



REPORT

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INVESTIGATE THE SUITABILITY AND EFFECTIVENESS OF SYSTEMS USED TO RECRUIT MERCHANT NAVY OFFICERS

MARITIME AND COASTGUARD AGENCY

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TEEKAY MARITIME SERVICES

VIKING RECRUITMENT LIMITED



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EXECUTIVE SUMMARY

Det Norske Veritas (DNV) on behalf of the Maritime and Coastguard Agency (MCA) has conducted this research project to identify and assess the suitability and effectiveness of selection methodologies used for the recruitment of merchant navy Officers.

The MCA wished to determine the effectiveness of the maritime industry's recruitment and selection processes. In particular to achieve the aims of the research project it was necessary to establish, where reasonably practicable, the effectiveness of various selection processes with specific focus on candidates who have the ability, aptitude, technical skills and knowledge, together with the necessary personality and psychological attributes, to manage a life at sea.

The maritime industry was benchmarked as far as possible with other industries which could be considered to have a "Safety Critical" element in their operation.

The broad areas investigated included:

- Establishing the effectiveness of selection methodologies to include assessment of ability, aptitude, knowledge, technical skill, personality and psychological characteristics;
- Identifying and critically evaluating selection and recruitment methodologies employed in other safety critical industries (e.g. aviation, rail, nuclear, military);
- Evaluation of the personal characteristics required within the industry for cadets to become a competent officer and the level of consistency across the industry in determining these characteristics at the recruitment stage;
- Examination of the type and level of selection processes used in the industry both currently and historically;
- Analysing available test data (taking into account Data Protection issues); and
- Reporting on the findings and any recommendations.

The scope was limited to UK based shipping companies, manning agents and training organisations who undertake testing (e.g. psychometric, aptitude, practical tests etc) of candidates at recruitment and promotion stages in their careers. This was a secondary research project based on the collection of existing data hence the prime source of information was interviews with a wide range of employers within the maritime and other industries.



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Direct comparisons between the maritime and other industries have not always been possible due to the differing nature of their work. The predefined character traits have not always fitted in precisely between industries, however as far as feasibly possible the same question set has been used to allow as a high level assessment of the different capabilities required by each industry.

Where conducted, further assessments for promotion or on-going assessments during an officer's career, were typically not aligned to the testing processes (e.g. psychometric, aptitude, practical tests etc) conducted during recruitment, therefore no benchmarking could be undertaken. Promotion assessments for junior officers are not common place as they are typically based on achieving relevant certification, experience and ongoing assessments. For senior ranks interview boards are held. Due to confidentiality reasons companies were reluctant to release data on recruitment and promotion details, thereby limiting DNV's ability to conduct any meaningful assessment of test results.

The introduction of the tonnage tax in 2000 increased the overall demand for British cadets. Discussions during this research indicate that many companies fulfil their cadet requirements early in the year and hence close recruitment early. This tends to contradict previous opinions which indicated that companies could not recruit sufficient cadets of the right calibre. However it should be noted that the number of physical berths on ships is finite so increasing cadet recruitment at this point would appear to be impracticable without increasing the number of berths available for the sea phase of cadet training.

With no significant increase in requirements in the foreseeable future and the number of applicants high enough to meet current recruitment requirements it would be an opportune time for a structured joint industry formal review of the selection processes and methodologies. The review should focus on the effectiveness in meeting the long-term goals of producing competent seafarers and to produce an industry guideline/standard. In addition as is evident from this research investing more time and money into the selection process has the potential to ensure a higher success rate of cadets completing their training, gaining positions at sea and remaining at sea.



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Most industries other than maritime that were interviewed have a more formalised and structured selection process to meet their requirements unlike the maritime industry. Experience could be drawn from industries such as rail and in particular the RSSB, who have developed 'tried and tested' methodologies for completing the selection process. Whilst there is no direct equivalent organisation in the maritime industry, an organisation such as the Merchant Navy Training Board (MNTB) would seem ideally placed to potentially take a similar role. This should also assist in identifying whether current initiatives and recruiting from traditional demographics is producing sufficient suitable candidates or whether recruitment needs to be drawn from a wider field.

An assessment of the recruitment methodologies, coupled to a better understanding of the actual UK strategic requirement for deck and engineer officers and the sustainability of market supply and demand, would enable resources to be targeted more effectively. This will help to maximise success rates during selection and avoid any wastage of resources and time in training cadets that cannot find long term employment.

The industry endeavours to provide the candidates with a realistic picture of life at sea during the interview process by providing true life examples. However this does not appear to prepare some cadets for the reality of a life at sea which comes as a culture shock to many. This results in high drop out rates during training, particularly after the first sea phase. Based on industry discussions there appears to be limited potential to manage the expectations and prepare cadets for a life at sea. A more selective recruitment assessment methodology to identify candidates with a higher potential to cope with life at sea may be beneficial to mitigate the high drop out rate.

Retention of qualified long term seafarers has not been reviewed as part of this project, but this is one of the underlying concerns within the industry. Whether there is something that can be done to improve the retention of British seafarers at sea, by learning from other industries, or whether the attractiveness of long term seafaring has irrevocably changed for British citizens is still to be determined.



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The following recommendations have been made as potential first steps in ensuring recruitment methodologies within the UK are effective in developing and maintaining competent long term seafarers.

1. Develop a clear understanding of the long term requirement for deck and engineering officers in the industry as a whole, including the requirement for UK officers, avoiding the rhetoric around perceived shortages. Thereby clearly identifying the requirement for UK cadets, so as to influence the selection process.
2. Establish a formal joint industry project or liaison by the MCA directly with stakeholders to establish a common guideline for recruitment. Such guidelines should include:
 - Formally defining the character traits required for successful career at sea
 - To gain an understanding of the character traits of those presently employed within the industry at sea and compare these with those traits used by recruiters
 - To determine whether current assessment methodologies are effective in identifying the required character traits
 - Identification or development of appropriate structured testing regimes with the potential for initial screening to be carried out in a common manner by all companies. This initial screening could be done by an independent body prior to the companies own dedicated recruitment processes.
3. Investigate the possibility of developing tools to assist in acclimatising / preparing cadets for sea, with the aim of reducing the drop out rates during the first sea phase of training.
4. Identify possible incentives to make staying at sea more attractive without disadvantaging the UK Flag.



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1. INTRODUCTION

1.1 Background

The British merchant navy has a long tradition of producing well respected, competent and professional seafarers. In addition, the UK, as an island nation, is heavily reliant on merchant shipping for transportation of goods which is a major contributor to the UK economy. Therefore the industry is always high on the political agenda and not only to those with a commercial or personal interest, but to the wider populace as a whole it is less visible unless brought to their attention via a maritime incident. In recent years, concern has been raised within the industry about how the industry attracts new-comers to pursue a career at sea, and potentially more importantly, how to provide the right conditions to encourage officers and engineers to become long-term seafarers. Due to an aging seafarer demographic and suggested short-fall in British seafarers, recruitment and retention issues within the industry are in focus.

Det Norske Veritas (DNV) on behalf of the Maritime and Coastguard Agency (MCA) has conducted this research project to identify and assess the suitability and effectiveness of selection methodologies used for the recruitment of merchant navy Officers.

1.2 Review Process and Aims

The MCA wished to determine the effectiveness of the maritime industry's recruitment and selection processes. In particular to achieve the aims of the research project it was necessary to establish, where reasonably practicable, the effectiveness of various selection processes with specific focus on candidates who have the ability, aptitude, technical skills and knowledge, together with the necessary personality and psychological attributes, to manage a life at sea. This also needed to take into account:

- Technical and professional competence in a highly technical and modern industry;
- Work within and fully participate in a safety critical environment; and
- Manage the technical and social requirements of a life at sea in the merchant navy.

The maritime industry was then to be benchmarked as far as possible with other industries which could be considered to have a "Safety Critical"¹ element in their operation. Individual traits for these roles were recognised as requiring a committed professional and well trained workforce. This was intended to allow identification of common themes or areas and allow comparisons to be drawn which could enable improvements to be made to recruitment and thereby retention in the UK maritime sector.

¹ 'Safety Critical' is defined as a role where actions of an individual have the possibility to create a major incident with loss of life, property or damage to the environment.



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The broad areas investigated included:

- Establishing the effectiveness of selection methodologies to include assessment of ability, aptitude, knowledge, technical skill, personality and psychological characteristics;
- Identifying and critically evaluating selection and recruitment methodologies employed in other safety critical industries (e.g. aviation, rail, nuclear, military);
- Evaluation of the personal characteristics required within the industry for cadets to become a competent officer and the level of consistency across the industry in determining these characteristics at the recruitment stage;
- Examination of the type and level of selection processes used in the industry both currently and historically;
- Analysing available test data (taking into account Data Protection issues); and
- Reporting on the findings and any recommendations.

1.3 Scope

The scope was limited to UK based shipping companies, manning agents and training organisations who undertake testing (e.g. psychometric, aptitude, practical tests etc) of candidates at recruitment and promotion stages in their careers.

The MCA provided some initial introductions to shipping organisations which were supplemented by DNV's own industry contacts within the maritime, rail, nuclear, military and aviation industries.

The project therefore consisted of the:

- Review and evaluation of existing recruitment methodologies;
- Review and evaluation of past and present testing methodologies in the merchant navy;
- Evaluation of actual test results where possible;
- Identification of recruitment methodologies that contribute to improved standards of safety where possible;
- Identification of recruitment methodologies that lead to improved retention rates and effective career progression.

No primary research or testing of candidates was carried out. Different levels of confidentiality were offered for participants from complete anonymity, to acknowledgement of participation with non-attributable information, to full disclosure of responses attributable to the participant. Due to varying sensitivities of the people and organisations involved, a degree of anonymity was required by most contributors, which is reflected in this report.



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1.4 Methodology

This was a secondary research project based on the collection of existing data, hence the prime source of information was interviews with a wide range of employers within the maritime and other safety critical industries.

To ensure a common approach and consistency both within the maritime industry and between the other industries which agreed to take part, a structured question set was developed as a guide document. Appendix 1 shows the broad areas discussed during all interviews.

The success of the project is in no small part due to the willingness of the interviewees to provide their time and information freely.

The results of the question set informed additional questions and in turn the basis of this report. This report therefore reflects the information provided by the contributors, but does not deliberately identify specific contributors nor provide direct quotes to maintain agreed levels of confidentiality.

The industries selected for comparison to the recruitment of merchant navy deck/engineer officers are included in Table 1.1 and were based on those industries considered with 'safety critical' roles.

Table 1.1: Industry and roles considered for comparison with the maritime industry

Industry	'Safety critical roles' considered
Aviation	Pilots & Air Traffic Controllers
Rail	Train Drivers, guards & depot technicians
Offshore / Nearshore	Field Operators / Engineers
Military Royal Navy (RN) Royal Air Force (RAF) Royal Fleet Auxiliary ² (RFA)	Deck / Engineer Officers Pilots / Engineer Officers Deck / Engineer Officers
Nuclear	Instillation, Operation and Decommissioning Operators

² For the purposes of categorizing participants, the RFA has been included in the military section



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1.5 Initial findings

The interest in the research project has been extremely positive, not only from the maritime industry but others DNV has spoken to during the research phase of this project. The industry wide interest in the results and willingness to participate from all sectors, demonstrates a real professional commitment from all parties in their recruitment and selection processes.

One of the initial key aims of this research project was the assessment of test results with the objective of evaluating current recruitment methodologies and identifying those that contribute to improved safety standards, retention rates and effective career progression. This included assessments taken not only during recruitment but also for promotions.

Where conducted, further assessments for promotion or regular on-going assessments during an officer's career, were typically not aligned to the testing processes (e.g. psychometric, aptitude, practical tests etc) conducted during recruitment, therefore no benchmarking could be undertaken. Promotion assessments for junior officers are not common place as they are typically based on achieving relevant certification, experience and ongoing assessments. For senior ranks, interview boards are held but due to confidentiality reasons companies were reluctant to release data on recruitment and promotion details, thereby limiting DNV's ability to conduct any meaningful assessment of test results.



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2. KEY CAPABILITIES

2.1 Overview

In this section we review the key capabilities that recruiters look for in cadets during the recruitment phase for them to become deck and engineer officers. These are discussed and compared against other industries (Section 3.3).

For the purposes of defining key character traits in the maritime industry and benchmarking against other industries these traits were grouped into the following categories:

- | | |
|----------------------------|--|
| 1. Safety aspects | 8. Potential for development |
| 2. Personality | 9. Technical competence & qualifications |
| 3. Intellectual capacity | 10. Professional competence |
| 4. Communicative skills | 11. Ability to deal with crisis |
| 5. Drive & activity | 12. Ability to manage high and low cognitive loading |
| 6. Social skills | 13. Ability to adapt to watch keeping patterns |
| 7. Leadership & management | |

The traits were derived from initial discussions within the maritime industry, internet research on recruitment and DNV experience. Similar individual character traits were, where feasible, grouped into larger categories to simplify the selection process and limit the total overall number of traits available to ensure a meaningful assessment.

A further breakdown of each category, including further descriptions on each trait is included in Appendix 1 “Question Set / Benchmark Guide”, which was developed in collaboration with the MCA early in the project to act as an aide during interviews. This guide was utilised as a framework primarily to enable benchmarking across industries as far as feasibly possible, and form the framework of interviews which was supplemented with other questions as the interviews developed.

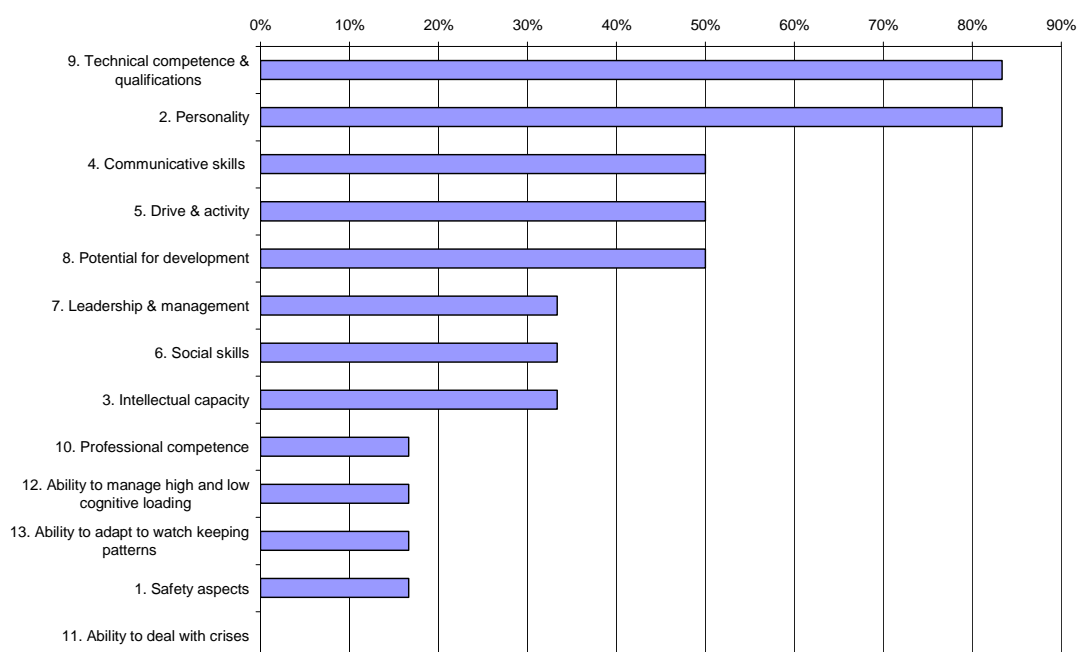
All participants were asked to select and rank if possible the character traits they deemed to be the most critical in the candidates they were vetting during recruitment, where possible within this framework.

Direct comparisons between the maritime and other industries have not always been possible due to the differing nature of the work. The predefined character traits have not always fitted in precisely between industries, however as far as feasibly possible the same question set has been used to allow as a high level assessment of the different capabilities required by each industry.

2.2 The Maritime Position

The personnel active in recruitment within each maritime organisation were asked to list and rank where possible the character traits they considered most important when looking to recruit deck/engineer officer cadets. Figure 2-1 shows the results as a percentage of interviewees selecting a character trait as critical when recruiting cadets. Interestingly it is an individual person's personality that, after meeting the basic technical competence and qualifications, received the most responses.

Figure 2-1: Percentage of Maritime Respondents Selecting each Character Traits as Key



This matches up with some of the assessment methodologies and reported experiences on board of successful and unsuccessful cadetships that are heavily dependent on the pro-activeness of the cadet. Specific trades such as the cruise industry also place greater emphasis on the social skills of the candidate due to the required interactions with the passengers.

The next band of reported traits also are largely related to the individual's character including their communication skills, drive and activity and potential for development. This reflects the nature of cadetships on board where success is largely driven by the cadets themselves in an environment with limited outside stimulus in addition to the challenges of interaction with varying nationalities potentially for the first time.

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Initial assumptions that safety was an important character trait proved false, receiving fewer nominations from the participants. This potentially could be due to safety being considered a characteristic that is developed and/or trained during their sea time and not expected or identifiable in cadets through the current assessment methodologies. The ability to manage high and low cognitive loading and adapt to watch keeping patterns received the same number of nominations as safety issues. Whilst being crucial abilities for seafarers, these are traits presently not identified or tested for within candidates through the current assessment process.

2.3 Other Industry

2.3.1 Aviation

Within the aviation industry two different areas were considered for comparison to the maritime industry; pilots and air traffic controllers. The recruitment of pilots focuses largely on the ability to work as part of a team, leadership capabilities and ability to solve problems, with well developed social skills, personality, behaviour and communication skills being key parts of the initial selection process, this having been established within the industry subsequent to extensive research on the flight deck resource management. Behavioural aspects and strong leadership skills are of significant importance as on the flight deck these can be both an advantage and disadvantage and an effective balance of all capabilities are considered essential.

For air traffic controllers a competency framework model has been developed to assess the candidates competencies required. These assess the requirements unique to being an air traffic controller such as planning, decision-making, problem-solving, information processing capacity, rule adherence and emotional stability to name a few.

2.3.2 Rail

Key capabilities in the rail industry have potential to differ depending on the position. However operators consider certain fundamental capabilities for candidates to be important, these include in general safety aspects for safety critical staff, technical competence and qualifications, leadership and management capabilities, communication skills and professional competence.

Rules and standards in the rail industry are developed by the Rail Safety & Standards Board (RSSB) and have been adopted and maintained as a standard by the UK rail industry despite the industry's privatisation. Selection methodologies are developed based on the required character traits sought in train drivers. Currently these are being redeveloped into a new framework but for train drivers the currently proposed traits include:

- Cognitive Skills: (Attention / Vigilance / Trainability / Communication / Decision Making)
- Psycho-motor skills: (Perception skills / Speed of reaction / Controlled motor coordination)



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- Behaviour skills: (Self control / Assertiveness / Rule compliance / Conscientiousness / Tolerance for working alone)

These traits have been systematically identified by liaising with the rail companies to identify what makes a good and bad driver, which are then verified through interviews with current drivers. This forms the basis of developing an assessment methodology to identify and assess these traits in candidates. These have been discussed in Section 3.3.2.

Mechanical skills are also required for certain sectors in the rail industry, for example, freight and engineering train drivers. However, since the industry has developed, mechanical skills are generally not a main requirement for modern passenger train drivers and therefore the necessity for this capability has reduced.

2.3.3 Offshore

Key capabilities for offshore include safety aspects, technical competence and qualifications as well as the ability to deal with crisis as expectations for field employees is that they will face hostile environments and a variety of differing situations during employment. Other capabilities are more role specific such as leadership and management skills for site managers, supervisors and leading drillers, with work ethics, self control and social skills considered important for all positions.

2.3.4 Military

The services have particular requirements for officers which are not directly comparable to other industries. The Royal Navy (RN) and Royal Fleet Auxiliary (RFA) whilst sea-going forces, have additional requirements over and above technical competencies including, willingness to take risks, ability to work as part of a team, leadership, political awareness to name a few. These differences are due to the requirement to provide officers for the wartime role as the services are first and foremost part of the national defence.

Capabilities related to those assessed for the merchant navy include:

- Leadership
- Intellectual capacity
- Power of communication
- Values (e.g. courage) ability to deal with crisis situations
- Drive and activity (e.g. Motivation)



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2.3.5 Nuclear

Competencies for the nuclear industry vary depending on role, from management skills for Inspectors, to technical skills and abilities. Decisions need to be right first time so traits that influence how a person will make precise decisions are considered important. Other skills are tailored to individual roles, however a large proportion of positions have requirements that can be considered similar to the process industry and therefore require similar character traits.

2.4 Benchmarking

Each industry has its own requirements based on the type of work and its environment to meet the character types they are aiming to recruit to ensure they are suitable for the position.

Evidence of a formalised process into identifying the types of character traits or review of these requirements has not been evident in the collective maritime industry, however the character traits and the type of personality required to thrive onboard a ship is considered relatively well known by the recruiters, but the measurement of this as previously mentioned is not documented.

Other participants such as the RAF have long established systems which have remained relatively unchanged similar to the maritime industry. However the rail industry through the RSSB, periodically reviews the characteristics required of its drivers in consultation with the industry in a more structured way as the basis of defining and updating requirements and the recruitment processes.



3. SELECTION METHODOLOGY

3.1 Overview

Selection methodologies for seafarers have been established and remained largely unchanged for many years. They appear to be based purely on experience and company developed protocols and are generally considered by those that use them to be fit for purpose. They have remained relatively standard with limited variation found between companies. This section discusses the methodologies used to select candidates and discusses comparisons with other industries and any differing requirements.

3.2 The Maritime Position

Candidate selection methodologies across the industry are relatively standardised and have remained the same for a significant period of time and are considered robust and appropriate for the nature of the job by all of those interviewed. However no evidence was identified of companies undertaking a thorough analysis to confirm they still meet their requirements.

There are individual requirements for certain companies, specific to their trade (e.g. cruise) or individual risk management strategies, which are needed to develop their own more 'advanced' systems to meet their own organisation's internal requirements. However the majority of the maritime industry is using established industry systems of assessments.

Assessments across the industry will typically include:

- Numerical / Mathematics proficiency testing;
- Personality/Character/Behavioural profiling or testing, either through interview or a more formalised procedure;
- Logic testing;
- Formal Interviews / Competence based interviews; and
- Team work / Group exercises.

While testing is conducted to assess an individual's ability and attributes, psychometric testing in its truest form has not been identified as being conducted within the industry as a whole.

In-house testing is prevalent throughout the industry for assessing candidates for both owners and the manning agencies conducting recruitment, however the prevalence of using simulators or computer based training (CBT) packages was limited.



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Selected owners will utilise the manning/recruitment agencies to identify suitable candidates for cadetships, but this is the limitation on external organisations used for testing potential candidates. In certain instances further testing / coaching might be required for generally strong candidates but with a specific weakness (e.g. maths). In these situations the Maritime Colleges and Universities are utilised for providing courses and testing.

Mathematical competency testing has become increasingly important as confidence in curricula and grades has eroded particularly outside of Scotland, where the curriculum and numbers of examination bodies have led to reduced confidence in the relevance of grades and also subject topics (e.g. trigonometry) that have been studied.

3.3 Other Industry

3.3.1 Aviation

3.3.1.1 Pilots

Within the aviation industry organisations liaised with, personality profiling containing competency based questions was the first step completed via online applications. Competency based interviews, whilst considered a key initial element of the selection process, was generally placed lower on the importance scale in terms of validity.

The selection process aims to identify key abilities, such as leadership, teamwork and problem-solving skills by seeking the candidates' demonstration of these abilities in at least three assessment activities: interview; group exercises and a simulator test.

Candidates are invited to a one-day assessment comprising typically of:

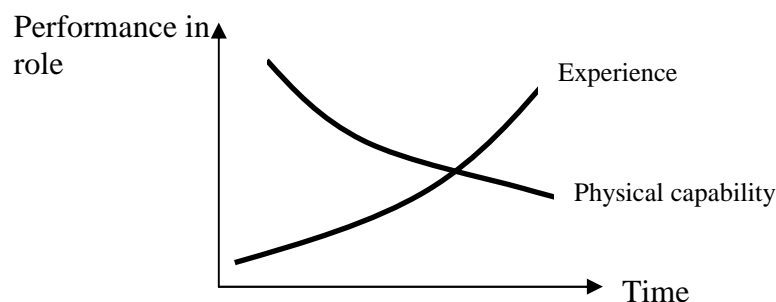
- An interview conducted by a current pilot and Human Resources Consultant;
- Group exercise consisting of six to eight people;
- Verbal reasoning;
- Numerical reasoning;
- Psychometric tests; and
- Simulator testing

Candidates will only progress to the simulator stage once they have successfully passed all of the other elements of the assessment. One particular organisation uses an adaptive testing methodology to benchmark Pilot's performance, with the individual's benchmark increasing as performance increases, due to ability being considered to be variable over time depending on the physical and mental capability and experience; as a Pilot's overall flying capability increases and peaks at a certain time of their career and then declines.

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Over time, Pilots accumulate valuable flying experience and this to some extent compensates against the tendency of a gradual fall in their actual flying ability (mental/physical sharpness) as illustrated in Figure 3-1. The benchmark i.e. the point of cross-over varies between Pilots.

Figure 3-1: Performance in role over time



These assessment processes are closely linked and effectively aligned to the aptitude needed for flying an aircraft and the performance required in other areas of the role. The adaptive testing method is a successfully proven innovative method which means the benchmark becomes progressively harder and adapts to the performance of the Pilot being assessed.

Strong emphasis is placed on candidates' 'behavioural aspects' and leadership skills particularly as in the flight deck strong leadership can be a disadvantage as well as an advantage. However, no one element of the capability criteria is considered to be the most important but instead looks at an effective balance in all of the core areas.

The simulator tests, which assess a candidates' spatial orientation, situation awareness, behaviour and mental capacity, are considered at the top end of the scale for validating candidates, with group exercises holding more importance and significance over interviews.

Every activity is independently assessed in isolation by separate assessors, who have no prior knowledge or informed considerations of the previous assessment activities. Every round of assessment filters the more suitable candidates. Candidates who remain after all assessments are still not necessarily guaranteed employment.

A final assessment is conducted by the recruiters to review the candidates' performances throughout the whole selection process, identify any common area of doubt by different assessors and find validation to determine the final outcome. The success rate of candidates from the point of submitting the application to getting the job is low at around 10%.



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The aviation training academies are potentially a better comparison for the recruitment of merchant navy cadets. Cadets in the merchant navy and applicants to the aviation academies could potentially be straight off the street having no prior relevant industry experience unlike qualified pilots and merchant navy officers.

Initial selection typically involves a two-day intensive assessment process to assess intellectual capacity and flight simulator training, which is used to give an indication of whether the candidate is trainable. Introductions to the team environment, theoretical and practical group exercises and competency based interviews are also key parts of the assessment.

3.3.1.2 Air Traffic Control

For air traffic controllers, psychometric testing along with other assessment methodologies have been developed by occupational psychologists and human resource specialists to develop a three stage recruitment process that includes:

- Psychological testing;
- Psychometric and job sample tests; and
- Competency-based interviews

The three stage process is designed to measure individual behaviour identified in the psychological testing.

Psychometric testing is considered a very strong indicator of how well candidates will deal with the technical aspects of the training, while competency based interviews and group exercises are used as indicators of interpersonal and competency based aspects.

Recruitment methodologies and results are followed up during training with data provided by the College of Air Traffic Control to act as a predictive validation process comparing test scores during recruitment against candidate's actual performance. This system could be considered a best practise and as such could be recommended for the maritime industry although the fragmentation of the industry might present challenges in implementation and tracking.

3.3.2 Rail

Psychometric testing was introduced for train drivers in 1993. These tests are conducted at assessment centres around the UK-owned rail companies or groups, by appropriately qualified personnel approved to conduct psychometric testing. The selection processes are reviewed periodically and the latest review is currently in final trials with analysis expected early next year. This periodic review is conducted to ensure that the selection criteria and assessment methodologies are kept up-to-date.



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Psychometric testing is used to gain a better understanding of the candidates' abilities and attributes. These aim to describe the particular skills and how well they will perform tasks and also an individual's character or personality and therefore behaviour.

The Key features of psychometric test³: are

- They assess, as objectively as possible, an individual's ability and attributes.
- They allow you to compare people and identify differences in their performance.
- They give evidence to show that these differences are real and can be proved.

RSSB are currently exploring potential improvements to the selection process. The proposed process is likely to consist of various cognitive and psychomotor tests, as well as a Situational Judgement Exercise (SJE), followed up by an interview that focuses in on the results from the SJE.

Selection methodologies in the rail industry vary depending on the specific role and organisation. For example one operator uses interviews to assess behavioural aspects, with psychological tests used for certain roles, but not at entry level. For drivers and guards the behavioural interview assessment is coupled with a competency-based interview to list all the required strengths from the candidate that should be demonstrated in the interview. These are based on four main behavioural areas: focus; consistency; personality and progressiveness. Group exercises are generally limited to customer service roles. The combination of the competency and behavioural based interviews are considered currently the best selection methodology.

3.3.3 Offshore

Competency-based interviews including role-playing real-life scenarios as part of the interview, combined with reviewing the skills of the candidate in relation to the role form the basis of selection method for site-based offshore roles. This is considered the most successful methodology within the organisations interviewed as it enables the team of interviewers to make an informed decision on the candidate.

3.3.4 Military

Selection begins for both the RN/RAF when potential recruits visit one of the Armed Forces Career Offices (AFCO) located across the country. Generally for officer recruits the AFCO would expect them to have some knowledge of what they want to do in whichever service they wish to join having done prior research. The AFCO will hold an initial discussion to ensure the recruits understand what will be required of them.

³ Competence Assurance Solutions (CAS) *Psychometric testing in train driver selection and driver management. A guidance note for all rail company managers involved in driver selection and management v1.3.* 13 January 2006.



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An initial interview held at the AFCO raises questions related to reasons for wanting to join the particular service, what branch of the service they want to join and why together with more general questioning related to extracurricular activities and motivation. In the case of the RAF, the AFCO will forward a report to the Officer and Aircrew Selection Centre (OASC) and approximately 1:12 to 1:15 are successful at this stage.

Applicants selected from those attending the AFCO will then be called for formal assessment to OASC based on the numbers required. At OASC the candidates are subjected to a series of tests over a number of days including aptitude tests, exercises, interviews, medical and fitness assessment leading to a final decision on whether the candidate will be accepted for training. At each stage of the assessment, candidates can be rejected if they do not meet the required standards. Typically 10% successfully complete the assessment process but candidates can repeat after a year and up to three times. The assessment process is designed to ensure that those who pass have a good likelihood of successfully completing the training which reduces costs overall, considering that Pilot training for Typhoon for example can cost £8M hence reducing the probability of failure is seen as a cost effective benefit.

Following success at the OASC, candidates may be offered a place at Initial Officer Training which 97% successfully complete. Specialist training follows with less than 10% drop out rate. These figures are attributed to the robustness of the assessment process.

The RN and RFA have a similar process where potential officer recruits will attend an Introductory Careers presentation and complete a Recruitment Test (RT) at the AFCO. If successful, candidates will take medical and fitness tests and if suitable for officer training, are called to attend an Admiralty Interview Board (AIB). Potential Pilots will also go the RAF OASC for aptitude tests. At the AIB, candidates are given a series of tests covering reasoning (verbal and non-verbal), numeracy and written tests, psychometric tests are used for cognitive behaviour and IQ, as well as fitness and practical leadership tasks all taken over two days. Success at the AIB, based on highest score, will lead to an invitation to attend training at Britannia Royal Naval College.

3.3.5 Nuclear

Competence-based interviews are prevalent in the nuclear industry and considered the most successful methodology for selection. For internal recruitment of lower grades these aim at identifying the use of specific skills and knowledge and understanding of regulations to ensure any proposed operations/solutions are in compliance with the law and not merely based on engineering solutions. 'Soft' issues such as communication skills, ability to influence others and team-work assessed through scenarios are also important. These issues are considered particularly important when recruiting personnel that were previously in 'command and control roles' (e.g. Royal Navy'), where influencing skills were less important within the command structure.



REPORT

For higher grades, one day assessments revolve around management skills (project management etc.), however in certain cases ability to work on their own is important in case of an emergency, so both inter and intra personal skills are needed and assessed for.

At nuclear power plants personnel are working with nuclear reactors / equipment in many different roles and most people hired are graduates through graduate schemes and not necessarily from technical backgrounds. Therefore for promotion and increases in grade levels, the selection processes are based on examinations, demonstration of knowledge and experience by undertaking exercises, testing candidates in different roles and benchmarking against each other.

Psychological testing is used for plant operations, especially in senior engineer posts and particularly in emergency response situations (crisis management and cognitive loading).

External recruitment also focuses on competence with technical competence tested through interviews and professional references. Graduates receive a one day assessment that concentrates on communication skills, team working, core competence, scenarios, tests for organisation and management, role play (negotiation, interfacing and pressure).

3.4 Benchmarking

Assessment methodologies do not differ significantly in the maritime industry; however there are minor differences in traits and level of assessments which organisations are pursuing especially in the cruise sector and those companies that might be considered forerunners standing out from the norm.

The industry and society have changed significantly over the years and it is evident that the current selection methodologies whilst still considered valid and effective by the industry for cadet recruitment do not always adequately address selecting candidates with the tenacity for a sea going career.

Considering that the present seafarers approaching retirement age might be considered to demonstrate the aptitude, mentality and focus required for professional, competent long-term seafarers, there is no evidence that today's recruitment processes would specifically identify these individual character traits.

Academic requirements and social expectations have changed. The current methodologies are meeting recruitment targets for cadets. However whether they are selective and comprehensive enough to meet the requirement of identifying candidates that have the potential to stay long term at sea to become future Captains and Chief Engineers is not clear.



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Other industries and organisations such as the RAF, RN and RSSB spend significantly more resources in ensuring the applicability of the tests in identifying the best suited candidates for their particular industry, role and requirements. With the increase in cadets over the last ten years leading to a point where the numbers of applicants are much higher than the availability of berths, a more selective process to ensure future requirements are met could be beneficial to the UK merchant navy.

Certain participants have taken their recruitment processes and assessment methodologies further with this long-term goal in mind, However there is no one 'industry standard' similar to how the rail industry functions with the RSSB producing guidance in the form of a voluntary code that has been adopted as a *De Facto* industry standard which is reviewed periodically to ensure its continued effectiveness and suitability.

Past data was not made available for this study by companies for confidentiality reasons. However the consultants believe that with a highly mobile workforce with the potential to work in many companies under differing Flags, data throughout seafarers working life is generally not collected in one independent source. Therefore any detailed assessment of recruitment and selection methodology and long-term retention could not be undertaken as part of this study.

The use of third-party external testing organisations is not common place within the industries interviewed, with most conducted in-house. Exceptions do occur for example in the nuclear industry where assessment requirements determined by the job analysis or competency framework are not available internally, and in the rail industry where a rail specific and recognised third party testing organisation offers generic or bespoke services.

One of the defining differences in assessment methodologies not utilised in the maritime industry is psychometric testing, which forms an integral part of the selection processes for the aviation (both pilots and ACTOs) and the rail industry. Competency-based interviews also form integral parts of selection in the industries interviewed, while maritime recruitment might contain some elements of competency-based, most candidates have limited or no competence in the maritime industry so this is limited to applicable skill sets.

The level of assessments in selecting candidates is largely reflected in the cost of training and levels of inherent risks in the industry. In the aviation industry and RAF for example, the costs associated with the training of Pilots makes the extra investment spent during selection to identify strong candidates with a high likelihood of successfully completing training sensible due to the costs associated with training. The responsibilities of train drivers especially being so visible in the public domain compared to shipping and the numbers of people associated with train travel is reflected in the comprehensive nature of the psychological testing conducted by the rail companies.



REPORT

During training, cadets are exposed to on-going assessments both during their sea phase and shore based training. Continuous assessments are evident in certain companies interviewed; however standard assessments that can be used to feedback into the success and applicability of the assessment methodology are not prevalent. In comparison train drivers are periodically psychometrically reassessed and for ACTOs recruitment methodologies and results are followed up to act as a predictive validation process comparing test scores against how candidates perform during training, providing a test score versus training.



REPORT

4. RECRUITMENT

4.1 Overview

This section aims to provide an overview of the recruitment of British merchant navy deck and engineer officers, detailing any difficulties in recruiting, effective initiatives, reasons for joining, numbers of cadets, the type of ongoing assessments conducted, how potential cadets are acclimatised to the reality of going to sea and whether organisations have a formal resourcing strategy in place. These are then compared and benchmarked against other 'safety critical' industries participating in this study.

4.2 The Maritime Position

4.2.1 Challenges

Few incidents have been reported where there have been recruitment difficulties and in fact in certain situations recruitment has been closed early due to oversubscription, with organisations meeting their cadet quota. This tends to contradict previous opinions which indicated that companies could not recruit sufficient cadets of the right calibre.

Concerns have been raised in regards to the development of female officers, where the unavailability of single berths and number of female cadets have required cadet sharing between organisations with female cadets spending the whole sea phase of their training together, without the possibility of being split up. Female cadets could potentially be an untapped resource, however due to the requirement to share berths and perception that they sometimes should be paired for emotional and moral support, which is not always in line with today's equality expectations, might put limitations on this.

The availability of suitably qualified engineers in sufficient numbers wishing to enter the merchant navy has been raised. However this has been a common feature across most interviewees, which largely reflects the decline of engineering in the UK as a career and while an issue in the merchant navy, it is not a problem unique to this industry.

The general opinion is that the opportunities in the merchant navy are not widely known outside the traditional recruitment areas, which currently for those interviewed in England, means individually the recruiters need to be more proactive in taking initiatives themselves. In Scotland, the awareness of the opportunities in the merchant navy appears to be greater, potentially due to a higher seafaring tradition from families, shipbuilding, offshore and fishing industries.



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Discussions have indicated that the recession has not negatively impacted the industry in respect of applicants for cadetships; in fact it has had quite the opposite effect and resulted in higher numbers of applicants, as previously identified with companies being able to close recruitment early having met their requirements. Such candidates have been reported as coming from other industries and demographics and there has also been a noticeable increase in the age of applicants for cadetships

The recession has affected external recruitment of experienced officers more than cadetships, leading to salary caps, however with more ships laid up the pool of officers in the market has generally increased.

4.2.2 Initiatives / Resourcing Strategy

A number of different recruitment initiatives are used across the maritime industry from internal recommendations, word of mouth, college visits, recruitment fairs and internet adverts. No one methodology has been stated as the most effective as most recruitment tends to focus around the traditional maritime clusters. However in Scotland there appears a much greater awareness of the opportunities in the merchant navy which was enhanced by the six part television show “The Merchant Navy”, which was only shown in Scotland, and has proven to be a significant recruitment tool.

The main driver in the maritime industry is purely to meet the individual organisations requirements for deck and engineer staff from owners and ship managers, be this either via themselves directly or by using recruitment agencies to source appropriate personnel. Targets for the recruitment agencies are dictated by their clients and the demand of the industry to meet their requirements for cadets. These agencies will look into different parameters such as location, academic background, gender of cadets and advise on which candidates are suitable for specific clients. These candidates will then frequently be met by the potential operator before deciding whether to take them on.

The numbers of cadets required in any given year are defined by individual company requirements to meet future internal crewing/manning levels and requirements to take on board trainees as part of the tonnage tax commitment for participating companies. The tonnage tax legislation was enacted in 2000 with participating companies entering into a “Training Commitment” requiring them to train one British or European Economic Area (EEA) national ordinarily resident in the UK for every 15 officers on board, or payment in lieu to the Maritime Training Trust⁴.

⁴ HM Revenue & Customs. TTM01010 - Introduction to Tonnage Tax: A BRIEF GUIDE



REPORT

4.2.3 Outsourcing Recruitment

For cadets, outsourcing recruitment is not used outside of the established maritime recruitment agencies. Some organisations use the agencies for all their assessment and recruitment needs while others use them to filter out suitable candidates and then test them internally.

4.2.4 Reasons for Joining

Based on responses given by candidates during their selection process with recruiters, the most common reason for joining the merchant navy appears to be due to a family member having been at sea, supporting the reasons for high levels of recruiting in traditional recruitment areas. Other responses included:

- travelling to see the world;
- the nature of the job not being a normal 9 to 5 one;
- the defined career progression, job security; and
- Financial reasons.

Unlike some of the other benchmarked industries there was no evidence that a seagoing career was seen as a job for life.

The recession has seen an increase in candidates looking for a career change from other industries and applying to become cadets as well an increase in the age of applicants.

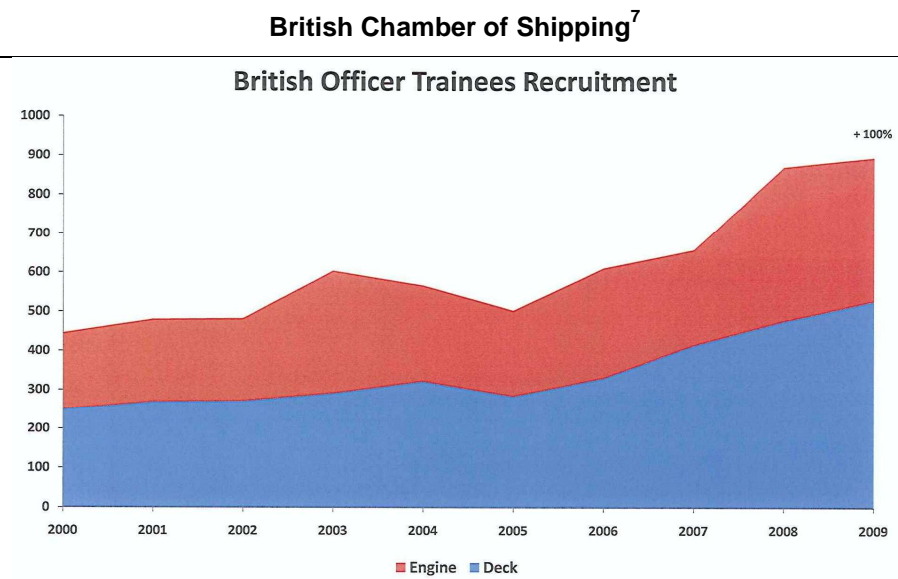
4.3 Cadets

4.3.1 Numbers

There has not been any perceived or actual drop in the number of applications for British cadets, from the interviews conducted. The numbers remain constant and sufficient to meet the requirements of the organisations interviewed, however it should be noted that applicants apply to multiple companies, so the numbers can appear inflated within the industry. There have been no reported problems in filling the posts available and in certain trades, such as the cruise industry, applicant numbers have been reported as up to 5 times the numbers required, allowing companies conducting their own recruitment to be more selective ensuring they recruit only the most promising candidates.

These findings are supported by data available on numbers of British cadets shown from three different sources in Table 4.1. Since the introduction of the tonnage tax in 2000, the numbers of trainees have been increasing apart from a dip in the 2009-2010 in take.

Table 4.1: British Officer Recruitment Numbers

Source	MNTB ⁵	SMarT ⁶	British Chamber of Shipping ⁷
2005-06		518	
2006-07	733	671	
2007-08	859	851	
2008-09	921	925	
2009-10	763	756	

Numbers of deck applicants are clearly higher than engineer applicants supporting some of the comments made during interviews as part of this project regarding shortages in suitable qualified personnel for engineering positions.

Four concerns were raised that could affect the number of cadets:

- 1) If the SMarT funding from the government was reduced, increasing the cost of training of a British cadet, then this potentially might result in a reduction in numbers of recruits.
- 2) Concerns relate to the Maritime Labour Convention (MLC) and how this might impact on available berths.
- 3) Any proposed changes to the minimum wage criteria that might potentially impact on cadets.

⁵ Provided by The Merchant Navy Training Board (MNTB) which is the central body for promoting and developing seafarer education, training and skills

⁶ Support for Maritime Training (SMarT) funding, data provided by MCA

⁷ <http://www.british-shipping.org/British%20Shipping/Statistics>



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- 4) The final area of concern raised related to any potential changes to the tonnage tax and how this would affect recruitment targets and therefore numbers of cadets depending on the level of penalty affecting the costs of training cadets versus paying into the Maritime Training Trust. This is particularly applicable for those companies providing cadet training placements above their identified future manning requirements for British seafarers under the tonnage tax requirements. Positively it has been communicated to DNV by certain parties that in the long run it is better and cheaper to train their own cadets as opposed to recruiting established seafarers.

4.3.2 Acclimatisation

Each company has its own induction methodology that aims to introduce the candidate to the company and a life at sea, ranging from booklets, videos and familiarisation on-board in the case of the cruise and ferry industry. These all aim to prepare the candidate for a life at sea, however it still appears to ultimately come down to the individual personality and character over whether they are suited for a life at sea and the unique lifestyle and nationality mix they face. For example one case study discussed during interviews, was of two equally bright cadets joining the same ship having completely differing experiences, one thriving and the other wishing to leave.

4.3.3 Ongoing Assessments

Outside the normal college / university reports cadets are typically exposed to appraisals during the sea phase of their training to assess their competence and performance usually by the Chief Engineer or Captain. Frequency can vary between organisations; however the use of on-board appraisals is relatively standard between them.

Some of the operators will also use simulators to periodically assess all relevant sea staff on their performance and discuss the outcome afterwards to ensure performance and familiarisation is maintained. However after qualification, companies keep detailed records of performance and ongoing appraisals for their own staff, but these are not linked back to recruitment or previous employers. Due to confidentiality reasons, their use to assess and validate current recruitment methodologies in particular in improving safety standards, improved retention rates and effective career progression has not been feasible in this study in any level of detail.



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4.3.4 Retention

Not all cadets are guaranteed a placement at the end of their cadetship; however numbers finishing their cadetship and not gaining long-term employment or finding alternative employment in the industry is not available centrally for the industry as a whole however, MCA in-house research showed that 96% of qualified cadets were successful at getting a job at the end of their cadetship. The remaining 4% chose not to.

The drop-out rates during the three year cadetship period reported from interviewees ranged from 0 to 15% with reported values from Support for Maritime Training (SMarT) funding having this value closer to 30%. The selection process is believed to reduce the overall drop-out rate by aiming to highlight challenges of the course and life at sea before cadets take up places. The issue of candidates being able to cope and acclimatise to a life at sea appears to be a major issue. Dissatisfaction with a sea going life is one of the reported reasons for dropping out with significant numbers usually dropping out after the first sea trip.

Of those British cadets completing their cadetships they generally do not stay long at sea after qualifying, seeking sufficient experience and qualifications before taking a job ashore. Data provided by the MCA suggests the current average period at sea is approximately seven years and their perception is that it has been steady for a number of years. On a positive note many senior British officers are remaining at sea, although not necessarily on UK Flagged ships, and those coming ashore are finding alternative employment still within the industry. This is a shift from more traditionally long-term sea going, to a point where the expectation is seafarers are going to sea until suitably qualified to move to a more stable shore position.

The cruise industry reports very high retention with a very low drop out of cadets and personnel typically staying in the industry or moving into the super yacht sector. Of these other trades retention was reported as very high, but this could be representative of the organisations interviewed and not the industry as a whole.

While retention of qualified seafarers was not directly part of the scope of this project, the perceived reduction in average time seafarers are staying at sea and associated increase in personnel coming ashore potentially eroding the 'experience' at sea is a concern of those interviewed in the industry as part of this study. Outside individual companies there is still no accurate through-life tracking of the development and retention of officers long-term in the industry, reducing confidence in the actual numbers.



REPORT

4.4 Other Industry

4.4.1 Aviation

4.4.1.1 Pilots

There has been no real resourcing strategy other than to meet numbers required in the aviation industry, correlating to volumes of air traffic. Within the industry initiatives that are taken in order to promote and secure candidates on training schemes include:

- Advertisements in various aviation publications, e.g. Flight International;
- Promotion of aviation and becoming a pilot as a career;
- Maintaining relationships and activities between flight training colleges (e.g. Oxford Aviation Academy (OAA), Crew Training Centre (CTC)) and airlines;
- 'Open days' at academies for those interested in finding out more;
- Sponsorship schemes are available with training academies and selected airlines;
- Conversion courses for recruits from other sectors e.g. RAF and Army;
- Flexible learning – Full time or distance learning; and
- Attractive pay back of training assessment fees if student fails.

There have been no real difficulties reported in recruiting Pilots, however Pilot expertise is a limited talent pool so the industry could face employment difficulties if Pilot demand increases. Pilot recruitment sources include the Military, flight colleges and other airlines. On-going assessments include flight simulator sessions periodically.

Retention in the aviation industry is very good and it is extremely rare for Pilots, once fully trained and qualified to leave the industry, so the overall turnover of Pilots is very low. Being a pilot is considered a job for life. The recession has affected recruitment as airline requirements for Pilots have slowed, however a reverse in this trend is expected.

No formal recruitment strategies were identified and similar to most industries recruitment is on a needs basis. Recruitment initiatives can include advertising in trade media, such as Flight International and maintaining relationships and activities between the airline operators and flight training colleges such as OAA and CTC.



REPORT

4.4.1.2 Air Traffic Controllers

For Air Traffic Controllers (ATC), resourcing is done using an external agency with the process managed and conducted online. In addition to promote the career, recruitment staff visit recruitment fairs and air shows and other venues where the career can be marketed and potential applicants met. A Director of Simulation & Training oversees strategic resource planning, manpower requirements, recruitment and training. Part of this responsibility is ensuring that recruitment is in line with the predicted traffic growth and other related business strategies. A recruitment agency is also used that advertises on social networking sites and advertising channels, with the success rates of this format of attracting candidates actively monitored.

For Air Traffic Control Officers (ACTOs) there have been no reported recruitment difficulties and numbers of applications healthy ensuring all vacancies are filled at the College of ATC, although during the recession there has been a decreased demand for trainee ATCOs due to the downturn in air traffic. The ATCO role is not strictly a graduate entry profession although graduates do apply it is not strictly a direct comparison to the maritime industry.

To acclimatise ATCOs to the rigors of their potential position they undergo induction training at the College of ATC (Air Traffic Control), and also get posted at air traffic control units. Candidates will also receive pre-joining material from the Human Resources department (e.g. what to expect at college, training etc) and an on-line forum is available to those trainees joining.

Once qualified, ATCOs enter a competency examination scheme for their unit that assesses ATCO competence and also further specialist training is provided for unusual scenarios and emergency situations.

Reasons for wanting to become an air traffic controller vary and have included; family and friends already operating as part of air traffic control, the lifestyle (shift work and days off), ability to leave work behind at the end of the day, love of aviation and aircraft, favourable salary and terms and conditions. Job location is rarely a consideration as candidates understand they could be posted anywhere depending on business needs.



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For ATCOs, retention is also high, with good work terms and conditions and opportunities to work abroad. There are some dropouts during ATC College, however exit interviews ensure reasons why are monitored. The recession has affected resourcing strategy due to drops in traffic resulting in fewer numbers of people recruited to be trained for future roles; however manpower requirements change as air traffic changes. ATCO recruitment is completed in-house, however all other recruitment is outsourced. This is due to the ACTO role being considered business critical and as such too important to outsource. This is also the case for most other Air Navigation Service Providers (ANSPs) across Europe.

4.4.2 Rail

Careers are promoted through specialist industry newspapers such as Rail News to help attract the right candidate. Also, posters are used in rail stations, travel centres and a move into e-recruitment is perceived in the near future to raise awareness of careers in the rail industry. For senior management, head hunters might be used. Typically <20% of new recruits are graduates with 60-70% unskilled (no relevant skills), however currently there is no graduate recruitment amongst the organisations consulted.

There have been no difficulties in attracting the right candidates, however the numbers of vacancies has reduced due to the economic climate and internal recruitment is preferable. One company participating in this study is launching a new e-recruit tool, enabling public to express interest in rail positions, even when no vacancy is available and candidates can apply online and take the numeracy and literacy tests. Successful candidates will have their information kept on record. Job alerts will be sent out when a vacancy becomes available.

Reasons given for joining the rail industry are typically because people see it as a job for life and the work is very steady. Applicants are usually very clear on the position they want and perception of what to expect in the job and see it as a lifetime career. In one example provided all new recruits receive a corporate welcome induction training lasting three days, which covers all the core information about the organisation. After this, new recruits will enter their specialised training with duration of three to four weeks.

In some companies ongoing assessments for drivers and guards include psychometric tests every five years and medicals (safety medical or periodic medical test) every two to three years, increasing in frequency with age.



REPORT

Retention of train drivers, guards and to some extent station staff is high, with no problems maintaining these. Service type roles and customer-facing staff have the high turnover but as these are not considered 'safety critical roles' they do not fall into our comparisons, however staff turnover is still relatively low around 7%. While the recession has not affected recruitment strategy it has resulted in a reduction in numbers recruited. Recruitment is not outsourced, except potentially to head hunters to assist in identifying candidates for high level roles e.g. Director Level.

4.4.3 Offshore

The most effective recruitment initiatives reported for the offshore industry have been focussed advertising and head-hunting, while selecting the right appropriate local newspaper and using internal advertising has also proved effective. Other mechanisms used have included supporting university and school recruitment fairs, school visits (for students completing the 14-19 engineering diploma), work experience and use of trade publications and recruitment agencies for specialist roles (head hunting for more advanced roles). Recruitment difficulties are generally limited to specialist roles such as specialised/senior design engineers, especially where relocation is required.

The aim is to introduce, at an early stage, the candidate to the field environment and working offshore. During the recruitment process and interviews, work requirements are described in detail, including being away from home and long working hours, with the intention of describing a realistic portrayal of the work-life balance to each candidate, in order to manage the expectations of the employee before they arrive onsite. This is further supported by a comprehensive health and safety induction and compulsory sea survival training.

Currently there were no graduate schemes in the organisations consulted as part of this project however graduates are recruited for site engineering roles employed as project engineers.

Field-based employees, at the close of each project are subject to ongoing assessments, by the project supervisor who provides a progress report for personnel working on their contract and makes recommendations for training and further experience. Typically there are 5-6 progress reports per person each year in addition to a full annual appraisal and personal development plan.

Some of the main motivators for joining the offshore industry have included the feeling of job security, long-term career opportunities in marine engineering, the option of worldwide travel, good salary and benefits, flexibility of hours and working arrangements and support of career progression.



REPORT

Retention in the offshore industry is high with roughly a 7% turnover typical in the industry. Entry-level field-crew tend to leave more for reasons of work / life balance, money or to pursue a different career route. While the recession has typically not affected recruitment strategies there has been an increase in applicants to choose from, resulting in increased time to fill posts. Typically, outsourcing is not used except potentially head hunters for senior positions and as a way to increase efficiencies and for their expertise in knowing the wider industry. Where outsourcing is used, all final assessments will still be conducted in house.

4.4.4 Military

The armed services generally have minimum requirements typically comprising 2 A-levels or 3 Highers or equivalent 5 GCSEs/SCEs at Grade C/3 minimum or equivalent, including English language and Maths. There are other constraints which are managed as part of initial enquiries. The services will sponsor people through university, subject to meeting a number of requirements. The RAF takes approximately 70% of their intake as graduates.

The RFA unlike the RN will also employ experienced seafarers with appropriate MCA certification across all specialisations. The RFA also has a cadet scheme for officers that broadly follows those of the merchant navy being a mix of college and sea experience leading to foundation degrees.

Due to the nature of their business there are nationality and residency criteria to join the services.

Reasons for joining these services vary but include:

- Not a 9-5 job,
- Travel, and
- Job for life / long career.

Over time the expectations of recruits have changed for example people are not as willing to be away from home for extended periods. New recruits are not accustomed to the level of authority and discipline expectations of the forces and increasingly they do not appear to be able to accept criticism if they do not meet the expected standards.

Retention is seen as good at the present time in the RN, RFA & RAF. This is partly attributed to the current employment market and availability of alternatives. Retention may fluctuate based on the availability of jobs outside of the services.

The services are employed on long-term contracts. In the case of the RN this is an initial 12 year period and in the RAF it is 6 or 12 years, but officers may be able to join for longer.



REPORT

Throughout their careers, officers in the services are subject to regular assessment and review and are selected for promotion or specific jobs based on the assessments.

Recruitment by the services is via advertising when required and websites. The services also have contact with universities and can sponsor people. Recruiting teams also attend numerous events around the country. The RN, RAF and RFA all have websites which provide full information on the recruitment requirements and opportunities.

In the current climate there is no shortage of candidates and it can be considered a buyers market and hence selection standards are set above the minimum standards to which candidates are assessed.

Recruitment faces some challenges in that when a requirement for a specific role is identified it can take a long time to recruit, assess and train a replacement. These long lead times due to the length of training can mean that gaps in trained personnel occur whilst candidates navigate the recruitment and training process.

For all of the services there are comprehensive websites which give clear details of what is expected at each stage and prerequisites for joining. During discussions it was clear that in all three services the standard of education was key and the requirements of the services exceeded the current skills which many school leavers have. This mirrors the concern raised in the merchant navy, particularly in maths.

The services have not suffered during the recession, in fact during times of difficulty recruiting increases and the services can afford to select the very best candidates. In all discussions it was clear that the minimum standards expected are fixed and are a bar below which the services will not drop and in fact often in times of plentiful candidates the bar can be raised.

4.4.5 Nuclear

Recruitment in the nuclear industry over 5-6 years ago had faced problems relating to low salaries not attracting suitable candidates. With the pay now increased, the level of applicants has increased, clearly reflecting a link between pay and work location. Recruitment initiatives typically include leading journals, graduate fairs, word of mouth (due to specialist nature of the industry) and working relationships. A lot of work is done in the nuclear industry on demographics and skill sets in the UK, to identify and compare the people with the skills in comparison to plant and skill requirements. The problem of an aging work force is being addressed in recent years with increased younger persons joining the industry, but it is still a very specific industry with very specific skills.



REPORT

One of the obvious success stories and initiatives to attract graduates to the nuclear industry has been the 'nuclear graduates scheme' established in 2008 by over 20 organisations involved in Britain's nuclear industry. The scheme seeks graduates in three main areas; engineering, science and commercial and is now ranked number 64 in the *Times Top 100 Graduate Employers* table, attracting around 1000 applicants a month, with about 40 graduates joining the scheme this year⁸.

Reasons for joining the nuclear industry have included career changes, such as marine engineers from the Royal Navy who sometimes join as operatives at power plants or straight into organisations such as the Nuclear Installation Inspectorate or Nuclear Decommissioning Authority.

To prepare personnel for work in the nuclear industry a formal training programme is provided and it is specific for each post to work towards gaining Duly Appointed Person (DAP) signature, based on the responsibilities for the specific posts. This acts as an authorisation mechanism with different DAPs for each role.

The nuclear industry has very low turnover, the movement of personnel is generally between different organisations in the nuclear industry as opposed to leaving it. There is a relatively small pool of specialised resources so the recruitment has largely been unaffected by the recession.

Outsourcing of the recruitment process to third parties is used by NDA to filter applicants in terms of soft skills (human factors), to see if they meet the required profile. However if they meet the requirements then they will be interviewed for technical competence in house.

4.5 Benchmarking

Recruitment initiatives in the maritime industry mainly revolve around the traditional recruitment areas, focusing on a demographic that traditionally has an affinity with becoming seafarers. Methodologies for attracting potential candidates between the industries are relatively harmonised such as the use of trade newspapers/magazines, the internet, recruitment fairs, college visits etc. The industries interviewed have their own targeted methods of attracting candidates and have all successfully been meeting their targets for recruitment. The success of the tonnage tax to increase the raw numbers of cadets is evident; however its success in establishing an increase in long-term British seafarers will only become clear in time.

⁸ The Times. 15 Sept 2010



REPORT

There is still a largely untapped source of potential cadets outside of the traditional areas; whilst recruitment quotas are being met it would not seem cost effective to devote significant resources into raising wider awareness of a career at sea. However with retention and drop-out rates still appearing to be a significant issue this might become more viable when a structured assessment system is in place in that these new areas might produce candidates with the characteristics for a long-term career at sea.

The biggest challenge, even though number requirements are still being met is within the engineering side, however this is a UK-wide problem and not unique to the maritime industry, especially as these skills are transferrable making the transfer of engineers from one industry to another when an individuals' requirements or preferences change, relatively easy.

While individual companies' recruitment strategies are based around meeting future internal manning requirements, there does not appear to be a link in the UK maritime industry between recruitment and long-term berths across the industry. This is in direct contrast to other industries interviewed, especially when comparing organisations like the RN and RAF where recruitment is tailored and targeted to meet current and future gaps in competencies within the organisation with a longer term mind-set.

The reasons for joining the merchant navy provide an interesting insight into the perception of a career at sea. While the responses provided by candidates to recruiters often precede acclimatisation or induction training, the reasons given might provide a small insight to some of the challenges. For example three reasons included: joining because of a family member; to see the world; and for financial reasons. The industry has changed significantly between generations and a career at sea is no longer a way to see the world with short port turn around times and security issues, and if the financial reasons given relate to non-residency and tax exemptions may not fully understand the period of time required to be out of the country.

Efforts appear to be made through discussions, company inductions and videos to prepare candidates for a life at sea, however on board acclimatisation and preparation of cadets creates challenges not faced by the other industries researched. However well a candidate is briefed, the realisation of the situation will only really hit home during the first sea voyage, which is reflected in the high dropout rates in the first year of cadetships. Offering candidates 'work experience' onboard to trial conditions or near to 1,000 placements on board training ships are not really feasible. This emphasises the importance of the selection methodology in assessing the appropriate character traits and identifying those candidates best suited to these requirements. Every effort is being made painting a real picture and acclimatising cadets for the sea phase of training but drop-out rates still remain high.



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Retention is extremely good in industries such as with airline Pilots where the attractiveness of the job means it is considered a job for life and for train-drivers where it is considered a good, well paid and stable job. Within the maritime industry, retention could potentially also be considered relatively good since most ex-seafarers remain within the industry, however the concern is about retention of seafarers at sea, where there is a perceived reduction in the time seafarers are staying at sea.



REPORT

5. DISCUSSION

The industries interviewed as part of this project have their own recruitment and selection methodologies, which are aimed to meet the requirements of their industry, organisation and the specific role of the candidate. These have been developed to address their own requirements and the question for the maritime industry is what, if anything, can be learnt from how others conduct these processes and what might be applied or utilised for the benefit of the maritime industry.

The initial premise of this project has been to research the recruitment and selection processes for officers within the maritime industry, determine the effectiveness of the maritime industry's recruitment and selection processes and where reasonably practicable, the effectiveness of various selection processes. Unfortunately there have been no identified organisations that actively collect data from cadets through their work career and assess results throughout their career to be able to compare these against results from their initial recruitment methodologies. Therefore an assessment of the effectiveness of these processes has not been feasible from a quality and duration of individual personal at sea.

The numbers of trainees is meeting the recruitment targets which are limited by the number of berths, but what is still not clear is the purposes of the current recruitment. Is it to meet cadet numbers or to recruit long-term seafarers that ultimately will become the future Captains and Chief Engineers. The latter would be expected and now that current recruitment is oversubscribed there is an opportunity to review the selection methodologies for effectiveness in meeting this.

Recruitment strategies and the numbers of cadets required should be defined based on the numbers of future officers needed to ensure these numbers are met. Reported shortfalls in merchant seamen have varied and it is still not clear what are the required number from within the UK maritime industry and the demand from the industry for British Officers. This number should be identified so it can be fed into the recruitment strategies to ensure the right numbers and types of personnel are entering the industry, as presently there is no clear link between the number of berths and the recruitment strategies. There is therefore, potential for a mismatch between the perceived UK strategic need and companies commercial needs. Until these numbers are known it is not possible to clearly identify how many officers and engineers the UK maritime industry needs and the industry can sustain and whether this should be done by increasing the numbers of cadets or by improving the selection methodology.



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Most participants deemed the current selection methodology effective and fit for purpose, however with the limitations on available data, an assessment on the quality or longevity at sea of recent cadets has not been possible. Improved tracking of cadets through their sea-life would enable assessments to be made on whether the current system represents good value for money, particularly in terms of the use of Government money to support cadet training, especially when the drop-out rates for cadets appears relatively high.

It should be noted that some have the perception advertising for cadetships is that of a maritime career and not just a sea going career. People who leave the sea but take up other shore-based positions are not generally considered a loss the maritime industry by many.

Key capabilities and selection methodologies go hand-in-hand and while the current system is deemed appropriate there are potential lessons and improvements to be gained from other industries. With high numbers of candidates and limited potential for increasing cadet berths available, a more targeted recruitment process could prove fruitful in improving the potential of recruiting long-term seafarers. How this is done on a UK basis in a global industry is a challenge, as the maritime industry does not have the advantage of the other industries, being solely UK based. Careful consideration needs to be given to ensure initiatives taken to promote UK seafarers do not disadvantage the British Flag.

The levels of assessment vary between industry depending on the type of position and cost of the training. For example for aviation and the military, the selection process is rigorous as it is better to spend the money up front ensuring only the candidates you feel confident will pass training and qualify, when the training costs are so high, or the rail industry where psychometric testing is prevalent to ensure the right character traits are identified for potential train drivers. These methodologies have their own merits and are clearly beneficial for their own recruitment requirements and have proven suitable in these industries.

While the RAF assessment model clearly is the most comprehensive in ensuring the right candidates are selected that have the highest probability of passing the training, this level of assessment is largely not applicable for the merchant navy. Other industries demonstrate a more proactive methodology of identifying the character traits required for the designated post and the applicability of testing methodology to identify these requirements within the interviewees.



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The rail industry assessment methodology could potentially, if applied to the maritime industry, prove to be the most beneficial to its recruitment processes. Abilities and character traits of good and bad seafarers could be defined in consultation with the maritime industry and verified through an interview process similar to that as developed by the RSSB as part of the assessment for train drivers. This would then form the basis of developing and identifying applicable testing schemes that assess these traits through psychometric testing.

This methodology seems the most suitable identified during this project for assessing the specific character traits, for identifying potential maritime cadets that are likely to cope and pass the sea phase of training to become long-term competent seafarers.

Recruitment strategies are producing the numbers of recruits required within the traditional demographics. Whether this needs to be expanded to non-traditional maritime areas with further initiatives would become clear once the required numbers are identified and an assessment of the quality and suitability of the current recruitment strategies are deemed effective at meeting not only the numbers required but also in producing long-term seafarers.

While the retention of qualified long-term seafarers, has not been directly reviewed as part of this project, it is one of the underlying concerns within the industry and whether there is something that can be done to improve the retention of British seafarers at sea without disadvantaging the UK Flag is still to be determined.



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6. CONCLUSIONS

Since the introduction of the tonnage tax in 2000, which increased the demand for British cadets, recruitment is being shut early due to unavailability of cadet placements within the industry. The number of berths is finite, so increasing cadet placements at this point is not feasible, without increasing the number of berths available.

With no significant increase in berths in the foreseeable future and the number of applicants high enough to meet recruitment requirements, it would be an opportune time for a structured joint-industry formal review of the selection processes and methodologies and their effectiveness in meeting the long term goal of producing competent long-term seafarers to potentially produce an industry guideline/standard. It might be feasible to invest more time and money into the selection process to ensure a higher success rate of cadet completing their training, gaining positions at sea and remaining long term at sea.

Most industries interviewed have a more formalised and structured selection process to meet their requirements. Experiences can be drawn from industries such as rail and in particular the RSSB, who have developed tried and tested methodologies for completing these processes and while there is no direct equivalent organisation in the maritime industry, an organisation such as the MNTB would seem ideally placed to potentially take a similar role. This should also assist in identifying whether current initiatives and recruiting from traditional demographics is producing sufficiently suitable candidates or whether recruitment needs to be drawn from a wider field.

An assessment of the recruitment methodologies, coupled to a better understanding of the actual UK strategic requirement for deck and engineer officers and the sustainability of market supply and demand, would enable resources to be targeted more effectively. This will help to maximise success rates during selection and avoid any wastage of resources and time in training cadets that cannot find long term employment.

Drop out rates during training are relatively high, particularly after the first sea phase. There appears to be limited potential for improving cadets' expectations and acclimatisation from those spoken to, as every effort seems to be made to paint a realistic picture, suggesting a more selective recruitment assessment methodology is needed to identify candidates with a higher potential to cope with a life at sea.

Retention of qualified long-term seafarers, has not been reviewed as part of this project, but this is one of the underlying concerns within the industry and whether there is something that can be done to improve the retention of British seafarers at sea, by learning from other industries, or whether the attractiveness of long-term seafaring has irrevocably changed for British citizens is still to be determined.



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7. RECOMMENDATIONS

Based on the findings detailed in this report, DNV proposes the following recommendations as potential first steps in ensuring recruitment methodologies within the UK are effective in developing and maintaining competent long-term seafarers.

1. Develop a clear understanding of the long term requirement for deck and engineering officers in the industry as a whole, including the requirement for UK officers, avoiding the rhetoric around perceived shortages. Thereby clearly identifying the requirement for UK cadets, so as to influence the selection process.
2. Establish a formal joint industry project or liaison by the MCA directly with stakeholders to establish a common guideline for recruitment. Such guidelines should include:
 - Formally defining the character traits required for successful career at sea
 - To gain an understanding of the character traits of those presently employed within the industry at sea and compare these with those traits used by recruiters
 - To determine whether current assessment methodologies are effective in identifying the required character traits
 - Identification or development of appropriate structured testing regimes with the potential for initial screening to be carried out in a common manner by all companies. This initial screening could be done by an independent body prior to the companies own dedicated recruitment processes.
3. Investigate the possibility of developing tools to assist in acclimatising / preparing cadets for sea, with the aim of reducing the drop-out rates during the first sea phase of training.
4. Identify possible incentives to make staying at sea more attractive without disadvantaging the UK Flag.



APPENDIX

APPENDIX I: QUESTION SET / BENCHMARK GUIDE

This appendix gives the maritime focussed question set/benchmark guide used when interviewing the maritime industry. When interviewing other Safety Critical Industries the same basic questions were used to ensure consistency but with some tailoring to reflect the terminology and activities of the specific industry.

No.	Question	Question context	Additional context
1	What are the key capabilities required for cadets/officers? (ask interviewee to rank in order of importance)	1. Safety aspects	stress resistance; sense of responsibility; maturity & judgement
		2. Personality	flexibility; self-control; self-reliance; ethics
		3. Intellectual capacity	rationality; logical skills & reasoning
		4. Communicative skills	verbal clarity; willingness to communicate; ability to listen
		5. Drive & activity	commitment to the work; motivation
		6. Social skills	ability to make & maintain contact with others
		7. Leadership & management	diplomacy & tact; firmness; ability to plan, delegate, evaluate and follow up
		8. Potential for development	growth potential and receptivity
		9. Technical competence & qualifications	level of knowledge of processes
		10. Professional competence	rank; experience gained through years at sea; Tanker Officer Training Standard (TOTS)
		11. Ability to deal with crises	e.g. accident scenarios
		12. Ability to manage high and low cognitive loading	Pressure vs. boredom e.g. sailing through the Dover Straits compared to middle of Atlantic
		13. Ability to adapt to watch keeping patterns	Monitored on initial sea voyages?
2	Is there a formal resourcing strategy? If so, describe.	What is the main objective of resourcing activities?	1) to fill specific positions
			2) planning to meet future skills requirements
			3) addressing skills shortages
			4) other



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3	What selection methods are used?	1. Psychological testing	1) Defence Mechanism test 2) Masterline Marine 3) ATS simultaneous capacity test 4) D2 test of attention 5) other
		2. Logic indicator testing	
		3. Competency based interviews	1) knowledge of regs 2) rank & qualifications 3) sea going experience 4) other
		4. Assessment centres	
		5. Group exercises	1) role playing to view personality types 2) other
		6. Other	
4	Which selection methods are most successful in identifying the best candidates for the job?	1. Psychological testing	
		2. Logic indicator training	
		3. Competency based interviews	
		4. Assessment centres	
		5. Group exercises	
		6. Other	
5	Can past test data be made available? (names will remain anonymous)	What are the minimum pass scores? Is there any follow up on career programmes?	Will remain confidential i.e. feedback from recruits
6	Which are the best testing organisations in your experience?		



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7	Have there been any recruitment difficulties?	Reasons for recruitment difficulties?	1) lack of necessary resources (i.e. crew) 2) insufficient experience 3) require higher pay 4) image of sector/occupation 5) other
		Initiatives used to overcome recruitment difficulties?	1) appointing people who have the potential to grow into the job; 2) taking account of a broader range of qualities rather than just qualifications (e.g. personality; communication skills); 3) increasing salaries/benefits 4) other
8	What are the most effective recruitment initiatives that you have used?	What methods are used to attract the right candidates?	
9	What are the reasons given by recruits for joining the merchant navy?	What is recruitment motivation?	Prefer opinions from British recruits but will consider others
10	How many cadets are on training programmes?	What percentage successfully finish? (What is drop out rate?) At what point in course do they drop out?	How can the percentage that finish be increased? Any patterns? E.g. after 1st sea trip
11	What ongoing assessments are carried out by ship owners/managers?		
12	Is anything done to acclimatise people/prepare them for the reality of going to sea?	If so, what exactly?	



APPENDIX

13	Is there a perceived/actual drop in the number of British recruits? (cadets & officers)	If so, by how much? (% & actual numbers)	
14	What is the average British officer retention rate?	Within companies and within the industry in general i.e. jobs ashore	Does this effect the recruiting? I.e. placement of British officers in companies? (E.g. do they stay with one company for long periods or move around more than in the past?)
15	How has the recession affected your recruitment strategy?	e.g. ceasing to use psychological testing due to lack of applicants	
16	Is recruitment of officers outsourced?	<ol style="list-style-type: none"> 1. Crewing agencies 2. Unions 3. Other 	Does this cause a lack of control over the quality of officers? Has it reduced the quality of officers onboard?
17	Why is outsourcing used?	1. To increase efficiency	
		2. Reduce resourcing costs	
		3. Tap into expertise not available internally	
		4. Increase resourcing flexibility to meet peaks and troughs of demand	
		5. Other	



APPENDIX

18	Are there any retention difficulties (i.e. high turnover of staff)	For specific ranks?	If so, why is this? 1) promotion opportunities outside of organisation 2) change of career 3) other
		Is staff turnover data collected?	Are there any ranks that leave more than others? If so, why is this?
		Is exit interview info available to help understand why people leave? Can we have sight of it?	
		Have any actions been taken to address retention issues? (i.e. is there an employee retention strategy)	1) investing more time/effort in ensuring the quality of the candidates hired
			2) enhanced salary/benefits
			3) professional development & training
			4) enhanced operational atmosphere
5) improved management/leadership skills			
6) improved work-life balance			
7) other			
19	What are your views on the current STCW requirements/standards?	Is STCW fit for purpose?	Are changes needed? If so, what?