serving in a 'supernumerary' capacity (trainees are not regular active members of the crew during training). Completion of this training leads to trainees receiving their first STCW Certificate of Competency (CoC) as a Deck Officer, engineering officer or Electro-Technical Officer (ETO). The majority of funding is directed here.
- **SMarT 2**: This is generally to fund the professional development of qualified officers to allow them to undertake the shore training required to allow them to gain a second STCW certificate of competency. This training is shore-based and undertaken following a period of qualified seagoing employment. The first element of SMarT 2 can be claimed for cadets who have qualified with an HND, Foundation Degree (FD), Honours Degree or Scottish Professional Diploma (SPD) during their initial training sponsorship.
- **SMarT 3**: This is for ratings, officers and other experienced seafarers following an approved shore-based programme lasting 52 weeks or less. Some elements of rating training are sea-based but these are not all funded under SMarT. Cost to progress to Efficient Deck Hand and Able Seafarer are not funded by SMarT.
- **SMarT 4**: This was designed for officers already holding certificates of competence training to re-validate their certificates to meet the requirements of STCW 95. SMarT 4 is currently suspended.
- **SMarT 5**: Funding under SMarT 5 is available for those following the second possible route for ratings training and for parts of the ratings to officer conversion training. The sea-based element of training will be approved only for those who have been signed on in a training capacity, i.e. supernumerary.

In all cases the funding and exclusions are quite complicated, reflecting alternative entry and careers paths, and changes made over the life of SMarT.

Only MCA registered training providers are eligible to claim under SMarT.

Note: MGN 455 (M) specifically excludes trainees receiving any apprenticeship funding.

4.1.2.1 Officer training

Figure 4 represents a simplified form of the SMarT 1 and 2 routes to certification based on Marine Guidance Note MGN 455 (M) and supplemented by Marine Information Note MIN 486 (M). The original documents and the government website should be consulted for details and to confirm the latest information.

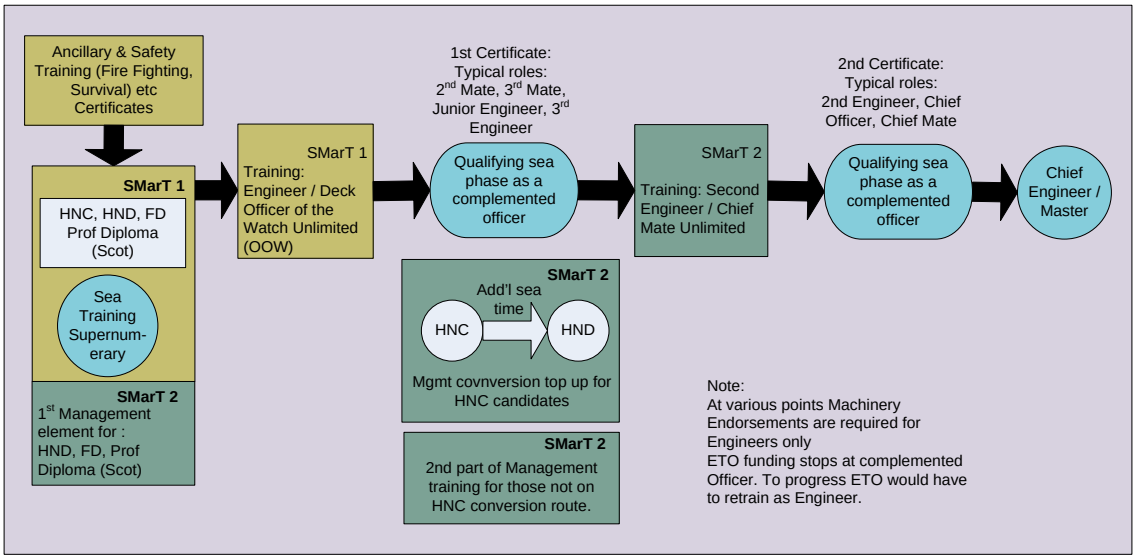


Figure 4: SMarT funding mapping to career life cycle - Officers

4.1.2.2 Numbers of Officer Cadets

It can be seen (Figure 5) that the numbers of cadets who started training peaked in 2008 at 925 before falling and rising to a secondary peak of 903 in 2011. In 2012, tuition fees were increased substantially from a maximum of £3,000 to £9,000 per year (except in Scotland). Since this, the number of cadets seems to have stabilised around the 800 mark.

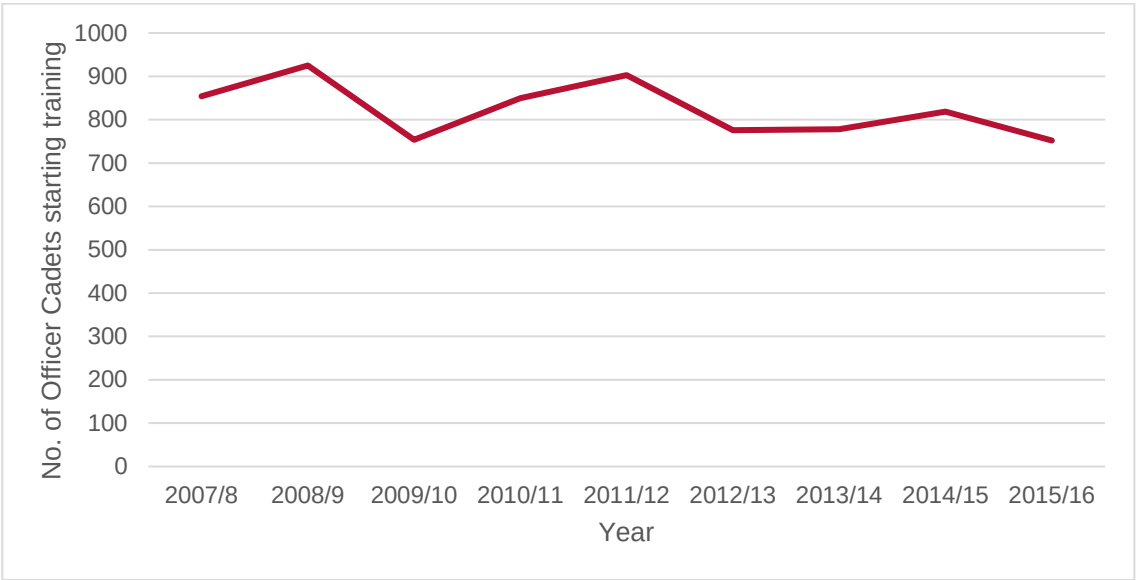


Figure 5: Numbers of cadets starting training each year (MCA figures)

4.1.2.3 Ratings training

There are a number of routes for ratings training (based on Marine Guidance Note MGN 455 (M) and supplemented by Marine Information Note MIN 486 (M)):

- Under SMarT 3, funding can be claimed for the first four basic safety certificates only. Trainees must then complete a minimum of six months' sea training (MGN 455(M)) unsubsidised by SMarT whilst completing a training record book.
- Under SMarT 5, 12 instalments can be claimed where a trainee enrols on a programme aimed at delivering either Navigational (STCW Reg II/4) or Engine-Room (STCW Reg III/4) Watch Rating Certificate. The rating trainee must undertake the four STCW basic safety training courses and at least two months' sea training.
- Under SMarT 5, 23 instalments can be claimed for trainees embarking on the MNTB approved general purpose rating trainee programme.

SMarT is not payable where the trainee enrols on the full four-stage MNTB approved Able Seafarer course at the start of their training as this attracts apprenticeship funding (MGN 455(M)). The Watch Rating route approved by the MNTB (first two of the four-stages) is not an apprenticeship route and is therefore eligible for SMarT funding.

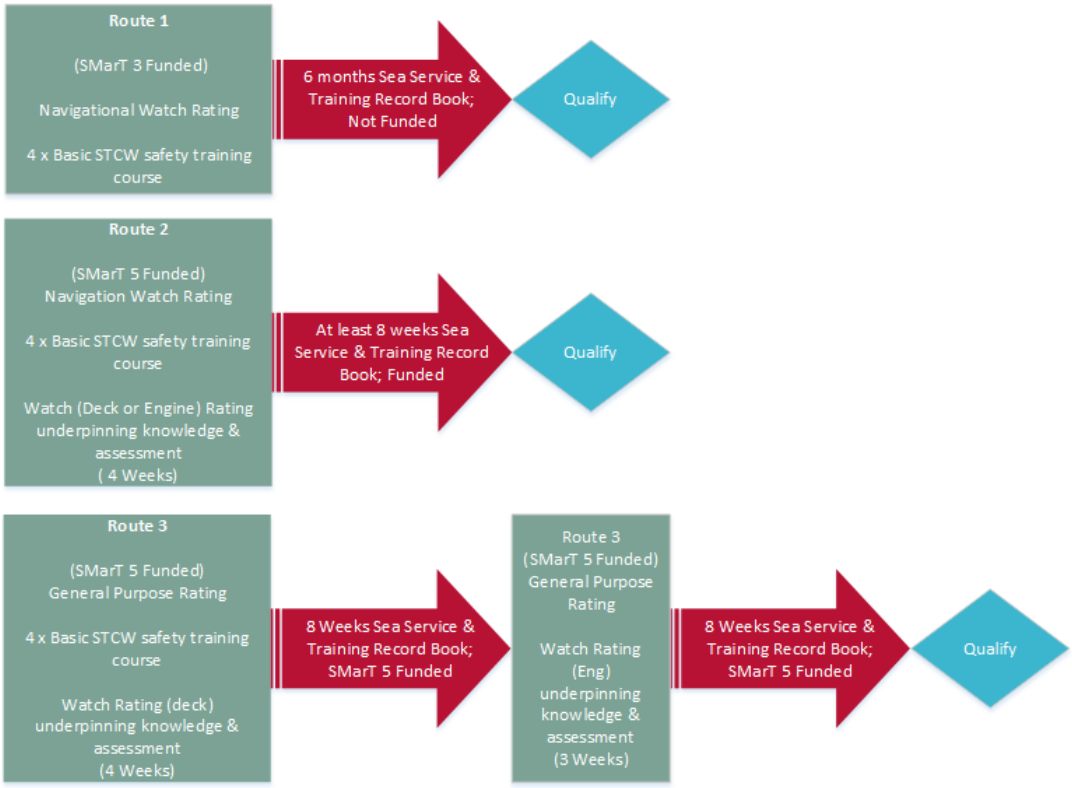


Figure 6: SMarT funding mapping - ratings

4.1.2.4 Numbers of rating trainees

Ratings make up a very small proportion of the trainees funded through SMarT, and it has not been possible to obtain accurate data on the numbers of ratings trained each year through the various SMarT and non-SMarT subsidised routes.

4.1.3 Eligibility of trainees

To be eligible for SMarT funding, a trainee must be:

- A national of a member state of the European Economic Area, the Channel Islands or the Isle of Man.
- Ordinarily resident in England, Wales, Scotland or Northern Ireland.
- Proficient in spoken and written English and must state an intention to be ordinarily resident in the UK following completion of their training.

Further details can be found in MGN 455 (M).

4.1.4 Level of funding per cadet or rating trainee

MGN 455(M) and MIN 486(M) describe the arrangements and levels for SMarT financial support. Funding was set at £12 million up to 2013/14. This was increased to £15 million up to 2015/16.

The current funding for each route is summarised below.

- SMarT 1: £86 in weeks 1 to 50, £107 in weeks 51-150, and a final payment of £3,156 once the cadet qualifies. This comes to a total of £18,156.
- SMarT 2: a 1st instalment of up to £4560, a 2nd instalment of up to £2,280, and a final payment of up to £2,463. This comes to a total of £9,303.
- SMarT 3: Course funding levels are set on the basis of a survey conducted by MCA or at the lower SMarT 1 figure (£86 per week) for instalments.
- SMarT 5: All instalments are at the lower SMarT 1 figure (£86 per week).

Refer to MGN 455 and MIN 486(M) for details.

Over the period 2011/12 to 2015/16, 91% of funding supported SMarT 1, 8.5% supported SMarT 2 and the balance supported SMarT 3 and 5 (MCA figures).

4.1.5 SMarT and the tonnage tax Minimum Training Obligation (MTO)

The tonnage tax system (section 2.5) as applied in the UK carries a specific training liability on companies entering the scheme. The requirements are as follows:

- The minimum requirement is to train one eligible cadet per year for every 15 officer posts entered on the Safe Manning Certificates of all ships in the tonnage tax fleet, plus a notional 50% to cover back-up officers.
- Sponsoring companies have the option to train three ratings (or two rating to officer conversion trainees) in place of one cadet position contained in their annual MTO. It should be noted however that only those rating trainees registered for Able Seafarer training can count towards the MTO. SMarT funding is not available to subsidise the full four-stage MNTB approved Able Seafarer course (and hence contribute towards to cost of meeting this option of the tonnage tax requirement) as this will attract apprenticeship funding.
- Where the MTO cannot be met by providing training, a ship owner may, in exceptional circumstances, instead make a payment in lieu of such training ("PILOT"). DfT only agrees to a training commitment being met by making planned PILOT payments in cases where the company can show good reasons why it is unable to provide training itself or to sponsor trainees elsewhere. The current rate of PILOT is £1,236 per trainee month. PILOT payments also arise where either:
  - The fleet has increased in size since the training commitment for the current year was approved, or
  - The company is failing to meet its training commitment because it has failed to recruit enough cadets, or cadets have dropped out.
- PILOT payments are made to the Maritime Training Trust (MTT).

4.2 STAKEHOLDERS

There are a number of other stakeholders groups in the UK maritime sector particularly relevant to training. The relationships between the various stakeholders is complex but is summarised in Figure 7.

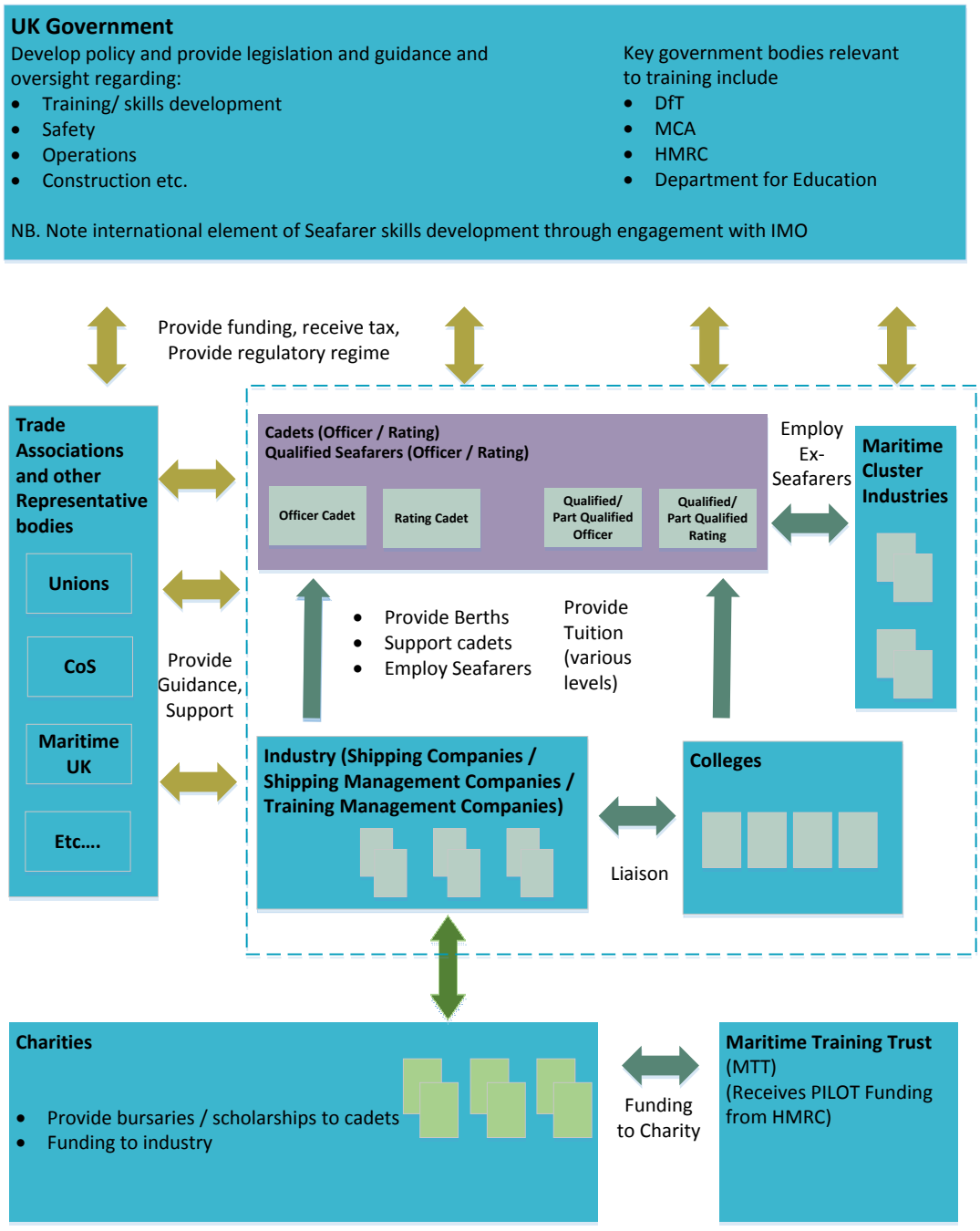


Figure 7: Stakeholder relationship

It can be seen that:

- Cadets/rating trainees are provided with tuition, berths for sea based training and as well as financial support in some cases, bursaries from charities are available.
- Shipping companies/shipping management companies /training management companies provide berths/sea-based training, liaise with colleges, provide funding and administrate the financing of training. Ultimately in the case of shipping and ship management companies they provide employment.
- Colleges provide the academic elements of training.
- Trade associations of various types promote the industry and provide advice to the industry and lobby government.
- Government provides policy, legislation and guidance and is responsible for taxation and oversight of the SMarT scheme.

5. The cost of training and value for money of SMarT

The cost of training a seafarer is £59,150 (central estimate)

Seafarers are more productive than average UK workers overall.

SMarT provides value for money. For every £1 spent on training cadets there was a £4.8 return to UK GDP (central scenario).

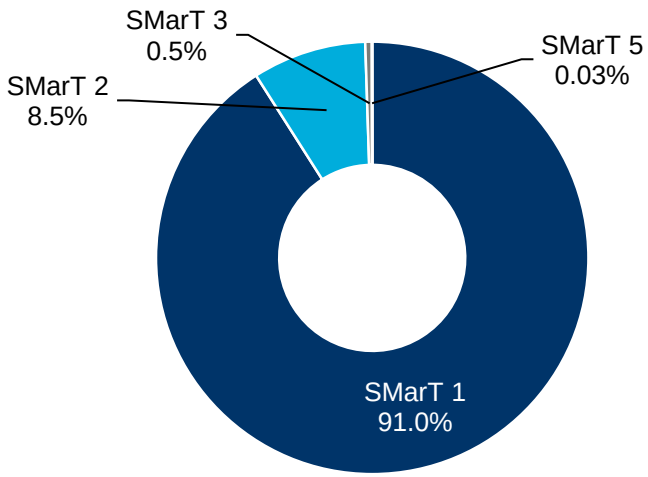
This section summarises the output from an assessment of the costs of training to industry (objective 1) and the value for money of UK seafarers to the industry (objective 3) carried out as a part of this review. It also assesses how many officers would be trained in the absence of SMarT.

This was derived from a data collection activity carried out by Frazer-Nash and Oxford Economics and Oxford Economics model. Quantitative data about the level of SMarT training was gathered from the MCA and estimates of training costs from consultation with industry as described in sections 3.3.2 and 3.4.

This section is a summary of the detailed report which can be found at Annex A.

5.1 INTRODUCTION

This value for money assessment examines the economic impact of the SMarT scheme over the period 2011/12 to 2015/16. During this period, the SMarT scheme drew down and spent £64 million in funds. The vast majority of these funds were allocated to SMarT 1, as shown in the chart below.



Source: Oxford Economics, MCA

Figure 8: Allocation of SMarT funding, 2011/12 to 2015/16

This assessment estimates a benefit to cost ratio (BCR) of the SMarT 1 scheme from a broad economic perspective, based on an assessment of costs and benefits not just to government, but to the UK economy as a whole.

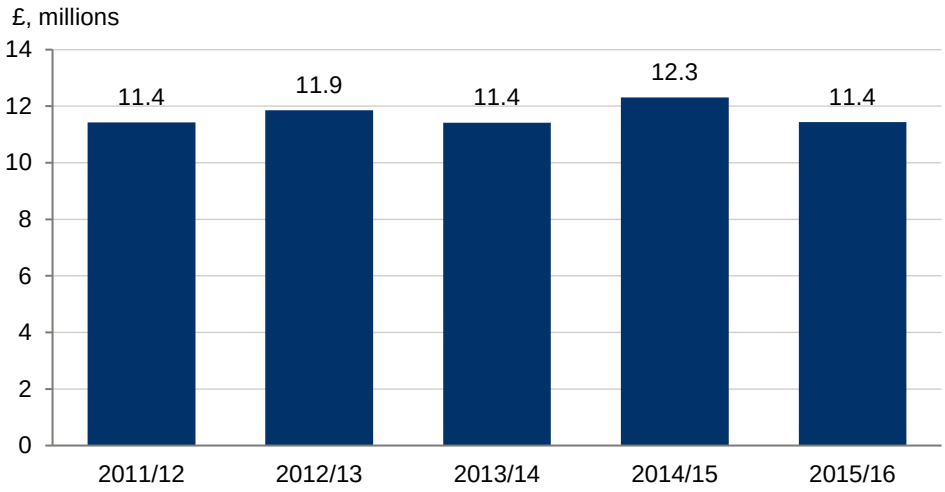
We have taken this approach for three reasons. Firstly, SMarT 1 accounts for 91% of all SMarT funding, suggesting that this is the area where most analytical effort should be deployed. Secondly, the additional outputs and outcomes supported by SMarT 2 are slightly unclear, partly due to a lack of clear trends in the data pertaining to those completing SMarT 2 funded training, and partly because it is difficult to disentangle the benefits from those identified for SMarT 1. Finally, the main benefits of SMarT 3 and 5 cannot easily be monetised and are best considered through a more qualitative assessment.

This section summarises our findings from the value for money assessment. For a more detailed discussion, please see Annex A, where we also provide a discussion of the costs and outputs of SMarT schemes 2, 3 and 5.

5.2 COSTS OF TRAINING

5.2.1 Public costs

Data on the costs of SMarT 1 over the review period were provided by the MCA and are shown in Fig 10. In total, £58.4 million was spent on SMarT 1 from 2011/12 – 2015/16.



Source: Oxford Economics

Figure 9: SMarT 1 funding over the review period

5.2.2 Non-public costs

To estimate the total costs of training to 1st CoC, we also need to estimate the costs incurred by shipping companies in the training of seafarer officer cadets. Information on these costs was gathered through consultation with shipping companies and seafarer training organisations, and from previous analysis by the Merchant Navy Training Board (MNTB). The data from these

sources allowed us to estimate ranges for the costs companies are likely to incur when training cadets over a three-year period.

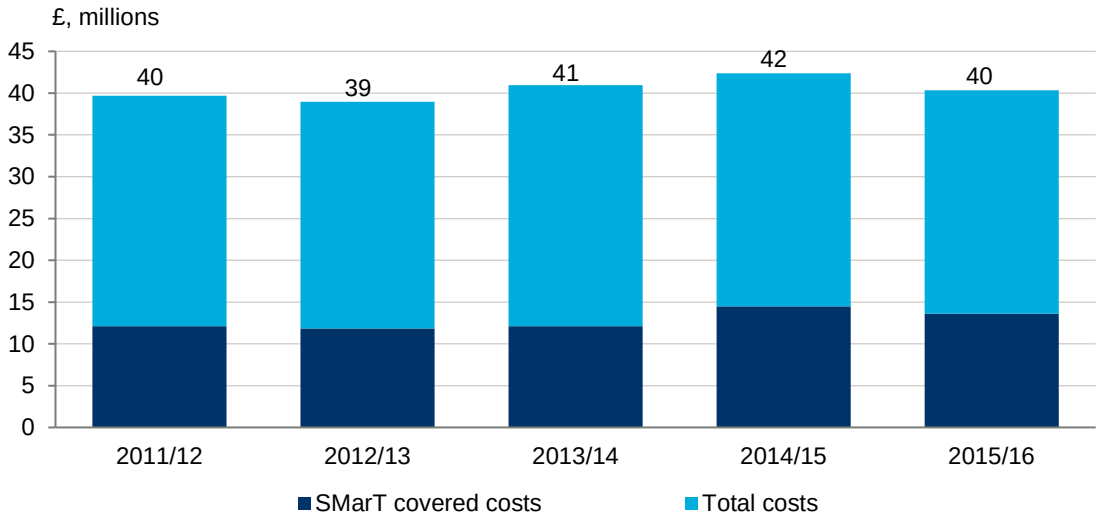
Costs	Low	Average	High
Training berth costs	2,373	4,736	5,475
Ancillary costs (travel, visas, medical, etc.)	2,760	4,935	6,600
Uniform	450	714	900
Training allowance	22,800	24,188	27,000
Management/company costs, including recruitment	2,046	5,000	8,509
Tuition costs	10,500	19,577	23,117
Total costs	**40,928**	**59,150**	**71,601**

Source: Consultation (see above for details), MNTB, Oxford Economics

Figure 10: Cost of training a cadet[1]

Hence the weighted central estimate for the average cost of training for a cadet training to 1st CoC is calculated to be £59,150.

Based on the average cost of training and our estimate of the total number of cadets trained, we are able to estimate the total amount companies spent on training cadets over the review period (see Fig 12). Across the five years we estimate that companies spent a total of £202 million on cadet training, with SMarT 1 funding covering 29 percent of these costs.



Source: Oxford Economics

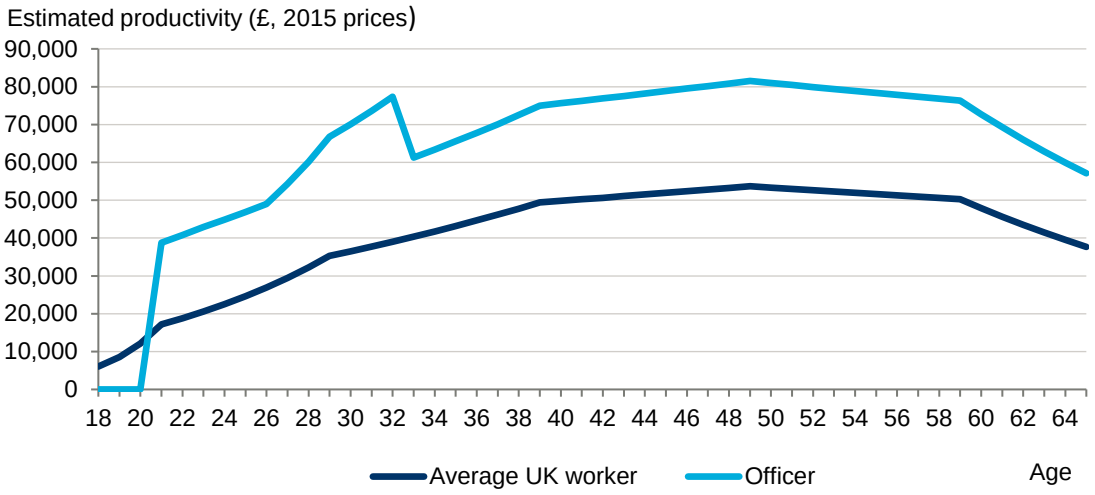
Figure 11: Total costs of training cadets, 2011/12 to 2015/16

[1] 'Low' and 'high' costs do not reflect the lowest and highest total costs submitted, but rather reflect a collection of the lowest and highest costs on an item by item basis.

5.3 BENEFITS TO THE UK ECONOMY

To assess the economic value generated by SMarT 1, we estimate the productivity (or gross value added contribution) of each seafarer officer that SMarT 1 helped to train. We then compared this estimated productivity contribution to that of an average UK worker over the course of a working life to estimate the net productivity contribution of an officer, over and above that of a typical worker.

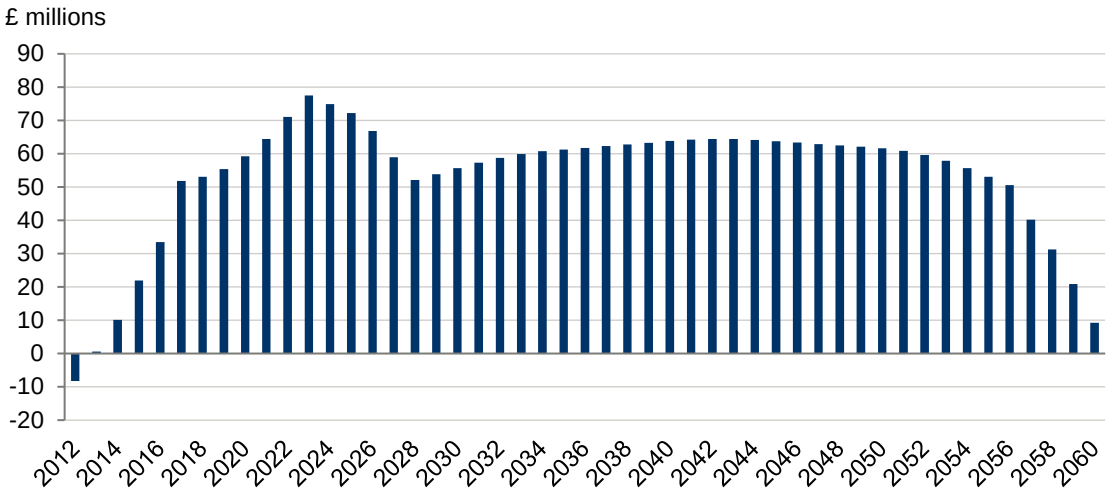
Using a combination of data from the consultations and official statistics, we have estimated profiles of the average productivity contribution of a 'typical' officer seafarer and the average UK worker over the course of their working lives (see Fig 12). The difference between the two estimates in each year tells us the net contribution of a seafarer to the UK economy in that year. We can also sum across all years to obtain a total value for an entire working life. On this basis we estimate that the average officer seafarer generates £1.1 million more value added than an average worker over the course of their career.



Source: Oxford Economics

Figure 12: Estimated lifetime productivity contribution of a seafarer officer and an average UK worker – central estimate

To calculate the total economic contribution of the SMarT 1 scheme, we multiplied the results for the lifetime benefit for each seafarer by the number of cadets who completed SMarT 1 funded training and received their CoC 1 during the study period. On this basis we estimate that the net contribution of SMarT 1 to the UK economy is £2.6 billion. This is the sum of the annual contributions shown in the chart below.



Source: Oxford Economics

Figure 13: Gross valued added contribution of SMarT 1 – central estimate

In line with standard practice in this type of evaluation, it is important to consider alternative scenarios to assess the extent to which our findings are sensitive to the assumptions made.

One possibility is that an officer does not progress past CoC 1 and as a consequence their wages and productivity reach a 'ceiling' after an initial period of career progression. If all seafarers trained under SMarT 1 followed this career profile, the net benefit to the UK economy would be £1.5 billion.

A high scenario could be that a seafarer progresses through the ranks to captain and remains in that position until they retire. Under this scenario, SMarT 1's net benefit to the UK would be £6.7 billion.

To finalise our estimates, and consistent with Green Book guidance, we need to apply a 'discount rate' to the future streams of benefits, to reflect that people tend to place a higher value on benefits received in the present day rather than in the future. This process converts our estimates into 'present values'. After discount rates have been applied, the net benefits of the SMarT 1 scheme are as shown in the table below (Fig 14). In present value terms, we estimate the scheme generated benefits of between £960 million and £3.1 billion, with a central estimate of £1.4 billion.

Low	Central	High
£ millions	£ millions	£ millions
957	1,401	3,137

Figure 14: Net benefit discounted values

5.4 ASSESSMENT OF ADDITIONALITY

To understand the net impact of a government intervention, we must make an assessment of 'additionality', to understand the extent to which the SMarT 1 scheme may have generated benefits over and above what would have happened anyway.[2]

Net additionality is the net amount of benefits that have been generated by a government intervention after 'deadweight', 'leakage', 'displacement', and 'substitution' effects have been taken into account. Our additionality calculations are summarised in the table below.

Scenarios	Low	Central	High
Gross Impact (£ millions)	957	1,401	3,137
Deadweight	80%	77%	50%
Leakage		10%	
Displacement		0%	
Substitution		0%	
Net Additional Impact (£ millions)	173	290	1,412

Figure 15: Net additional impact of SMarT 1

5.5 BENEFIT COST RATIO

The BCR compares our estimated value of benefits to that of costs. To estimate a BCR we must compare the present value of benefits to the present value of costs to the transport budget. The present value of the scheme is the net additional impact of SMarT less the net additional private sector cost (which equals the private costs incurred over the evaluation period minus the costs incurred under each scenario's counterfactual).

As stated in the previous section, the public cost of SMarT 1 over the review period was £58 million. However, we must also consider whether the cadets who have graduated from SMarT 1 received any further public funding during the review period. Under our central and high scenarios we assume that all cadets gain their second Certificate of Competency (COC 2). It is very likely that the cadets graduating in 2011/12, 2012/13 and 2013/14 would have received support via SMarT 2 funding (the companies training them would have claimed this support). We therefore include the public costs (£5.5 million) of SMarT 2 over the review period in the central and high scenario BCR calculations.

On this basis our central estimate is that for every £1 the government spent on SMarT 1 there was a £4.8 return to UK GDP.

[2] A full discussion on the key components of additionality and how they are all brought together can be found in the following BIS report: Department for Business Innovation and Skills, "Research to improve the assessment of additionality", *BIS OCCASIONAL PAPER NO. 1*, October 2009, 65.

Scenarios	Low	Central	High
Net Additional Impact (£ millions)	173	290	1,412
Private Costs (£ millions)	144	144	144
Counterfactual costs (£ millions)	162	156	101
Present value of benefits (£ millions)	**191**	**302**	**1369**
SMarT 1 Costs (£ millions)	58	58	58
SMarT 2 Costs (£ millions)		5	5
Present value of costs to transport budget (£ millions)	**58**	**63**	**63**
BCR (£)	**£1 Cost :£3.3 Benefit**	**£1 Cost :£4.8 Benefit**	**£1 Cost: £21.6 Benefit**

Figure 16: Benefit to cost ratio

6. SMarT - Future Need

The Seafarer Projections Review describes key decision points in the career of a seafarer, noting that there is no 'typical' career path. Anecdotally ex-seafarers are most likely to take up roles associated with the maritime sector.

The Seafarer Projections Review (SPR) predicts a demand for Deck and Engineer Officers in the UK shipping industry.

There is currently an excess supply for Deck and Engineer Ratings, but there will be an excess demand for Deck Ratings from 2019 in the UK shipping industry.

There are enough seafarers coming from the shipping industry to fulfil the demand for UK nationals in the maritime cluster on-shore.

There is a strong tendency for vessels to become more technologically advanced. This does not necessarily change the number of seafarers required to operate them, but it does have implications for the types of skills required.

This section discusses predictions for future need for seafarers and the skills required based on the output of the Seafarer Projections Review and the impact on SMarT in its current form (objective 4).

6.1 SEAFARER PROJECTIONS REVIEW (SPR)

The Seafarer Projections Review (SPR) was carried out by Oxford Economics delivering in October 2016. Its aim was to provide data on the numbers of UK seafarers predicted to be needed to underpin a growing maritime economy. This section describes the main points of the SPR relevant to this review. For further information or supporting evidence the SPR report should be consulted.

6.1.1 Career paths of seafarers

The vast majority of seafarers in the UK are trained through the SMarT scheme, which provides government funding towards the cost of training. Therefore, by understanding the career paths open to seafarers, it is possible to estimate their contribution to the UK economy, and therefore the value for money of SMarT. This is described in Section 5.

The Seafarer Projections Review describes key decision points in the career of a seafarer, noting that there is no 'typical' career path:

- The first three to four years of a seafarer may be spent on a cadetship, before qualification and promotion to more senior ranks. At the end of this period, once higher level qualifications, such as a Master Mariners or Chief Engineers certificate have been obtained there is a natural break point when seafarers may decide whether to stay at sea or move to a role onshore. This point usually arrives between the ages of around 28

to 32, after obtaining a masters certificate. It can unlock a wide range of opportunities onshore, particularly in management. Roles in ports, or as marine pilots, are other common shore-based career options cited by stakeholders."

- Those choosing to stay at sea may move on to larger vessels and work up through the ranks. The SPR notes that the other main time when a seafarer may consider moving onshore is after they have gained experience of commanding a vessel. Usually this is in the seafarer's early 40's.
- Seafarers are unlikely to move into a role onshore after the age of 50. They are more likely to finish their career at sea after that point.
- It estimated that there are approximately 4,300 UK jobs in the maritime cluster for which a seafaring background is considered to be either essential or advantageous.
- A retirement age between 63 and 65 was assumed, based on feedback from stakeholders.

There is a lack of formal evidence on the actual destination of seafarers after leaving roles at sea. In this work it is assumed that seafarers coming ashore take up roles in the maritime cluster or into roles that have a comparable productivity. It is believed this is reasonable given the skills and experience of former officers, many of which will have had high levels of responsibility at sea. In addition, in the SPR work, employers in the maritime cluster reported that they found it difficult to recruit former officers. Given this apparent shortage, it would seem logical that former officers are moving into jobs with wage (and therefore productivity) levels which are at least in line with roles in the maritime cluster.

It is noted that this represents a gap in the evidence base concerning the roles that former seafarers fulfil after moving onshore. If this gap needs to be filled, further work will be necessary. The purpose of this would be to improve future predictions on the productivity of seafarers throughout their career. Such work may build on the UK Chamber of Shipping annual manpower survey and the Seafarer Projections Review (2016). However, this would only gather evidence on former seafarers to the extent they remain employed within the maritime cluster, whereas the SPR suggests that many former seafarers may be employed elsewhere (or at least not employed in maritime cluster roles for which a former seafarer is essential or advantageous). Hence, further research should ideally also assess the extent to which former seafarers are employed in other sectors of the economy. This could be very challenging given that in any given sector former seafarers will represent an extremely small proportion of the workforce. For additional survey work to be effective, it would be necessary to have a source of contact details for former seafarers. Consultation with the unions and other trade bodies may identify a suitable source of information.

6.1.2 Supply and demand for seafarers

The SPR has set out the following key findings of relevance to supply and demand for seafarers:

Officers

- There is currently an excess demand for Deck and Engineer Officers of any nationality in the UK shipping industry (as defined by the UK Chamber of Shipping) and this demand will increase in future.
- The projected shortage of officers is slightly greater for Deck Officers than for engine officers. The SPR identified that there could be a shortage (or 'excess demand') for deck and Engineer Officers each year over the coming decade. Closing the gap by the end of the forecast period would require increasing the annual inflow from the 645 qualified officers per year (assumed in the baseline case of the SPR) to between 1,500 and 1,600 per year.
- There are two main options for addressing the forecast shortage of Deck and Engine Officers.
  - The first would be to increase the inflow of newly qualified UK officers.
  - An alternative option would be for the industry to further increase the supply of non-UK officers.
- If the DfT aspiration was to fill all posts with UK officers, this would require a significant increase in training numbers.

Ratings

- Similarly there is currently an excess supply for deck and engineer ratings, but there will be an excess demand for deck ratings from 2019 in the UK shipping industry (as defined by UK Chamber of Shipping).

General

- There are currently enough seafarers coming from the shipping industry to fulfil the demand for UK nationals in the maritime cluster on-shore. However it is noted that this is not consistent with industry feedback.

6.1.3 Technical Skills

- There is a strong tendency for vessels to become more technologically advanced. This does not necessarily change the number of seafarers required to operate them, but it does have implications for the types of skills required. Expertise in technology and computer systems will be increasingly required. This may increase the need for cadets such as ETOs. Across all roles there is also a greater need for seafarers to understand

and interact with technology. In turn, this means that training needs to adapt to equip seafarers with these skills.

- The increasing technological sophistication of ships means that stakeholders expect demand for ETOs to continue to increase. Changing technology is also affecting the skills needs for engineers.
- Although based on a small sample, there was some tentative evidence of the strength of demand for engineering skills from survey responses. Amongst respondents reporting that they had vacancies which were hard to fill, engineering positions were by far the most commonly cited, suggesting that demand may be outstripping supply for seafarers with this skillset.
- The supply of officers is projected to fall by three percent, while the supply of non-hospitality ratings in 2026 is expected to be one percent lower than in 2015. There is also variation within these categories: the supply of Deck and Engine Officers is forecast to fall by more than 10 percent, while for technical officers growth in the region of 60 percent is expected, albeit from a much lower base. Strong growth in the number of technical officers expected to be available over the next 10 years reflects a relatively low leaving rate and high joining rates for this type of seafarer.
- The number of technical officers available is forecast to be greater than the industry's requirement over the coming decade. This 'excess supply' reaches almost 1,800 by 2026. Strong growth in the number of technical officers expected to be available over the next 10 years reflects a relatively low leaving rate and high joining rates for this type of seafarer.

6.2 SMART

The industry has indicated that the availability of SMarT is a significant consideration in deciding to train UK cadets and therefore providing employable UK officers. Our feedback from the industry is that qualified UK officers are considered to be expensive but there is still currently a demand (which has been explained as due to the quality and desirability of UK officers in specific roles that may reflect their company brand). It is probable that reducing funding would:

- Cause industry to decrease the number of UK cadets they trained for some roles. This is discussed further in Section 10.2.4.3 (Option A4).
- Over time, reduce the availability of experienced UK officers and cause the industries in the maritime cluster to find alternative staff abroad or from other industries.

If the government aims to eliminate the shortage in officers identified in the SPR, through additional training of UK officers, a number of considerations are required:

- In high level terms this would require the number of newly trained Deck and Engineer Officers joining the industry each year to increase to between 1,500 and 1,600 (section 6.1.2). In order to achieve this up to 2,000 cadets would need to begin training each year (assuming 20% of cadets drop out through the training). Under current arrangements, this would push the number of suitably qualified applicants to training towards its limits and would be likely to take investment and several years to achieve.
- Similarly, college places and berths are unlikely to be available in sufficient numbers in the current structure. Improved phasing of college courses with availability of sea berths will almost certainly be required to utilise berths more effectively, and in-so-doing increase the total number of trainees who could be trained each year. This is discussed further in section 7.5.4.2.
- There is currently no incentive for industry to increase training numbers and this may require greater government intervention (for example by increasing the funding per trainee in SMarT). Section 10.2.2 discusses this and indicates the level of budget required to support different numbers of cadets.
- An aspiration to meet the shortage entirely with UK officers is unlikely to be practical. The cost of employment may be untenable to industry, and injecting a large number of junior officers into the system impractical.

These issues could be overcome if the number of UK nationals trained by SMarT is increased gradually over a number of years, by working with industry and academic providers. This would allow stakeholders within the system to invest in building capacity to cope with the increased numbers. Section 10 includes options for incentivising stakeholders and improving understanding of the issues.

7. Barriers to entry to provision and take-up of training / seafaring roles

A number of barriers to the provision and take-up of training have been identified. These relate to applying for training, acceptance into training, training and qualifying, and initial employment.

The number of qualified seafarers is not constrained by the number of applicants or the number of available college places.

Industry demand is a significant control on the number of trainees taken on. This is predominantly a function of company strategic decisions (in particular the cost of training), and the number of available berths.

There is a need to improve the collation of data about how cadets progress through the training system and into employment.

Employability of qualified UK officers does not appear to be a significant issue despite their comparative cost with other nationalities, although the time to administrate the final stages of qualification appears to cause delays.

This section reviews barriers to the provision and take up of training (Objective 1).

7.1 BACKGROUND

The Maritime Growth Study (Mountevans et al 2015) commissioned by the DfT in 2014 confirmed that skilled seafarers continue to be important to the ongoing competitiveness of the UK maritime sector and to the well-being of the UK economy in general. It also highlighted some sectors of the maritime community perceived there was a shortfall in the numbers of people entering the industry (although this was not a universally held view). The recent Seafarers Projections Review (Oxford Economics) also identifies a future need for seafarers.

7.2 APPROACH TO IDENTIFYING BARRIERS

In this review, we identified the factors that prevented people from entering or completing training. These factors are termed **barriers to entry**. Specifically our interest was whether SMarT influenced the barrier or could be used to overcome it. This was considered in terms of:

- What barriers are there to the provision of training?
- What barriers are there to the take up of training?

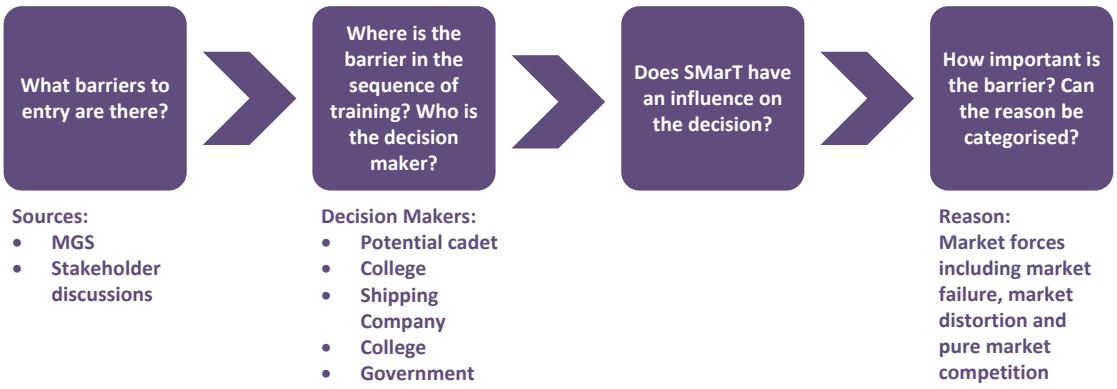


Figure 17: Barriers process

This stage of the work was mostly informed by engagement with the stakeholder community, through questionnaires and structured interviews. We contacted trade associations, unions, colleges, industry sponsors and cadets themselves:

- Where possible we have gathered data about the supply and demand of cadets applying for training and the capacity of colleges and industry to provide training. As described in sections 3.3.2 and 3.4 the stakeholders we consulted represent a reasonable proportion of the cadet pipeline.
- To support these numbers, we held detailed discussions to gather opinions about training needs now and in the future. A 360 degree approach was taken to gather differing perspectives from academia, industry, trade bodies, government and cadets.
- Overall, it is considered that the combination of qualitative and quantitative information provides a reasonable and balanced view of the barriers to entry.
- However, we spoke to only a small sample of cadets through an online survey so we have less confidence in the numbers associated with the number of applications per cadet.

The numbers quoted in this section refer to the actual data supplied unless otherwise stated. In sections 7.6 and 7.8 these are scaled up to reflect the actual expected throughput of cadets in a typical recent year.

7.3 DISCUSSION OF BARRIERS TO ENTRY

At a high level there are four stages of seafarers training:

- Applying for training.
- Getting accepted onto training.
- Qualifying from training.
- Employment (gaining initial experience).

As candidates progress, their numbers decline until eventually a proportion of applicants become qualified seafarers. At each of these stages, there are barriers that restrict progression to the next stage. Colleges, industrial sponsors and the trainees themselves influence these stages to varying degrees.

Figure 18 illustrates this.

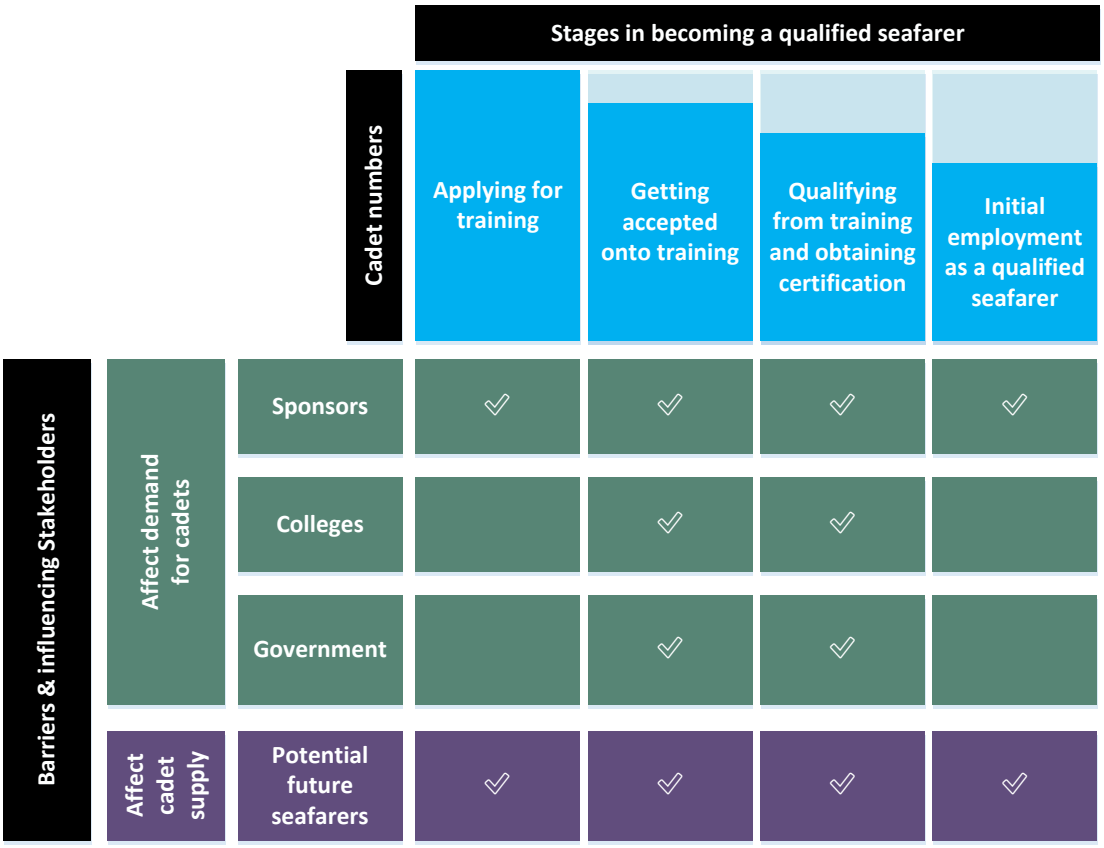


Figure 18: Barriers and stakeholders

The following sections describe the main barriers to entry in turn and are based on discussions with cadets, colleges and industry sponsors and the evidence provided by them.

7.4 APPLYING FOR TRAINING

Individual career choice is a complex issue. It is influenced by many factors such as:

- Awareness of the career options available.
- Quality of life choices.
- The scale of the anticipated financial rewards available on qualification.

It has long been recognised that a seafaring career places significant constraints on the individual, and may pose a barrier to recruiting sufficient high quality new entrants to the industry.

However, our stakeholder discussions found that cadetships are generally oversubscribed. In asking industry sponsors cadet applications we found:

- The shipping companies we consulted offered 622 cadetships last year (of the 750-900 typically offered in total, representing a reasonable sample).
- They received 4215 applications meeting the minimum entry requirements, from 6917 applications in total.

Separately, cadets were asked how many cadetships they applied to.

- Cadets had applied to an average of 2.5 cadetships to gain their place (based on a small sample).
- Therefore it is estimated that a total of 2767 individuals applied for the 622 cadetships of whom 1686 were suitably qualified (assuming all individuals applied to a similar number of schemes regardless of whether or not they ultimately succeeded in getting a place).
- This implies there were 4.5 candidates per cadetship or 2.7 suitably qualified candidates per cadetship.

Our discussions indicated that industry sponsors were content with the numbers of suitably qualified applicants they received. They were able to find individuals who met academic entry requirements and also met softer criteria such as demonstrable evidence of an interest in the sea (for example membership of sea cadets), and/or an interest in engineering (for example working on car engines).

Our cadet survey supported the widely held view that the vast majority of cadets had discovered the industry, and its opportunities for work, from acquaintances or family members in seagoing careers, and/or from their own research. Very few had received careers advice at school or encountered outreach programmes or marketing from industry.

The efforts made by industry to attract candidates varied significantly from not promoting cadetships at all, through to a minority who undertake marketing campaigns as part of their recruitment policy. In general it was found that industry sponsors do not feel the need to extend their promotional activities as their cadetships are oversubscribed.

Should there be a need to grow the number of applicants, industry could attract suitable applicants by providing work experience to school children, engaging with the Sea Scouts, Scouts/Cubs etc. This does not fall under the remit of SMarT but would support its ‘pipeline’. The industry sponsors we spoke to did recognise that those people who are aware of the industry could be better supported to pursue a career at sea.

7.4.1 Applications by ratings

The application picture for ratings was much less clear cut, due to the limited number of companies who recruit and train ratings. Anecdotally stakeholders have suggested that a broadly similar pattern exists.

7.5 GETTING ACCEPTED ONTO TRAINING

The number of candidates accepted onto cadetship schemes could be affected by:

- Applicants rejecting training places.
- Colleges having an upper limit on the number of cadets they can train.
- SMarT funding limits: perception of a limit on the available SMarT budget - imposing an upper limit on the number of cadets it can fund.
- Demand from industry: sponsors having an upper limit on the number of cadet places they were able or willing to provide.

The impact of each of these barriers on limiting the number of cadets who begin training each year was discussed with colleges and industry sponsors, as described in the following sections.

7.5.1 Applicants rejecting training places

Of the 664 cadetships offered by sponsors, 35 were rejected by applicants (5%), and seven offers were rescinded when applicants were not deemed medically fit for a cadetship. It is conservatively assumed that these cadetships were not offered to another able and willing candidate, though, based on the large pool of suitable applicants, this may well have been the case. This suggests a total of 622 cadets started training.

Given that only 5% of places offered were rejected, and that typically each cadetship receives 2.7 qualified applicants, **we conclude that the supply of cadets is not significantly constrained by applicants rejecting training.**

7.5.2 College places

Colleges were asked how many cadets they took on last year, and the maximum number of cadets they could train.

All the colleges questioned are currently operating below capacity. This suggests that college places are not limiting demand for cadets.

Some colleges are more in demand than others. Of the four colleges contacted, two are operating at levels approaching capacity (near 90%) while two are operating significantly below capacity (between 60% and 65%). Those colleges near capacity stated that they could expand capacity if required to accommodate more cadets.

Aggregating the college data, and breaking it down by qualification level and subject matter (Figure 19), it can again be seen that there is little strain on capacity for the colleges reviewed (utilisation column). (As a comparison the MNTB have advised the total figures across all colleges in 2014/15 as follows: 299 people undertook HNCs, 102 people undertook HNDs and 409 people undertook FDs).

	Number of first year starters			Maximum Capacity			Utilisation %		
	HNC	HND	FD/ SPD	HNC	HND	FD/ SPD	HNC	HND	FD/ SPD
Engineer	67	75	131	87	103	173	77%	73%	76%
Deck	81	97	180	103	138	247	79%	70%	73%
ETO	N/A	N/A	38	N/A	N/A	57	N/A	N/A	67%

Figure 19: Utilisation of college places

It is therefore considered **unlikely that college places are limiting demand for cadets**.

7.5.3 Government SMarT funding limits

It is understood that SMarT funding limits have not been reached in recent years, although 90-95% of funding is claimed by industry each year.

It does not appear that (based on the current subsidy per cadet) the total SMarT budget is constraining demand for cadets, or limiting the number of cadets who start training.

At the current level of funding per cadet, industry is not fully utilising the available SMarT budget. Changes to SMarT, particularly those which reduce training costs to industry may result in the budget being reached.

7.5.4 Demand from industry

The key barrier to the number of training places is demand from industry. It is industry who ultimately determine the number of cadets they wish to train.

The recent Seafarer Projections Review (Oxford Economics 2016) concludes that future demand for seafarers from companies in the UK shipping industry (using the UK Chamber of Shipping definition) is about 1600 per year between now and 2026. This demand is split between a need for British seafarers with a CoC, and a need for seafarers from other parts of the world with either a UK CEC or CoC. Industry will need to obtain these seafarers either by training cadets, or by recruiting qualified seafarers. SMarT funding is one of the mechanisms that can be used to increase demand for cadets from industry, with the ultimate aim of increasing the number of British seafarers employed upon gaining qualification.

There are a number of factors which influence industry's desire to train British seafarers:

- Shipping company strategy.
- Berth availability.

- Industry perception of government funding.

The following sections (7.5.4.1 to 7.5.4.3) explain these in more detail.

7.5.4.1 Shipping company strategy

The maritime industry is an exceptionally globalised industry, especially in terms of labour and taxation. Companies operating within the sector are able to optimise their operations by spreading their businesses across several countries. From the perspective of seafarer training, this means balancing training and recruitment of UK seafarers against those from overseas. Companies make recruitment decisions to maximise the benefit they receive while minimising risk and cost. It is important to consider how UK seafarers compare to their global counterparts to understand how companies determine the balance of UK versus foreign cadets in their ranks.

Factors which increase demand for UK seafarers:

- High quality of British seafarers: officer training in the UK is well respected worldwide, and therefore some companies view the training of seafarers in the UK as a means to ensure the quality of the seafarers aboard their ships. As an example, one company we spoke to had undertaken an analysis of failures versus crewing, and found that their ships had demonstrably fewer technical issues when UK engineers were part of their crews.
- Tax regimes (taking into account any training requirement): the UK tonnage tax scheme provides a significant tax incentive. In return for this, it requires companies to train one officer, or two rating-to-officer-conversion trainees, or three ratings each year for every fifteen officers which provides a large incentive to taking on UK cadets. Tonnage tax is described in section 2.5.
    - Tonnage tax competition: Several other countries have introduced tonnage tax schemes that make our own less competitive. A comparative review of tonnage tax is not a part of this review.
    - Tonnage tax and employment: Amongst industry sponsors, some training management companies stated that the majority of their clients were predominantly training in the UK because of the tonnage tax requirement. Whilst this encourages training, it does not guarantee employment. One example reported to us was of a training management company that serves 15-20 companies on tonnage tax but found that none of these companies hired any cadets when they qualified. It is important to note this is not true of all Tonnage Tax companies – many manage their own cadet recruitment and training and were regularly training well above their Minimum Training Obligation. They also aimed to take all trainees who qualified into employment.

- Sea-going leadership: British masters and chief engineers are particularly valued throughout industry. Trade bodies suggest that at these higher ranks the wage differentials between UK officers and those of other nationalities is negligible and their quality, leadership and training make them highly employable. Some companies train British cadets with the aim of developing junior officers into senior officers over the long-term.
- Shore-based roles: Shipping companies accept that British seafarers tend to migrate to shore-based roles after a period at sea. Engineers in particular find their skills are transferrable, and this results in a higher employee turnover than in deck roles. Some companies within the shipping industry see advantages to this – former seafarers tend to excel in engineering or ship management roles ashore, while they can also easily communicate with ports/businesses around the world in English. Therefore they train more engineers than required with the expectation that they will transition into roles ashore more quickly than Deck Officers.
- Customer requirements: Deck Officers on cruise ships are customer-facing. Therefore there is often a requirement for a high level of spoken English which is easiest to source from the UK. Cruise companies train significantly more cadets than their Minimum Training Obligations under tonnage tax. They also take on the vast majority of these cadets into permanent positions upon qualification.

Factors which reduce demand for UK seafarers:

- Competition between countries to attract industry: Countries compete to increase their share of the global shipping industry. This takes on many forms including competitive tax regimes, relaxed labour laws, significant investment in port infrastructure, subsidising training and driving improvements to the shipping industry at government level. SMarT can make changes to try and increase UK competitiveness but ultimately, should be considered in the wider context of other policy measures.
- Cost of training (taking into account state assistance): Using SMarT1 as an example, this study has found it costs £59,150 (weighted average) to train a cadet in the UK. Of this £18,156 (around 30% of the weighted average cost) or £22,716 (which includes the first SMarT2 payment) is provided by SMarT for cadets studying HNCs or HNDs/FDs respectively (see section 5 and 4.1.4). Shipping companies consider it more expensive to train seafarers in the UK in comparison with other countries, and therefore many train non-UK seafarers abroad. The subsidy required from SMarT to allow UK training to compete with the global market in level terms on cost would be significant. Many shipping companies train and hire seafarers from a number of countries and in discussions with them the issue of cost was a common theme – similarly skilled cadets can be trained more cheaply throughout Western Europe including in English speaking

countries such as Ireland (this is explored further in Section 8). One stakeholder illustrated this with the following example.

- The stakeholder had recently supported a large US oil major seeking to recruit ten young people from UK and Ireland. Of the requirement only one individual was selected from the UK whilst the remaining nine were taken from Ireland. The major differentiating factor between the candidates was the lower cost of training in Ireland.

The cost of training in the UK was considered to be the most significant barrier constraining the number of cadetships offered by industry. It is recognised that the current weakness of the pound affects this argument to a degree. However, college tuition fees have risen much faster than inflation over the last ten years. The largest increase in 2011/12 (when government increased the maximum tertiary education tuition fees from £3,000 per year to £9,000). Figure 20 illustrates the cost of tuition fees for a deck FD course over the last ten years (based on one particular tertiary education provider).

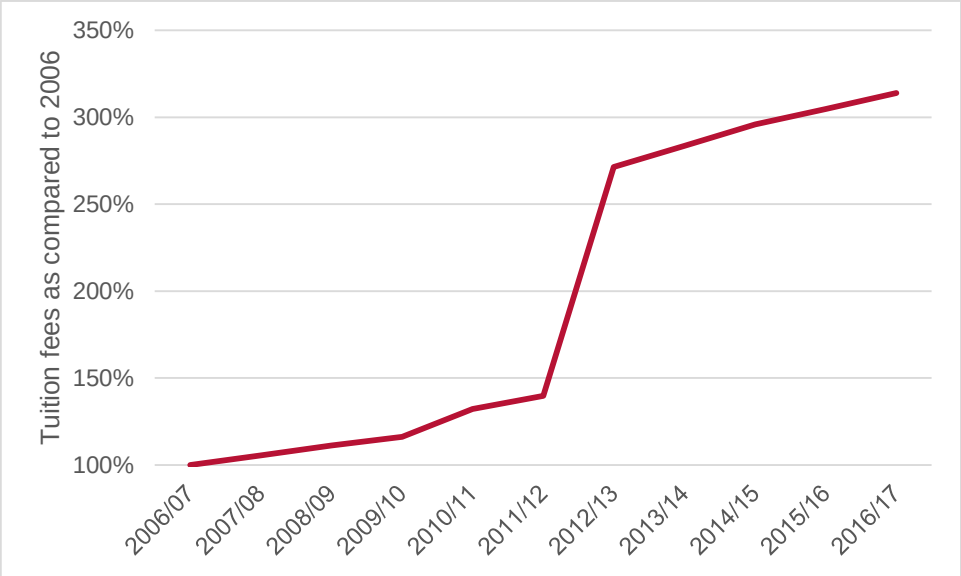


Figure 20: Example of escalation in tuition fees (Deck Officer Foundation Degree).

- It is understood that smaller companies find the administrative burden of the SMarT scheme costly, and may therefore not take advantage of the scheme. Frazer-Nash have spoken to a number of companies who have a dedicated training coordinator whose time is often occupied with administration of SMarT – this was even true in a company which takes on only five to six cadets per year. Many shipping companies use training management companies to reduce the administrative burden, though this adds additional expense to the cost of training seafarers.

- Shipping companies have stated that recently qualified UK officers are more likely to change jobs than their foreign counterparts. This can create a 'free-rider' effect where companies who have not invested in training receive the benefits when a qualified seafarer changes job. This is considered a sign of a properly functioning job market where both employers and employees regularly consider their employment options. However, anecdotally it appears that seafarers from Asia (particularly the Philippines and India) tend to remain in their position longer than UK seafarers, providing a better return on training investment. This may be partly because although salaries for these seafarers are lower than their UK counterparts with similar experience, their salaries have much higher buying power in their home countries.
- Cost of employment: Qualified foreign seafarers tend to cost less to employ than their UK counterparts for a number of reasons, although it is understood this gap narrows as experience is gained (and there is a belief by industry that experienced UK seafarers provide good value for money).
  - Many foreign seafarers (particularly those from Eastern Europe and Asia) are willing to work for six months at sea without returning home whereas UK seafarers often prefer shorter periods at sea – this impacts on travel costs and shift patterns.
  - There is a significant difference between the salary expectations of a junior UK seafarer as compared to their foreign counterparts (particularly from the Philippines, India, and Liberia etc). This is even more pronounced at rating levels.

7.5.4.2 Berth availability

Berths for Officers

Only the shipping companies (and shipping management companies) actually provide berths. Shipping companies have pointed to berth availability as being one of the most significant factors affecting their ability to offer cadetships. There are a number of contributory factors affecting berth availability:

- Colleges typically have start dates for their courses at particular times of year (up to 2 start dates per year typically in September and January or February). This means that cadets across colleges, courses and phases find themselves at sea at the same time. Berth utilisation therefore peaks at particular times of year.
- Shipping companies need to balance the provision of berths for training against their need for qualified officers to operate ships.
- Charities (or training management companies acting on behalf of charities) who run cadet training schemes rely on shipping companies to provide berths for sea phases. Charities do not have any other access to berths as they do not operate ships. This

enables shipping companies to train (and employ upon qualification) cadets at a lower cost (with charities and SMarT paying for tuition fees and living allowance).

It is considered difficult for government to intervene in the latter two points. However, industry consultation has found that phasing between college academic teaching and time at sea may constrain cadetship numbers. The MCA may have a role in encouraging alternative phasing arrangements and course structures.

Frazer-Nash spoke to three colleges whose intake totalled 523 cadets at the start of Phase 1, and enquired:

- Which courses each college provided e.g. HNCs, HNDs, foundation degrees (FD) covering the deck, engineering and ETO subjects.
- When courses started, and how long each phase lasted over the three year period of each course (this took into account courses which had two intakes per year e.g. September and January).
- Approximate numbers of cadets on each course at the start of Phase 1, and how these numbers reduced as cadets dropped out.

In a typical year, ***taking into account cadets at sea on both Phase 2 and 4 for the various courses and colleges, it was identified that use of training berths varies significantly from under 50% capacity up to 100%.***

Between September and January, only 48% of berths are used on average, and this drops to a low of 37% in January. On average 70% of berths were used across the year (Figure 21).

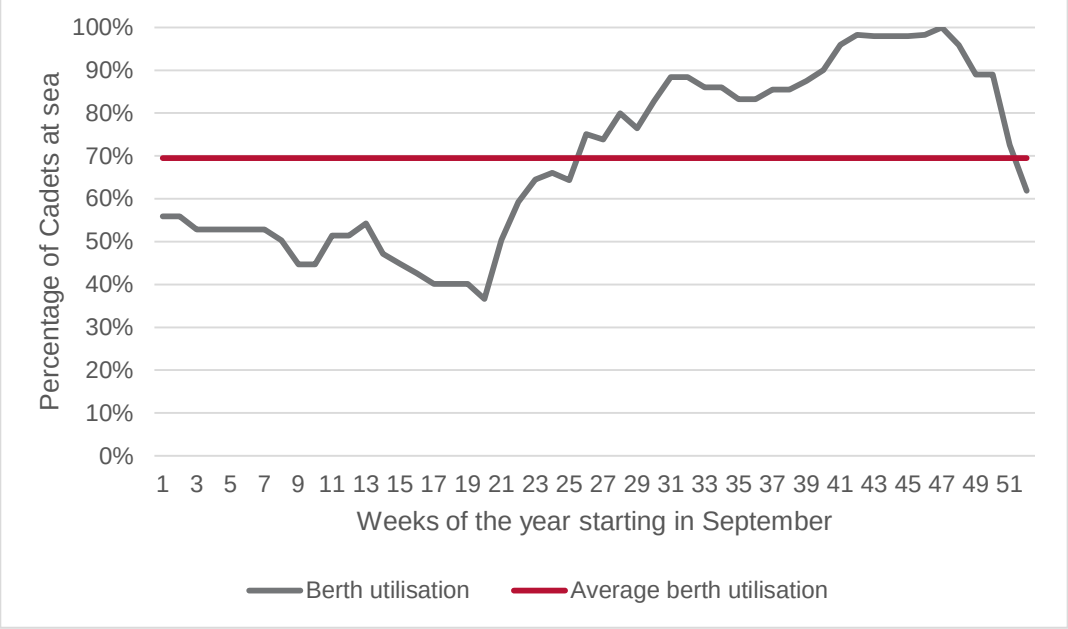


Figure 21: Berth utilisation across colleges, courses and phases over a typical year

Figure 21 demonstrates that if courses were planned to distribute sea phases more evenly across the year (as shown by the 'Average berth utilisation' line), there would be capacity for 30% more cadets.

While it is recognised that it will be difficult to achieve such a perfectly uniform distribution in practice, it is clear that optimised berth utilisation will increase the training capacity of shipping companies. One college stated that they were considering a third intake later in the year with this in mind.

Another opportunity in planning the start times of courses is the replacement of cadets who drop out. A proportion of cadets leave training voluntarily during the first sea phase when they realise that they cannot tolerate life at sea. The second intake (January) starts too late to enable industry sponsors to find replacements for trainees who drop out during their first sea phase.

Opportunities for improvement to the phasing of sea time and college time include:

- Colleges reschedule the sea phases of their courses to prevent clashes. It was suggested to us that separating the deck and engineering cohorts may be a reasonable way to approach this.
- Some cadets to start their courses later in the year. Most start in September with a lower intake in January. Encouragement to start in January or an additional intake (e.g. in May).
- It would be beneficial to time second intakes on courses after the first intake have been at sea for one month. This would allow industry to find replacement cadets in time for the second intake potentially increasing the number of cadets trained each year. This is not possible under the current system.

It is possible SMarT could be used to incentivise changes. The details of phasing changes and the need for an incentive would need to be demonstrated first. Initially there would be a need for work between colleges, industry sponsors and the MCA to agree changes to course structures and timings. Incentives may take the form of a payment to either cadets, sponsors or colleges.

Another option may be for government, outside of SMarT, to follow the approach of India and other countries in introducing 'training cum trading' vessels which use cadets and trainee ratings to undertake paid shipping work. The UK historically operated a similar scheme where the government paid for ships and provided training to young people. Seafarers were trained and the government profited from their work. Doing this today would require investment in vessels and training, and care would be required to ensure any scheme does not breach State Aid legislation (now or post-Brexit).

Berths for ratings

Government is piloting a ratings option in tonnage tax whereby tonnage tax companies have the option to substitute three ratings (or two rating to officer conversion trainees) for one officer trainee/ cadet in any given year. This is a pilot scheme for three years.

Discussions with industry suggest some companies are keen to replace aging ratings as they retire. It is noted that the tonnage tax scheme pilot is intended to provide flexibility so that combinations of trainee ratings and cadets can be used to meet the Minimum Training Obligation. However, there are a number of issues which are preventing industry from training ratings:

- We encountered some differences of opinion on how the requirements for replacing officers with ratings should be interpreted.
- There are a number of training pathways for ratings. For tonnage tax purposes ratings are required to be trained to Able Seafarer level. The Able Seafarer training is not funded under SMarT arrangements but under standard funding rules for apprenticeships. The general purpose and Watch Ratings pathways receive some level of SMarT funding depending on the route taken.
- Apprentice training for ratings is significantly longer than the other rating training pathways. The option to train ratings in this manner requires shipping companies to support 72 months (3 ratings x 24 months) of training rather than the 36 months required for the cadet alternative. The combined sea time requirement also places additional pressure on sea training berths.
- Our consultations with industry suggest that the arrangements tonnage tax option for ratings lacks flexibility, and this may be a barrier to entry.
- The limited nature of SMarT funding for ratings is not, in itself, a significant enough incentive to overcome the other issues associated with the training of UK ratings.

7.5.4.3 Industry perception of Government funding

As stated in section 7.5.3 it is understood that government funding has not provided a constraint on training numbers in recent years. However, a different barrier is that industry perceives a budgetary constraint either 'in-year' or in the future. Stakeholders stated it was difficult to forecast labour and training requirements much beyond three years due to the potential impact of fluctuations in the economy and government policy. Specifically for SMarT shipping companies highlighted two concerns with the level of SMarT provision (based on its current scope):

- If SMarT funding levels are breached, parts of industry are concerned they will not receive funding having already provided places. MCA have stated they recognise this

concern and maintain a dialogue with industry sponsors, particularly towards the end of the year to provide guidance if there are concerns.

- In recent years SMarT funding has been guaranteed for one year at a time. Prior to this funding statements normally fitted into a three year budgeting cycle. Therefore there is a concern that provision of SMarT could be altered for those cadets already on the scheme.

7.6 QUALIFYING FROM TRAINING AND OBTAINING CERTIFICATION

Figure 22 shows the drop-out rate based on information provided by the MCA about the numbers of cadets claiming SMarT at each stage. It also shows the drop-out rate based on Frazer-Nash's consultation with training sponsors.

	MCA data (SMarT payment claims)		Data from Sponsors (Frazer-Nash research)	
	No. of cadets in year	% of original intake	Number of cadets in year (scaled to match MCA)	% of original intake
Year 1 start	903	100	903	100
Year 1 end	803	89	785	87
Year 2 end	752	83	707	78
Year 3 end	718	80	665	74
Cadets gaining CoC	574	64		

Figure 22: Number of cadets (%) completing each year (based on 2011/12 intake graduating in 2014/15).

Notes to figure 22:

1. MCA dropout figures available were for years two and three combined. Discussions with MCA suggest the drop-out rate shown across the two years is a reasonable estimate. These numbers are broadly consistent with the figures used for planning by MCA over recent years.
2. Aggregate data has been provided by the MCA on the number of trainees as having dropped out of training. For the purposes of this review, the data includes trainees who are registered as having dropped out by the sponsoring company even where the majority of funding has been claimed. It is possible that these trainees will subsequently gain their Certificate of Competency and a SMarT Final Payment will be claimed at a later date; this would be outside of the scope of the data set provided.
3. Of the number of cadets completing their studies the final SMarT payment is not claimed for gaining the first certificate for around 20% of them (16% of the original intake).
4. Industry data: Surveyed sponsors represent 622 cadets at the start of Year 1. Cadet numbers for sponsors have been scaled to enable direct comparison with MCA figures.

It can be seen that drop-out rates between shipping companies and the MCA broadly align for the first two years of the course, and then diverge in the last year. Sponsors appear to find that 74% of cadets who start training gain qualification, while the MCA data suggests only 64% gain

qualification. It is believed that both these figures under-estimate the proportion of cadets who gain qualification (see Section 7.6.1). However, it is still considered that there may be opportunities to reduce the number of cadets dropping out (improved systems for collecting data may support this case).

Individuals who leave training do so typically for one or more of the following reasons:

- Trainees find that they do not enjoy life at sea. This typically happens after their first sea-going experience. Reasons vary but are often centred on factors linked to separation, working patterns and the general life of a seafarer.
- They are dismissed due to disciplinary issues at sea.
- They are dismissed due to academic failure at college.
- They choose not to attend the final oral examination to obtain CoC, as they want to work ashore.
- There is also a contingent of cadets who are registered as having dropped out who may return to the scheme (see Note 2 of Figure 22).

7.6.1 Oral examination

In order to gain certification, cadets must pass a final oral examination at the end of third year. In the event of a failure SMarT will continue until 150 instalments have been claimed. Some students may drop out at this stage.

For instance, some cadets opt not to retake the oral examination and decide to take work ashore. It is believed this only represents a small number of cadets. Note that cadets training for foundation degrees and/or trainee engineers may find their skills and qualifications are more readily transferrable to shore based roles.

Note that in collating our data, we have conservatively assumed that those individuals who fail their first oral examination have dropped out of seafarer training. This provides a pessimistic (low) estimate of the number of cadets who qualify with 1st CoC. In fact, a proportion of these individuals retake their oral examination and gain certification under one of the following scenarios (these individuals are conservatively assumed as having dropped out in the data we have been provided):

- The sponsor continues to fund the cost of the cadet retaking the final oral examination outside of the SMarT scheme – anecdotally, one college estimated that approximately 40% of students who have failed their oral examination retain their sponsorship. If the cadet has not reached the 150 week limit of SMarT funding, on passing they will be able to resume their SMarT funding and will be recorded as having gained their CoC. If they have reached the 150 week limit, they will be recorded as having dropped out (see Note 2 of Figure 22).

- The sponsor terminates the sponsorship leaving the cadet to fund the cost of retaking the oral examination – at this point the sponsor and the MCA SMarT records will show the cadet as having dropped out, although the cadet may go on to obtain their 1st CoC.

Therefore, there is a proportion of students who fail their first attempt at oral examination, but who will later go on to gain certification.

7.7 GAINING EMPLOYMENT

Engagement with sponsors and colleges demonstrates that employment prospects for qualified seafarers is reasonably good.

	Colleges	Sponsors
Percentage of newly qualified cadets who gain employment	95%	84%

Figure 23: Employment rates

The difference in employment rate between sponsors and colleges is likely to be caused by the following:

- As discussed in Section 7.6, some students who lose their sponsorship due to academic failure or disciplinary issues continue training outside of the SMarT scheme by providing their own funding for training.
- A subset of recent college graduates may have either taken work within the maritime industry ashore, or outside the industry. There is insufficient data to comment on whether these graduates:
  - Have chosen a non-seafaring career.
  - Struggled to find work at sea and been forced into a non-seafaring career.

For these reasons, it is considered that the employment rate given by sponsors is likely to be a closer approximation to the true position:

Further scrutiny of the overall employment rate reported by sponsors identified:

- Where training management companies were the cadet sponsor, 75% of recently qualified officers found seagoing employment. This excluded one training management company who specialise in serving the charity sector – their employment rate was 98%. The overall employment rate for training management companies was 81%.
- Where shipping / shipping management companies were the cadet sponsor, 99% of recently qualified officers found seagoing employment.

This difference in employment rate may be due to:

- A significant number of the shipping companies using training management companies claim the tonnage tax. All training management companies consulted acknowledged that

a significant proportion of tonnage tax companies will provide training to meet their minimum tonnage tax training commitment, but do not hire their cadets. This may be a significant driver to the lower employment rate found from training management companies.

- Large companies who do not use training management companies are often also registered on tonnage tax but they train many more cadets than required under their tonnage tax obligations. They also take on the vast majority of these cadets into permanent positions upon qualification. This may be a significant driver to the higher employment rate of cadets trained directly through shipping companies.
    - Cruise companies recruit in this way because UK seafarers are able to engage well with customers on cruises.
    - Oil and gas and cargo industries value the high quality and expertise of UK seafarers.
- Charities who sponsor cadets use training management companies to find berths with shipping companies. The training costs of these cadets to the shipping company are much lower than would otherwise be the case. Training management companies and sponsors advised that these charity sponsored cadets typically do not struggle to find employment. Therefore it is not believed this is the reason for the lower employment rate.
- It was also stated that employment rate was higher before the recent drop in oil price (2016).

7.8 SUMMARY OF TRAINING NUMBERS

- The colleges we interviewed represented 523 of the annual intake for 2014/15.
- The industry sponsors (shipping and management companies) represented 622 of the annual intake for 2014/15.

This represents a significant proportion of the total number (819) of Year 1 SMarT payments for 2014/15. (The average number of candidates for the previous three years was 791 so this is considered to provide a reasonable guide).

The information we gathered from the sample of colleges and industry for the 2014/2015 intake can therefore be scaled up to give an indication of the size of the training pipeline. This can be combined with data on dropout rates from the MCA for the cohort entering training in 2011/2012 and expected to achieve CoC in 2016 (and compared with colleges/ industry data). This can be used as a guide to the number of students entering who might achieve CoC.

Figure 24 summarises the expected position for cadets who began training in 2014.

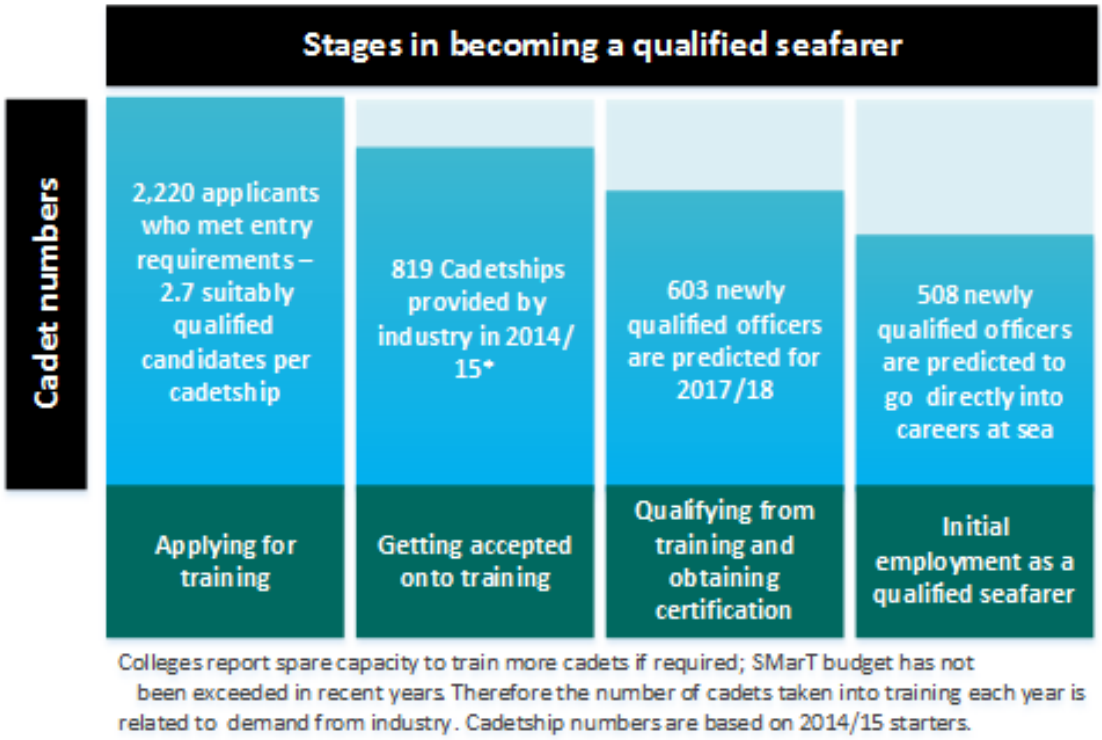


Figure 24: Trainee pipeline - officer 1st CoC in numbers

For this summary it is assumed that all cadets who pass their academic training go on to achieve CoC. When a cadet gains their CoC, their Sponsor is entitled to claim the SMarT 1 Final Payment. The MCA have found that in practice, 80% of Final Payments are actually claimed. Cadets may gain their HNC/HND/FD or other qualification, but fail to pass the oral examination required for CoC. It could also be attributed to Sponsors forgetting to claim, or cadets taking a job with another company before the Final Payment is claimed. Therefore the 80% figure is likely to be pessimistic.

8. Alternative training models by other seafaring nations

The UK's main competitors for providing high quality seafarers to the global shipping industry provide significant subsidies to training. Most pay tuition fees in whole or in part.

Training costs are borne by government, trainees, charities, and shipping companies in the UK.

In many other countries the initial phase of sea time occurs later than in the UK. The largest proportion of trainees that drop out, do so soon after their first experience at sea. Therefore whilst delaying sea time represents a saving it also raises a risk.

Whilst difficult to directly compare, the cost of training to shipping companies appears to be significantly higher in the UK than in other countries.

The information in this section was developed from public domain literature and websites. This is supplemented by consultations with industry training sponsors to provide comparison with the UK SMarT scheme. It provides quantitative and qualitative information in response to Objective 2 of this review. Annex B contains further details of the assessment.

8.1 INTRODUCTION

Government intervention in the arena of cadet training is not universal around the world. State funding is uncommon in nations which supply a low cost labour as training and associated employment costs are low enough to attract companies without additional incentives. State funding is, however, frequently seen in those traditional maritime nations whose nationals provide the most direct competition with UK seafarers in terms of quality and employment costs. A significant number of governments are intervening heavily to attract seafarer training in order to maintain their national pool of maritime skills. It has also been widely contended that the UK is the second most expensive location (the UK Chamber of Shipping) in the world to train seafarers.

Open source literature was reviewed in order to understand how state aid is applied across nations which are considered as direct competitors in terms of the provision of high quality seafarer training. The systems of Germany, Denmark, Ireland, Singapore and Hong Kong were considered. Others were assessed but insufficient information was available to make a major contribution to the understanding of the situation. Full details from the review are in Annex B.

8.2 STATE AID

The examples of government intervention highlighted during this review show that state aid to this sector generally falls into two types.

- High level Policy: Subsidies that develop as part of national higher and vocational educational and training policy; whereby the state funds the college phases of seafarer training in the same way as it does other professional and academic courses.

- Secondary Industry intervention: Direct subsidies in the form of grants to cadets or to industry training sponsors to cover specific elements of training such as the seagoing elements.

In many cases governments employ a combination of both approaches.

8.3 FACTORS INFLUENCING THE COST OF TRAINING

The cost of training is a significant consideration for shipping companies in deciding where to base their training schemes, and the number of cadets they will train in each country.

Cost drivers for a sponsoring company are as follows:

- The level of tuition fees that the sponsoring company has to provide.
- The necessity to provide a training allowance to cadets and trainees.
- The provision of sea training berths & associated costs.
- Availability of state subsidies to offset any of the above.
- The length of the sponsorship agreement.

Other factors such as subsistence, travel and uniforms are typically common around the world and are therefore not considered.

Training approaches are defined by STCW requirements. This stipulates that periods of classroom training are underpinned by gaining practical experience at sea appropriate for the role (Anon 2013). STCW does not prescribe when sea training should occur or the quality of the training that is given over and above the minimum requirement (Anon 2013). It is therefore assumed that the base level training requirements across these international boundaries are common.

8.4 INTERNATIONAL COMPARISION

There is significant competition between nations to attract cadet training and seafarer job opportunities. From our research it was noted that some large companies train officers across multiple locations to meet their requirement.

8.4.1 Subsidy comparisons

Figure 25 summarises the information we have gathered as part of the review of overseas systems. The information has been tabulated in terms of key themes which link directly to the cost drivers and state aid to facilitate easy comparison. More complete outlines of each system considered can be found in Annex B.

The costs expressed have been converted to US dollars to allow for current volatility in the pound.

Nationality	Approx. number of Trainees starting each year	% of Total College Fees paid by Gov't	Training Allowance (USD) paid by government in addition of tuition	Post Training Bond Service Required	Contribution payable by individual trainee	Supernumerary status required to be entitled to the subsidy
Singapore	Not Known	80 – 100%	861 – 1005 per month	Yes 3 years post qual'n	20% of tuition fees	Not known
Ireland	90	100%	347 per month at sea	No	3036 USD but grants are also available up to maximum	Yes
Germany	450 / year	100%	488 – 976 per month	No	No	Yes
Denmark	285	100%	884 month at sea	No	No	Yes
Hong Kong	Circa 20 / year	80%	773 per month	No	20% of tuition fees	Not known
UK	800 / year	SMarT Contribution USD 22,157 – 27,720 depending on qualifications followed over the three year period. This equates to between £504 – £631 per month to contribution to all costs.				

Figure 25: Summary of various state subsidies identified during this study (exchange rates taken on 30th October 2016).

8.4.2 Tuition fees

In all the other national schemes considered tuition fees are largely invisible to sponsoring companies for both officer and rating training. In Europe this appears to be a matter of state higher and vocational educational policy; in that the government cover the cost of all tertiary education. In the two Asian cases, training is the subject of specialised funding arrangements specifically for Seafarers as is the case in the UK.

8.4.3 Training allowances

The cost of training allowances are dependent on the length of the relationship between the cadet / trainee and availability of state or other funding arrangements such as charities or trade bodies. In the UK the sponsorship arrangements are generally three years. By contrast, in Ireland the relationship doesn't begin until the end of the first year of college based training reducing this element of the cost by one third. In other European countries such as Italy (not reviewed in detail) college based training is completed prior to sponsorship commencing reducing further the financial liabilities of the sponsoring company in this area.

In all the overseas cases considered additional training allowances are provided by the state over and above tuition fee subsidy. These range from around USD 347-3166 per month per trainee depending on the grade of trainee. Levels of training allowances in the UK are within the control of the sponsoring company and, for the companies we consulted, vary in the UK between £22,800 and £27,000 per annum (on average £24,188). (See Figure 10 in section 5.2.2).

Training allowance levels play a part in attracting the highest quality recruits and hence competition between the companies is likely to drive costs up.

8.4.4 Course structure

All the national schemes considered operate sandwich type courses of broadly similar training lengths depending when the completion point is set (e.g. 1st or 2nd Certificate of Competency). Some schemes such as Ireland and Italy have a longer early college phase before sponsorship is established. This requires greater investment prior to the first sea experience.

2nd Certificate training in the UK tends to have a greater emphasis on attending college than is common overseas, which means companies are required to provide significant amounts of paid training leave. Whilst support is available in the form of SMarT 2, the loss of an experienced seafarer can be unattractive to industry.

8.4.5 Scale

The UK trains the largest cadet cadre of the nations considered.

8.4.6 Bond Service

On qualification, cadets in Singapore are obliged to enter employment for three years with their sponsor. We have not identified other schemes which have a similar obligation; however we are aware of a UK-based company that builds in a return of service requirement into their training obligation. This is also common practice within the Royal Navy following major training investment.

8.4.7 Overall Cost to industry

All the companies and all the trade associations we spoke to asserted that training in the UK was significantly more expensive than in other countries. The sponsoring companies control access to the sea berths which are essential for training. Therefore national variations in other costs are significant in determining how successful an individual nation will be in attracting industry to train in that country. However making a valid comparison between costs is difficult:

- Detailed data concerning tuition costs across the globe are not readily available from open sources.
- There are differences in training delivery methods and associated certification requirements, consideration of which lies outside the scope of this report. However all training must be in accordance with STCW.
- The variations in the overall cost of living in different countries will have an impact on any living cost or other allowance provided by the sponsoring company (e.g. training allowance).
- Direct costs incurred by the sponsoring companies outside tuition fees such as food and accommodation, flights, uniform allowances are largely common across nations. This is

especially true for companies which simultaneously train large numbers of seafarers in different countries. It seems reasonable to ignore these minor differences for the purposes of a high level comparison.

Exploration of costs to this level of detail in non-UK nations is outside the scope of this work.

However, a simplistic comparison can be made to benchmark this commentary. A high level approximation has been attempted in Figure 26, whilst bearing in mind the limitations above. This takes into account the level of subsidy offered by each country.

Nationality	% of total training costs borne by training sponsor
Singapore	24%
Ireland	61%
Germany	35%
Denmark	48%
Hong Kong	35%
UK	69%

Figure 26: Simple comparison of cost of training paid by industry.

This comparison is based on the following assumptions:

- Total cost of training (the sum of all the elements described in all countries is the same as UK.
- Cost of tuition fees is the same as the UK for all countries (regardless of whether this is paid by the government or industry).
- Training allowances and tuition fee subsidies are as shown in figure 25 (a mean average is used where there is a range) and are supplemented by industry in some countries. In the case of the UK costs Figure 10 in section 5.2.2 is used.

It can be seen from this table that the proportion of the costs paid by the shipping industry is significantly higher for the UK (69% cost, 31% subsidy) than the other countries considered, including those in Western Europe.

8.5 CONCLUSION

Direct comparison between the UK approaches to seafarer training with those undertaken by other nations is highly complex and would require understanding of many elements of their economy and policies. A nation's seafarers are a reflection of the way the profession has developed in an individual nation. The closest comparisons to the UK appear to be with schemes run in Singapore and Hong Kong. Scandinavian countries and Germany share common features but have variations in entry levels, loading of sea and shore training elements and training delivery methods. It is important to note that all schemes produce a broadly similar quality STCW qualified seafarer and, in the case of Singapore and Hong Kong, often with similar English speaking capabilities.

SMarT funding provides a level of funding (£18,156 for HNCs or £22,716 for HNDs/FDs) which approximately covers the average cost of tuition (£19,577) in the UK. In reality, it is likely that SMarT in its current form does not fully cover the higher cost of training HNDs/FDs, while more than covering the cost of training HNCs. In either case, it does not provide a significant level of additional support beyond tuition costs.

In Europe, as tuition fees are typically already covered by government (as with all tertiary education costs), any specific subsidies related to seafarer training provided to sponsors reduce the cost of training even further.

Despite the uncompetitive nature of the UK training cost base, it continues to train a larger number of cadets than the other nations considered. It is believed that this can be attributed to the Minimum Training Obligation, indicating the tonnage tax continues to be of value to the UK in training terms. The quality of cadets trained in the UK, and their English speaking skills are also likely to be contributory factors. However, considering the different factors that influence the cost of training seafarers, it appears that the current level of SMarT arrangements places the UK at a disadvantage in attracting further growth in numbers of cadets.

A key difference between the UK and many overseas schemes that in the UK the first phase of sea training is delivered comparatively early. Also the point at which the sponsorship relationships commence is early in the academic training in the UK than is generally seen overseas. Whilst front loading the theoretical training and shortening the sponsorship relationship will reduce cost; it does put back the first sea experience of a cadet until a considerable investment in time and money has been made. Given that this is the point where the highest percentage of drop outs occurs this is considered a high risk approach.

The skills and quality of seafarers generated in the UK are in many ways common to a number of Western European and Commonwealth countries. Whilst some companies remain keen to train in the UK for strategic and branding reasons, there are commercial limits to this loyalty; and these are different for every company.

9. Comparison of training approaches with other UK professions

A review was conducted to understand how other industries fund training, and to ascertain whether SMarT can be improved by learning from these schemes. Industrial Training Boards, apprenticeships and student tuition fees were reviewed at a high level.

Schemes such as these help government harmonise policy, while also enabling government to transfer costs to industry or students. For this reason they have some merits but may be unpopular.

Detailed industry consultation and costings would be necessary to establish whether they are viable in whole or in part.

The information in this section was developed from public domain literature and websites. This is supplemented by consultations with industry training sponsors to provide comparison with the UK SMarT scheme. It provides qualitative information in response to Objective 2 of this review. Schemes are not directly comparable with each other or SMarT so a quantitative assessment has not been made.

9.1 CONTEXT

We have compared the approaches taken by other UK industries to fund training. The aim of this was to inform options to improve SMarT.

It is assumed that the aim of SMarT is to incentivise industry to train UK seafarers to the benefit of the UK shipping industry and UK maritime cluster. On this basis, it is possible to formulate some criteria against which to assess other schemes:

- Encourage people to apply.
- Encourage industry to train and take employment.
- Encourage people to stay within the industry.

9.2 INDUSTRIAL TRAINING BOARDS AND TRAINING LEVIES

This review is focussed on those industrial training boards that have the objective of raising skills in the sector via a training levy as discussed in the 'Combined Triennial Review of the Industrial Training Boards (Construction, Engineering Construction and Film' report (BIS 2015). Industrial training boards with training levies exist in the following industries: construction, engineering construction, and film.

9.2.1 Overview

Industry training boards (BIS 2015) work across the industry and with government to:

- Raise investment in skills.
- Influence government skills policy.

- Ensure that employers in the industry, and governments, see the benefit from investing more in the training of the construction industry workforce.
- Identify and develop current and future product and service opportunities for the good of the industry.
- Develop industry standards to improve fairness, inclusion and respect.
- Provide leadership to the industry including on training.

The government introduced the Industrial Training Act 1964 (ITA 1964) due to concern over skills shortages and gaps. This provided for most private sector industries to operate a levy-grant system though Industry Training Boards (ITBs).

Levies were introduced to overcome the tendency within industry at the time to undertrain personnel. An uncertain outlook in demand for labour (information failure) in many industries meant short term labour was regularly used (highly mobile work force, labour only sub-contracting, a high level of self-employment and a high use of short-term contract labour). This in turn led to split-incentives in industry; organisations could poach trained short-term labour at lower cost from other companies, rather than fill their long-term resource requirements by training permanent staff.

This led to a lack of investment in training across industry, and in turn, skill shortages developed. This had the effect of disadvantaging industry as a whole. A levy was therefore introduced to ensure organisations contributed towards training, whilst also providing grants to industry to assist with the cost of providing training. The intention was to increase the level of skills across industry.

Following a review in 1982 most ITBs are now employer led voluntary organisations. However employers in the construction and engineering construction industry made strong arguments that statutory arrangements should continue to apply to them on the grounds of the special characteristics of their sectors and the strong prevalence of a market failure in the provision of training. The basis for this was a highly mobile labour force, labour only sub-contracting, a high level of self-employment and a high use of short-term contract labour.

This is comparable to SMarT where the maritime cluster are able to gain a significant benefit from seafarers who, later in their career, move away from seagoing employment and into jobs ashore.

There are currently three Industry Training Boards (ITBs) in operation in the UK: the Construction Industry Training Board (CITB), the Engineering Construction Industry Training Board (ECITB) and the Film Industry Training Board for England and Wales (FITB).

The ITB and CITB operate a statutory training levy. This is a mandatory levy placed on construction and engineering construction employers based on a percentage of labour

payments. The levy proceeds are redistributed in the form of grants to subsidise training costs in the sector. Small firms are exempt from paying the levy for both the ECITB and CITB based upon their level of expenditure on labour, although they are still eligible to receive training grants, and other forms of support.

The FITB acts to raise skills in the film production sector. The FITB operate a voluntary levy based on film production costs. The industry have shown enthusiasm for a statutory levy, but this has not yet been legislated for by Parliament.

There is a large difference in the scale of the Boards: the CITB has 75,000 registered firms, (many of which will be sole traders or SMEs); ECITB has approximately 370 registered firms, the majority of which are large employers.

The film industry directly employs 40,000 full-time equivalents and supports a total of 100,000 jobs.

9.2.2 Application to SMarT

The following key points emerge when considering the applicability of industrial training boards to the shipping industry and SMarT funding in particular.

- In the ITB scheme a levy is due (either statutory or in the case of the FITB, voluntary) to organisations above a certain size. This levy may be in addition to the apprenticeship levy now being introduced. The MNTB cover some of the remit of ITBs but do not issue grants or impose a mandatory levy.
- Training levies were introduced in other industries to address a perceived market failure by certain parts of their sector to support training. This is comparable to the maritime industry where the maritime cluster benefits from the training provided to seafarers when they migrate to finding work ashore later in their careers, while not contributing to training costs.
- In other industries, it was difficult to identify which organisations or sub-industries should contribute to the levy and which should be excluded (especially in the maritime cluster). It is likely similar issues would be faced in the maritime sector where the cluster are equally able to hire former seafarers or individuals with other experience for the same positions. Monitoring and collection costs could be high.
- The ITBs can experience difficulties in some of their operations. For instance, smaller firms have avoided requesting training grants in case they are then requested to pay the levy (even if exempt due to their small size).
- There were differences of opinion between those employers with a long standing relationship with the ITBs (who were generally supportive) compared to representatives of employers from sub-sectors who were brought into the scope of the ITBs as it was

evolved and did not believe that the functions were relevant to their sector. Maritime is similarly diverse and this might be expected to be an issue. There has been suggestion suggesting that a levy could deter shipping companies from the UK (Deloitte 2011).

- It is noted that a voluntary Maritime Skills Investment Fund has previously been proposed (Mountevans et al 2015) to co-ordinate skills and training and secure funds from a wider range of businesses in the maritime industry, but has not been taken forward as yet.

9.2.3 Assessment

A levy regime imposed via an independent training board is a significant diversion from SMarT and likely to be unpopular without significant structural changes.

The original ITBs were introduced in the 1960s. There are a number of issues associated with introducing this approach today:

- The forthcoming roll out of the Apprenticeship Levy for ratings means companies will be paying a levy towards training across industry from April 2017. The timing of introducing a separate levy may cause confusion and, in any case, be viewed negatively as it would further increase the cost of training to shipping companies. This may reduce demand for trainees from industry.
- Developing a new ITB, with infrastructure to administrate a levy, will take time and investment, and it is likely to be difficult to identify which organisations within the maritime cluster should contribute to levy and which should not. It may be possible to introduce a scheme alongside SMarT but it is arguable it would introduce further complexity into an already complicated area.

For these reasons, it is considered that the ITB route as an additional statutory scheme for officers is not appropriate at the present time.

9.3 TRAINEES AS EMPLOYEES-APPRENTICESHIPS

Apprenticeship schemes are widespread and a growing element of government policy for training. They have historically been a major part of industrial training but have been less popular over the past 20 years or so. Established examples include power generation, rail, and finance.

9.3.1 Overview

A number of professions hire apprentices as a means to train young, inexperienced workers immediately after they leave school. Apprentices tend to cost less than experienced hires. They therefore quickly go from consuming an organisation's resources to becoming net contributors. This appears to be valued in vocational professions such as maintenance operations within large organisations such as those in the power generation and rail sectors.

The introduction of the Apprenticeship Levy further incentivises organisations to offer apprenticeships as a route to recovering some of the money they pay to the levy, while concurrently also benefitting from the contribution apprentices make to the business. (http://www.parliament.uk/business/publications/written-questions-answers-statements/written-statement/Commons/2016-10-25/HCWS214)

The Trailblazer Apprenticeship scheme is already being actively pursued for ratings, although it is understood there are some unresolved issues concerning the scope. This discussion refers to officers only.

9.3.2 Application to SMarT

For most industries there are only two options available in taking on young people – take them on as a permanent employee, or provide them with an apprenticeship. The latter option is likely to be preferable as it incurs lower risk and cost.

From Section 5 the average cost to industry of training an officer is £59,160 including tuition, providing training berths, administration and a training allowance for the cadet. The subsidy provided by SMarT can be offset against this. SMarT1 totals £18,156 (plus an additional £4,560 for FD or HNDs under SMarT2).

Whilst tuition costs (average of £19,577) would be subsidised by the government under the apprenticeship scheme, it is not clear which of the other costs would also be subsidised. In addition, depending on a trainee's age, under the apprenticeship scheme, an organisation would need to pay National Insurance contributions, pension contributions, and provide apprentices with the benefits available to other staff. Therefore it is believed that under an apprenticeship scheme, the costs of training an officer would be significantly higher than is the case currently.

Hence, it is likely that the SMarT scheme provides the shipping industry with a route to training officers which is significantly cheaper than could be achieved through an apprenticeship. Therefore whilst it is understood that government wishes to harmonise training of young people via the apprenticeship route, care is required around ensuring this does not increase the cost of training cadets for the shipping industry. It is likely that industry would compensate for this by reducing the number of cadetships offered in the UK.

Many shipping companies operate cadet training schemes in multiple countries and are willing to incur increased training costs in the UK in order to gain good quality seafarers. However, they also tend to train more officers in other countries where training costs are lower. Therefore there is a risk that increasing training costs in the UK could encourage the shipping industry to move more of their training abroad.

The government must consider a number of issues before deciding whether an apprenticeship based scheme is an appropriate way to support officer training:

- Minimising the increase in training costs to industry. One way to achieve this is by providing industry with a top-up subsidy to cover the difference between the current cost of training and the cost of training cadets under an apprenticeship scheme.
- Work must be undertaken to draw the SMarT and apprenticeship systems together by considering:
  - Will courses require restructuring?
  - Will cadets at sea be supernumerary?
  - Will SMarT or another subsidy be used to top-up government payments to train apprentices to keep the cost of training to industry the same?
  - Will this change be cost effective for the government?
- Engagement with industry is required to understand the impact of the change – some tonnage tax companies do not hire British officers. Therefore they may opt to leave the system if required to train cadets via an apprenticeship based system.

9.3.3 Assessment

Undertaking officer training as part of an apprenticeship would provide the government with a mechanism to harmonise seafarer training with its wider launch of the apprenticeship scheme. However detailed analysis would be required to determine if this is cost effective, and how it would be achieved without increasing training costs to a level which is unattractive to industry.

9.4 TRAINEES PAY FOR TUITION FEES

UK students are required to pay tuition and maintenance fees for most higher education courses. Most industries including finance, engineering and medical (at undergraduate level) rely on this system to source newly qualified employees. Due to the inexperience of these individuals, often follow on vocational training is required in employment.

9.4.1 Overview

Students accepted onto most higher education courses in the UK are able to obtain student loans to cover academic fees and the cost of living. The government provides these loans through the Student Loan Company. These loans become repayable once a student enters employment and earns a salary of greater than £21,000 per year. At this point, 9% of the individual's salary above £21,000 is used to pay the student loan. This system already covers HNCs, HNDs and Foundation Degrees and places no requirement on employers to contribute towards training of individuals.

The engineering and finance industries recruit a large number of professional workers through this route. Often industry will provide students the opportunity to undertake paid internships over holiday periods, and those who perform well are offered a job on graduation. This works

well for those studying courses with a range of transferrable skills who can use their qualification in a number of industries.

9.4.2 Application to SMarT

Given that cadets do not currently pay tuition fees, asking them to do so is likely to drive down the number of individuals applying for cadetships. In this review we have estimated that industry received 2.7 suitably qualified applicants per cadetship. Decreasing the applicant pool could therefore create a shortage of supply.

Seafaring imposes physical and psychological demands. It is understood that a significant part of the 11% dropout rate in the first year is due to cadets discovering that they cannot tolerate life at sea. The risk that a cadet may fund themselves and then discover they are not suited to life at sea may be a deterrent in signing up for training.

Frazer-Nash understand that a large proportion of current cadets discovered the profession via their own research or through a friend or family member who works at sea. Very few seem to have been reached by publicity campaigns. Therefore, if the government passes the cost of training onto cadets, it is considered unlikely that the reduction in applicants could be easily counteracted using a recruitment campaign.

In addition, the impact on industry of passing tuition fees onto students is also not necessarily positive.

- Using this option in place of SMarT could increase the cost of training to some sponsors. This is because some colleges and courses have tuition fees which are lower than the amount of money sponsors receive through SMarT. Therefore moving to such a scheme may increase the cost of training to some companies and discourage them from training in the UK.
- However, other sponsors who choose to train cadets on courses with tuition fees which exceed the SMarT allowance are likely to see their training costs decrease. It is therefore not known whether there would be a net increase or decrease in the number of cadetships.

It can be seen from Figure 10 in section 5.2.2 that the cost of training varies widely.

Finally, by virtue of their profession seafarers often work outside the UK. It may therefore be difficult to recover student loans from individuals once they enter employment.

9.4.3 Assessment

Moving towards a ‘student pays’ regime will align seafaring with other higher education. It would shift cost to students from industry and government but risks reducing the number of applicants, especially in light of the fact that applications traditionally come from a relatively small pool of people who are already aware of the industry through family ties etc. This effect

could be significant but cannot be quantified and could be very difficult to reverse. In addition, this option could increase the cost of training to those industry sponsors who train through lower cost colleges or courses and in so doing encourage them to train cadets overseas.

9.5 BARRIERS TO TRAINING AND EMPLOYMENT OF NON-UK PERSONNEL

Some industries have inherent demands which place barriers on the employment of non-UK individuals compared to seafaring.

- Visas for foreign workers: For non-EU citizens to work in the UK, a work visa must be obtained from government. This can be an involved and time consuming process for both organisations and individuals. Often, organisations are required to demonstrate that they have not been able to recruit a suitable individual from within the UK or EU. This is not the case for shipping companies. As these companies spend much of their time in international waters, they do not need to obtain work visas for their seafarers. This therefore allows them to easily hire cheaper labour (particularly from India and the Philippines) where other industries cannot.
- Retraining for foreign workers: Some industry bodies may only recognise qualifications from certain universities around the world. This means non-UK labour trained elsewhere may have to retrain in the UK at their own expense in order to gain employment. Courses bridging the gap in knowledge are common, though a significant financial commitment is often required and several years of time. An example of this is medicine. The seafaring industry is different in comparison – CECs are granted to those non-UK Officers who hold a STCW CoC from a country whose standards of competency and training are considered equal to those of the UK. Officers who hold a STCW CoC from other countries can take short courses to cover those subjects which form part of a UK CoC but were not covered by the training they received. Both these routes provide non-UK officers with a relatively quick means to serve on UK ships.
- Security: Many employers are required to ensure that their personnel are security cleared by the government. Depending on the level of clearance, this requires individuals to have lived in the UK for a period of time, or even to hold a British passport. This reduces non-UK competition for jobs. This applies within industries such as nuclear power, aerospace, defence etc. Similarly, background checks are undertaken in other industries where close contact with children or people at risk of abuse is required such as teaching and social care. These barriers do not exist within the maritime industry, and therefore non-UK labour can easily be employed.

The maritime industry has an extremely globalised workforce, and unlike other industries in the UK, there are few barriers preventing their employment within the UK shipping industry. The training costs of non-UK cadets and the wage demands of non-UK junior officers, particularly

those from countries such as India and the Philippines, are much lower than their British counterparts. Therefore, shipping companies tend to favour training and employing these individuals.

9.6 CONCLUSIONS

Industrial Training Boards, apprenticeships and student tuition fees have been reviewed at a high level in the context of their relevance to SMarT. All of these schemes have some merits. They may shift costs away from government and harmonise policy. However they carry risks and detailed industry consultation and costings will be necessary to establish whether they are viable.

Employment of non-UK labour within the shipping industry has very few barriers as compared to other industries. Cost is a significant driving factor for industry in determining where it sources its labour. Given the lack of barriers in the shipping industry, it is very easy for a shipping company to employ non-UK and non-EU seafarers who cost less to train and employ.

10. Interventions and options for the future of SMarT

A range of financial, structural and administrative options for changes to SMart are described and assessed.

This section describes options for changes to SMarT (objective 1) and takes into account the following:

- Interventions which could be made to counteract the barriers identified in section 7.
- The review of other nations' maritime training schemes (section 8).
- The review of other UK training schemes (section 9).

10.1 INTRODUCTION

This section considers the future of SMarT in four ways:

- Firstly, **retaining the existing scope of SMarT** but looking at the effect of funding changes.
- Secondly options for **changing the scope of SMarT.**
- Thirdly options for **altering the focus of SMarT.**
- Fourthly a discussion of **fundamental changes.**

Assumptions:

- The quality of UK officers is admired. Therefore the option of reducing the quality of training, and in-so-doing the cost of training, is not explored in this review. (Clearly STCW sets minimum technical standards).
- A dropout rate over officer training of 20% (i.e. approximately 80% of the starters qualify) has been assumed over the 3 years of training.
- It is assumed nearly all officers who pass exams go on to pass the oral examinations (accepting that this may not be the first attempt).
- Other nations do not change their approach to subsidising maritime training.

The options are described and assessed in the section below.

10.2 A: OPTIONS FOR FUNDING CHANGES AGAINST EXISTING SCOPE OF SMART

This group of options investigates how changing the level of funding to industry may affect the seafarer pipeline. It also considers the counterfactual argument of reducing SMarT funding to zero with no replacement. No changes to the scope of SMarT are considered. Changes that change the scope of SMarT are discussed in Section 10.3.

A summary of these options is provided in figure 27 along with a decision on whether we will propose modifications to SMarT for consideration by government.

Option ID	Option	Purpose	For Government Consideration?
A1	Retain SMarT in existing form and continue to provide 30% of total cost of training	To incentivise industry to maintain the number of seafarers being trained at the current level.	Yes – Recommendation 1
A2	Increase SMarT subsidy per trainee	To incentivise growth in seafarer employment by increasing the subsidy, thereby reducing the cost of training to industry.	Yes – Recommendation 1
A3	Increase SMarT to increase the total available training budget from £15M	To provide sufficient budget for industry to train more seafarers. However, the amount per seafarer remains the same.	No
A4	Remove SMarT with no replacement ('industry pays')	To reduce government intervention in the industry and remove from public funding.	No – Recommendation 1

Figure 27: Summary of options to change funding while retaining the scope of SMarT (for ease, options are linked to recommendations in Section 12)

10.2.1 Option A1: Retain SMarT and provide 30% of total cost of training

10.2.1.1 Purpose

To incentivise industry to maintain the number of seafarers being trained at the current level.

10.2.1.2 Details

This option maintains the level of SMarT subsidy at 30% of the total cost of training. It periodically increases the £15m per year provision to reflect changes in training costs.

This option does not seek to initiate an increase in cadetships. Instead, it retains the proportion of training costs subsidised by government.

Funding levels would change on a periodic basis, benchmarked to reflect changes in the cost to industry. A convenient approach would be to estimate the budget for the whole of SMarT based on the change in SMarT 1 training costs (as SMarT 1 represents the majority of the SMarT payments). A simpler but less accurate approach would be to index link SMarT.

To date the proportion of training costs covered by SMarT has fallen from 50% originally to 30% today, so this option represents a slight change to the status quo. A slight variation on this

option would be to continue to retain SMarT, without increasing funding levels with inflation. This is likely to cause the numbers of trainee places to gradually decline over time.

10.2.1.3 Discussion

A valid option is to continue the current scheme as it stands, with no significant changes. This may be appropriate if the government is content to maintain the level of seafarer training in the UK at current level. This assumes:

- Other nations do not increase the competitiveness of their seafarer training schemes (e.g. by increasing their own subsidies).
- Demand for UK seafarers from industry does not change over time.
- Government budget levels would increase.

In practice it is likely there would be a progressive erosion of the UK hold on global maritime services because other countries, such as Singapore, are developing their own maritime clusters. Countries that aggressively target the shipping sector will increase their market share by increasing their seafarer population, thereby providing experienced personnel for employment in their own clusters.

The level of SMarT funding paid for ratings is currently very small. Ratings training is in a period of transition as the new apprenticeship scheme trailblazer is introduced. Under this new scheme, ratings will be permanent employees of the shipping companies, rather than sponsored students. It would seem appropriate to retain SMarT funding for ratings until the transition is more stable. Option B5 discusses this in further detail.

Overall this option maintains the subsidy at existing levels compared to training costs, but would require a periodic inflationary increment. It is likely to result in the number of trainees continuing to decline at the current rate (see Figure 5, section 4.1.2.2) as a result of international competition. The UK share of seafarers compared with the growth in the global industry (predicted by the Seafarers Projections Review) will probably decline.

10.2.2 Option A2: Increase SMarT subsidy per trainee

10.2.2.1 Purpose

To incentivise growth in seafarer employment by increasing the subsidy, thereby reducing the cost of training to industry.

10.2.2.2 Details

When SMarT was originally introduced, it covered approximately 50% of the total cost of training a trainee. Over time, this has reduced to about 30%. This option aims to incentivise industry to take on more trainees by increasing the SMarT subsidy per trainee.

10.2.2.3 Discussion

Increasing the funding per trainee would provide a positive signal of support to industry, particularly if combined with clear intentions for future funding.

Clearly in this approach, the shipping companies would bear a lower proportion of the cost of training. This review has found that the number of trainees taken on by industry is linked to training costs borne by industry. In consultations, stakeholders have taken a firm view that the cost of training in the UK is very high compared with other nations (supported by the findings of section 8), and that they would be likely to train more UK seafarers if their training costs were lower (i.e. they received a larger subsidy from government). It was also found that large companies train thousands of cadets worldwide, a small proportion of whom are British. Therefore, if it made financial sense, it would be relatively easy for them to transfer cadetships to the UK in order to benefit from the higher quality of UK training.

It has not been possible to predict how changes to the level of funding per trainee might affect the numbers of trainees who take up a seafaring course. This is due to a lack of existing literature covering this scenario[3]. Further work would be required to ascertain this relationship, if detailed evidence is required to decide the level of funding which government should provide to industry.

Notwithstanding this, figure 28 provides a simple linear scaling of the current government SMarT budget. This indicates the approximate total SMarT budget required to support trainee cohorts of different sizes, and how changing the funding per cadet (using SMarT1 as a proxy) affects this budget.

[3] While stakeholders have indicated that they could be willing to train more UK Cadets if more funding were available, from the information available it is not possible to robustly estimate the extent to which this is the case. We have evidence to suggest that there was a 13 percent reduction in the number of Cadets in 2012/13 when the cost of training a Cadet increased by 22 percent, but this single data point does not provide sufficient information to robustly estimate what could happen if costs decreased. This is because, it is unclear whether *decreasing* costs would have the same magnitude of impact as an *increase* of equivalent size. Even if a linear relationship could be established between the level of subsidy and number of cadets trained, it is unclear over what range this might hold true. This is because a number of other factors interact to determine shipping companies' demand for UK cadets, over-and-above the level of training subsidy. These wider considerations include: expected future wage and non-wage employment costs for UK seafarers compared to those of other nationalities; the attractiveness of tonnage tax compared to regimes offered by other countries; and a wide range of operational factors. All of these factors are extremely difficult to quantify.

SMarT1 subsidy value (% of training cost) in 2014-15	30%	40%	50%	70%
Annual SMarT Budget based on 819 new cadets and 718 completers in 2014/15 (£M) (MCA data £14.5m for approximately 30% subsidy)	14.5	19.3	24.1	33.8
Annual SMarT Budget based on 1000 new cadets (£M) (calculated)	17.7	23.6	29.4	41.2
Annual SMarT Budget based on 1100 new cadets (£M) (calculated)	19.4	25.9	32.4	45.3
Annual SMarT Budget based on 1130 new cadets (£M) (calculated)	20.0	26.6	33.3	46.6

Figure 28: Approximate Relationship between SMarT1 subsidy/cadet and total annual budget (assumes a pro-rata increase in SMarT 2, 3 & 5)

It should be noted that, in order to retain a Benefit: Cost Ratio (BCR) of £4.8:£1 (Section 5), an increase in subsidy of from 30% to 40% (i.e. one third) would need to achieve a one third rise in cadet numbers (1130 in the table).

Colleges believe they could accommodate an increase in cadets. Two colleges indicated they could accommodate 35-40% more cadets, while another two indicated they can accommodate 10% more. However, this would put pressure on the number of sea berths (assuming the current fleet was used) and it may be necessary to look at changing the approach to sea berth provision. This is described in Option B4.

Overall this option illustrates the funding levels that DfT could consider in combination with other funding and policy factors. The Seafarer Projections Review forecasts a UK demand for 1500 to 1600 officers per year (SPR), which could be met by a combination of UK and non-UK officers. If government wish to encourage the UK shipping industry to substantially meet this demand, increasing funding per trainee would be a necessary part of the approach.

10.2.3 Option A3: Increase the total available SMarT training budget from £15M (but maintain proportion of subsidy/cadet at 30% of the total cost to industry).

10.2.3.1 Purpose

To provide sufficient budget for industry to train more seafarers. However, the amount per seafarer remains the same.

10.2.3.2 Details

This option is to increase the £15m SMarT budget to provide industry with an indication that government is keen to support more seafarer training. Funding per cadet would remain the same.

10.2.3.3 Discussion

- The Seafarer Statistics 2015 report claims, "The number of SMarT trainees is largely dependent upon the level of SMarT funding." In 2011/12, SMarT funding was reduced from £15m per year to £12m – there was a 14% fall in new cadets the following year. In 2014/15, the budget was increased back to £15m per year, and new cadet numbers increased by a small amount (5%).
- It should be noted that the drop in cadets in 2011/12 is likely to also be partially attributable to the significant increase in university tuition fees from £3,000 per year to £9,000 introduced that year. The increase in fees appears to have been replicated by institutions offering cadet training courses. An example of how one seafaring institution's fees has varied over time is provided in Figure 20. A 'spike' in fees can be seen in 2011/12.
- However, it is possible that an increase in budget may give industry confidence in the government's commitment to the industry, which could in turn boost training, especially if combined with clear intentions for future.

It is unlikely that an increase in budget on its own will encourage the UK shipping industry to increase training numbers. Our industry discussions supported this view. The actual cost per trainee to industry remains high and this will continue to provide a limitation unless this is increased as well.

Overall, the budget should not be increased if funding per cadet remains the same. (Option A2).

10.2.4 Option A4: Remove SMarT with no replacement – industry pays the full cost of training

10.2.4.1 Purpose

To reduce government intervention in the industry while reducing public spending.

10.2.4.2 Details

This option represents the counterfactual argument of what would happen if SMarT was removed and industry was expected to pay all training costs.

There would be an immediate direct cost saving to the government of between £12m and £15m per year (the expenditure associated with providing the SMarT Subsidy) and the government would also save money on the administration of the scheme which is currently sub-contracted to a third party organisation. The cost of training to industry would increase.

10.2.4.3 Discussion

- Feedback from industry has been strong that SMarT is an important subsidy to them. Overall it is believed there would be a significant negative impact on the number of cadets who would be trained and this would emerge quite quickly.
- Industry would be required to bear the total cost of training each cadet. They may wish to pass this cost on to students, or agree as an industry to create a scheme to address the problem. If SMarT was removed, we have found no evidence other significant funding sources (e.g. apprenticeship funding, industry, charity sector etc. in their current form) would be able to provide all sponsors with at least the same level of funding as they currently receive through SMarT.
- SMarT may be considered a market distortion in that the provision of a subsidy increases industry demand for cadet training places, and thereby enables colleges to increase tuition fees. However, we have shown that the utilisation of college places is not high – this implies there is limited competition for college places. Also, looking at the wider universities sector, many courses have increased tuition fees to the maximum level even where government subsidies are not provided. Therefore we believe the removal of SMarT is not likely to result in a fall in college tuition fees.
- It is likely that there would be a significant fall in the number of officers that industry would train. Many companies are likely to reduce the number of vessels they have in the tonnage tax scheme to reduce their minimum training commitment. As a result colleges may need to scale back their courses if foreign applicants do not fill the gaps. If the UK trains fewer officers, the positive economic contribution of the maritime industry will decline with time.
- It has been found herein that for every £1 spent on training a seafarer, there was a £4.8 return to GDP. The effect of this return on investment would decrease due to the reduced number of productive seafarers.
- Currently parts of the industry retain a desire for UK seafarers (security of supply and defence) and an interest in the quality of UK seafarers. This desire may be put at risk in the longer term.
- English is spoken widely as a first or second language in many countries around the world. Some companies have a desire for high quality officers and often require that they have good English (this is particularly true within the cruise industry). They currently source these officers from the UK. Whilst a desire to employ UK officers will remain, there is a risk that if SMarT is removed many companies may transfer their cadet training programmes to other Western European countries such as Ireland.

- A very small proportion of the SMarT funding is claimed for ratings so removal is not likely to have a significant effect on ratings training.
- There would be no immediate effect on the maritime cluster but there is likely to be a significant progressive erosion of the UK hold on global maritime services (and those that support training charities may withdraw their support). Countries that aggressively target the maritime cluster such as Singapore will increase market share.

We have no real data on the numerical effect of removing the SMarT subsidy but some market information can be used to predict a possible outcome. An approach based on the economic theory of 'deadweight' (described in detail in Annex A) can be used to make a high level prediction as described below. Deadweight can be defined as "the proportion of total outputs/outcomes that would have been secured without the investment in question," (Research to Improve the Assessment of Additionality 2009).

Deadweight calculation

The Oxford Economics Value for Money report (Annex A) focusses on SMarT1 as this comprises the majority of funding. It discusses a range for the number of cadets that could have been trained by the end of the assessment period if SMarT 1 had not been implemented. While this is extremely uncertain, we can calculate a range of possible outcomes based on three sources.

- Oxford Economics' central scenario assumes that deadweight aligns to the previous evaluation of 77 percent (Deloitte 2011).
- A more positive scenario assumes a lower estimate of deadweight of 50 percent, based the evidence gathered from our stakeholder consultations which would seem to indicate at the most a medium level of displacement (Annex A).
- For their pessimistic scenario Oxford Economics assume a deadweight value of 80 percent, based on the situation observed when the cost of training increased in 2012/13 (Annex A).

If SMarT was to be removed entirely, there would be a significant reduction in the number of cadets trained from the current level of about 850. Using the range of deadweights above (50% to 80%), this might suggest a decrease of anywhere between 170 and 425 cadets (leaving 680 to 425 trained per year). Shipping companies are likely to consider officers from other nations instead, creating a significant shortfall in the number of available UK officers.

A significant reduction in SMarT funding may have the effect of reducing training numbers below the minimum training requirement stipulated by the tonnage tax obligations. As discussed below, it is not possible to predict how many firms might drop out of tonnage tax if SMarT funding were removed.

SMarT removal and the tonnage tax

To put the deadweight calculation above in perspective, the example of tonnage tax companies is considered.

It is useful to discuss the motivations of different companies who are in the tonnage tax scheme. Tonnage tax and SMarT are closely linked because of the requirement to provide training in order to qualify for tonnage tax. Tonnage tax is a substantial incentive on its own, so some companies are likely to remain in the system. The following are credible outcomes based on our research based on our stakeholder consultations:

- Some companies will that feel tonnage tax is sufficiently attractive on its own to remain in the UK for tax purposes. Some large companies train significantly more cadets than the tonnage tax Minimum Training Obligation and take advantage of the SMarT funding. However, they may reduce the number of trainees if SMarT is removed.
- Companies who feel tonnage tax is not sufficiently attractive on its own, may quickly reduce the number of ships registered on tonnage tax, thereby reducing their minimum training requirement. This would reduce the number of cadets trained in the UK.
- A proportion of companies already claim SMarT but not tonnage tax. If they do not have a compelling requirement for UK/English speaking officers they may go to sources of low cost labour.

Overall

It is understood that UK industry has a demand for 1500-1600 officers per year between now and 2026 (SPR 2016). Overall there is a good case that removing (or substantially reducing) SMarT without a strong replacement, risks a significant detrimental effect on the number of cadets trained, despite the tonnage tax Minimum Training Obligation. Therefore this option is not recommended.

10.3 B: OPTIONS ALTERING THE FOCUS OF SMART FUNDING

Section 7 outlines market barriers in the pipeline of training cadets. This group of options discusses how SMarT funding could be used to address the most significant barriers.

A summary of these options is provided in Figure 29 along with a decision on whether they will be proposed as modifications to SMarT for consideration by government.

Option ID	Option	Purpose	For Government Consideration?
B1	Provide a subsidy for first employment	To incentivise industry to employ newly qualified cadets to gain their first experience of full responsibility.	Not in isolation. See separate discussion in section 12.2.3.
B2	Provide SMarT training subsidy only on the understanding that sponsored cadets are provided employment after qualification	To encourage industry sponsors to provide initial employment to seafarers.	
B3	CoC Oral Examination – Continue SMarT payments to fund a repeat interview after initial failure	To incentivise industry to support cadets who may fail their oral examination first time but are believed to be of good enough quality to pass – this would increase the number of qualified officers each year.	Yes – Recommendation 4
B4	Optimising availability of berths: Phasing of sea time and college time.	Optimising college courses to utilise berths more uniformly throughout the year, thereby increasing the number of cadets who could be trained.	Yes – Recommendation 5 (detailed review and consultation)
B5	Improving the training of ratings.	Changes in SMarT payments, tonnage tax Minimum Training Obligation and training pathway to encourage the development of more UK ratings.	Yes – Recommendation 7
B6	Royal Navy Conversion	To encourage transition of Royal Navy officers & ratings to Merchant Navy posts, and increase seafarer numbers for lower cost.	No
B7	Permit the SMarT 2 1st Instalment payment as soon as the relevant academic training has taken place for cadets studying FDs.	To reduce the cost that sponsors carry during training, and to encourage them to train cadets to a higher level of qualification.	Yes – Recommendation 4

Figure 29: Summary of options altering the focus of SMarT funding (for ease, options are linked to recommendations in Section 12)

10.3.1 Option B1: Initial employment: Provides SMarT payment for first seafaring officer role after CoC (to employment rate of newly qualified officers at sea)

10.3.1.1 Purpose

To incentivise industry to employ newly qualified cadets whilst their training is fresh to gain their first experience of full responsibility (e.g. first unsupervised watch).

10.3.1.2 Details

Employers value at least six months of experience at sea in a position of responsibility (e.g. 3rd officer or engineer) in addition to sea time gained as part of training.

Some studies and parts of the industry have suggested that qualified officers have difficulty finding employment if they are not taken on by their sponsor. Some cadet online forums contain similar comments.

This option is for a continuation of the SMarT weekly payment for a company taking a newly qualified officer into their first 12 months employment. This would give experience to the officer and also the opportunity for the employer to assess performance early on, especially if they were not specifically sponsored by the company in question. It would be up to the employer to decide what salary they actually paid.

If held at the existing higher rate payment of £107 per week this would require the SMarT budget to increase by around £3.5M (based on 650 cadets per year passing 1st CoC).

The 'SMarT Plus' initiative being proposed by Nautilus and the UK Chamber of Shipping is a more complex version of this option.

10.3.1.3 Discussion

Industry values experienced UK officers, and the first step in gaining practical independent knowledge is extremely important. UK officers are seen as expensive in their early years but this disparity reduces as they gain experience. Initiatives to get cadets on to an 'employment conveyor belt' will help officers get experience quickly and may result in more UK officers going on to 2nd CoC.

We have seen reports of employability problems for newly qualified officers, and there are anecdotal claims supporting this. Many reasons have been suggested including:

- Officers may be waiting for the 'ideal' role.
- Others may take a role to get experience, but perhaps at a lower grade.
- Some may take a role in an area for which SMarT funding was not intended, or where their career path may restrict them from filling future roles in the maritime cluster.

However, our discussions with colleges, industry sponsors and a small sample of cadets (through Survey Monkey) suggest that most cadets find employment within 3-6 months.

The cadets most likely to benefit from this option are those with training management companies. Frazer-Nash has found that the wider industry employment rate (as a proportion of those cadets who gain CoC) is 84%. It is understood that many shipping companies who manage the selection and training of cadets themselves offer employment to all or most cadets who gain qualification.

The employment rate for those Training Management Companies who do not obtain the majority of their business from charities was reported as 75%. These companies trained approximately 50% of cadets in 2014/15. Figure 24 (section 7.8) estimates that 603 of the 819 cadets who started training in 2014/15 will gain 1st CoC. On this basis this option will target approximately 75 individuals while paying industry for the employment of all 603. (By comparison the £3.5 million this initiative would cost could be used to train up to 190 cadets to 1st CoC).

It is noted that delays in employment are sometimes due to the time to receive formal notification of the 1st CoC which can be four to six months (comprising the cadet being ready to take an oral examination, interviewing, passing and formal notification). Improving the speed of administration of the process would be valuable.

Overall, whilst there is merit in incentivising officers to get experience quickly, we did not find robust evidence that employability is a major problem and therefore the option in isolation is not considered to provide value for money.

Increasing the qualifications/experience of officers will have long term career benefits, as senior seafarers are valued. However this would require this option to have an explicit link with further qualifications.

(This option is somewhat similar to elements of the German approach, where in some cases the difference between the collective agreement 3rd officer salary and the training allowance is provided until a suitable amount of experience has been gained).

We note the separate detailed proposals being prepared for 'SMarT Plus' being proposed by Nautilus and the UK Chamber of Shipping are a more complex version of this option, but Frazer-Nash have not yet seen a fully mature proposal. It is discussed at high level in section 10.3.8.

10.3.2 Option B2: Initial employment: Provide SMarT training subsidy only on the understanding that sponsored cadets are provided employment after qualification

10.3.2.1 Purpose

To encourage industry sponsors to provide initial employment to seafarers.

10.3.2.2 Details

This option addresses the same barrier (initial employability) as Option B1. The option is not to extend SMarT payments but to require sponsoring companies to employ newly qualified officers for 6 months after 1st CoC (as eligibility criteria for SMarT) at their own expense i.e. there is no additional positive incentive to industry beyond the current SMarT scheme. This would enable newly qualified officers to gain seagoing experience with a level of responsibility which is not possible as a supernumerary cadet. Shipping companies would be required to repay the government portion of training costs if the cadet was not employed after achieving CoC.

10.3.2.3 Discussion

This option has some merits:

- It ensures those companies claiming tonnage tax are motivated to employ trainees on qualification. Training management companies have stated that many of their tonnage tax claiming clients train cadets specifically to meet their Minimum Training Obligation.
- It increases employability of newly qualified seafarers who are not immediately employed by their sponsors. This is because many shipping companies look for seagoing experience at the rank of 3rd officer when hiring recently qualified seafarers.
- It improves effectiveness of the SMarT scheme by improving the employment prospects of seagoing officers at no extra cost to the government.

However there are drawbacks which must also be considered:

- The cost to industry of training in the UK will go up. Given the cost of training in the UK is one of the highest in the world already, this is likely to result in a reduction in training as shipping companies look to train cadets overseas of similar quality at lower cost (e.g. Ireland).
- Companies on the tonnage tax scheme may reconsider their registration of the tonnage tax scheme resulting in a reduction in the number of cadets trained. They may reduce the number of vessels registered under tonnage tax, thereby reducing their Minimum Training Obligation. It may also deter new entrants to the scheme.
- Some trainees are trained under management companies (who may make placements with several companies over the course of training), rather than directly by shipping companies. In this case it may not be possible to enforce this option. Alternatively it may distort the market by pushing shipping companies to use management companies rather than train cadets themselves.

- If the cadet does not want to take up employment (or leaves before completing the employment period), the shipping company might be left with the entire training costs. This is a problem outside their control so it would be necessary to include a strategy to account for this.
- Many companies already aim to employ the cadets they train. Therefore this scheme targets those companies who train to meet their Minimum Training Obligation, but then do not provide employment to cadets who qualify. It has been found that 84% of cadets find employment, and therefore, as with option B1, the increase in employment rate is likely to be small.
- It has been recognised that there can be a time lag between completing training and formally receiving the CoC. This would need to be resolved before this option could be put into place.
- This option is not likely to be supported by industry in isolation. If taken forward it may work best alongside an increase in SMarT (Option B1) to allow for the additional risk being accepted by the employer.

An alternative approach could be to require companies under SMarT to employ a high proportion of cadets (say 90%) rather than mandate 100%. This approach may be better linked to a tonnage tax scheme rather than SMarT. However, there is a risk this could result in industry training a lower number of cadets so that they do not commit themselves to employing too many officers.

In summary there is no evidence that, in isolation, this option would have a significant impact on increasing the numbers of seafarers. Indeed, it may have the opposite effect. It would also be difficult to manage. This option may also lead Sponsors to reduce the number of vessels they have registered on tonnage tax in order to reduce their Minimum Training Obligation. Therefore there is not a clear value for money benefit.

We note that the separate detailed proposals being prepared for 'SMarT Plus' by the MNTB and the UK Chamber of Shipping contain elements of this option, in that a commitment to employment is required. However Frazer-Nash have not yet seen a fully mature proposal. It is discussed at high level in section 10.3.8.

10.3.3 Option B3: CoC Oral Examination: Continue SMarT payments to fund a repeat interview after initial failure to increase the proportion of cadets who gain qualification

10.3.3.1 Purpose

To incentivise industry to support cadets who may fail their oral examination first time but are believed to be of good enough quality to pass – this would increase the number of qualified officers each year.

10.3.3.2 Detail

This option is to incentivise industry to continue to sponsor cadets who have failed their second oral examination for up to 13 weeks. It would be funded by using the Final Payment in the SMarT 1 scheme to continue the provision of financial support at £107 per week for up to 13 weeks until the cadet retakes their final oral examination. If the cadet passes, the number of weeks claimed would be deducted from the final payment and the balance would be payable to the sponsor. It does not require any more funding than is already 'committed' for the cadet.

10.3.3.3 Discussion

There is a concern that SMarT 1 Final Payments are not claimed for up to 20% of students. A proportion of these fail their first oral examination. At this point, they may lose their SMarT subsidy as the 150 week period of funding comes to an end. Some of these cadets continue to be sponsored by industry, while others lose their sponsorship and self-fund the remainder of their course. In the latter case, they may be recorded as having dropped out of the SMarT scheme with the Final Payment left unclaimed. Some may choose to drop out with their HNC/HND/FD and forego their CoC – it could be argued that the cost of training these individuals has been wasted to those who have funded the training as they will not go on to become seafarers.

MCA have confirmed that cadets are allowed to apply for the oral examination before their academic studies are finished. This issue may be alleviated by re-emphasising to Sponsors that cadets can apply earlier.

Overall, this option is relatively easy to put in place, and could be administrated with the current arrangements. It is unclear how much this option would reduce the 20% of unclaimed Final Payments though it is likely to have a positive effect, for no additional expense. It is suggested this is reviewed in further detail to establish value for money and any unintended consequences.

10.3.4 Option B4: Optimising availability of berths: Phasing of sea time and college time

10.3.4.1 Purpose

Optimising college courses to utilise berths more uniformly throughout the year, thereby increasing the number of cadets who could be trained. As described in section 7.5.4.2 availability of training berths may be a constraint in accepting cadets into training.

10.3.4.2 Details

This option proposes courses have multiple start points throughout the year (up to three), and

ensure that courses are planned across phases to ensure that cadets are not sent to sea at the same time.

10.3.4.3 Discussion

Smaller shipping companies in particular find making berths available challenging, and this can limit their ability to train cadets. Between September and February less than 50% of berths are utilised. By re-planning course timings, berth usage could be spread more uniformly over the year, thereby enabling shipping companies to train up to 30% more cadets (as shown in Section 7.5.4.2).

Larger shipping companies would also benefit from better phasing of start dates. Currently, where colleges have multiple start dates, the first start date is in September and the second in January/February. This means the first batch of students go to sea after the second batch of students have started Phase 1. A larger proportion of drop outs occur early in the first sea phase when cadets realise they do not like life at sea. If the second start was timed after the first batch of students start Phase 2, shipping companies would be able to identify a replacement who could then start the course in the same year. This would increase the numbers of seafarers trained each year.

Our consultations highlighted a number of ways to split intakes over the year in order to better spread berth utilisation over the year, and to allow industry to replace those cadets who drop out:

- Introduce a third intake in May.
- Increase the time between first and second intakes – first intake could remain in September, with the second intake delayed until March/April (after the first intake have gone to sea).
- Change phasing to ensure more of a difference between engineer and Deck Officer courses.

Overall, it is proposed that sea time phasing is studied in more detail to identify whether it is a viable approach. If it is credible, this approach may work in tandem with any requirement to increase the number of cadets. If practicable it is considered that this would be a relatively low cost approach to increasing the availability of training places. However, it does not, of itself, create a supply of cadets.

10.3.5 Option B5: Improving the training of ratings

10.3.5.1 Purpose

Changes in SMarT payments, the tonnage tax Minimum Training Obligation (MTO) and training pathway to encourage the development of more UK ratings.

10.3.5.2 Details

Many of the industry representatives we spoke to emphasised that as UK officers become more experienced and senior their employability grows. Similarly it has been suggested that senior UK ratings (e.g. Bosuns) are also desirable. Currently, junior UK ratings are considered too expensive and therefore there is only a small level of demand for them (typically from ferry companies, offshore support, cruise and specialist cargo segments as well as the PFI strategic lift shipping). This is inhibiting the UK's ability to produce senior ratings who are more attractive to industry, as they develop leadership qualities and technical skills.

Whilst we have not developed an economic value for money argument for ratings they are essential for the safe navigation of vessels. Maintaining a pool of skilled ratings is therefore important if the UK is to maintain its ability to make strategic decisions regarding shipping. It is important to note that maintaining the UK government's strategic options requires British ratings to have experience of operating deep water vessels over longer voyages than are common on the shorter ferry trades. (Section 3.2 of Annex A discusses this rationale further).

10.3.5.3 Discussion

Currently there are multiple training pathways for ratings in the UK and these are variously supported using a combination of apprenticeships, SMarT, and tonnage tax schemes. This makes understanding the costs and other implications of training ratings difficult for potential sponsors to understand (including the implications of training ratings instead of cadets under the tonnage tax MTO). This is not a commentary on the technical content of training (where it is recognised that different training paths are necessary); rather that the financial choices are complex, and this may be one reason that the ratings budget under SMarT is not taken up (see also section 7.5.4.2 'berths for ratings'). The ratings training pathway would benefit from clarification on the different levels and funding options available or replacement with a single funding pathway if viable.

- SMarT arrangements for rating trainees are somewhat more complex than arrangements for officer trainees. Levels of funding under SMarT do not offer a significant incentive to train ratings. Rating training makes up less than 1% of SMarT spending.
- A pilot scheme within tonnage tax to include an option to train three ratings in place of one cadet under the MTO has not yet resulted in a significant increase in the numbers of ratings qualified, although early indications from MNTB are that uptake may be increasing. This MTO option specifies Able Seafarer as the required training level for ratings (the full four-stage MNTB approved Able Seafarer course is not eligible for SMarT funding as it is covered under an apprenticeship scheme). The MNTB website suggests that this is a 24 month training programme. This is a much longer commitment

than other routes. Ratings can be trained in as little as six months via other pathways (e.g. Watch Rating certificate under SMarT3). The shorter training duration would suggest a lower overall cost.

- Taking apprentices has a number of additional requirements that would not necessarily be needed for sponsored trainees. For example, depending on the age of the individual, apprenticeships can also require an employer to pay the minimum wage, National Insurance and provide pension contributions. This further increases the overall training costs. Furthermore the longer length of the sea training period for the Able Seafarer places pressure on berths. Based on the guidance on the MNTB website we believe that the sea time required to train three Able Seafarers ratings is greater than the sea time associated with training a cadet.
- There is some indication that the proposed apprenticeship arrangements may conflict with some industry employment strategies. For example, we are aware of one large company that only employs 'general purpose ratings' rather than engineer and deck ratings and they believe the apprenticeship arrangements prevent them taking this approach.

Allowing companies greater flexibility over the approach with which they can take to meet the rating tonnage tax training requirement whilst utilising SMarT funding may help encourage companies to take up ratings training.

Although there is little clarity over the exact cost of training a rating, it is believed that SMarT currently provides less than 15% of the total cost of training a Watch Ratings. Increasing the proportion of the total training costs that is subsidised may increase the numbers. Under this option the value of SMarT as a percentage of overall training costs would be increased to provide a similar level of incentive to that provided for cadets. As a small number of ratings are trained (<100) this is likely to be relatively low cost.

In time the trailblazer apprenticeship may supersede the SMarT arrangements. However, until then improving the SMarT route to training ratings offers flexibility in the system during the period that apprenticeships are being established.

Overall, there is a shortfall in ratings training in the UK. Ratings are a necessary part of operating ships in combination with officers. A ratings skill base may also be important to ensure the government has manning flexibility should national defence and security considerations require.

Improvements might include:

- Increase SMarT funding for Watch Ratings & general purpose seafarers training (subsidy per individual) to align with that of officers (as a percentage of cost) or in line with apprenticeship grants.

- Make SMarT funding available to facilitate the professional development of Watch Ratings to Able Seafarer level.
- Whilst tonnage tax issues lie outside the scope of this review, consideration to allowing more flexibility within the rating Tonnage Tax option than the current restriction to Able Seafarers.

10.3.6 Option B6: Royal Navy Conversion

10.3.6.1 Purpose

To encourage transition of Royal Navy officers & ratings to Merchant Navy posts, and increase seafarer numbers for lower cost.

10.3.6.2 Details

Naval warfare officers undertake navigation and bridge watch keeping duties in a similar way to the Merchant Navy. Retraining packages exist (such as Fleetwood's blended learning approach), but it is proposed that subsidising a fast track conversion could accelerate the industry's ability to transition experienced officers into the Merchant Navy. It should be noted that the Royal Navy is currently 29,000 strong including the Royal Marines, Fleet Air Arm and medical staff and therefore is not in itself likely to be a major source of potential personnel.

This option is to subsidise the college to provide a transition fast track course.

10.3.6.3 Discussion

This is a very complicated issue. Some key points are:

- Only RN warfare branch officers have Deck OOW experience. Therefore anyone coming from RN with this experience would need a conversion package which deals with the difference in commercial shipping, anyone else would need to complete the full training.
- Engineers: The role of a Royal Navy Engineer Officer is different to the Merchant Navy. The Merchant Navy Engineer Officer is closer to that of a Royal Navy Technician which requires more of practical skills than those of a Royal Navy officer. Main propulsion systems in warships are generally more complex than those seen in commercial vessels. However auxiliary and hotel systems in warships are often very similar to those found in Merchant Navy ships.
- The RN personnel with a strong background in Seamanship such as seaman specialists could make an excellent source for future experienced ratings (Bosuns).

Overall, it is considered that the approach of a conversion course to gain OOW qualification would need significant effort and would be relevant to only a small number of candidates. It is not proposed this is taken forward at this stage.

10.3.7 Option B7: Offer the SMarT 2 first instalment at the start of Phase 1 for cadets studying FDs.

10.3.7.1 Purpose

To reduce the cost that sponsors carry during training, and to encourage them to train cadets to a higher level of qualification.

10.3.7.2 Details

This option is to provide the money from the SMarT 2 first instalment as soon as the training component has been completed (i.e. first stage of management certificate). Currently the cadets are also required to have received their 1st CoC. This means that industry pay for the first stage of management certificate and are unable to claim this part of the subsidy until much later.

10.3.7.3 Discussion

When a cadet qualifies from an HND or FD course, MIN 486 states that the Sponsor is able to claim two payments:

- SMarT 1 Final Payment: £3,156 after cadet gains 1st CoC.
- SMarT 2 1st Instalment: £4,560 with or after the SMarT 1 final payment claim once the cadet gains 1st CoC and has undertaken additional training (for example the first stage of their management certificate, or Part 2 of the HND experienced seafarer route).

By contrast, when HNC cadets qualify, the sponsor can only claim the SMarT 1 final payment. The reason for this difference is that HND and FD qualifications provide some of the training required for 2nd CoC.

Currently, there is a greater risk to Sponsors in training cadets via the HND/FD route than via the HNC route – if a cadet drops out from an HND or FD, the Sponsor is unable to claim up to £7,716. If a cadet drops out from an HNC, the sponsor will only lose £3,156.

Colleges have noted that newly qualified seafarers with 1st CoC and an HND or FD are more employable than those with an HNC. This is because they do not need to return to shore for as a long a period of time to gain their 2nd CoC. (However, industry employers also recognise there is a place for HNC cadets for lower costs and a perception that they move employer less often).

Therefore this option will reduce losses to industry if a FD cadet leaves training. This option focusses on FD students not HND students. This is because many HND's are extensions to the end of the relevant HNC course and some students may extend to an HND. Conversely some HND students may drop back to HNC. In these HNC/HND cases it is therefore appropriate for the SMarT 2 first instalment to be paid alongside the SMarT 1 final payment.

FD's are stand-alone courses so this provides an opportunity to support industry with a payment closer to the time when they fund the training and may encourage them to train via this route.

Although more of the cost of cadets dropping out will rest with the government, this will not require a significant increase in budget. In addition, this option will provide companies with added incentive to produce HND or FD qualified cadets. It is suggested this option is considered further.

10.3.8 Commentary on SMarT Plus

We note the separate detailed proposals being prepared for 'SMarT Plus' by the shipping industry. A fully mature proposal was not available at the time of this report but we are able to make preliminary comments based on our current understanding.

We understand the key attributes of SMarT plus are:

- Increased funding for HND and FD programmes in return for a guaranteed minimum 12 months employment post certification. (The existing scheme to remain in place for HNC candidates or those not guaranteeing employment).
- Any increase in funding to be matched by increased commitment by employers.
- Aspiration to increase number of officers with higher CoCs to increase productivity off-shore and in subsequent on-shore roles.

Our understanding of the SMarT Plus cost model is that it requests additional government funding covering a nominal 2 years training allowance, in return for a commitment for industry to guarantee employment for 12 months after initial certification.

We would make the following comments:

- Frazer-Nash agrees that an increase in government funding is likely to be necessary if an increase in training numbers is required. This applies equally under the existing SMarT scheme or a modification such as SMarT Plus. If training numbers increase significantly, the employment rate may fall unless companies are incentivised. If an increase in cadet numbers is required the model needs to be sustainable from training through to employment. i.e. it must ensure that there are sufficient employment opportunities after officers 1st CoC.
- The shipping industry companies we have consulted have stated that UK officers are perceived to be of high quality and are valued particularly once they have gained some experience. We believe a stronger mechanism for increasing the numbers of more experienced officers (including post 2nd CoC) would improve the overall productivity of UK officers and be attractive to the UK shipping industry, as long as those officers joined UK companies.

- We have no information on whether encouraging industry to train to HND/FD instead of HNC would result in any adverse outcomes. Anecdotally HNC trained officers are also valued, partly because they are less likely to move between companies so regularly but are still a source of high quality, English speaking officers. We believe it is important that any scheme does not punish companies who wish to train officers through the HNC route.

We have not yet seen a compelling argument for using SMarT to encourage initial employment on its own (as described in options B1 and B2 in sections 10.3.1 and 10.3.2). However, a link between employment and further training (to 2nd CoC) may be valuable. We understand that the intent of SMarT Plus is to incentivise employment and continuous professional development. The plans we have seen do not currently make a sufficiently direct link with employment or guarantee that officers under the scheme would proceed to 2nd CoC. There would need to be clear proposals for how to deal with the differing circumstances of shipping companies, shipping management companies and training management companies, where the responsibility for training and employment status of the officer/cadet is different. It may also be important to understand the responsibilities of the cadet in the relationship as they transition from student to employee.

Overall, we believe further evidence is necessary that SMarT Plus will provide value for money and ensure that any employment links include requirements for further training.

10.4 C: OPTIONS IMPROVING THE IMPLEMENTATION OF SMART

The options described below describe improvements to how the government support for training should be administrated and communicated. They are considered to be important considerations for its future success.

A summary of these options is provided in Figure 30 along with a decision on whether they will be proposed as modifications to SMarT for consideration by government.

Option ID	Option	Purpose	For Government Consideration?
C1	Improve administration of SMarT	To reduce administration of SMarT, and reduce cost to industry.	Yes – Recommendation 3
C2	Create a Database of trainees and seafarers	To track individuals throughout their seafaring careers, from starting a cadetship to leaving a seagoing career; the aim of this is to gain a better understanding of how seafaring careers evolve, how salaries change and when people leave the industry. This will support future policy reviews.	Yes – Recommendation 8
C3	Government providing confidence of long-term funding	To provide industry with confidence of funding levels in the long term encourage training investment.	Yes – Recommendation 6

Figure 30: Summary of options to improve the implementation of SMarT (for ease, options are linked to recommendations in Section 12)

10.4.1 Option C1. Administration of SMarT

10.4.1.1 Purpose

To reduce administration of SMarT, and reduce cost to industry.

10.4.1.2 Details

This option is to review the administrative burden associated with SMarT and improve reporting to reduce cost to industry.

10.4.1.3 Discussion

SMarT is administrated by a third party on behalf of the MCA.

Frazer-Nash were not permitted access to this system as this requires registration as a training provider. However, sponsors with experience of using the system to administer SMarT have noted that the process is time consuming. Issues with the following points were raised:

- The ease with which payments can be claimed.
- Interface which is not user friendly.
- The level of audit.

We understand they have recently improved the website which Sponsors use to administer SMarT.

Whilst it is recognised that proportionate auditing and administration are required to ensure compliance and ensure the correct use of public funds, sponsors noted that other systems

seemed easier to work with. For example, the only information required in the Irish system each month is the time each cadet has spent at sea. One sponsor also had experience in a past job of claiming apprenticeship funding from the UK government and found this process was also much simpler than SMarT. Fresh consideration of the appropriate level of administration and comparison with other similar needs may provide some guidance on whether administration of SMarT scheme can be improved.

We propose that this is reviewed independently to look at whether the administration of the system can be readily improved. The review should take into consideration how similar schemes are administered across other parts of the UK government, and also how the Irish maritime training subsidy is administered.

10.4.2 Option C2: Develop a database of trainees and seafarers

10.4.2.1 Purpose

To track individuals throughout their seafaring careers, from starting a cadetship to leaving a seagoing career; the aim of this is to gain a better understanding of how seafaring careers evolve, how salaries change and when people leave the industry. This will support future policy reviews.

10.4.2.2 Details

This option is for the development of a database of UK seafarers which is trainee-focused to track their progression through training and employment. This would be in addition to the collection of data on SMarT payments. It would permit:

- Unique registration of cadets.
- Tracking where they are in their careers: trainee officer (Deck, Engineer, ETO), rating, qualified (1st CoC etc), employed at sea, employed on-shore in maritime role, retired etc).
- Tracking level of qualification.
- Tracking who their college and industry sponsor are during training.
- Tracking what subsector of the industry they are training with or employed by (e.g. cargo, cruise, and ferry).

10.4.2.3 Discussion

As part of this review, it has become evident that information about the status of cadets and seafarers is sparse. For example:

- We had difficulty gathering data on cadet retention through their training (dropout rates). The colleges and industry retain some data on their own cadets but this is not centrally gathered. The MCA data on SMarT payments was used as a proxy for dropout rates but

this had some shortfalls (for example, cadets who fail their final oral examination typically come to the end of their SMarT funding period and may be recorded as having dropped out, although they may retake the exam and qualify).

- The database used by the MCA for SMarT was developed for the purpose of forecasting spending for SMarT funding. It does not capture how many UK cadets/ratings are in training, what year they are in, when they are registered, what they do once they are qualified, whether they are active in the industry. This may be akin to the records kept by other professional bodies (e.g. the Institution of Mechanical Engineers tracking their Chartered Engineers etc.)
- There is a separate register of issued CoCs. It is not linked with training progress, drop-out rates or SMarT payments.
- We understand that the way cadets are tracked has been improved recently including the tracking of instalments already claimed where a trainee changes sponsor.

Such a database would help industry and government to understand and influence the UK's place in the global industry across the shipping sector and maritime cluster. It is noted that some trade associations may already collect some information independently (e.g. unions). It may be possible for a trade body to administrate a database on behalf of government. Clearly discussion between government agencies and industry representatives would be needed to agree:

- What information should be collected and by who?
- Who needs access to which information and what they can use it for?
- How to ensure personal data is protected.

This initiative has previously been separately called for at a European level by the European Transport Workers Federation (http://www.etf-europe.org).

Overall, it is considered that this option should be taken forward for further consideration. We believe this is an important requirement to allow the industry and its pipeline of trainee and qualified seafarers to be understood and effectively managed.

10.4.3 Option C3: Government provide commitment to providing long-term funding

10.4.3.1 Purpose

To provide guarantees on funding levels to industry to improve confidence (reduce the perception that funding may not be continued, section 7.5.4.3) and encourage training.

10.4.3.2 Details

Provide industry with a five year commitment to funding; ensure documents are quickly updated online to reflect the current funding situation. In recent years SMarT funding has been

guaranteed for one year at a time. Prior to this funding statements normally fitted into a three year budgeting cycle.

10.4.3.3 Discussion

It has become clear in stakeholder consultations that government have not been able to provide industry with long-term guarantees on funding; more recently guarantees have covered one or two years at a time. Shipping companies often plan their resourcing and training requirements several years in advance, so it is important to provide stability to industry.

It is recognised that usually commitments cannot be given for longer than a government term but Chancellor's statements have previously provided a 'lock-in' for certain important decisions that make reversal more difficult (such as petrol tax freezes). As SMarT is relatively low cost this would appear merit further consideration.

Overall, it is considered that this option should be taken forward to give clarity to industry in making strategic decisions.

10.5 D: OPTIONS FOR FUNDAMENTAL CHANGES TO SMART

This category describes options which require significant changes to SMarT. A summary of these options is provided in Figure 31 along with a decision on whether they will be proposed as modifications to SMarT for consideration by government.

Option ID	Option	Purpose	For Government Consideration?
D1	SMarT to pay college fees directly.	To reduce the administrative burden shipping companies encounter when using SMarT.	Yes – see section 12.4 (longer term consideration)
D2	Remove SMarT but replace with an industry levy.	To provide an alternative funding mechanism to SMarT.	Yes – see section 12.4 (longer term consideration)
D3	Remove SMarT and pass the cost of training onto cadets.	To remove the need for SMarT and reduce government expenditure.	No
D4	Remove SMarT and change funding mechanism for officers to apprenticeships.	Provides an alternative funding approach to reduce government intervention and places control in hands of industry.	Yes – see section 12.4 (longer term consideration)
D5	Bond Retention: incentivise cadets to stay with their sponsor.	To incentivise cadets to stay in the industry and with the company that sponsored them following training.	No

Figure 31: Summary of options for radical changes to SMarT (for ease, options are linked to recommendations in Section 12)

10.5.1 Option D1: SMarT to pay college fees directly to colleges to reduce administration

10.5.1.1 Purpose

To reduce the administrative effort shipping companies encounter when using SMarT.

10.5.1.2 Details

SMarT could be modified to pay college fees directly to colleges. Some other countries pay training subsidies directly to colleges (e.g. Ireland) rather than to the shipping companies. This simplifies the administration undertaken by shipping companies.

10.5.1.3 Discussion

This approach has some clear benefits:

- By reducing the difficulty of the scheme, smaller companies who train small numbers of cadets each year are more likely join the scheme.
- Government will have better control on how taxpayer money is being used.
- The payments could be integrated with other systems for subsidising further education.

There are also some disadvantages:

- Unless this option is paired with administrative improvements, this will likely shift administrative effort to colleges which could impact on the cost of training.
- Currently SMarT provides sponsors with £18,156 per HNC cadet (or £22,716 per HND or FD cadet). On average academic courses cost £19,577 over three years (though some courses are significantly cheaper or more expensive). This option would be to cover the full cost of training. Therefore it may increase the cost to government. For many sponsors (particularly those providing HND or FD training), this is likely to reduce the overall cost of training making it more attractive to train in the UK. For those companies who sponsor HNC cadets, current training costs are likely to be lower than the current SMarT1 subsidy they receive. It is therefore possible that introducing this option will increase their training costs.
- It may increase costs by removing price competition for cadets between colleges.

Overall, while this option is considered realistic in the long term, further studies are required to understand the impact of its implementation on the number of cadetships offered by industry, and how costs to government will change.

10.5.2 Option D2: Remove SMarT but replace with an industry levy

10.5.2.1 Purpose

To provide an alternative funding mechanism to SMarT. (This is separate from the apprenticeship levy currently being introduced).

10.5.2.2 Details

This option is for the replacement of SMarT with an industry levy similar to that in the construction industry. A levy would be applied to all companies (shipping companies and maritime cluster companies) that benefit from the supply of trained seafarers. A 'minimum turnover' threshold would be applied to protect small companies.

10.5.2.3 Discussion

The effectiveness of this approach would depend on the following:

- It would be necessary to be able to identify the companies that benefit from seafarer training (noting the degree of benefit would vary). In particular it may be difficult to identify which maritime cluster industries should be included in the scheme.
- Gaining widespread acceptance of the levy may be difficult. The global nature of the industry may drive companies away from the UK and its employee base. The construction industry levy schemes were developed over a long period and met with opposition. This may result in long term damage to the maritime sector before it yielded useful results.
- Administering the scheme would need to be proportionate to the size of the industry and comparable to the cost of SMarT.
- It is acknowledged that the MGS (Mountevans et al) recommended the introduction of an Industry Levy. However, given the apprenticeship levy has been recently introduced, introducing another levy may be viewed negatively by the industry.

Overall, this option could provide additional funding for industry to provide training. However as apprenticeships and an associated levy are in the process of being introduced, it is considered that this may not be the best time to introduce an Industry Levy. This option should be kept under review.

10.5.3 Option D3: Remove SMarT and pass the cost of training onto cadets

10.5.3.1 Purpose

To remove the need for SMarT and reduce government expenditure.

10.5.3.2 Details

This option is for removal of SMarT and replacement with a student loan to align it with other further education in the UK. Most UK degrees require students to fund their own degrees using a low cost student loan.

10.5.3.3 Discussion

This approach has some benefits:

- Significant reduction in government expenditure.
- By reducing the administration required, smaller companies who train small numbers of cadets each year may join the scheme.
- The payments could be integrated with other systems for subsidising further education.

This approach also has some major disadvantages:

- Currently SMarT provides sponsors with £18,156 per HNC cadet or £22,716 per HND or FD cadet. On average courses cost £19,577 over three years (though variability is high: some courses are significantly cheaper or more expensive). This option will pass the full cost of tuition fees onto cadets. As with Option D1, for some sponsors (particularly those providing HND or FD training), this will is likely to reduce the overall cost of training making it more attractive to train in the UK (as the tuition fees they pay are higher than the current SMarT subsidy). However, for those companies who sponsor HNC cadets, tuition fees are likely to be lower than the SMarT1 subsidy they currently receive. It is therefore possible that introducing this option will increase their training costs. As more students qualify with HNCs than any other route, it is considered that the overall impact of this change will be negative,
- We found that around 2.5 qualified cadets apply to each cadetship on average. While this is healthy, there is a risk that introducing this option will reduce this number. Therefore this option would require a significant effort to attract suitably qualified applicants. The majority of students appear to have learned about the industry from family and friends. Very few seem to have been reached by publicity campaigns. Therefore, if the government passes the cost of training onto cadets, it is unlikely that the reduction in applicants could be counteracted using a recruitment campaign.
- Seafaring imposes physical and psychological demands. It is understood that a significant part of the 11% dropout rate in the first year is due to cadets discovering that they cannot tolerate life at sea. The risk that a cadet may fund themselves and then discover they are not suited to life at sea may be a deterrent in signing up for training.

Overall, it is considered that the risks posed by this option, both in terms of reducing the level of funding available to industry as well as reducing the applicant pool, mean this option should not be taken forward.

10.5.4 Option D4: Remove SMarT and change funding mechanism for officers to apprenticeships

10.5.4.1 Purpose

Provides an alternative funding approach to reduce government intervention and places control in hands of industry.

10.5.4.2 Details

This option is to replace SMarT with an apprenticeship for cadets. Review of apprenticeships was outside the scope of this study but it is noted that industry have been asked to look at this option, and there is a wider government initiative to develop apprenticeships (http://www.parliament.uk/business/publications/written-questions-answers-statements/written-statement/Commons/2016-10-25/HCWS214).. However, a brief overview has been taken.

10.5.4.3 Discussion

While the UK has a reputation as providing very capable seafarers, it is very expensive to train them here. Therefore to remain globally competitive, and retain the UK's share of the global seafarer pool, it is important to ascertain ways to reduce the cost of training to industry.

The option of introducing apprenticeships for cadet training would increase the cost to industry. Apprentices are legally classed as employees and as such qualify for benefits such as minimum wage (assuming a £7.20 hourly rate, at 40 hours per week, amounting to £15k per year), plus pension, sick pay, etc. Under the current scheme, cadets are paid a living allowance which is typically between £7,000 and £8,000 per year. Therefore the effect of transitioning to an apprentice based scheme is likely to significantly increase the cost of training officers. (For 1st CoC this is on average £59,150 over the three years minus the value of SMarT at £18,156 for HNCs or £22,716 for HNDs/FDs). An alternative subsidy may therefore be required to cover the difference between the current cost of training, and future costs via the apprenticeship route.

In addition it is likely that industry may negatively view such a fundamental change to the nature of funding, and the method of training, and this may reduce their demand for cadets until the system is well established.

We consider this could encourage shipping companies to train fewer cadets, and possibly encourage those companies paying tonnage tax to reduce the number of ships they have registered thereby reducing their tonnage tax Minimum Training Obligation.

It is noted that schemes for ratings apprenticeships are being launched and assessed. Differences between ratings and officers and how training should be organised may be an important consideration in deciding whether the apprenticeship model will work for cadets.

The specific issues surrounding the global training and employment environment for seafarers suggests that extending apprenticeships to cadets will require careful consultation before a decision is made and the outcome of the launch for ratings will provide useful information into this. Hence it is considered further review is required before this option is progressed.

10.5.5 Option D5: Bond Retention: incentivise cadets to stay with their sponsor

10.5.5.1 Purpose

To Incentivise cadets to stay in the industry and with the company that sponsored them following training.

10.5.5.2 Details

Singapore have a 'bond' retention of three years for students in training. The purpose is to ensure cadets provide value back to the industry that trained them for a period of time. In the UK some employers who fund high cost training have retention clauses for employment. (e.g. some accountancy firms have a 'golden handcuffs' clause in their contracts requiring them to pay back training fees for a number of years). The UK government has special powers to mandate UK armed forces to sign on for a fixed term.

10.5.5.3 Discussion

A government mandated bond scheme would not only tie a trainee to a sponsor, but would also force a sponsor to take on all cadets at the end of training. In practice this is not considered feasible, particularly as a large number of shipping companies use training management companies to operate their training schemes, and trainees often spend periods of time at sea with different companies.

A government imposed bond scheme would also increase the cost of training to industry meaning companies may be dis-incentivised from offering training in the UK.

Overall, it is not believed this would be a workable system within the current UK seafarer training system. However, it is noted that companies are able to impose their own bond scheme on cadets without government intervention if they feel this is useful.

11. Conclusions

SMart is a valuable incentive to industry. UK seafarers continue to represent good value for money with a benefit: cost ratio of £4.8:£1.

The cost of training to 1st CoC is (central estimate) £59,150. SMart1 provides about 30% of this.

SMarT and tonnage tax changes should be considered in combination.

A number of barriers to the transition of trainees from application to employment have been considered and options for overcoming them proposed.

Improvements in collection of data to monitor the health of the shipping industry would be beneficial to improve strategic decision making.

11.1 INTRODUCTION

The UK shipping industry remains a highly competitive market, and alongside the UK maritime cluster, is of significant importance to the economy.

The UK has historically been a significant player in the maritime sector, but its position is under threat for a number of reasons:

- The lower cost of training and employing seafarers abroad.
- Other countries such as Singapore are aggressively investing in industry, and providing financial incentives to attract shipping business.

A discussion of recommendations can be found in Chapter 12.

11.2 BARRIERS (OBJECTIVE 1)

This review has looked at the SMarT subsidy in the context of the transition of trainees, both officers and ratings, into a career in seafaring using the following 4 stages:

- Applying for training.
- Acceptance into training.
- Training and qualifying.
- Employment/ Demand by industry.

In addition wider ranging barriers associated with data and information management have been identified.

This study largely considers officer cadets as they comprise the majority of the SMarT and the barriers have been considered in this context. However, funding issues surrounding ratings have also been considered.

The key barriers to training we reviewed resulted in the following main conclusions.

11.2.1 Trainee Applications

It is believed that whilst there is not an immediate problem in attracting cadet numbers there is a continued need to promote the sector.

(See section 7.4 for details).

11.2.2 Acceptance onto training (Capacity for Training)

There are enough college places to meet current demand and there is some flexibility to increase numbers.

There are currently enough training berths available but there is limited spare capacity.

- Some companies have a limited number of training berths, and these are put under strain at particular times of year under current academic year arrangements.
- This strain will increase if there is an increase in requirement for trainees or if the tonnage tax scheme becomes less attractive when compared to international competition. (As vessels are withdrawn from the scheme and with it the berths required under the minimum training obligation the total number of berths will reduce).
- Around 10% of cadets leave training after the first sea phase. Improvements would allow sponsors time to find replacements who can begin training later in the year and also improve overall capacity should the number of trainees increase.
- Utilisation of berths varies across the year, with an average of 70% and reaching a minimum of 48%. Theoretically it is possible to increase the utilisation of berths using the same fleet. This could be achieved by planning college courses such that cadet sea time is more evenly spread over the academic year. Increasing the government training subsidy may also encourage companies to provide more berths.

Training costs (see also Section 11.3) are a significant factor in constraining the number of training places offered by industry. The UK cannot compete financially with nations with significantly lower labour costs. However, even other traditional seafaring nations with high quality training schemes are cheaper than the UK due to their higher levels of State investment, including general support for tuition fees for tertiary education. Reducing the cost of training to industry in the UK would almost certainly increase the number of trainee places (and training berths) offered by industry. Section 11.6 develops this discussion further.

Industry has shown that it is willing to accept between 700 and 900 cadets into UK training places each year and anecdotally indicated that they would be receptive to incentives to increase this. The UK trains more cadets than other European seafaring nations. However, there is a slight downward trend in the number of cadets entering training each year in the UK (Section 4.1.2.2).

(See section 7.5 for details).

11.2.3 Training and Qualification

The dropout rate of students from beginning training to the end of academic studies does not seem unduly high for an industry which places such significant demands on its labour force, where seafarers are away from home for long periods and may be unable to tolerate the physical demands.

SMarT payments are sometimes not claimed for cadets later in their training and this is not fully understood. Cadets may not complete training, or they may continue training without the SMarT subsidy for a variety of reasons (e.g. loss of company sponsorship). A specific industry example was that a proportion of students drop out after failing their final oral examination. It was not possible to confirm whether this is a prevalent issue and whether it represents students not claiming the SMarT subsidy or leaving officer training altogether.

Many companies plan their employment requirements between three and five years in advance. There was a view that government provide relatively short-term guarantees on SMarT funding. This timing is typically controlled by government budget review cycles, but longer term commitments may convince industry to provide more cadet places and increase confidence that they will receive funding towards training.

(See section 7.6 for details).

11.2.4 Employment / Demand for new seafarers by Industry

UK seafarers and the training system which produces them are well respected.

- Engineers are well respected and particularly sought after where the vessels are technologically advanced or in higher risk environments. Engineers arguably have more transferable skills than Deck Officers and this may result in higher employment turn-over. As a result some companies actively increase their training levels for engineers. It is considered more difficult, but not impossible, to get enough trainee engineers.
- ETO training is a relatively new option, but as yet not a compulsory requirement on many safe-manning certificates. Hence demand is not yet fully understood and opinion on future demand is divided amongst those we consulted.
    - Take up of training may be lower than is required to meet actual demand based on some industry views, although the SPR (Oxford Economics 2016) predicts a surplus over the next 10 years.
    - It is noted that the progression route for ETOs is currently limited, due to the absolute requirement for Chief Engineers to hold mechanically biased marine engineering qualifications. This situation could make the route less attractive to potential seafarers.

- Deck Officers are also well regarded particularly in positions where good spoken English support the company brand.

UK junior officers and ratings are at a disadvantage in the employment market as training costs and wage expectations are much higher than seafarers from other countries. This constrains demand for less experienced UK seafarers. Senior officers are much more employable as their wage expectations are broadly in line with seafarers from other nations, and their quality and leadership are highly respected by industry. This applies particularly for more complex and high risk job roles. English speaking seafarers are also particularly valued by some parts of the industry. It has been found that industry employ 84% of those that complete their training.

There is a lag between successful completion of oral examinations and the administration required to issue the CoC. This delay can impact the chances of securing employment immediately after completion of training, for those who do not get employment with their training sponsor.

(See section 7.7 for details).

11.2.5 Data and Information Management

During this review we have been unable to find consistent and integrated management level information about the progression of trainee ratings and cadets. It is our view that better data management of the progress of trainees and seafarers is of high importance, regardless of what decisions are made about maritime training support.

11.3 COST OF TRAINING AND SMART CONTRIBUTION (OBJECTIVE 1)

The average cost of training an officer is £59,150 including the cost of training allowance (or £34,962 excluding it) (section 5.2).

The SMarT scheme provides a subsidy of £18,156 towards HNCs through SMarT1, and £22,716 towards HNDs or FDs through a combination of SMarT1 and SMarT2 funding. The real terms contribution of SMarT has declined in recent years as costs have increased.

Many larger companies operate international training schemes and companies have indicated to us that they would consider a shift to more UK training if costs were lower.

Some companies, particularly those who had smaller cadet numbers (such as smaller companies) commented that the effort to meet the administrative requirements to claim SMarT was disproportionate.

11.4 ALTERNATIVE APPROACHES (OBJECTIVE 2)

11.4.1 Other Seafarer training schemes

Direct comparison of the UK approaches to seafarer training with those undertaken by other Nations is difficult, as the differing approaches are a reflection of the way the profession has developed in each country.

SMarT funding is insufficient to cover the current average cost of tuition in the UK. For the national schemes reviewed in this study, Western European countries cover 100% of tuition costs and contribute towards training allowance. Key competitors in Asia have similarly competitive schemes. Assessing the value of the subsidies and the costs seen by a sponsoring company, the UK is a significantly more expensive location to train than the other countries considered.

The qualities offered by UK trained seafarers are not unique and whilst produced by systems that differ, most western European and former commonwealth countries (such as Hong Kong and Singapore) can produce a similarly qualified officer legally able to conduct the duties of an OOW in merchant ships. Shipping companies can, and do, train across nations to meet their manpower requirements and meet their regulatory obligations.

Nevertheless, the Minimum Training Obligation under tonnage tax and SMarT funding appears to be a good combination as the pipeline of cadets and trainee ratings is still reasonable despite the levels of SMarT funding being less competitive than our main rivals. However, the number of companies registered under tonnage tax is declining and further reduction from the current level of subsidy will further diminish the UK's competitiveness, which we believe will lead to a reduction in numbers.

(See section 8 for details).

11.4.2 Other UK industries

Industrial Training Boards, cadet apprenticeships (though not in the scope of this review) and student tuition fees have been reviewed at a high level in the context of their relevance to SMarT.

All of these schemes have some merits. They may shift costs away from government and harmonise policy; however they carry risks. Detailed industry consultation and costings will be necessary to establish whether they are viable. This process is underway for rating apprenticeship programmes and more schemes are being launched. Further review of training boards, apprenticeships and tuition fees will be difficult during the period of flux whilst schemes are established and tested.

In maritime the market for labour is highly international. By comparison, in many other industries, there are indirect barriers which restrict the employment of non-UK personnel. These include security restrictions for non-UK personnel, difficulties obtaining visas for non-UK personnel and gaining accredited qualifications for non-UK individuals. These barriers do not exist in seafaring, making it much easier to employ non-UK labour, at the expense of the UK.

(See section 9 for details).

11.5 VALUE FOR MONEY (OBJECTIVE 3)

The assessment of value for money (Chapter 5) has shown that UK seafarers continue to represent good value for money compared with an overall average UK worker. The central estimate for the benefit to costs ratio was that for every £1 spent by the government there was a £4.8 return to UK GDP.

11.6 THE EFFECT OF GOVERNMENT INTERVENTIONS (OBJECTIVE 3)

11.6.1 Introduction

As a result of our review we explored a number of options which were grouped as follows:

- **Retaining the existing scope of SMarT** but looking at the effect of funding changes. (Options A1 to A4 in section 10.2 refer). Section 11.6.2 and 11.6.3 describe our conclusions.
- Secondly options for **changing the scope of SMarT.** (Options B1 to B7 in section 10.3 refer). We concluded some minor changes to technical details of SMarT should be considered. In particular we found further work pertaining to ratings training would be pertinent and this is discussed in section 11.9.
- Thirdly options for **altering the focus of SMarT.** (Options C1 to C3 in section 10.4 refer). We concluded that integrated management level information about progression of seafarers was not available. Improvements to administration and data collection should be made.
- Fourthly a discussion of **fundamental changes** (Options D1 to D4 in section 10.5 refer). We identified that there were no large scale changes needed to SMarT. However, some wider government policy initiatives (apprenticeships, student loans) are relevant and should be monitored.

Details of recommendations can be found in Chapter 12.

Tonnage tax is not a part of the scope of this review but the Minimum Training Obligation is closely linked with SMarT. For this reason a discussion of tonnage tax can be found in section 11.8.

11.6.2 Industry view and their response to a change in the SMarT subsidy

During our review, the shipping industry and the trade associations have taken a firm stance that the cost of training in the UK is very high compared with other nations, and that there would be a significant reduction in trainees if SMarT was not in place. Conversely the industry has suggested that increasing funding could boost training numbers.

As the industry is highly diverse, it is not possible to forecast how the industry as a whole might respond to an increase in the SMarT subsidy in a study of this size. Shipping companies vary in terms of their scale and service offering.

However our review did not find sufficient information to establish a robust relationship between the size of the subsidy and the number of seafarers trained. Further work would be needed to understand how different companies make commercial decisions over training and recruitment. Variables include:

- Related incentives (e.g. tonnage tax).
- Training and employment (wage/non-wage) costs compared with national competitors (noting possibility of sudden unpredictable changes in policy, operations etc).
- Quality, risk and high tech industries: differences in skills required for subsectors (e.g. cruise vs cargo).
- Softer issues such as perceived quality of a nation's trainees and seafarers.
- Strategy for employment decisions & development planning: Allowing for how companies currently distribute training across nations, the need for local labour in certain roles, desirability for English speakers.
- Economic cycle, and exchange rates.

Nevertheless, Figure 32 graphically shows the arithmetic relationship between government subsidy per cadet and total payments for SMarT1 only, ignoring the effect of possible market reactions to changes in subsidy per cadet. This is for a range of subsidy levels (as a percentage of the calculated industry cost of training) and provides an indication of the budget required. (From section 4.1.4, SMarT1 represents about 91% of the total SMarT payments over the period 2011/12 to 2015/16).

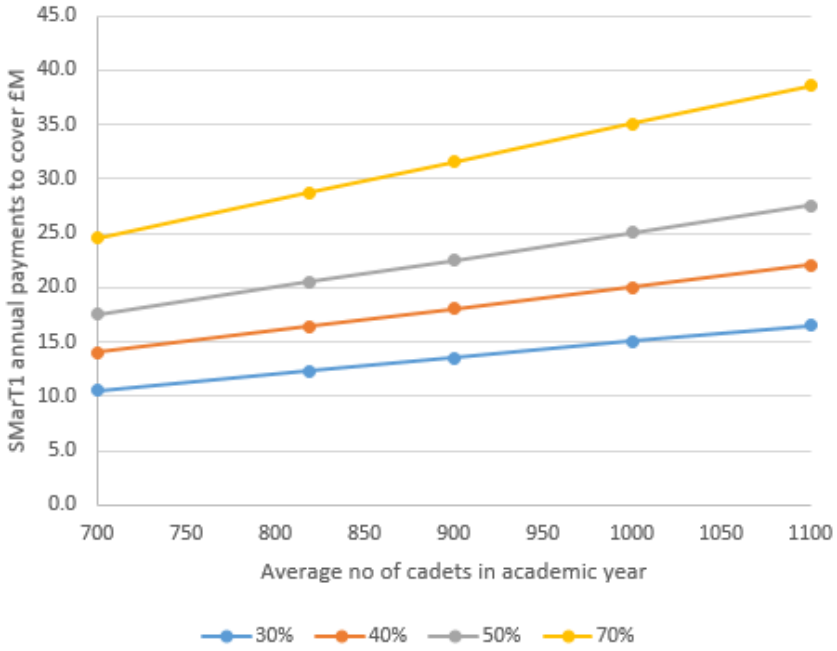


Figure 32: Relationship between government subsidy per cadet and total SMarT1 payments for a range of subsidy levels (as a percentage of the calculated industry cost of training).

Note, Figure 28 (Section 10.2.2.3) describing Option A2 is a similar table but describes the relationship in terms of total SMarT budget rather than only SMarT1.

11.6.3 Value for money per cadet versus longer term benefits

Increasing the SMarT subsidy will not necessarily improve value for money which is a function of government cost and productivity. The cost and productivity are influenced by a number of variables including:

- Government (public) costs and industry (private) costs.
- Employability.
- Dropout rates.
- Progression into other careers (in the maritime cluster, non-SMarT subsidised areas of shipping, completely unrelated jobs).

However, increasing the subsidy per cadet may create wider, long-term benefits to the shipping industry and related sectors by improving the health of the maritime sector through increased training/employment numbers.

Government intervention in improving/facilitating the management of systems will increase the efficiency of the system, and may result in increased training. This may not increase the value for money of training an individual cadet but will support the overall maritime sector. Examples

of this type of intervention include improved data management and helping to improve berth utilisation through course design. The MCA have a key role in this.

11.7 THE IMPACT OF SMART ON THE MARITIME SECTOR (OBJECTIVE 4)

The economic impact of SMarT can notionally be considered as divided between the career of a seafarer at sea and their subsequent career if they take up employment ashore.

Whilst clearly seafarers are trained for their initial seagoing roles a significant element of the through life productivity of a seafarer occurs after they have qualified and worked at sea. This is discussed in section 5 (and Annex A). However it is difficult to quantify the total benefit of a seafarer as there is no 'typical' career path (section 6.1.1) and there is a lack of formal evidence on the destination of seafarers after leaving roles at sea.

Anecdotally it appears ex-seafarers are most likely to take up roles associated with the maritime sector. The value for money assessment carried out was based on the assumption that after finishing work at sea, seafarers continue to generate productivity benefits for the UK economy through a role onshore within the maritime cluster or in equally productive roles outside it using the experience accrued.

The effect of SMarT on the maritime sector is judged on the following factors:

- Historically the introduction of SMarT and tonnage tax had an important impact in reversing the decline in training (Deloittes 2011).
- Removal of SMarT (option A4, section 10.2.4.3) is likely to result in a significant drop in the number of trainee seafarers of anywhere between 170 and 425 cadets (leaving 680 to 425 trained per year from an intake of 850).
- The SMarT scheme provides good value for money as the training subsidy provides comparatively productive UK citizens as evidenced by the benefit: cost ratio of £4.8:£1 (Section 5.5).
- The Seafarer Projections Review forecasts that there will be a shortfall in meeting the expected needs of the UK shipping industry, which could be met by increasing the inflow of newly qualified UK officers by UK investment in training or further increasing the employment of non-UK officers. It is likely that without SMarT the pool of seafarers to support the maritime cluster would decline. In the face of competition from other countries, particularly Singapore, UK presence would be eroded both at sea and within the maritime cluster.

Overall, it is difficult to accurately quantify the impact of SMarT, particularly in the light of the relationship between SMarT and tonnage tax. However, the combination of the high benefit: cost ratio and the counterfactual argument suggests that SMarT has a significant positive effect on the maritime sector.

This highlights a need for a fuller understanding of where former seafarers go and how they contribute to the UK economy.

11.8 TONNAGE TAX

The tonnage tax scheme is used to incentivise industry to provide seafarer training in the UK. In order to qualify, a shipping company must train one cadet, or two rating to officer conversion trainees, or three ratings each year for every 15 officers.

The importance of the tonnage tax training requirement to maintaining the training pipeline should not be underestimated. Tonnage tax companies provide approximately 1800 berths per year. It is interwoven with the SMarT scheme so that any change to one will impact on the other for any company enrolled in both schemes. If more ships operate under tonnage tax, then more sea berths will be offered by industry and more training will take place. Conversely tonnage tax without SMarT is less attractive to ship owners who have the freedom to move to a more generous system (e.g. under another nation), either by opting out of tonnage tax entirely, or by reducing the number of vessels registered on the scheme.

Similarly, as other nations introduce new incentives and compete to attract industry to their country, it is anticipated that the UK tonnage tax scheme will become relatively less competitive (assuming it does not change in response). As a result the number of available berths will fall having a knock on impact on training.

It is understood that companies can remove ships from the UK tonnage tax scheme relatively easily compared to some other nations' schemes. Our consultations identified that equivalent schemes offered by other countries may include more severe penalties for companies that opt to exit.

11.9 RATINGS

Most of this review has been focussed on officer cadet training, but our studies have raised some important points relating to ratings (see also section 10.3.5, Option B5).

- Ratings are essential for the safe navigation of vessels. Maintaining a pool of skilled ratings is therefore important if the UK is to maintain its ability to make strategic decisions regarding shipping. Furthermore, it is considered important to maintain the rating skill base in order to ensure the government has manning flexibility should national defence and security considerations require.
- Clearly if the UK is to maintain a balanced maritime labour force, ratings with skill and experience in both coastal and deep water operations will play an important part. Currently, outside the RFA and some ferry companies, most UK ratings are over the age of 45 and in many cases they are approaching retirement. Our consultation suggests that senior British ratings in employment are highly valued, and their employers are considering how best to replace them. However the availability of low cost labour

internationally makes it difficult for UK ratings to compete for opportunities and gain experience to progress to the more senior levels.

- A significant amount of effort is underway under the apprenticeships initiative to provide a well-structured and considered training scheme. Such arrangements once proved and accepted should provide a highly skilled seafarer who can capitalise on the reputation of senior UK ratings. However, the employee status and associated cost of the apprenticeship approach may not be appropriate for all companies who wish to consider training ratings as part of their tonnage tax obligation.
- The 2015 tonnage tax amendment currently being piloted allows companies to train three ratings (or two rating to officer conversion trainees) in place of one cadet per 15 officers under the tonnage tax minimum training obligation.
    - Based on the suggested length of training on the MNTB website, taking the option to train three Able Seafarers requires a company to commit to a total of (3 x 24 =) 72 months of training as opposed to approximately 36 months required to train a cadet. This places additional pressure on available sea berths.
    - It is noted that Able Seafarer training is excluded from SMarT funding and this may deter companies who would be prepared to sponsor rating trainees but not take them as apprentices, with the additional employment cost that this brings with it. Allowing ratings to train either as apprentices or as a sponsored trainees with SMarT support would provide greater flexibility in achieving the objective of increasing the numbers of trained rating seafarers. Opening the tonnage tax scheme to watch rating trainees would provide further flexibility in the system.
    - There appears to be some misunderstanding regarding the implementation of the ratings option for the Minimum Training Obligation under tonnage tax (based on differences in consensus we found between the stakeholders we consulted).

In the short term the ratings training approach could be significantly improved by:

- Clarifying the tonnage tax Minimum Training Obligation for ratings with trade bodies and industry.
- Increasing the level of funding available per rating trainee and broadening funding to encourage progression to more senior ratings levels. Experienced British senior ratings are highly regarded by industry and this may strengthen the UK's ability to provide high quality senior ratings. However further work is required to develop this case.
- Opening the tonnage tax requirement to allow for training of ratings in addition to Able Seafarer to count towards minimum training obligation.

11.10 OVERALL

- Overall the concept of SMarT provides a subsidy that predominantly targets officers through initial training.
- The arrangements for ratings training are over complex and we believe need to be clarified or reviewed.
- SMarT is a valuable incentive for industry to train officers in particular. However, its value in real terms is falling. If there is a need to change the number of cadets being trained, SMarT funding is an important tool to influence numbers but the effect of tonnage tax also needs to be taken into account.
- Collection and management of data to support decision making and develop targets would be of clear benefit. This could also be used to allow government to state a target level of training to provide leadership to the maritime sector. Improvements to its administration and the type of data that is collected could be used as a mechanism to better understand the market. Clearly any change needs to be widely briefed explaining the purpose of change.
- The current productivity of seafarers through their career is higher than average UK workers and the level of government subsidy provides a good return on investment. UK seafarers, particularly at senior grades are highly regarded as trustworthy, and bolster the UK's reputation for high quality labour. Where vessels are technically advanced and/or in hazardous environments, experienced and good quality engineers and Deck Officers are valued internationally.
- It is considered that SMarT continues to have an overall positive impact on the maritime sector.

12. Recommendations

A number of recommendations are made and explained based on the conclusions in Section 11.

Recommendations address funding, data management, administration, technical improvements and significant longer term changes.

Some recommendations for further study are also made.

12.1 OVERVIEW

This section discusses a range of recommendations for SMarT.

The UK seafarer population is declining at a time when the global seafarer requirement is increasing. This coincides with the following salient trends:

- SMarT is making a declining real terms contribution to training costs.
- Seafarer training continues to provide good value for money with an overall benefit: cost ratio of £4.8:£1 (section 11.5)
- Other countries are offering improved incentives to industry to train there.

The government recognises that UK seafarers and the standard of training in the UK provide a strong foundation for the UK's maritime sector and are fundamental to maintaining or increasing its growth. However SMarT funding has not been reviewed since 2011 and it is timely that an updated case is made for the value to government of the subsidy. This study sets out our findings and provides recommendations under the following sections:

- Section 12.2: Short term changes to SMarT (with reference to the options detailed in Sections 10.2 to 10.4). These are based on what we understand to be key decisions at policy level; i.e. reduce, maintain, or increase SMarT funding and any need to increase the number of trainee seafarers.
- Section 12.3: Improved management data (options discussed in section 10.4.2).
- Section 12.4: Longer term considerations for SMarT (options discussed in section 10.5).

The sections present each recommendation followed by a brief explanation. Section 12.5 summarises the recommendations.

12.2 CHANGES TO SMART IN THE SHORT TERM

Recommendations are described below under the following headings:

- The level of SMart subsidy paid for each officer trainee.

- Other ways to reduce the cost of training to industry.
- SMarT Plus.

Overall it is unlikely that the government could remove, reduce or maintain the current level of subsidy and simultaneously drive an increase in the number of UK seafarers, unless other significant incentives to industry were made.

12.2.1 The level of SMarT subsidy paid for each officer

Recommendation 1 (Priority – Very High):

The SMarT subsidy provides good value for money and should be retained as an important mechanism to develop officers and ratings. The SMarT subsidy should be increased if training numbers are to be increased.

This recommendation is separated into two pathways as follows:

- If the desire is to maintain a similar number of trainees to current numbers, then the SMarT subsidy should be retained at >30% of the cost of training to industry (this will require an inflationary increase to remain steady).
- If the desire is to increase the numbers of trainees then the SMarT subsidy should be increased to reduce the cost to industry.

There is a clear indication that industry considers the cost of training seafarers in the UK to be high and this is supported by our comparisons of the UK with other nations. The global nature of the maritime industry enables companies to move training to other nations with relative ease and the cost of training and employment are influential in their decision making. This poses a risk that the number of cadets entering the UK training system will reduce.

In the review we looked at several subsidy options:

- One option is for the removal of SMarT with no replacement. We believe this would result in a significant reduction in the level of training of UK seafarers. Option A4 in Section 10.2.4 of this report suggests it would result in a decrease of between 170 and 425 cadets (leaving 680 to 425 trained per year) from an intake of 850. We do not recommend this approach.
- Option A1 in Section 10.2.1 describes the position where SMarT remains at its current level of subsidy compared to the cost of training and includes an inflationary rise. It is believed this approach may result in a static or falling number of UK Officer

Cadets. Perhaps more significant, it carries the risk of a decline as a result of other countries increasing their competitiveness compared to our own.

- A sub-option of this approach would be to keep SMarT's contribution to industry at current levels without periodic increases to account for inflation or other increases in training costs to industry. In this case clearly any rate of decline would increase.
- The most obvious and most direct mechanism for influencing industry to increase the number of seafarers in the UK, and to maintain or increase the UK's share of the global seafarer population, is to increase the training subsidy. The industry stakeholders we consulted were consistent in the view that this would increase the number of UK cadets they trained (section 11.3). The subsidy has been close to 50% in previous years.

On this basis we suggest SMarT should increase to compete with other Northern European competitors (who, in addition to providing maritime training subsidies, also more generally cover the full cost of university education). However, although we are confident of an overall positive trend, (Option A2, section 10.2.2) there is insufficient analytical data to accurately predict the relationship between funding level and the number of cadets industry will train (elasticity of demand). To give an evidence-based recommendation correlating these variables would require further work (as discussed in section 11.6.2). (See Recommendation 2).

Recommendation 2 (Priority - High)

Carry out further work to understand how different maritime companies make commercial decisions over training and recruitment to help set future levels of subsidy.

There is not sufficient information to understand the relationship between the size of the SMarT subsidy and the number of seafarers trained (Recommendation 1). However, the number of variables (see section 11.6.2) makes it extremely difficult to establish a robust relationship.

The UK government and the shipping trade bodies already work closely together. It is suggested this is capitalised on by taking a collaborative approach to understanding the commercial decision making process. This would involve formulating arrangements for 'reciprocal commitments' and relating subsidy with performance (i.e. training and employment numbers). An honest and flexible approach would need to be developed with a strategy board being a possible approach.

An industry survey may contribute to this but careful design is needed to mitigate the risk that survey responses and actual behaviour do not align, and to ensure that detailed numerical data is obtained. It is also necessary that any predictable changes in circumstances that might influence the actual response to a change are understood.

12.2.2 Other approaches to reduce the cost of training to industry

There are a number of other areas where the cost of training to industry might be reduced through improved efficiency or changes in the way the SMarT subsidy is used. These may have the effect of increasing training numbers by enabling UK training to become more competitive.

Recommendation 3 (Priority - Medium):
Review the options for improving administration of the scheme.

Administration of the SMarT scheme is understood to be complex and expensive for industry compared with some other countries and systems. It is believed smaller companies are most affected due to a lack of economies of scale. (Option C1, section 10.4.1). Some discussion with industry will be required to understand specific concerns followed by implementation of improvements.

Recommendation 4 (Priority- Medium):
Review options for making changes to the payment scheme to reduce drop-out rates and reduce unnecessary industry costs.
This includes:

- **Bringing forward the 1st instalment of SMarT 2 for those cadets enrolled on FDs (to better align it with when the training is delivered).**
- **Continuing to fund cadets who fail their final oral exam first time (for a short period by drawing down on the SMarT 1 final payment).**

Recommendation 4 is suggested to reduce the financial impact to industry of FD students dropping out of their course before achieving their first Certificate of Competence. The SMarT 2 1st instalment payment would be paid when the academic training has taken place (usually early in Phase 1). The SMarT 1 payment would be retained at the end of training to incentivise industry to continue their sponsorship until cadets are certified (Option B7, section 10.3.7).

Recommendation 4 is also suggested to reduce the proportion of people who drop-out after failing their final oral examination. The final SMarT payments are changed to allow continued weekly support for cadets who need to retake the final oral examination by bringing forward part of the final SMarT1 payment. When they pass, the remaining money is paid to the sponsor. This will mitigate against cadets being unsupported and dropping out of the scheme (Option B3, section 10.3.3).

Recommendation 5 (Priority - High):
Review the options to optimise the utilisation of berths through changing the phasing of college/ sea time and potentially introducing a third annual intake.

Currently training berths are utilised approximately 70% of the time over the course of a year, and training is limited by their unavailability at certain points in the year. This imposes a limit on the maximum number of trainees. If training was spread more evenly across the academic year, it could have a significant positive impact on the UK's ability to provide training places. A detailed review is required to establish how this should be achieved. Approaches may include changing the start dates of courses and increasing the number of intake cohorts per year. This will require liaison with the MCA, colleges and industry to better understand the options and viability. (Option B4, section 10.3.4).

If the number of UK trainee seafarers is to increase, optimising berth availability will be an important part of meeting the demand.

Recommendation 6 (Priority - Medium):
Where possible within government processes, provide industry with long term funding commitments for SMarT.

Shipping companies face some uncertainty regarding the future of the SMarT funding when making strategic decisions about training and employment. It is recognised that government funding cycles are normally set to three years which limits the scope for change (although in recent years SMarT has been set for one year at a time). However, longer term commitments may convince industry to provide more cadet places. (Option C3, section 10.4.3).

Recommendation 7 (Priority - High):
Review and refine the training scheme for ratings to ensure a flow of high quality seafarers.
We recommend the following.

- **Raise the funding per rating trainee (for watch ratings & general purpose ratings) to provide an incentive for industry to increase training numbers.**
- **A clarifying note should be sent to trade bodies and companies claiming tonnage tax, explicitly illustrating the option in tonnage tax of replacing cadets with trainee ratings. This could be by using a worked example, stating the preferred training pathway, stating the implications for at-sea training (e.g. greater provision of berths required) and highlighting the available funding.**
- **SMarT funding should be made available to facilitate the professional development of ratings to more senior rating roles (i.e. in addition to the rating to officer conversion). Experienced British senior ratings are highly regarded by industry and this will strengthen the UK's ability to provide high quality senior ratings. This will require further work in consultation with trade bodies to develop this case.**
- **Whilst tonnage tax issues lie outside the scope of this review, we suggest that consideration be given to allowing more flexibility within the rating tonnage tax option than the current restriction to Able Seafarers (for example, extend to watch ratings and general purpose ratings). The Post Implementation Review after the initial trial of the tonnage tax Minimum Training Obligation for ratings should consider the type of ratings training covered and the most appropriate rating: officer ratio.**

The arrangements for ratings under SMarT should be updated.

Ratings are an essential component of the maritime labour force. There is general consensus that whilst a direct value for money argument for ratings cannot be made, they are a fundamental element of the manpower required for the safe operations of vessels of all sizes and trades (section 11.9). Ratings also provide an additional source of officers via conversion courses.

Experienced UK ratings are highly skilled and remain valued and in demand. However, clearly it is necessary to expend effort to develop juniors to gain experience. The very low wages accepted by the seafarers of many nations such as the Philippines makes the development of a robust business case for employment of those UK ratings with less experience extremely difficult. Without significant incentives companies are unlikely to voluntarily train UK ratings

where they have no pressing business reason to do so. Hence there is a risk that the UK will progressively lose its core base of UK national senior ratings.

Given the current demographic profile of the UK rating pool it is suggested that quick action is required. The SMarT subsidy provides a lower proportion (compared to cadets) of the training cost to industry and there are multiple training paths, so it is difficult for industry to make defensible training decisions (section 11.9).

This recommendation addresses the following specific issues relating to ratings:

- It is estimated that currently SMarT only subsidises 10-15% of the training costs, compared to 30% of officer training. (Option B5, sections 10.3.5 and 11.9). Raising the subsidy to 30% would align with the current officer cadet level. Based on the best evidence made available (the cost of training ratings expressed in the Mackinnon report commission by RMT in 2014) this would be in the region of £4,452 per individual watch rating (30% of £14,840). Further work will be required in consultation with trade bodies to develop this case.
- The option in tonnage tax of replacing cadets with trainee ratings is currently not widely exploited.
- Experienced British senior ratings are highly regarded by industry. Using SMarT funding to facilitate the professional development of ratings to more senior rating roles (i.e. in addition to the rating to officer conversion) will strengthen the UK's ability to provide high quality senior ratings. This will require further work in consultation with trade bodies to develop this case.
- Able Seafarer training is excluded from SMarT funding and this may deter companies who would be prepared to sponsor rating trainees but not take them as apprentices.

12.2.3 SMarT Plus

We note the separate detailed proposals being prepared for 'SMarT Plus' by the shipping industry. A fully mature proposal was not available at the time of this report but we are able to make preliminary comments based on our current understanding. These can be found in section 10.3.8.

Overall, we believe further evidence is necessary that SMarT Plus will provide value for money and ensure that any employment links include requirements for further training.

12.3 IMPROVED MANAGEMENT DATA

Consistent and integrated management level information about the progression of trainees and seafarers is of high importance.

Recommendation 8 (Priority - High):
Introduce an industry database to collect data from colleges and sponsors to track trainees and seafarers throughout their careers.

It is important that the government has a detailed understanding of how cadets move through the seafarer pipeline (Option C2, section 10.4.2). Tracking of trainees may help locate system failures and help resolve them.

Improvements will have the following benefits:

- Providing more accurate information about the status of training and employment of UK seafarers would allow more accurate analysis of SMarT's Value for Money.
- Tracking seafarers will allow the success of government aims to be measured with respect to employment in the shipping industry and maritime cluster.
- Tracking seafarers through their careers will provide a better understanding of their numbers at each grade and role, and to understand when they come ashore, as well as their salary levels.
- Tracking seafarers will provide information about the changing nature of the role of seafarers and how training should be changed in response, including the relative numbers of ETO's, engineer, and deck officers.
- It will produce accurate information regarding drop-out rates for colleges, courses and industry sponsors and it may then be possible to develop other initiatives with confidence.
- Administration and continuous improvement. Improved support to training and better data management to track trainees may help system failures to be identified and resolved.
- In summary it will provide good quality statistically robust data on which to base policy decisions about support to the maritime sector.

It is understood that trade associations already capture some of this information. It may be useful to use this as a starting point to integrate management information, and the government may find that is appropriate to work with them to develop an industry-wide data repository.

We recommend development of better management data about the careers of trainees and seafarers, regardless of what decisions are made about maritime training support.

Whilst this approach will provide a sound basis for future decisions it is noted that there is a significant shortfall in information about where seafarers are employed once they come ashore, whether in the maritime cluster or other sectors. This appears to be a significant shortfall in understanding the value that seafarer training provides. This issue was highlighted in our

review (section 6.1.1) of the Seafarer Projections Review (Oxford Economics 2016). Recommendation 9 is made in this regard.

Recommendation 9 (Priority - Medium):
Carry out further work to improve understanding of where former seafarers continue employment when they come ashore.

There is limited information about the career paths ex-seafarers within the maritime cluster, and outside it. Improved information would improve future productivity calculations, improving industry and government's ability to make strategy and policy decisions about training and employment. However further study will require careful design to produce useful information (section 12.3). It will build on:

- The Seafarer Projections Review (2016).
- The UK Chamber of Shipping Manpower Survey.

It is likely to require consultation with membership organisations and will need to consider a top down (shipping industry consultation) approach as well as bottom up (Seafarer consultation) approach.

The database identified in Recommendation 8 should be constructed to facilitate collection of seafarer career paths in the future.

12.4 LONGER TERM CONSIDERATIONS FOR SMART

We have considered longer term options which the government could investigate if the desire is to reduce or remove the SMarT subsidy, while also providing industry with reduced training costs. In particular:

- Modifying SMarT to pay college fees directly. This would reduce the level of reporting and administration required from industry. It may therefore encourage smaller companies to train cadets through SMarT. It would also mean government have better control of how SMarT money is being used. It should be noted that while those sponsors who train cadets via the HND/FD route, are likely to see a reduction in training costs, those who train cadets via the HNC route may see an increase in training costs. Therefore consideration is required on how to ensure that this option does not have the unintended effect of increasing training costs to certain parts of industry. This option would also shift administrative work to colleges and consultation with colleges is required to establish whether they can absorb this. Further investigation on the effect on other stakeholders (including applicants and cadets) will need to be considered in detail. The

timescales and costs associated with transitioning from the current system of seafarer training to this should also be considered. (Option D1, section 10.5.1).

- Industry levy. An industry levy was recommended by the Maritime Growth Study (Mountevans et al) but has not yet been taken forward. It is considered that whilst the apprenticeship levy is being launched there is too much uncertainty to develop an industry levy as well. (Option D2, section 10.5.2). Further work is required.
- Apprenticeships for cadets. Review of apprenticeships was outside the scope of this study (although reviewed at high level in Option D4, section 10.5.4) but it is noted that industry have been asked to look at this option and there is a wider government initiative to develop apprenticeships (http://www.parliament.uk/business/publications/written-questions-answers-statements/written-statement/Commons/2016-10-25/HCWS214). Further work is required.

No final recommendations are made regarding these longer term considerations as we believe new work will not be appropriate until current changes, including the launch of apprenticeships have been evaluated.

12.5 SUMMARY OF RECOMMENDATIONS

This review shows that the wider economy gains significantly more from qualified officers than it contributes to their training. Without increased levels of government intervention, the UK seafarer population will continue to decline. There is also a strategic defence requirement for qualified seafarers which must include skilled ratings.

If the downward trend in the size of the UK seafarer population continues, it will be detrimental to the economy and defence interests of the UK. Therefore the authors support increasing the number of seafarers in the UK.

We have made a number of more detailed recommendations. Our recommendations are summarised below.

Recommendation 1 (Priority- Very High): The SMarT subsidy provides good value for money and should be retained as an important mechanism to develop officers and ratings. The SMarT subsidy should be increased if training numbers are to be increased.

Recommendation 2 (Priority High): Carry out further work to understand how different maritime companies make commercial decisions over training and recruitment to help set future levels of subsidy.

Recommendation 3 (Priority- Medium): Review the options for improving administration of the scheme.

Recommendation 4 (Priority - Medium): Review options for making changes to the payment scheme to reduce drop-out rates and reduce unnecessary industry costs.

Recommendation 5 (Priority- High): Review the options to optimise the utilisation of berths through changing the phasing of college/ sea time and potentially introducing a third annual intake.

Recommendation 6 (Priority- Medium): Where possible within government processes, provide industry with long term funding commitments for SMarT.

Recommendation 7 (Priority- High): Review and refine the training scheme for ratings to ensure a flow of high quality seafarers.

Recommendation 8 (Priority- High): Introduce an industry database to collect data from colleges and sponsors to track trainees and seafarers throughout their careers.

Recommendation 9 (Priority- Medium): Carry out further work to improve understanding of where former seafarers continue employment when they come ashore.

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Glossary of key terms

Term	Description
Active seafarers	Seafarers who work on a registered vessel in a regular seagoing capacity
Additionality	The extent to which new economic activity (measured as jobs, income and production) adds to existing economic activity rather than replaces it.
Cadets	A trainee officer.
Certificate of Competency (CoC)	In the UK, these are certificates issued to seafarers following a successful assessment and examination. The required standards of competence are set out by the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers 1978 plus amendments. 1st CoC is the first level of qualification, gained from a cadetship. 2nd CoC requires further study and allows an experienced officer to work at more senior ranks (e.g. Captain).
Certificate of Equivalent Competency (CEC)	In the UK, certificates issued by the MCA to seafarers of non-UK countries to allow them to work as officers on UK registered-ships. The Maritime and Coastguard Agency (MCA) checks that applicants for CECs are qualified to the same standards as holders of UK CoCs.
Counterfactual	A hypothetical measure of what would have happened in the absence of a policy intervention or event.
Deadweight (economics)	The proportion of total outputs/outcomes that would have been secured without the investment in question.
Deadweight Tonnage (DwT)	A measure of how much weight a ship can safely carry. It is the sum of the weights of cargo fuel, fresh water, ballast water, provisions, passengers and crew. It is expressed in long tonnes of 2,240 pounds (1,016 kilograms).
Demand for seafarers	The requirement by the shipping industry for individuals to work at sea.
Demand for ex-seafarers	The requirement by the maritime cluster for individuals with a seafaring background.
Ex-seafarer	Individuals who previously worked at sea, but now work outside the shipping sector (either in the maritime cluster or elsewhere).
Foundation Degree (FD)	A level of qualification above HND which not only covers the courses required to gain 1st CoC, but also covers a portion of the requirements for 2nd CoC.

Flag state	International law requires that every merchant ship be registered in a country. The country in which a ship is registered is called its flag state. A ship operates under the laws of its flag state.
Free rider issue	An example of market failure, where an individual, or a group of individuals, consume or pay less than their fair share of the cost of a common resource.
Higher National Certificate (HNC)	The level of qualification required to gain a Certificate of Competency
Higher National Diploma (HND)	A level of qualification above HNC which not only covers the courses required to gain 1st CoC, but also covers a portion of the requirements for 2nd CoC.
Maritime cluster	The maritime cluster includes activities that support the maritime sector onshore. It includes ports, maritime research, training, legal and financial services. It is based onshore.
Maritime sector	The shipping sector and maritime cluster combined.
Market failure	Where the operation of a free market does not result in the optimal allocation of resources.
Maritime and Coastguard Agency (MCA)	The UK agency responsible for implementing the government's maritime safety policy and preventing the loss of life on the coast and at sea. Of importance to SMarT is they produce legislation and guidance and provide certification to seafarers.
Merchant Navy	The name given to the UK's commercial shipping sector.
Officer	Members of a ship's management. They typically work in two departments – Deck (also known as navigation) and Engineering.
Offshore	Activities carried out at sea.
Onshore	Activities related to the maritime sector carried out on land.
Open Register	Registering a ship in a different sovereign state from which the ship-owner is based (sometimes referred to as Flag of Convenience).
Rating	Member of a ship's crews. Assist officers across all departments.
Seafarer	Individuals who predominately work at sea, including cadets/ trainees, usually in the shipping, energy and leisure shipping segments of the maritime sector. Includes ratings/officers and UK/non-UK seafarers.

Shipping sector	The part of the maritime sector that is concerned with the carriage of goods and passengers.
Standards of Training, Certification and Watchkeeping (STCW)	Basic qualification standards for masters, officers and watch personnel on merchant ships as required by the International Maritime Organization through the STCW Convention.
Support for Maritime Training (SMarT)	UK government scheme that gives financial assistance to recognised training providers (i.e. shipping companies and other sponsoring organisations) providing merchant navy training. SMarT is currently administered on behalf of the MCA (as budget holders) by a third party.
Tonnage Tax	An alternative to corporation tax. Tax is levied on a fixed notional profit, based on the net tonnage of ships, instead of the actual profits earned from shipping activities.
Trainee	Used to describe both cadets and trainee ratings
UK trained EEA seafarers	Seafarers who trained in the United Kingdom and are a national of the UK, another European Economic Area (EEA) member state, the Channel Islands or the Isle of Man. The EEA includes EU member countries, plus Iceland, Liechtenstein and Norway.

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Annexes

ANNEX A - OXFORD ECONOMICS COST AND VALUE FOR MONEY ASSESSMENT

Oxford Economics Value for Money Assessment delivered under separate cover.

ANNEX B - OTHER NATIONS' TRAINING MODELS

B.1 Introduction

The information in this Annex was developed from public domain literature and websites. This is supplemented by consultations with industry training sponsors to provide comparison with the UK SMarT scheme. It provides quantitative and qualitative information in response to Objective 2 of this review. Key points and conclusions are provided in section 8 of the main report.

A review of open source literature indicates that government intervention in the arena of cadet training is far from universal around the world. It is however common amongst many of the traditional maritime nations whose nationals are the most direct competition with UK seafarers in terms of quality. A significant number of governments are intervening heavily to ensure the continued availability of the national pool of maritime skills. It has also been widely contended that the UK is the second most expensive location in the world to train seafarers (the UK Chamber of Shipping).

This chapter seeks to explore the general approaches and levels of subsidies provided by other jurisdictions and to understand the UK competitive position in the cadet training market as well as highlighting the degree of market distortion present in this area. In addition it will consider the validity of claims regarding the cost of the UK approach.

The examples of government intervention highlighted during this review generally falls into two types.

- Firstly High level Policy: Subsidy's that develop as part of national higher and vocational educational and training policy; whereby the state funds the college phases of seafarer training in the same way as it does other professional and academic courses.
- Secondly Industry intervention: Direct subsidies in the form of grants to cadets or to sponsors to cover elements of the cost of training.

In many cases state strategy on this matter is addressed by a combination of both approaches.

B.2 Training approaches

The international convention on STCW sets the minimum standards for seafarer training and qualification for the countries who have signed the agreement (Oxera). All seafarer training must be STCW compliant (Leong P 2010). The agreement sets out the prerequisite shore based training requirement and the minimum level of time to be spent at sea prior to the prospective mariner sitting his certificate of competency examinations. The level of sea time is a reflection of the amount of practical training and experience gained during the training period.

On successful completion of the examination the cadet gains an internationally recognised qualification issued by the training nation and it allows the cadet entry into the international seafarer market.

In Europe, the European Maritime Safety Agency (EMSA) audits national training systems to ensure compliance with the minimum acceptable standards. Nations which fall below this standard can receive a ban, in that seafarers from that nation cannot be recruited for service in EU flagged vessels.

Modern training methods such as simulators and distance learning are all allowed for under SCTW updated rules. Consideration of specific types of training delivery are outside the scope of this study.

The following sections discuss a number of national schemes with differing competitive approaches to seafarer training at the higher quality end of the market.

B.2.1 UK TRAINING BASELINE

The SMarT scheme is described in Section 4 of the main report but it is useful to draw out some general themes about how the UK trains cadets in the wider context.

The general approach to funding cadet and rating training in the UK is for the costs to be met by sponsoring shipping companies, or charitable organisations with the UK government providing support in the form of the SMarT subsidy (Leong P 2010)

The cost associated with the provision of sea training berths is widely quoted by stakeholders as the key factor limiting the continued growth of cadets training in the UK. The actual costs of seafarer training in the UK will vary for individual companies depending on their approach to managing their training commitment. The table below shows a range of costs based on research conducted for this study. It assumes a single cadet on a 3 year sponsorship arrangement between the shipping company and cadet undertaking their first CoC.

Costs	Low	Average	High
Training berth costs (average)	2,373	4,736	5,475
Ancillary costs average (travel, visas, medical, etc)	2,760	4,935	6,600
Uniform	450	714	900
Training allowance	22,800	24,428	27,000
Management/company costs, including recruitment	2,046	5,000	8,509
Tuition costs	10,500	19,577	23,117
Total Costs	**44,928**	**59,150**	**71,601**

Figure B1: Range of training costs (£) for UK officers under SMarT1 (see Section 5 of this report).

The cost of ratings training outside the apprenticeship scheme is more difficult to quantify. There appears to be no single pathway for training ratings in the way that there is for officers.

Different shipping companies can opt to complete their rating training at different levels such as Watch Ratings or Efficient Deck Hand.

The table below expresses the estimated costs associated with rating training based on RMT commissioned research.

	Watch rating	Efficient Deck Hand
College Costs	2,925	6,587
Direct Employment Costs	9,467	28,558
In direct Employment Cost	2,433	3,550
Total	14,840	40,430

Figure B2: Range of training costs (£) for UK ratings (RMT)

B.2.1.1 UK charity support to seafarer training

In addition to State funding (in the form of the SMarT scheme) there is also a significant charitable sector in operation also assisting with funding support to prospective seafarers. Although charities provide funding, as they do not have ships of their own they cannot provide sea training berths which must be sought from eligible ship owners. The main charities operating in this sector are as follows.

- Trinity House Merchant Navy Scholarship Scheme. The Trinity House Merchant Navy Scholarship Scheme (MNSS) was introduced in 1989 in an attempt to increase the number of UK merchant navy cadets into what was a declining industry. Funded by the Corporation of Trinity House's Maritime Charity, young people training to become officers in the Merchant Navy are supported by bursaries throughout their academic courses and

sea-going training. Now in its 28th year, expenditure in the year 1 April 2014 to 31 March 2015 (latest available accounts) totalled £1.7 million, although this cost was partially offset by £461,000 of SMarT funding and sponsorship of £15,000 from Jersey Harbour Board and Guernsey Harbour Board in payment in lieu of SMarT funding. (Jersey and Guernsey are not eligible for SMarT funding). £461,000. Highly regarded across the industry, 30 male and female cadets are awarded MNSS scholarships annually. A total of 90 cadets were undergoing training as at 31 March 2015 and since the Scheme's launch, over 400 young people have qualified as officers in the Merchant Navy. Those in receipt of scholarships have all college fees paid and receive reimbursement of travelling expenses to and from college and to and from their sea-going assignments.

- Chiltern Maritime Limited, a Southampton-based company specialising in the recruitment, training and administration of officer trainees in the Merchant Navy, continues to be contracted to manage the MNSS under the direction of the Director of Maritime Training, a Trustee and Elder Brother of Trinity House. This has, as in the past, proved to be a very successful working relationship which can be demonstrated through the excellent feedback from cadets and the dropout rate of only 5% which is well below the industry average of 25%.
- Maritime London Officer Cadet Scholarship. The Maritime London Officer Cadet Scholarship (MLOCS) formerly The Lloyd's Officer Cadet Scholarship) is a charity created by deed on 11 August 1992. The objectives of the charity are to provide for the advancement for the public benefit of the education and sea training of suitable young person's seeking a career at sea as Deck or Engineer Officers in the Merchant Navy. The scholarship scheme was started by marine underwriters at Lloyd's in recognition of this problem and to encourage young people to embark on a career in the Merchant Navy by funding their training at British Naval Colleges and Universities. On leaving the Merchant Navy many continue their career within the City advising on nautical matters so it seemed appropriate that support should be sought from all those who play a part in the city of London. The charity seeks to achieve its objectives through:
    - The payment of tuition and examination fees for cadets at Universities or Colleges offering courses in nautical science which have the approval of the Trustees and which courses lead to the examinations for the Maritime and Coastguard Agency Officer of the Watch First Certificate of Competency necessary for following a career at sea as a Merchant Navy officer.
    - The award of scholarships or bursaries to cadets in such amounts and tenable for such periods and on such terms as the Trustees think fit in order for the cadets to attain the Certificate of Competency. The provision of practical and financial assistance to cadets in obtaining suitable sea training opportunities as Merchant

Navy officer cadets. The provision of assistance to cadets in all such other ways as the Trustees shall think fit. On 1 September 2013 (latest available accounts) there were 13 cadets in training. All new cadets are affiliated to an individual sponsor over the three-year period of cadetship. This enables each cadet to identify with and report progress to the sponsor and enables the sponsor to provide a mentoring role towards the cadet. At year end the MLOCS had 10 sponsors who support 12 individual cadets.

- SMarT funding for a single new cadet amounted to approximately £11,000 on average, for the year ended 31 August 2014, depending on scholastic qualifications and whether they were training as an Engineer or Deck Officer.

- Maritime Educational Foundation. The Maritime Educational Foundation (MEF) is a charitable company limited by guarantee, controlled by the same board of directors as The Maritime Training Trust (MTT). MTT's purpose is to collect money remitted to it by shipping companies registered under the tonnage tax regime which have not met their core training commitment and pay these to the Foundation. These funds are then used to promote education and training in maritime skills for the British Shipping industry. The Foundation received its first contribution of £150,000 under Gift Aid in December 2003. The Foundation continues to receive contributions from the MTT. The Foundation's charitable objects are:

  - The advancement of education and training in maritime skills and in pursuance of such object but not further or otherwise to facilitate and promote the education and training of seafarers in maritime skills for the benefit of the general public.
  - The advancement of education and training generally concerning maritime industries and industries related to maritime activities.
  - The MEF strives to be a centre of excellence for seafarer training and provides support to the Maritime sector for defined education and training purposes. Through its strategy the MEF aims to provide 'gold standard' new entrant seafarer training programmes and further development opportunities for ratings and officers. It also considers how it can facilitate and promote the education and training of seafarers in maritime skills through the provision of funding support directed towards specific activities and projects with identified outcomes.
  - Within its range of training and development opportunities, the MEF offers some support to the Slater Fund for rating to officer training. The Slater Fund awards grants to Merchant Navy ratings, Electro-Technical Officers or yacht crew considering career progression.

- Other rating development activities and opportunities include funding a number of rating apprenticeships through the provision of a bursary to shipping companies to develop and provide rating apprenticeship programmes, the first of which were granted to DFDS Dover and P & 0 Ferries. The new 'rating apprenticeship' programme is designed to draw fresh talent into the shipping industry, allowing motivated and loyal crew, who are trained to company specific requirements to increase productivity, whilst closing the skills gap and minimising staff turnover. The Trustees in their strategy agreed to provide individual funding support to ratings and officers to update their certification where other means are not available to them.

- John William Slater Memorial Fund. The aim of the John William Slater Memorial Fund (The Slater Fund) is the provision of financial assistance to suitable ships' ratings to enable them to obtain Certificates of Competence or other officers' certificates and diplomas. In 2014 (latest accounts) the Fund supported 39 awards. The amount of each award was £17,500 plus £1,500 on obtaining an Officer of the Watch certificate. A grant of £500,000 was received from the Maritime Education Foundation, and of £3,000 from Nautilus International.

All charities seek to fund eligible young people to enter the profession, by providing support to pay tuition fees and training allowances in various forms. Charitable funding is offset by SMarT funding in a similar way to other sponsors. It is clearly not a replacement for SMarT but provides additional incentives to introduce people to seafaring and may reduce financial barriers to entry. 200 or more people are supported at any time over a typical three year training period.

B.2.1.2 Training strategy

Cadet training strategy will be driven by three factors, firstly the tonnage tax requirement, secondly the business need for trained labour and the costs of training. Larger shipping companies are likely to train cadets in multiple locations which can provide the key skills they require for their fleet. Cost will also play a part in this. Figure B3 below illustrates the approach taken by one significant stakeholder. In this case there are common national characteristics across most of the nations where they training cadets. Smaller companies generally have a smaller more focussed catchment area.

Nationality	UK	New Zealand	Canada	Italy	Ireland
Cadets Under training	25	5	5	15	10

Figure B3. A stakeholder's approach to international cadet training

Where a business has a specific requirement for a particular nationality then costs are likely to be less of drive on the decision of where to train.

B.2.2 REPUBLIC OF IRELAND

Stakeholders consider the Irish system highly effective and, within the limits of its capacity, a significant competitor to the UK. It produces high quality seafarers at a much lower cost to the shipping company. Its lower administration effort further reduces the cost, and increases the popularity of Irish cadets to industry. The Irish government did not introduce a training commitment or penalty as part of the Irish tonnage tax scheme. Ireland opted to use subsidies to adopt a cost neutral approach to attracting sponsors.

Irish cadets share many characteristics of those from the UK in that they are native English speakers and have a highly regarded training system. Furthermore Irish certificates of competency are widely accepted around the world and they have few travel restrictions.

B.2.2.1 The Irish approach (www.slideshare.net/HelenaDay1)

The Irish have funded the National Maritime College of Ireland. This offers a full range of maritime related courses. In addition it provides the non-military aspects of seafarer training to the Irish Navy, thus maximising the return on investment (Reference required).

- Tuition fees are not the responsibility of the sponsoring company, but funded under usual educational arrangements. Additional grants are administrated by the Irish Seafarers Education Assistance Scheme (http://www.dttas.ie/sites/default/files/node/add/content-publication/IMDO%20Strategic%20Review%20of%20Irish%20Maritime%20Transport%20Sector.pdf).
- Usually Students secure a place on the course before securing a sponsoring company. This is usually done towards the end of the first year of college based training. Therefore the relationship between shipping companies is shorter for Irish cadets than for their UK counterparts.
- Students who do not receive sponsorship gain their sea training via companies such as Arkow shipping who do not offer in house cadet programmes but participate in the Irish national placement scheme (Arklow shipping website accessed 10/09/2016).
- The majority of the administration of the Irish subsidies system is undertaken by the college. Sponsors are only responsible for registering the number of sea training days provided.(Stakeholder Interview)
- Grants are also paid for each sea day provided. This is currently set at:
    - Deck: 5250 Euro to cover the required 15 months sea training.
    - Engineer: 3150 Euro to cover the required 9 month sea training.
    - Rating: 3150 Euro to cover the required 9 month sea training.

The system trains approximately 90 cadets per year plus 25 officers seeking higher certificates.

B.2.3 SINGAPORE

Singapore has long been a significant and growing force in the global maritime industry. Despite its position as a major maritime cluster country; its contribution to the world supply of seafarers is comparatively small (Thai V).

Regardless of this, the Singapore government in the form of agencies such as the Maritime and Port Authority (MPA) of Singapore and in collaboration with other commercial and trade bodies (reference required) has continuously supported training institutions such as the Singapore Maritime Academy to carry out maritime training and increased numbers of seafarers (Thai V).

The approach taken by Singapore recognises that high quality seafarers will add significant value to the wider Singapore maritime cluster. The involvement of a wider stakeholder group shows commitment from all of those who will benefit in the long term from the maintenance of local skilled seafarers. Significant additional incentives were announced in mid-2016 to further enhance the attractiveness of the profession to Singapore nationals and of Singapore as a training location to shipping companies.

A review of the available literature shows that there is significant sponsorship available to prospective seafarers looking to work in Deep Sea and Restricted sectors. The following is an example of one of a number of scholarships available and the associated subsidy.

B.2.3.1 The Tripartite Maritime Scholarship (TMSS) (reference)

(Reference: http://www.mpa.gov.sg/web/portal/home/maritime-singapore/education-and-scholarships/maritime-education/maritime-education-opportunities-scholarships-and-sponsorships)

This scheme is sponsored by the Maritime and Port Authority of Singapore (MPA), shipping companies and unions. Singapore national or Permanent Residents are subsidised to become Deck or Engineer Officers of ocean –going merchant ships.

Students taking up the Diploma in Nautical Studies or Diploma in Marine Engineering at the Singapore Maritime Academy, Singapore Polytechnic can apply for the TMSS.

The TMSS provides the following fees and allowances:

- Tuition fees at Singapore Maritime Academy.
- Annual book and uniform allowance of SGD 300.
- Monthly allowance of SGD 1,000 per month during academic and training phases.
- Milestone Achievement Bonus of SGD3,000, SGD4,000 and SGD5,000 after the attainment of COC Class 3/5, COC Class 2 and COC Class 1 respectively.
- Any compulsory courses necessary for the attainment of COC Class 2.

Recipients are required to serve a bond of three years with the sponsoring shipping companies on a seagoing appointment, upon attainment of Certificate of Competency Class 2 (about three years after graduation).

B.2.3.2 Additional subsides

In addition the MPA has recently announced an additional SGD 4M over the next four years to pay for the following:

- Cadet Allowance reimbursement Programme, which allows shipping companies to claim up to 50% of the monthly training allowance paid to cadet.
- Completion bonus for those qualifying at first certificate of competency.
- Up skilling allowance to help fund study to 2nd certificate and beyond.

B.2.4 HONG KONG

(Reference (http://www.hkmpb.gov.hk/en/manpower/matf.htm)

Hong Kong has a significant tradition of providing seafaring labour. At its peak in the 1970s Hong Kong seafarer population sat at approximately 80,000 individuals at all rates and ranks, but by 2015 this had fallen to 173.

Since 2004 the Hong Kong government has taken a number of significant initiatives to redress this decline in population of seafarers.

B.2.4.1 Maritime and Aviation Training Fund (MATF)

The MATF was established in January 2014, with a funding commitment from the legislative council of HK$100 million to cover the period from 2014/15 to 2018/19. The purpose of the fund is to train and develop individuals to support Hong Kong's development in the maritime and aviation sectors. The fund has be used to sustain a number of maritime related schemes and scholarships.

B.2.4.2 Sea Going Training Initiative Scheme

Under the SGTI cadets may receive:

- As of 2014 HK$ 6000 per month for 18 months for deck cadets and 12 month for engineer cadets.
- As of 2015 a total of 385 cadets have joined the scheme.

B.2.4.3 Professional Training and Examination Refund Scheme (ProTERs)

Under this scheme successful applicants will be refunded 80% of their course fees to a maximum of HK$18000.

B.2.4.4 Local Vessel trade Training Incentive Scheme (LVTTIS)

This scheme subsides the training of local craft personnel. It provides a subsidy of HK$2500 per month for 12 months.

B.2.5 GERMANY (FLAG WEBSITE)

(Reference: www.deutsche-flagge.de/en/german-flag/advantages accessed 12 Sept 2016)

The German flag and her seafarers are considered to be of very high quality (www.deutsche-flagge.de/en/german-flag/advantages). However, like most of the traditional maritime nations numbers have struggled in the face of economic competition from cheaper Asian labour.

A recent change of the Safe Manning Ordinance instigated a reduction of the number of EU-officers required as part of the crew. Prior to this change up to four EU-officers were compulsory for larger vessels. German ship owners now need only employ one EU-officer on their ships over 8000 GT. The requirement of an EU-master on all German-flagged ships, however, still remains. The reduction in the requirement to employ EU officers will make the flag more attractive but is likely to reduce the overall demand for German seafarers.

Financial support to ship owners utilising the German Flag is provided by the government. The federal authorities provide in the region of € 58 million support, annually, to reduce the ancillary costs of labour and training positions and a further € 20 million via wage tax deductions in favour of the ship owner (www.deutsche-flagge.de/en/financial-matters/financial-matters).

Germany trains approximately 450 seafarers per year. In historic peak periods as many as 800 cadets have been produced, however lack of employment opportunities for newly qualified officers resulted in high levels of unemployment and frustration amongst newly qualified seafarers. Over 90% of those entering training go on to qualify as officers.

Similar to the situation with UK ratings the traditional German ship mechanic has all but disappeared from the deep water trade. Although some remain in a few key segments such as Tugs, Offshore support & ferries. In these areas the Ship Mechanic is still highly valued. The recent changes in the crewing requirements is likely to result in a further decline in the population of Ships Mechanics.

The federal German government provides subsidies for the provision of training places in ships operated under the German or other EU-member flags. Training places for ship mechanics as well as for navigational and engineering assistant officers are subsidised by lump sums per vocational training places.

Germany offers a complex but flexible system of seafarer training and there are a number of different routes to qualification. Not all of the pathways are equally respected due to differences in the practical training elements of the individual courses. All pipelines offer the potential to

achieve qualification as master or chief engineer. Entry is determined by secondary education attainment (Career Path Mapping Study 2013).

B.2.5.1 German Training Subsidies (www.deutsche-flagge.de/en/financial-matters)

Potential German Mariners generally are required to be sponsored by a shipping company. In support of this the German state provides support to seafarer training in the following areas:

- 100% of the costs associated with tuition and attendance at a marine college or university are paid for by the state. This is in line to standard policy of state funded education.
- In addition there is a grant paid in a lump sum per vocational training place. See Figure B4.

Financial support of vocational training positions by the federal German government per training place (2015-2019) (http://www.deutsche-flagge.de/en/german-flag/changing-flag-1/subsidies-fees)	
Ship mechanic – trainee	32,000 Euro
Navigational	16,000 Euro
Engineering assistant officer	21,000 Euro

Figure B4: German Training Subsidies

B.2.5.2 Stiftung Schifffahrtsstandort Deutschland (German shipping foundation) (www.deutsche-flagge.de/en/financialmatters)

This is an institution of set up for the benefit to the public, based in Hamburg, which supports training and qualification of the young generation of seafarers. It is closely linked to the Federal government.

The foundation is financed by contributions of German ship-owners whose ships have been flagged out, i.e.it compensates for the resulting negative effects to the German maritime sector. Such compensation can be achieved by:

- The training of ship mechanics or assistant officers on board of the flagged-out ship (primary obligation).
- The compensation payment to the foundation (secondary obligation).

Financial support of vocational training by the foundation in 2016	
Sums in Euro, extrapolated on a year (only quaterly and limited funding)	
Vocational training as **Ship Mechanic** (up to 12 quarters sponsorship from the beginning of the apprenticeship)	14.000
Vocational training as Navigational or Engineering **Assistant Officer** (up to 6 quarters funding from the beginning of the practical part of the apprenticeship and seagoing service)	14.000
Master or **Ship's Officer**, either Navigating Officer or Engineer Officer (up to 16 quarters funding after successful graduation from the theoretical part of the training)	32.000
Master or **Ship's Officer**, either Navigating Officer or Engineer Officer after preceding umemployment (up to 20 quarters funding after successful graduation from the theoretical part of the training)	38.000

Figure B5: Financial support for vocational training by the foundation (German Flag website

There is also support for the non-labour elements of the work.

Individual subsidies in Euro for the calendar year 2016		
Capacity on board	Size of ship	
	< = GT 3,000	> GT 3,000
Master	13,000,00	16,700,00
Chief Mate/Chief Engineer	13,000,00	15,000,00
Navigational/Engineering Watch Officer Second Engineer/First Mate (Novice officers who graduated not earlier than four years before publication of the guidelines)	15,400,00	15,400,00
Other Officers	12,200,00	12,200,00
Ship mechanic Ship Foreman	12,700,00	12,700,00
Ratings and other employees, involved in ship operations on board	9,400,00	9,400,00

Figure B6: Non-labour elements of work

B.2.6 DENMARK

The Danish tonnage tax provides for a training obligation (Sampson 2015). The training obligation require the DSA to organise recruitment of circa 200 officer cadets and 85 trainee ratings per year (Sampson 2015). The Danish Maritime Statistics report 2015 reports that Denmark retains 853 maritime trainees (officers and ratings) across the Danish shipping industry (Danish Seafarer Statistical Report).

B.2.6.1 Danish approach

- Ratings start their maritime education after a minimum of 9 years primary and secondary school, by doing a 6-month basic course followed by 6 months sea time and 6 months finishing school. Qualification to become a “Ships Assistant” is reached after 12 more months at sea.
- “Ships Mechanic” is designed to offer better skills, and is equivalent to similar formal educations of skilled workers in Denmark. “Ships Mechanics” enter after a minimum of 9 years primary and secondary school, and follow a training regime that comprises 20 weeks basic maritime training; 20 weeks in a technical college; 6 months sea time; 10weeks in a technical college; 17 months sea time; 10 weeks in a maritime college and another 10 weeks in a technical college.
- The officers’ education system has just been revised. Entry level is 12 years of Schooling, or from various vocational backgrounds combined with additional Requirements in math, science and language. officers’ education is divided into a junior and a senior section. The junior section offers junior officers a dual-purpose licence after 4 years and 3 months. The senior section adds respectively 6 months for Deck Officers, 12 months for engine officers and 18 months for full dual capabilities. Like the ratings’ education, it is a “sandwich” based system, mixing college and sea time. Training is about 75 % college and 25% sea training. There is no traditional deck training path.
- Under Danish Act 226 of April 2002 the Danish maritime authority pay a subsidy designed to partly cover wages, meals and travelling expenses of trainees. (This was due to be revised in 2014, however no evidence of this revision is available on the Danish Maritime Authority Website). The subsidy calculated per day amounts to DKK 20,000 per three-month actual duration of service. Trainees subsidies shall be paid only for the prescribed work-experience period that is related to their training programme and the individual must be a supernumerary. One Danish cadet website suggests that they pay DKK 8,189 - paid monthly on the first internship DKK 10,826, - paid monthly on the second internship (Maersk Danish cadet recruitment website).
- The Danish Ship Owners Association have recently established a training school in the Philippines with the aim of raising standards of Philippine seafarers.

ANNEX C - STAKEHOLDER ENGAGEMENT

Participating Organisations

The following organisations provided key information to the review of SMarT through one or more of the following activities:

- Completing questionnaires.
- Taking part in structured interviews.
- Support to the stakeholders workshop on 21st October.

We would like to take this opportunity to thank them for their input.

Colleges	Warsash Maritime Academy
	Fleetwood Nautical College
	City of Glasgow College
	South Tyneside College
Shipping companies	PG Tankers
	Maersk
	Princess Cruises
	Cunard
Training Management Companies	Clyde Marine
	Chiltern Maritime
	SSTG
	V Ships (formerly Bibby)
Unions	Nautilus
	RMT
Shipping industry body	UK Chamber of Shipping

Additionally we undertook a Survey Monkey review of cadets. These were anonymous survey but we also thank the participants for taking part.

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