UKNEST

The Naval Sector Work-Force
A Review

Contents

Background

Studies over the last decade have highlighted concerns about the shortage of people with science, technology, engineering and mathematics (STEM) qualifications in UK industry. This “skills shortage” will be a primary focus for the Government led Year of Engineering initiative in 2018.

The overall “health” of UK engineering has been continually assessed by organisations such as EngineeringUK, whose annual reports provide a chronological assessment of the state of the UK engineering workforce over the last decade. In addition, recruitment agencies (e.g. Matchtech) publish annual reports that focus on workforce issues within the engineering sector. These reports provide useful information about perceptions within the sector and the inter-relationships between competing areas of employment.

The three key conclusions from these broad reviews of the STEM landscape are:

1. A very large projected short-fall of skilled recruits. EngineeringUK suggests a need for 186,000 skilled recruits each year until 2024 and a specific requirement for an additional 20,000 graduate engineers/year. Putting this figure in context, UK universities produce around 25,000 engineering graduates/year at present.
2. There are diversity issues with less than 10% of the engineering workforce being female and over 90% is white.
3. Concerns about the numbers of students studying STEM subjects in schools in order to feed the requisite numbers into Further and Higher Education.

EngineeringUK

186,000 Skilled Recruits/year

25,000 Engineering Graduates/year

Matchtech reviews have identified a number of factors specifically related to the Maritime sector. These studies involve large populations of respondents (~2,500) and present broad evidence from across many engineering sectors.

A cause for concern from the 2014 Confidence Index report was that the Maritime sector was assessed to be the least attractive to employees from other sectors such as Renewables, Power Generation and Oil & Gas. Notwithstanding this conclusion, the 2016 report “Engineering – Voice of the Workforce”, ranked Maritime as 5th in the league table of sectors “held in high regard”. This later review also identified that all sectors considered they were experiencing a shortage of skills, although this was more evident in the skilled trades (25%) than amongst graduates (7%) and apprentices (4%).

The Naval Defence Sector

In 2005 a review of the Naval defence workforce[1], sponsored by the MoD, identified a number of concerns relating to the capacity and capability of industry to deliver the future Naval programme.

The survey confirmed that the industry lacked both the capacity and the necessary skills to design, build and support the future fleet that included Future Surface Combatant, Type 45, Joint Casualty Treatment Ship, Queen Elizabeth carriers and Astute submarines. It was noted that the age demographic for the industry was skewed towards the 45-55 age-group that would result in significant reductions in the available personnel over the life-time of the planned ship and submarine programmes.

In 2013, a "thumb-nail" survey was conducted by UKNEST to gauge whether the concerns raised in the original study had been addressed, particularly in relation to graduates in technical subjects[2]. The results from the UKNEST survey confirmed that there had been significant recruitment at the "front-end". However, the numbers of older employees remained high and the age-range had simply shifted to 50-65. It was estimated that the sector could lose around 200,000 man/years of knowledge and experience by 2025. Perhaps more importantly, it was noted that many of the older employees had originated from the Civil Service, where they had gained training and experience across the end-to-end life-cycle of warships; from research establishments, to concept design teams, construction and support facilities. Government "out-sourcing" had led to a situation where no single organisation could replicate the breadth of life-cycle understanding for newer employees.

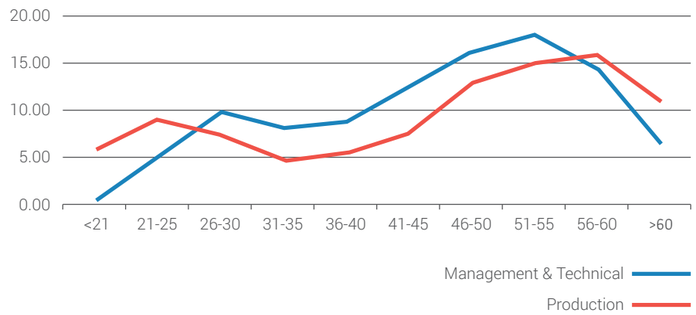
Naval Defence recruits 50% of eligible Naval Architecture Graduate

A further point of note was a "dip" in the 35-45 age group that suggested a potential short-fall of suitable experienced senior managers in future years. A similar drop in this age group was noted across other engineering sectors. There was no clear explanation for this "dip" as the numbers of engineering graduates had remained essentially constant over the last twenty years. It was assumed that the reduction in UK manufacturing and the changes in recruiting policy within the MoD during the major out-sourcing initiatives were contributory factors, along with the financial inducements offered by the expanding financial service and IT sectors.

The age demographics distribution was almost identical between the Management & Technical and Production employees, although the Production staff "peak" was shifted even further towards the higher age-group.

The 2013 survey also addressed the disciplines of the graduates being recruited. The "top four" subject areas were Mechanical, Naval Architecture, Electrical and Marine.

It was noted that the Naval Defence sector recruits a relatively small number (<1%) of eligible[3] UK Mechanical graduates, while, in Naval Architecture, the sector was recruiting over 50% of the eligible students[4]. It was considered that this situation was unsustainable with the growing competition from other sectors.



The Naval Defence Sector. . .continued

In 2016, the UKNEST graduates (FutureNEST) surveyed Members to identify the factors that contribute to the recruitment and retention of graduates[5]. The survey also examined some of the factors associated with the 35-45, mid-career, employees.

It was found that graduates were attracted into the industry by a range of factors of which the top three were:

1. Exciting projects
2. Graduate training schemes
3. Career opportunities

In terms of retention within the sector, it was found that the top three factors influencing job satisfaction during their initial years were:

1. Working environment
2. Breadth of opportunities
3. Graduate training schemes

When considering the mid-career employees, the survey found that a significant number had remained "loyal" to the sector for their entire careers and, contrary to some studies, that around 30% had transferred into the Naval sector from other industries. As with graduates, exciting projects involving innovative technology, breadth of career opportunities and the working environment were considered attractive features. Location was also recognised as an influential factor.

Less then 10% women, lowest in Europe

It has been noted that UK engineering organisations employ fewer than 10% women graduates, the lowest percentage in Europe. Interestingly, the FutureNEST survey, of around 200 employees, identified that 15% were women whilst the mid-career respondents contained fewer than 5% women. Perhaps an indication that the imbalance in gender is being addressed?

A concerning factor from the survey was that around one third of the middle-management staff were considering leaving the sector; attracted by the prospects of better financial reward in other sectors. However, there was no evidence that they actually "follow-through" and leave.

Around 30% of Naval Defence staff have transferred from other sectors

2017 UKNEST Survey

Introduction

The survey reported in this document, was developed in order to gain a better understanding of the issues identified in previous UKNEST studies and to examine whether the issues identified in the wider Engineering and Maritime skills debates were reflected in the Naval Defence sector.

The survey was divided into sections that focused on graduate and apprentice recruitment, vacancies, areas of concern, retention and recruitment of middle-management staff and finally on activities being undertaken to address specific employment issues. In order to obtain objective information, the survey focused on the information held by Human Resource teams. Thus, recruitment and retention figures are those supported by business justifications rather than subjective opinions from operational divisions.

Twelve companies and MoD departments (Annex A) responded to the survey (Annex B). Responses were received from organisations that range in size from a few hundred to several thousand employees.

It was found that the responses from all Members were consistent across the majority of the survey questions.

2017 UKNEST Survey. . .continued

Making the sector visible

All responses highlighted that Members are actively involved with on-going STEM initiatives aimed at attracting more school pupils into these subjects. The majority of the Members provide support to STEM ambassadors and have contacts with their local education providers.

The majority of Members also offer a range of schemes focused on graduates that include providing full-time "year-in-industry" positions to students, summer vacation placements, internships, bursaries & scholarships and specific mentoring activities.

The UKNEST Scholarship scheme is a highly successful example of a collective approach to encouraging graduates into the sector.

Sector supportive of STEM initiatives including Ambassadors

Recruitment

Graduates & Apprentices

All Members reported being over-subscribed for both graduate (average 65:1) and apprentice (average 78:1) recruitment. Further, they were able to achieve their recruitment targets without compromising their academic standards. For graduates, a first, or good second, class honours degree were required, whilst apprentices were expected to have at least 3 GCSE (or equivalent NVQ) at grade A-C in Maths, English and a science subject.

These results suggest that the Naval sector is seen as an attractive career prospect for young people; graduates and school-leavers.

Limited courses in Systems & Software Engineering

UKNEST research has shown that the graduate training schemes, in particular, are regarded highly by undergraduates.

There is evidence that apprenticeships with defence contractors are valued by students who wish to remain at home. Their skills and craft training are readily transferable to jobs outside the sector which has caused some retention issues in the past. Further, it has been noted that staff who follow a career path from apprentice through part-time degree education and training to management tend to remain loyal to their employers.

In terms of graduate recruitment, a number of specific subjects were identified as being challenging to achieve the necessary numbers.

These were:

- Naval Architecture
- Mechanical Engineering (this remains the most heavily recruited qualification)
- Electrical & Electronic Engineering
- Systems Engineering
- Software Engineering

65 applicants for every graduate vacancy

78 applicants for every apprenticeship

The UKNEST 2013 Workforce survey expressed concerns about the ability to maintain the Naval Architect recruitment levels both because of competition from other sectors but also the limited number of reputable university courses and their large numbers of (high-paying) overseas students. Similarly, there are relatively few Systems, Software and Electrical (focused on "heavy" electrical systems) courses available in the UK.

The majority of the participants to this survey have structured graduate and apprentice training programmes. Graduate programmes are generally based on two stages. During the initial two years (where costs are borne through a training budget) candidates receive a broad induction into the overall business. This is followed by a second stage, where costs are borne by the operational units, during which the candidates gain deeper experience in a specific area of the business.

Throughout both phases, various forms of mentoring are employed that include senior, experienced staff and recent graduate employees (buddies).

In addition, many of the UKNEST Members offer "through-career" education and training opportunities for all levels of staff as part of their Continued Professional Development (CPD).

All Members were in the process of assessing the impact of the introduction of the Apprentice Levy. The majority expected this to result in a broadening of apprenticeship opportunities across non-engineering departments. It was not anticipated that there would be a reduction in graduate recruitment.

Recruitment challenges

Naval Architecture

Mechanical & Electrical

2017 UKNEST Survey. . .continued

Recruitment

Mature

In terms of recruitment outside the graduate and apprentice schemes, the majority of Members reported recruitment that typically represent under 5% of their total work-force.

The number of vacant opportunities was small, covering a wide range of subjects and levels of experience up to Heads of Department. Subject areas ranged from general engineering to the major engineering disciplines and specific specialisations such as cyber security, product safety, combat systems and visualisation.

Numerous areas were identified as being specific "pain-points" to Members. These included:

- Naval Architecture
- Systems Engineering
- Power Electrics
- Safety Engineering
- Cyber Security
- Human Factors
- Hydro-dynamics

All Members reported that they were able to attract staff for mid-career vacancies[6] (~1% of total workforce) from a wide range of sectors that included:

- Royal Navy (probably the largest group)
- Aerospace
- Marine (Offshore)
- Oil & Gas
- Other defence contractors
- Transport & complex engineering

Pain Points

Naval Architecture

Systems

Power Electrics

Safety

Cyber

Human Factors

A number of Members noted that they were reliant on short-term contractors (Fixed Term Workers) to supplement permanent staff. There is some evidence that these supplementary staff are being used to fill the "mid-career" gap in the age demographic. A benefit of employing contractors is that it allows companies to flex their staffing levels to match the cyclical nature of the work-load in the Naval sector.

However, companies are concerned that contracted staff are sometimes too deeply embedding in the business and cause major disruption when they move elsewhere. It appears that there is a growing cadre of people who enjoy the flexibility of working on fixed-term contracts rather than as full-time company employees.

Retention

All Members experienced some loss of staff, although this was generally low (<1%). One medium-sized organization had experienced a 10% loss of staff, primarily as a result of recruitment programmes of large multi-national defence companies. The Matchtech reports identified that there were many employees (40%) within the Maritime sector who had remained in the sector for over 25 years.

In addition to competitor Naval Defence companies, Members reported losing staff to the Energy, Offshore and Aerospace sectors. The major factors that encouraged staff to leave the sector were reported as improved benefits packages (not just salary), better career prospects, work-life balance and promotion.

The overall picture is of a sector that is able to achieve balance between recruitment and loss of staff. No Members identified losing staff to other sectors as a specific cause for concern.

Reliance on contract staff
Flexibility of movement as a benefit

Knowledge Retention

All Members highlighted the potential loss of staff through retirement as a significant issue for the future and a primary cause for concern for the technical capability of the sector over the next five to ten years. As noted in the previous UKNEST survey, it is not just the loss of capacity but the loss of experience and knowledge that is seen as an issue.

Numerous approaches are being adopted to "capture" the skills and experience associated with the older "leavers". These include:

- Knowledge capture processes that monitor key subjects required for the business, conducting regular health checks against these subjects. The process is designed to identify business-critical staff who will be interviewed, "buddied" with a potential replacement, subject to hand-over training or other knowledge transfer methods, including mentoring and shadowing.
- Managed succession and hand-over planning during the leavers notice period with bespoke Training & Development plans created for replacement staff.

High proportion of older staff is recognised as an issue

Capturing the knowledge & experience of leavers

- Formal Knowledge Mapping processes that identifies the type and level of knowledge, the "transferer", "transferee" and the method of transfer.
- Ensuring that all process documentation is up-to-date and any appropriate information is formally documented. This is generally supported by exit interviews and a capture of lessons learned.
- Structured lectures/workshops presented by those about to leave, or invited "grey-beards".

Staff retention is very high > 95%
40% of employess > 25 years loyalty

Discussion

The results of this latest survey are encouraging. They describe a sector with very healthy recruitment at graduate and apprentice level, an ability to recruit mature staff and low “leakage” of staff out of the sector. However, it also identifies a number of specific issues that should be addressed for the long-term sustainment of Naval Defence capacity and capability.

Retirement is no longer mandatory People work longer

Specialists remain as consultants

1

Ageing Workforce

There is a continuing issue of an ageing workforce that could result in a major loss of experience and capacity within the near future.

There are a number of factors that appear to be mitigating this loss, that include:

There is no mandatory requirement to retire at 65 so that many of the most experienced staff are prepared to remain in employment beyond the traditional age of retirement. Indeed, many younger staff in the sector do not expect to retire until they are over 65.

A number of UKNEST Member organisations have put in place initiatives such as mentoring, knowledge capture data-bases, “grey-beard” presentations, etc.

Modern working practices and new work-place technology require fewer people.

Danger of embedding traditional working practices

It should also be recognised that there are disadvantages associated with a large number of workers who have had long careers in the sector. These include:

A bias, both conscious and unconscious, towards recruiting new staff with similar backgrounds to themselves, thus discouraging innovation

Unwillingness to transform working practices to embrace new technology and processes - steeped in the traditional ways of “doing business”

A “top-heavy” staff structure can block promotion and career development for younger, more innovative, staff.

To some extent, the large number of employees in the “older” age-group, the majority of whom have been involved in the sector all of their working lives, is reflective of the size of the Royal Navy. During their careers, the Royal Navy has reduced in size from ~150 significant warships to ~50. There is undoubtedly a debate to be had over the “ideal” age-demographic distribution, especially in light of the Naval Ship-Building Strategy and the focus on export for the Type 31e. This should invigorate the whole Naval Defence sector and will undoubtedly require revised strategies for the resources employed in the businesses.

Discussion. . .continued

2

Niche Skills

There are some key subject areas in which recruitment is challenging and will continue to be so with the increasing competition from other sectors. Naval Architecture is of notable concern. The quantity of UK graduates is limited by the small number of recognised centres of excellence offering courses in Naval Architecture and Marine Science. Further, these institutions are much sought-after by overseas students, with their high fee paying, making them financially attractive candidates. Recognising the long lead-times required to increase the numbers of undergraduates, an alternative solution to the requirement for more people qualified in Naval Architecture would be to increase the availability of both part-time and short-term full-time "conversion" courses such as the MSc offered by UCL.

The availability of short-term, modular education programmes could be a solution to many of the areas identified as being challenging "pain-points" within this survey. This is clearly an area where UKNEST could play a role in coordinating the educational requirements across Members in order to achieve economies in scale and encouraging academia to create bespoke educational modules to meet these needs.

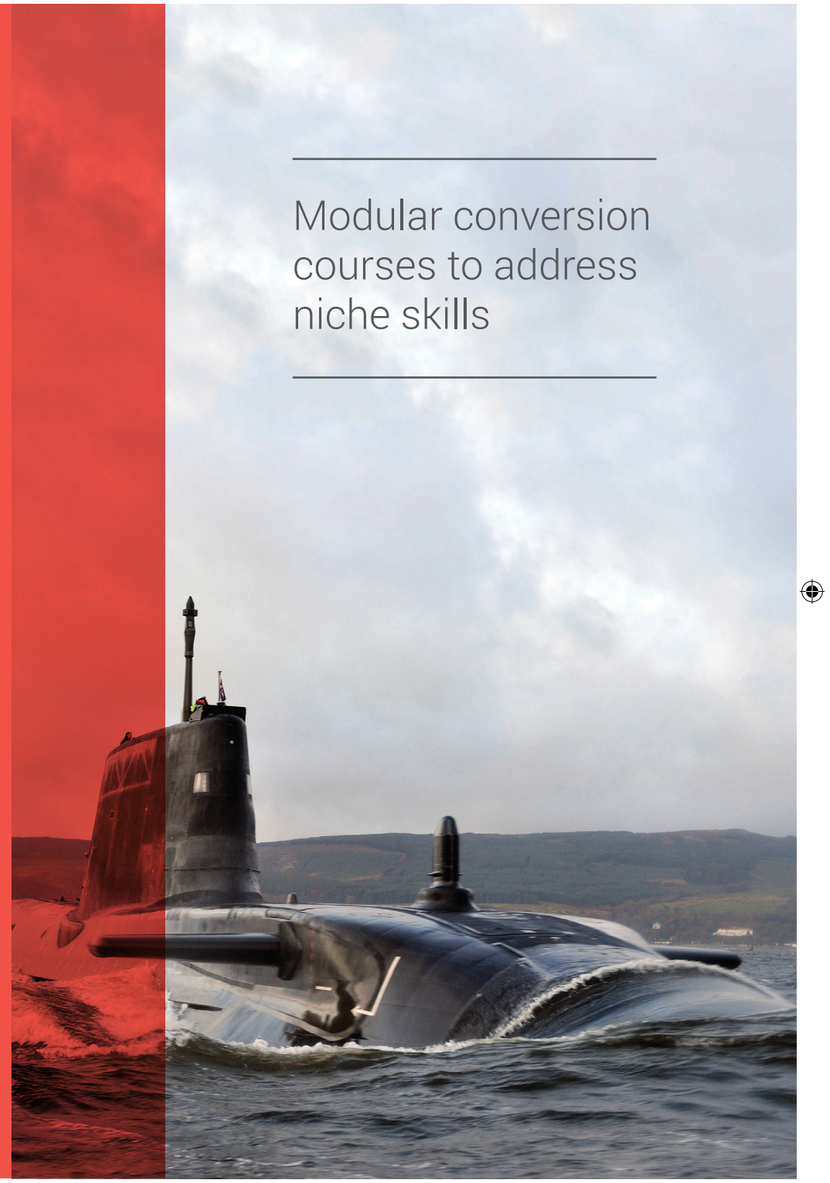
Further, the availability of modular "conversion" courses could be offered as an inducement to recruited graduates who failed to gain admission to the graduate training schemes and to "new entrant" staff transferring from other sectors. There is a tendency for recruitment advertisements to require "previous experience", which clearly rules out many potential candidates.

It was noted in the 2013 UKNEST Workforce Review that the US Naval Engineering[7] sector was also experiencing issues in attracting sufficient STEM qualified personnel[8]. There were concerns about the very undergraduates and that there should be greater emphasis on workforce dev small number of universities that were offering, what the author considered, appropriate Naval Engineering courses. In recognition of this, it was proposed that there be focus on a core set of colleges forelopment programmes to transition engineers from non-Marine/Ocean Engineering to Naval Engineering. Further, it was proposed to encourage staff exchange programmes between academia, industry and the Department of Defence (NAVSEA in particular).

The US study proposed 6 recommendations, some of which are appropriate for the UK.

1. An organization to oversee and promote Naval Engineering education.
2. Outreach programmes to promote Naval Engineering across the 4 – 19-year age group
3. That the Office for Naval Research (ONR) should provide financial support to undergraduates as well as for PhD students and research.
4. Power engineering be promoted within Naval Engineering
5. Ship construction should be promoted within Naval Engineering
6. Funding will be restricted to US citizens

Modular conversion courses to address niche skills



Discussion. . .continued

3

Recruiting For Future Naval Technology

Whilst the recruitment picture looks extremely healthy, numerous individuals have raised two concerns: are the academic standards sufficiently high to ensure continuing excellence and are the traditional degree subjects appropriate for "tomorrow's navy"? Today's graduate recruitment is focused on Naval Architecture and the traditional Engineering disciplines, in particular Mechanical Engineering. The future Navy will employ air-borne, surface and sub-surface autonomous platforms exploiting the emerging technologies of robotics, artificial intelligence, nanotechnology, etc. and incorporating cyber security measures. These will require skill-sets from the underpinning sciences and emerging degree courses such as Computer Science with AI, Robotics, Drone Technology, Network Security, etc.

Tailored recruitment for future technologies

4

Impact of MoD Outsourcing

The out-sourcing of MoD activities has had a number of effects that include:

There is no single organization that delivers the life-cycle experiences that previous MoD employees enjoyed through the defence research laboratories, design departments, build-yards, support and disposal. These functions are undertaken by commercial organisations, often with over-lapping (and thus competing) business interests. The competitive issues are a barrier to inter-company secondments and exchanges that could provide opportunities for staff to gain this life-cycle perspective, particularly in areas such as "design for support".

The MoD was a Nation-wide employer and provided the basis for the Naval Defence community. Today, many of the Naval Defence businesses are only recognised on a "local" basis. Thus, the sector may be well known in areas around dockyards, major suppliers and Naval Bases but has limited visibility in wide areas of the UK. It would undoubtedly surprise many to learn that the supply network for the new aircraft carriers covers almost every county. There is a very large proportion of the population that has little appreciation of the opportunities afforded by careers in the sector, apart from joining the Royal Navy.

Loss of life-cycle perspective

5

Diversity

There is the failure of the sector, in common with the majority of Engineering & Technical sectors in the UK, to address diversity issues. It is dominated by white men while women, and people of other ethnicities, account for less than 10% of the workforce. This is directly related to the undergraduate population studying Engineering and Technology degree subjects at UK universities. In 2015/16, only 16% of these undergraduates were women[9], and in some specific subjects, including Naval Architecture and Mechanical Engineering, the proportion is much lower. It will be difficult to redress this balance within the current capacity of the Higher Education sector and continuing pressures on academic funding.

Diversity continues to be an issue: too few women and ethnic minorities

6

Brexit

Few Members responded to the question about the impact of Brexit. Those that did identified uncertainty about the future relationships with the EU as being of concern. There was also some comment on the impact it would have on the ability to recruit specialists from EU countries.

Conclusions

Whilst this survey provides reassurance that the Naval Defence sector is reasonably "healthy", when compared with the wider engineering community, there are a number of areas for concern that require action.

More effective linkage to academia to deliver bespoke courses and maintain pipeline of talent

1. Development of academic courses to provide specialised education in those areas identified as "pain-points". There should be a specific focus on the subject (and perhaps the course content?) of Naval Architecture.
2. A co-ordinating body to both brigade the requirements of the sector and engage with academia to deliver relevant educational modules. A particular focus should be on the next generation of Naval Defence technologies and the education and skills required to exploit them.
3. Consideration to the selection of a key set of universities to provide a consistent and sustainable "pipe-line" of graduates for the Naval Defence sector.
4. Managing the loss of the older generation, with their unique career structures and experience, whilst encouraging innovation and addressing the introduction of future technology.
5. Redouble efforts, through staff-exchanges etc., to ensure that staff understand life-cycle engineering and technology issues.
6. Improve communications to reach geographic areas that are beyond the traditional naval sites. Recruitment agencies undoubtedly have a role to play in optimizing search-engines to identify potential staff.
7. Re-energise the "sense of community" that was once fostered by the MoD before out-sourcing fragmented the business activities across companies and geographic sites.
8. Diversity is an issue that is being addressed at the Engineering & Technology level through a variety of channels, including more effective communication at primary and secondary education levels of their role in our society. Naval Defence should consider how best to support the National initiatives and provide a Naval "spin" on content.

Going beyond traditional naval areas

Fostering a Naval community ethos

Improving diversity

UKNEST

The United Kingdom Naval Engineering Science & Technology (UKNEST) Forum is an informal association of organisations that represents the interests of the UK Naval Defence sector. With a vision of "Thriving through great people and superior technology", UKNEST seeks to sustain and develop the Naval Defence sector as a world-class intellectual base.

It is a Forum for the UK's professional community to address issues of common concern, fostering specific development needs and providing a focal point for interaction with, and influencing, the wider Government and Industrial Maritime community.

Current Members include the Ministry of Defence (MoD), Royal Navy, Lloyd's Register of Shipping, Engineering Institutions and a wide range of companies that supply products and services to the sector[10].

Further details are available from www.uknest.org or by contacting the UKNEST secretary John Wills (john.wills@uknest.org)

Annex A

UKNEST Members (Those marked * took part in this survey)

- Atlas Elektronik UK
- Babcock International*
- BAES Maritime - Naval Ships*
- BAES Maritime - Submarines*
- BMT Defence Services*
- Cammell Laird
- GE Power Conversion
- Defence Equipment & Support
- Defence Science & Technology Laboratories*
- GE Power Conversions*
- Institute of Marine Engineering Science & Technology
- L3 Marine Services UK*
- Leonardo
- Lloyd's Register
- Matchtech
- QinetiQ*
- Rolls Royce Marine*
- Royal Institute of Naval Architects
- Royal Navy
- Saab
- SEA*
- Thales UK*
- Wärtsilä*

Annex B Questionnaire

Organisation (or Division) Name	
Organisation (or Division) size (employees)	<100
	100 - 500
	500 - 1000
	1000 - 5000
	>5000

How active is your organisation with STEM initiatives?	We have a formal STEM programme with local schools	How many applications were received for your 2016 apprentice programme?	
	We work with a national STEM organisation (e.g. STEM Learning, Primary Engineer, Etc.)	What is the target for your 2017 graduate programme?	
	We undertake ad hoc STEM activities	What is the target for your 2017 apprentice programme?	
	We actively encourage STEM ambassadors	Do you have academic target standards for acceptance on your graduate programme? (Y/N)	If "yes", please specify
	We have no formal engagement		
	Other		
How many applications were received for your 2016 graduate programme?		Do you have academic target standards for acceptance on your apprentice programme?	If "yes", please specify

Annex B – Questionnaire. . .continued

To achieve your recruitment numbers do you have to lower your entry standards? (Y/N)	If "yes", please clarify
Have you experienced any problems over the last 5 years in meeting graduate recruitment targets? (Y/N)	If "yes", please specify
Have you experienced any problems over the last 5 years in meeting apprentice recruitment targets? (Y/N)	If "yes", please specify
Which of the following are available to undergraduates?	Placements
	Year in Industry
	Sponsorship
	Internships
	None
	Other
Are you reviewing your apprentice or graduate programmes due to the apprenticeship levy? (Y/N)	Can you provide details?

How many approved vacancies (i.e. for which there are approved Staff Requisitions) are currently unfilled in your scientific, technical and engineering areas?	
What specific topics, age-groups, levels of experience and management levels are covered by the outstanding vacancies?	
Are there any specific "pain-points" in skills and experience in your organisation which are challenging to resource? (Y/N)	If "Yes" can you specify?
What is the level of employee retention/staff turn-over?	
How has employee retention changed over the last 10 years?	
How many "middle-management" staff (technical) were recruited in 2016?	
What sectors (e.g. Offshore, Civil, Aero etc.) are you able to recruit from?	

Annex B – Questionnaire. . .continued

Does your organisation have a strategy to actively recruit from outside the region/sector and if so, which sectors are targeted? (Y/N)	If "Yes" can you specify?
Of employees leaving your organisation, which sectors do they move to?	
From the list, what the 3 top reasons given for employees leaving your organisation?	Promotion
	Benefits package
	Flexibility
	Retirement
	Job insecurity
	More interesting work/ projects
	Better career opportunities
	Career change
	Opportunities to work overseas

Based on current age-demographics in your organisation, do you anticipate resource issues? (Y/N)	If "Yes" over what timescales do you foresee problems?
In terms of personnel, what do you see as the critical challenges to your business over the next 5 years?	
Do you expect Brexit to impact on your ability to hire talent? (Y/N/DK)	If "Yes", can you specify?
Can you describe any policies/strategies in your organisation to address: Knowledge transfer? Succession planning? Specialisms? Diversity?	

References

1. The UK Naval Shipbuilding Industrial Base, RAND Corp. 2005
2. The Naval Engineering Workforce, A UKNEST Review. 2015
3. The UK defence sector generally insists that employees are UK nationals
4. UK Naval Architecture courses attract around 50% of their students from overseas. The high level of fees chargeable to overseas students is financially attractive to these universities.
5. The UK Naval Engineering, Science & Technology Skills Gap – Recruitment & Retention. UKNEST paper, INEC 2016, 27 April 2016
6. The major employers identified less than 100 approved staff requisitions in the previous 12 month period.
7. "NAVAL ENGINEERING: A field of study and expertise that includes all arts and sciences as applied in the research, development, design, construction, operation, maintenance, and logistic support of surface and subsurface ships and marine craft, naval maritime auxiliaries, ship related aviation and space systems, combat systems, command control, electronics and ordnance systems, ocean structures, and fixed and mobile shore facilities, which are used by the naval and other military forces and civilian maritime organizations for the defense and well-being of the Nation."
8. Examining the Science and Technology Enterprise in Naval Engineering Workforce and Education, Ronald K Kiss, Webb Institute, Paper prepared for the Committee on Naval Engineering in the 21st Century Transportation Research Board, 2011
9. HESA data
10. A full list of UKNEST Members is included at Annex A



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