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A critical analysis of the health and safety culture in a nuclear engineering  
organisation

Liam Scott

A thesis presented in fulfilment of the requirements for the degree of Master of  
Science in Safety and Risk Management

2016

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### **Acknowledgements:**

I would like to take this time to thank those who have provided me with assistance with this project. There are a number who warrant a special mention:

- Mr W. Tait, for providing expert guidance and assistance.
- My employer, ANE, for sponsoring this MSc journey.
- The HSE Team at ANE, for their support.
- Mr S. Head, for providing support and guidance
- And a special thank you to my wife, Kathryn, for her unequivocal belief, support and encouragement throughout this MSc process.

## **Abstract**

The purpose of this research project is to investigate a nuclear engineering company's health and safety culture. Health and Safety Culture can be defined as “the product of individual and group values, attitudes, perceptions, competencies and patterns of behaviour that determine the commitment to, and the style and proficiency of, an organisations health and safety management<sup>2</sup>.”

The task this research project set to undertake was to conduct – A critical analysis of the health and safety culture in a nuclear engineering organisation.

In order to achieve the aim, a Health and Safety Culture Survey was developed based on previously conducted Culture Surveys that were reviewed as part of the literature study. The data collected from the Health and Safety Culture Survey was analysed against the key themes of the HSE's Managing for Health and Safety guidance document – HSG65<sup>6</sup>. The themes that the data was analysed with consideration to were; Health and Safety Management Systems, Risk Profiling, Leading and Managing for Health and Safety, Competence, Worker Consultation and Involvement.

A brief non-descriptive overview of a variety of the recommendations that the Health and Safety Culture Survey data led to are demonstrated below:

- Development of a behavioural safety system which includes training and awareness prior to a formal launch of the process.
- Health and safety training is recommended for personnel responsible for supervising others. This training will provide managers with the required knowledge and tools to sufficiently manage concerns of personnel.
- Improve the occupational health provision service delivery.
- Improve the visibility of Directors and SMT involvement in health and safety management.
- Increase the HSE expertise available within the business.
- Worker consultation and involvement in a business such as ANE, with a small central HSE Team and multiple departments and functions, can be best achieved with the use of a HSE committee.

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## **Chapter 1 Introduction**

### 1.1 Motivation

Health and Safety Culture (HSC) is a facet of health and safety management that is often discussed, but rarely fully understood. Understanding the Health and Safety Culture of an organisation can facilitate improvement programmes that will improve the organisations performance<sup>40</sup>. Challenging the HSC of a business can yield greater improvements than standard auditing practices. HSC considers in more depth the roles of individuals in the process of business management, considering their own values, beliefs and grievances that make up the way they choose to work. It is envisaged that this study will enable the HSC of the organisation to be fully investigated.

### 1.2 Research context

ANE – a pseudonym utilised throughout the research project, is a UK based nuclear engineering company. The company employs 378 personnel at 3 sites. The author works for ANE as the HSE Team Leader. The findings of this research project will be of significant benefit to the HSE team, providing information that will lever change, leading to improvements in health and safety performance.

ANE has undergone rapid growth since 2003, moving from approximately 100 employees at a single site to today's structure. This rapid growth has resulted in the business outgrowing its health and safety systems, which currently do not complement a company of its size and complexity.

### 1.3 Project objectives

The objective of this project is to conduct a business wide health and safety culture study to identify potential areas for improvement that will have a lasting impact on the business' overall performance.

## 1.4 Aims

The project has 4 aims:

1. Identify health and safety culture assessment criteria and organisational comparison groups in order to define parameters for investigative work to be conducted.
2. Explore individual's perceptions of health and safety within ANE.
3. Examine the influence management style and communication methods have on the organisations HSC.
4. Provide conclusions and recommendations for ANE to improve its health and safety culture.

## 1.5 Research Question

A critical analysis of the health and safety culture in a nuclear engineering organisation.

## 1.6 Project Outline

Following a review of literature to develop an understanding of HSC, the research project developed a suitable methodology to challenge ANE's HSC. The literature reviewed was predominately from the Health and Safety Executive (HSE), legislation, library sources, and the internet. The methodology developed to challenge ANE's HSC was a survey, issued to all personnel within ANE. Development of the Survey and response rates are discussed under the methodology chapter, meeting the requirements of aim 1.

The research findings are presented under headings selected during the literature review. The Chapter identifies the reasons questions were asked, with the author providing analysis of the response data, as per aims 2 and 3.

Following the research findings chapter, the discussion chapter links the author's analysis to the literature reviewed, considering opportunities for improvement which are identified in the recommendations chapter, addressing the 4<sup>th</sup> project aim. The

research project is then concluded in the final chapter, with the author reflecting on the overall project successes and opportunities for further development.

## **Chapter 2 Literature Review**

Now the scope of this research project has been confirmed, it is prudent for the author to demonstrate the literature used to develop his understanding of the topic. This literature review will demonstrate the author's approach to understanding the subject of Health and Safety Culture (HSC); its origins, correlation to legislation, what previous studies and publications have said on the subject, what existing methods of analysis exist, and where the value lies in carrying out HSC related research.

### 2.1 Origins

'Safety Culture' was a term first documented in the report produced for the International Atomic Energy Agency<sup>1</sup>. The report discusses failings resulting in the Chernobyl nuclear disaster, with Safety Culture at the site considered a contributing factor.

Health and Safety Culture, according to the Advisory Committee on Safety of Nuclear Installations<sup>2</sup> (ACSNI) "is the product of individual and group values, attitudes, perceptions, competencies, and patterns of behaviour that determine the commitment to, and the style and proficiency of, an organisation's health and safety management."

### 2.2 Legislative review

Having a positive HSC isn't a direct requirement of the Health and Safety at Work etc. Act 1974<sup>19</sup>, or its regulations. HSC can nevertheless be linked to a number of key regulations, including the Management of Health and Safety at Work Regulations 1999 (MHSWR)<sup>19</sup>. The MHSWR place duties on businesses which can be linked to the key indicators of a business' HSC, including; communication as per regulation 11, training as per regulation 13, and also health surveillance in regulation 6. Businesses can comply with regulatory requirements, and not be considered to have a positive HSC.

Positive HSC goes beyond requirements of regulation although as demonstrated, can see its origins in those regulatory requirements.

One of the key documents produced by the HSE for businesses to follow, titled 'Managing for Health and Safety' - HSG65<sup>6</sup>, is now in its third edition. Initially published in 1991, before version 3 was published in 2013, HSG65 has continued to promote HSC as a facet of effective health and safety: "Effective health and safety policies contribute to business performance by: recognising that the development of a culture supportive of health and safety is necessary to achieve adequate control over risks." HSG65 also discusses that "the success of whatever process or system is in place still hinges on the attitudes and behaviours of people in the organisation."

There are key HSC themes which are captured individually in regulations, of which a brief summary is demonstrated below;

- Requirement to conduct risk assessment, referenced in some literature as risk profiling, is identified in the MHSWR<sup>19</sup> regulation 3.
- Consulting and engagement with workers is a requirement of the Construction (Design and Management) (CDM) Regulations 2015, section 14<sup>29</sup>. Worker engagement is a key indicator of a positive HSC, regularly discussed in articles and guidance for effective health and safety management.
- Competence is regularly discussed in a number of regulations, including MHSWR, Lifting Operations and Lifting Equipment Regulations (LOLER) 1998. Competence is "the combination of training, skills, experience and knowledge that a person has and their ability to apply them to perform a task safely. Other factors such as attitude and physical ability, can also affect someone's competence<sup>34</sup>."

### 2.3 HSE statistics

Within the UK, there is a clear requirement for us to improve our Health and Safety practices. According to the HSE<sup>18</sup> in 2014/15 there was:

- 142 workers killed at work
- 1.2 million people suffering from work-related illness
- 76,000 RIDDOR<sup>21</sup> reportable injuries (Reporting of Incidents, Deaths & Dangerous Occurrences Regulations)
- 611,000 injuries at work (according to the labour force survey referenced in the report)
- 27.3 million working days lost due to work-related illness and workplace injury
- £14.3 billion – estimated cost of injuries and ill health from current working conditions.

Compared to 10 years ago<sup>32</sup> this represents the following changes:

- Decrease in worker fatalities, from 220
- Improvement in the numbers of people suffering from work-related illness, which previously stood at 2 million.
- Instances of reportable injuries has reduced from 363,000 although this can be substantially attributed to the change in reporting threshold brought about by the updated RIDDOR regulations which came into force in 2012<sup>33</sup>, which altered the reporting trigger from a 3-day absence to 7 days.
- Increase of 97,441 injuries, with 513,559 reported in 2004/05 statistics (according to the labour force survey referenced in this report)
- Reduction in days lost from 35 million, representing a reduction of 7.7 million.

The figures, whilst showing improvement in most areas, also show there are significant numbers of fatalities, accidents and ill health occurrences in the workplace which must continue to be tackled. To quote Henry Ford, the Founder of the Ford Motor Company, “If you always do what you’ve always done, you’ll always get what you’ve always got.” For industry to make its next big leap in incident and ill health reduction, perhaps it should look to taking its next big step in development. This is where positive health and safety culture can play its part. Much like the Murphy Margin demonstrated in the

HSE Human Factors Briefing Note No7 on Safety Culture<sup>4</sup>, there are 3 accident reduction plateaus; hardware, employees, and organisation. To move industry off the final organisation plateau, which focuses on health and safety management systems, could health and safety culture understanding and improvement, move the industry further towards reducing incidents and ill health occurrence?

#### 2.4 Previous studies related to HSC

According to the HSE<sup>3</sup>, “An organisation’s culture can have as big an influence on safety outcomes as the safety management system.” The same report also highlights key aspects of an effective culture; management commitment, visible management, good communication between all levels, active employee participation, and inspection.

Further, The HSE<sup>4</sup>, also states that “the best Safety and Health Programs involve every level of the organization, instilling a safety culture that reduces accidents for workers and improves the bottom line for managers. When Health and Safety are part of the organisations way of life, everyone wins.”

The Health and Safety Laboratory (HSL) produced a Safety Culture Tool<sup>5</sup>, which measures attitudes of the workforce. It demonstrates that attitudes, combined with behaviours and business risk controls, make up the safety culture of an organisation. Considering the author’s aims, it is useful to note that in developing an investigative approach, these elements are considered critical to the assessment process.

When searching HSC literature, often it is found that the literature discovered involves themes such as leadership and management. Leadership and management are key indicators of HSC, and as such remain relevant. The European Agency for Safety at Work report on Leadership and Occupational Safety and Health<sup>7</sup> states that “Management need to be able to demonstrate genuine, public and continuing commitment to safety.” The report discusses leadership factors which can help secure safe behaviour; “Commitment of the board and senior managers, Consistent approach to OSH policy, Valuing and caring for employees, Openness to talk about safety and

health, Participation of employees and Proactive responsibility for safety.” These themes demonstrate synergy with other literature reviewed from the HSE<sup>3, 4, 6</sup>.

The report by Ward and others<sup>8</sup> focuses on the impacts of health and safety management on organisations and their staff. The report identifies that “Perceived organisational support has been found to have a positive influence on safety attitudes and behaviours. A recent study found that management commitment to safety was related to a number of employee attitudes, including job satisfaction, organisational commitment and intention to quit.” The report also stated “this research suggests that where employees feel their organisation ‘cares’ for them, including where they have positive views on the management of their health and safety, this may foster safer working practices and have a positive impact on employee’s attitudes.”

Cooper<sup>9</sup> states “Many industries around the world are showing an increasing interest in the concept of ‘safety culture’ as a means of reducing the potential for large-scale disasters, and accidents associated with routine tasks. Cooper also discussed the concept of safety culture, determining that it was a “term used to describe the corporate atmosphere or culture in which safety is understood to be, and is accepted as, the number one priority.” Cooper discussed the definition of safety culture as a ‘product’ which could be measured as an ongoing, tangible outcome measure, such as a consequence. Cooper identified that “some might argue that reductions in accident/incident rates might provide a better outcome measure of safety culture... accident rates can be reduced for a number of reasons that have little to do with ‘safety culture’ per se (e.g. under-reporting as a result of incentive schemes).” Cooper concluded “reductions in accident and injury rates, although very important, are not sufficient in themselves to indicate the presence or quality of a safety culture, whereas “that observable degree of effort [in measuring safety culture indicators] ...is something that can always be measured and assessed.”



According to Flin and others<sup>10</sup>, “there has been movement away from ‘lagging’ measures of safety based on retrospective data, such as lost time accidents and incidents, towards ‘leading’ or predictive assessments of the safety climate of the organisation... which may reduce the need to wait for the system to fail in order to identify weakness and to take remedial actions.”

The same report also references ACNSI<sup>2</sup>, which discusses key indicators for safety culture; senior management commitment, management style, management visibility, communication, pressure for production, training, housekeeping, job satisfaction, workforce composition. Of the studies reviewed by Flin and others, the key theme identified was management, which appeared in 13 of the 18 studies reviewed. It is noted that the term management is often ambiguous and in some cases can be difficult to distinguish what level of management is being studied. Some of the studies make specific reference to different levels of management, understanding the importance of front line management. Generally, Flin and others concluded that management is measured by respondent’s satisfaction, based upon individual perceptions and observed attitudes and behaviours with respect to safety. Mearns and others<sup>11</sup>, and Simard and Marchand<sup>12</sup> state that studies of supervisor behaviour and leadership style in relation to workgroup safety are starting to identify critical behaviours, which could be used to increase the precision of scales assessing the impact of management. Flin and others<sup>10</sup> go on to discuss that workplace management appears frequently in surveys. Identifying workforce leadership and management in the ANE safety culture research will be vitally important, as well as attempting to understand what drives views of leadership and management by the workforce, such as previous experiences, group consensus, discussions.

In an International Institute of Risk Safety Management (IIRSM) article<sup>13</sup>, Gerard discussed a typical business sentiment: “Top management is usually quick to blame operators’ short-cuts for accidents, while shop floor employees tend to look to management to make their workplace safer.” Companies historically looked to “approach safety with a compliance mind-set.” The article also states that compliance is only a baseline, and in itself will not ensure a positive company-wide safety culture,

nor drastically reduce accident numbers. This is supported by a number of documents that have been reviewed, not least HSG65<sup>6</sup>. The author's view is that HSC not only goes beyond legal compliance requirements, but is essential in demonstrating compliance to them. The best systems in the world can be documented, but without the active participation at all business levels, their potential will never be attained, which in some circumstances could constitute a breach against regulations.

Byrne<sup>14</sup> discussed key lessons of investigating safety culture, in that attempting "to develop a better safety culture, many organisations neglect to dig deep into the DNA of the business and so end up only effecting change at a superficial level." The analogy looks at differences in surface perceptions such as; Mission statements, organisational structure, published policies, and those that manifest more deeply in an organisation, such as; quality of working relationships, trust, management practices. This is a key area for the author to consider when preparing to conduct research within ANE, to ensure a lasting change is targeted, by looking at the DNA of the business, rather than superficial elements only.

### 2.5 Existing analysis methods

To ensure the research project remains efficient and supported by existing literature, the literature review also looked at identifying methods of information gathering. Particular emphasis in this section was paid to identification of suitable methods of enquiry, methods of analysis, any potential pitfalls, or methods which may overrun the deadline of the research project.

Mclain<sup>15</sup> noted in his article that 'dependant variables' could be used as an effective method of scaling responses to questions. The methods discussed include a six item measure<sup>16</sup> and a three item measure, with both scales ranging from strongly disagree, to strongly agree.

The HSL's Safety Climate Tool Demonstration<sup>5</sup> discussed the tool which can be utilised by all industry types. The online based system is questionnaire based and aimed at all personnel within an organisation. The questionnaire can be filtered to provide key data sets including site location, departmental analysis, accident involvement, employment status. Open text responses are permissible, to allow a greater depth of detail to be collated. Data is provided anonymously, meaning individuals can respond freely without fear of punitive action, affording opportunity for more realistic views of a business' HSC profile. The process is repeatable, as a monitoring tool for continuous improvement. The system comes at a cost, and the author already has the tools and knowledge to be able to create a survey in a similar style, using software ANE already owns. This ensures minimum cost with maximum benefit, as the bespoke questionnaire/ survey can be tailored to ask questions specific to the business without the risk of ambiguity.

Building on the premise of a survey/ questionnaire, Eeckelaert and others<sup>17</sup> discussed a scoring structure for questionnaires as an indicator. Creating standard responses and scoring positive answers with a higher rating, can allow for calculations/ scoring per survey/ overall analysis which can be useful both for an initial survey process, and for reproduction at a later date, to identify changes/ improvements. The report also has a number of annexed safety culture questionnaires which the author has reviewed for suitability and potential use of, or suitable elements/ styles of approaching the investigation that can also be considered. Of the 6 presented, 5 were omitted due to being prepared for different sectors or different demographic of participants than the authors intentions. The one suitable approach, the Nordic Occupational Safety Climate Questionnaire (NOSACQ-50) was researched further. One key element of interest was the scoring system implemented. Building on the initial comments from Eeckelaert and others, this scoring system moves away from the typical Likert 5-point scale, and instead asks for one of four responses, ranging from strongly disagree – strongly agree. The neither agree nor disagree response is removed. This appeals to the author, as removing the 'fence for everyone to sit on' will hopefully force a response leaning to the positive or negative direction, where normal expectation is that participants would be too quick to respond without taking the necessary time to reflect.

## 2.6 Is there value for ANE in conducting HSC research?

From the literature reviewed it is apparent there is an important research requirement within ANE that the author is capable to undertake. The author is confident of developing an approach that is suitable for ANE which will produce findings that demonstrate the current HSC of the organisation, along with recommendations on methods of improvement where necessary.

## **Chapter 3 Methodological approach**

### 3.1 Methodology

Methodology refers to a system of methods used in a particular field. According to Denscombe<sup>30</sup> “Research methods are the tools for data collection.”

Conducting social research, there are a number of possible methods that can be deployed to effectively undertake this research project. In this chapter a variety of potentially suitable methods will be discussed. The author will then demonstrate why the utilised method was selected.

This chapter will also cover:

- the participants
- the procedure
- piloting/ testing
- measures
- limitations

### 3.2 Methodological Approach Options

Following the literature review, which provided the author with a great deal of information on how scholars have undertaken the challenge of identifying a business’ HSC, the author determined that a suitable method of data collection was required to undertake this task based on; the literature review findings, timescales, resources, business requirements and capabilities.

There are a number of options that could be used, of which the main possibilities are summarised below with the author’s thoughts about their suitability. This section has been supported by the work of Denscombe<sup>30</sup> who has discussed at length the benefits, advantages and disadvantages of each method of research available.

#### 3.2.1 Interviews:

“Interviews are an attractive proposition for project researchers.” – Denscombe<sup>30</sup>. Interviews can be structured, with set questions to allow comparisons. This can allow for repeatable questions with multiple interviewees for direct comparison and correlation. Unstructured interviews concentrate less on the author’s aims, and more

on the thoughts of the interviewee. During and post interview, it is the challenge of the author to identify relevant information which can be analysed in a common format.

Pros:

Conducting interviews would give the author greater access to personalised experiences of the business' HSC, which Denscombe<sup>30</sup> refers to as the depth of information. Completing interviews allows for ethical consent to be obtained/confirmed for the use of information, as well as allowing open discussion on how the information is to be used.

Cons:

The drawbacks of interviews are significant; they're time consuming and costly, particularly to obtain insight from a representative sample of ANE. They are also difficult to trend, compared with completing quantitative analysis. Trending would require evaluation by the author in order to group responses accordingly, which can lead to discrepancies or misinterpretations which could affect the integrity of gathered data. Participants cannot partake anonymously during interviews.

### 3.2.2 Survey:

Survey's offer the greatest possibility for a research project such as the one proposed, as has been demonstrated by the literature reviewed. Surveys can be defined as "an investigation of the opinions or experience of a group of people, based on a series of questions."<sup>22</sup>

"When something is surveyed it is viewed 'comprehensively and in detail', and the purpose of doing a survey is generally to 'obtain data for mapping'.<sup>30</sup>" The use of surveys appears to be the most frequently used method by scholars undertaking similar projects.

Pros:

Set questions can be sent out to obtain the required data. Surveys can be sent to a large population for completion. Surveys don't need to be time consuming. With the correct software, data input can be carried out automatically, which offers further benefit to

researchers, making it a pragmatic choice of research method. Anonymity can be attained using a survey. This can improve the quality and authenticity of responses, compared with other methods.

Cons:

To use a survey, response rates have to be sufficient enough to keep the margin of error to a minimum. There are a number of different sampling methods that can be utilised. Selection would be based on the best available approach a researcher can make for their respective project.

### 3.3 Case Studies

Case studies typically focus on very few elements. Case studies are typically used to provide deeper insight into a particular element of a topic than interviews or surveys. A case study in many respects can be viewed in a similar fashion to an internal audit, which looks more in depth at the specifics than an inspection process would.

Pros:

In depth analysis of a specific theme, allowing for a greater understanding than a general analysis.

The use of multiple investigation methods increases the reliability of the findings, such as documentation, conversations/interviews, viewing of behaviours or workplaces.

Cons:

For the topic being explored, case study methodology will not allow multiple indicators of HSC to be reviewed.

Generalisations will be difficult to make about a complex topic such as HSC, from a single or few case study elements.

Can also be time consuming due to the collection and analysis of multiple sources of data and in some cases interviews to fully understand case study elements.

### 3.4 Selected method justification

Having reviewed a number of research methods, the author has determined that the most pragmatic and suitable approach is to undertake a survey of ANE's HSC. This approach will allow the author to explore the multiple indicators of HSC identified during the literature review, whilst targeting all business personnel as potential participants within the time constraints of the research project.

### 3.5 Participants

Participants were volunteers from within the ANE business. Encouragement to take part was driven by the Group Managing Director and the Senior Management Team after the survey's initial launch, in addition to the author's regular communications. Of the 378 personnel, the author had hoped for a minimum of 191 participants. If 191 participants had completed the survey, the author would be able to quote a confidence level of 95%, with a margin of error at 4.99%. Due to a lower than hoped for response of 148, the author is only able to quote a margin of error of 6.29%<sup>31</sup>. The 148 that took part represented all departments, management levels and sites within the ANE business. Considering the scale of the research project, and its aims, the sample is sufficient enough to draw conclusions about the business' HSC.

### 3.6 HSCS pilot

A number of pilots were run prior to launch of the HSCS, utilising ANE personnel. This gave the author opportunity to challenge the information provided to participants; readability of questions, understanding of the questions intentions. The pilot was carried out by 20 individuals across multiple sites, departments and management levels. Following the pilot phase, a number of changes were made to wording and layout to improve the readability and usability of the survey, prior to its launch. This primarily related to information at the beginning of the survey, using simpler language to ensure understanding. Examples were added to Question 23 in order to ensure



clarity. Prior to the launch of the HSCS, all pilot data was deleted, to ensure there were no duplications or spurious responses in the final data.

### 3.7 Procedure

A survey was developed focusing on the key indicators of HSC, identified during the literature review. In total, 46 questions were asked. A pre-cursor confirming participants had read and understood the Participant Information Sheet (PIS) and survey instructions was also asked. Of the 46 questions asked, 26 were quantitatively analysed. Some of the remaining questions were asked to enable cross section data sets to be developed, i.e. years of service, department, site location, management level. The remainder asked for qualitative responses which were also analysed and included in Chapter 5 to support the discussion of the quantitative results analysis.

The survey utilised 2 platforms; hand-written responses, and computer input. The handwritten surveys were displayed in communal areas of 2 business sites, with a tray for blank surveys, and a locked post-box tray for completed surveys to be placed. This prevented any tampering with responses. The handwritten surveys were input into the computer based system by the author, so that all data could be analysed together. To ensure accuracy of this data, a 100% recheck was carried out by a colleague. Microsoft SharePoint was utilised for computer users to generate and submit responses. One of the 3 sites were only given the option to use SharePoint. This was to aide automated data input for the author. This took place at the Engineering Centre of Excellence (ECE), where all personnel have individual workstations and access to the SharePoint system. Instructions were given to all personnel not to identify themselves in the answers they provided. The questionnaire was set to anonymous submissions, preventing identification of individual's responses. As the survey required participants to 'submit' their responses, implied consent was confirmed<sup>42</sup>.

Prior to the launch of the Health and Safety Culture Survey (HSCS), a number of preliminary meetings took place to provide key individuals and groups with pertinent information. This included conversations between the author, Group Managing

Director, Head of Quality, Health Safety and Environmental Management, and the business Health Safety and Environmental Manager. The HSCS was included in the Senior Management Team (SMT) meeting prior to its launch, and was also in the All Employee Briefings, the week of the launch. The survey was active for 13 days, from 17<sup>th</sup> February – 4<sup>th</sup> March.

### 3.8 Measures

The survey questions were developed based on the authors literature review. As discussed in the previous chapter, the literature reviewed identified a number of regularly occurring themes that are key to understanding HSC. The Appendix 3.8.1 summarises where questions within the survey have challenged the HSC key indicators. In many cases, there is significant cross over, with more than one question tackling each of the key indicators.

## **Chapter 4 Research Findings**

Having reviewed the methodological approach in chapter 3, chapter 4 will review the responses received and analyse the findings, in preparation for the discussion in chapter 5 which will demonstrate where the business' HSC sits with regards the literature and expectations of a nuclear engineering organisation.

### 4.1 Data sets

As discussed in Chapter 3, a representative 148 responses were received. To allow for meaningful analysis of the survey responses, a total of 19 analysis data sets was identified by the author. The data sets were:

- Overall responses – 148 participants
- Departmental responses. The business is split into 3 areas, to consider operational bias; Business Support, Operational and Engineering. Of these 3 departmental groups:
  - 44 were from the business support functions, i.e. Finance, I.T, procurement, etc.
  - 51 were from Operational personnel, from departments including Manufacturing, Commissioning, Stores, Quality Health Safety Environmental (QHSE).
  - 53 were from the business' Engineering department.
- Male/ Female responses:
  - Male responses – 115.
  - Female responses – 26
  - 7 total responses who indicated 'prefer not to say' on the HSCS were excluded.
- Responses broken down by Management Level within ANE:
  - Responses of Directors – 6
  - Responses of Senior Management Team – 10
  - Department and Function Manager responses -13
  - Team Leaders/ Supervisors (responsible for others) – 36
  - Operatives (shop floor/ admin/ engineers) – 83

- Responses from different sites (Directors excl. to ensure anonymity)
  - Head Office – 114
  - Engineering Centre of Excellence (ECE) – 24
  - North West Division (NWD) – 4
- Staff and contractor responses comparisons (1-person excl. as no employment type responses received):
  - Staff – 122
  - Contractor – 25
- Responses based on experience with the company (staff and contractor combined)
  - Experience = 0>3 years – 78
  - Experience = 3>10 years – 56
  - Experience = 10> years – 14

Within this chapter, the HSCS responses will be presented and analysed, highlighting areas where the author believes the results show potential areas for improvement, which will be discussed further in Chapter 5. Information which may be available, but provide no benefit to the understanding of the business' HSC will be omitted from the analysis.

To aid the reader, the analysis has been assembled as per key headings from HSG65<sup>6</sup> which align with HSC key indicators. The headings that the analysis is assembled under is as follows:

- Health and Safety Management Systems
- Risk Profiling
- Leading and Managing for Health and Safety
- Competence
- Worker Consultation and Involvement

Each of the questions which have been analysed have been assembled into the above headings based on a 'best fit' approach, determined by the author. Many questions could sit within several of the above key headings sections, however this is not

considered to be an issue as analysis is being completed per question, rather than collectively per the headings.

The data has also been prepared to aid the reader further. Responses have been presented in bar graphs, which are available in the Chapter 4 appendices. As per Gillam<sup>24</sup>, “Most people find a visual display easier to read than a numerical table.” The analysis is completed by question using percentages which “describe what you have in your data in a rather more tidy(sic) form.” As there is a significant amount of data, all bar graphs are located within the appendices, for those who wish to view them.

#### 4.2 HSCS results analysis:

##### 4.2.1 Health and Safety Management Systems

All graphical analysis for section 4.2.1 is in the appendices chapter of the same figure.

According to the HSE<sup>25</sup>, Health and Safety Management Systems are “the means by which an organisation controls risks through the management process. Part of the overall management system that facilitates the management of the OH&S (Occupational Safety & Health) risks associated with the business of the organisation.”

This section sought to identify personnel’s overall impression of health and safety within the business, how personnel felt about the role they play, and whether the processes in place for managing health and safety matters were sufficiently operating.

**Question 8** – Are your health and safety needs always put before ‘completing the job’?

#### **Q8 analysis:**

This question aims to obtain an opinion as to the status of H&S in the business. Prioritising Health and Safety ahead of getting the job finished should always be the aim of the organisation. There are generally high positive responses across all data sets. Tables 4.1 – 4.3 demonstrates that in terms of areas where the most negativity is situated within the organisation, Operational personnel - particularly operatives and Team Leaders/ Supervisors, and predominately at the business’ Head Office. In

contrast to the responses of Team Leaders/ Supervisors and Operatives, Directors, SMT and Department/Functional Management all responded positively to the question, suggesting a potential disconnect or opportunity for reinforcement.

**Question 9:** Do you feel that Directors and Senior Management involvement would give greater importance to following health and safety rules?

**Question 9 analysis:**

This question was asked to determine how employees feel they can be influenced by the values and examples demonstrated by those at the top of the business. Reviewing the responses in Table 4.4, this question suggests that Directors/ SMT in particular believe that their involvement gives greater importance to following health and safety rules. Dept./Functional Management and Team Leaders/ Supervisors also show high levels of agreement in the statement, suggesting that they value the influence and support offered by more senior members of management and board members. 18% of Operational personnel responded negatively, either disagreeing or strongly disagreeing with the question. This negative response could be linked to a number of potential reasons, including belief that involvement of Directors and SMT is not supportive, but rather punitive. This is an element which will need to be considered, along with analysis from other questions.

**Question 20:** Should you be more involved in health and safety?

**Question 20 analysis:** This question looks to identify respondent's attitudes towards health and safety, including understanding that everyone should be involved. Overall the responses suggest that most agree they should be more involved in health and safety. As implied by the data in Tables 4.5 and 4.6, disappointingly, Director's and the SMT have a significant number of negative responses. Additionally, Department/ Functional Management and Team Leader/ Supervisors have 23% and 34% negative responses respectively. Under requirements of the MHSWR<sup>20</sup>, there is a requirement for employers to undertake sufficient assessment of risks to health and safety of employees and others. Fulfilment of this requirement is the responsibility of those management levels listed, supported by all levels, and so it is concerning that Department/ Function Management and Team Leader/ Supervisor's do not feel they

need to be more involved. Potentially, this is either because they feel they are already contributing sufficiently, or they do not want to be more involved in health and safety for other reasons.

**Question 26, 27 & 28 combined:** I am proud to tell people who I work for; I feel I am part of the organisation; I would recommend to a friend to join the company.

**Question 26, 27, 28 combined analyses:** These three questions have been grouped together for analyses as they are all linked, and are all designed to identify employee's attitudes; job satisfaction, organisational commitment, intention to quit, which is a key indicator of HSC. Across the 3 questions there was a positive response, with 84%, 80% and 84% responding positively, respectively. The data is demonstrated in Tables 4.7 – 4.12.

The Engineering department appear to be the unhappiest department in the business, responding with a 23% negative response to question 26, and a 33% negative response to question 28. Comparing contractors to staff responses demonstrates that contractors feel most negatively, with 28% of contractors compared with 12% of staff responding negatively about whether they are proud to tell people who they work for. This trend is also mirrored in question 27 where 44% of contractors, compared with 19% of staff responded that they did not feel that they were part of the organisation.

Of the management level responses, the most concerning responses are from the SMT with 100% negative responses regarding feeling like they are part of the organisation. Additionally, 20% of Directors felt the same, as did 29% of Team Leaders/ Supervisors and 25% of Operatives.

With regards recommending a friend join the company, 20% of the SMT responded negatively, as did 30% of Operatives and 41% of Team leaders and Supervisors.

Overall in summary of these questions, there is clearly work to be done to make respondents feel proud of the organisation they work for and integrate them so that they feel they are part of the organisation. This is a particular requirement for contractors who show the most negativity. Actions to address any negativity is also

required to ensure personnel are happy working in the business, so much so that they would recommend working at ANE to a friend.

**Question 30:** Business management, supervisors and my peers encourage me to raise concerns regarding safety or health matters

**Question 30 analysis:** This question challenged the commitment and ability of the business to openly talk about health and safety issues. 76% of responses were positive, suggesting that management, supervisors and peers play an important role in encouraging personnel to raise safety and health concerns. Whilst this number is positive, 20% disagree that they are encouraged, and 4% strongly disagree, demonstrating that there is room for improvement. Upon inspection of the data in Tables 4.13 – 4.16, it is clear that the Business Support and Engineering departments feel less encouraged. This is in contrast to the Operations departments that have 90% positive responses. The NWD has a 75% response which strongly disagrees. Middle management are the worst respondents from the management level comparisons.

**Question 39:** Was the near miss/ incident/ accident investigated in a timely manner? (Linked to Q38)

**Question 39 analysis:** This question, and question 38 which it is linked to, sought to identify whether the near miss/ incident/ accidents which were raised by employees were investigated in a timely manner. This question sought to identify if personnel were happy with the response time of the HSE Team or Departmental Supervision. This directly links with the HSC key indicators regarding communications and an openness to talk about safety, proactivity, training, management visibility and a consistent approach to health and safety policy. Overall 74% of respondents were positive about this question, including 18% which strongly agreed. Analysing the data in Tables 4.17 – 4.19, the departments which are most concerned about slow investigations of near miss/ incident/ accident is the Business Support (29% strongly disagree) and Engineering (38% negative responses). In the high risk Operations departments 79% of responses were positive.



When the analysis is made of management level comparisons, it is clear that Directors are divided, with a 50/50 agree to disagree. Operatives are also almost evenly split, 46/54% negative/positive, and Department/ Functional Management are also split 50/50 between negative/positive, including 25% who strongly disagree.

Despite the high level of Engineering negative responses, the ECE have responded 100% positively, including a 40% strongly agree response, indicating that the engineering department personnel who are most concerned by the timeliness of investigations are based at the Head Office facility. 100% of responses at the NWD responded strongly disagree, indicating a disconnect with the rest of the business that needs to be rebalanced.

#### 4.2.2 Health and Safety Management Systems – Research summary

- Some individuals feel that the job is put before their health and safety needs, particularly at the business' Head Office.
- Significant numbers feel they shouldn't be more involved in health and safety. This needs to be further addressed.
- Participant's pride, organisational connections and willingness to recommend a friend to the business need to be addressed in the context of integrating personnel in health and safety activities.
- Improvement in expediency of near miss/ incident/ accident investigation completion and publishing required. This can be linked to other questions in the HSCS including questions about sufficient health and safety expertise, training needs being met for personnel, etc. to formulate a solution that meets the business' needs.

#### 4.2.3 Risk profiling

All graphical analysis for section 4.2.3 is in the appendices chapter of the same figure.

Risk profiling in terms of business HSC relates primarily to the completion of risk assessments. Risk assessments should be completed by businesses to determine control measures to reduce risk to an acceptable level. The leading UK regulation regarding this type of risk profiling is MHSWR<sup>20</sup>, states that “Every employer shall make a suitable and sufficient assessment of-

- (a) The risks to the health and safety of his employees to which they are exposed whilst they are at work; and
- (b) The risks to the health and safety of persons not in his employment arising out of or in connection with the conduct by him of his undertaking,”

HSG65<sup>6</sup> builds on this further, stating, “The risk profile of an organisation informs all aspects of the approach to leading and managing its health and safety risks.”

According to Hughes and Ferrett<sup>26</sup>, “it is important that the risk assessment team is selected on the basis of its competence to assess risks in the particular areas under examination in the organisation.”

This section of questions is aimed at determining if participants feel they are involved in the process of risk assessment completion or review, and if they feel that appropriate risk reduction methods are deployed.

**Question 18:** Are you asked to provide input/ feedback on risk assessments that are produced for tasks you undertake?

**Question 18 analysis:** This question challenges employee involvement and proactive responsibility for safety. Overall 46% of respondents agreed, with 10% strongly agreeing that they are involved in risk assessments. Unfortunately, this does mean that a 44% negative response has been received. Whilst Engineering and Business Support functions are predominately office based activities, 34% of respondents in the high risk Operations departments have also responded negatively. When viewing the

management comparison, it is also concerning to note negative responses of 50% for Team Leaders/ Supervisors, and 46% for Operatives. In this analysis taken from Tables 4.20 and 4.21 it is clear that more work needs to be done to include personnel in the preparation and review of risk assessments across the business departments, ensuring that participation is sought from all levels of management.

**Question 21:** The business sufficiently monitors my health, and informs me if there are any concerns that I should follow up on with a GP?

**Question 21 analysis:** This question was asked with a view to understanding whether personnel receive sufficient health monitoring provided by the business. Overall, the response isn't great. Data in tables 4.22 and 4.23 suggests that the Operations department receive a service they are happy with, but the Business Support and Engineering departments do not. There is a significant split between positive and negative comments across all management levels. In particular, SMT and Department/ Functional management disagree with the question more than other management levels. Monitoring of health is a requirement of the HSG65 standard<sup>6</sup>, and COSHH<sup>23</sup> where risk exists of disease due to workplace activities. Clearly, more work needs to be done in the health monitoring areas of ANE's health and safety management, both in terms of completing the monitoring, but also improving personnel understanding of health issues through education programmes.

#### 4.2.4 Risk Profiling Research Summary

- Improve the business mechanisms for risk assessment production and review, to improve overall participation in risk management activities.
- Work needs to be done regarding the respondent's issues regarding working in a healthy and safe working environment.
- Health monitoring activities need to be improved.

#### 4.2.5 Leading and Managing for Health and Safety

All graphical analysis for section 4.2.5 is in the appendices chapter of the same figure.

The HSE website<sup>26</sup> discusses leading and managing for health and safety. It states that “leaders, at all levels, need to understand the range of health and safety risks in their part of the organisation and to give proportionate attention to them. This applies to the level of detail and effort put into assessing the risks, implementing controls, supervising and monitoring.”

This section looks to identify if participants feel that there is leadership from the top of the organisation. It also seeks to determine if individuals are happy with the level of health and safety knowledge their leaders and managers possess, and their ability to resolve concerns, or refer to appropriate health and safety expertise that can afford time and resource to respond satisfactorily.

**Question 7:** Do you feel that business’ Senior management and Directors are committed to your health and safety?

#### **Q7 analysis:**

This question was asked as an initial ‘temperature check’ for how staff felt that the business’ Directors and SMT valued H&S of personnel. From the data shown in tables 4.24 – 4.27, it is clear that overall, the business’ personnel are satisfied with the commitment of the Directors and SMT. In terms of areas showing negative responses, Operational Personnel, Head Office personnel, and those with less experience in the business demonstrate the largest element of negativity in their respective data sets.

**Question 13:** Are there sufficient health and safety specialists within the business to meet the needs of all personnel and functions?

**Question 13 analysis:** This question provided an opportunity to assess whether respondents felt they had sufficient access to health and safety specialists. This can be for any number of reasons such as the HSE Teams involvements in policy, procedure and risk assessment support, activity planning, bid support, etc. The key to this response is the perception of the individual, and whether they feel additional health

and safety specialists are required. Table 4.28 – 4.30 demonstrates the significant responses. Overall, 85% responded positively. However, in the breakdown of data sets some areas of the business clearly feel that there is a requirement for more specialists. 24% of operational departments responded negatively. Additionally, 10% of the SMT, 23% of all Department/ Function Managers and 20% of Team leaders/ Supervisors all responded negatively. Concerning, there is also a 16%, 50% and 17% negative response across the Head Office, NWD and ECE respectively.

**Question 24:** Do you feel that supervisors, managers, etc. are equipped to answer your health and safety questions?

**Question 24 analysis:** This question looks to identify if those whom personnel expect to be able to provide responses regarding health and safety are equipped to respond effectively. Overall, 34% of responses are negative. Across the data sets demonstrated in Tables 4.31 - 4.34 the negative responses appear to be consistent, suggesting a general overall consensus that more needs to be done to enable management to be able to respond to health and safety questions.

**Question 35:** Were concerns put to rest, with appropriate information, or escalated appropriately and resolved? (Link to Q33 – challenging behaviour)

**Question 35 analysis:** Questions 33 and 35 challenges the business' response to any concerns that are raised by personnel. Overall, 79% responded positively. Tables 4.35 – 4.37 demonstrate that there is a clear failing at the NWD (100% strongly disagree), Females in the business responded with more negative responses than males, 45% compared to 16% which also needs to be factored into the discussion about improvements to the business' HSC.

**Question 42:** Do you feel that enough is done to provide you with a healthy and safe working environment?

**Question 42 analysis:** This question asks directly about the safe conditions of the workplace and personnel's acceptance of those conditions. Considering the total

respondents, 84% responded positively. When broken down as shown in tables 4.38 and 4.39, the concerned parties become apparent. When considering the management levels, operatives responded the most negatively with 18% negative responses. Team Leaders/ Supervisors were next with 14% disagreeing. 10% of SMT responded negatively, as did 16% of Department/ Functional Management. The vast majority of individuals agree that enough is done to provide a healthy and safe working environment. It was also expected Operatives would be most likely to report negatively, as they are the group most likely to be working in areas/ with equipment which may cause concerns, compared with more senior management levels. This also correlates with the experience comparison, which show that the highest levels of concerns are from those who have been with the business the shortest amount of time, which also suggests least senior individuals.

**Question 44:** Were concerns put to rest, with appropriate information, or escalated appropriately and resolved? (Linked to Q43 – work environment)

**Question 44 analysis:** Question 43 asked if concerns about work environment was raised with the appropriate management or HSE Team. The follow up question, number 44, looked at whether responses to those concerns were suitable, including where they needed to be escalated further to achieve a complete response. This question set was designed to identify the business' ability to communicate effectively about health and safety matters, and managers' ability to appropriately respond, which is linked to training, and visibility. 77% responded positively including 11% who selected 'strongly agree'. When the overall data is broken down in Tables 4.40 – 4.42, it demonstrates that departments most concerned about the response received were Operations and Engineering, although it should be mentioned that 25% of Business Support strongly disagreed. Across the management level there appears to be a consistent response, with the majority responding positively, and approximately 20% - 40% responding negatively, with negative responses increasing as you move down the management levels. Additionally, the business' contractors are unhappiest when responding to this question, with 50% responding negatively, compared with 30% of

staff negative responses. This response demonstrates that communication regarding health and safety is an area that needs improvement.

#### 4.2.6 Leading and Managing for Health and Safety Research summary

- Overall respondents felt they were happy with the commitment of the business' Directors and Senior Management Team.
- Respondents largely believe that there should be a greater Director and Senior Management Team involvement in health and safety, as their involvement gives greater importance to health and safety rules.
- Improvement is required to improve supervisors, managers, etc. ability to respond to health and safety questions from personnel.
- Overall responses suggest that the business has sufficient health and safety expertise. However, breakdowns of the data identify that in some areas of the business, a greater health and safety presence is expected.
- The areas of the business where challenging unsafe behaviour is not received in a constructive way need to be addressed to ensure a collaborative and open environment to talk about health and safety.

#### 4.2.7 Competence

All graphical analysis for section 4.2.7 is in the appendices chapter of the same figure.

Richard Feynman once said, “The first principle is that you must not fool yourself...and you are the easiest person to fool<sup>27</sup>”. According to the Oxford English Dictionary<sup>28</sup>, competence is defined as “the ability to do something well.” In industry, we have many acronyms and processes for determining competence, such as the Construction Skills Certification Scheme (CSCS) construction process, the process of assessing SKATE – Skills, Knowledge, Ability, Training and Experience, and SQEP – Suitably Qualified Experienced Person.

This section specifically addressed participant's belief that the business has sufficient competent persons to carry out health and safety duties. Specifically, challenging if

training needs for health and safety were addressed, and whether internally led courses provided sufficient information. The intent of the questions was to increase understanding of the offering provided by the business, and individual's confidence that the training equipped them to undertake expected duties.

**Question 22:** Are your health and safety training needs addressed by the business?

**Question 22 analysis:** This question challenged if individuals felt they were provided with suitable health and safety training to carry out their duties, which tests the business' approach to health and safety, how valued personnel feel based on the level of training provided, and whether training isn't provided where required due to production pressures. As the overall response suggests, generally more personnel are happy with the training they receive than aren't. However, as demonstrated in Tables 4.43 - 4.45, the number of negative responses is unacceptable, and needs to be addressed. The Business Support and Engineering functions have provided a large number of negative responses 35% and 44% respectively. Operations negative responses totalled 24%.

The negative responses appear to also demonstrate that SMT, Department/Functional Management, Team Leaders and Supervisors in particular have concerns over health and safety training needs being addressed. Interestingly, contractors responded more negatively as a group, than staff.

**Question 25:** Do internally led H&S safety courses provide you with an appropriate level of information?

**Question 25 analysis:** This question specifically looks to identify if the courses that the HSE Team are delivering are considered appropriate to respondents. 79% of the total responded positively, including 10% who strongly agreed. Areas for improvement shown by Tables 4.46 – 4.48 include training of SMT, personnel at NWD and personnel who have been employed by the business for 0-3 years, which are the data sets that have responded with the greatest negativity.



#### 4.2.8 Competence Research Summary

- Overall responses suggest that the business has sufficient health and safety expertise. However, breakdowns of the data identify that in some areas of the business, a greater health and safety presence is expected.
- A significant number of respondents feel that their health and safety training needs are not adequately addressed.
- Whilst largely positive, some work is needed to improve internally led health and safety training for those sites/ management levels that have responded negatively. This can be linked to other responses to more comprehensively address the issue.

#### 4.2.9 Worker consultation and involvement

All graphical analysis for section 4.2.9 is in the appendices chapter of the same figure.

Worker consultation and involvement is referenced throughout many pieces of legislation and regulation. Most recently, The Construction (Design Management) Regulations 2015<sup>29</sup> places an onus on worker consultation and involvement in Regulation 14 - Principal contractor's duties to consult and engage with workers. In HSG65<sup>6</sup> the HSE Chair, Judith Hackitt comments "I find it hard to imagine how one could ever put in place an effective workplace health and safety system that did not include real participation and engagement of the workforce." Additionally, the Health and Safety (Consultation with Employees) Regulations 1996<sup>43</sup> also requires business to consult with employees, either directly or through elected health and safety representatives, as well as provide sufficient information and training.

**Question 12:** Do you feel that management respond promptly to health and safety concerns that are raised?

**Question 12 analysis:** This question is designed to demonstrate the business' overall commitment to Health and Safety; the perception of employees regarding whether management care and value their employees. The question also challenges whether management are willing to discuss Health and Safety matters, and whether they are

suitably trained to respond. Overall the question was positively responded to by all. As shown in Tables 4.49 -4.50, 10% of the SMT disagreed, as did 15% of the Dept./Functional Management. Interestingly, respondents with 10 years or more experience responded with the most negatives responses; 14% strongly disagreeing, and 7% disagreeing.

**Question 14:** Do you feel that the business' SMT and Directors provide suitable regular communications about health and safety performance, i.e. ambitions, targets, campaigns, etc.

**Question 14 analysis:** The question looks to identify in more specific terms than questions 7 and 9, whether respondents are happy with the communication they receive about health and safety in the business, from the business' Directors and SMT. Overall, only 52% of participants responded favourably. Significantly, shown in Table 4.52, 70% of SMT disagreed – suggesting that they themselves know they need to do more. Over 50% of Department/ Function Management and Team Leaders/ Supervisors also disagreed. This suggests that a significant number of the business' management team feel that health and safety is not discussed enough by the Directors and SMT.

**Question 16:** Are you asked to provide questions/ suggestions for H&S meetings, i.e. Manufacturing Safety Meeting, Employee Forum?

**Question 16 analysis:** This question was designed to assess worker involvement. There are a number of forums within the business that discuss Health and Safety, with reps appointed from departments and project teams to represent those areas. This question assesses whether those mechanisms are effective in identifying issues/ queries/ suggestion from the workforce, and presenting them to the business for response. Assessing overall, 10% strongly disagree and 33% disagree that they are asked to provide questions and suggestions. This is disappointing, and highlights a requirement to do more. Tables 4.54, 4.55 and 4.56 clearly show that across the business, throughout the business, there is a clear need to be addressed.

**Question 17:** If you have provided questions/ suggestions for H&S meetings, did you receive adequate and timely feedback?

**Question 17 analysis:** This question, linked to question 16, shows also that where questions and suggestions are made to the business forums, a significant number feel they do not receive adequate and timely feedback. This poor feedback is also noted in responses from the Directors, as well as the lower levels of the business management, revealed in Table 4.58. There is a positive response from the ECE, with 100% agreeing that adequate and timely feedback is received, although the NWD is a complete reversal of this response which needs to be addressed as an improvement opportunity as per Table 4.59.

**Question 19:** Do you feel you receive adequate feedback/ updates on health and safety issues you raise?

**Question 19 analysis:** This question challenged the business' culture by assessing communication, openness to talk about safety and the training/ ability of management to adequately respond to feedback to those who raise health and safety issues. From the data in Tables 4.60 – 4.62, it is clear that work needs to be done in this area. There are robust disagree and strongly disagree responses across all departments, and this is also demonstrable in the management level comparisons. The ECE site has the happiest respondents, with the NWD showing a 100% dissatisfaction.

**Question 31:** Do you feel that you are able, in your role, to make a positive influence on the business' health and safety performance?

**Question 31 analysis:** This question was designed to test the perception of individuals - considering who is able to make a positive influence on health and safety performance. Questions 7, 9 and 13 all ask about others in the business; Directors, SMT and specialists. Only 63% of responses were positive, which is not conducive to a positive HSC. This suggests a significant number of individuals in the business see

health and safety as someone else's job. In Tables 4.63 and 4.64, 38% of Business Support, 30% of Operations and 43% of Engineering feel that they are unable in their roles to positively influence health and safety performance. Detrimentally, 33% of Directors also disagree that they can influence a positive health and safety performance. Further, and more damning, is that 49% of Operatives don't believe they can positively influence health and safety performance. 27% of Team Leaders/ Supervisors also responded negatively. As these individuals are generally the first port of call regarding health and safety leadership, and points of query for operatives, it is worrying that 27% of them do not feel they can positively influence the business' health and safety performance. This is an area that clearly needs improvement and development.

#### 4.2.10 Worker Consultation and Involvement Research Summary

- The expediency of responses to health and safety concerns need to be improved.
- Communication by the Directors and SMT regarding health and safety performance needs to be improved. The data also demonstrates that SMT in particular want to be in receipt of health and safety performance data, suggesting a requirement throughout the business to overhaul health and safety performance communications.
- Mechanisms for obtaining questions/ suggestions for health and safety meetings need to be improved, including the provision of feedback from such meetings.
- Work needs to be done to demonstrate the importance of all individual's involvement in health and safety and how it affects the business' performance.
- Significant numbers of participants feel they shouldn't be more involved in health and safety. This needs to be further addressed.

#### 4.3 HSC Research Summary

Following the analysis of the HSCS questions on a question by question basis, in chapter 5 those findings will be explored collectively. Given the question specific analysis made, at this point there is a clear expectation that recommendations for improvement should be presented, developing themes for improvement which will become the basis of a proposed HSC improvement plan.

## **Chapter 5 Discussion**

In this chapter the author will discuss the research findings, in the context of the projects aims and also the research covered in Chapter 2, leading to recommendations and conclusions in the chapters following. Additionally, opportunities for further research will be discussed, highlighting limitations of this research project.

### 5.1 Research findings discussion

Considering the overall assessment of the HSCS findings, there are areas where ANE are operating positively, and areas where there is improvement required. ACSNI's definition of Health and Safety Culture<sup>2</sup> is "the product of individual and group values, attitudes, perceptions, competencies and patterns of behaviour that determine the commitment to, and the style and proficiency of, an organisations health and safety management." The HSCS was designed to challenge key elements of HSC. In particular, as has been referenced throughout, utilising key elements of HSG65<sup>6</sup>, the author has sought to review findings in a context which allows opportunities for improvement to be grouped into a familiar business Health and Safety model, which recognises HSC as an important structural facet of the business' overall performance potential.

#### 5.1.1 Health and Safety Management Systems

The summary in 4.2.2 concluded that overall within the business there were elements that:

- Felt the business placed more emphasis on getting the job done, than concerning itself with individual's health and safety.
- Determined that they should not be more involved in health and safety.
- Considered near miss/ incident and accident investigation completion and publishing to happen too slowly.

From the summary, it's clear that there are issues which can be resolved by improving communication streams. As the MHSWR<sup>20</sup> states, employers should provide employees with comprehensive and relevant information on risk to their health and

safety, preventative and protective measures. Communication, as identified by HSG65<sup>6</sup> is a key element of a business' health and safety culture, and an area that will need work to improve.

With regards individuals believing they should not be more involved in health and safety, there are a number of potential reasons for this belief. Either they are of the opinion they are already sufficiently involved, or there are individuals who believe that health and safety is someone else's job. This is an area which will require improvement, as one participant from the HSCS noted, "individuals alone cannot change a behavioural culture."

The publishing of investigations is an area that participants have indicated they would like to see improvement. This again, is another element which can be categorised as a communication improvement. Improvements can be driven by making changes to the investigation procedures. Such improvements can incorporate communication points that must be met, including who should be involved in the communication. Additionally, there is an opportunity to improve openness of investigation information, by removing personal information and publishing on the business intranet. This will allow for management to utilise the information for a variety of benefits, including policy change/ assessment, risk assessment reviews or development. As demonstrated in HSG245<sup>35</sup> remedial actions should be identified and addressed during investigations, and the correct people should be involved in that process. To ensure personnel are aware of this process the management of these remedial actions needs to be undertaken visibly and regularly.

### 5.1.2 Risk Profiling

The summary in section 4.2.4 confirmed the following:

- Business mechanisms for risk assessment production and review need to be improved to increase participation of personnel in both the production and review of risk management documents.
- Concerns were raised that a small portion felt they were not working in a healthy and safe environment, and that they had not reported these concerns.
- Health monitoring activities need to be improved

The business' risk management system for personnel health and safety needs to be reviewed and improved to incorporate a wider range of activities, and individual's involvement to address both quantitative and qualitative data. Training that should be rolled out to risk assessors should then help to address all points raised above. In addition, a system to allow personnel to log, anonymously if they wish, concerns about health and safety, should be created. To help with the business' risk profiling, an overhaul of the occupational health provision should be sought, to ensure that all 3 sites are covered correctly, and that the service is tailored to address those at risk as a higher priority. Finally, to aide in the communication of safety concerns, risk profiling information and reemphasis of business health and safety management processes, a HSE committee should be set up with representatives from across all business areas. The benefits of utilising a HSE committee as a communication method across a large business are well documented. One particular example utilised by the HSE is the BskyB case study<sup>38</sup>.

### 5.1.3 Leading and Managing for Health and Safety

As summarised below from the research findings chapter:

- Respondents suggested they were happy with Directors and SMT commitment. However, utilising more specific questioning, participants suggest that a greater involvement of Directors and SMT would give greater importance to health and safety rules.



- Supervisors and Managers ability to answer health and safety queries is questioned by participants. There is more that needs to be done to help individuals in these roles, both in the knowledge they require, and in their approach to managing individuals concerns.
- The business requires greater health and safety expertise. Participants from outside of Operational areas generally feel there are not sufficient personnel to meet their needs.
- Areas of the business have highlighted that challenging unsafe behaviour is met with an inappropriate response.

Reviewing the responses from participants, it appears that there is a desire for Directors and SMT to be more visibly involved in health and safety. As one participant stated “walk the floor more, talk to people.” This type of visible management is supported by the Institute of Directors (IoD)<sup>39</sup>. Additionally, confirmed by both operatives concerns and that of management, there is a requirement to provide training to management proportionate to their duties and expectations within the business. This increase in managerial competence can help alleviate concerns about the number of HSE expertise in the business, or can support it further if addressed by the business.

The business also needs to look at its behavioural based safety – challenging behaviours or unsafe conditions should become second nature, as should being in receipt of such a challenge. A constructive relationship between individuals involved in challenges can further progress the business’ safety performance, identifying concerns before they develop into near misses or worse, such as the SHP article on challenging behaviours<sup>36</sup>.

#### 5.1.4 Competence

- A significant number of participants feel that their health and safety training needs are not met.
- Internal training is largely well received; however, a small percentage of individuals feel the offering needs to be improved.

Health and Safety training needs is a topic that will require some additional research, to identify the specific areas of concerns participants have. This can either be due to specific weaknesses within a department, or a failing of the business to address the basis training needs of personnel.

With regards internal Health and Safety training, which is delivered by the HSE team, it is comforting to know that most participants find the content and delivery is good. For us to move forward and improve on that further, addressing the concerns of the minority, a training review, such as the use of ‘happy sheets’ should be completed so that feedback can be attained, to aid in the development of training methods and material content on an ongoing basis.

#### 5.1.5 Worker consultation and involvement

- Expediency of responses to health and safety concerns needs to be addressed.
- Communication – overall requirement to improve communication up and down the business.
- Mechanisms for obtaining questions/ suggestions for health and safety meetings should be addressed to improve current practice.
- Personnel need to be made to feel that their involvement in health and safety is important, makes a difference, and can help to evolve the business’ culture. Demonstrating this will in turn help to instil pride, make people feel that they are part of the organisation, and make them want to recommend a friend to the business.

The expediency of responses to health and safety concerns needs to be viewed from multiple angles, of which some improvement has been discussed as they are linked to other elements. The first element of this which has been covered elsewhere relates to competence – making sure that management are able to discuss concerns with personnel, resolving concerns where possible, but also knowing what to ask prior to escalating to the business’ HSE expertise.

The concept of a HSE committee has also been discussed previously in this chapter, as a method of raising concerns/ discussing health and safety practices and investigation information. A HSE committee deployed in the business can also help improve the delivery of safety concerns/ suggestions, as HSE Committee members training will cover elements relating to the sharing of information both from the committee, but also to it. Examples of successful HSE committee development and achievements are readily available, including the GEOCEL case study provided by the HSE<sup>37</sup>.

Increasing individual's involvement in health and safety activities, including risk assessment, HSE committees, behavioural programmes to challenge unsafe acts and conditions, can be utilised to further reinforce the importance of individual's commitment to the business' overall aspirations to improve its HSC.

## 5.2 Limitations of research project

There are limitations to this research project which the author would like to highlight, as well as identify how such limitations may be overcome in the future.

One of the key limitations for the author was the overall participant figure. As discussed in Chapter 3, the margin of error to supply a 95% confidence level for this research project is 6.29%, which is higher than an industry accepted norm of <5%. Whilst it is not seen to have affected the outcome of the research findings, it is felt that a greater participation would have provided the author with additional personal insight into individuals HSC experiences.

It is hoped that as the author presents these findings back to ANE, and action plans developed and executed, in time the HSCS will be re-run. It is hoped at this time that due to the improvements made, and the expected increase in personal buy-in to Health and Safety, that there will be an upturn in participation levels also.

The HSC research project was run for one organisation only, and so industry generalisations are difficult to predict based on its findings. In the future the author may look to expand the research field with a team of like-minded researchers,

particularly at a point when ANE have implemented the HSC improvement plans and the organisation is ready to be reassessed. Further, comparison of the results from this research project with other similar projects may help to support generalisations for industry. This is an area that the author has not reviewed at this stage.

### 5.3 Summary

As demonstrated above the research findings have been interpreted and possible areas for improvement, including possible methods for achieving improvements, have been discussed. The results of the HSCS and follow up with appropriate information sources confirms to the author that management and communication are areas of ANE's HSC that need to be invested in, providing appropriate time and effort to continue to drive its Health and Safety Culture further forward. There are significant signs throughout the HSCS analysis to suggest that frameworks are already in place, and in some areas requires extension into other sites or departments of the business rather than creation of new opportunities. The process of improving the business' HSC, including addressing issues that are raised by personnel, particularly regarding timeframes for information to be received from the HSE expertise in the business, can be alleviated by additional resource. This additional resource can also greatly assist in facilitating the internal training plan that will need to be developed and driven in order to make the improvements discussed.

## **Chapter 6 Recommendations**

Following the discussion in the previous chapter, about the areas that the HSCS has demonstrated improvement opportunities, the author has developed 14 recommendations which address the management and communication influences on the performance of the business' HSC. These changes should be brought in swiftly to build progressive momentum to affect overall culture shift, that personnel can see and experience.

Recommendation 1: ANE should develop a behavioural safety system which includes training and awareness prior to a formal launch of the process. This behavioural based safety system can help empower individuals concerned about actions or conditions as part of day-to-day activities. This, in addition to other recommendations discussed below, will help ANE to develop a world class health and safety culture across its business<sup>41</sup>.

Recommendation 2: Management health and safety training is recommended for personnel responsible for supervising others. This training should aid management to deal with concerns raised by personnel, provide practical knowledge and experience of the business' health and safety systems, and further help management to know when to utilise HSE expertise effectively. This training will help to improve many of the areas raised as requiring improvement, including demonstrating to personnel that their health and safety needs are put before completing the job.

Recommendation 3: Improve the occupational health provision service delivery. In order to do this, the business should conduct a reassessment of its activities, and those affected. Once the business has a firm understanding of its occupational health requirements, this should be communicated to all personnel to improve understanding of occupational health monitoring. To engage the operational areas of the business further, occupational health sessions should take place in manufacturing to improve flow of personnel, and to make the process more visible to all operational personnel. To help build the relationship with the occupational health team, well-being sessions should be run as part of a meet and greet event.

Recommendation 4: The risk assessment process at ANE should be improved. The process should ensure that multi-disciplinary teams are utilised for undertaking risk assessment, and that risk assessments are reviewed in good time prior to undertaking an activity. This will give operatives greater ability to raise concerns, and for management to address those concerns. This will improve personnel confidence that their health and safety is put before completing the job. Risk assessments should also be reviewed post-task, to ensure they adequately recorded significant hazards and risk controls. This improvement will require the risk assessment procedure to be overhauled to incorporate these steps, in addition to running training and awareness sessions for risk assessment owners, and raising all personnel's awareness of the changes.

Recommendation 5: Improve the visibility of Directors and SMT involvement in health and safety management. This helps to confirm acceptance of health and safety from those at the top of the organisation. Additionally, walking the walk should also include talking the talk. During safety tours, which can generally be completed at a distance and look to be judgemental and cause anxiety, discussing health and safety matters with operatives during these tours will further reinforce the HSC within the organisation.

Recommendation 6: Investigation turn around and openness should be improved to demonstrate commitment to personnel health and safety, as well as demonstrate a no blame culture. Publishing investigations will demonstrate where investigations have been conducted, and what improvements were recommended and agreed across the business. The management system for conducting investigations also needs to be updated to reflect process changes.

Recommendation 7: Increase the number of HSE experts available within the business. A significant number of the elements that have been discussed in this research project could have been alleviated or supported by a greater HSE team presence in the business. A significant investment in HSE experts time will be required to facilitate training of management to the required levels to instil confidence in operatives that managers are competent to manage risks associated with activities, as well as improving the systems and administration required to maintain cohesive management and worker involvement processes that are recommended.

Recommendation 8: In addition to improving management's ability to deal with health and safety concerns raised by personnel, the creation of an intranet based system for report concerns directly to the HSE Team, with the ability to report anonymously should be implemented. This can work as a process where personnel are not comfortable raising concerns, or where concerns have been raised but it is not felt they were dealt with sufficiently.

Recommendation 9: The HSE Team should carry out a health and safety training needs review with department and functional management, supported by the SMT, to identify where specific health and safety training needs may exist, with a view to being able to address these training needs so that personnel are suitably equipped with the right qualifications, experience and knowledge to carry out their roles with confidence.

Recommendation 10: The HSE team need to address the health and safety information they are reporting to the business. As was raised in the HSCS management groups within the business feel they do not get sufficient information about health and safety, which will in turn leave them unable to share such information to their subordinates. Work will need to take place to identify what the business want to communicate internally, and in what format. This will then guide the HSE Teams ongoing monitoring and reporting duties, and could also incorporate opportunities to introduce new KPI's.

Recommendation 11: The business needs to address the issue relating to obtaining suggestions/ concerns about health and safety which are discussed through a number of forums. Feedback from these forums is also an issue as participants of the HSCS felt they weren't always in receipt of feedback regarding points they had raised to be discussed by representatives. In addition to the local team forums, work needs to be done to create a business HSE Committee. This committee will need representatives from across all business functions and sites. Representatives will need to be given formal training which meets the needs of the role required of a HSE committee representative.

Recommendation 12: ANE needs to celebrate its health and safety achievements more. Additional emphasis on company announcements regarding health and safety successes need additional information about the role that all personnel play in the business' overall health and safety performance, reinforcing ownership values further.

Recommendation 13: Worker consultation and involvement in a business such as ANE, with a small central HSE Team and multiple departments and functions, can be best achieved with the use of a HSE committee. It is recommended that a committee be developed, as briefly touched on in recommendation 11, and that representatives are given training which is in line with the role they will be expected to play. This committee, coupled with the HSE Team support, and a wider safety knowledge base around the business due to management training and HSE committee reps training will help to improve the flow of information throughout the business. This HSE network can facilitate discussions about; concerns, achievements, task planning, further training needs, and constructive consultation on procedure changes and investigation recommendations. This is in addition to many other benefits which can be developed as a HSE committee begins to gain traction and embed within the business' processes and behaviours.



Recommendation 14: To monitor the benefits of implementing the recommendations above, ANE should again invest time and resource to run the HSCS again, after a period of 18-24 months, to give the business sufficient time to adopt the recommendations and allow them to embed. Completion of the HSCS again should help to identify where improvements have been made, and where any further improvements may exist.

The recommendations presented in this chapter demonstrate a roadmap for ANE to follow in order to improve its HSC. The recommendations demonstrate the research project's value to the business, which will be discussed in the following chapter.

## **Chapter 7 Conclusion and Reflection**

### **7.1 Conclusion**

This project set out to provide a basis for the author to carry out a critical analysis of the health and safety culture in a nuclear engineering organisation. The project required development a suitable method of assessment which would challenge the values and beliefs of individuals, which in turn provided the author with data to allow examination of the influences of communication and management on health and safety culture of the organisation.

HSC is a prominent and important area of exploration and development for Health and Safety Practitioners currently as industry moves to further reduce accidents by concentrating on behavioural analysis. The research topic presented by the author, is one which many organisations will be challenging in the short and medium term, and this research project provides other organisations an opportunity to learn from the methods used, research attained, and recommendations gleaned, as a result of undertaking this project.

In the future, the author is intending to run the HSCS again, and will be interested to discuss the opportunity to create commonality with other organisations; identifying common themes in industry that can have a wider scale impact than this initial research project.

On reflection, the author is of the firm belief that this research project has achieved the aims set out in the Introduction. The aim of identifying HSC assessment criteria, and organisational comparison groups was completed largely through the process of literature review. Exploration of individual's perceptions was achieved through the selected methodological approach in Chapter 3, and analysis of the HSCS findings in Chapter 4. Examination of management styles and communication methods has been completed in the discussion and recommendations in Chapter 5 and 6.

## 7.2 Reflection

Personally for the author, this has been an interesting subject to research and explore. There has been a great deal of learning, both in terms of the material, and the methods of constructing a research project at this academic level. This has been an experience that was very challenging for the author due to time constraints, but one which is felt will be of incredible value to the author, ANE, and to the wider industry professionals that review and discuss it further once published.

## 7.3 Final words

A final word with regards to the achievement of the research project and it's aims. Was the project beneficial to ANE? Yes, there has been a lot of discovery in this research project that under normal exploratory circumstances for a business would have been difficult to collate.

Do ANE have a good health and safety culture? There is a good foundation at the company. There are areas of the business which are lagging behind others, which has been identified in the HSCS findings, and will benefit from the recommendations presented.

Will implementation of the recommendations make much difference? Without a doubt, improving the competence of management, involving personnel in their own health and safety, including risk control, facilitating open discussions and processes for referral, will make a significant difference. The business needs to be up to the challenge of bringing about the changes swiftly enough to build progressive momentum, to affect overall culture shift.

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### Chapter 3 Appendices

#### Appendix 3.8.1 — demonstration of HSCS key indicator assessment.

Key indicators of HSC <sup>2,7,8</sup>	Questions where key indicators are challenged for the purposes of quantitative analysis.
Commitment of board and senior members (SMT)	7, 9, 10, 13, 14, 17, 19, 20, 22, 24, 30, 31, 39, 42, 44
Consistent approach to OSH policy	12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 24, 30, 31, 32, 35, 39, 42, 44
Valuing and caring for employees	7, 10, 12, 13, 14, 15, 16, 17, 18, 19, 21, 22, 24, 25, 26, 27, 28, 30, 31, 35, 39, 42, 44
Communication/ Openness to talk about safety and health	10, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 24, 30, 31, 32, 35, 39, 42, 44
Proactive responsibility for safety	10, 12, 13, 15, 16, 17, 18, 19, 20, 21, 24, 30, 31, 32, 35, 39, 42, 44
Employee attitudes: job satisfaction, organisational commitment, intention to quit	12, 14, 16, 17, 18, 19, 20, 22, 26, 27, 28, 30, 31, 32, 42, 44
Management visibility	9, 10, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 24, 30, 31, 32, 35, 39,
Pressure for production	8, 30, 31, 39, 44
Training	12, 13, 14, 15, 17, 19, 21, 22, 24, 25, 31, 44
Housekeeping / safe condition of workplace/ acceptance of unsafe condition	12, 42, 44
Challenging the DNA of the organisation	All questions.

## Chapter 4 Appendices

### Appendix 4.2.1 – Health and Safety Management Systems data HSCS data analysis

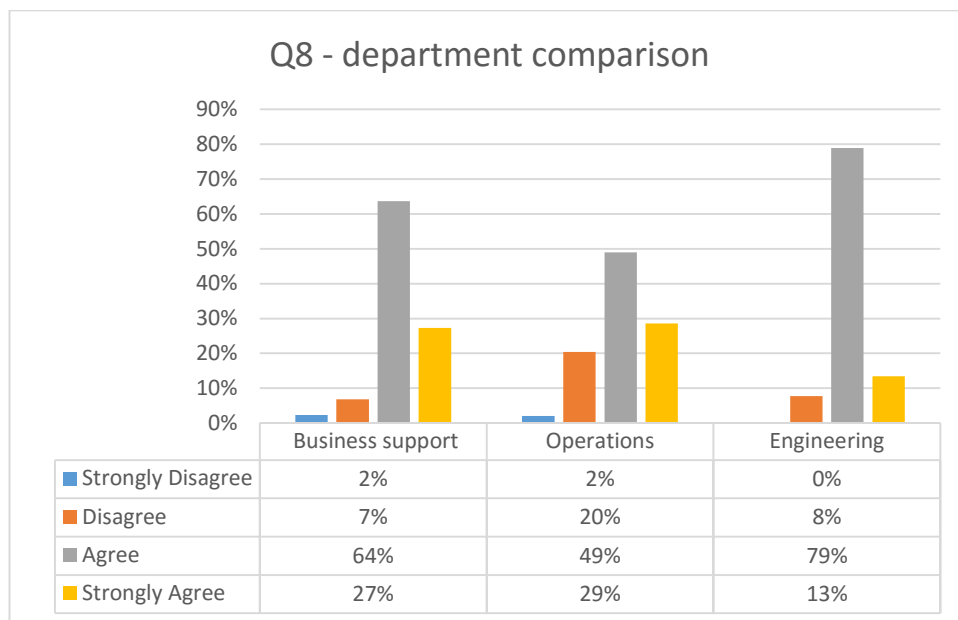


Table 4.1 – Q8 dept. comparison

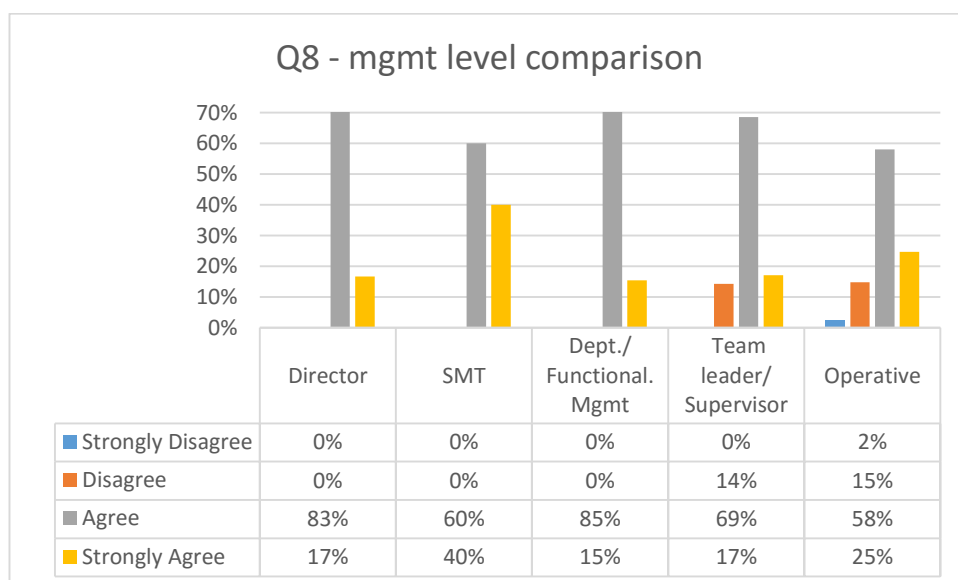
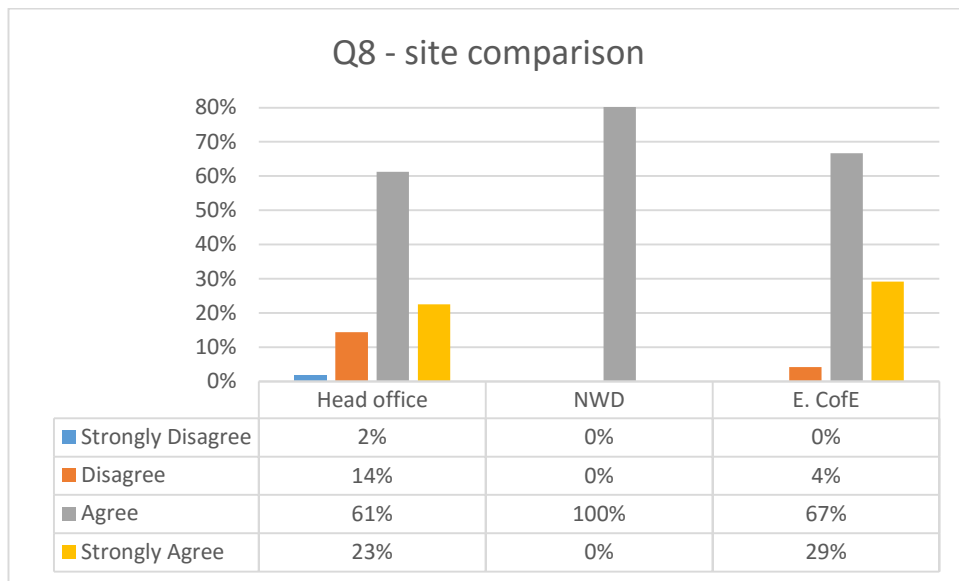
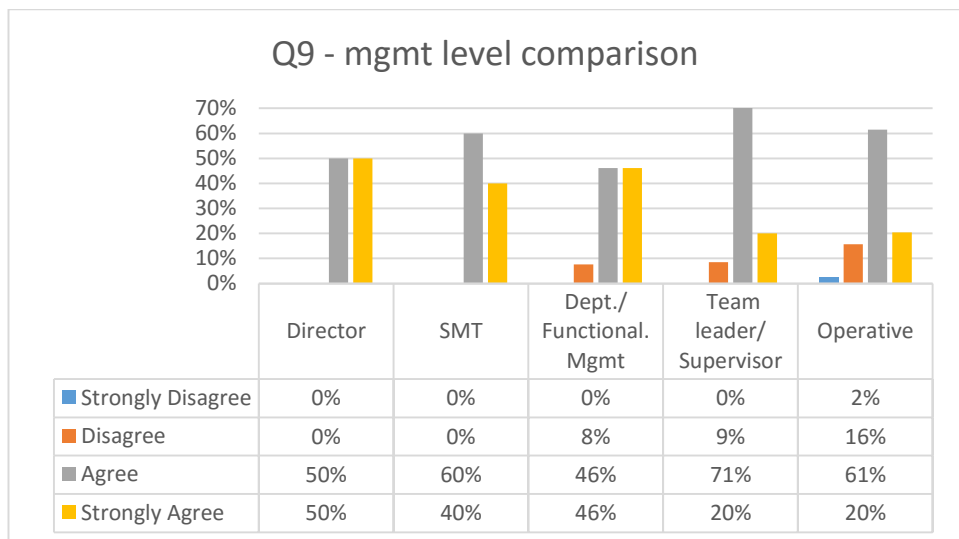


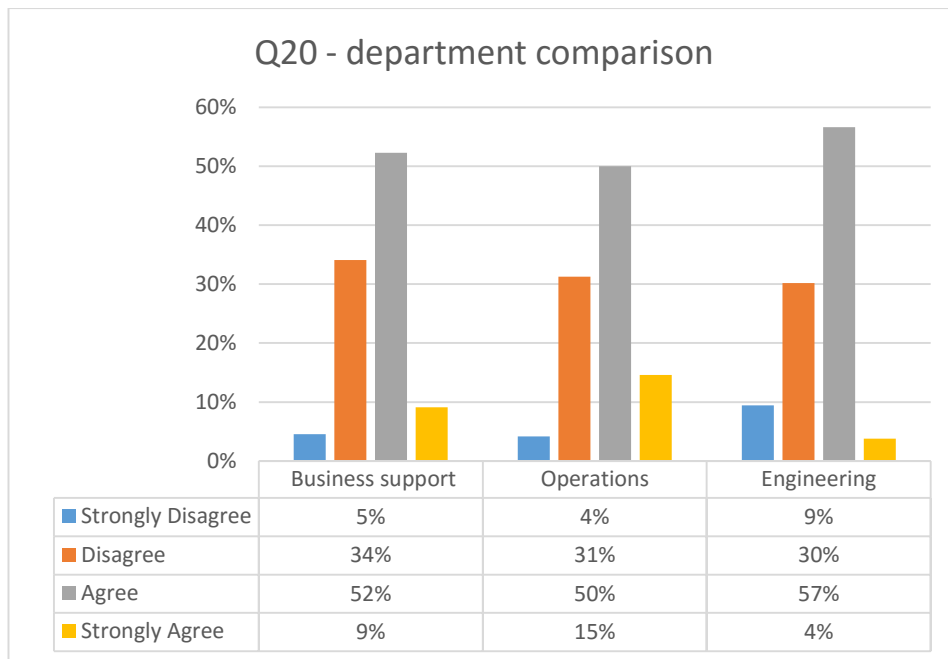
Table 4.2 – Q8 management comparison



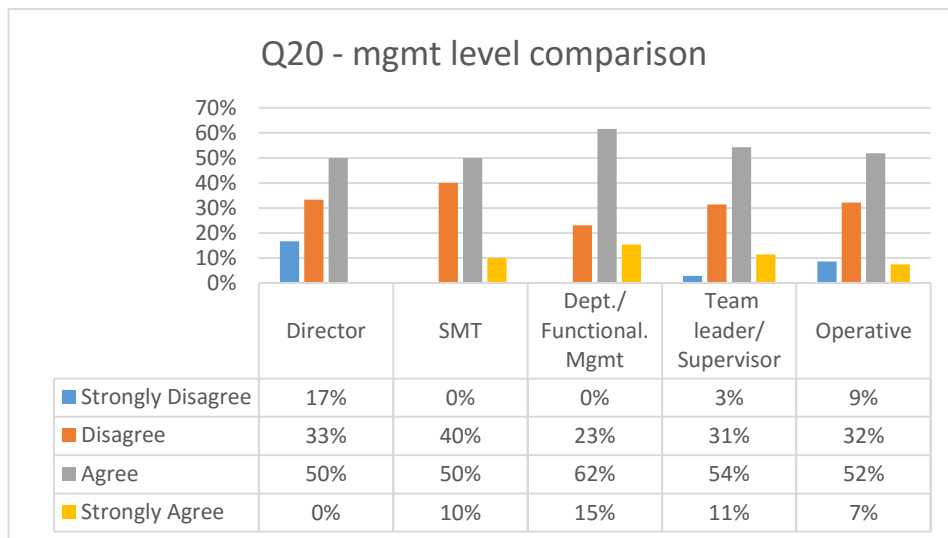
*Table 4.3 – site comparison*



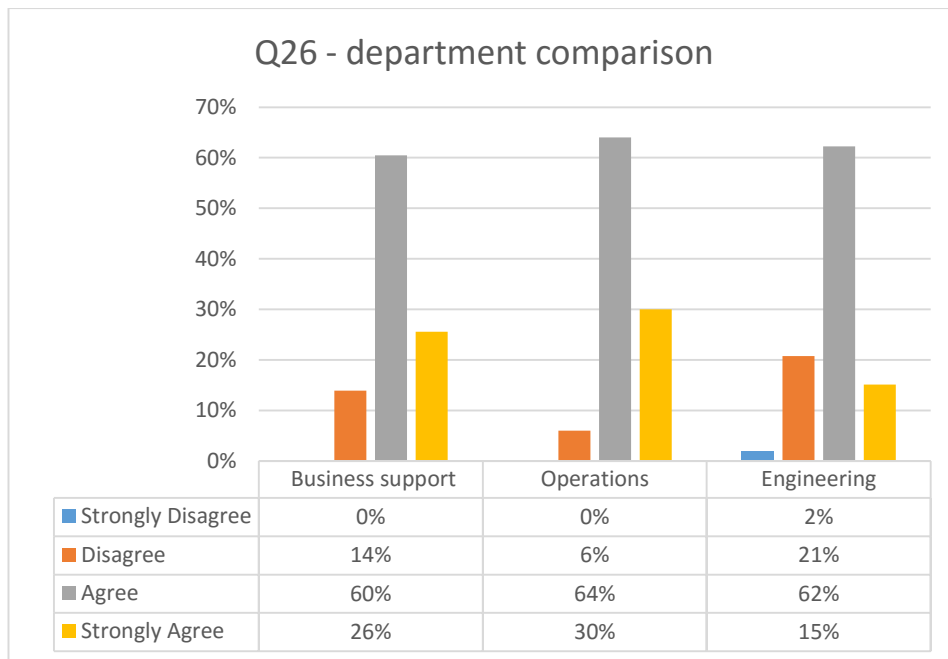
*Table 4.4 – Q9 management comparison*



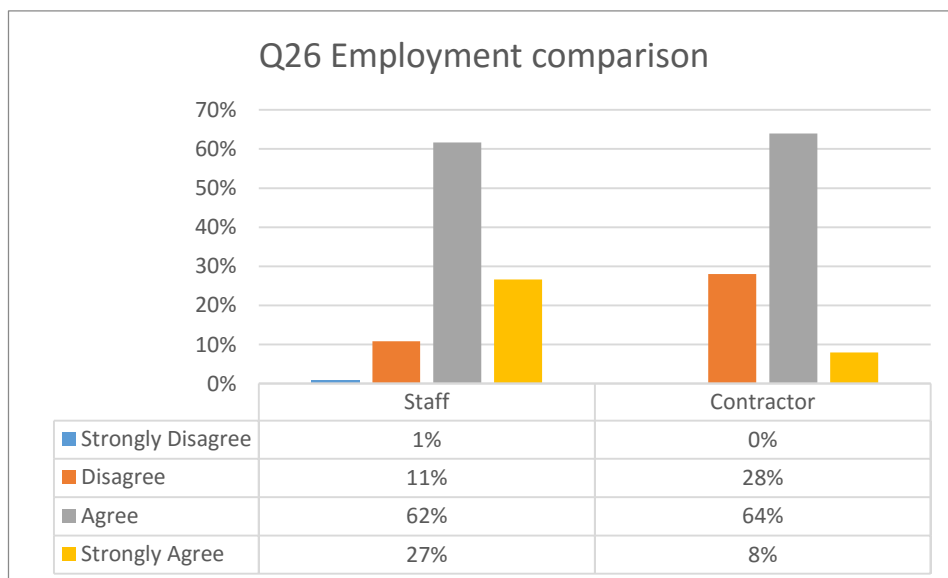
*Table 4.5 – Q20 dept. comparison*



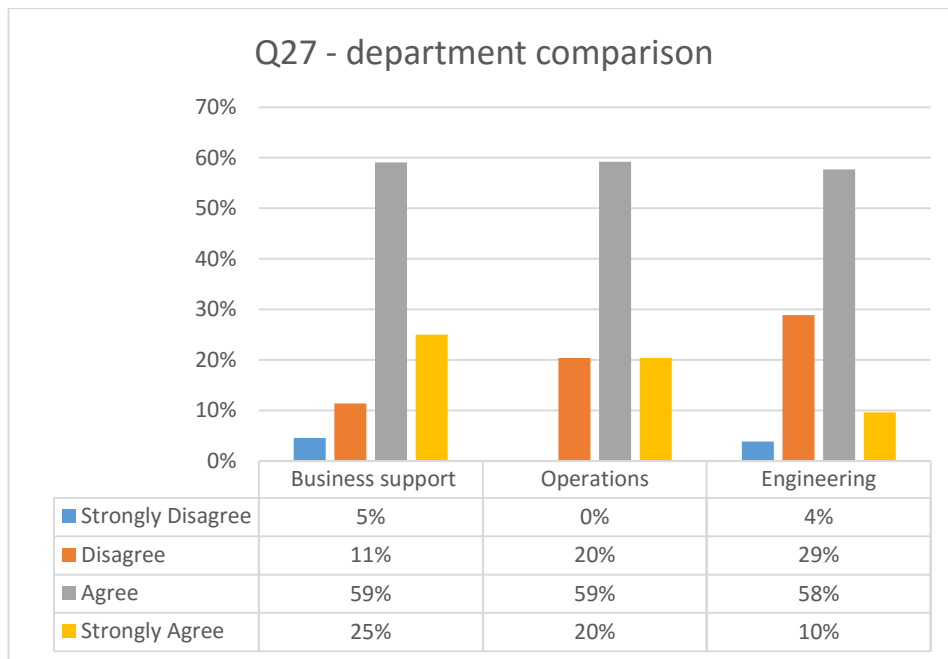
*Table 4.6 – Q20 mgmt. level comparison*



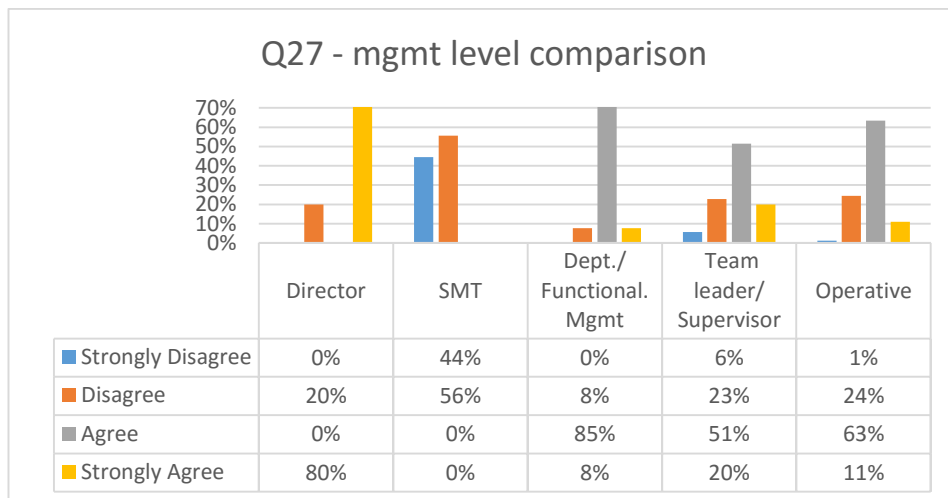
*Table 4.7 – Q26 dept. comparison*



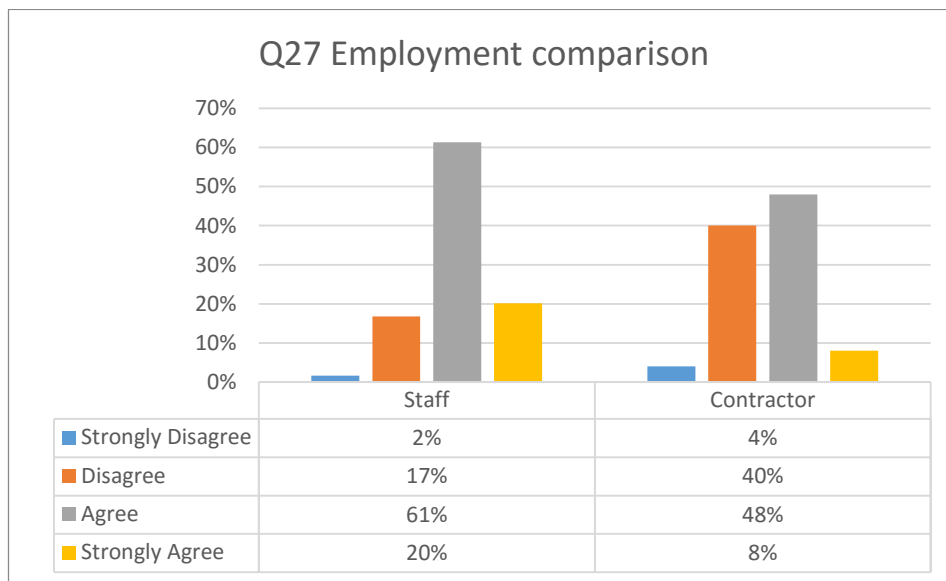
*Table 4.8 – Q26 employment comparison*



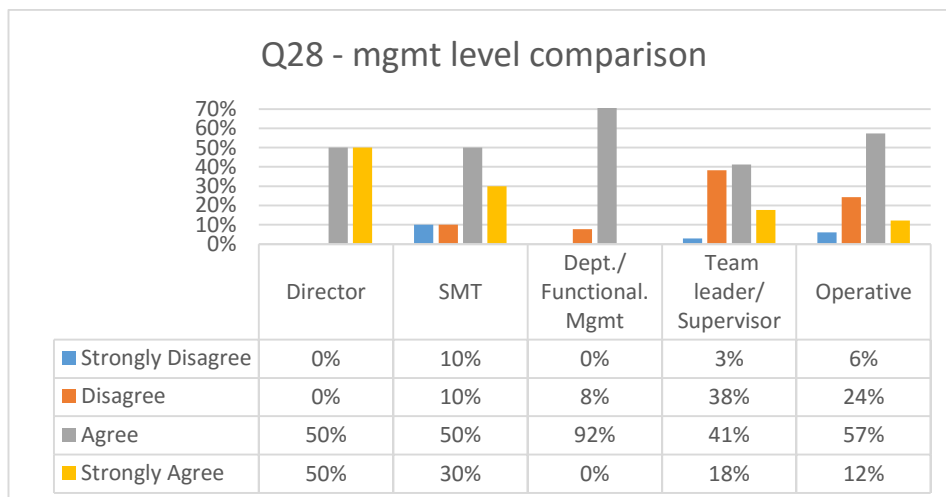
*Table 4.9 – Q27 dept. comparison*



*Table 4.10 - Q27 mgmt. level comparison*

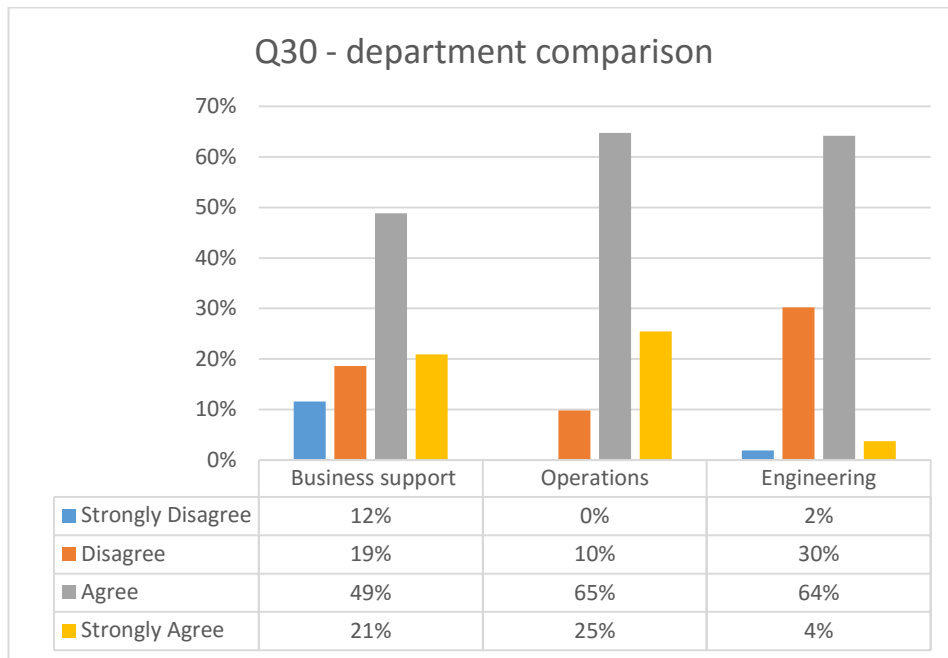


*Table 4.11 – Q27 employment comparison*

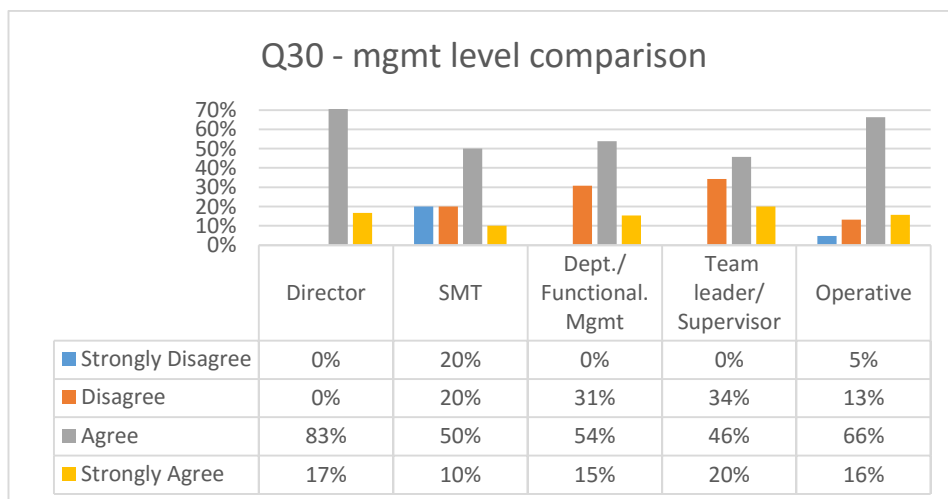


*Table 4.12 – Q28 mgmt. level comparison*

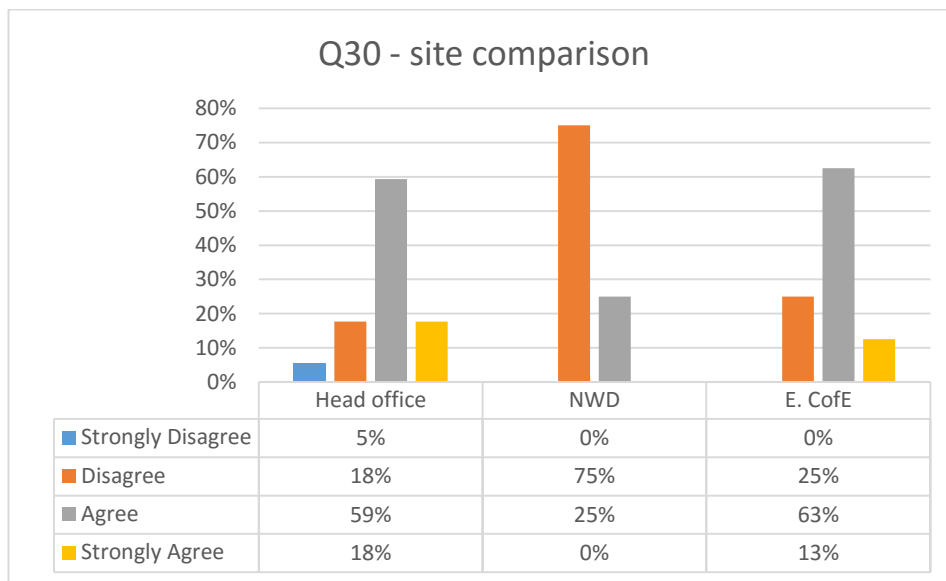




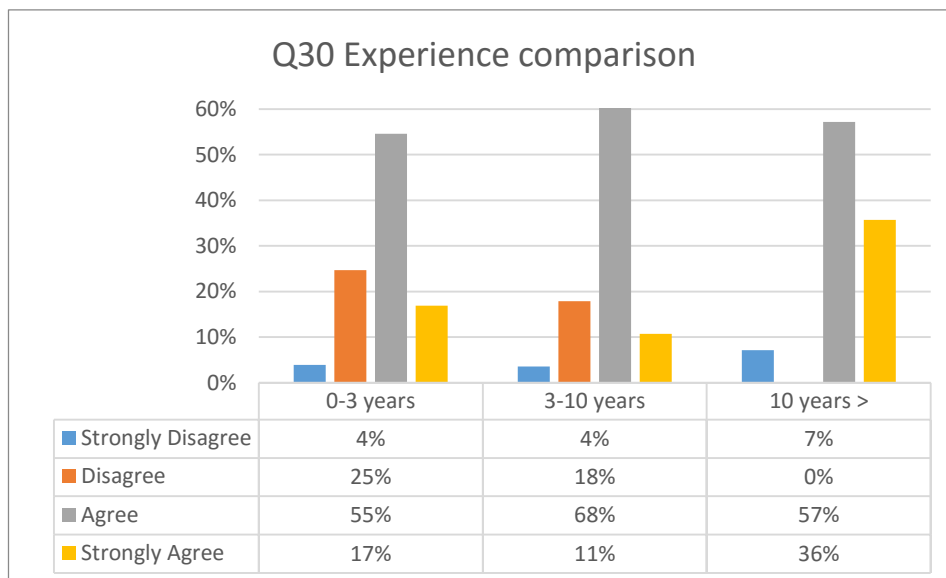
*Table 4.13 – Q30 dept. comparison*



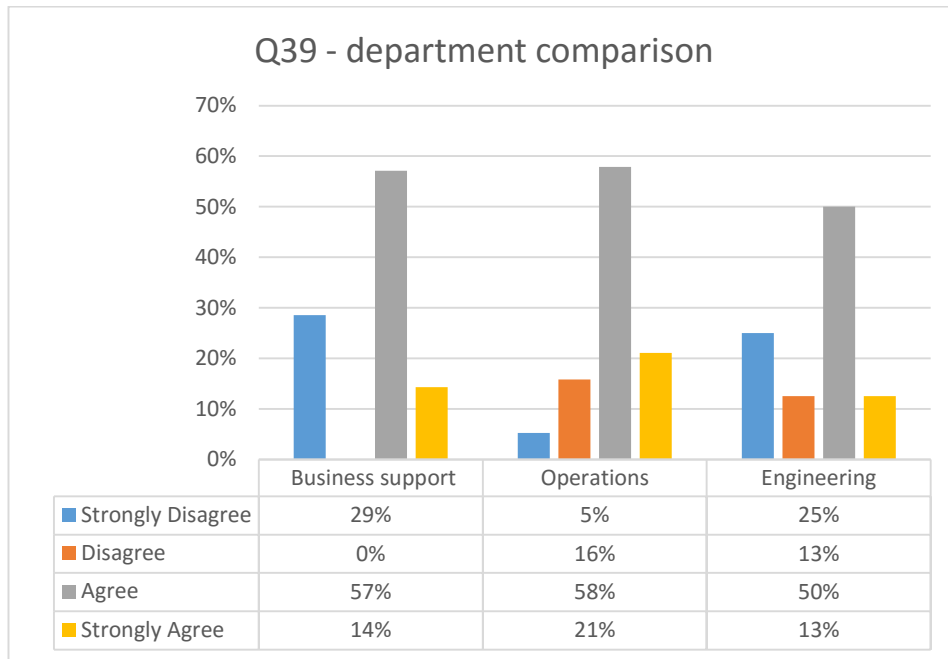
*Table 4.14 – Q30 mgmt. level comparison*



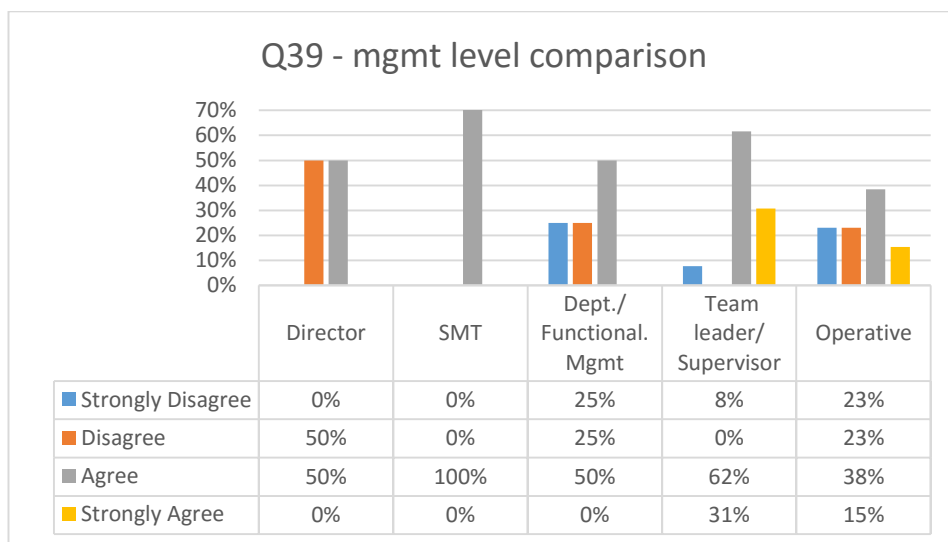
*Table 4.15 – Q15 site comparison*



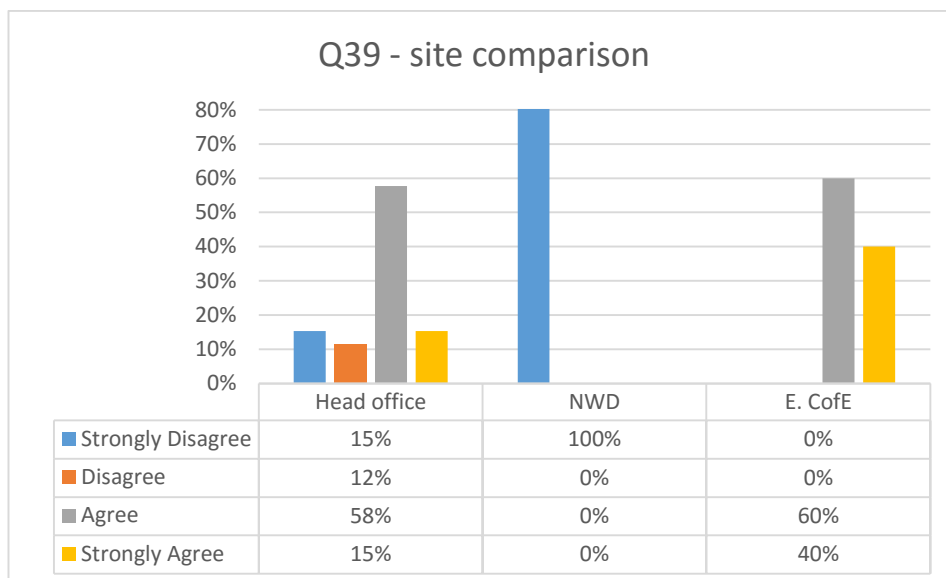
*Table 4.16 – Q30 experience comparison*



*Table 4.17 – Q39 dept. comparison*

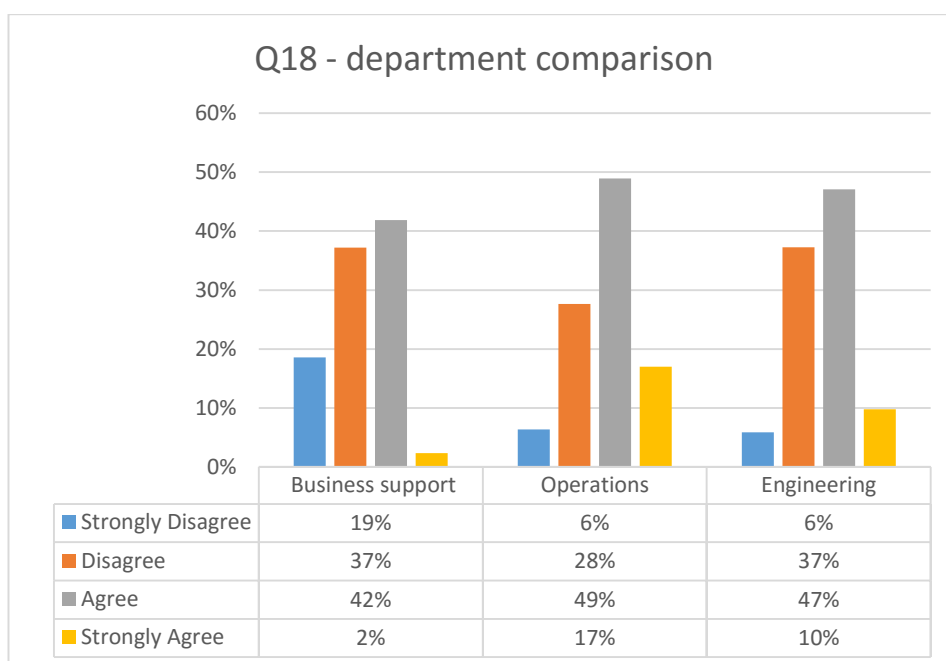


*Table 4.18 – Q39 mgmt. level comparison*

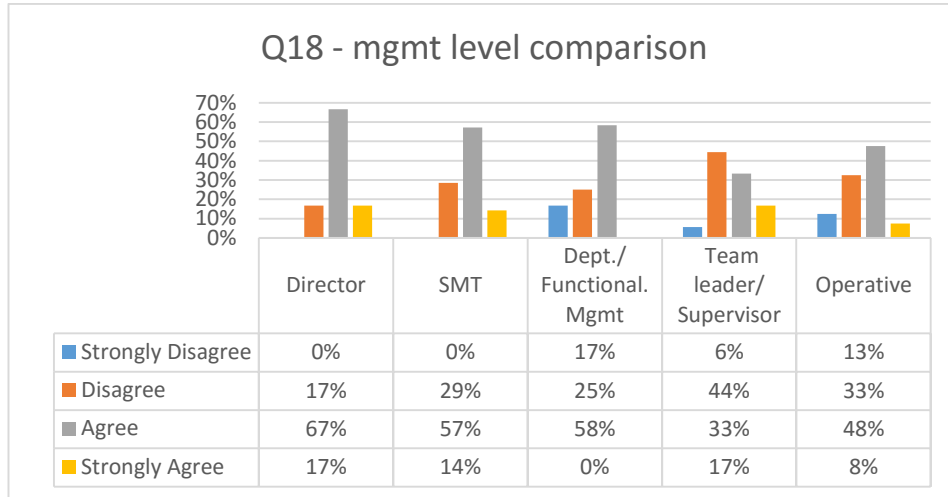


*Table 4.19 – Q39 site comparison*

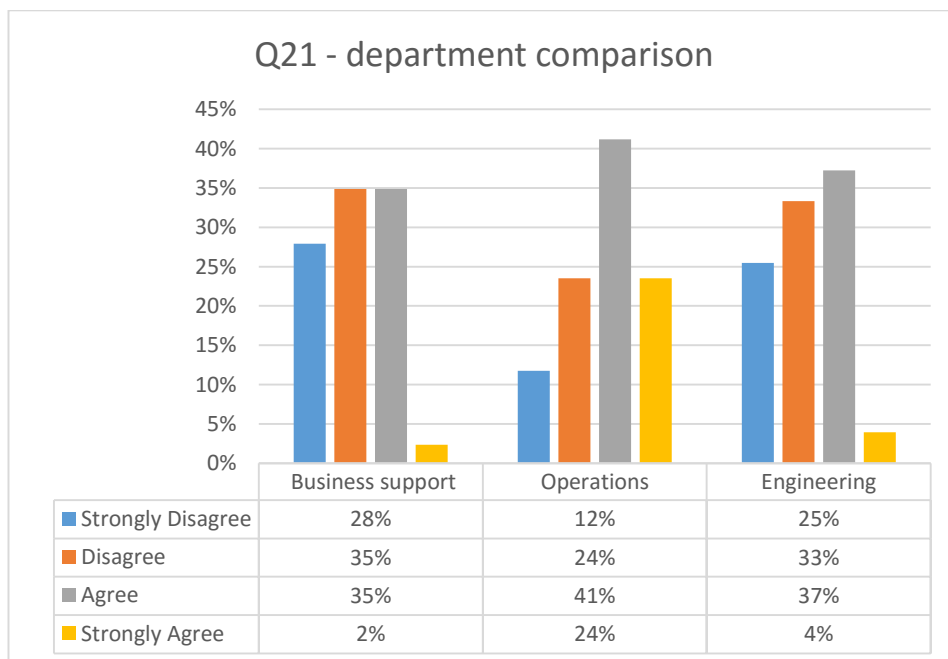
## Appendix 4.2.2 – Risk Profiling HSCS data analysis



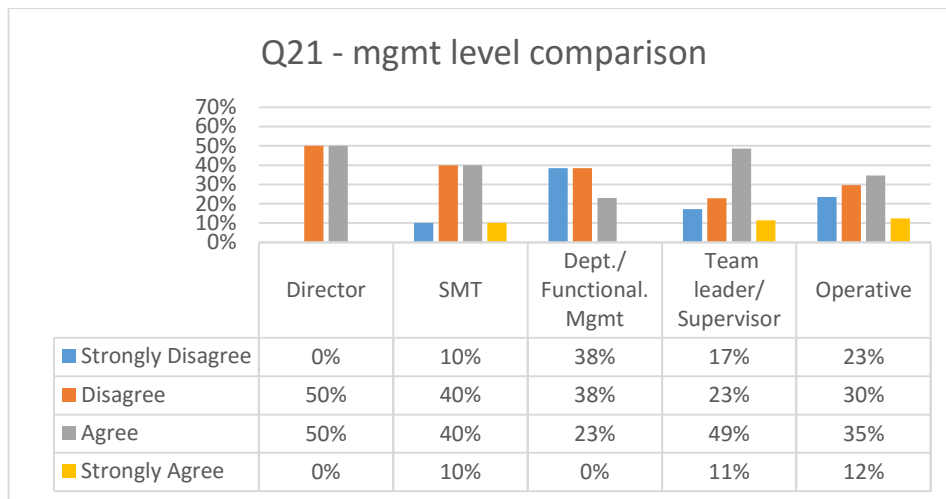
*Table 4.20 – Q18 dept. comparison*



*Table 4.21 – Q21 mgmt. level comparison*

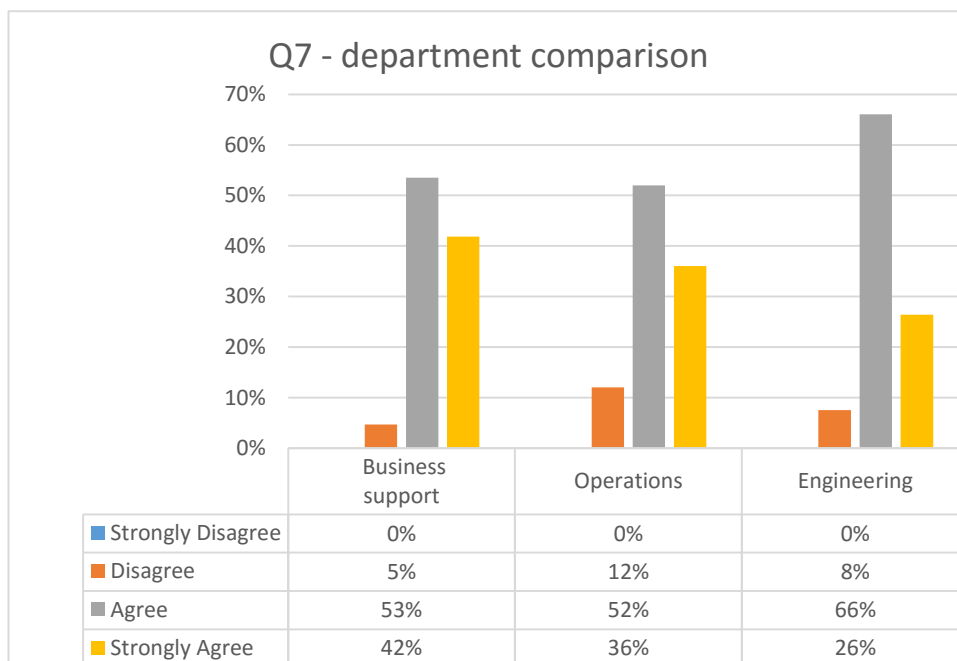


*Table 4.22 – Q21 dept. comparison*

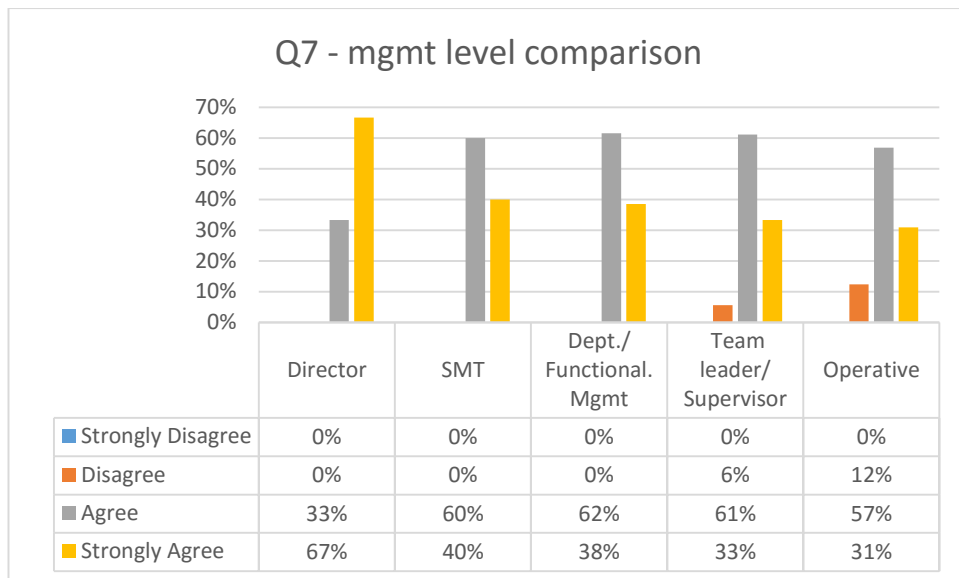


*Table 4.23 – Q21 mgmt. comparison*

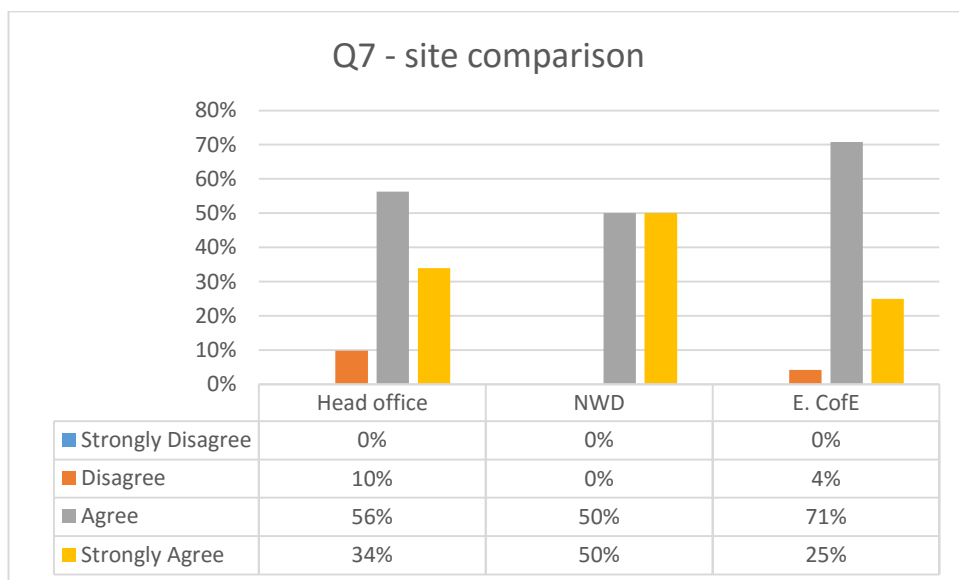
#### **Appendix 4.2.3 – Leading and managing for health and safety HSCS data analysis**



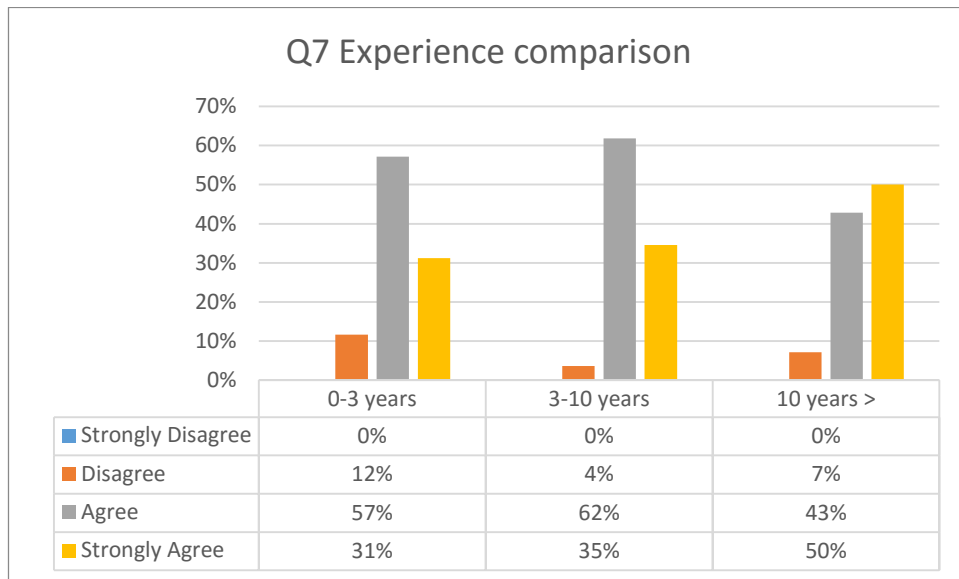
*Table 4.24 – Q7 departmental comparison*



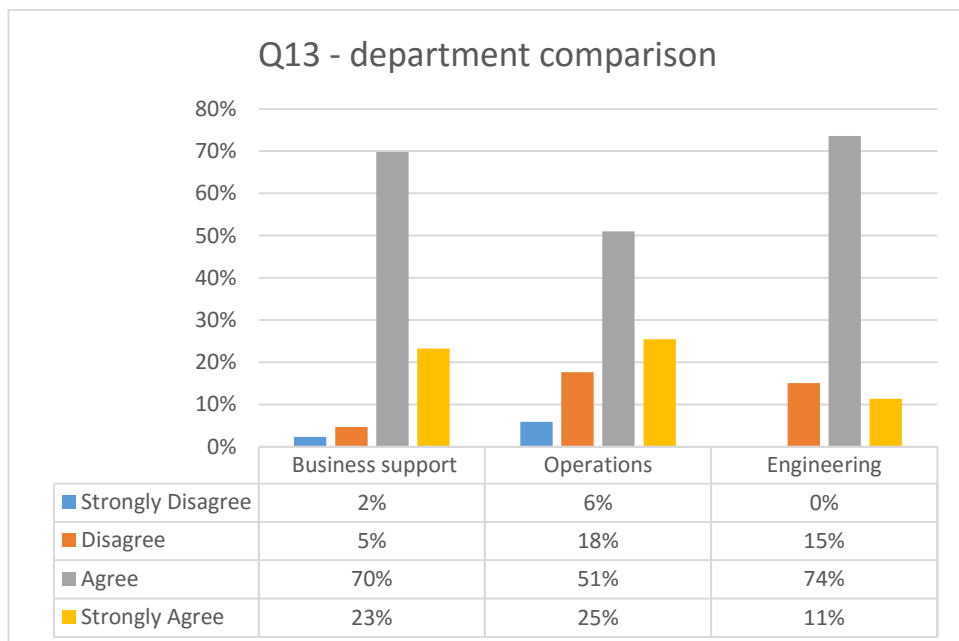
*Table 4.25 – Q7 management comparison*



*Table 4.26 – Q7 site comparison*

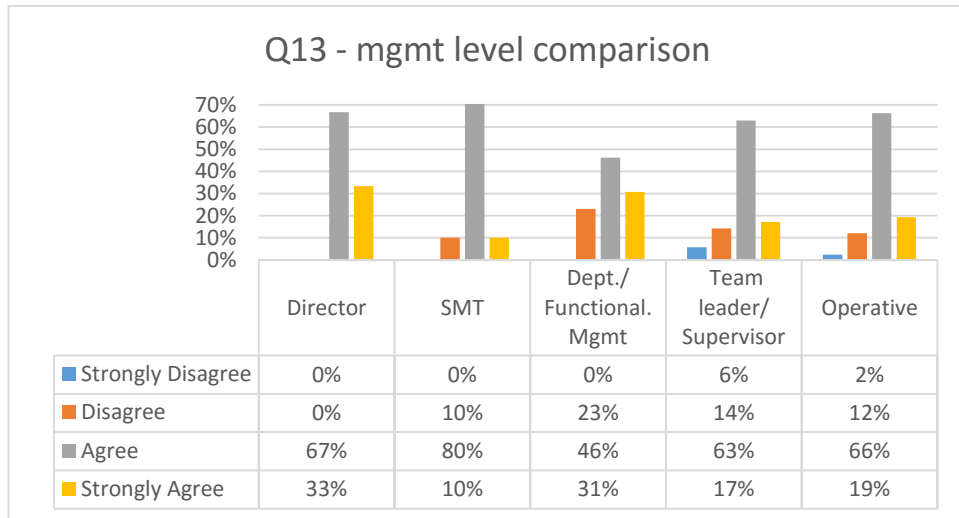


*Table 4.27 – Q7 experience comparison*

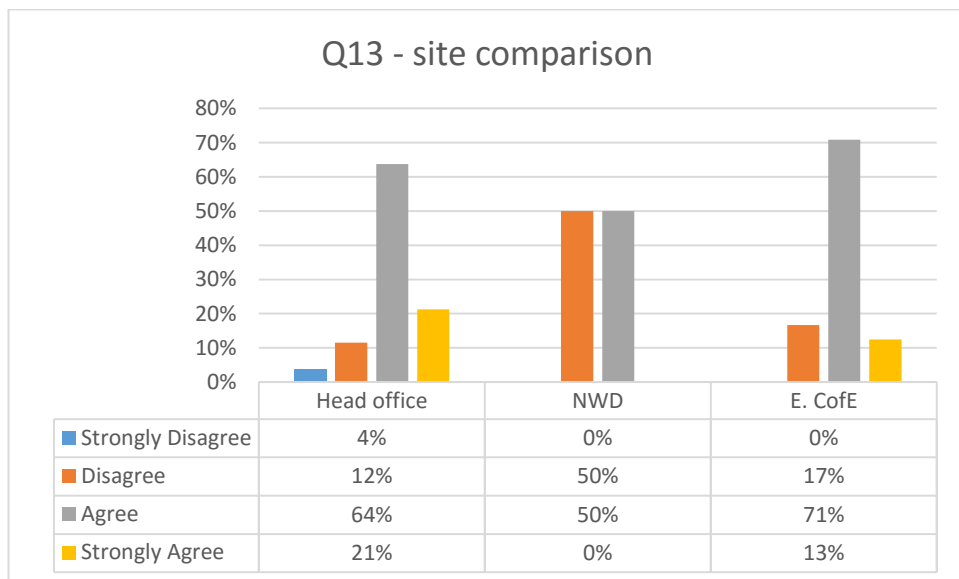


*Table 4.28 – dept. comparison*

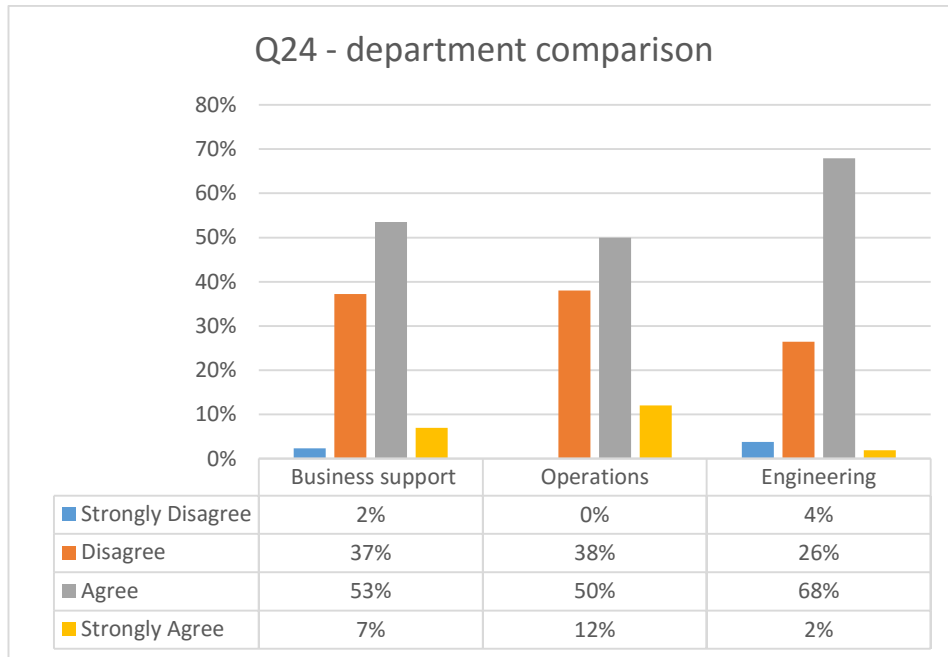




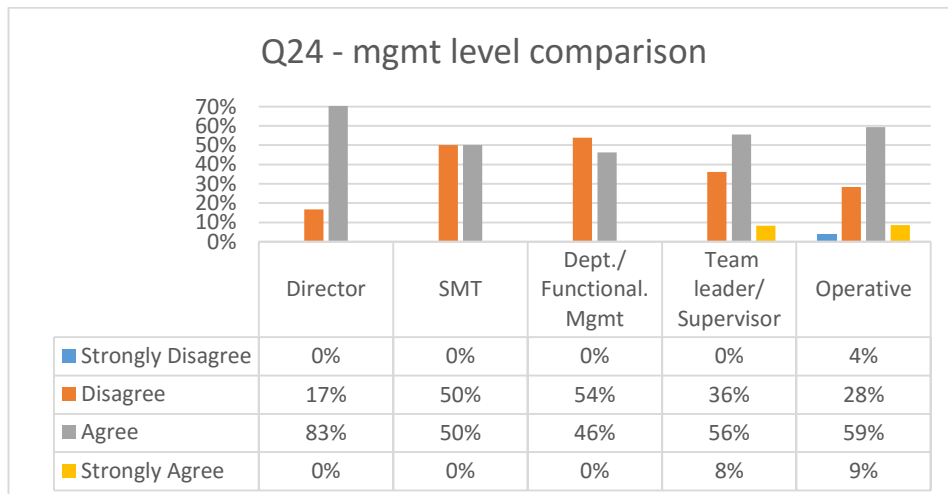
*Table 4.29 – mgmt. level comparison*



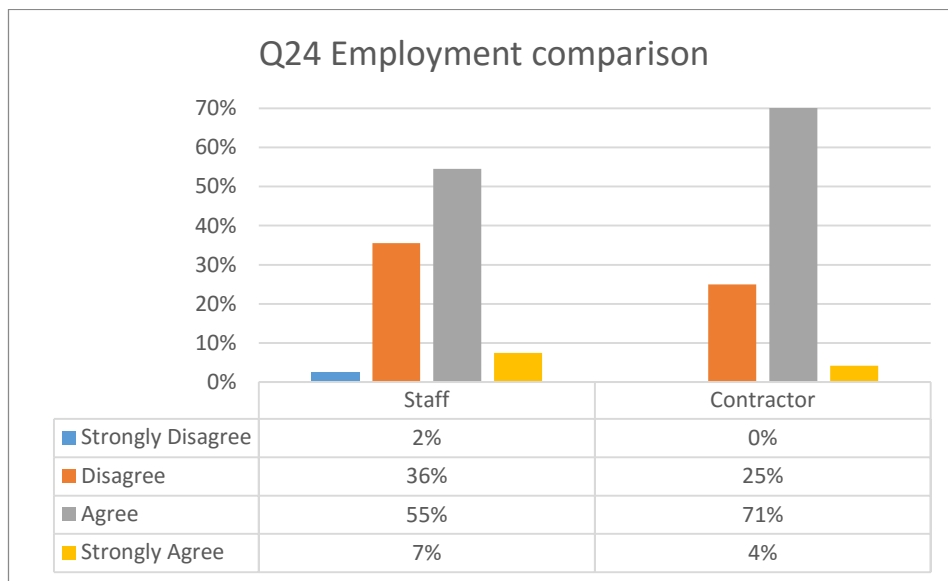
*Table 4.30 – Q13 site comparison*



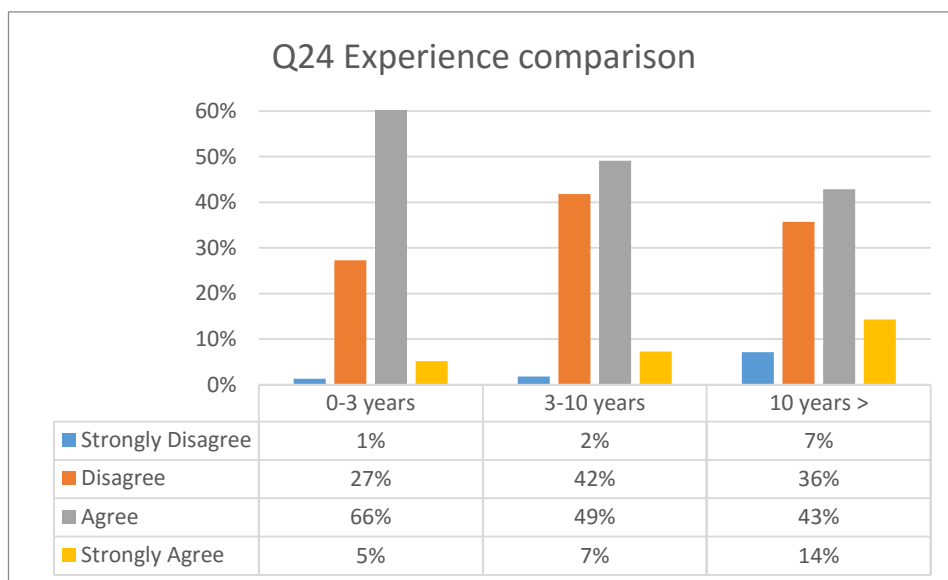
*Table 4.31 – Q24 dept. comparison*



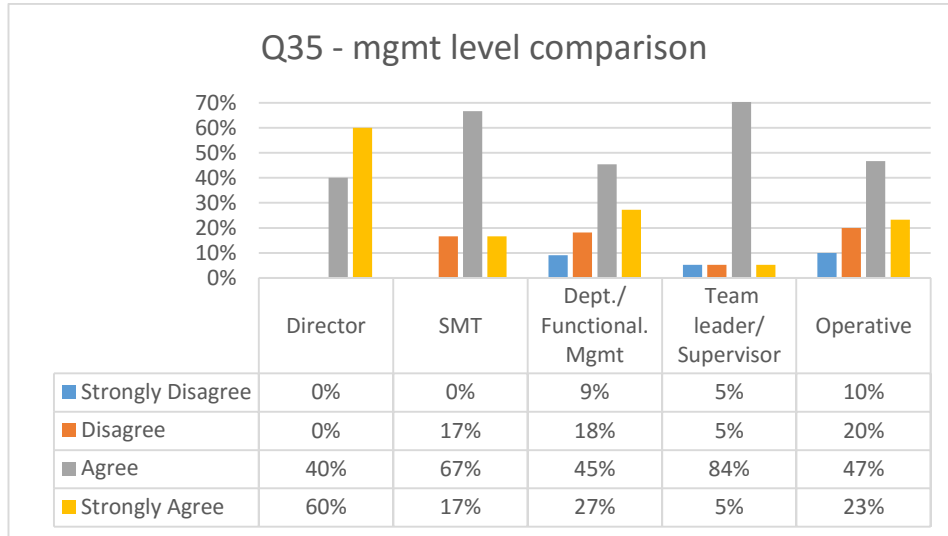
*Table 4.32 – Q24 mgmt. level comparison*



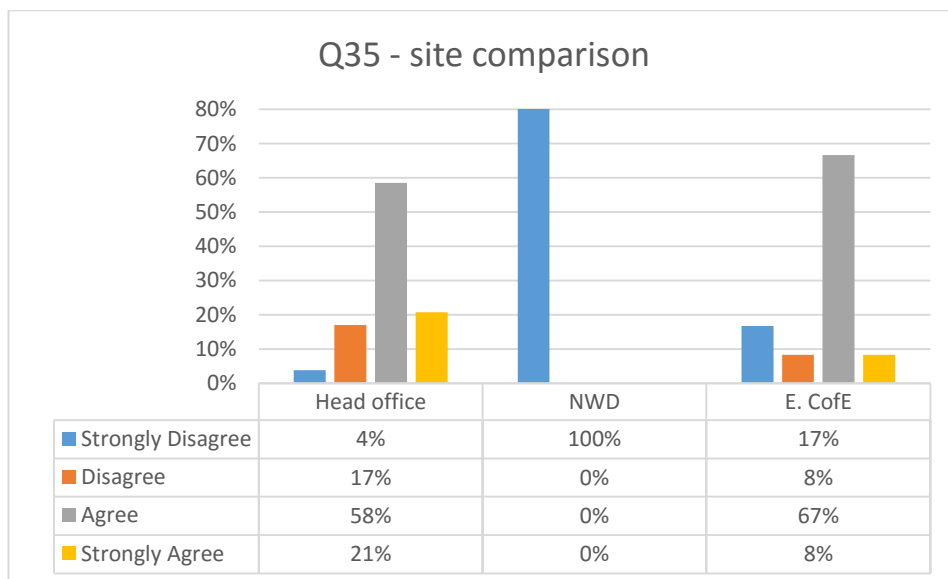
*Table 4.33 –Q24 employment type comparison*



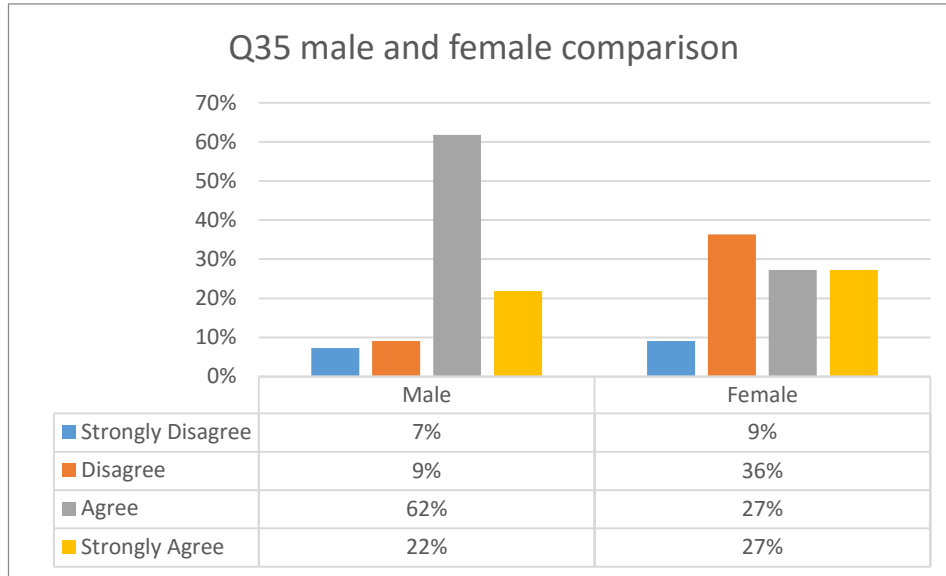
*Table 4.34 – Q24 experience comparison*



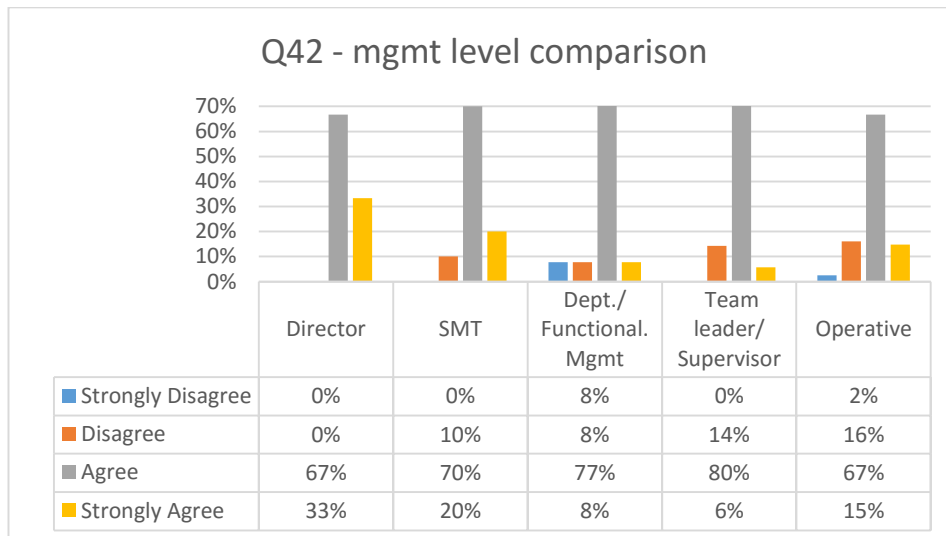
*Table 4.35 – Q35 mgmt. level comparison*



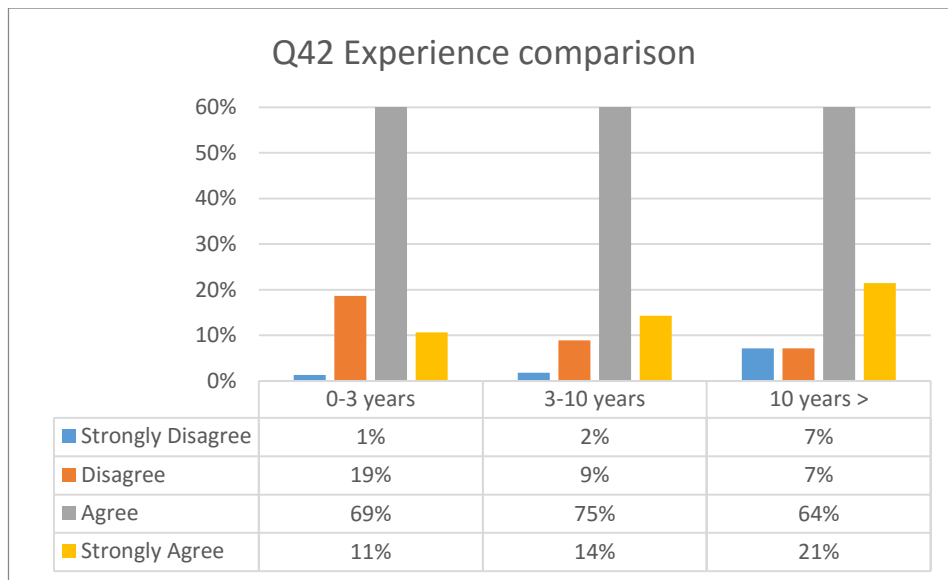
*Table 4.36 – Q35 site comparison*



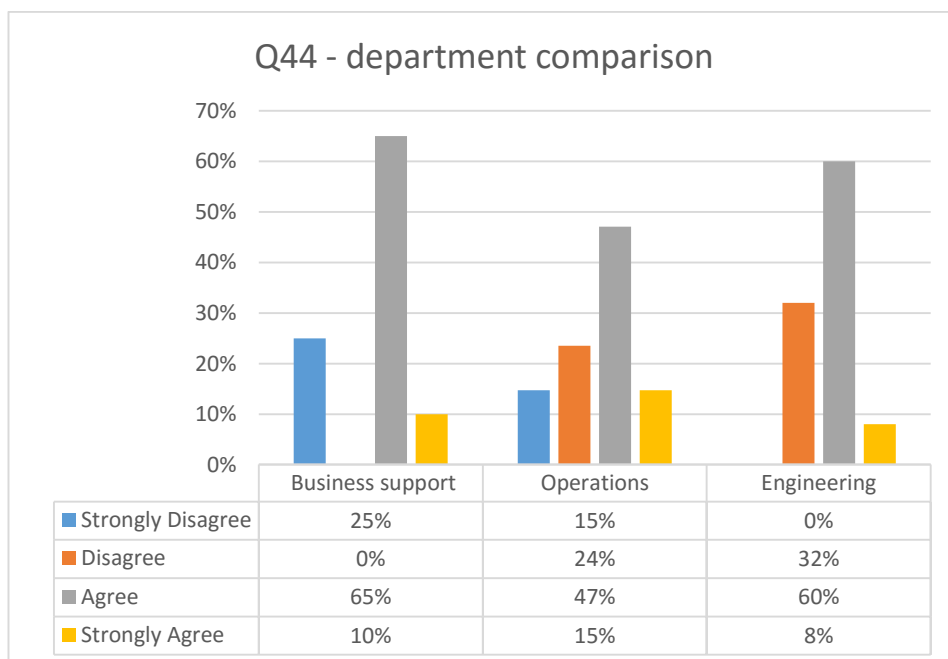
*Table 4.37 – Q35 male and female comparison*



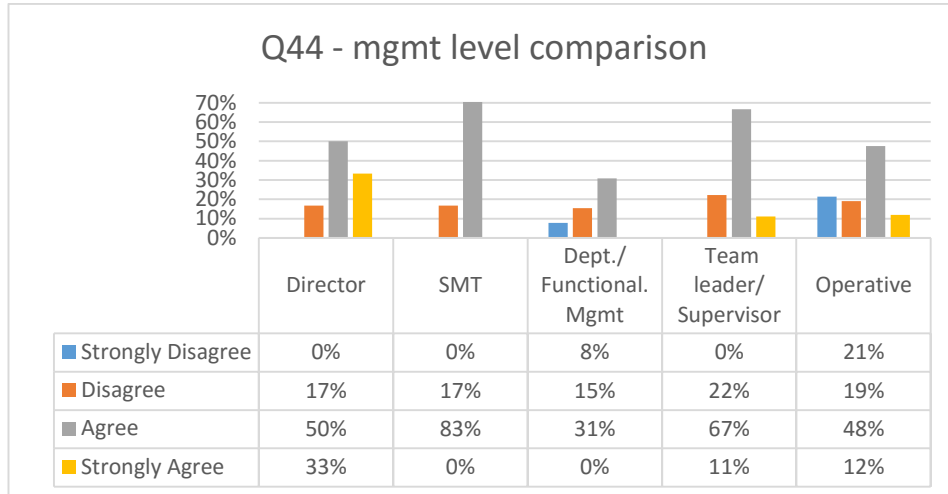
*Table 4.38 – Q42 mgmt. level comparison*



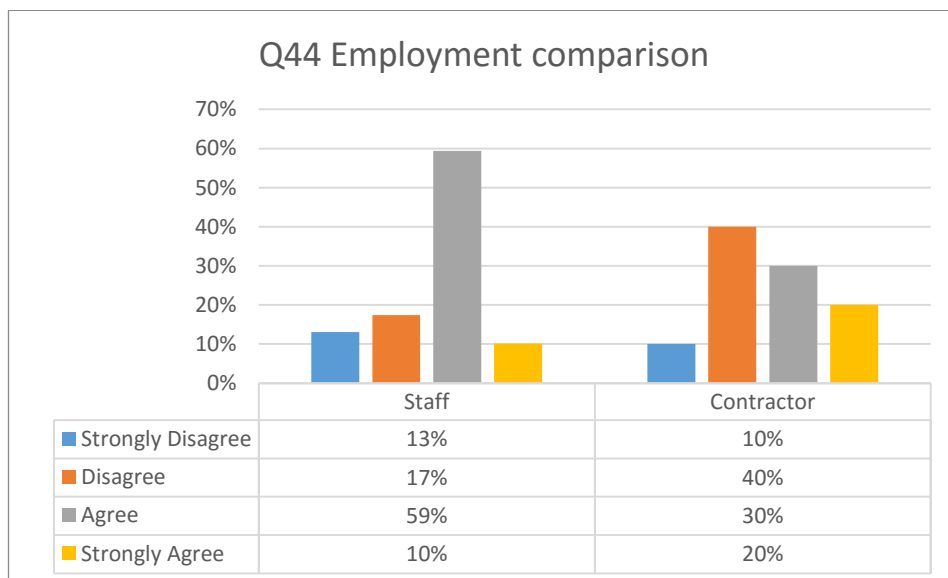
*Table 4.39 – Q42 experience comparison*



*Table 4.40 – Q44 dept. comparison*



*Table 4.41 – Q44 mgmt. level comparison*



*Table 4.42 – Q44 employment type comparison*

#### Appendix 4.2.4 – Competence HSCS data analysis

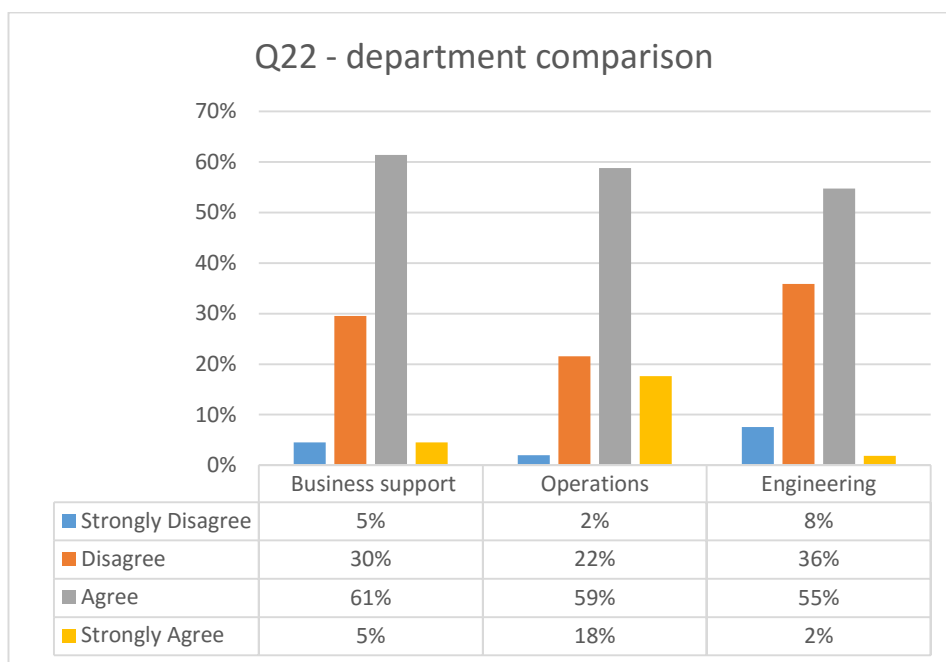


Table 4.43 – Q22 dept. comparison

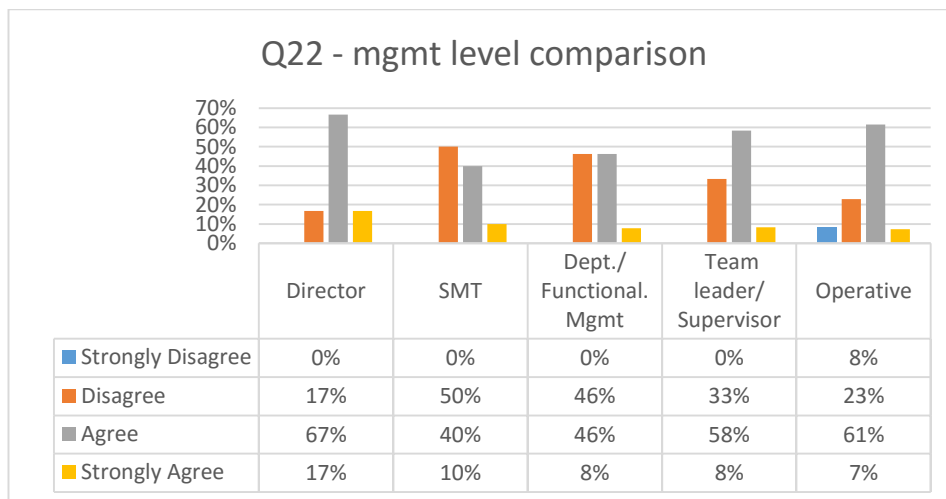
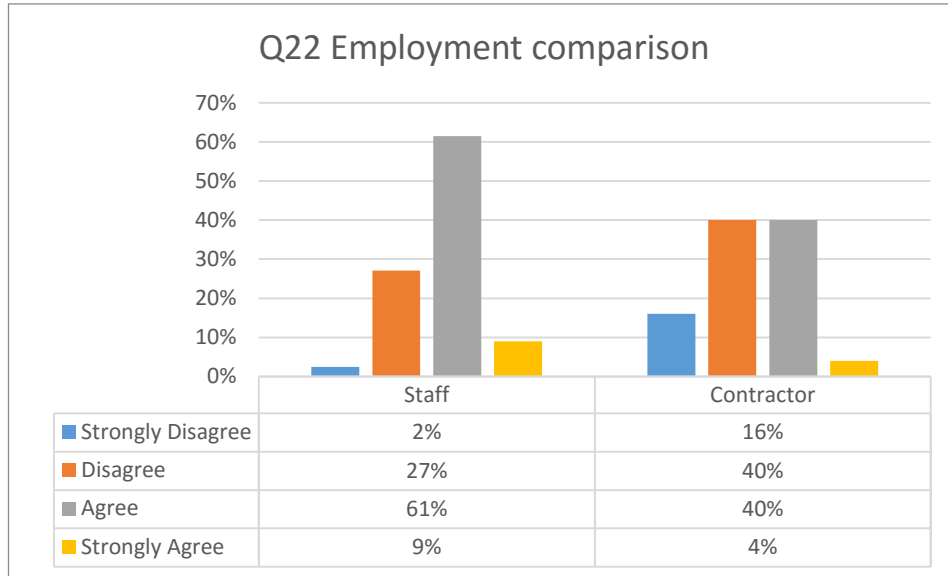
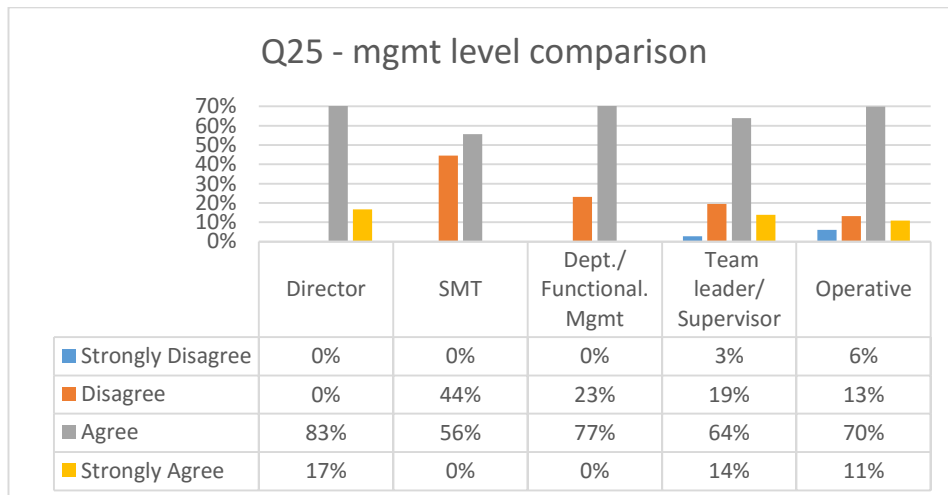


Table 4.44 – Q22 mgmt. level comparison

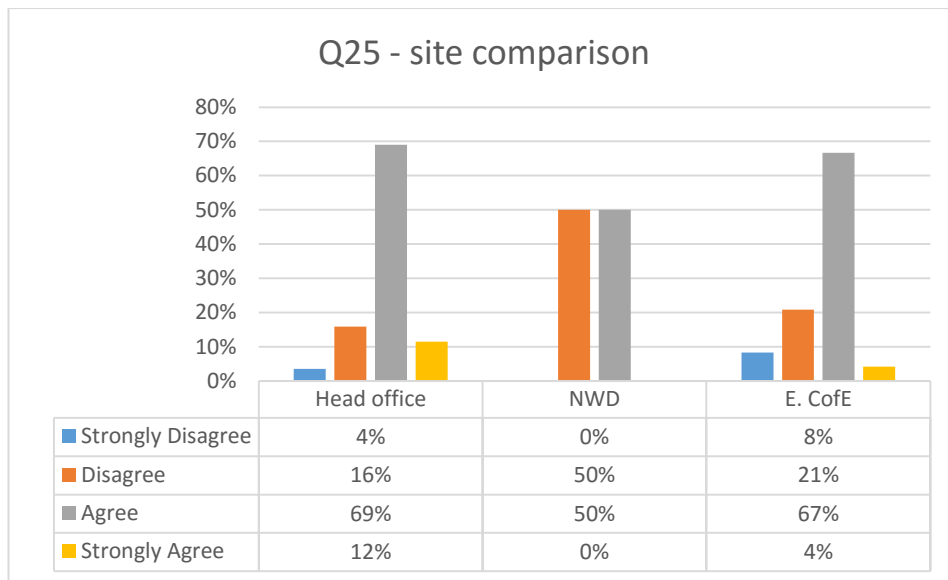




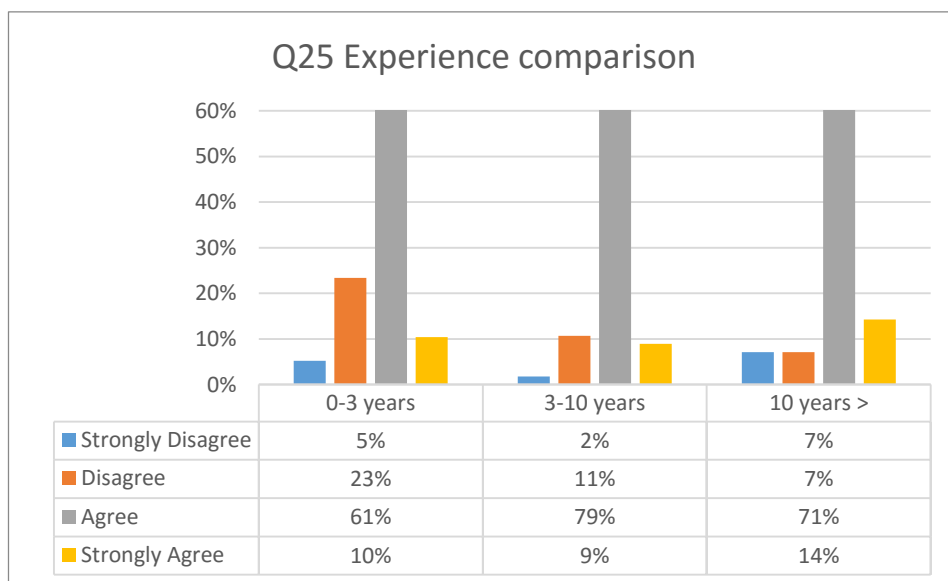
*Table 4.45 – Q22 employment type comparison*



*Table 4.46 – mgmt. level comparison*

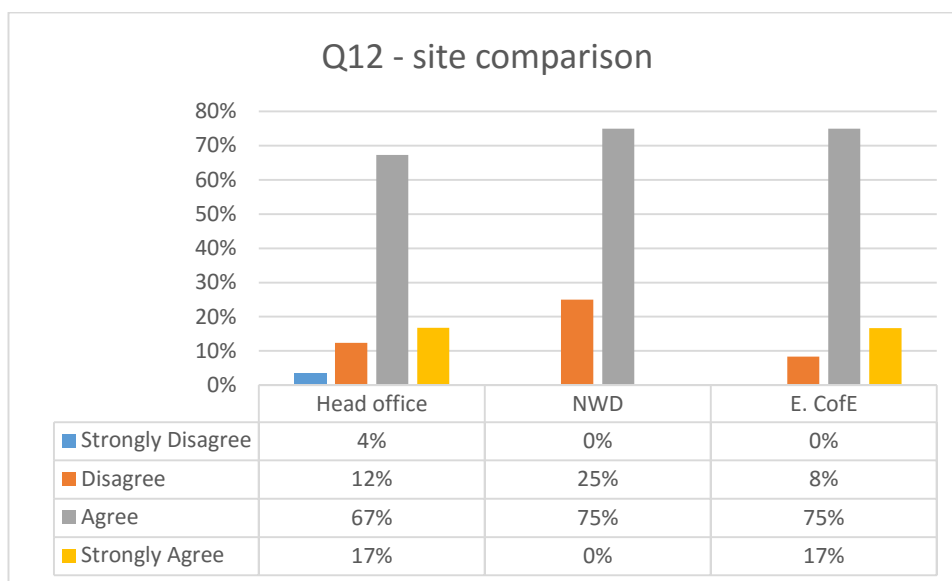


*Table 4.47 – Q25 site comparison*

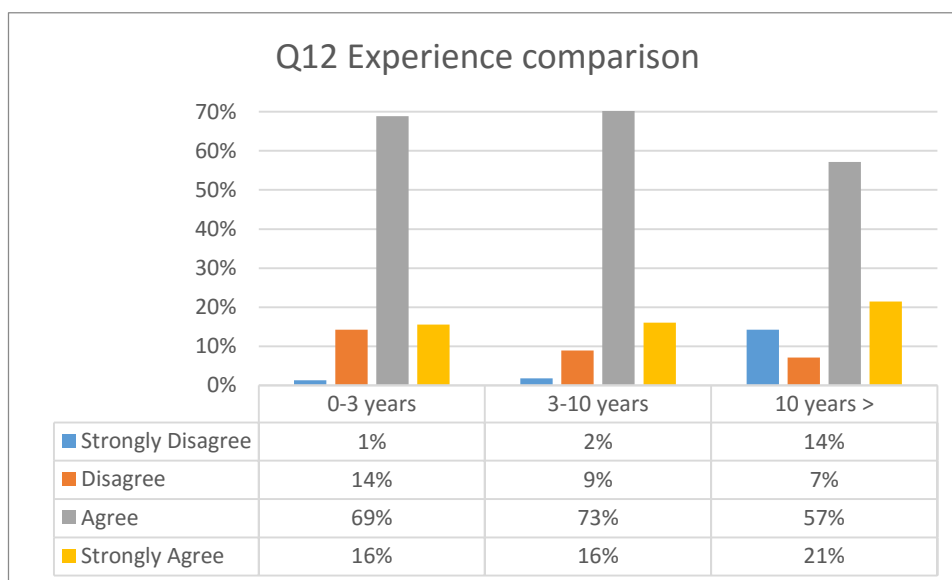


*Table 4.48 – Q25 experience comparison*

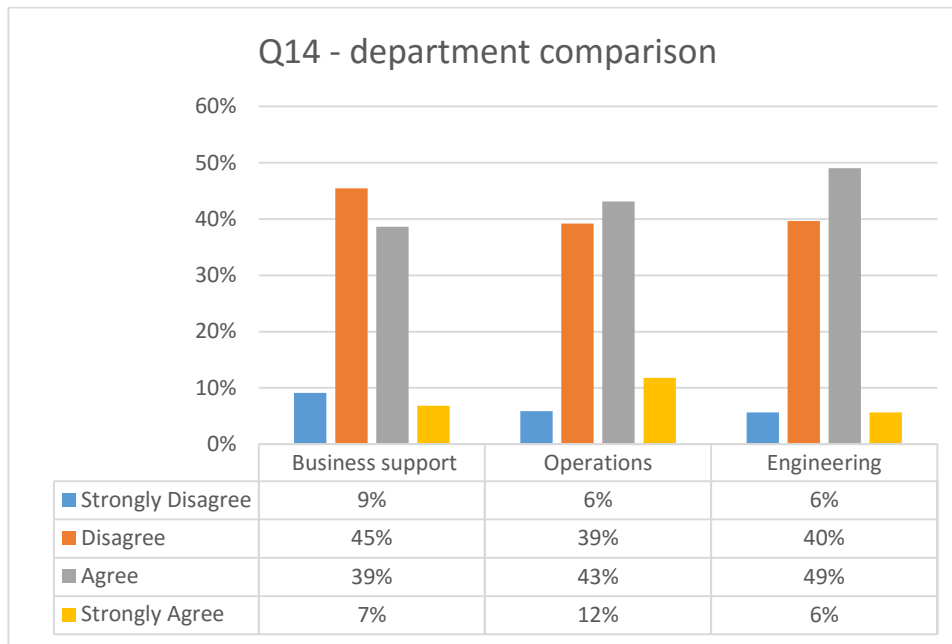
## Appendix 4.2.5 –Worker consultation and involvement HSCS data analysis



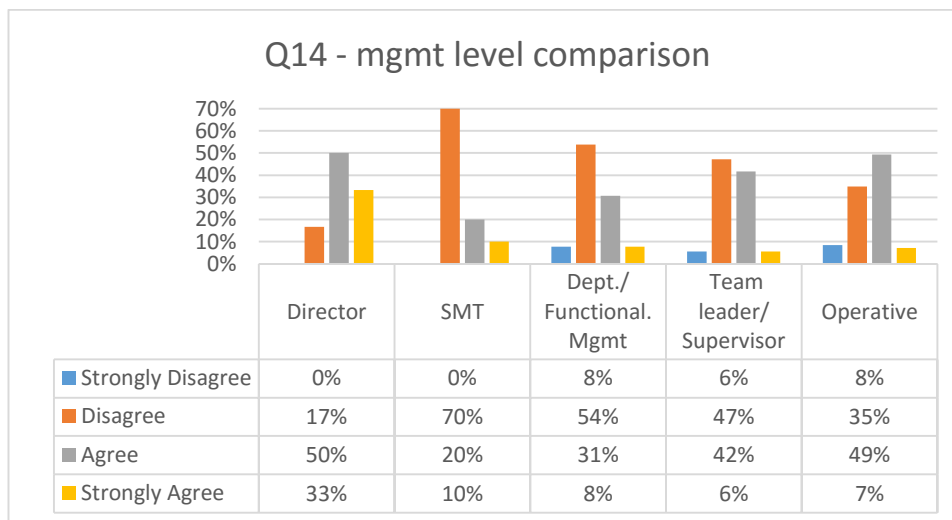
*Table 4.49 – Q12 site comparison*



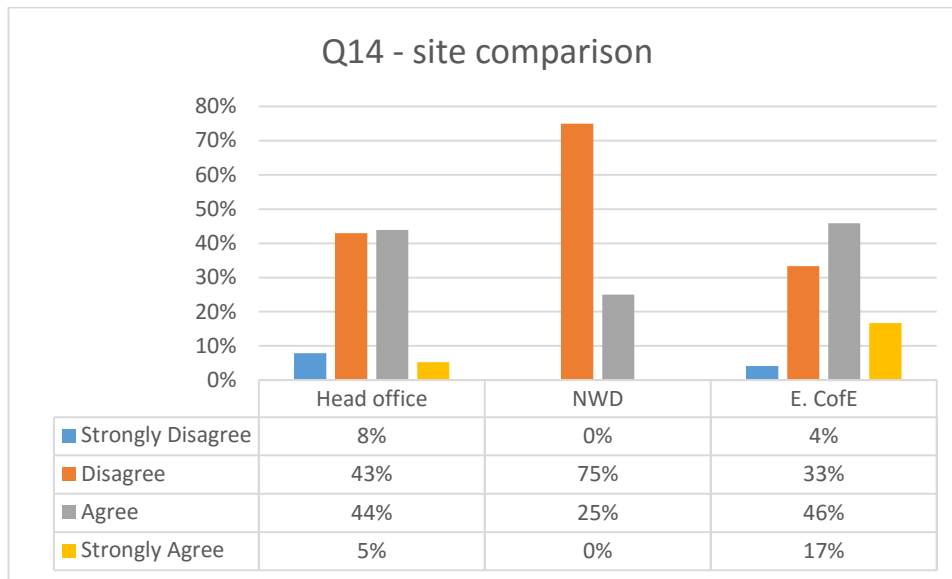
*Table 4.50 – Q12 experience comparison*



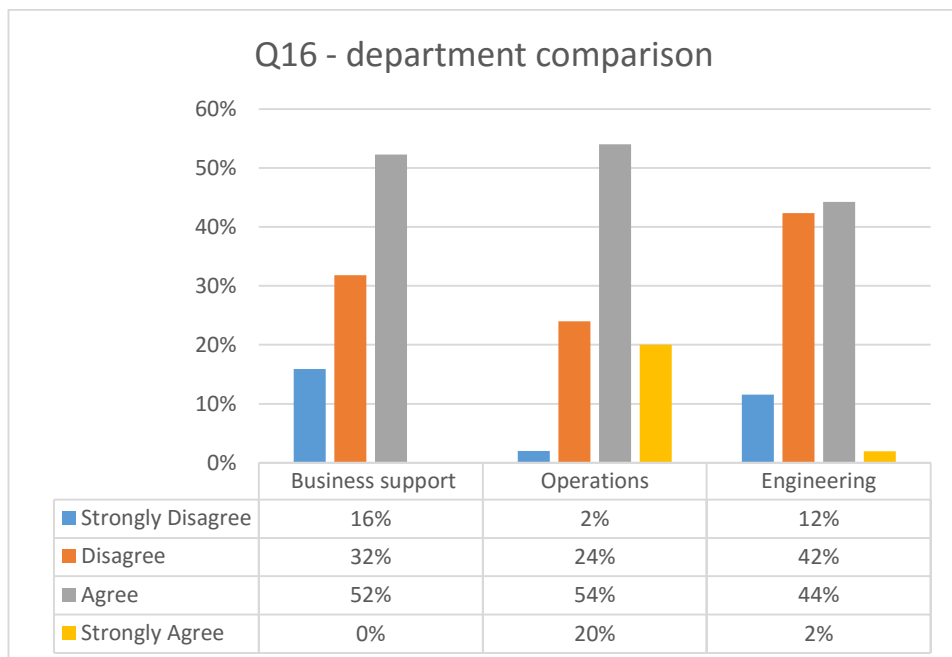
*Table 4.51 – Q14 Department comparison*



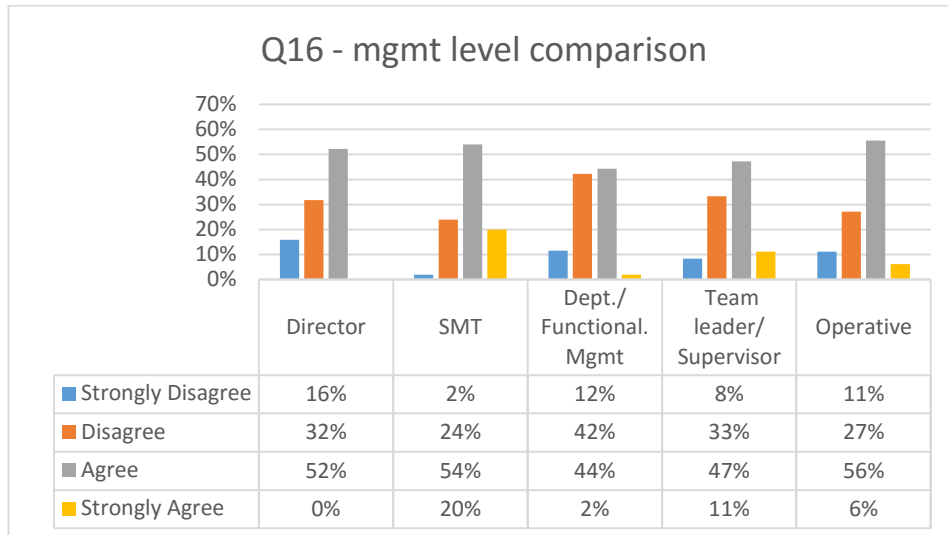
*Table 4.52 – Q14 mgmt. level comparison*



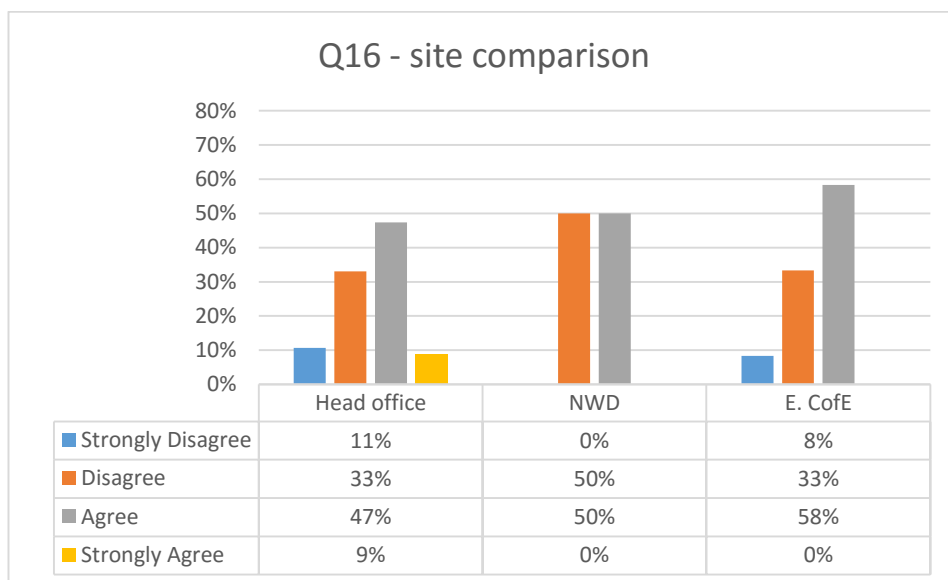
*Table 4.53 – Q14 site comparison*



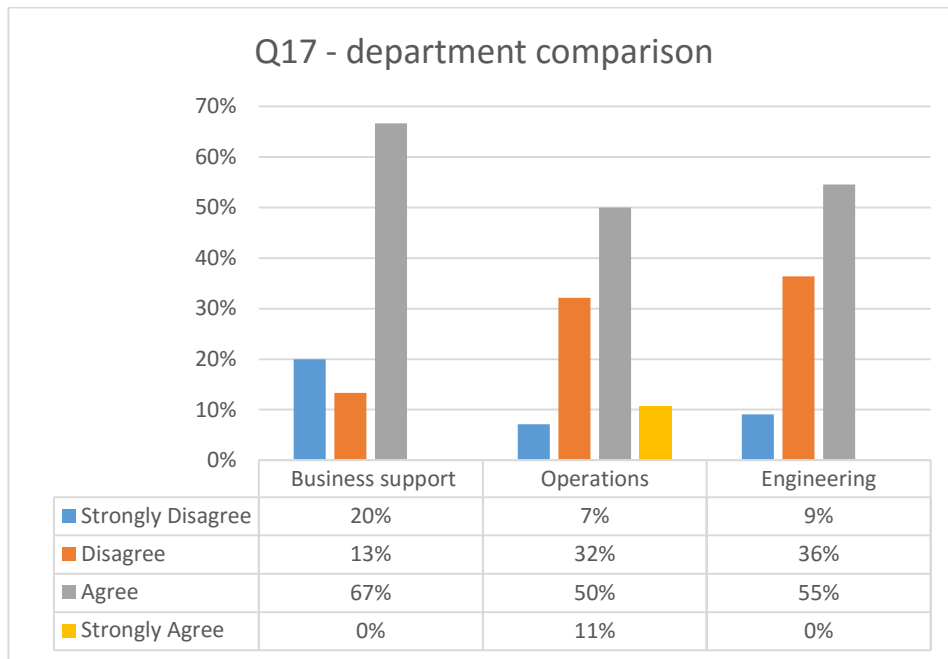
*Table 4.54 – Q16 departmental comparison*



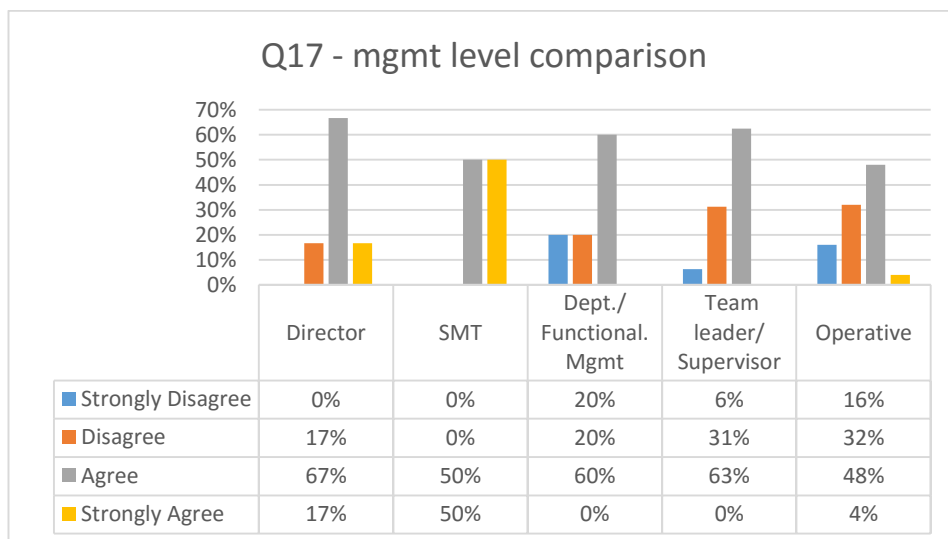
*Table 4.55 – Q16 mgmt. level comparison*



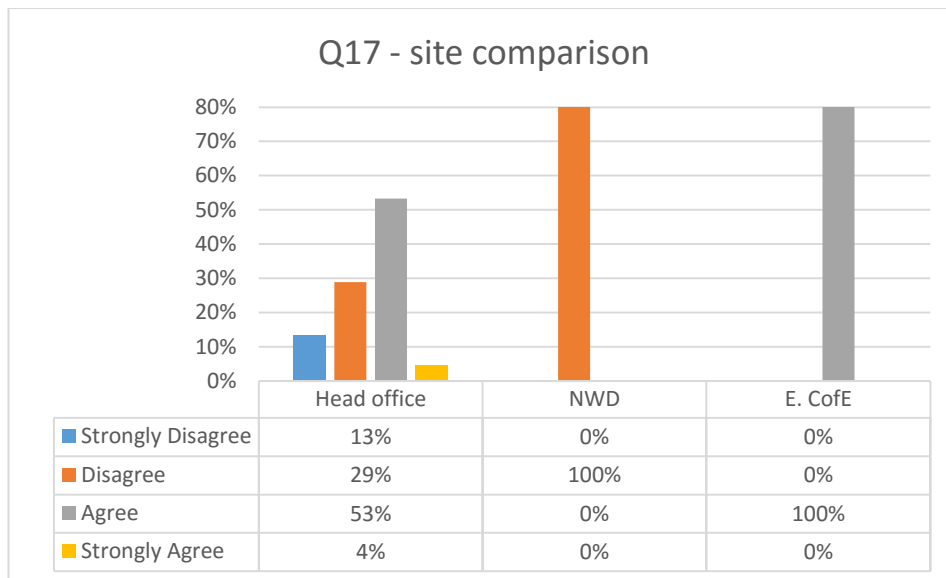
*Table 4.56 – Q16 site comparison*



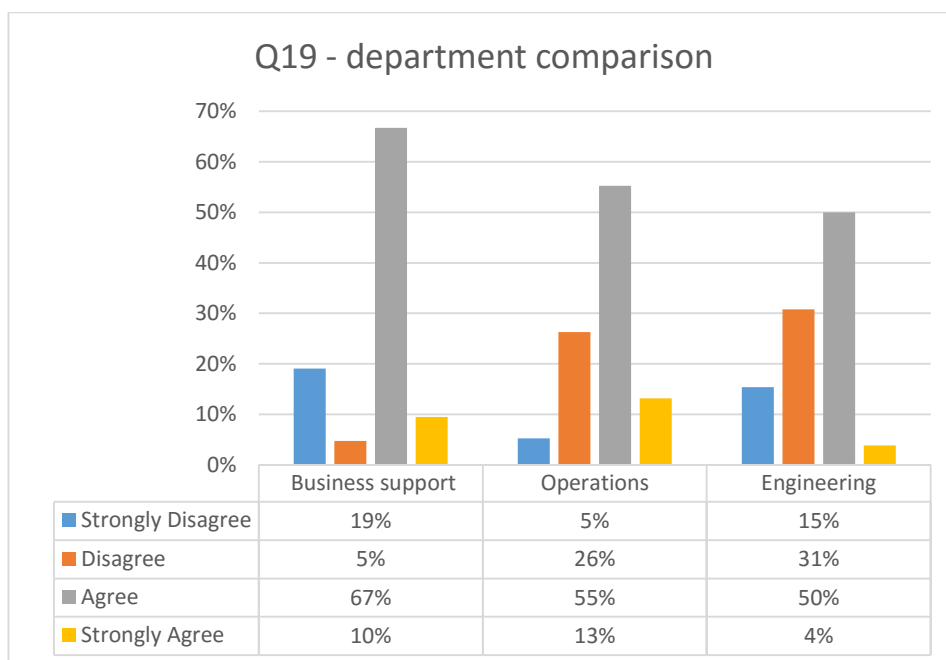
*Table 4.57 – Q17 dept. comparison*



*Table 4.58 – Q17 mgmt. level comparison*

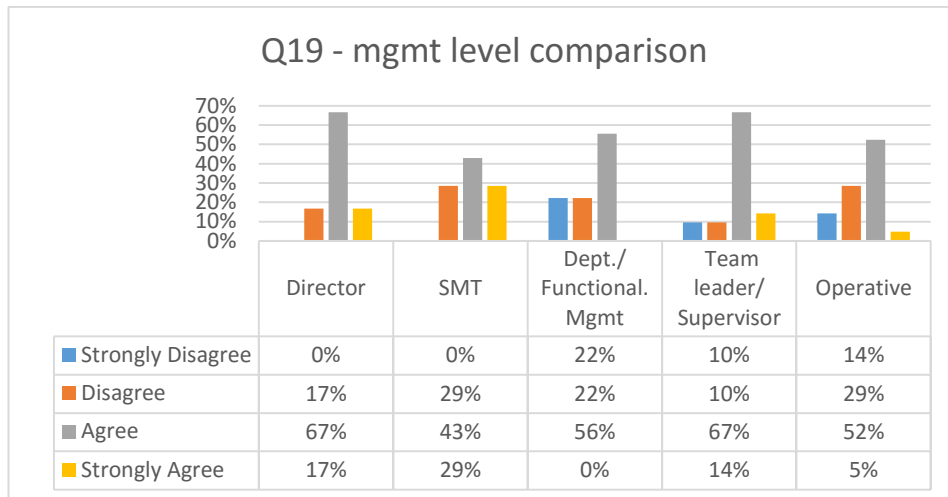


*Table 4.59 – Q17 Site comparison*

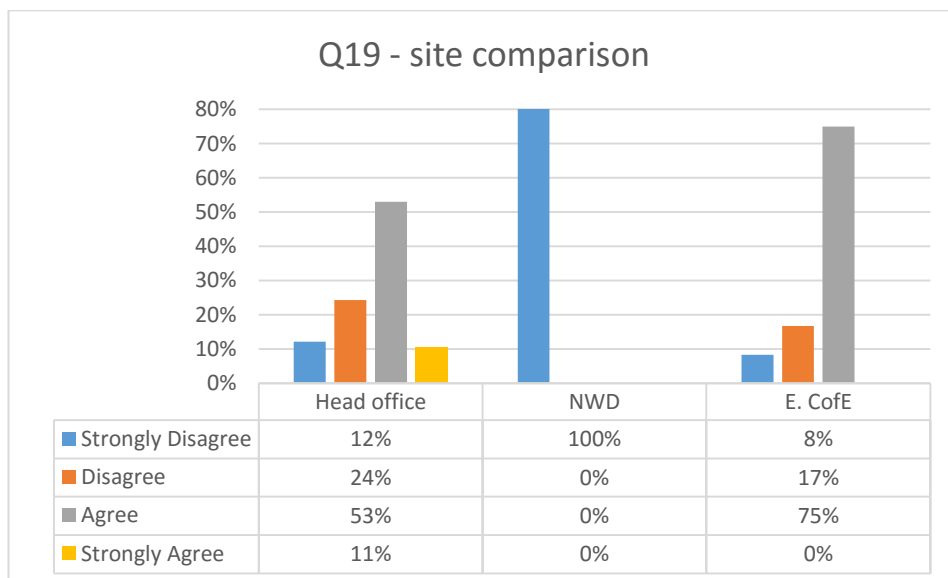


*Table 4.60 – Q19 dept. comparison*

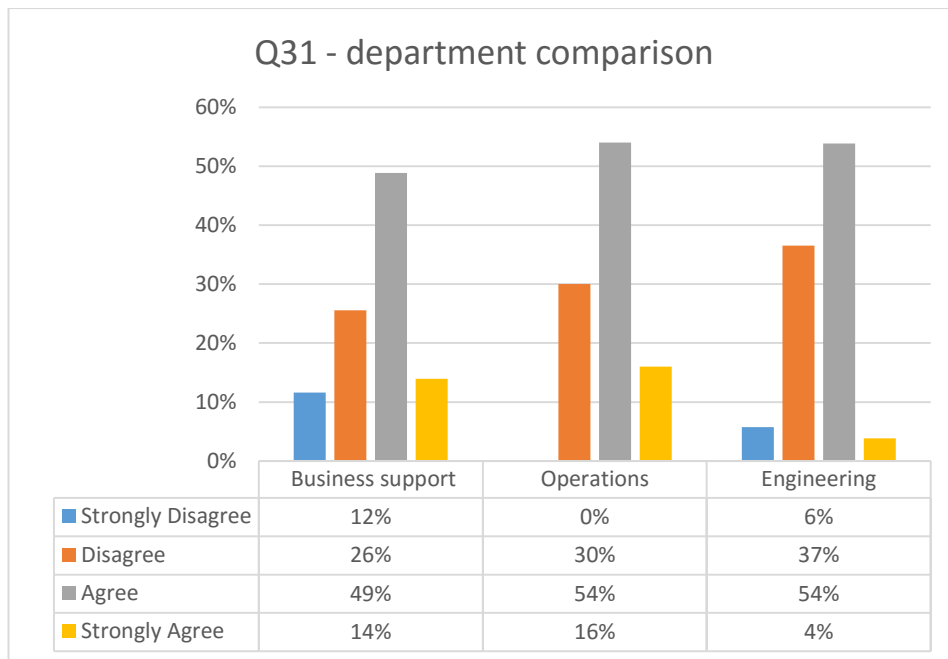




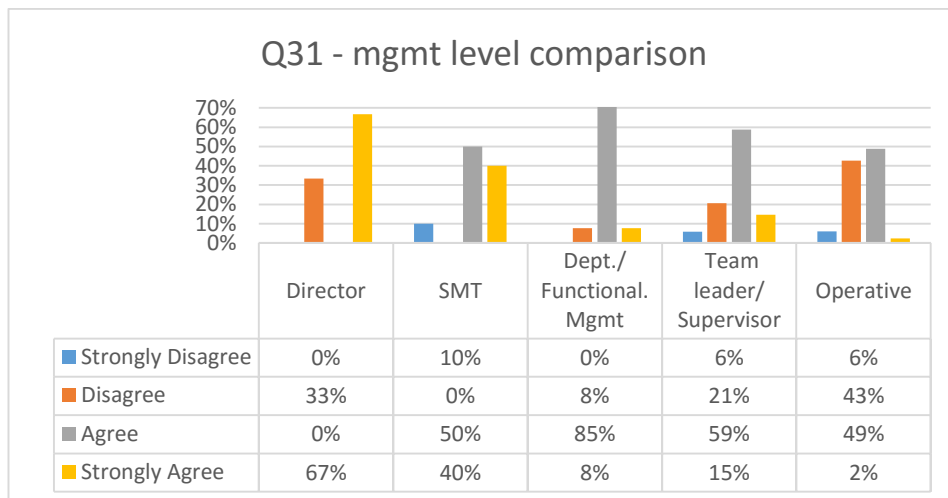
*Table 4.61 – Q19 mgmt. level comparison*



*Table 4.62 – Q19 site comparison*



*Table 4.63 – Q31 dept. comparison*



*Table 4.64 – Q31 mgmt. level comparison*

Supplementary information:

S.I 1 Participant Information Sheet

**Participant Information Sheet for ANE research project**

**Title of the study:** A critical analysis of the health and safety culture in a nuclear engineering organisation

**Introduction**

Liam Scott, HSE Team Leader at ANE, has embarked on an MSc in Safety and Risk Management at the University of Strathclyde. The MSc requires students to undertake a research project, and prepare a dissertation. The MSc research is taking place within ANE, and that is where employees and direct contractors are required to take part and help in its completion.

**What is the purpose of this investigation?**

The investigation seeks to quantify the Health and Safety Culture of the business, identify opportunities for improvement, and celebrate positive elements. This is the chance for employees to share their views on topics that indicate the Health and Safety Culture of a business; management commitment, communication, work environment, training, et al, and to receive real feedback on where the business' safety culture sits, compared with our expectations.

**Do you have to take part?**

It is expected that all employees would take part in the process. Whilst the process has to be undertaken voluntarily, it is an expectation of the business that all employees will take part in this research, due to the benefits it can offer, without drawback.

**What will you do in the project?**

A survey will be distributed which all employees will be able to access. The main platform utilised for completion will be SharePoint. Printed copies of the survey will also be available for those who don't normally use computers/ would prefer to manually input answers. For the benefit of research data compilation, it would be preferred if as many people as possible completed the questionnaire via SharePoint. There will be opportunity for all employees to input comments throughout the survey. The survey will go live on Wednesday 17<sup>th</sup> February until the 4<sup>th</sup> March – this gives everyone 13 days to submit responses.

**Why have you been invited to take part?**

Health and Safety Culture is a term used to describe the product of individual and group; values, attitudes, perceptions, competencies, and patterns of behaviour that determine commitment to, and the style and proficiency of, an organisation's health and safety management. It is because of the importance of understanding these individual and group traits that the business is encouraging all employees be involved in this research.

**What are the potential risks to you in taking part?**

None of the information you are asked to provide involves you identifying yourself individually. All surveys will be submitted via SharePoint anonymously, and printed questionnaires can be left in designated office/ manufacturing areas. (see email content for locations)

**What happens to the information in the project?**

All information is treated confidentially by the researcher. Anonymity of participants is maintained throughout the research project and dissertation report.

**What happens next?**

An email will be sent to all employees in the coming days with a link to the SharePoint questionnaire. Information will also be shared & displayed regarding locations of hard copies. The process is designed to take minimal time of participants.

The data will be collated and utilised in the final dissertation document. Following completion of the dissertation, the researcher is intending to publish the findings to all employees. Information on how the findings will be shared will be communicated upon conclusion of the dissertation.

**Researcher contact details:**

Should anyone wish to contact the researcher in confidence about the project, please address all emails to either [INFORMATION REMOVED] or [INFORMATION REMOVED]. Additionally, you can call DDI: [INFORMATION REMOVED]. Calls can also be directed to a mobile number: [INFORMATION REMOVED]. Should you have any concerns about the research project, please speak with the researcher who can if necessary provide details of the University Appointed Research Supervisor.

## S.I 2 Health and Safety Culture Survey (HSCS) printed format version.

### Welcome to the ANE Health and Safety Culture Survey.

The survey should take no more than 15 minutes. If you are able to do so, please complete this form on the business SharePoint site.

[http://synergy/sites/qhse/HSE Internal Site/ layouts/15/start.aspx#/Lists/Liams%20survey/overview.aspx](http://synergy/sites/qhse/HSE%20Internal%20Site/layouts/15/start.aspx#/Lists/Liams%20survey/overview.aspx)

All answers are provided anonymously.

If you have any questions at any point please contact [INFORMATION REMOVED] or [INFORMATION REMOVED] You can also call [INFORMATION REMOVED]. This obviously cannot be completed anonymously, but all queries will be treated confidentially. Anything discussed will not be reported on as part of the dissertation or discussed with any other person as per the University of Strathclyde Ethics Guidance, which this research projects practices are required to conform to.

Finally, there will be an opportunity to provide additional information should you wish at the end of the survey. Please ensure its relevance to the survey topic, and also ensure you are not identifiable within the comment. Please reference question numbers where comments directly relate to an answer given.

Please confirm you have read this information, and the Participant Information Sheet that was sent to all employees.

- ☒ Yes  
☐ No

1. Please can you confirm if you are a:

- ☐ Director  
☐ Senior Management Team member  
☐ Department/ Function Manager  
☐ Team Leader/ Supervisor (responsible for others)  
☒ Operative (i.e. shop floor, admin)

2. Can you confirm the department you work for:

- ☐ Business support: i.e. Finance, I.T, Procurement, etc.  
☐ Engineering  
☒ Operations: i.e. Manufacturing, Commissioning, Stores, QHSE

3. Which site are you based at most?

Note: Directors should not complete this question

- ☐ HEAD OFFICE
- ☐ ECE
- ☐ NWD

4. Are you:

(select the most appropriate option)

- ☐ Staff
- ☐ Long term contractor (more than 6 months)
- ☐ Short term contractor (less than 6 months)

5. How long have you worked for the business?

- ☐ < 1 Year
- ☐ 1-3 years
- ☐ 3-10 years
- ☐ > 10 years

6. Are you...

- ☐ Male
- ☐ Female
- ☐ Prefer not to say

7. Do you feel that the business' Senior Management and Directors are committed to your health and safety?

- ☐ 1. Strongly Disagree
- ☐ 2. Disagree
- ☐ 3. Agree
- ☐ 4. Strongly Agree

8. Are your health and safety needs always put before 'completing the job'?

- ☐ 1. Strongly Disagree
- ☐ 2. Disagree
- ☐ 3. Agree
- ☐ 4. Strongly Agree

9. Do you feel that Directors and Senior Manager involvement would give greater importance to following health and safety rules?

- ☐ 1. Strongly Disagree
- ☐ 2. Disagree
- ☐ 3. Agree
- ☐ 4. Strongly Agree

10. Do you feel that your managers lead by example in health and safety matters?

- ☐ Yes
- ☐ No - please provide reasons in the comment box below
- ☒ Specify your own value:

11. What can management do differently to demonstrate their commitment to your health and safety?

Please add text below:

12. Do you feel that management respond promptly to health and safety concerns that are raised?

- ☐ 1. Strongly Disagree
- ☐ 2. Disagree
- ☐ 3. Agree
- ☐ 4. Strongly Agree

13. Are there sufficient health and safety specialists within the business to meet the needs of all personnel and functions?



- ☐ 1. Strongly Disagree
- ☐ 2. Disagree
- ☐ 3. Agree
- ☐ 4. Strongly Agree

14. Do you feel that the business' SMT and Directors provide suitable regular communications about health and safety performance, i.e. ambitions, targets, campaigns, etc.

- ☐ 1. Strongly Disagree
- ☐ 2. Disagree
- ☐ 3. Agree
- ☐ 4. Strongly Agree

15. Do you receive safety shares/ incident shares in a timely manner?

- ☐ 1. Strongly Disagree
- ☐ 2. Disagree
- ☐ 3. Agree
- ☐ 4. Strongly Agree

16. Are you asked to provide questions/ suggestions for H&S meetings, i.e. Manufacturing Safety Meeting, Employee Forum?

- ☐ 1. Strongly Disagree
- ☐ 2. Disagree
- ☐ 3. Agree
- ☐ 4. Strongly Agree

17. If you have provided questions/ suggestions for H&S meetings, did you receive adequate and timely feedback?

- ☐ 0. N/A
- ☐ 1. Strongly Disagree
- ☐ 2. Disagree
- ☐ 3. Agree
- ☐ 4. Strongly Agree

18. Are you asked to provide input/ feedback on risk assessments that are produced for tasks you undertake?

- ☐ 1. Strongly Disagree
- ☐ 2. Disagree
- ☐ 3. Agree
- ☐ 4. Strongly Agree

19. Do you feel you receive adequate feedback/ updates on health and safety issues you raise

- ☐ 0. N/A
- ☐ 1. Strongly Disagree
- ☐ 2. Disagree
- ☐ 3. Agree
- ☐ 4. Strongly Agree

20. Should you be more involved in health and safety?

- ☐ 1. Strongly Disagree
- ☐ 2. Disagree
- ☐ 3. Agree
- ☐ 4. Strongly Agree

21. The business sufficiently monitors my health, and informs me if there are any concerns that I should follow up on with a GP?

- ☐ 1. Strongly Disagree
- ☐ 2. Disagree
- ☐ 3. Agree
- ☐ 4. Strongly Agree

22. Are your health and safety training needs addressed by the business?

note: this is training related to H&S only - not to be confused with job skill/ competence training.

- ☐ 1. Strongly Disagree
- ☐ 2. Disagree
- ☐ 3. Agree
- ☐ 4. Strongly Agree

23. Are you provided sufficient information about health conditions that may affect you in your own work environment:

i.e. office workers; DSE, manual handling, stress, bullying, etc.

Manufacturing facilities (incl. stores, manuf., commissioning) - Contact dermatitis, asbestos, industrial asthma, noise induced hearing loss, stress, bullying, etc.

- ☐ 1. Yes
- ☐ 2. No

24. Do you feel that supervisors, managers, etc. are equipped to answer your health and safety questions?

- ☐ 1. Strongly Disagree
- ☐ 2. Disagree
- ☐ 3. Agree
- ☐ 4. Strongly Agree

25. Do internally led H&S safety courses provide you with an appropriate level of information

- ☐ 1. Strongly Disagree
- ☐ 2. Disagree
- ☐ 3. Agree
- ☐ 4. Strongly Agree

26. I am proud to tell people who I work for

- ☐ 1. Strongly Disagree
- ☐ 2. Disagree
- ☐ 3. Agree
- ☐ 4. Strongly Agree

27. I feel I am part of the organisation

- ☐ 1. Strongly Disagree
- ☐ 2. Disagree
- ☐ 3. Agree
- ☐ 4. Strongly Agree

28. I would recommend to a friend to join the company

- ☐ 1. Strongly Disagree

- ☐ 2. Disagree
- ☐ 3. Agree
- ☐ 4. Strongly Agree

29. Have you in the last 12 months suffered an illness, injury or problems with your mental or physical health due to or made worse by working at the company, that resulted in requiring time off?

- ☐ 1. Yes
- ☐ 2. No

30. Business management, supervisors and my peers encourage me to raise concerns regarding safety or health matters?

- ☐ 1. Strongly Disagree
- ☐ 2. Disagree
- ☐ 3. Agree
- ☐ 4. Strongly Agree

31. Do you feel that you are able, in your role, to make a positive influence on the business' health and safety performance?

- ☐ 1. Strongly Disagree
- ☐ 2. Disagree
- ☐ 3. Agree
- ☐ 4. Strongly Agree

32. If you are unsure of business health and safety procedure, relating to a particular task, do you consult appropriate managers or the procedures page on the intranet for guidance?

- ☐ 1. Strongly Disagree
- ☐ 2. Disagree
- ☐ 3. Agree
- ☐ 4. Strongly Agree

33. Have you ever felt you needed to challenge someone who was acting unsafely or outside of company health and safety procedure?

- ☐ 0. N/A

- ☐ 1. Yes
- ☐ 2. No

34. Did you challenge them?

- ☐ 0. N/A
- ☐ 1. Yes
- ☐ 2. No

35. How did the individual react?

- ☐ Angrily
- ☐ Did not listen, and continued as they were
- ☐ Agreed, and changed their behaviour to suit the requirements
- ☐ Discussed with you in a constructive way

36. If the challenge was not satisfactorily resolved, did you escalate it further?

- ☐ 0. N/A
- ☐ 1. Yes
- ☐ 2. No
- ☐ 3. It was satisfactorily resolved

37. Do you feel that the company needs more or less health and safety procedures?

- ☐ 1. More - there are currently gaps in the system/ procedures are old/ out of date/ insufficient
- ☐ 2. Less - the current system is too overbearing and prevents us from carrying out our work the way we think it should be done

38. Have you personally raised a near miss/ incident/ accident report whilst working for the business?

- ☐ 1. Yes
- ☐ 2. No

39. Was the near miss/ incident/ accident investigated in a timely manner?

- ☐ 0. N/A
- ☐ 1. Strongly Disagree

- ☐ 2. Disagree
- ☐ 3. Agree
- ☐ 4. Strongly Agree

40. Have there been occasions where you have witnessed, or being involved in an event, that you feel should have been raised as a near miss/ incident/ accident?

- ☐ 1. Yes
- ☐ 2. No

41. If you answered yes to question 40, what was the reason for not completing a report, if you did not?

- ☐ I completed the appropriate documentation
- ☐ Didn't want to get into trouble
- ☐ Didn't want to get others into trouble
- ☐ Didn't feel that you had the time to
- ☐ Was unsure of the process
- ☐ The process is too complex
- ☐ Didn't feel it was your responsibility to do so.

42. Do you feel that enough is done to provide you with a healthy and safe working environment?

- ☐ 1. Strongly Disagree
- ☐ 2. Disagree
- ☐ 3. Agree
- ☐ 4. Strongly Agree

43. Have you raised health or safety concerns about your work environment to managers/ HSE Team previously?

- ☐ 1. Yes
- ☐ 2. No

44. Were concerns put to rest, with appropriate information, or escalated appropriately and resolved?

- ☐ 1. Strongly Disagree
- ☐ 2. Disagree
- ☐ 3. Agree

☐ 4. Strongly Agree

45. Are there observations you have made about your work area, that are unsafe or could lead to poor health, that you have not reported?

- ☐ 1. Yes
- ☐ 2. No

46. If yes, why did you not report it?

- ☐ N/A - I reported it
- ☐ Didn't want to get into trouble
- ☐ Didn't want to get others into trouble
- ☐ Didn't feel that you had the time to
- ☐ Was unsure of the process
- ☐ The process is too complex
- ☐ Didn't feel it was your responsibility to do so

47. Final Question!

Are there any other comments, linked to this Health and Safety Culture Survey, that you would like to share?



Finished. Thank you very much for completing the Health and Safety Culture Survey.

Please check that you have answered all of the questions. Once completed please place in one of the locked 'completed' survey trays.