




|| YOUNG NUCLEAR SAFETY PROFESSIONALS' FORUM

Generational Analysis for the Recruitment and
Retention of Talent within the Nuclear Industry

Task Lead: Ben Percy
Workstream Members: James Atkinson, Rowan Barton,
Charlotte Burman, Daniel Burnett, James Craven,
Victoria Murtland, Neepa Paul, John Shoyode, Jessica Taylor.

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Executive Summary

The Young Nuclear Safety Professionals' Forum (YNSPF) produced and distributed surveys to the different generations within the nuclear industry with the aim of understanding how the industry can transition from an industry designed and operated by Baby Boomers and Generation X, to one which can be ultimately operated by Generations Y & Z. The survey focussed on:

- When current employees were first exposed to the industry,
- Individual perceptions past and present,
- Motivations for joining the industry,
- Motivations for working in current roles,
- Motivations for remaining in the industry.

Results of the survey established that initial exposure and perceptions of the nuclear industry consistently come from the media and often portrays the industry in negative light. To improve this perception and increase recruitment, the industry needs to do more to engage with the public, particularly younger generations through school and university curriculums in the early stages of their education. The industry should highlight specific key benefits of working in the sector, such as salary and development opportunities, as well as publicising more success stories and responding promptly to negative reports.

It was also identified that larger proportions of younger generations do not intend to remain with their current employer for the remainder of their career, although they may still remain within the nuclear industry during this time. The extent of this varies greatly from company to company. The industry may strive to better retain its current Generation Y & Z workforce, or else must develop an adaptable form of training to account for movement around the sector, although the latter does raise concerns around how the workforce can become skilled and develop expertise in a specialist field. Training and qualifications with industry-wide recognition could ensure that employees remain competitive in a changing industry and would demonstrate a forward-thinking sector, therefore aiding recruitment.


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Introduction

Generational Theory is the concept within social science that the population can be split into distinct groups based on when they were born, with each group or “generation” exhibiting distinct psychological and sociological traits [1]. The influence of Generational Theory has grown rapidly in popularity within businesses and industries in recent years and by the year 2020, over 50% of employees will be Generation Y [2], born between 1977 and 1995 [3]. Currently in the UK nuclear industry, ‘Baby Boomers’, born between 1946-1964, make up a significant proportion of the workforce and will soon be eligible for retirement [4]. With plans for 16 GWe new nuclear capacity to be built in the UK, workforce demand is forecast to rise from 78,000 full time equivalent individuals (FTEs) in 2015 to 111,000 by 2021, this equates to an inflow of 9000 FTEs per year accounting for replacement demand [5]. In addition, these figures do not account for increased demand due to the Dreadnought submarine programme or widespread national decommissioning [6]. Therefore, the future sustainability of the nuclear industry will be dependent on large numbers of Generation Y to maintain the size of the workforce; hence the requirement to tailor the work culture of organisations to suit a generation with a differing attitude, expectation and work ethic compared to previous generations [7].

Major organisations, such as PWC and Deloitte, have already conducted studies to understand traits of Generation Y [2][8]. Results from studies such as these can identify the best methods of attracting Generation Y to become part of their workforce. They recognise recruitment and retention of the best talent must be based on understanding what principally motivates individuals and offers an environment in which they are capable of thriving.

The aim of this report is to understand the best methods of attracting and retaining members of Generation Y within the nuclear industry, as they will soon be forced to make up the majority of the nuclear workforce. In addition, this report makes comparisons between the different generations in the nuclear industry, to understand their reason for joining the nuclear industry, how long they intend on offering their services for, and what would solidify their loyalty to their organisation. The generations which were analysed included; Baby boomers (1946 – 1964), Generation X (1965 – 1976), Generation Y (1977 – 1995), and Generation Z (1996 – present).

The Young Nuclear Safety Professionals’ Forum (YNSPF) produced and distributed surveys, targeted at the different generations within the nuclear sector with a particular focus on Generation Y. Multiple organisations participated in the surveys and this report maintains their anonymity. All results from the surveys were compiled and analysed to identify any common trends. In addition to the survey, a workshop was organised which, in part, utilised results from the surveys to create several themed discussions on methods for engaging with Generation Y in the nuclear sector. Attendants at the workshop varied from those at the early stages of their career in the nuclear industry, to others with a wealth of experience. Recommendations from the workshop support the conclusions presented in this report. To best utilise the results of this study, companies and members of the nuclear industry should remember that breaking the population down into generations produces an average trend of behaviours and is not representative for every individual. Furthermore, to make the most of the data presented here, it should be compared with other demographics across the industry such as gender, ethnicity and socio-economic background.

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Background

Generational Theory has been discussed for centuries but has only gained a formal structure in the past 50 years, with particular focus being placed on how it can be used in business. Generational Theory states that each generation has common psychological and sociological behaviours, which are primarily due to common events experienced by that generation during the years before they reach maturity [1]. Clear examples of these mass events for Generation Y include the birth of the internet and the 2008 financial collapse [9].

Different studies have identified a range of traits and behaviours for each generation, but the most common are listed below:

Baby Boomers

(1946 – 1964)

Baby Boomers are recognised as being hard workers and in some cases referred to as 'workaholics'. They relate self-worth with working long hours and align seniority with a sense of entitlement [11][12].

Generation X

(1965 – 1976)

Generation X tend to be more self-reliant and choose to work smarter rather than longer to deliver a greater output. They also prefer a clear structure and can often be associated with being sceptical [13].

Generation Y

(1977 – 1995)

Generation Y are perceived as being technologically competent, constantly engaged with social media/activities and seeking opportunities for rapid promotion [11]. Generation Y are considered good at multitasking, sharing information and pride themselves in being ambitious [2].

Generation Z


(1996 – present)

Generation Z exhibit many of the traits associated with Generation Y, including multitasking and high levels of technological competence. However, studies suggest they are more open minded than previous generations [14].

Several studies disagree with regards to what Generation Y considers to be its priority in the workplace, but the major factors are career progression, job satisfaction and development of their skills and knowledge [2][8]. Generation Y have a strong interest in their current performance and therefore consider the traditional approach of annual reviews as too infrequent, preferring to be provided with regular feedback in real time, and greatly appreciate mentoring [12]. Generation Y (and Generation Z) place a high value on professional development and many would rather develop their skills rather than have a "job for life", strengthening their options for the future rather than concerning themselves with job security [15].

Since a young age, many in Generation Y & Z have been encouraged to dream big and set high goals for themselves without consideration of practicalities. This has given way to unrealistic career expectations such as rapid promotion. The attitude of Generation Y & Z

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generally values results over tenure when it comes to progression [14][15]. This expectation could be very damaging to the retention of employees as Generation Y are known to swiftly discount loyalty to an organisation which fails to engage in issues of concern. Many anticipate leaving their organisation and moving on to a different employer within two to five years [8]. Traits such as Generation Y & Z's desire for rapid progression, could lead to poor retention of employees in the nuclear industry.

Critics of Generational Theory note the difficulty of assessing the difference between age and generation. An individual's current age also has a significant effect on their behaviour and world view in addition to the experiences in their formative years. Furthermore, Generation Z is difficult to study, as it is not clearly defined when that generation ends and if it is assumed to have ended in 2016, with similar span as other generations, then it will still be 17 years until a full assessment can be undertaken to understand the entire demographic of the generation [16]. Despite the difficulties in assessing Generation Z and the source of behaviour coming from age or generation, the results detailed in this report still grant insight into current motivations of the working population of Generation Z and provide an up to date reference point for what motivates these individuals in the nuclear industry.

Although significant work has already been covered which addresses the topic of 'generations in the workforce' as discussed above, the YNSPF decided to conduct their own study to focus on the nuclear industry. It was concluded that the nuclear industry has a very different demographic from the rest of the population due to its ageing, male-dominated workforce. Further discussion of this study's response demographic can be found in the Appendix. This report looks at supporting the results discussed above and the predicted future growth of the industry.

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Results

Exposure to the Nuclear Industry

The questionnaire asked respondents when they were first exposed to the nuclear industry. *Figure 1* presents the first exposure in relation to stages of education. It focuses on early life to allow comparison between younger generations, who have not reached the later stages of life, and older generations. The results focus on 'stages' rather than specific ages as different respondents attained different levels of formal education.

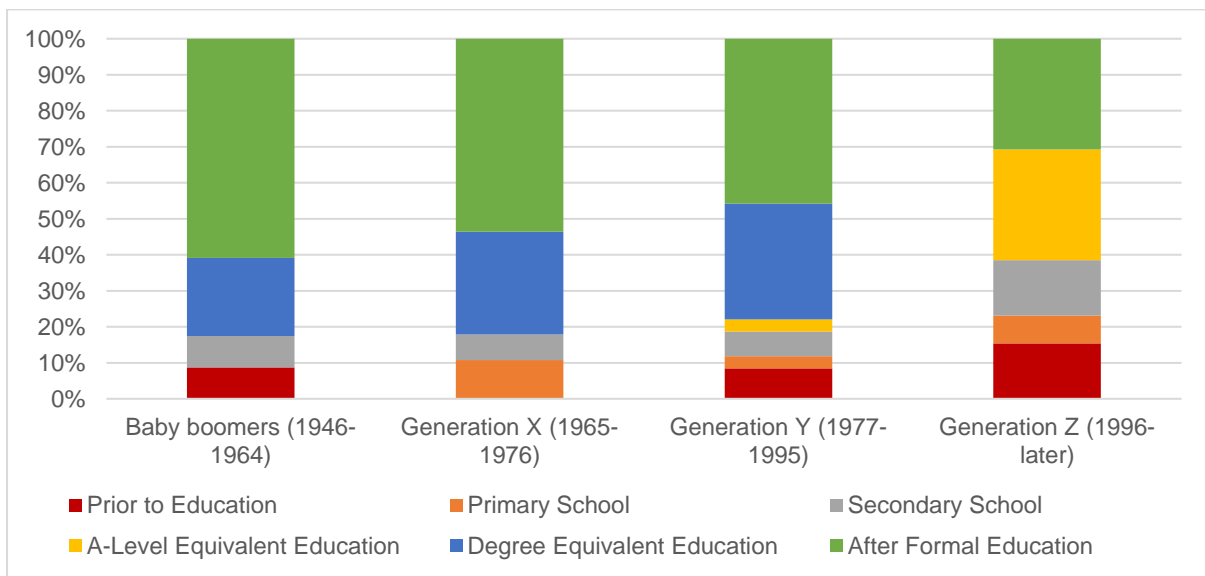



Figure 1: Stage in life when the respondents were first exposed to the nuclear industry, by generation.

A caveat of *Figure 1* is that Generation Z should be discounted from comparison and analysis as the working population of Generation Z consists primarily of apprentices and the earliest that a regular member of Generation Z will graduate from university is 2017. As such, there is no Degree Equivalent Education category listed for Generation Z. The most crucial piece of information from *Figure 1* is that fewer than 25% of the respondents received exposure to the industry prior to university. This is a large portion of the individuals, who chose to work in the sector, but did not receive personal experience with the industry prior to their late teens. After this stage, their views of the industry would have been heavily influenced by other factors, such as the presentation of the industry in the media or the opinions of family and friends.

Perception of the Nuclear Industry

Figure 2 shows that a near majority (47.8%) of all respondents had a positive perception of the nuclear industry prior to joining. An overall positive view of the industry is expected, as a negative perception may leave an individual predisposed to not the join industry in the first place. A 2013 study suggests that 29% of the public have a negative perception of the nuclear industry and 27% have a mixed perception [17][19]. Employers should consider the impact that mixed and negative opinions have in their recruitment and act to influence these into positive perceptions.

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Across the seven companies in which these questionnaires were released, perception of the nuclear industry varies. This could be due to company location or the type of nuclear work the company participates in.

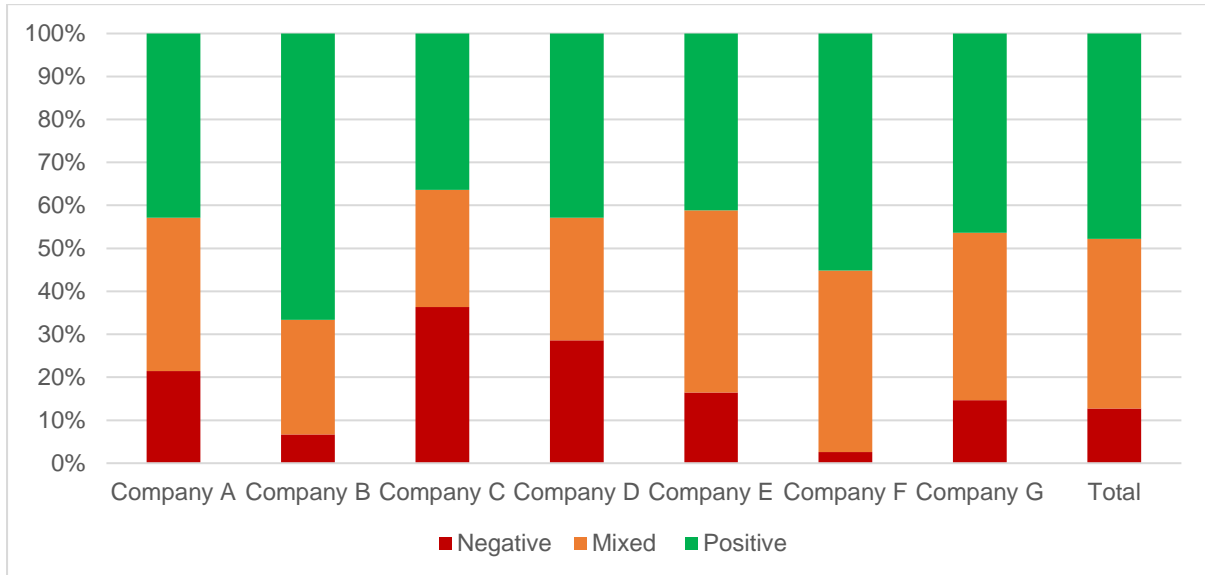


Figure 2: Perception of the Nuclear Industry prior to joining, by company.

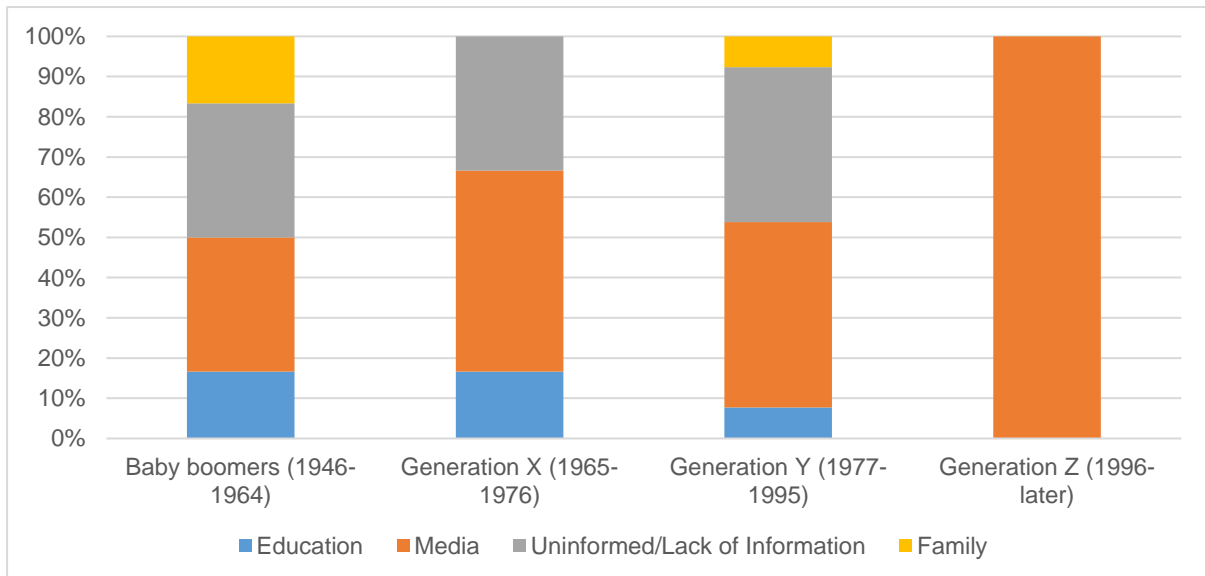


Figure 3: Perceived source of negative opinions of the nuclear industry, by generation.

Figure 3 shows that, in the opinion of the respondents, the major source of negative perceptions prior to joining the nuclear industry was due to the portrayal of the industry in the media. Similarly, mixed perceptions (Figure 4) were primarily due to the lack of information available about the industry. Figure 5 shows that respondents who had a positive perception of the industry, based that perception on what they learned during their education.

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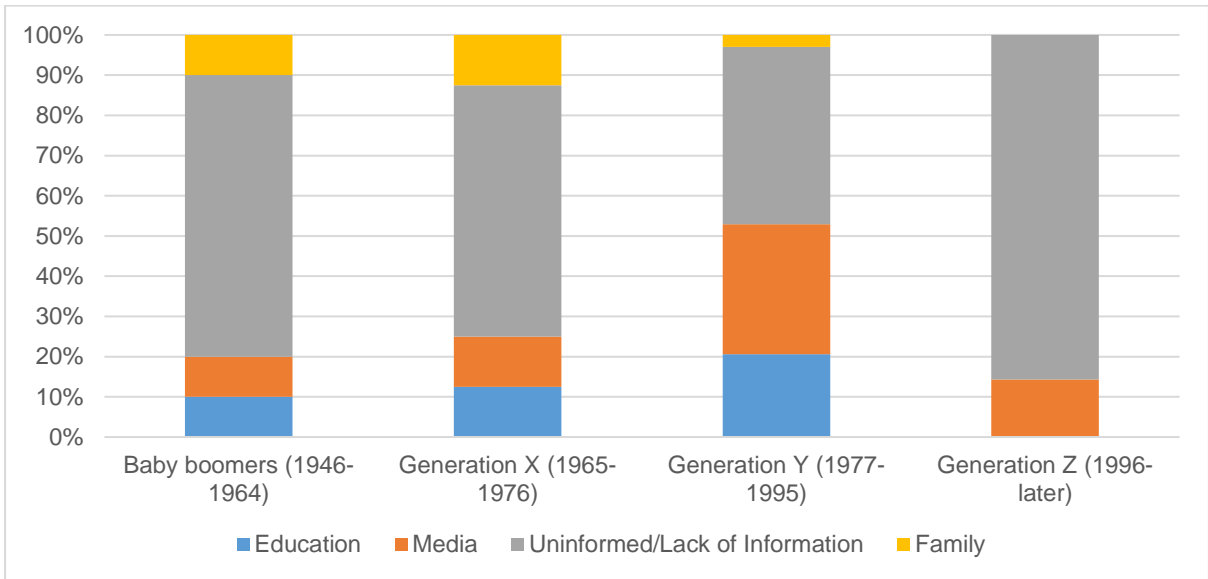


Figure 4: Perceived source of mixed opinions of the nuclear industry, by generation.

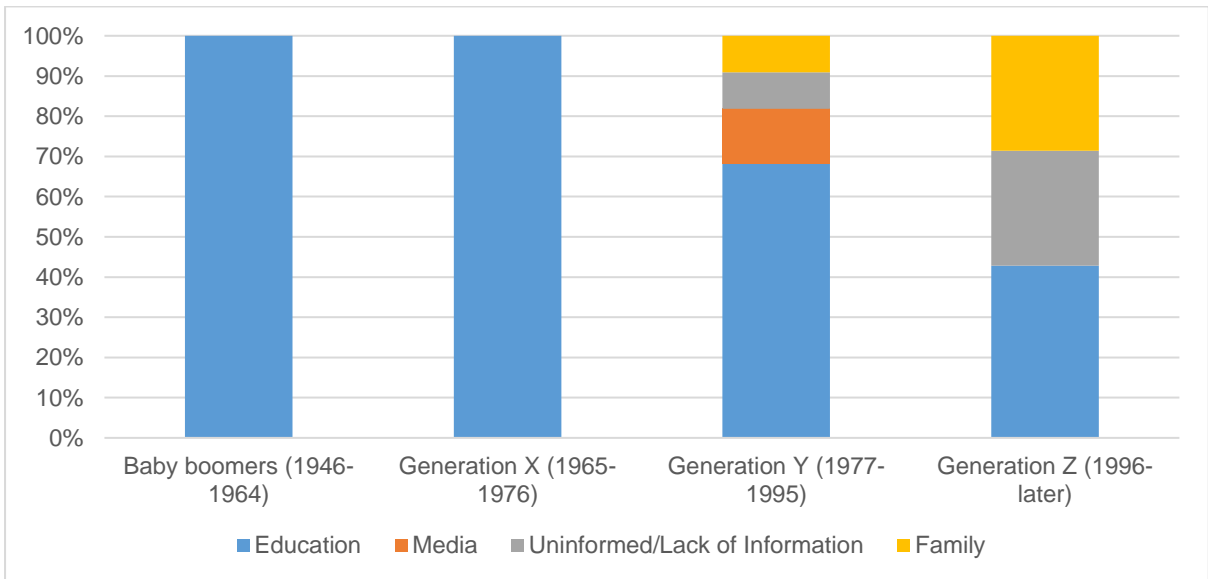



Figure 5: Perceived source of positive opinions of the nuclear industry, by generation.

Figure 3, Figure 4 and Figure 5 suggest that negative and mixed opinions have been highly influenced by media perception or lack of information and understanding of the nuclear industry. This highlights the importance for the nuclear industry to generate a positive profile and educate the public to counteract any negative media accounts of the sector. This is particularly prevalent for those who do not encounter the nuclear industry within education.

In addition to the results above, some other details were ascertained about the respondents' perception of the nuclear industry; 16.78% of respondents believed that prior to joining the nuclear industry, it was complex and specialised. This belief, coupled with the lack of knowledge and exposure until later in their career (as shown in Figure 1) could be turning

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prospective employees away from the industry, as it is perceived as too specialist, particularly if their field of expertise does not have a distinct nuclear application.

Employee Retention

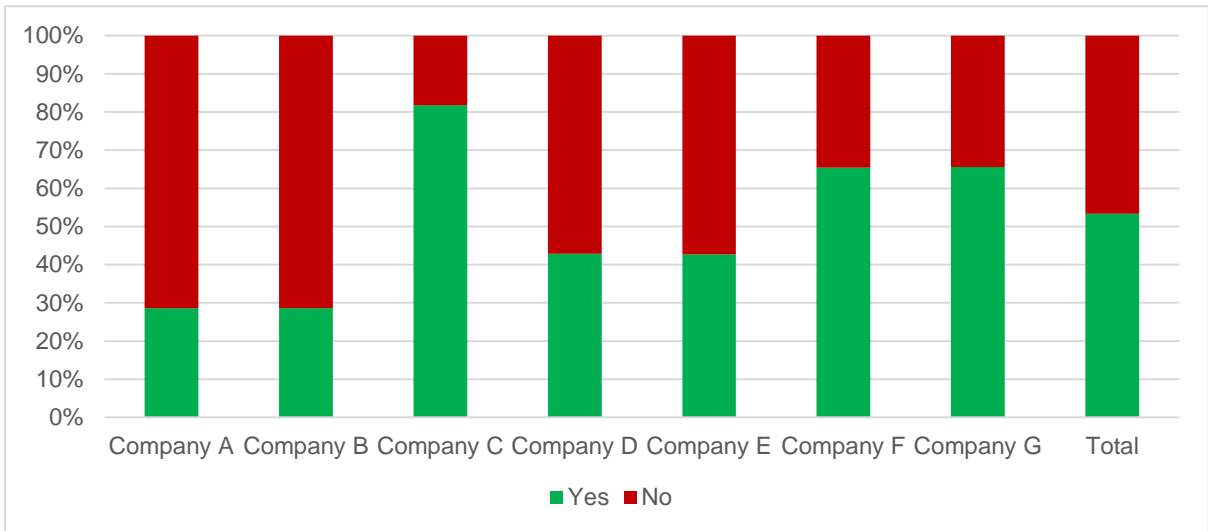


Figure 6: Percentage of respondents who saw themselves with their current employer for the foreseeable future, by company.

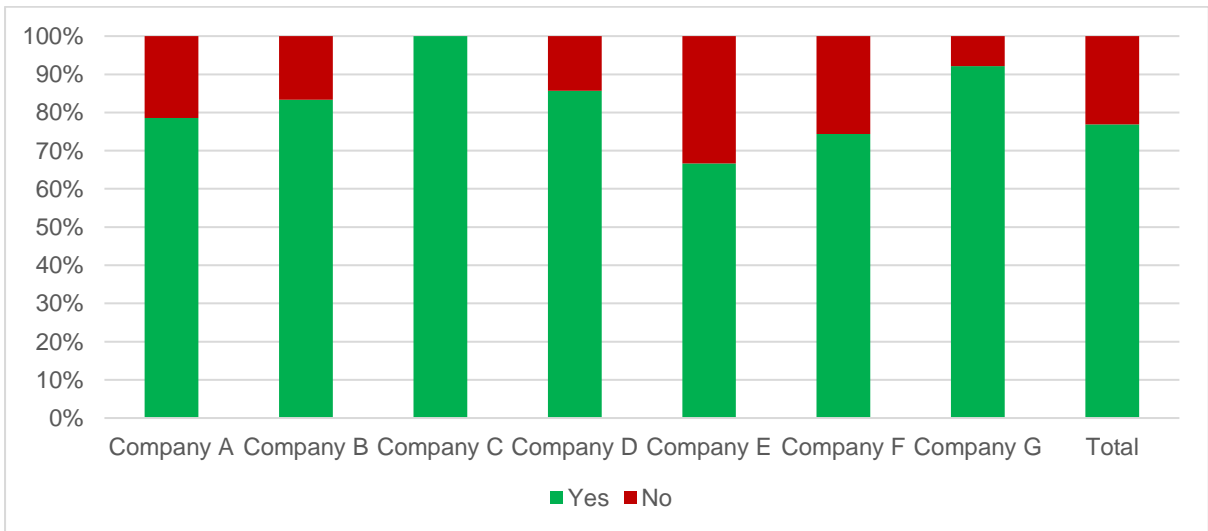


Figure 7: Percentage of respondents who saw themselves within the nuclear industry for the foreseeable future, by company.

Figure 6 and Figure 7 show whether respondents foresee themselves staying within their current company and within the nuclear industry respectively. As expected, the results in Figure 6 vary heavily from company to company. Comparing this to Figure 7, where the overwhelming majority of respondents believe that they will stay within the nuclear industry, raises questions surrounding employee satisfaction and the perceived benefits of working elsewhere in the industry.

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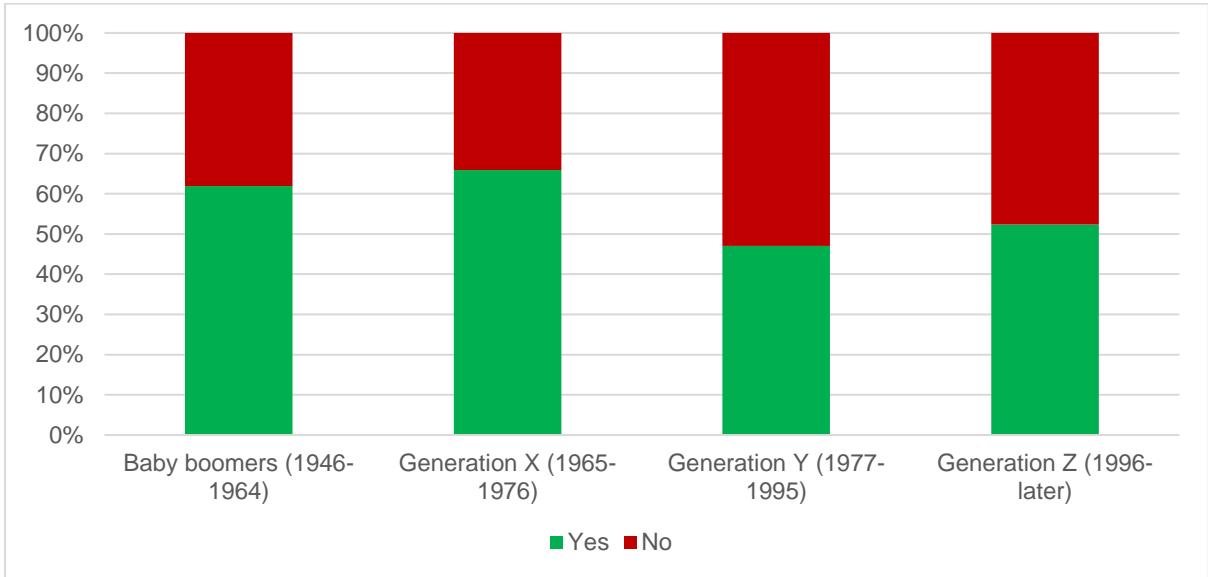


Figure 8: Percentage of respondents who saw themselves with their current employer for the foreseeable future, by generation.

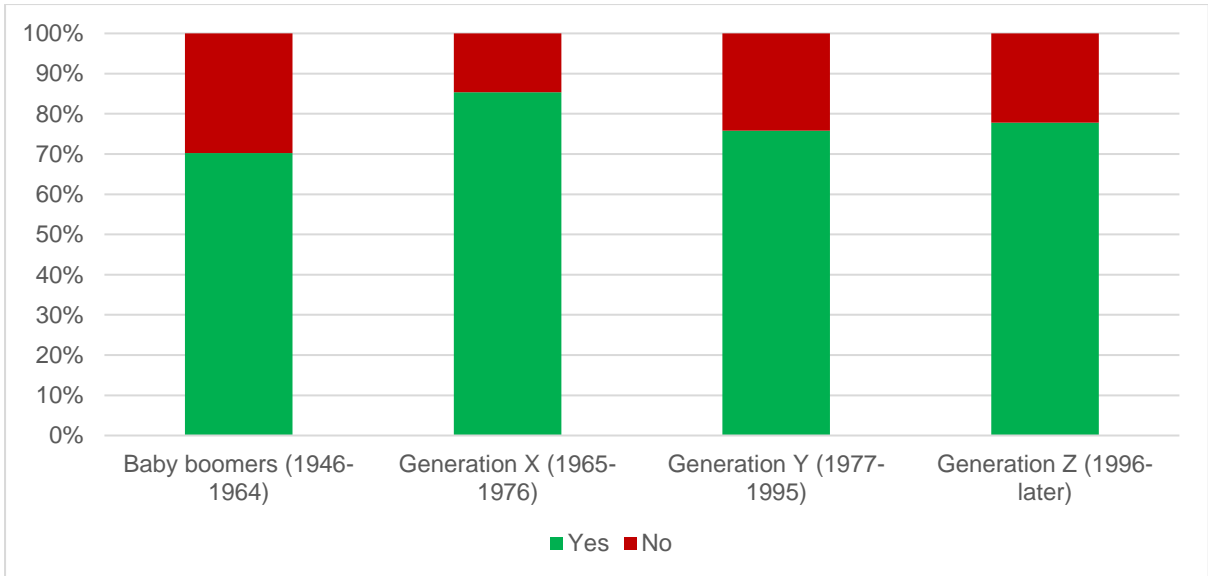



Figure 9: Percentage of respondents who saw themselves within the nuclear industry for the foreseeable future, by generation.

The results shown in *Figure 8* similarly agree with the findings in previous literature, that Generation Y & Z exhibit less loyalty to their employers than previous generations. It should be noted that the large proportion of Baby Boomers leaving their employers and the industry may be due to retirement. In addition, the smaller proportion of respondents in Generation X looking to leave their employers may not mean that they are more satisfied by their jobs compared to Generation Y & Z; based on age, Generation X respondents may have greater financial commitments (children, mortgages, aging relatives etc.) and therefore have a smaller appetite for financial risk. In comparison to *Figure 8*, *Figure 9* shows that a larger percentage

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of respondents see themselves remaining within the nuclear industry than those envisaging remaining with their current employer. Therefore, though employers may be concerned that there will be a staff shortage in the industry due to employees leaving the company, the population of the nuclear industry as a whole will be less effected, as most of the leaving employees intend to stay within the nuclear industry.

The extent to which employees may decide to leave their roles with their companies may not be as large as predicted by the literature. Deloitte [8] quoted that only 31% of the total population of Generation Y questioned, planned on staying with their employer for more than five years and PWC [2] stated that only 18% planned to stay with their current employers for the long term. The YNSPF found, as shown in *Figure 8*, that 47% of Generation Y in the nuclear industry plan to stay with their current employers for the foreseeable future. It should be noted that the research undertaken by Deloitte and PWC may have captured larger age ranges of respondents as the respondents to the YNSPF survey were towards the younger end of the Generation Y bracket. Younger members of Generation Y may be less likely to consider leaving their current roles as they have just begun their careers.

Motivation for Joining the Industry

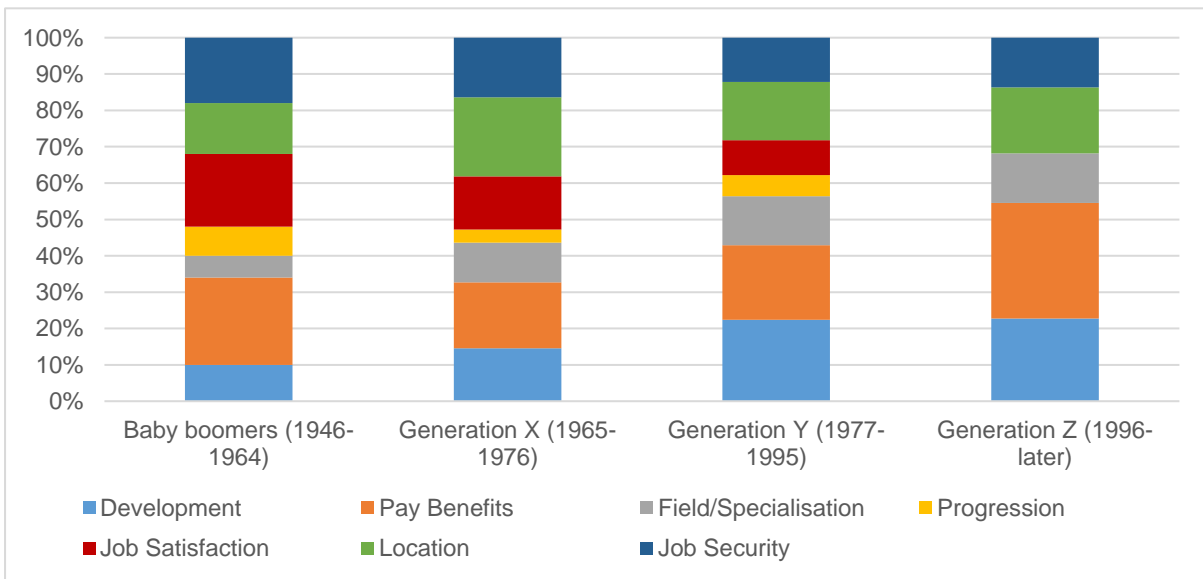


Figure 10: Comparison of motivators for joining the nuclear industry, by generation. (Based on percentage of total motivators for given generation).

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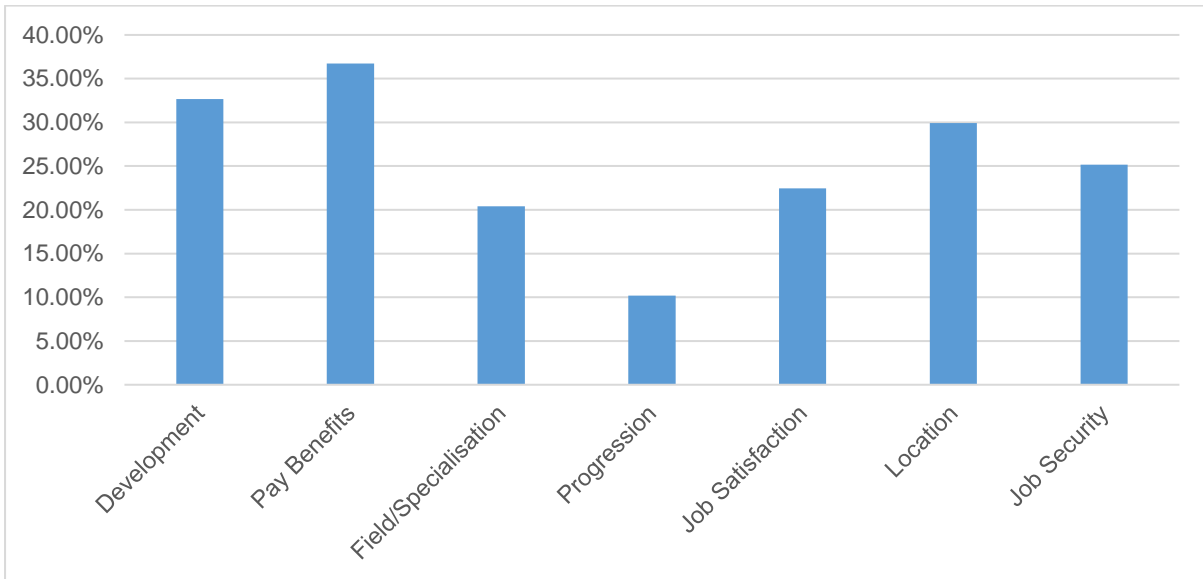



Figure 11: Comparison of motivators for joining the nuclear industry, excluding Generation Z. (Based on percentage of respondents to the question).

As with the results for first exposure to the nuclear industry, Generation Z has been excluded from *Figure 11* due to their age. The majority of Generation Z respondents are known to be part of Apprenticeship or Higher Apprenticeship schemes; in such a position, the primary benefit compared to attending university is salary, which explains the main motivator for this generation being 'Pay Benefits'. Pay Benefits are defined by this study as any monetary reward an employee receives including but not limited to: salary, pensions, overtime pay and bonuses. In addition to this, progression through such schemes is fixed as most apprentices will leave their particular scheme at the same fixed company grade, this would explain why progression currently does not appear to be a motivator for Generation Z.

Figure 10 and *Figure 11* both show that a key motivator for all generations when selecting a job is pay benefits. In addition, location ranks highly, which is to be expected and should be something employers considered when choosing a location for a site. The results also agree with literature [2] in that younger generations appear to place a comparatively larger importance on career development over other motivators such as job security.

The definition of job satisfaction, for the purposes of this report, is the enjoyment or satisfaction that an individual would feel on a day-to-day basis in their role; for example, interest and engagement with the work, the impact of their work environment and colleagues, and the belief that their work is worthwhile. Interestingly, the importance placed on job satisfaction as a motivator for joining the nuclear industry reduces with younger generations. Despite appearing less important, job satisfaction is paramount for maintaining high levels of productivity in the work place; however, when considering that the survey asks respondents their motivators for joining the industry, rather than working in it, job satisfaction is less important in terms of recruitment (*Figure 12*). Younger generations may see early jobs as a stepping stone on the career ladder rather than a long-term position and therefore place less importance on job satisfaction as they do not intend to remain in the role long term.

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Generations X, Y & Z are more motivated by working in their specialist field than Baby Boomers are. This could mean that the retention of competent and expert individuals within the industry may be an enabler to a sustainable workforce long term. However, results on the perception of the nuclear industry indicate that effort should be made to ensure that the nuclear industry does not appear too specialised and inaccessible to the potential workforce.

Motivation while working in current role

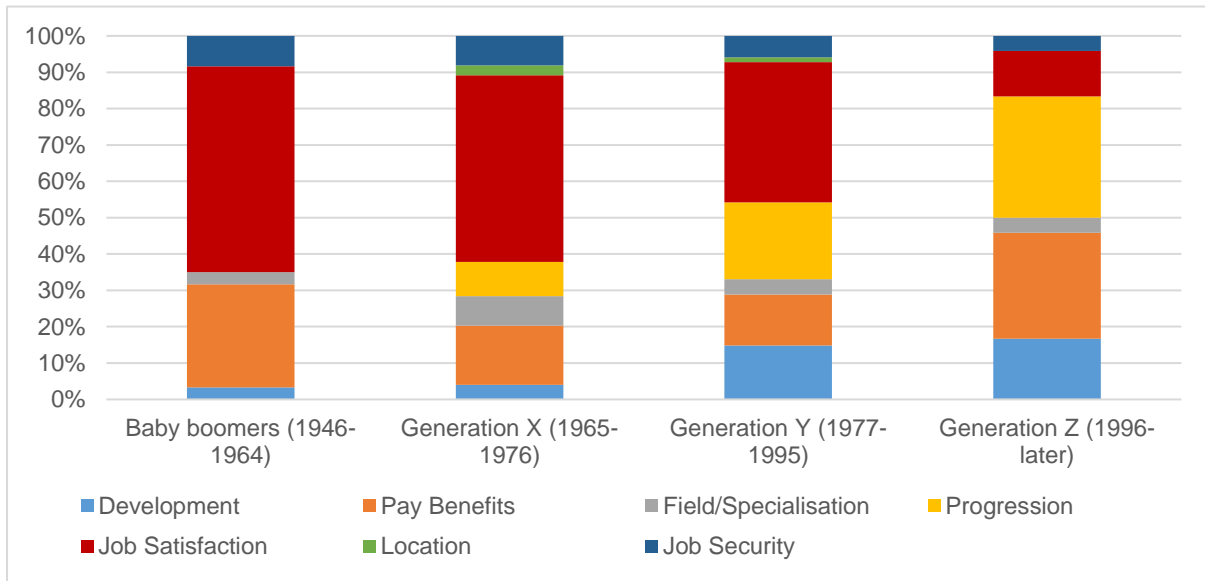


Figure 12: Comparison of motivators while working in current role in the nuclear industry, by generation. (Based on percentage of total motivators for given generation).

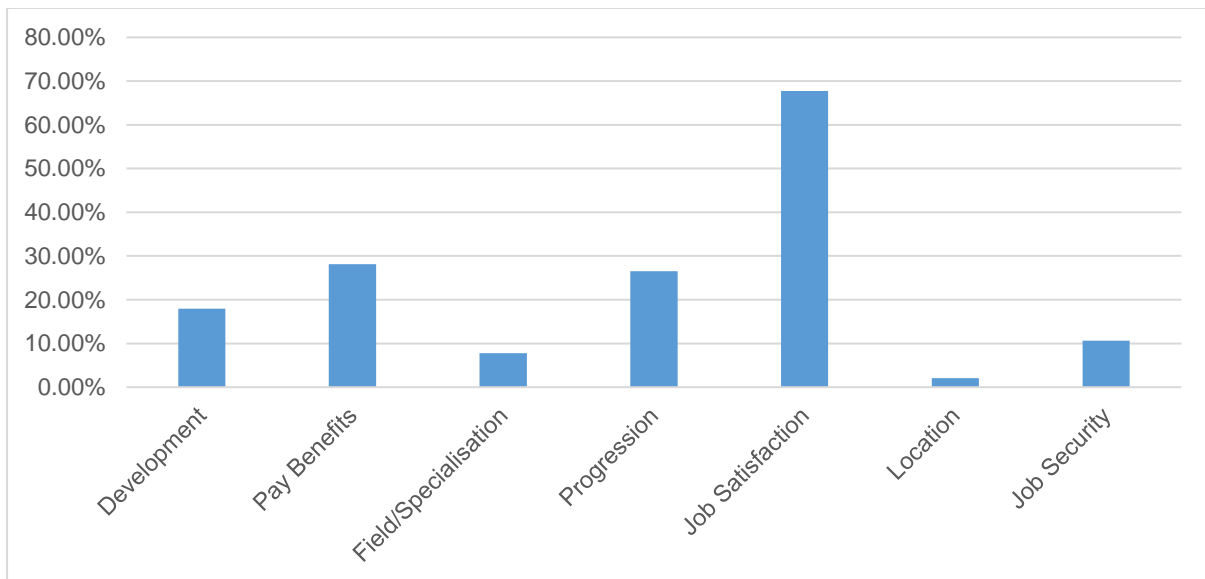


Figure 13: Comparison of motivators while working in the current role in the nuclear industry. (Based on percentage of respondents to the question).

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The motivators for respondents remaining in their current roles differed significantly to their motivators for joining the industry, as shown by *Figure 12* and *Figure 13*. Motivators such as location are no longer important factors – this is to be expected as individuals are less likely to accept a job in the industry that is incompatible with their personal circumstances – whereas job satisfaction is now a bigger motivator, again as expected. To retain individuals in the industry it is essential that employees remain satisfied in their work. This can include: flexible work arrangements, a positive working environment and culture, and interesting working that engages the individual. As discussed previously, job satisfaction appears to be less important to younger generations; this may be due to an expectation not to remain in their current roles for a significant period of time, something that is supported by the high importance of progression, and lower importance of job security with younger generations.

Pay benefits remain a key motivator for all respondents both when applying for and undertaking current roles. Baby Boomers and Generation Z place more importance on these benefits than other generations, this could be due to the former generation coming close to retirement, while the latter is likely experiencing their first few years of full-time paid employment.

Motivation for Remaining within the Nuclear Industry

As with *Figure 12* and *Figure 13*, *Figure 14* and *Figure 15* show that to remain long term in the nuclear industry, the two most important factors are job satisfaction and progression, with pay benefits also remaining significant. Unlike previous results (*Figure 10* and *Figure 12*), *Figure 14* shows that the importance of job security increases in the younger generations, who may desire security in their future roles after they have progressed further in their careers. As Generation Y & Z gain additional financial commitments (e.g. a mortgage, starting a family, supporting aging relatives) later in life, their appetite for job security may markedly increase. This is reflected in *Figure 14*.

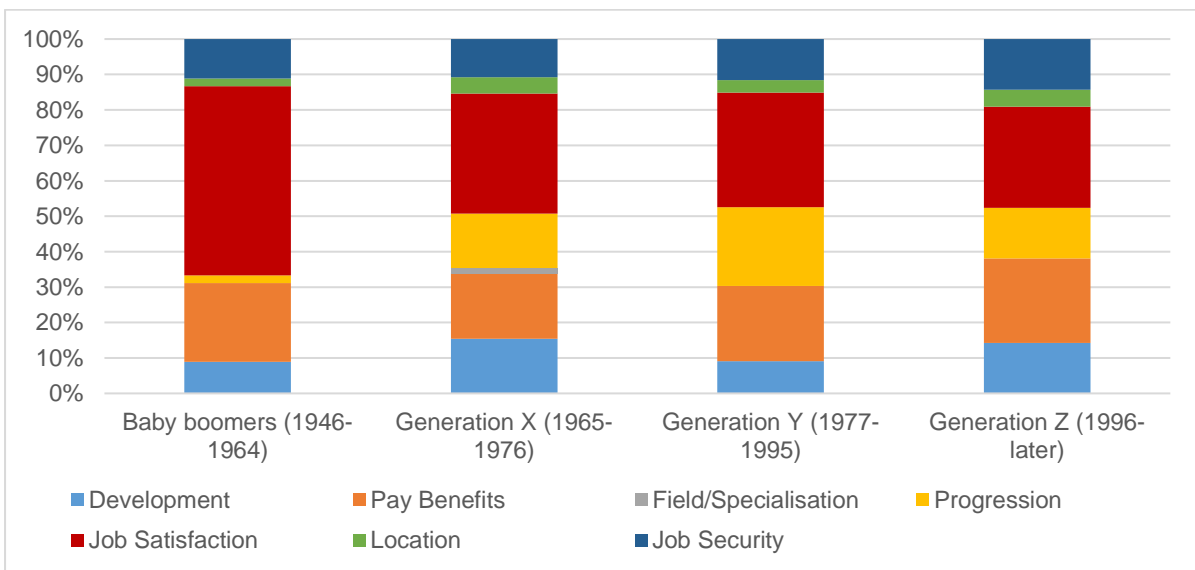


Figure 14: Comparison of motivators for remaining in the nuclear industry for the foreseeable future, by generation. (Based on percentage of total motivators for given generation).

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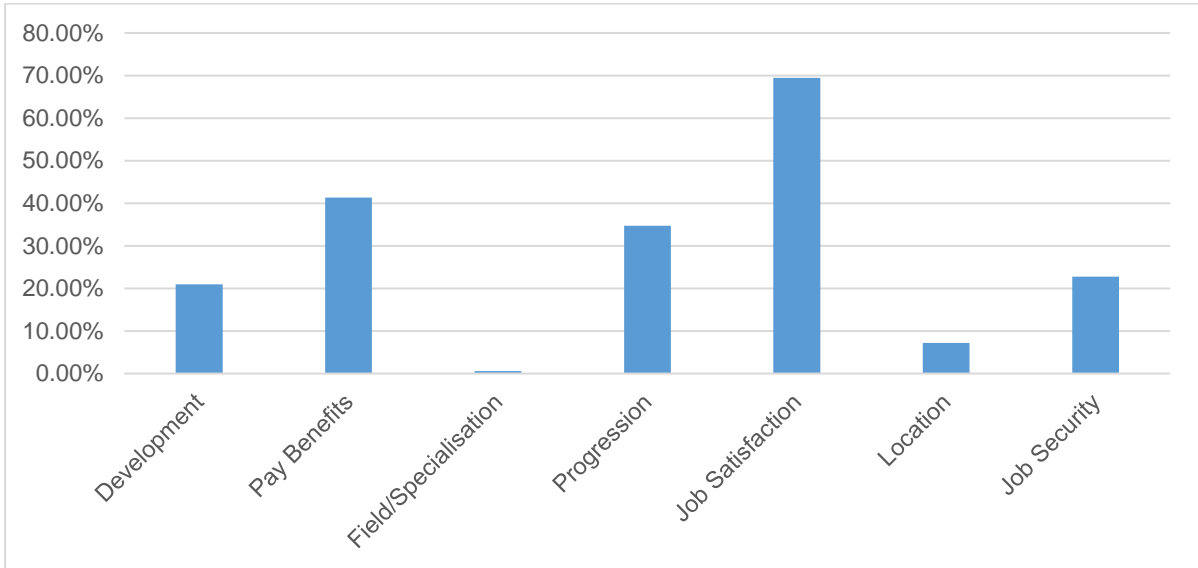




Figure 15: Comparison of motivators for remaining in the nuclear industry for the foreseeable future. (Based on percentage of respondents to the question).

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Recommendations

Recruiting the Future

The questionnaire results showed that, of those surveyed, there were a variety of perceptions of the nuclear industry with a range of exposure mechanisms prior to joining. Several perceptions before joining were negative or neutral, due to factors including media representation, family opinions and lack of information of the industry's safety and core values.

The most common source of information about the nuclear industry is the media, which can often misrepresent information to portray the industry in a negative light. The industry needs to do more to engage with the public, particularly younger members of society in the earlier stages of their education. Work could also be done with schools and universities to include nuclear studies into the curriculum and to highlight the future developments of the sector. Further to this, the industry could do more to publicise success stories and respond promptly to negative reports to ensure that a positive message is received by the public. Social media could act as the perfect medium for this engagement due to its active use by the younger generations.

To increase nuclear recruitment, the industry could use targeted marketing to improve perceptions of the sector and technologies implemented in it. Feedback from current nuclear employees, in both engineering and non-engineering roles, show that key elements in promoting the industry include pay benefits, specialist field and location.


As indicated by generational studies [2], Generations Y & Z place a higher value on professional development over motivators such as job security. As such, development opportunities should be at the forefront of recruitment campaigns targeting these generations. Furthermore, the results of this survey indicate that, for Generation Y & Z, career progression is not a motivator for accepting a job, but becomes a key motivator once they start work. It could therefore be advantageous to an organisation to present progression paths through the company to individuals during the recruitment phase.

Retaining the Present

From the results discussed previously, larger proportions of Generation Y & Z are considering changing employer compared to Baby Boomers or Generation X. Despite this, there is no significant generational difference in the numbers of people expecting to leave the industry, although the reasons behind leaving may differ slightly. The results suggest that, while younger generations may change companies more frequently, they are likely to remain in the industry long term. Though this means that the industry may not have an overall shortage of employees if the appropriate level of recruitment occurs. It does raise concerns regarding how effectively younger generations can become skilled and develop expertise in a specialist field.

To ensure that the younger generations remain suitably qualified and experienced, companies must either aim to retain them, or the industry must produce an adaptable form of training to account for their potential movement around the sector. For individual companies to retain their employees, they should consider an internal assessment in this area as the degree to which employees see themselves remaining with their company varies greatly. Such an internal assessment should build upon this study in more detail and aim to find how

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development and progression are perceived within the company and what specifically provides their employees with job satisfaction.

Cross-industry qualifications that are recognised and endorsed by multiple organisations would benefit the industry both in terms of skills retention and in understanding the current skills base of the sector, therefore allowing gaps to be identified and future sustainability effectively planned for. Training and qualifications with industry-wide recognition will ensure that individual staff remain competitive in a changing industry. Furthermore, they will demonstrate that the industry is invested in staff training and development, which will therefore aid recruitment. Such industry-wide qualifications are already being developed with schemes such as the 'Nuclear Skills Passport' being developed by the National Skills Academy for Nuclear (NSAN), the Nuclear Training Network operated by Cogent on behalf of the industry, and the Nuclear Trailblazers Degree Apprenticeship which has cross-industry competencies that are worked towards by those on the scheme.

The questionnaire highlighted that a significant motivator for nuclear employees is the satisfaction that their job provides. This can range from positive workplace relationships to interesting and challenging work streams and supports the fact that people who enjoy their role are more likely to remain in the industry. Identifying the key drivers to nuclear job satisfaction can assist the industry in more targeted advertising to recruit and retain people to the sector.

The younger generations value progression and development above older generations. Employers should therefore ensure the provision of good training and development programmes and recognise the importance of support networks, such as mentoring and buddy systems, that enable their employees' continual professional development. This will enable the development of a skilled workforce that, whilst being portable across the industry, will be retained by the nuclear sector.

Closing Remarks


This study has found that the majority of the trends described in the Generational Theory literature hold true for the nuclear industry, however to lesser magnitudes. These trends must be understood because the demand for skilled and educated individuals in the sector will soon increase due to new build and defence project growth. It is essential that staff continue to be recruited and trained to a safe and effective level. This report can provide an effective baseline for nuclear employers in understanding the motivations for joining and working in the industry. Improved understanding of the different generations represented in the nuclear workforce will ensure that recruitment and retention are appropriately targeted, ensuring that a sustainable workforce is developed and maintained for the future of the nuclear industry.

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Appendix – Generation & Demographic of Results

The results gathered for this report were found through the questionnaire released to seven companies within the nuclear industry. *Figure 16* shows the number of respondents for each company questioned.

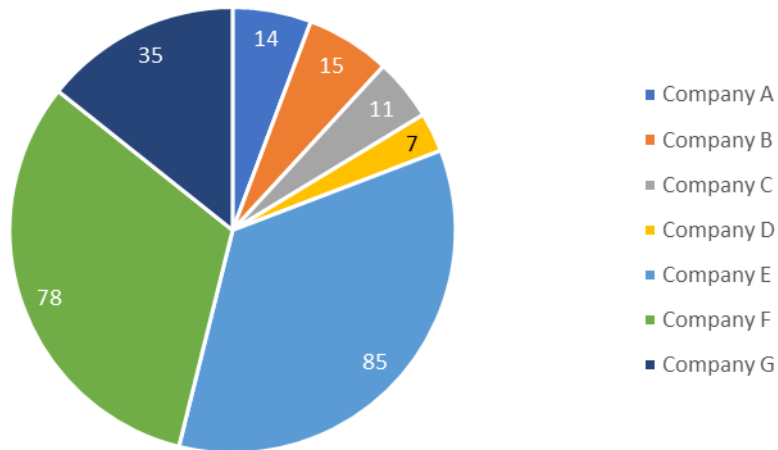


Figure 16: Number of questionnaire participants per company.

The breakdown of questionnaire respondents from each generation, by company, is shown in *Figure 17*. Future work would focus on producing a more even spread of generational response from each company. It is important when attempting to understand the behaviour of a workforce to also consider other aspects of the respondents' demographic, such as gender or their current role, as shown in *Figure 18* and *Figure 19*.

In addition to the results already discussed, an additional questionnaire was released to discuss skills, safety and development. However, too few responses (31 responses) were received within the timescale of this work to draw supporting results to the trends already discussed. However, these results are shown in Appendix 2, for information.

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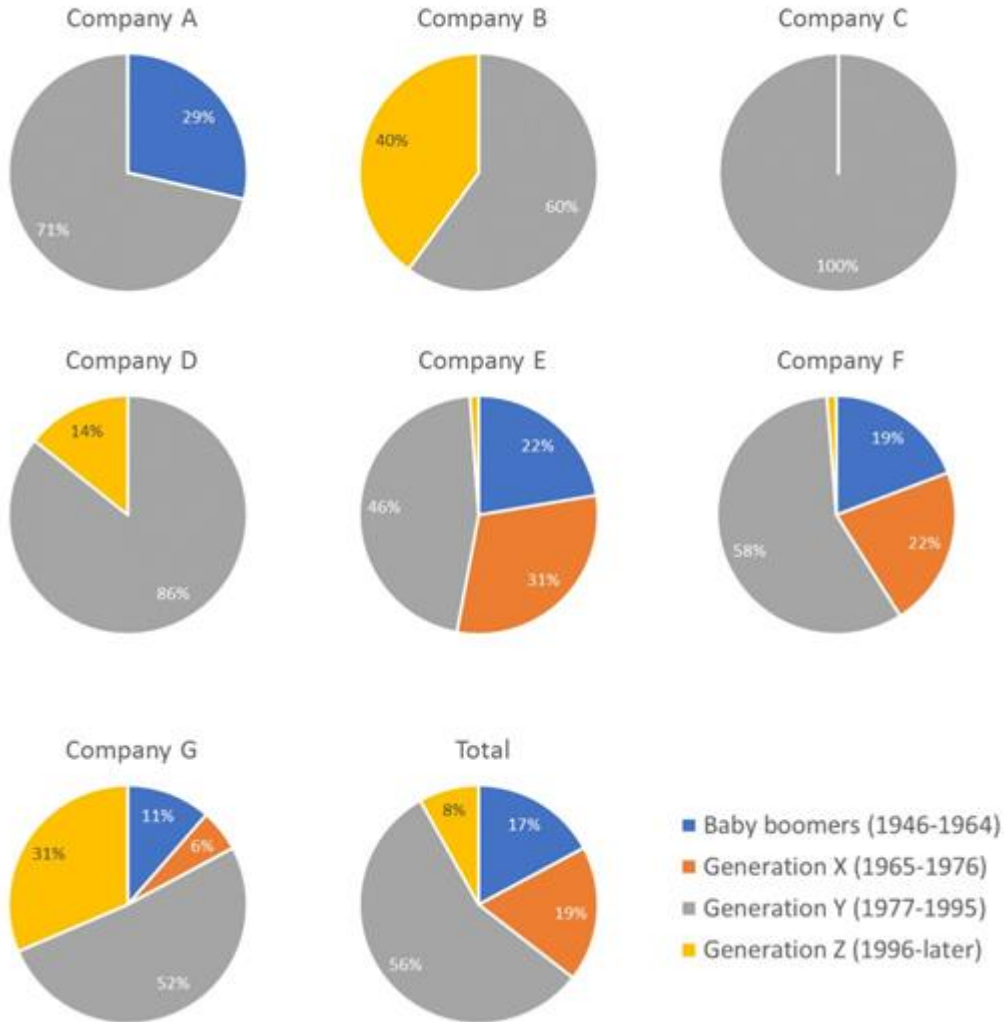



Figure 17: Generational demographic of questionnaire respondents for each company.

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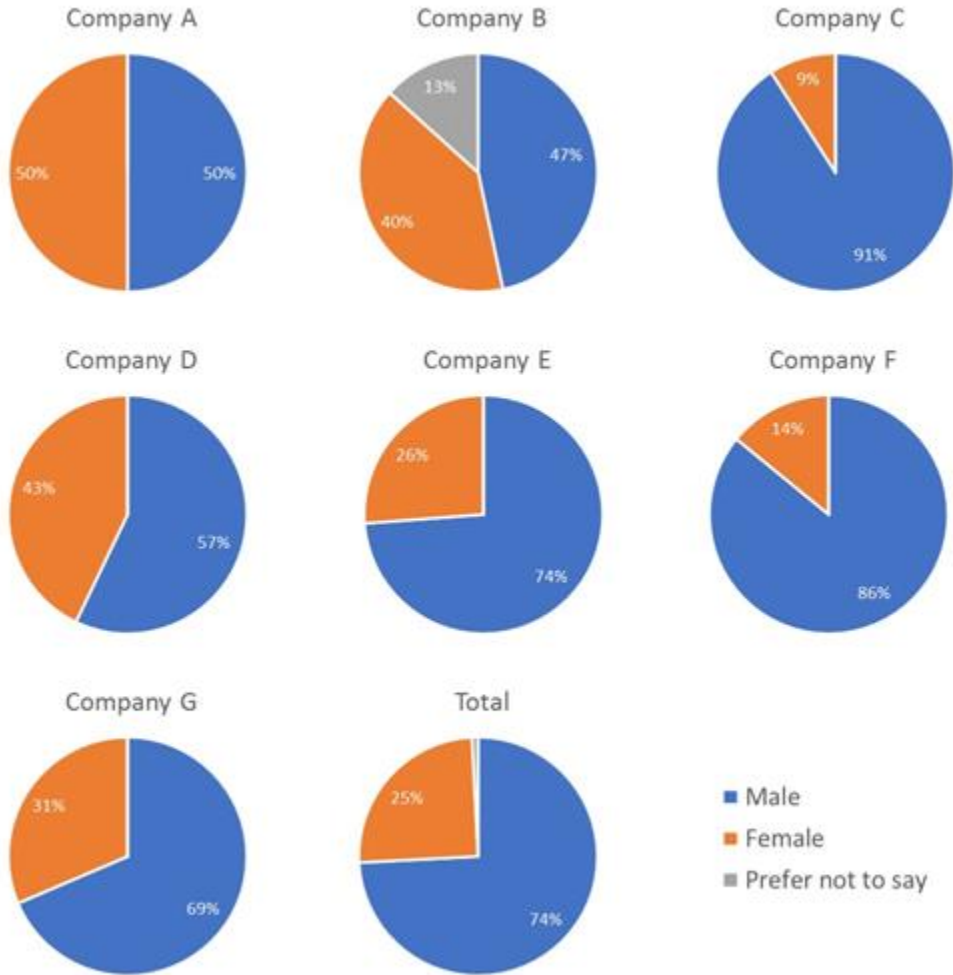



Figure 18: Gender demographic of questionnaire respondents for each company.

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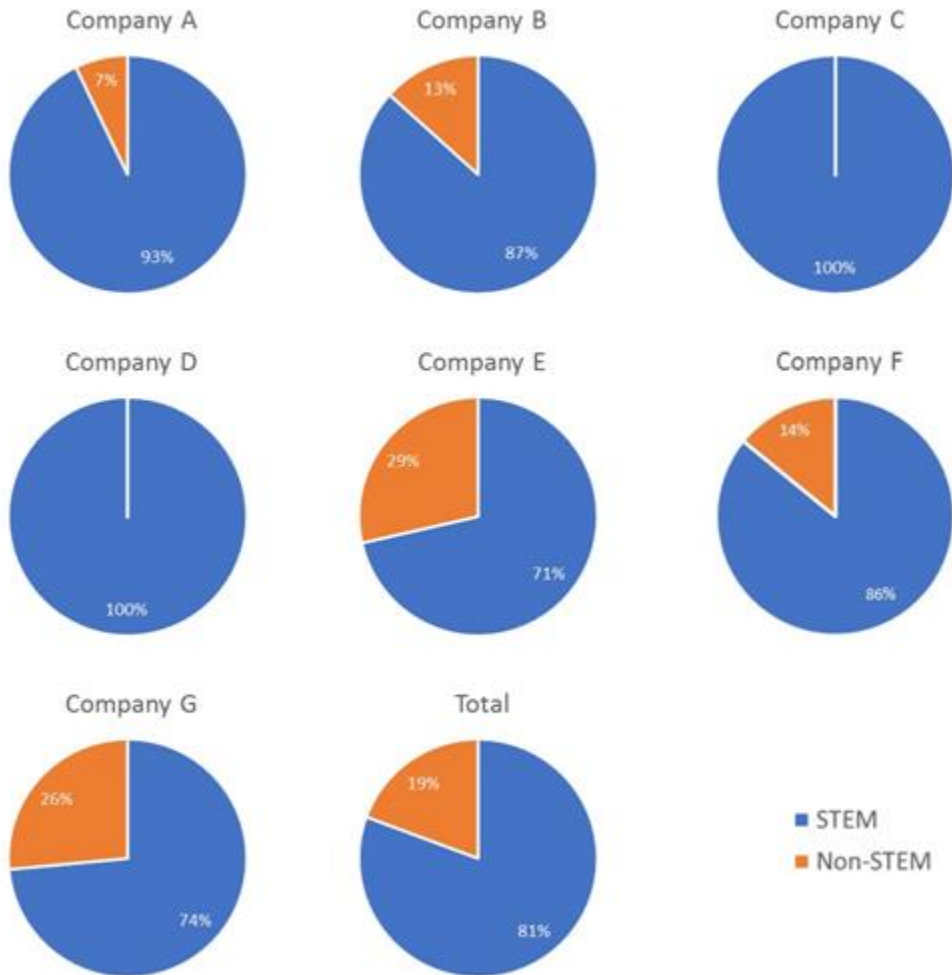



Figure 19: Job demographic of questionnaire respondents for each company based on whether the respondent performs a STEM (science, technology, engineering and mathematics) or non-STEM role in their current job.

In addition to the questionnaires, a workshop was undertaken at the YNSPF Annual Conference on 6th June 2017. The workshop featured a small presentation providing the attendees with initial engagement on the topic of Generational Theory and a group activity which aimed at bringing out useful ideas for some of the problems suggested in this report. Below the problem statements used in this worksheet:

1. Millennials expect to have multiple employers during their careers; however if new starters are expected to become Suitably Qualified and Experienced Personnel (SQEP) in the complex world of the nuclear industry, they will need to spend a significant amount of time gaining suitable experience.

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2. Millennials expect a lot from their employer, both in terms of job satisfaction and career progression. Millennials expect faster career progression than previous generations, especially younger millennials, and “slow progression” has been listed by Deloitte in 2017 as one of the top three reasons why millennials leave roles.
3. Millennials passed through an education system which puts a much larger emphasis on constant assessment and feedback than previous generations. Many millennials report that this level of feedback is not present in the workplace.
4. When polled, external researchers have found that millennials place a higher value on safety than previous generations, but another poll found that a significant proportion of older generations ranked millennials as placing a lower value on safety. This may suggest that in some companies, millennials' contribution to workplace safety may be overlooked.