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Health and Safety Executive

Evaluation of the success in Great Britain of the Directive on minimum safety and health requirements for work with display screen equipment

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Research Report

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Evaluation of the success in Great Britain of the Directive on minimum safety and health requirements for work with display screen equipment

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This research was commissioned to provide the UK contribution to an EU working group studying the effectiveness and efficiency of existing EU health and safety legislation. To achieve this an ex post evaluation of the EU Directive 90/270/EEC, which regulates work at Visual Display Units (VDU), was carried out in six member states. This Directive was chosen because the transposition into national law was generally made in a comparable way in all six countries. The EU working group established common requirements for the evaluation to provide comparative data for the cross-country evaluation. It is based on a structured sample of employers in Great Britain, in which data were collected from 1241 respondents. The study involved also a literature review, but this revealed only a limited amount of relevant research on the topic. Research report RR622 uses the same data to provide a comparison with the previous UK evaluation of the DSE Regulations in 1997. The EU working group has been published electronically by the EU.

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CONTENTS

EXECUTIVE SUMMARY

The present research involved an initial evaluation of the impact, including the costs and benefits, of the Display Screen Equipment (DSE) Directive 90/270/EEC in Great Britain, in order to provide comparative data for a cross-country evaluation with other European Union countries. It is based on a structured sample of employers in Great Britain, in which data were collected from 1241 respondents. The study involved also a literature review, but this revealed only a limited amount of relevant research on the topic.

The findings highlighted that the majority of businesses claimed to have a good deal of knowledge about the Regulations that arose from the Directive. Over 60 per cent found the Regulations relevant or very relevant to their daily work, and 70 per cent were confident they were doing all they needed to comply. These findings were relatively independent of firm size, sector (public or private) or kind of business activity.

Most businesses said they provided health and safety information to their display screen equipment users but slightly fewer provided training.

On working routines, most employers reported it was mainly left to the employees' discretion when to take breaks or that breaks occurred naturally in the work. However, regular breaks were more frequently provided for where the work was intensive.

Most respondents were aware of the main risks that are associated with display screen work (musculoskeletal disorders, temporary eyestrain, tiredness and stress), but a minority still had misconceptions about alleged risks for which there is little evidence (e.g. epilepsy, miscarriages or radiation).

Three quarters of businesses reported providing eye tests for display screen users. Three quarters stated also that they conducted risk assessments every 12 months. Changes to workstations were made fairly frequently; the most frequent reasons for making changes were to follow good practice, to improve employee comfort, and to protect from risks.

There was a lack of information about the costs to employers of implementing the Regulations, as most businesses did not have separate budgets for this. There was not strong agreement as to whether businesses were able to observe benefits from the Regulations, but particular benefits such as improved staff morale or reduced stress were noted by between 64 per cent and 61 per cent of respondents respectively.

The findings from the present study show that it is difficult to highlight one area in which improvements to the Regulations can be recommended, as no areas have emerged as showing evidence of disregard or non-implementation of the Regulations by employers. However, there are a few areas that may benefit if they were brought to the attention of employers. These include encouraging employers to pursue a stronger focus on ensuring that employees are aware of their entitlement to eyesight tests; providing more information to smaller-sized businesses, due to their limited resources, in ensuring that they comply adequately with all the necessary regulations with which they need to comply; emphasising to employers their duty to provide training to the users whom they employ; and encouraging employers to give more attention to the taking of adequate breaks or changes of activity by their employees.

Overall, the present study has underscored that employers are aware of and acting on the Regulations. However, there are a few areas that may be improved and the HSE may wish to pursue these in future research or campaigns.

1 INTRODUCTION

1.1 BACKGROUND

The development of the European Union (EU) over the last half-century has produced a large body of community legislation. The continuing challenge is to develop better regulation that balances the costs and benefits, so that legislation is effective without constraining economic development.

Germany initiated a working group of government representatives of interested member states, including the United Kingdom (UK) to facilitate this ongoing process. The objectives of this group are to evaluate the DSE Directive and to use this as an example that a cross-country evaluation is possible and provides a useful feedback mechanism for policy making. A set of common terms of reference has been drawn up to ensure consistency in the evaluations. This group has agreed that a pilot evaluation of the DSE Directive 90/270/EEC in each participating member state should be undertaken, both to test the methodology and to answer questions about the success of the Directive. The Health and Safety Executive (HSE) contracted the Health and Safety Laboratory (HSL) to conduct the evaluation of the DSE Directive in Great Britain.

The European Directive 90/270/EEC has been implemented in Britain by the Health and Safety (Display Screen Equipment) Regulations 1992 (as amended in 2002). The HSE has published guidance on the Regulations, notably booklet L26 *Work with display screen equipment*. The aim of the Directive and the Regulations is to reduce the risks of ill health associated with Display Screen Equipment (DSE) work, notably musculoskeletal disorders (MSDs), stress and visual fatigue. Musculoskeletal disorders are the most common type of occupational ill health in Great Britain; currently affecting just over 1 million people a year. In 1995/96, MSDs cost British society £5.7 billion.

An initial evaluation of the effect of the Regulations in Great Britain was made in 1995/96 and the results were published (see HSE CRR 130/1997, available via the HSE's website). A limited amount of further information has been gathered in subsequent years, reflected in the UK's four-yearly reports to the European Commission on practical implementation of the Directive.

1.2 OBJECTIVES FOR THE RESEARCH

The aim of the present research is to conduct an initial evaluation of the impact, including costs and benefits, of Directive 90/270/EEC in Great Britain, in order to provide comparative data for the cross-country evaluation conducted by the working group. The overarching research question is: What is the impact of the DSE directive, as implemented in the Health and Safety (Display Screen Equipment) Regulations 1992 (as amended in 2002) and the guidance provided by HSE (booklets L26, HSG90 and INDG36)?

The general research question is broken down into the following questions referenced at employers whose workers use DSE and are subject to the Regulations:

- What is the level of knowledge and awareness of the Regulations and guidance by employers?
- What are the costs of the Regulations as implemented in the UK on employers?
- What are the benefits of the Regulations as implemented in the UK on employers?

This project will be the second evaluation of the DSE Regulations by HSE. The research report for the first evaluation (CRR 130/1997) and the underlying methodology are key references for this project. A secondary objective of the research will be to compare the present findings with this first evaluation, and this will be presented as a separate report. The results will be comparable as far as the terms of reference prepared by the international group (and any technological change) allow. Here the aim is to enable judgements to be made about the success of the Regulations in tackling DSE-related ill health to inform HSE's MSD programme.

1.3 LITERATURE REVIEW

1.3.1 Aims and Objectives

The literature review aimed to explore recent scientific literature to provide a background context to link the project to any similar work that has been conducted in the past few years, if any exists; thus ensuring any relevant findings regarding the regulation of display screen equipment is referenced in the current work.

Specifically, the objectives of the literature search were to provide some key findings relating to the following issues relevant to the aims of the current evaluation:

- The level of knowledge and awareness of the Regulations and guidance by employers.
- The costs of the Regulations as implemented by employers.
- The benefits of the Regulations as implemented by employers.
- Did the Regulations/Directive improve the working conditions / safety and health of employees?
- The relative strengths and weaknesses of the Regulations, and their reasons.
- Measures that should be taken to address the weaknesses.
- Has the Directive led to any inequalities concerning OSH?
- What changes might there be to the Directive in relation to:
    - legal provisions,
    - implementation at company level,
    - the strategies of the enforcing authorities,
    - other accompanying measures for improving occupational safety and health (OSH) of DSE users.

1.3.2 Methodology

The HSE's Information Services, supplemented by searches from the project team, conducted a search of available literature across a range of authoritative specialist commercial databases, covering: learned journals, technical papers, monographs, conference proceedings and 'grey' literature[1]. The following databases were searched by the HSE Information Services: Oshrom (including HSELINE, CISDOC, NIOSHTIC, OSHLINE, RILOSH); Ergonomics abstracts; Healsafe; Medline; Excerpta Medica; Psychinfo; DHSS data and EbscoHost TOC Premier.

[1] *Grey literature is authoritative primary scientific report literature in the public domain, often produced in-house for government research laboratories, university departments, or large research organisations, and yet often not included within major bibliographic commercial database producers.*

The search terms, phrases and topic areas used for the literature search were as follows:

- DSE
- DSE Regulations
- Impact of DSE + Regulations
- Practical Implementation of DSE + Regulations + EU directives
- Evaluation of DSE + Regulations
- DSE related ill health

A range of terms and synonyms were used for the search to obtain a comprehensive set of references. In total, 19 references were obtained from the HSE Information Services team. These references were reviewed for relevance by the project researchers, and full papers were requested where necessary. Requested papers were reviewed by the researchers and where appropriate were summarised within the review.

In addition to the literature search conducted by the HSE's information services, the search was supplemented from HSE's and HSL's internal documents, and by being executed across the Internet. Websites were assessed for quality and information was gathered from only trusted sources.

1.3.3 Findings

It must be noted that when reading the papers for the purposes of the review only a small volume of recent (post 1997) information relevant to the aims of this literature review was identified. Summaries of the appropriate papers are presented below. The study that was considered to have the greatest importance to the current research, the IES study (1997) is presented first, followed by the remaining studies in chronological order, with the most recent first. Whilst all comment on this topic is recognised it must be noted that certain findings reported in the literature, and summarised here, are thought by HSE to be wrong, incomplete or misleading. In such instances the opinion of HSE has been cited.

(1). HSE commissioned the Institute of Employment Studies (1997) to review the DSE Regulations (1992). The review provided a snapshot of employers' and employees' views at a time when the Regulations were still fairly new to the workplace, and involved a postal questionnaire to just over 3,000 employers in the United Kingdom, from which 1270 useable questionnaires were realised. The survey data were supplemented by follow up interviews and telephone surveys with union officials, employers and employees that had responded. Employers fell into three categories in their approach to the legislation:

i. Those who were unaware of the Regulations and were doing very little to protect employees.
ii. Those who conformed to the requirements of the DSE Regulations but did so reluctantly and minimised their obligations.
iii. Those who well exceeded the requirements, taking a long-term approach to health and safety.

The key factors inhibiting movement between the first and next two categories appeared to be lack of awareness of the Regulations and a lack of conviction that they addressed important health and safety issues.

Just over 90 per cent of employers said they had DSE in the workplace and an estimated 5.5 million employees habitually used DSE and so were covered by the Regulations in some way. Fifty-five per cent indicated they were aware of the Regulations, 27 per cent were not and 18

per cent said they did not know. Awareness varied considerably by size of employer and was found to be high in large companies, but limited in small firms. There was a clear link between awareness of the Regulations and taking action on the use of DSE. Sixty-two per cent of employers that were aware of the Regulations had taken action. Of those that were not aware, only ten per cent had undertaken risk assessments. Similarly 55 per cent of those aware had provided eyesight tests, compared with only six per cent of those that were unaware.

Generally employers operated a wider definition of a DSE user than that provided for in the Regulations. The most common method was to consider that everybody is covered (40%). The employee survey revealed that many users (65%) did not know whether their employer saw them as a user or not, despite the fact 70 per cent reported that they were highly dependent on visual display units (VDUs) and 60 per cent said they used VDUs continuously.

Only 39 per cent of establishments indicated that they had undertaken workstation risk assessments. Small firms, particularly those unaware, were more likely not to have carried out risk assessments. Thus, awareness of the Regulations was an important factor in determining whether an assessment was undertaken or not.

Alterations to workstations may be required under the Regulations. The most common action (71% of respondents) was the provision of suitable chairs. The least common (17%) was the redesign of tasks. Seventy-one per cent of alterations were a result of reasons other than health and safety legislation, e.g. office refurbishment and upgrading IT policy.

Regarding breaks, in the majority of cases, employees who used intensively DSE were allowed to take a break from DSE work. Generally these breaks were not formalized, occurring naturally with the changing pattern of the working day or linked to coffee, smoking or natural breaks. The dominant model was based around providing employees break opportunities and allowing the individuals to decide when these should be taken. This model broke down where jobs cannot easily be designed to build in alternatives to DSE work and /or when work pressures and deadlines mount up. Two groups of staff, as defined by the researchers, appeared affected; (i) Enthusiasts - e.g. journalists, computer programmers and researchers who find their intrinsic interest in their work overcoming any training in the importance in taking breaks and (ii) Enslaved - e.g. data or word processing operatives with limited discretion over their work routine, and who feel inhibited in taking a break.

Ninety-one per cent of establishments said they employed habitual users of DSE, yet just under two-thirds said they had not provided eyesight tests. Of the third that had, 83 per cent said they did so on the user request, the remaining 17 per cent provided them for all users. Larger sites were more likely to have provided tests. The most common method of organising tests was for employees to make their own arrangements. Again employers were complying with the Regulations but minimising their obligations. The key factor inhibiting take up appeared to be a lack of employee awareness about entitlement.

The benefits that occurred as a result of implementing measures associated with the Regulations were examined, the majority response was '*Not sure*', suggesting employers were either uncertain of the benefits they had realised or it was too early to see them materialise. Of those reporting benefits, the most common were to do with employee morale and reduced stress. Thirty-seven per cent agreed morale had improved as a direct result of implementing measures to comply with the Regulations.

Only ten per cent of the sample could provide cost data. Despite lack of data, broad estimates were made as to the cost of compliance. For a typical establishment this was between £125 and £180 per user. Respondents were asked if they agreed or disagreed that the benefits of compliance outweighed the costs. Just under two-thirds neither agreed nor disagreed which

may reflect a feeling that although the benefits may outweigh the costs, it is not possible to demonstrate these in accounting terms.

The study concluded that employers were generally positive about the Regulations but significant minorities of respondents were discontent. Dissatisfaction came from feelings that the Regulations '*go too far*', are too complicated and that there is a lack of information available. The key factors between those that complied and did not comply appeared to be a lack of awareness and a lack of conviction that the Regulations address an important health and safety issue. No real consensus emerged on what could be done to improve the Regulations. Some wanted more specificity while others found some of the distinctions already drawn confusing and wanted simplification.

The above study identified some interesting findings. However, it should be emphasised that the fieldwork for this survey was conducted in 1995 - 1996, at a time when employers and others were still familiarising themselves with their new duties and exploring how to implement the Regulations. This fact must be given due cognisance when interpreting the results.

(2). A recent study was conducted by the Institute of Occupational Medicine (IOM; 2007) on behalf of the HSE to improve data relating to the levels of DSE work-related ill health in the UK's office workers. A questionnaire survey of 1327 DSE users in 130 organisations of different sizes and sectors across the UK was used to determine the prevalence of DSE work-related ill health. This was followed by a statistical analysis of information on work exposure factors collected during the fieldwork. An in-depth literature review was conducted also to determine levels of ill health in other comparable working populations and to establish the evidence-base for potential causal factors for DSE related ill health.

The risks of substantial ill health to any individual user of DSE, is believed to be relatively low, particularly if the user adequately complied with the regulatory provisions. However, the survey found that despite legislative provision to improve computer workstations in the Regulations, the level of musculoskeletal symptoms amongst computer users appeared to be high, with 73 per cent of respondents having reported one or more musculoskeletal symptoms. Additionally, slightly over half of all respondents reported symptoms affecting the head and/or eyes; and anxiety and depression were more common among those who spent more time each week at the computer, than those who spent less time.

There was no way of telling from the survey how well individual employers had implemented the provision of the Regulations; although, as a crude index, the vast majority of respondents appeared to have adjustable chairs and visual display unit (VDU) screens (a basic requirement of the Schedule of Minimum Requirements).

The recorded prevalence of MSD symptoms in this survey was found to be broadly similar to those reported in the reviewed published scientific literature, and also to an earlier IOM survey of computer users. The two IOM surveys span the period of currency of the DSE Regulations suggesting that these have not had a major impact on the prevalence of MSD symptoms amongst computer users. Although not explored formally there were signs in the questionnaire responses (e.g. 34% reported not receiving any information and training) that implementation of the Regulations was incomplete.

Further support for this conclusion can be derived from the fact that 28 per cent of respondents reported typically working for more than 2 hours without a break, with a further 36 per cent typically working for 1-2 hours without a break, contrary to what is recommended by the HSE's guidance on the Regulations.

The study concludes that the DSE Regulations provide the regulatory framework for controlling risks of MSDs amongst computer users. Given the findings it is recommended that there needs to be further work to examine the current implementation and consequent effectiveness of the Regulations.

An important aspect of the IOM findings is that most of those reporting symptoms took little or no time off work - which suggests to HSE that in most cases the symptoms may not reflect any serious ill health. Additionally, while it is true that comparing the present results with those of earlier research provides no positive evidence that the DSE Regulations have reduced ill health in DSE workers, there are substantial uncertainties and it cannot be safely concluded that the legislation has had no effect.

(3). Taylor (2006) concentrated on VDU use and reported that since the amended DSE Regulations came into force in 2002, the level of debate and discussion they have stimulated has been rather disproportionate to the actual risk involved. Despite numerous investigations and much research into the effects of DSE or VDUs, it has not been unequivocally proved that VDUs can in themselves cause disease or permanent damage to the eyes.

The Regulations place a particular responsibility on employers to attend to the eye care of VDU users. Taylor argues however that although minimum requirements are laid down in the Regulations, there is a great deal of scope for interpretation and controversy, as evidenced by the amount of discussion and debate in the health and safety community. The paper argues that the Regulations are often misinterpreted and consequently not enough notice is taken of simple precautions to protect employees' eyes. The paper cites a recent Eyecare Trust survey (2005) as evidence of the Regulations weaknesses where:

- 63% of VDU users admitted to regularly leaving work with a headache.
- 53% suffered from tired or strained eyes.
- One in 5 people admitted to being aware of imperfections with their eyesight.
- One in 10 said that while they were sure they needed to wear glasses or contact lenses, they had not yet had an eye test.

(4). Cloke (2003) reports that ten years after the DSE Regulations introduction, many employers seem to have done little or nothing to comply with the requirements. However, during this period there has been a dramatic change in employees' willingness to take their employers to court to seek compensation for work-related injuries. The author considers that complying with the Regulations is not difficult. As the Regulations emphasise the need to manage risk, the paper investigated the practicalities of carrying out a large-scale programme of DSE risk assessments of 476 editorial staff. Cloke concluded the process was straightforward; few of the risks identified by the risk assessments lay outside the skills of an assessor trained in basic DSE assessment.

The height and position of the display screen was identified as an important factor. Users assumed the IT department had correctly set the screen position, viewing height and distance, when installing equipment. Assessments revealed that 114 screens had to be repositioned, raised or lowered. A significant amount of this work would have been unnecessary if the screen had been properly positioned upon initial installation. Cloke suggests a need for the Regulations to raise awareness of workstation ergonomics for IT staff.

Cloke proposes a commonly neglected requirement of the Regulations is that workstation users should be given training in its safe use. Many companies are reported as giving good quality adjustable chairs and desks to their employees, but fail to give any guidance on good posture or in how to use these adjustments effectively. Lack of training in the correct adjustment of the chair was a factor in almost every risk assessment. Cloke argues that

training is needed to raise awareness of the long-term, cumulative effect of sustained bad posture, yet this DSE Regulation requirement is being overlooked.

(5). Pearce (2003) reports that in the ten years since the implementation of the DSE Regulations, just 82 HSE Improvement Notices under the Regulations, and no Prohibition Notices have been served. Furthermore, no organisations had been prosecuted for a breach of the Regulations. Whilst admitting the evidence is limited, Pearce argues that it would appear that, for a variety of reasons, those responsible for the enforcement of health and safety legislation have previously viewed the DSE Regulations as a very low priority.

It must be noted, however, that Pearce's comments could present a misleading impression of the facts. Pearce quotes enforcement activity by HSE inspectors, but most enforcement of the DSE Regulations falls to Local Authorities (LAs) not the HSE, as LAs inspect the great majority of office premises. The HSE does not hold statistics on enforcement activity by LAs under these Regulations but are aware of one prosecution; indeed there may have been others.

Pearce considers whether the launch of revised guidance on the Regulations (2003) heralds a change of approach that could ultimately help reduce the incidence of DSE work-related ill health. He argues that the revised guidance is patronising e.g. '*do not carry equipment or papers unless they are really likely to be needed*'. Additionally, it is considered misleading in places e.g. '*It is intended for people who need to consider all the detailed implications of the law*'. Pearce argues this is misleading as the courts have made clear, *only* the courts can give an authoritative interpretation of the law.

Pearce states that the revised guidance on the Regulations claims to bring the guidance up to date with improvements in knowledge of risks, yet claims that nowhere in the guidance is there any sound evidence, or even a reference to a study, which shows that there are any significant health and safety risks to individual DSE users. This, he claims, means that those responsible for enforcing the Regulations may justifiably ask: where is the evidence of harm arising from DSE use, and where is the evidence that the DSE Regulations actually reduce the incidence of work related ill health or the number of working days lost; hence lessening their impact.

Whilst all comment and opinion on this subject is recognised, it must be noted that this view is not one shared by either HSE or the majority of commentators on the DSE Regulations and guidance.

(6). HSE (1998) published an evaluation of the impact of the 1992 six-pack Regulations: the Management of Health and Safety at Work Regulations (MHSW); the Workplace (Health, Safety and Welfare) Regulations; the Manual Handling Operations Regulations; the Health and Safety (Display Screen Equipment) Regulations (DSE); the Provision and Use of Work Equipment Regulations (PUWER), and the Personal Protective Equipment (PPE) Regulations on British organisations.

The IOM carried out the research using postal questionnaires and interviews of 6,000 small to large industrial and service organisations. It was similar to a previous evaluation of the impact of the DSE Regulations (Institute of Employment Studies (IES) survey, 1997), but focused on issues common to all of the six-pack, e.g. assessment and reduction of risks and the provision of information, instruction and training on health and safety issues. The aim was to evaluate employer awareness of, and response to, the Regulations, and to identify problems, costs, and benefits of complying with the Regulations.

The HSE was encouraged generally by employers' awareness and rate of compliance with the six-pack Regulations. About half of organisations in the survey had heard of the six-pack; three-quarters of these thought the six-pack applied to them and most had undertaken risk

assessments.

The main findings of the survey (relevant to DSE) were that the Regulations collectively appeared to have had a positive impact on health and safety standards. Awareness was highest of the DSE and PPE Regulations, and the study postulated that this was due to the fact that they seem easier to understand and implement. Most employers did not know the costs and benefits of compliance but showed greater recognition of the benefits of specific issues (manual handling, DSE, PPE, work equipment) than of the more general Regulations.

The main problems organisations found with all the Regulations were identifying hazards (53%), time required to complete assessments (48%), deciding what further actions were needed (45%), and being unclear as to what was required in the risk assessment (44%). Only six per cent of respondents stated they had difficulty complying with the DSE Regulations. Around 20 per cent had undertaken specific risk assessments concerning DSE.

Prior to the Regulations, less than a third of organisations were providing information and training on the specific issues addressed by the DSE, Manual Handling and Work Equipment Regulations. The impact of the DSE Regulations on training and information provision appeared to be high, with approximately half of respondents reported providing more health and safety information and a third providing more health and safety training since the Regulations were introduced.

The most expensive aspect of compliance appeared to be providing information and training rather than risk reduction at source. More organisations thought that complying with the specific (and limited) requirements of the Manual Handling, DSE, PUWE and PPE Regulations resulted in greater benefit than cost.

The study concluded that organisations had made an encouraging start in response to the six-pack Regulations, and the initial impact on health and safety standards had been positive in all sectors, particularly in large organisations.

(7). Sharman (1997) concentrated on the users of VDUs. He reports the findings from several pieces of research and concluded that only minorities of employers were providing adequate safeguards against the hazards of working with VDUs, despite the DSE Regulations. Sharman cites a Trades Union Congress Health and Safety Representatives Survey which found that failure to implement VDU Regulations is the third most serious occupational health problem, after stress and overwork and slips and falls. Sharman cites also a finding from the Institute of Employment Study commissioned by the HSE, which found that misconceptions about vision tests and the risk of eye damage due to DSE were commonplace.

The Banking, Insurance and Finance Union is reported to regard such misconceptions and the failure of many organisations to provide eye tests as serious drawbacks of the Regulations. They consider that the onus should be on the employer not employee. They argue that in some business sectors staff may fear admitting to a problem associated with DSE because climates of reorganisation, cutbacks and insecurity make staff reluctant to come forward for fear of losing their jobs.

The chairman of the Association of Optometrists, Andrew Merry, is reported as stating that vision screening is no substitute for a full eye examination and there is a concern that companies use vision screening as an attempt to cut costs. Supporting this concern, the DSE guidance states that vision screening is an ‘optional extra’. It is meant to identify people who need referral to an optician, through the use of a relatively simple, in-house procedure carried out by a qualified person e.g. a nurse. The guidance is explicit in that vision screening does not satisfy the entitlement in the Regulations to a full eye and eyesight test.

Summary

In summary, this literature review aimed to explore recent scientific literature to inform the project and provide a background context to link the project to any similar work that has been conducted in the past few years, if any exists. Following a literature search, 19 papers were identified. However, when reading the papers for the purpose of the review only a small volume of recent (post 1997) information relevant to the aims of this literature review was identified. It has to be concluded that very little previous research exists which has examined the impact of the Directive/DSE Regulations for employers and employees, their strengths and weaknesses, and how they can be improved.

Several of the studies concluded that awareness of the Regulations is key to their implementation and that many employers were complying with the Regulations but minimising their obligations. For example, Cloke (2003) concluded that a commonly neglected requirement of the Regulations is that workstation users are not given training in its safe use. Many companies were reported as giving good quality adjustable chairs and desks to their employees but failing to give any guidance on good posture or in how to use these adjustments effectively. Sharman (1997) concentrated on the users of VDUs. He reported the findings from several pieces of research and concluded that only minorities of employers were providing adequate safeguards against the hazards of working with VDUs, despite the DSE Regulations.

The IES (1997) study was considered to be of the greatest importance to this research. However, it should be emphasised that the fieldwork for this survey was conducted during 1995 - 1996, at a time when employers and others were still familiarising themselves with their new duties and how to implement the Regulations. This fact must be given due cognisance when interpreting the results.

The study concluded that employers were generally positive about the Regulations but significant minorities of respondents were discontent. Dissatisfaction came from feelings that the Regulations '*go too far*', are too complicated and that there is a lack of information available. The key factors between those that complied and did not comply appeared to be lack of awareness and a lack of conviction that the Regulations address an important health and safety issue. Further, an IOM study was conducted in 2007 to examine DSE work-related ill health. Together, these two surveys span the period of currency of the DSE Regulations and suggest that these have not had a major impact on prevalence of MSD symptoms amongst computer users. It must be noted, however, that most of those reporting symptoms in the recent study took little or no time off work, suggesting that in most cases the symptoms may not reflect any serious ill health. Whilst the IES and IOM studies claim the findings provide no positive evidence that the DSE Regulations have reduced ill health in DSE workers, we must acknowledge there are substantial uncertainties. Consequently, it must be noted that it cannot safely be concluded that the legislation has had no effect.

2 RESEARCH METHODOLOGY

The principal focus of investigation was on employers whose workers use DSE and are subject to the Regulations. The research methodology used a questionnaire to collect data from employers concerning their health and safety management practices for risks to employees arising from DSE use. A more detailed account of the research methodology is presented in Appendix 1.

Questionnaire design

The purpose of the questionnaire was to collect data evaluating Directive 90/270/EEC for the European Working Group, and also to provide a point of comparison for other data sources, most notably CRR 130/1997, in order to give insight into the extent of change over time.

The questionnaire used in the research report CRR 130/1997 formed the basis of the terms of reference identified by the European Working Group, and so was used as a basis for the current questionnaire. The development of the final questionnaire was subject to 11 iterations, which included cognitive piloting. The final questionnaire is presented in Appendix 3, and covered the following issues:

- Background Information
- Use of Display Screen Equipment
- Perceived Risks
- Alterations to Workstations
- Operator Computer Interface
- Daily Routine of DSE Users
- Information and Training
- Eyes and Eyesight
- The Regulations
- Costs and Benefits

Sample design

The sampling strategy was determined by the requirements to:

- Provide a sufficient number of employers and industrial sectors to reflect the current situation in Great Britain so as to make a contribution to the International Working Group.
- Allow comparison with the sample from CRR 130/1997.
- Adhere to the financial limitations for engaging a sub-contractor to administer the survey to around 1200 respondents.

In order to provide a sample frame that was representative of the spread of employment across range of industries and size of organisations in Great Britain, a stratified quota sampling frame was devised based upon the 2004 Annual Business Inquiry Workplace Analysis conducted by the Office for National Statistics. This basis for the sample frame to reflect the spread of employment was partly decided as the scope of the research was not able to focus specifically on the responses of employees. Industrial sectors assumed to have a low prevalence of DSE use (i.e. Agriculture, Hunting and Forestry) were not included in the sampling frame. Sole traders and the self-employed were excluded also. The sampling frame is presented in Table 2.1.

Table 2.1: Final sampling frame for respondents according to the employer size and SIC[2]

Industry (SIC 2003 Section Descriptor)	Number of Employees in Organisation			
	One to 24	25 - 99	100 - 299	300 plus
C: Mining and quarrying D: Manufacturing	34	36	35	43
E: Electricity, gas and water supply F: Construction	27	14	11	9
G: Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods H: Hotels and restaurants	140	78	40	40
I: Transport, storage and communication	16	16	17	23
J: Financial intermediation K: Real estate, renting and business activities	89	47	43	63
L: Public administration and defence; compulsory social security	8	14	18	28
M: Education	13	44	28	25
N: Health and social work	34	40	16	51
O: Other community, social and personal service activities	31	16	8	7
Total respondents by size of organisation **Total number of respondents = 1202**	**392**	**305**	**216**	**289**

Data collection

A sub-contractor was engaged to administer the questionnaire and collate the data. Sufficient contact details for organisations to guarantee the quotas outlined in the sampling frame were randomly selected from the Inter Departmental Business Register (IDBR) and the Dun and Bradstreet database.

The unit of selection for the contact details was at the local data or unit level, e.g. the individual workplace (as with the 2004 Annual Business Inquiry Workplace Analysis). Respondents were representatives of employers, who in each instance had knowledge and experience of the organisation's management of the health risks associated with DSE. Respondents were asked to reference their responses to the individual workplace of which they had direct experience.

An integrated approach to data collection was used, combining Computer Assisted Telephone Interviews (CATI) and a web based questionnaire survey. Respondents were initially recruited via the telephone. They were given then the option of completing the survey questionnaire over the telephone, or they were e-mailed a link to the online version of the questionnaire for them to complete. Records were kept of non-respondents. The fieldwork took place between December 2006 and March 2007.

Achieved sample and response rates

Data were collected from 1,241 respondents. In total, 904 interviews were completed using the CATI method, and 337 interviews were completed using the online version of the questionnaire. In total 13,751 individual contacts were made with potential respondents. There were 12,510 non-respondents, giving a response rate of just under 10 per cent. Although it is problematic to gauge the extent that the non-respondents introduce an element of bias into the sample, e.g. through self-selection, the non-responses were in part due to failure to make contact from the outset or inaccuracies in the contact details. Further information on non-response categories is provided in Appendix 1 (section 12. 1. 5).

[2] *Standard Industrial Classification*

Data analysis

The questionnaire data were analysed using the SPSS (Statistics Package for the Social Sciences) software. Due to the nature of the questions the main analyses focused on providing a descriptive assessment of the data, as well as tests of association between relevant questions, according to the different industries and also between companies of different sizes.

Each section provides responses to the questions and the relevant information (numbers and percentages) of the respective respondents. Some of the tables may total either 99 per cent or 101 per cent due to the rounding of the figures.

Structure of the report

The findings from the survey are presented in the following sections:

- Background information on respondents
- Awareness, knowledge and relevance of the Regulations
- Information and training
- Use of DSE and routine of users
- Perceived risks
- Eyes and eyesight
- Changes to workstations
- Costs and benefits

3 BACKGROUND INFORMATION ON RESPONDENTS

The 1241 respondents were categorised according to the SIC 2003 section descriptor codes and were fairly evenly distributed across the different sizes of organisation. Figure 3.1 illustrates the breakdown of the different sizes of organisation across the various sectors. As such, size of organisation equates to 100 per cent across all sectors. For example, with respect to the businesses in the financial sector, although they amounted to ten per cent (*n* = 125) of the total sample, they contained 14 per cent of organisations with between 2 - 24 employees, seven per cent of organisations with between 25 - 99 employees, ten per cent with between 100 - 299 employees and eight per cent with 300 or more employees. Similarly, for the businesses in the wholesale and retail trade, repair of motor vehicles etc. category, that amounted to 22 per cent (*n* = 276) of the total sample, this sector consisted of 34 per cent of organisations with between 2 - 24 employees, 23 per cent with between 25 - 99 employees, 14 per cent with between 100 - 299 employees and 11 per cent with over 300 employees.

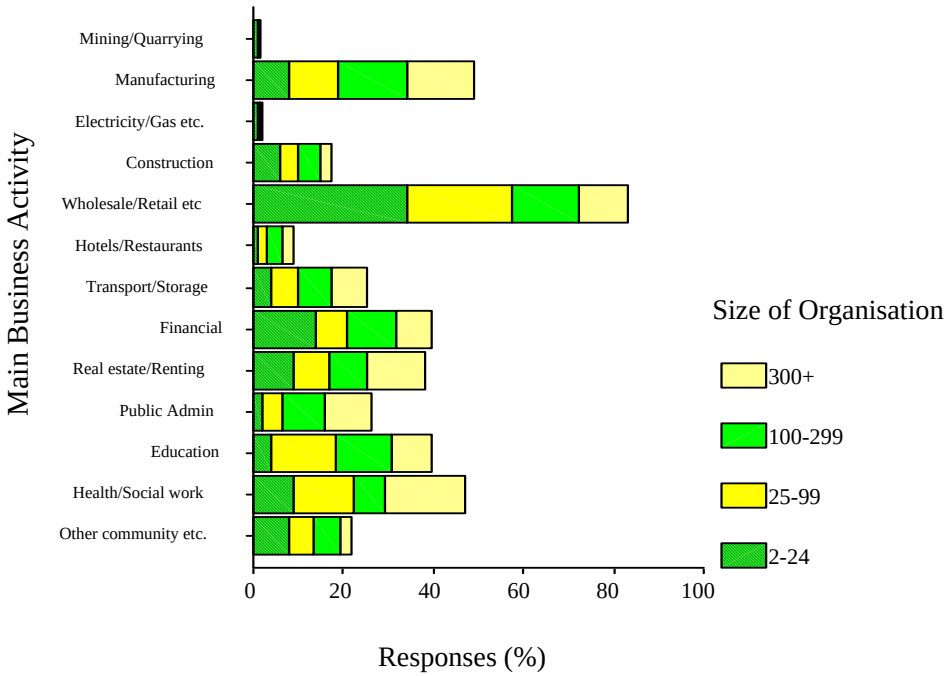


Figure 3.1: The main business activities of respondents *by* size of organisation

Figure 3.2 shows the division of businesses for the total population of businesses in the UK (Annual Business Inquiry Workplace Analysis, 2004 figures)[3] to allow a broad comparison with the present sample. However, as can be seen from Figure 3.2, the sample used in the present research does not replicate the wider population due to the focus on ensuring that an adequate representation of employees rather than businesses was achieved. For example, in the wider population, just over 95 per cent of the businesses in the construction industry are classified as very small in size (1-24 employees), while in the sample used in the present research less than five per cent of the businesses in this sector employed between 2-24 workers.

[3] *https://www.nomisweb.co.uk/Default.asp*

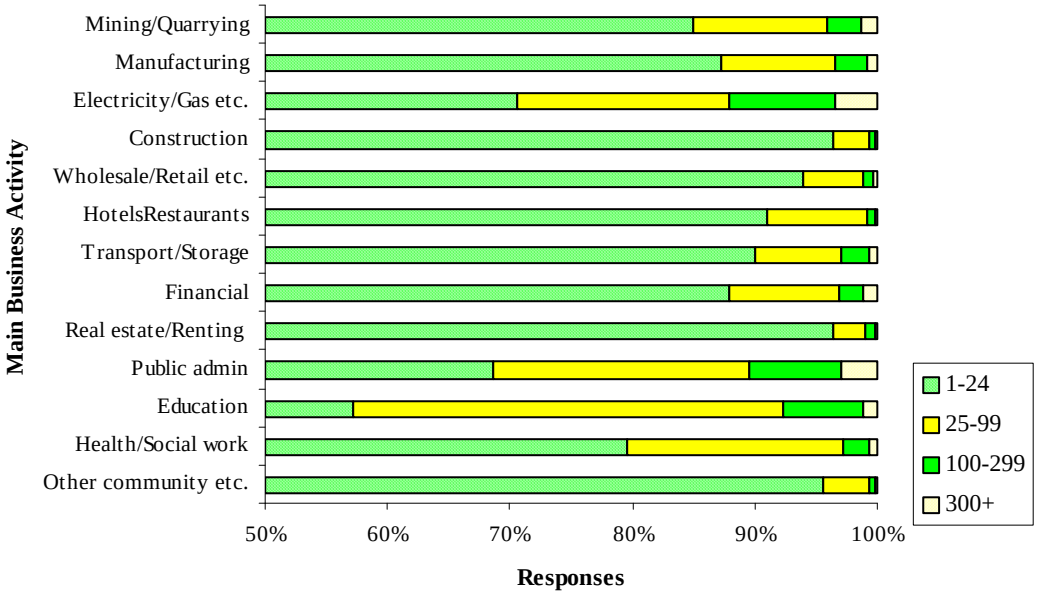


Figure 3.2: Industry Breakdown of Business Activity

The majority of businesses were in the private sector (68%), with just under one-third in the public sector (30%), and very few non-conclusive responses. See Figure 3.3. This breakdown differs slightly from the wider economy where in 2005, the majority of businesses were in the private sector (98%), with less than one per cent (0.09) in the public sector and two per cent (1.74) classified as non-profit organisations.[4] The over-sampling of businesses in the public sector was necessary to obtain a more comprehensive overview of these types of businesses.

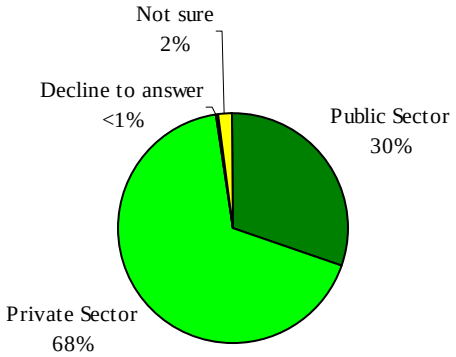


Figure 3.3: The participants *by* sector

The larger sized businesses were more likely to have respondents working in health and safety related roles, with smaller sized businesses having respondents working in management related fields. For example, those individuals in health and safety related jobs (42% of the

[4] *http://www.dtistats.net/smes/sme/smestats2005.xls*

sample, *n* = 519) were more prominent in large-sized organisations (81%), than in organisations with 2 - 24 employees (15%), with 25 - 99 employees (27%) or with 100 - 299 employees (56%). See Figure 3.4. The few respondents who refused to disclose the type of employment in which they were engaged worked in medium to large organisations (100 - 299 employees: <1%, 300 or more employees: <1%).

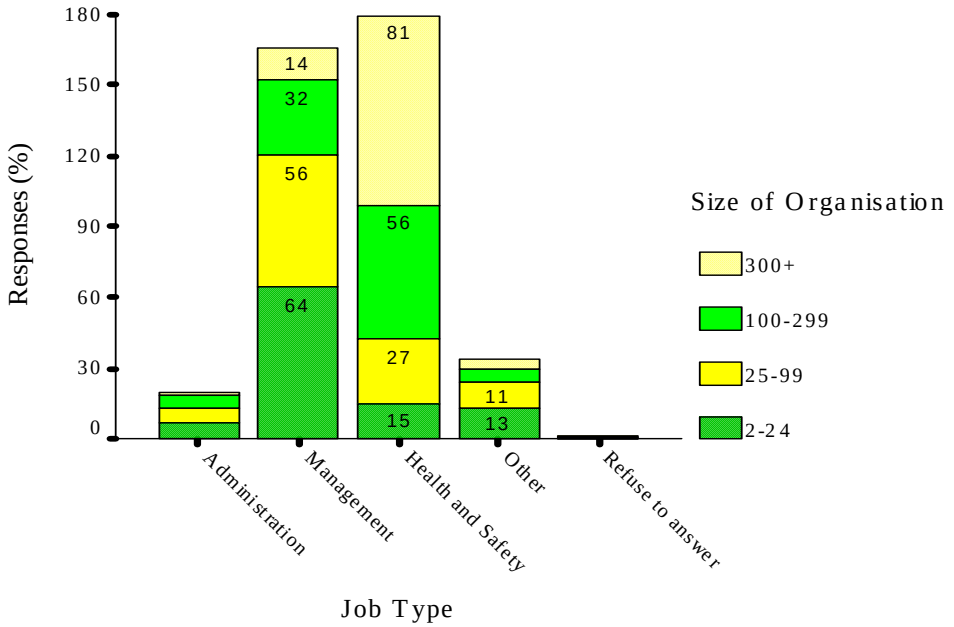


Figure 3.4: Type of jobs *by* size of organisation

Trade unions were more predominant in the public than in the private sector. Of the 417 organisations (35%) who reported that a trade union was at the workplace, 21 per cent of these were in the private sector and 66 per cent in the public sector. See Figure 3.5.

Figure 3.5: Trade union at workplace *by* sector

4 AWARENESS, KNOWLEDGE AND RELEVANCE OF THE REGULATIONS

Section four examines the awareness and extent of knowledge of the Health and Safety (Display Screen Equipment) Regulations by employers. The questions to assess this information centred on the following: the relevance and usefulness of the Regulations to businesses, the various organisations from which they access advice, and their confidence in complying with the Regulations.

4.1 AWARENESS OF THE REGULATIONS

In order to assess the awareness of the Regulations among employers, the businesses were asked, "*Are you or someone in your organisation aware of the Health and Safety (Display Screen Equipment) Regulations*?" The majority of businesses were aware of the Regulations (93%).

The awareness was less consistent among those businesses in the wholesale/retail trade, those in financial intermediation and those in health and social work. See Table 4.1.

The results comparing awareness of Regulations to main business activity were statistically significant, χ^2 (12) = 27.19, $p < .01$, indicating that awareness was associated with business activity.[5]

Table 4.1: Awareness of regulations *by* main business activity

	Awareness of Regulations		
Main Business Activity	***Yes (%)***	***No (%)***	***Total (N)***
Mining and quarrying	100	0	5
Manufacturing	96	4	145
Electricity, gas and water supply	100	0	7
Construction	96	4	55
Wholesale/retail trade; repair of motor vehicles, motorcycles/personal/household goods	91	9	273
Hotels and restaurants	100	0	26
Transport, storage and communication	96	4	74
Financial intermediation	86	14	125
Real estate, renting and business activities	95	5	116
Public administration and defence, compulsory social security	99	1	75
Education	95	5	114
Health and social work	92	8	147
Other community, social and personal service activities	97	3	69
Total (%)	93	7	
Total (*N*)	1150	81	1231

[5] *The chi-square (χ^2) test used in the analyses checked for the association between the two listed categorical variables. Cross tab tables, which provide crosstabulations, are used and highlight any differences between the variables, in this instance that some types of businesses were more aware than others.*

The findings showed also that small businesses were less aware of the Regulations, than medium or large-sized businesses. See Table 4.2.

The results comparing awareness of the Regulations to size of organisation were statistically significant, χ^2 (3) = 87.27, $p < .001$, indicating that awareness was associated with the size of the organisation.

Table 4.2: Awareness of regulations *by* size of organisation

	Awareness of Regulations		
Size of Organisation (N employees)	***Yes (%)***	***No (%)***	***Total (N)***
2-24	84	16	390
25-99	95	5	312
100-299	100	0	226
300+	99	1	303
Total (%)	93	7	
Total (*N*)	1150	81	1231

The majority of businesses across both sectors were aware of the Regulations, with very few businesses either in the public or private sectors indicating a lack of awareness. See Table 4.3.

Table 4.3: Awareness of regulations *by* sector

	Awareness of Regulations		
Sector	***Yes (%)***	***No (%)***	***Total (N)***
Public	94	6	373
Private	93	7	831
Total (%)	94	6	
Total (*N*)	1128	76	1204

4.2 KNOWLEDGE OF THE REGULATIONS

In order to determine the extent of knowledge among employers, the businesses were asked, "*Please indicate the extent of your knowledge of the Regulations by using a scale where 1 means 'have no knowledge at all' and 5 means 'have full knowledge'*." The majority of businesses stated they had a good deal of knowledge about the Regulations (60% - ratings 4 and 5 on the scale combined).

Some businesses in mining and quarrying; construction; wholesale/retail; transport, storage and communication; and other community, social and personal service activities stated that they lacked knowledge about the Regulations, and had fairly high neutral responses (rating 3) indicating that their knowledge base needs to increase. See Table 4.4.

The results comparing extent of knowledge of Regulations to main business activity were statistically significant, χ^2 (48) = 123.09, $p < .001$, indicating that extent of knowledge was associated with main business activity.

Table 4.4: Extent of knowledge of regulations *by* main business activity

	Knowledge of Regulations*					
Main business activity	***1 (%)***	***2 (%)***	***3 (%)***	***4 (%)***	***5 (%)***	***Total (N)***
Mining and quarrying	0	20	60	0	20	5
Manufacturing	0	4	24	42	30	139
Electricity, gas and water supply	0	14	0	57	29	7
Construction	2	6	30	43	19	53
Wholesale/retail trade; repair of motor vehicles, motorcycles/personal/household goods	1	6	42	33	19	248
Hotels and restaurants	0	0	23	54	23	26
Transport, storage and communication	3	4	30	32	31	71
Financial intermediation	0	6	32	34	29	107
Real estate, renting and business activities	0	4	29	40	27	110
Public administration and defence, compulsory social security	0	1	18	18	64	74
Education	0	6	24	35	35	108
Health and social work	0	3	23	34	40	135
Other community, social and personal service activities	0	10	39	31	19	67
Total (%)	<1	5	30	35	30	
Total (*N*)	5	57	344	402	342	1150

* 1 = have no knowledge at all; 5 = have full knowledge

The findings showed also that small and some medium-sized businesses were more likely to state that they had less extensive knowledge than those in large-sized businesses. See Table 4.5.

The results comparing extent of knowledge of Regulations to size of organisations were statistically significant, χ^2 (12) = 252.72, p < .001, indicating that extent of knowledge was associated with the size of the organisation.

Table 4.5: Extent of knowledge of regulations *by* size of organisation

	Knowledge of Regulations*					
Size of Organisation (N employees)	***1 (%)***	***2 (%)***	***3 (%)***	***4 (%)***	***5 (%)***	***Total (N)***
2-24	1	11	45	30	13	328
25-99	1	4	39	35	21	296
100-299	0	2	26	43	29	225
300+	0	1	8	34	58	301
Total (%)	<1	5	30	35	30	
Total (*N*)	5	57	344	402	342	1150

* 1 = have no knowledge at all; 5 = have full knowledge

Some businesses in the private sector, rather than those in the public sector, were more likely to state that they had less extensive knowledge of the Regulations, or provided higher neutral responses (rating 3), indicating that their knowledge base needs to increase. See Table 4.6.

The results comparing extent of knowledge of Regulations to sector were statistically significant, χ^2 (4) = 43.09, p < .001, indicating that extent of knowledge was associated with sector.

Table 4.6: Extent of knowledge of regulations *by* sector

	Knowledge of Regulations*					
Sector	***1 (%)***	***2 (%)***	***3 (%)***	***4 (%)***	***5 (%)***	***Total (N)***
Public	1	4	21	32	43	352
Private	0	6	34	36	24	776
Total (%)	<1	5	30	35	30	
Total (*N*)	5	57	336	393	337	1128

* 1 = have no knowledge at all; 5 = have full knowledge

To assess if the size of the organisations, i.e., larger organisations, was associated with knowledge within sectors, a cross tabulation was carried out with these three factors. The results showed that the level of stated knowledge differed among the smallest businesses between the public and private sector, χ^2 (4) = 23.19, $p < .001$, with those in the public sector having more knowledge. The extent of the perceived level of knowledge differed also between the sectors among those businesses with 25-99 employees, χ^2 (4) = 9.73, $p < 05$, with those in the public sector stating slightly higher levels of knowledge. Similarly, the extent of the stated level of knowledge was higher among those businesses in the public sector with 100-299 employees, χ^2 (3) = 10.90, $p < .01$. However, among the largest businesses (300+ employees) the stated knowledge levels were similar, χ^2 (3) = 3.06, $p > .05$. See Table 4.7.

Table 4.7: Extent of knowledge of regulations *by* sector *by* size of organisation

		Knowledge of Regulations*					
Size of Organisation (N employees)	***Sector***	***1 (%)***	***2 (%)***	***3 (%)***	***4 (%)***	***5 (%)***	***Total (N)***
2-24	Public	0	12	34	27	28	83
	Private	1	11	48	32	8	241
	Total	1	11	44	30	13	324
25-99	Public	3	5	33	31	29	80
	Private	0	4	41	37	18	206
	Total	1	4	38	35	21	286
100-299	Public	-	0	19	39	42	64
	Private	-	3	30	45	22	157
	Total	-	2	27	43	28	221
300+	Public	-	0	7	31	62	125
	Private	-	2	8	35	55	172
	Total	-	1	8	33	58	297

* 1 = have no knowledge at all; 5 = have full knowledge

4.3 SOURCES OF INFORMATION

The businesses were asked, "*Who do you go to for advice regarding display screen equipment and its use in the workplace?*" The participants were offered the six choices as listed below, and were able to select any of those that applied, so that the total number of responses exceeded the number of respondents, i.e. 1241. The majority of businesses (54%, *n* = 666) obtained advice from the Health and Safety Executive. Other choices included, external consultants or training organisations (37%, *n* = 455); manufacturers or suppliers of display screen equipment (27%, *n* = 337) and trade or sector organisations (16%, *n* = 203). The choice of advice providers differed across business activity with those in wholesale/retail and real estate using external consultants to a large extent, and those in health and social work using trade unions. See Table 4.8.

Table 4.8: Sources of advice *by* main business activity

	Sources of Advice (%)					
Main business activity	***Trade or sector organisations***	***Trade unions***	***Manufacturers or suppliers of DSE (Display Screen Equipment)***	***External consultants or training organisations***	***Health & Safety Executive / inspectors / advisors / departments***	***Local Authority / Environmental health inspectors***
Mining and quarrying	<1	0	<1	1	<1	0
Manufacturing	12	11	13	15	14	7
Electricity, gas and water supply	0	1	1	1	1	1
Construction	5	0	3	4	4	4
Wholesale/retail trade; repair of motor vehicles, motorcycles/personal/household goods	23	10	15	23	14	18
Hotels and restaurants	3	6	2	3	2	5
Transport, storage and communication	6	3	5	6	5	5
Financial intermediation	8	4	9	9	9	13
Real estate, renting and business activities	9	3	12	11	11	5
Public administration and defence, compulsory social security	3	15	9	6	8	9
Education	8	14	9	7	11	11
Health and social work	16	23	17	9	15	13
Other community, social and personal service activities	5	10	5	6	6	9
Total (%)	100	100	100	100	100	100
Total (*N*)	203	71	337	455	666	237

With respect to size of organisation, the results showed that the different sized businesses were fairly consistent in how they accessed advice, with a fairly even split across the different sized businesses. See Table 4.9. However, large-sized organisations were more likely to use trade unions and manufacturers or suppliers of display screen equipment to obtain advice.

Table 4.9: Sources of advice *by* size of organisation

	Sources of Advice (%)					
Size of Organisation (N employees)	***Trade or sector organisations***	***Trade unions***	***Manufacturers or suppliers of DSE (Display Screen Equipment)***	***External consultants or training organisations***	***Health & Safety Executive / inspectors / / advisors / departments***	***Local Authority Environmental health inspectors***
2-24	32	20	26	25	20	23
25-99	20	13	21	28	25	24
100-299	22	24	21	22	24	27
300+	26	44	33	25	32	26
Total (%)	100	100	100	100	100	100
Total (*N*)	203	71	337	455	666	237

The findings by sector showed that businesses in the private sector were more likely to seek advice from a variety of sources, while those in the public sector were more likely to seek advice from trade unions. See Table 4.10.

Table 4.10: Sources of advice *by* sector

	Sources of Advice (%)					
Sector	***Trade or sector organisations***	***Trade unions***	***Manufacturers or suppliers of DSE (Display Screen Equipment)***	***External consultants or training organisations***	***Health & Safety Executive / inspectors / advisors / departments***	***Local Authority / Environmental health inspectors***
Public	32	61	36	25	36	39
Private	68	39	64	75	64	61
Total (%)	100	100	100	100	100	100
Total (*N*)	202	71	330	445	652	234

Further analyses in respect of advice from trade unions showed that there was no statistical difference within the smallest-sized businesses (2-24 employees) between the public and private sectors, χ^2 (1) = 0.10, $p > .05$, in respect of whether of not they sought advice from trade unions; but businesses within the public sector with 25-99 employees were more likely to seek advise from trade unions than those businesses in the private sector, χ^2 (1) = 7.43, $p < .01$; as were those public sector businesses with 100-299 employees, χ^2 (1) = 11.61, $p < .001$; and those public sector businesses with 300 or more employees, χ^2 (1) = 11.60, $p < .001$.

4.4 RELEVANCE OF THE REGULATIONS

In order to gain an indication of how relevant the Regulations were to employers, the businesses were asked, "*How relevant do you find the Health and Safety (Display Screen Equipment) Regulations for daily work?*" They needed to respond on a five-point scale where 1 = not at all relevant and 5 = very relevant. The majority of businesses (62% - ratings 4 and 5 on the scale combined) found the Regulations relevant.

Those businesses in the mining and quarrying; wholesale/retail trade; and other community, social and personal service activities were less likely to find the Regulations relevant. See Table 4.11.

The results comparing relevance of Regulations to main business activity were statistically significant, χ^2 (48) = 80.15, $p < .01$, indicating that relevance was associated with main business activity.

Table 4.11: Relevance of regulations *by* main business activity

	Relevance of Regulations*					
Main business activity	***1 (%)***	***2 (%)***	***3 (%)***	***4 (%)***	***5 (%)***	***Total (N)***
Mining and quarrying	0	40	40	20	0	5
Manufacturing	0	5	28	35	33	138
Electricity, gas and water supply	0	14	14	29	43	7
Construction	0	6	31	33	31	52
Wholesale/retail trade; repair of motor vehicles, motorcycles/personal/household goods	4	13	24	31	28	242
Hotels and restaurants	4	4	15	42	35	26
Transport, storage and communication	3	9	19	32	38	69
Financial intermediation	2	9	23	34	32	107
Real estate, renting and business activities	0	4	25	37	35	109
Public administration and defence, compulsory social security	0	1	20	26	53	74
Education	1	4	24	37	34	107
Health and social work	1	4	16	38	40	134
Other community, social and personal service activities	3	17	29	26	25	65
Total (%)	2	8	24	33	34	
Total (*N*)	19	87	267	379	383	1135

* 1 = Not at all relevant, 5 = Very relevant

The findings, for the relevance of Regulations to businesses, showed that small to medium-seized businesses (2 - 99 employees) were less likely to find them relevant than larger sized businesses (100+ employees). See Table 4.12.

The results comparing relevance of Regulations by size of organisation were statistically significant, χ^2 (12) = 56.04, $p < .001$, indicating that relevance was associated with size of organisation.

Table 4.12: Relevance of regulations *by* size of organisation

	Relevance of Regulations*					
Size of Organisation (N employees)	***1 (%)***	***2 (%)***	***3 (%)***	***4 (%)***	***5 (%)***	***Total (N)***
2-24	4	12	30	27	27	320
25-99	2	7	25	34	32	291
100-299	<1	6	21	38	35	223
300+	0	5	17	36	42	301
Total (%)	2	8	24	33	34	
Total (*N*)	19	87	267	379	383	1135

* 1 = Not at all relevant, 5 = Very relevant

Some businesses in the private sector, rather than those in the public sector, were more likely to state that they had found the Regulations less relevant. See Table 4.13.

The results comparing relevance of Regulations by sector were statistically significant, χ^2 (4) = 22.32, $p < .001$, indicating that relevance was associated with sector.

Table 4.13: Relevance of regulations *by* sector

	Relevance of Regulations*					
Sector	***1 (%)***	***2 (%)***	***3 (%)***	***4 (%)***	***5 (%)***	***Total (N)***
Public	1	6	19	30	44	347
Private	2	8	25	35	29	766
Total (%)	2	8	23	34	34	
Total (*N*)	19	85	260	373	376	1113

* 1 = Not at all relevant, 5 = Very relevant

4.5 CONFIDENCE IN COMPLYING WITH THE REGULATIONS

So as to assess the confidence of employers in complying with the Regulations, the businesses were asked, "*How confident are you that your organisation has done all it needs to do to comply with the Health and Safety (Display Screen Equipment) Regulations?*" They needed to respond on a five-point scale where 1 = not at all confident and 5 = very confident. The majority of businesses were confident that they were doing all that they needed to do to comply with the Regulations (70% - ratings 4 and 5 on the scale combined). Only four per cent of businesses were not confident that they were doing all that they could in order to comply (ratings 1 and 2 on the scale combined).

Table 4.14 provides an overview of the breakdown according to main business activity, which shows that overall 64 per cent to 100 per cent of the different types of businesses were confident about their compliance levels.

The results comparing confidence in complying with the Regulations to main business activity were statistically significant, χ^2 (48) = 66.38, $p < .05$, indicating that compliance was associated with business activity.

Table 4.14: Confidence in complying *by* main business activity

	Confidence Levels*					
Main business activity	***1 (%)***	***2 (%)***	***3 (%)***	***4 (%)***	***5 (%)***	***Total (N)***
Mining and quarrying	0	0	20	60	20	5
Manufacturing	0	2	19	47	32	139
Electricity, gas and water supply	0	0	0	57	43	7
Construction	2	2	21	54	21	52
Wholesale/retail trade; repair of motor vehicles, motorcycles/personal/household goods	<1	4	18	47	30	245
Hotels and restaurants	0	0	19	46	35	26
Transport, storage and communication	0	6	14	51	29	69
Financial intermediation	0	3	19	44	34	106
Real estate, renting and business activities	1	3	10	50	36	110
Public administration and defence, compulsory social security	4	1	18	45	32	74
Education	0	6	26	54	15	108
Health and social work	1	5	31	44	20	132
Other community, social and personal service activities	1	4	19	55	19	67
Total (%)	1	4	20	48	28	
Total (*N*)	8	41	223	551	317	1140

* 1 = Not at all confident, 5 = Very confident

Table 4.15 shows that larger sized businesses, rather than smaller sized ones were slightly more likely to feel confident.

Table 4.15: Confidence in complying *by* size of organisation

	Confidence Levels*					
Size of Organisation (N employees)	***1 (%)***	***2 (%)***	***3 (%)***	***4 (%)***	***5 (%)***	***Total (N)***
2-24	1	4	20	45	30	323
25-99	1	6	20	48	25	291
100-299	1	2	17	54	26	225
300+	<1	3	20	48	30	301
Total (%)	1	4	20	48	28	
Total (*N*)	8	41	223	551	317	1140

* 1 = Not at all confident, 5 = Very confident

There was little difference between the private and the public sectors with respect to their confidence levels with the Regulations. See Table 4.16.

Table 4.16: Confidence in complying *by* sector

	Confidence Levels*					
Sector	***1 (%)***	***2 (%)***	***3 (%)***	***4 (%)***	***5 (%)***	***Total (N)***
Public	1	3	21	49	26	349
Private	<1	4	19	48	29	769
Total (%)	1	4	19	48	28	
Total (*N*)	8	40	218	542	310	1118

* 1 = Not at all confident, 5 = Very confident

4.6 CONCLUSIONS

The results showed that, overall, the awareness levels, knowledge levels, relevance levels and confidence in complying with the Regulations was relatively high. This was regardless of main business activity, size of organisation or sector. Further, just over half of the businesses used the HSE to get information on the Regulations. However, smaller sized businesses and those in the private sector did note slightly less awareness, extent of knowledge and confidence in the Regulations.

5 INFORMATION AND TRAINING

The present section addresses the information and training that employers provide to their employees in respect of preventing health risks and reducing health problems.

In order to consider whether or not employers provided information about health risks to employees, the businesses were asked, "*Are employees who are DSE users in your company given information about how to prevent the health risks associated with display screen work*?" The majority of businesses provided their employees with relevant information, either to all of the DSE users (78% of businesses) or to some users (8%).

An assessment of provision of information by awareness of the Regulations showed that the majority of those employers who were not aware did not provide information to their employees (67%). See Table 5.1

Table 5.1: Provision of information *by* awareness

	Provision of Information			
Awareness	***Yes - all DSE users (%)***	***Yes - some (%)***	***No (%)***	***Total (N)***
Yes	83	9	8	1144
No	25	8	67	79
Total (%)	79	9	12	
Total (*N*)	968	105	150	1223

A comparison was made between provision of information and relevance of the Regulations. In order to facilitate this comparison, the five responses in respect of relevance were reduced to three. Responses one and two were combined to reflect low relevance, response three was left as an indication of neither high nor low relevance and responses four and five were combined to reflect high relevance.

Table 5.2 illustrates that those employers who found that the Regulations were more relevant were more likely to provide their DSE users with information. Close to one-fifth of employers who thought that the Regulations were of low relevance did not provide information to their DSE users.

Table 5.2: Provision of information *by* relevance

	Provision of Information			
Relevance	***Yes - all DSE users (%)***	***Yes - some (%)***	***No (%)***	***Total (N)***
Low relevance	72	11	17	100
Neither	77	9	13	100
High relevance	87	8	5	100
Total (%)	83	9	8	100
Total (*N*)	939	98	92	1129

The provision of relevant information was less prevalent among those five businesses in the mining and quarrying sector, with 60 per cent providing such information. All of the seven businesses in the electricity, gas and water supply sector that responded to the survey gave all DSE users (100%) information. See Table 5.3.

The results comparing provision of information to main business activity were statistically significant, χ^2 (24) = 46.45, $p < .01$, indicating that the provision of information was associated with business activity, with some sectors providing more information than others.

Table 5.3: Provision of information *by* main business activity

	Provision of Information			
Main Business Activity	***Yes - all DSE users (%)***	***Yes - some (%)***	***No (%)***	***Total (N)***
Mining and quarrying	60	0	40	5
Manufacturing	82	13	5	146
Electricity, gas and water supply	100	0	0	7
Construction	69	16	15	55
Wholesale/retail trade; repair of motor vehicles, motorcycles/personal/household goods	77	5	18	274
Hotels and restaurants	88	8	4	26
Transport, storage and communication	74	13	13	76
Financial intermediation	81	6	13	124
Real estate, renting and business activities	81	4	15	117
Public administration and defence, compulsory social security	87	11	3	75
Education	77	10	13	114
Health and social work	79	9	12	144
Other community, social and personal service activities	77	10	13	69
Total (%)	79	9	13	
Total (*N*)	972	105	155	1232

A comparison was made between provision of information, awareness of the Regulations and main business activity. In order to facilitate this comparison, due to the small number of some businesses within each sector, the sectors were combined into three main groups of manufacturing, production and services.

Table 5.4 shows that those businesses within the manufacturing and production sectors that were not aware of the Regulations were less likely to provide information to their employees. Conversely, some businesses within the services sector even when not aware of the Regulations were more likely to provide information to their employees.

Table 5.4: Provision of information *by* main business activity *by* awareness

	Awareness of Regulations							
	Yes				***No***			
	Provision of information (%)							
Main business activity	*Yes - all DSE users*	*Yes - some*	*No*	*Total*	*Yes - all DSE users*	*Yes - some*	*No*	*Total*
Manufacturing	85	13	2	100	0	17	83	100
Other production	74	14	12	100	0	0	100	100
Services	83	8	9	100	28	7	65	100
Total (*%*)	83	9	8	100	25	8	67	100
Total (*N*)	948	99	97	1144	20	6	53	79

Across the three sectors, those employers who found the Regulations were relevant were more likely to provide information to their DSE users. See Table 5.5.

Table 5.5: Provision of information *by* main business activity *by* relevance

	Relevance of Regulations											
	Low				***Neither***				***High***			
	Provision of information (%)											
Main business activity	*Yes - all DSE users*	*Yes - some*	*No*	*Total*	*Yes - all DSE users*	*Yes - some*	*No*	*Total*	*Yes - all DSE users*	*Yes - some*	*No*	*Total*
Manufacturing	57	43	0	100	76	21	3	100	90	8	2	100
Other production	83	0	17	100	58	16	26	100	79	15	5	100
Services	72	10	18	100	79	7	14	100	87	8	6	100
Total (*%*)	72	11	17	100	77	9	13	100	87	8	5	100
Total (*N*)	76	12	18	106	205	25	35	265	658	61	39	758

The findings showed also that small businesses were less likely to provide employees with information about preventing health risks, than medium or large-sized businesses. See Table 5.6.

The results comparing provision of information to size of organisation were statistically significant, χ^2 (6) = 96.73, $p < .001$, indicating that provision of information was associated with the size of the organisation.

Table 5.6: Provision of information *by* size of organisation

	Provision of Information			
Size of Organisation (N employees)	***Yes - all DSE users (%)***	***Yes - some (%)***	***No (%)***	***Total (N)***
2-24	70	6	24	392
25-99	77	8	14	311
100-299	85	10	5	226
300+	88	11	1	303
Total (%)	79	9	13	
Total (*N*)	972	105	155	1232

An assessment of the provision of information with size of organisation and awareness of the Regulations shows that medium to large-sized organisations (100-299 employees) were the most likely to provide their DSE users with information even when not aware of the Regulations. See Table 5.7. Smaller-sized organisations (2-99 employees) were less likely to provide DSE users with information if they were not aware of the Regulations.

Table 5.7: Provision of information *by* size of organisation *by* awareness

	Awareness of Regulations							
	Yes				***No***			
		Provision of information (%)						
Size of Organisation (N employees)	*Yes - all DSE users*	*Yes - some*	*No*	*Total*	*Yes - all DSE users*	*Yes - some*	*No*	*Total*
2-24	79	6	16	100	25	8	67	100
25-99	81	9	11	100	19	6	75	100
100-299	85	10	5	100	100	0	0	100
300+	88	11	1	100	50	0	50	100
Total (%)	83	9	8	100	25	8	67	100
Total (*N*)	948	99	97	1144	20	6	53	79

The provision of information by employers when they found the Regulations were highly relevant was consistently high across all of the organisations regardless of size. See Table 5.8. However, larger organisations were more likely to provide their DSE users with information even when not thinking of the Regulations as highly relevant.

Table 5.8: Provision of information *by* size of organisation *by* relevance

	Relevance of Regulations											
	Low				***Neither***				***High***			
	Provision of information (%)											
Size of Organisation (N employees)	*Yes - all DSE users*	*Yes - some*	*No*	*Total*	*Yes - all DSE users*	*Yes - some*	*No*	*Total*	*Yes - all DSE users*	*Yes - some*	*No*	*Total*
2-24	76	8	16	100	74	6	20	100	83	5	12	100
25-99	62	12	27	100	74	8	18	100	87	8	5	100
100-299	64	14	21	100	83	11	7	100	87	10	3	100
300+	80	20	0	100	85	15	0	100	89	9	1	100
Total (%)	72	11	17	100	77	9	13	100	87	8	5	100
Total (*N*)	76	12	18	106	205	25	35	265	658	61	39	758

The majority of businesses across both sectors provided information to their employees. However, those in the public sector were slightly more likely to provide information to employees. See Table 5.9.

The results comparing provision of information by sector were statistically significant, χ^2 (2) = 6.86, $p < .05$, indicating that provision of information was associated with sector.

Table 5.9: Provision of information *by* sector

	Provision of Information			
Sector	***Yes - all DSE users (%)***	***Yes - some (%)***	***No (%)***	***Total (N)***
Public	78	12	11	372
Private	80	7	13	832
Total (%)	79	9	12	
Total (*N*)	953	103	148	1204

The assessment of provision of information by sector by awareness of the Regulations showed that employers in both the public and private sectors, who were aware of the Regulations, were consistent in providing DSE users with information. See Table 5.10. However, slightly fewer employers in the public sector, if they were not aware of the Regulations, did not provide their DSE users with information.

Table 5.10: Provision of information *by* sector *by* awareness

	Awareness of Regulations							
	Yes				***No***			
	Provision of information (%)				*Provision of information (%)*			
Size of Organisation (N employees)	*Yes - all DSE users*	*Yes - some*	*No*	*Total*	*Yes - all DSE users*	*Yes - some*	*No*	*Total*
Public	81	12	7	100	30	0	70	100
Private	84	7	9	100	26	7	67	100
Total (*%*)	83	9	8	100	27	5	68	100
Total (*N*)	930	99	93	1122	20	4	50	74

Table 5.11 reflects that the majority of employers in both sectors, if they perceived that the Regulations were relevant, provided their DSE users with information. However, slightly more employers in the public sector, if they thought of the Regulations as having low relevance, did not provide their DSE users with information.

Table 5.11: Provision of information *by* sector *by* relevance

	Relevance of Regulations											
	Low				***Neither***				***High***			
	Provision of information (%)											
Size of Organisation (N employees)	*Yes - all DSE users*	*Yes - some*	*No*	*Total*	*Yes - all DSE users*	*Yes - some*	*No*	*Total*	*Yes - all DSE users*	*Yes - some*	*No*	*Total*
Public	64	8	28	100	76	14	11	100	84	12	4	100
Private	75	13	13	100	79	8	13	100	88	6	6	100
Total (*%*)	72	12	16	100	78	10	12	100	87	8	5	100
Total (*N*)	75	12	17	104	201	25	32	258	645	61	39	745

In order to determine when employers provided information about health risks to employees, the businesses were asked, "*When would an employee be given such information*?" The respondents could select any or all of the three given choices. The majority of businesses provided their employees with relevant information on *commencement of employment* (75%) and *at regular intervals* (51%). Slightly fewer businesses gave employees information when *workstations were modified substantially* (45%).

Businesses in transport, storage and communication and real estate, renting and business activities sectors were more likely to give employees information at the start of employment. See Table 5.12. Moreover, businesses in the electricity, gas and water supply, as well as those in hotel and restaurant and transport, storage and communication sectors provided information at different times for employees.

Table 5.12: Time of providing information *by* main business activity

	When Information Provided		
Main Business Activity	***Start of employment (n, %)***	***Regular intervals (n, %)***	***Workstations modified (n, %)***
Mining and quarrying	(2) 67	(1) 33	(2) 67
Manufacturing	(118) 86	(86) 63	(68) 50
Electricity, gas and water supply	(6) 86	(5) 71	(4) 57
Construction	(34) 74	(27) 59	(15) 33
Wholesale/retail trade; repair of motor vehicles, motorcycles/personal/household goods	(175) 79	(124) 56	(108) 49
Hotels and restaurants	(22) 88	(17) 68	(16) 64
Transport, storage and communication	(60) 94	(40) 63	(39) 61
Financial intermediation	(96) 90	(55) 51	(65) 61
Real estate, renting and business activities	(91) 93	(61) 62	(53) 54
Public administration and defence, compulsory social security	(67) 92	(49) 67	(39) 53
Education	(86) 87	(61) 62	(55) 56
Health and social work	(115) 91	(75) 59	(64) 50
Other community, social and personal service activities	(54) 92	(31) 53	(32) 54
Total (*N*, %)	(926) 87	(632) 59	(560) 52

Smaller sized-businesses were slightly less likely to provide employees with information about preventing health risks, than medium or large-sized businesses. See Table 5.13.

Table 5.13: Time of providing information *by* size of organisation

	When Information Provided		
Size of Organisation (N employees)	***Start of employment (n, %)***	***Regular intervals (n, %)***	***Workstations modified (n, %)***
2-24	(232) 79	(149) 51	(154) 53
25-99	(223) 84	(158) 60	(127) 48
100-299	(195) 92	(131) 62	(113) 53
300+	(276) 93	(194) 65	(166) 56
Total (*N*, %)	(926) 87	(632) 59	(560) 52

The majority of businesses across both sectors provided information to their employees. There was little difference between the sectors in the provision of information to employees. See Table 5.14.

Table 5.14: Time of providing information *by* sector

	When Information Provided		
Sector	***Start of employment (n, %)***	***Regular intervals (n, %)***	***Workstations modified (n, %)***
Public	(303) 91	(202) 61	(182) 55
Private	(605) 85	(421) 59	(367) 51
Total (*N*, %)	(908) 87	(623) 60	(549) 52

In order to assess when employers provided training on arranging work stations to employees, the businesses were asked, "*Have employees who are DSE users in your company been given training on how to arrange their workstation in such a way as to avoid health problems?*" The majority of businesses provided their employees with relevant training, either to all of the DSE users (63% of businesses) or to some users (13%).

The provision of training was less prevalent among those businesses in the electricity, gas and water supply sector, with 57 per cent providing such training. Ninety-five per cent of the businesses in the public administration and defence sector provided their employees with the relevant training. See Table 5.15.

The results comparing provision of training by main business activity were statistically significant, χ^2 (24) = 88.84, $p < .001$, indicating that the provision of training was associated with business activity.

Table 5.15: Provision of training *by* main business activity

	Provision of Training			
Main Business Activity	***Yes - all DSE users (%)***	***Yes - some (%)***	***No (%)***	***Total (N)***
Mining and quarrying	80	0	20	5
Manufacturing	70	15	15	145
Electricity, gas and water supply	57	0	43	7
Construction	61	19	20	54
Wholesale/retail trade; repair of motor vehicles, motorcycles/personal/household goods	62	9	29	267
Hotels and restaurants	69	12	19	26
Transport, storage and communication	69	11	20	74
Financial intermediation	62	4	34	123
Real estate, renting and business activities	71	6	23	118
Public administration and defence, compulsory social security	57	37	5	75
Education	62	18	20	113
Health and social work	62	17	21	143
Other community, social and personal service activities	61	13	26	69
Total (%)	64	13	23	
Total (*N*)	780	160	279	1219

The results showed that small businesses were less likely to provide employees with training about arranging workstations, than medium or large-sized businesses. See Table 5.16.

The results comparing provision of training by size of organisation were statistically significant, χ^2 (6) = 131.53, $p < .001$, indicating that provision of training was associated with the size of the organisation.

Table 5.16: Provision of training *by* size of organisation

	Provision of Training			
Size of Organisation (N employees)	***Yes - all DSE users (%)***	***Yes - some (%)***	***No (%)***	***Total (N)***
2-24	56	6	38	387
25-99	62	10	28	305
100-299	68	19	13	225
300+	73	21	6	302
Total (%)	64	13	23	
Total (*N*)	780	160	279	1219

Over two-thirds of all sized organisations that found the Regulations highly relevant provided information to all their DSE users. See Table 5.17. Further, close to one-half of all organisations that perceived the Regulations as being of low relevance provided all of their DSE users with information. However, close to one-half of the smallest sized organisations (47%) that thought the Regulations were of low relevance did not provide any information to their DSE users.

Table 5.17: Provision of training *by* size of organisation *by* relevance

	Relevance of Regulations											
	Low				***Neither***				***High***			
	Provision of information (%)											
Size of Organisation (N employees)	*Yes - all DSE users*	*Yes - some*	*No*	*Total*	*Yes - all DSE users*	*Yes - some*	*No*	*Total*	*Yes - all DSE users*	*Yes - some*	*No*	*Total*
2-24	49	4	47	100	57	9	34	100	75	6	19	100
25-99	58	0	42	100	59	11	30	100	68	12	20	100
100-299	57	21	21	100	63	28	9	100	71	16	13	100
300+	53	20	27	100	67	31	2	100	76	18	6	100
Total (%)	49	4	47	100	57	9	34	100	75	6	19	100
Total (*N*)	55	8	41	104	157	45	58	260	550	101	102	753

The majority of businesses across both sectors provided training to their employees. However, those in the private sector were slightly more likely to provide training to employees. See Table 5.18.

The results comparing provision of training by sector were statistically significant, χ^2 (2) = 29.81, $p < .001$, indicating that provision of training was associated with sector.

Table 5.18: Provision of training *by* sector

	Provision of Training			
Sector	***Yes - all DSE users (%)***	***Yes - some (%)***	***No (%)***	***Total (N)***
Public	63	20	16	372
Private	65	10	25	820
Total (%)	64	13	22	
Total (*N*)	767	158	267	1192

In order to consider when employers provided training about arranging workstations to employees, the businesses were asked, "*When would an employee be given such information*?" The majority of businesses provided their employees with training on *commencement of employment* (65%). Fewer businesses trained employees *at regular intervals* (44%) and when *workstations were modified substantially* (41%).

The provision of training was less prevalent among those five businesses in the mining and quarrying sector (75%) than in other sectors. All of the seven businesses in the electricity, gas and water supply sector gave all DSE users (100%) training when they started work. See Table 5.19.

Table 5.19: Time of providing training *by* main business activity

	Time of Providing Training		
Main Business Activity	***Start of employment (n, %)***	***Regular intervals (n, %)***	***Workstations modified (n, %)***
Mining and quarrying	(3) 75	(2) 50	(2) 50
Manufacturing	(108) 88	(72) 59	(61) 50
Electricity, gas and water supply	(4) 100	(2) 50	(2) 50
Construction	(34) 79	(22) 51	(16) 37
Wholesale/retail trade; repair of motor vehicles, motorcycles/personal/household goods	(148) 78	(94) 50	(95) 50
Hotels and restaurants	(18) 86	(14) 67	(14) 67
Transport, storage and communication	(56) 95	(36) 61	(35) 59
Financial intermediation	(72) 89	(51) 63	(53) 65
Real estate, renting and business activities	(82) 90	(51) 56	(55) 60
Public administration and defence, compulsory social security	(64) 93	(43) 62	(36) 52
Education	(72) 80	(55) 61	(48) 53
Health and social work	(96) 86	(70) 63	(64) 57
Other community, social and personal service activities	(46) 90	(31) 61	(26) 51
Total (*N*, %)	(803) 86	(543) 58	(507) 54

While the majority of businesses provided employees with the appropriate training, small businesses were slightly less likely, than medium-sized or large-sized business to provide training to employees. See Table 5.20.

Table 5.20: Time of providing training *by* size of organisation

	Time of Providing Training		
Size of Organisation (N employees)	***Start of employment (n, %)***	***Regular intervals (n, %)***	***Workstations modified (n, %)***
2-24	(195) 81	(119) 49	(132) 55
25-99	(190) 86	(128) 58	(113) 51
100-299	(169) 87	(119) 61	(100) 52
300+	(249) 88	(177) 63	(162) 57
Total (*N*, %)	(803) 86	(543) 58	(507) 54

Businesses in both the public and private sectors provided their employees with training. There was little difference between the sectors in the provision of training to users. See Table 5.21.

Table 5.21: Time of providing training *by* sector

	Time of Providing Training		
Sector	***Start of employment (n, %)***	***Regular intervals (n, %)***	***Workstations modified (n, %)***
Public	(276) 89	(185) 60	(170) 55
Private	(516) 84	(353) 57	(328) 53
Total (*N*, %)	(789) 86	(538) 58	(498) 54

5.1 CONCLUSIONS

The results from this section showed that the majority of businesses provided employees with the relevant information to prevent the health risks associated with display screen equipment. However, there were differences in the provision of information across business activity, size of organisation and sector. Similarly, three-quarters of businesses provided employees with the information at the start of employment, but there were not any significant differences across business activities, size of organisation or sector.

The results showed also that businesses were less likely to provide training as opposed to information, sixty-three per cent provided training to all users, but seventy-eight per cent provided information to all users. Additionally, as with the previous findings, training provision was contingent upon business activity, size of organisation and sector.

6 USE OF DSE AND ROUTINE OF USERS

This section of the report assesses the patterns of businesses in their use of display screen equipment. The information requested ranged from the percentages of employees who use such equipment to the frequency with which it is used. The section will present also the various tasks for which the equipment is used, and the routine of the users.

6.1 USE OF DSE

Just over one-third of businesses (36%) had 67 - 100 per cent of permanent employees who worked always with display screen equipment. See Table 6.1. There were a limited number of businesses that had the majority of its permanent staff (67 - 100%) who worked occasionally (12%) or never (18%) with display screen equipment. Close to three-quarters of businesses (73%) had one-third of their employees who worked occasionally with display screen equipment.

Table 6.1: Percentage of permanent employees who work with display screen equipment

	Work patterns		
Percentage of Permanent Employees	***Always (N) %***	***Occasionally (N) %***	***Never (N) %***
≤ 33%	(535) 43	(909) 73	(843) 68
34-66%	(253) 20	(183) 15	(176) 14
67-100%	(450) 36	(146) 12	(219) 18
No response	(3) <1	(3) <1	(3) <1
Total	(1241) 100	(1241) 100	(1241) 100

In assessing the relationship between permanent employees who work with DSE and extent of knowledge, Table 6.2 shows that the extent of knowledge of the Regulations held by organisations does not seem to influence strongly the percentage of employees who always, occasionally or never work with DSE.

Table 6.2: Permanent employees who work with display screen equipment *by* knowledge

Work with a display screen	**Extent of Knowledge (%)**			
Always	*Limited*	*Neither*	*Extensive*	*Total*
≤ 33%	5	33	62	501
34-66%	5	26	69	239
67-100%	6	29	65	407
Total (*%*)	5	30	65	
Total (*N*)	62	344	741	1147
Occasionally				
≤ 33%	5	29	65	840
34-66%	6	32	62	177
67-100%	4	32	65	130
Total (*%*)	5	30	65	
Total (*N*)	62	344	741	1147
Never				
≤ 33%	5	29	66	774
34-66%	7	25	69	167
67-100%	4	39	57	206
Total (*%*)	5	30	65	
Total (*N*)	62	344	741	1147

The participants were asked to state the main tasks for which the staff used display screen equipment as a significant part of their normal work. They were provided with the options of, *word processing*, *desktop publishing*, *data entry*, *CAD/CAM*, *process control* and *Internet-based work*. They could select as many of those that applied as well as list any others that were pertinent.

The businesses noted that their staff mainly used the equipment for such tasks as word processing (90%), data entry (91%) and Internet-based work (71%). See Table 6.3 for the full listing.

Table 6.3: Main tasks that require staff to routinely use display screen equipment as a significant part of their normal work

Main Tasks	***n***	**%**
Word processing	1116	90
Desktop publishing	520	42
Data entry	1126	91
CAD/CAM	335	27
Process control	501	40
Internet-based work	881	71
Spreadsheets/Excel	28	2
Database	16	1
E-mail	14	1
Financial task e.g. Insurance/accounting	42	3
CCTv/Security Cameras	3	<1
Programming	4	<1
Stock Control	7	1
Teaching/Education/Lesson planning	8	1
Till/Checkout operation	8	1
Research/surveys	5	<1
Other	84	7
None	6	<1

Some of the results are surprising. For example, "process control" seems to be rather high at 40 per cent. One reason for this may be that respondents were interpreting it more widely than the sense in which it was intended, i.e. DSE that is directly linked into a production facility and used to monitor and control machinery or industrial processes. Conversely, the use of "e-mail" seems to be very low at only one per cent. This may be due to employers being reluctant to acknowledge how much staff time is used on this process; or they may have regarded it as included in the category "internet-based work".

The participants were asked also to comment on non-permanent staff with the following question, "*Is there anybody **not** permanently employed by your organisation that uses equipment owned or supplied by you*?" The participants could select as many categories of non-permanent staff as applied to their business. The majority of businesses (57%) did not have non-permanent staff, using display screen equipment owned or supplied by the business. Those businesses that employed non-permanent staff who used the businesses' display screen equipment, included *temporary or agency staff employed by an agency* (29% of businesses), *individuals on short-term contract of less than six months* (17%), *sub-contractors* (10%), *self-employed temporary or agency staff* (7%), *other self-employed* (6%) and *students/work placements/experience* (4%).

6.2 DAILY ROUTINE OF DSE USERS

The following question was asked of businesses to obtain an indication of the intensity of work with display screen equipment, "*Do any of the jobs in your workplace involve spells of intensive display screen equipment work, for example, work that has no natural breaks such as continuous data entry?*" The findings showed that less than one-quarter (22%) of businesses had jobs involving intensive work. Of these businesses the majority of the staff doing these jobs (99%) were allowed to take breaks or have a change in activity. The breaks lasted from 2 minutes every hour to 30 minutes every 4 hours.

A comparison between the allowance of breaks and the employers' awareness of the Regulations (for those businesses with intensive work) showed that the employers stated that their staff were allowed to take breaks regardless of their awareness of the Regulations, χ^2 (1) = 0.09, $p > .05$. For example, even though four per cent of employers were not aware of the Regulations, they stated that they did not hinder staff from going on a break. See Table 6.4.

Table 6.4: Allowance of staff breaks *by* awareness of regulations

	Employers' Awareness of Regulations		
Staff allowed to take breaks or change activity	***Yes (%)***	***No (%)***	***Total (n)***
Yes	96	4	278
No	100	0	2
Total (%)	96	4	
Total (*n*)	268	12	280

Businesses with intensive work reported the most common arrangement was for staff to take regular breaks (55%), with 38 per cent taking irregular breaks that were dependent on the individual and seven per cent taking breaks that were dependent on the work pattern.

The businesses were asked about those issues that affect the work routine of all DSE users, specifically, "*Which of the following occur with regard to work routines of all DSE users?*" The six issues assessed were in respect of, 1) *supervisor/manager reminds staff to take breaks from screen work*, 2) *it is left to employee's discretion to take breaks/change activities*, 3) *jobs have been redesigned to incorporate non-screen work*, 4) *guidance is issued but it is not compulsory*, 5) *reminders for breaks are programmed into the software*, and 6) *breaks occur naturally in the work anyway*. The participants could select as many as applied to their organisations.

The results showed that it was mainly left to the employees' discretion to take breaks, for example employers with 67 to 100 per cent of workers who always work with DSE noted that 82 per cent of their workers took breaks at their discretion. The other main influencing factor was that the breaks occurred naturally due to the work. Supervisors and managers did remind staff to take breaks, but this occurred in fewer than half the businesses surveyed. There were few companies that incorporated programmed software to help workers incorporate breaks into their work tasks. See Table 6.5.

Table 6.5: Time spent working with DSE *by* issues influencing work routines of DSE users

Proportion of Time Spent Working with DSE	**Issues Influencing Changes in the Work Routines of DSE Users**					
	Supervisor /manager % (n)	***Employees' discretion % (n)***	***Jobs redesigned % (n)***	***Guidance % (n)***	***Software % (n)***	***Natural Breaks % (n)***
Always						
0%	29 (19)	71 (47)	20 (13)	32 (21)	2 (1)	85 (56)
1-33%	41 (189)	80 (371)	33 (154)	51 (234)	7 (32)	81 (374)
34-66%	44 (111)	78 (197)	35 (87)	52 (130)	4 (10)	82 (207)
67-100%	43 (194)	82 (369)	28 (127)	55 (248)	4 (20)	81 (365)
Total	42 (513)	80 (984)	31 (381)	52 (633)	5 (63)	82 (1002)
Occasionally						
0%	34 (102)	81 (240)	22 (65)	46 (137	4 (11)	80 (238)
1-33%	44 (266)	78 (475)	32 (195)	54 (328)	6 (37)	82 (497)
34-66%	46 (84)	81 (149)	42 (77)	56 (103)	4 (8)	79 (145)
67-100%	42 (61)	83 (120)	31 (44)	45 (65)	5 (7)	85 (122)
Total	42 (513)	80 (984)	31 (381)	52 (633)	5 (63)	82 (1002)

6.3 CONCLUSIONS

The results in this section highlighted that just over one-third of businesses had between 67 to 100 per cent of their employees who work always with display screen equipment. The businesses noted that the main tasks for which the equipment was used were word processing, data entry, Internet-based work and desktop publishing. Very few businesses noted tasks such as stock control, research/surveys or programming.

Less than one-quarter of businesses reported intensive display screen jobs, for example work without any natural breaks. The majority of those employees who worked intensely with display screen equipment were allowed to take breaks. Moreover, the majority of all users of display screen equipment were said to take breaks at their discretion, although their supervisors or managers reminded them to take breaks from screen work.

7 PERCEIVED RISKS

The following section examines the perceived risks that are associated with using display screen equipment. The risks assessed were varied, and ranged from *health problems of upper limb discomfort* to *epilepsy* and *health damage from radiation*.

One question, with various options, was used to gather information on perceived risks. Employers were asked, "*In this question we are trying to find out your perceptions of the risks (real or otherwise) associated with use of display screen equipment. In your opinion, which of the following health problems may be caused by the use of display screen equipment?*"

Most respondents felt that the main risks were *upper limb pains and discomfort* (81%), *temporary eyestrain leading to symptoms such as red or sore eyes or headaches* (88%), *tiredness and stress* (83%) and *back pain* (81%). Very few respondents thought that health problems were inclusive of *skin complaints* (14%), *health damage from radiation* (8%), or *miscarriages and birth defects* (5%). Across all of the categories, less than one per cent of respondents declined to answer. However, 11 per cent of respondents were unsure if epilepsy was an associated risk, as were eight per cent in respect of miscarriages and birth defects.

The researchers assessed also the different perceptions of the risks associated with display screen equipment by the job types of the respondents to provide an indication of the knowledge base by job activity. The respondents were asked to state which of the health problems in their opinion may be caused by the use of display screen equipment, where 1 = No and 2 = Yes. The results are presented graphically in Figure 7.1. Those individuals who were in health and safety related jobs, as well as those who refuse to define their jobs were more likely to believe that the higher risks of using display screen equipment were back pain, temporary eye strain, upper limb pains and tiredness/stress. They were also less likely to believe that epilepsy, skin complaints, miscarriages, and health problems from radiation were risks associated with display screen equipment. The perception of whether or not permanent eye and eyesight effects were a risk differed among the groups with those in health and safety jobs more likely to regard it as a risk.

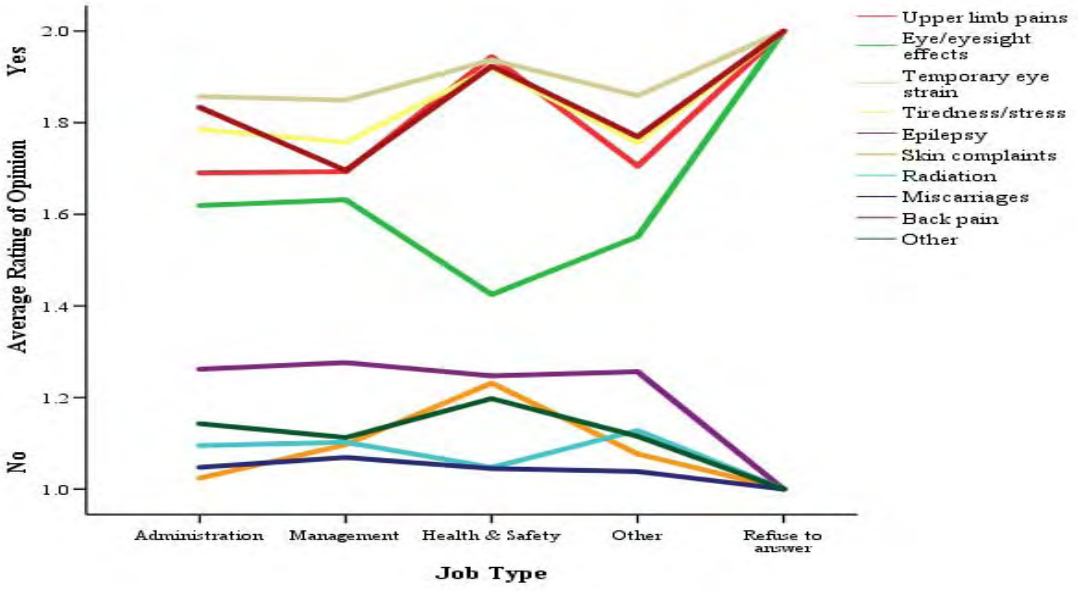


Figure 7.1: Perceived risks *by* job type (average ratings)

Similarly, an analysis of perceived risks by the extent of knowledge of the Regulations, showed that those with more knowledge were more likely to identify the risks as upper limb pains, temporary eye strain, tiredness and stress, and back pain. The situation for permanent eye and eyesight effects was a little different. Rather surprisingly, those claiming full knowledge of the Regulations, and those in health and safety jobs were the groups most likely to regard permanent eye and eyesight effects as a risk in DSE work. See Figure 7.2.

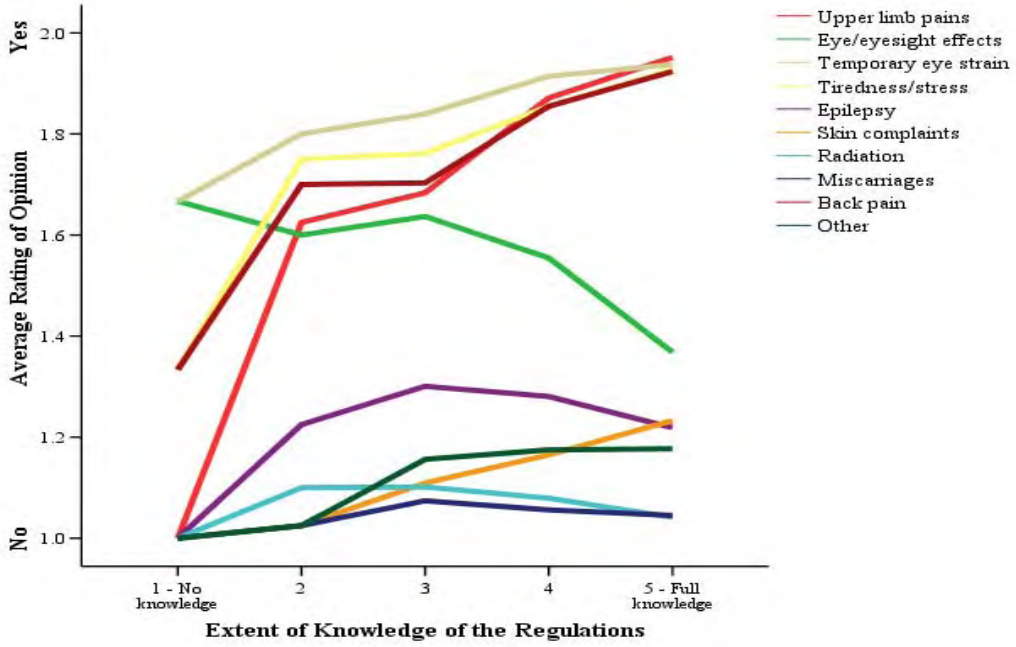


Figure 7.2: Perceived risks *by* knowledge of regulations (average ratings)

7.1 CONCLUSIONS

Overall, most of the participants were aware of the risks associated with display screen equipment, and this is reflected in the high ratings attributed to those perceived risks. One interesting finding was the lack of clarity by some individuals in respect of the association between display screen equipment with epilepsy and with miscarriages and birth defects. It is important to note that the more common risks associated with DSE work include upper limb disorders, backache, fatigue and stress, and temporary eyestrain and headaches. There is a lack of research to support other occurrences such as epilepsy, miscarriages or birth defects.

The analysis by job type seems to reveal overall that those individuals working in health and safety related fields, as well as those who refused to disclose their job type, were more likely to be aware of the risks associated with the use of display screen equipment. Additionally, they were more likely to be aware of those risks that were not associated with using display screen equipment. Those who claimed to have more knowledge of the Regulations were more likely to select higher ratings for the awareness of the risks associated with working with display screen equipment.

8 EYES AND EYESIGHT

Section eight examines the extent to which employers provide eyesight tests to employees within their establishments. The information focuses on the ways in which the tests are supplied and their frequency.

8.1 PROVISION OF EYESIGHT TESTS FOR DSE USERS

So as to determine the availability of eyesight tests employers were asked, "*Do you provide eyesight tests for users of display screen equipment?*" They could select as many of the six choices as applied. The duty for employers under the Regulations is to provide eyesight tests to users who request them, and the question in the present research does not distinguish between whether or not the users requested eyesight tests. The majority of businesses (75%) provided eyesight tests for their employees. Just under half of the businesses (46%) allowed the users to make their own arrangement for the tests for which they were reimbursed. Just over one-quarter of businesses (26%) had arrangements in place with local opticians, and 16 per cent used a voucher scheme.

The assessment by main business activity showed that the majority of businesses provided the tests at different times, dependant on the request of the user or on the use of equipment. See Table 8.1. However, tests were offered mainly on the request of the users after they started display screen work.

Table 8.1: Provision of eyesight tests for users *by* main business activity

	Provision of eyesight tests for users *						
Main business activity	***1 (%)***	***2 (%)***	***3 (%)***	***4 (%)***	***5 (%)***	***6 (%)***	***Total (N)***
Mining and quarrying	20	60	0	0	20	40	5
Manufacturing	27	52	22	35	31	17	144
Electricity, gas and water supply	57	71	0	29	14	29	7
Construction	20	31	28	26	31	22	54
Wholesale/retail trade; repair of motor vehicles, motorcycles/personal/household goods	24	42	15	20	24	36	272
Hotels and restaurants	25	54	21	25	38	33	24
Transport, storage and communication	35	58	23	24	34	18	74
Financial intermediation	19	44	20	33	27	33	124
Real estate, renting and business activities	24	47	19	24	37	18	117
Public administration and defence, compulsory social security	42	69	36	36	41	0	74
Education	29	52	17	25	34	20	114
Health and social work	34	49	23	32	37	18	146
Other community, social and personal service activities	24	41	9	19	31	29	68
Total (%)	27	48	20	27	31	24	
Total (*N*)	333	590	242	328	384	292	1223

* 1 = Yes, on request of user, before starting display screen work, 2 = Yes, on request of user, after starting display screen work, 3 = Yes, for all employees using display screen equipment, before starting display screen work, 4 = Yes, for all employees using display screen equipment, after starting display screen work, 5 = Yes, if they experience visual difficulties due to display screen work, 6 = No.

The findings by size of organisation showed that half of all small-sized businesses did not offer eyesight tests, while only three per cent of businesses with 300 or more employees did not offer such tests. See Table 8.2. The most popular time to offer tests across all sized businesses was on the request of the user, after starting display screen work.

Table 8.2: Provision of eyesight tests for users *by* size of organisation

	Provision of eyesight tests for users *						
Size of Organisation (N employees)	***1 (%)***	***2 (%)***	***3 (%)***	***4 (%)***	***5 (%)***	***6 (%)***	***Total (N)***
2-24	17	28	17	16	20	50	391
25-99	28	49	18	26	30	24	308
100-299	33	60	25	39	41	7	225
300+	35	64	21	33	41	3	299
Total (%)	27	48	20	27	31	24	
Total (*N*)	333	590	242	328	384	292	1223

* 1 = Yes, on request of user, before starting display screen work, 2 = Yes, on request of user, after starting display screen work, 3 = Yes, for all employees using display screen equipment, before starting display screen work, 4 = Yes, for all employees using display screen equipment, after starting display screen work, 5 = Yes, if they experience visual difficulties due to display screen work, 6 = No.

Businesses operating within the private sector were slightly more likely not to offer eyesight tests to users (26%) than those within the public sector (18%). See Table 8.3.

Table 8.3: Provision of eyesight tests for users *by* sector

	Provision of eyesight tests for users *						
Sector	***1 (%)***	***2 (%)***	***3 (%)***	***4 (%)***	***5 (%)***	***6 (%)***	***Total (N)***
Public	35	52	25	31	36	18	370
Private	24	46	18	24	29	26	825
Total (%)	27	48	20	27	31	24	
Total (*N*)	327	577	239	317	376	282	1195

* 1 = Yes, on request of user, before starting display screen work, 2 = Yes, on request of user, after starting display screen work, 3 = Yes, for all employees using display screen equipment, before starting display screen work, 4 = Yes, for all employees using display screen equipment, after starting display screen work, 5 = Yes, if they experience visual difficulties due to display screen work, 6 = No.

In order to assess those organisations offering preventive tests (categories 3 and 4 in the above listed responses) and those offering reactive tests (categories 1, 2 and 5), these categories were combined individually and the results showed that 62 per cent of businesses provided reactive tests, while 34 per cent provided preventive tests. An evaluation of the differences in respect of size of organisation showed that larger organisations were more likely than smaller organisations to provide either reactive or preventive tests. See Tables 8.4 and 8.5.

Table 8.4: Provision of eyesight tests (reactive) *by* size of organisation

	Reactive Tests		
Size of Organisation (N employees)	***Provide tests (%)***	***Do not provide tests (%)***	***Total (N)***
2-24	40	60	396
25-99	61	39	314
100-299	77	23	228
300+	79	21	303
Total (%)	62	38	
Total (*N*)	768	473	1241

Table 8.5: Provision of eyesight tests (preventive) *by* size of organisation

	Preventive Tests		
Size of Organisation (N employees)	***Provide tests (%)***	***Do not provide tests (%)***	***Total (N)***
2-24	23	77	396
25-99	32	68	314
100-299	44	56	228
300+	41	59	303
Total (%)	34	66	
Total (*N*)	416	825	1241

The participants were asked, "*What proportion of display screen equipment users do you estimate have received eyesight tests in the last 12 months (by registered ophthalmic optician)?*" Across all of the businesses close to half of them (45%) acknowledged that one-third or less users had received eyesight tests over the last 12 months. Over one-third of businesses did not respond to the question (38%).

In respect of the receipt of eyesight tests by employees working in different types of businesses, the results showed that employees working within the listed five businesses in electricity, gas and water supply sector were more likely to receive eyesight tests than employees in other sectors. See Table 8.6. Those employees working within those 39 businesses within construction, education and health and social work, that provided information, were less likely to receive eyesight tests.

Table 8.6: Proportion of users receiving eyesight tests *by* main business activity

	Proportion of Users Receiving Eyesight Tests (%)				
Main Business Activity	***0%***	***1- 33%***	***34-66%***	***67-100%***	***Total (N)***
Mining and quarrying	0	100	0	0	2
Manufacturing	11	59	15	15	105
Electricity, gas and water supply	0	20	40	40	5
Construction	18	72	8	3	39
Wholesale/retail trade; repair of motor vehicles, motorcycles/personal/household goods	19	60	14	8	154
Hotels and restaurants	20	47	13	20	15
Transport, storage and communication	4	70	12	14	50
Financial intermediation	5	64	15	16	62
Real estate, renting and business activities	11	53	21	15	73
Public administration and defence, compulsory social security	2	58	25	15	55
Education	7	74	13	6	70
Health and social work	12	64	14	11	94
Other community, social and personal service activities	12	62	10	17	42
Total (%)	11	62	15	12	
Total (*N*)	85	476	114	91	766

The inclusion of awareness into the analysis shows that all of the businesses in the manufacturing sector that stated that they were aware of the Regulations, also stated that varying proportions of their users received eyesight tests. See Table 8.7. One-fifth of the employers in the services sector who were not aware of the Regulations stated that over two-thirds of their users received eyesight tests.

Table 8.7: Proportion of users receiving eyesight tests *by* main business activity *by* awareness

	Awareness									
	Yes					***No***				
	Received eyesight tests (%)									
Main business activity	*0%*	*1- 33%*	*34-66%*	*67-100%*	*Total*	*0%*	*1- 33%*	*34-66%*	*67-100%*	*Total*
Manufacturing	10	60	15	15	100	-	-	-	-	-
Other production	13	69	11	7	100	100	0	0	0	100
Services	10	63	15	11	100	20	50	10	20	100
Total (%)	11	63	15	12	100	24	48	10	19	100
Total (*N*)	78	465	111	87	741	5	10	2	4	21

The extent of knowledge of the Regulations does not seem to have a strong impact on whether or not employers across the three main sectors state that users receive eyesight tests. See Table 8.8.

Table 8.8: Proportion of users receiving eyesight tests *by* main business activity *by* knowledge

	Extent of knowledge														
	Limited					***Neither***					***Extensive***				
	Received eyesight tests														
Main business activity	*0%*	*1-33%*	*34-66%*	*67-100%*	*Total*	*0%*	*1-33%*	*34-66%*	*67-100%*	*Total*	*0%*	*1-33%*	*34-66%*	*67-100%*	*Total*
Manufacturing	0	33	33	33	100	24	57	14	5	100	6	61	15	18	100
Other production	20	60	20	0	100	44	56	0	0	100	3	74	13	10	100
Services	30	61	4	4	100	14	59	13	13	100	8	64	17	11	100
Total (%)	26	58	10	6	100	17	59	13	12	100	7	64	16	12	100
Total (*N*)	8	18	3	2	31	31	107	23	21	182	39	340	85	64	528

Employees in large-sized businesses were more likely to receive eyesight tests than those in smaller-sized businesses. See Table 8.9

Table 8.9: Proportion of users receiving eyesight tests *by* size of organisation

	Proportion of Users Receiving Eyesight Tests (%)				
Size of Organisation (N employees)	***0%***	***1-33%***	***34-66%***	***67-100%***	***Total (N)***
2-24	22	49	13	16	179
25-99	15	62	12	11	196
100-299	7	70	15	8	172
300+	1	67	19	13	219
Total (%)	11	62	15	12	
Total (*N*)	85	476	114	91	766

The lack of awareness of the Regulations may have had an impact on the smallest-sized businesses as 36 per cent of those with between 2-24 employees, that indicated that they were not aware of the Regulations, stated that they did not have any users who received eyesight tests. See Table 8.10.

Table 8.10: Proportion of users receiving eyesight tests *by* size of organisation *by* awareness

	Awareness									
	Yes					***No***				
	Received eyesight tests									
Size of Organisation (N employees)	*0%*	*1-33%*	*34-66%*	*67-100%*	*Total*	*0%*	*1-33%*	*34-66%*	*67-100%*	*Total*
2-24	21	51	13	15	100	36	29	7	29	100
25-99	15	61	13	11	100	0	100	0	0	100
100-299	7	70	15	8	100	0	100	0	0	100
300+	1	67	18	13	100	0	50	50	0	100
Total (%)	21	51	13	15	100	36	29	7	29	100
Total (*N*)	78	465	111	87	741	5	10	2	4	21

The extent of knowledge of the Regulations does not seem to have a strong impact on whether or not employers in different sized organisations state that users receive eyesight tests. See Table 8.11.

Table 8.11: Proportion of users receiving eyesight tests *by* size of organisation *by* knowledge

	Extent of knowledge														
	Limited					***Neither***					***Extensive***				
	Received eyesight tests														
Size of Organisation (N employees)	*0%*	*1-33%*	*34-66%*	*67-100%*	*Total*	*0%*	*1-33%*	*34-66%*	*67-100%*	*Total*	*0%*	*1-33%*	*34-66%*	*67-100%*	*Total*
2-24	22	61	6	11	100	27	49	8	16	100	16	50	18	16	100
25-99	38	63	0	0	100	19	59	10	12	100	11	63	15	11	100
100-299	33	33	33	0	100	2	71	19	7	100	8	70	14	8	100
300+	0	50	50	0	100	0	67	33	0	100	1	67	17	14	100
Total (%)	26	58	10	6	100	17	59	13	12	100	7	64	16	12	100
Total (*N*)	8	18	3	2	31	31	107	23	21	182	39	340	85	64	528

There was not much difference between the public and private sector for employees receiving eyesight tests. See Table 8.12.

Table 8.12: Proportion of users receiving eyesight tests *by* sector

	Proportion of Users Receiving Eyesight Tests (%)				
Sector	***0%***	***1- 33%***	***34-66%***	***67-100%***	***Total (N)***
Public	5	70	14	11	230
Private	13	59	15	12	522
Total (%)	11	62	15	12	
Total (*N*)	80	469	113	90	752

A lack of awareness of the Regulations may have had an impact on some businesses in the private sector as 29 per cent of those that were not aware noted that none of their users had received eyesight tests. See Table 8.13.

Table 8.13: Proportion of users receiving eyesight tests *by* sector *by* awareness

	Awareness									
	Yes					***No***				
	Received eyesight tests									
Sector	*0%*	*1-33%*	*34-66%*	*67-100%*	*Total*	*0%*	*1-33%*	*34-66%*	*67-100%*	*Total*
Public	5	70	15	10	100	0	67	0	33	100
Private	13	60	15	12	100	29	43	14	14	100
Total (*%*)	10	63	15	12	100	20	50	10	20	100
Total (*N*)	75	458	110	86	729	4	10	2	4	20

The extent of knowledge of the Regulations does not seem to have a strong impact on whether or not employers in the two sectors state that users receive eyesight tests. See Table 8.14.

Table 8.14: Proportion of users receiving eyesight tests *by* sector *by* knowledge

	Extent of knowledge														
	Limited					***Neither***					***Extensive***				
	Received eyesight tests														
Sector	*0%*	*1-33%*	*34-66%*	*67-100%*	*Total*	*0%*	*1-33%*	*34-66%*	*67-100%*	*Total*	*0%*	*1-33%*	*34-66%*	*67-100%*	*Total*
Public	14	86	0	0	100	7	69	14	10	100	4	70	15	11	100
Private	29	50	13	8	100	20	56	12	12	100	9	62	17	13	100
Total (*%*)	26	58	10	6	100	17	59	13	12	100	7	64	16	12	100
Total (*N*)	8	18	3	2	31	30	106	23	21	180	37	334	84	63	518

The participants were asked to comment specifically on the timescale since tests had been offered, "*When did your organisation first provide eyesight testing for users of display screen equipment*?" Most organisations (48%) first provided tests over five years ago. However, one-quarter of participants did not respond and a few (4%) were unsure about the time period.

An assessment across main business activity showed that businesses within the hotel and restaurant sector were more likely to start offering tests at a later time than other businesses. Further, businesses operating within public administration and defence/compulsory social security, electricity, gas and water supply and manufacturing had a longer history of offering eyesight tests. See Table 8.15.

Table 8.15: Time since providing eyesight tests *by* main business activity

	Period First Provided Tests				
Main Business Activity	***≤ 3 years***	***3 - 5 five years***	***> 5 years***	***Not applicable***	***Total (N)***
Mining and quarrying	0	0	100	0	3
Manufacturing	10	14	76	1	111
Electricity, gas and water supply	0	20	80	0	5
Construction	26	23	44	8	39
Wholesale/retail trade; repair of motor vehicles, motorcycles/personal/household goods	20	19	59	2	164
Hotels and restaurants	47	20	33	0	15
Transport, storage and communication	14	17	68	2	59
Financial intermediation	11	16	72	1	75
Real estate, renting and business activities	14	14	69	3	95
Public administration and defence, compulsory social security	4	7	87	1	70
Education	10	16	72	2	88
Health and social work	12	17	66	5	109
Other community, social and personal service activities	7	26	61	7	46
Total (%)	13	16	67	3	
Total (*N*)	118	144	593	24	879

Table 8.16 shows that small-sized businesses were less likely to have offered eyesight tests for a longer period than medium-sized or large-sized businesses.

Table 8.16: Time since providing eyesight tests *by* size of organisation

	Period First Provided Tests				
Size of Organisation (N employees)	***≤ 3 years***	***3 - 5 five years***	***> 5 years***	***Not applicable***	***Total (N)***
2-24	22	20	49	9	184
25-99	20	24	54	1	217
100-299	8	15	76	1	203
300+	6	9	84	1	275
Total (%)	13	16	67	3	
Total (*N*)	118	144	593	24	879

Businesses within the public sector were more likely, than those within the private sector, to have provided eyesight tests over a longer period of time. See Table 8.17.

Table 8.17: Time since providing eyesight tests *by* sector

	Period First Provided Tests				
Sector	***≤ 3 years***	***3 - 5 five years***	***> 5 years***	***Not applicable***	***Total (N)***
Public	7	13	77	3	290
Private	17	18	62	3	572
Total (%)	14	16	67	3	
Total (*N*)	118	140	580	24	862

The businesses were asked to state, "*What proportion of individuals having had an eyesight test do you estimate have been prescribed spectacles for use specifically with display screen equipment*?" Most businesses (52%), had one-third or less of employees who were prescribed spectacles. Quite a few participants (42%) did not respond to the question. An assessment of the relationship[6] between having spectacles prescribed and the frequency of using display screen equipment showed that a significant relationship did not exist between those who always work with a display screen, $r = 0.06$, $p > .05$; $n = 718$, between those who occasionally work with a display screen, $r = 0.06$, $p > .05$; $n = 718$, nor between those who never work with a display screen, $r = -0.07$, $p > .05$; $n = 718$. These results imply that the use of DSE may not influence the need to have spectacles prescribed.

[6] *A correlation analysis was the statistical procedure used to test these relationships. This is a measure of the association between the two tested variables, to check if the occurrence of one activity affects, or does not affect directly the other activity. The relationship (r) is expressed in figures ranging from 0 (a random relationship) to 1 (a perfect linear relationship) or -1 (a perfect negative linear relationship).*

8.2 CONCLUSIONS

Although the majority of businesses provided eyesight tests for users of display screen equipment, there are still one-quarter of businesses that do not. The number of businesses not offering this service increases to one-half among small-sized businesses. Further, there were slightly fewer businesses in the private sector than in the public sector that tended to provide tests for users. The most frequently reported circumstance in which eyesight tests were provided was when the user had requested a test.

Just over one-third of businesses did not provide information on whether or not users of display screen equipment had received tests over the last 12 months. Moreover, the receipt of tests differed by industry, size of organisation and sector, as did the time period for offering eyesight tests. As would be expected, in most businesses only a minority of employees were prescribed special spectacles for their display screen work.

Awareness of the Regulations may influence the receipt of eyesight tests in the smallest-sized businesses as over one-third of these businesses stated that none of their users had received eyesight tests. As did close to one-third of businesses in the private sector. While this may be a conjecture, the findings should be pursued in further research.

The extent of the businesses' knowledge of the Regulations does not seem to have a strong influence on the proportion of users who receive eyesight tests.

9 CHANGES TO WORKSTATIONS

This section looks at the frequency of the checking of workstations and the undertaking of any changes that are necessary to improve the equipment and its layout. It will cover issues such as risk assessments and planned changes.

9.1 RISK ASSESSMENTS

In order to assess the use of risk assessments within the businesses the participants were asked, "*Does your organisation undertake risk assessments of workstations i.e. the display screen equipment and the immediate work environment every 12 months*?" The majority of businesses (75%) completed risk assessments, with only a few participants (2%) unsure of this question.

The businesses within the hotel and restaurant sector, the electricity, gas and water supply sector and the public administration and defence/compulsory social security were more likely than other sectors to do risk assessments. See Table 9.1. Businesses within the mining and quarrying sector (n = 5) were less likely than other industries to carry out risk assessments for its users.

The results comparing the undertaking of risk assessments by main business activity were not statistically significant, χ^2 (12) = 9.54, p > .05, indicating that carrying out a risk assessment was not associated with business activity.

Table 9.1: Undertaking risk assessments *by* main business activity

	Undertook Risk Assessment in Last 12 Months		
Main business activity	***Yes (%)***	***No (%)***	***Total (N)***
Mining and quarrying	40	60	5
Manufacturing	77	23	142
Electricity, gas and water supply	86	14	7
Construction	74	26	54
Wholesale/retail trade; repair of motor vehicles, motorcycles/personal/household goods	77	23	274
Hotels and restaurants	88	12	26
Transport, storage and communication	76	24	75
Financial intermediation	78	22	123
Real estate, renting and business activities	76	24	116
Public administration and defence, compulsory social security	84	16	74
Education	73	27	113
Health and social work	75	25	144
Other community, social and personal service activities	75	25	68
Total (%)	77	23	
Total (*N*)	935	286	1221

When the conducting of risk assessments was considered by the size of organisations, the findings showed that small-sized businesses were less likely to engage in this activity when compared to larger-sized businesses. See Table 9.2. However, the extent to which very large businesses claimed to conduct risk assessments was comparable to that of the smallest businesses.

The results comparing the undertaking of risk assessments to size of organisation were statistically significant, χ^2 (3) = 15.71, $p < .001$, indicating that carrying out a risk assessment was associated with size of organisation.

Table 9.2: Undertaking risk assessments *by* size of organisation

	Undertook Risk Assessment in Last 12 Months		
Size of Organisation (N employees)	***Yes (%)***	***No (%)***	***Total (N)***
2-24	71	29	391
25-99	81	19	305
100-299	83	17	225
300+	74	26	300
Total (%)	77	23	
Total (*N*)	935	286	1221

The extent of knowledge of employers of the Regulations suggest that those employers with more knowledge are more likely to undertake risk assessments regardless of the size of the organisation. See Table 9.3.

Table 9.3: Undertaking risk assessments *by* size of organisation *by* knowledge

	Extent of Knowledge								
	Limited			***Neither***			***Extensive***		
	Undertake risk assessments								
Size of Organisation (N employees)	*Yes*	*No*	*Total*	*Yes*	*No*	*Total*	*Yes*	*No*	*Total*
2-24	46	54	100	78	22	100	84	16	100
25-99	77	23	100	81	19	100	85	15	100
100-299	60	40	100	91	9	100	81	19	100
300+	67	33	100	73	27	100	74	26	100
Total (*%*)	55	45	100	81	19	100	80	20	100
Total (*N*)	33	27	60	271	65	336	586	149	735

There was not a great difference between the public and private sectors in conducting risk assessments of workstations. See Table 9.4.

The results comparing the undertaking of risk assessments to sector were not statistically significant, χ^2 (1) = 0.98, $p > .05$, indicating that carrying out a risk assessment was not associated with sector.

Table 9.4: Undertaking risk assessments *by* sector

	Undertook Risk Assessment in Last 12 Months		
Sector	***Yes (%)***	***No (%)***	***Total (N)***
Public	75	25	369
Private	77	23	824
Total (%)	77	23	
Total (*N*)	914	279	1193

The extent of knowledge of employers of the Regulations suggest that those employers with limited knowledge in the public sector are less likely than those in the private sector with limited knowledge, to undertake risk assessments. See Table 9.5.

Table 9.5: Undertaking risk assessments *by* sector *by* knowledge

	Extent of Knowledge								
	Limited			***Neither***			***Extensive***		
	Undertake risk assessments								
Sector	*Yes*	*No*	*Total*	*Yes*	*No*	*Total*	*Yes*	*No*	*Total*
Public	47	53	100	82	18	100	77	23	100
Private	58	42	100	81	19	100	81	19	100
Total (*%*)	55	45	100	81	19	100	80	20	100
Total (*N*)	33	27	60	266	62	328	575	146	721

9.2 ALTERATIONS TO WORK STATIONS

One change on which the participants were asked to provide information was with respect to workstations, specifically, "*Approximately what proportions of workstations at your organisation have been changed in the last 12 months*?" An analysis of all the responses showed that most of the businesses (62%) estimated they had changed one-third or fewer of their workstations. Fourteen per cent had changed between 34 - 66 per cent of their workstations, while 16 per cent had changed between 67 - 100 per cent of their workstations. Eight per cent of businesses did not respond to the question.

When assessed by main business activity these findings showed that businesses operating within mining and quarrying (n = 4) and construction (n = 54) changed a lower percentage of their

workstations, when compared to businesses operating within financial intermediation. See Table 9.6.

Table 9.6: Proportion of workstations changed in the last 12 months *by* main business activity

	Proportion of Workstations Changed				
Main business activity	***0%***	***1- 33%***	***34-66%***	***67-100%***	***Total (N)***
Mining and quarrying	25	50	25	0	4
Manufacturing	13	59	14	14	140
Electricity, gas and water supply	14	57	14	14	7
Construction	37	44	15	4	54
Wholesale/retail trade; repair of motor vehicles, motorcycles/personal/household goods	36	36	12	16	262
Hotels and restaurants	8	61	23	8	26
Transport, storage and communication	17	44	15	24	72
Financial intermediation	16	42	19	23	116
Real estate, renting and business activities	16	45	18	21	106
Public administration and defence, compulsory social security	6	61	14	19	64
Education	5	61	17	16	104
Health and social work	13	53	13	22	125
Other community, social and personal service activities	25	40	14	22	65
Total (%)	19	48	15	18	
Total (*N*)	223	547	171	204	1145

The extent of knowledge of employers of the Regulations suggests that those employers with limited knowledge are less likely to change workstations. For example, in the production sector 67 per cent of employees with limited knowledge did not change any of its workstations, while only 18 per cent of those with more knowledge admitted to not changing any of their workstations. See Table 9.7.

Table 9.7: Proportion of workstations changed in the last 12 months *by* main business activity *by* knowledge

	Extent of Knowledge														
	Limited					***Neither***					***Extensive***				
	Workstations changed in last 12 months														
Main business activity	*0%*	*1-33%*	*34-66%*	*67-100%*	*Total*	*0%*	*1-33%*	*34-66%*	*67-100%*	*Total*	*0%*	*1-33%*	*34-66%*	*67-100%*	*Total*
Manufacturing	20	60	0	20	100	17	50	13	20	100	9	62	15	13	100
Other production	67	33	0	0	100	53	29	12	6	100	18	58	20	5	100
Services	48	23	13	17	100	24	44	12	20	100	11	52	17	20	100
Total (*%*)	47	27	10	15	100	25	44	12	20	100	11	54	17	18	100
Total (*N*)	28	16	6	9	59	79	140	39	63	321	77	364	114	120	675

There was not much variation between the different sizes of businesses in the proportion of workstations that they changed. A large proportion of the businesses had changed one-third or fewer of their workstations in the last 12 months. See Table 9.8.

Table 9.8: Proportion of workstations changed in the last 12 months *by* size of organisation

	Proportion of Workstations Changed				
Size of Organisation (N employees)	***0%***	***1- 33%***	***34-66%***	***67-100%***	***Total (N)***
2-24	41	28	10	21	382
25-99	15	53	19	13	289
100-299	7	60	14	19	213
300+	3	61	19	17	261
Total (%)	19	48	15	18	
Total (*N*)	223	547	171	204	1145

The extent of knowledge of employers of the Regulations suggests that the smallest-sized businesses with limited knowledge were less likely to change workstations, than the larger sized businesses. For example, fifty-eight per cent of the businesses with 2-24 employees, with limited knowledge of the Regulations admitted that they had not changed workstations in the last twelve months. Conversely, only 35 per cent of the same-sized businesses with extensive knowledge admitted that none of their workstations were changed. The largest sized organisations (300 or more employees) consisted of very few businesses that had not changed any of their workstations, only three per cent. See Table 9.9.

Table 9.9: Proportion of workstations changed in the last 12 months *by* size of organisation *by* knowledge

	Extent of Knowledge														
	Limited					***Neither***					***Extensive***				
	Workstations changed in last 12 months														
Size of Organisation (N employees)	*0%*	*1-33%*	*34-66%*	*67-100%*	*Total*	*0%*	*1-33%*	*34-66%*	*67-100%*	*Total*	*0%*	*1-33%*	*34-66%*	*67-100%*	*Total*
2-24	58	23	3	18	100	37	32	8	22	100	35	29	12	24	100
25-99	33	25	33	8	100	20	51	15	14	100	9	57	20	14	100
100-299	25	50	25	0	100	7	54	13	26	100	7	62	14	17	100
300+	0	67	0	33	100	5	58	21	16	100	3	61	19	17	100
Total (*%*)	47	27	10	15	100	25	44	12	20	100	11	54	17	18	100
Total (*N*)	28	16	6	9	59	79	140	39	63	321	77	364	114	120	675

There was not much difference between the public and private sectors in the proportion of workstations that they had changed, which is comparable with the information obtained across the different sizes of organisations. A large proportion of the businesses regardless of sector had changed one-third or fewer of their workstations over the last 12 months. See Table 9.10.

Table 9.10: Proportion of workstations changed in the last 12 months *by* sector

	Proportion of Workstations Changed				
Sector	***0%***	***1- 33%***	***34-66%***	***67-100%***	***Total (N)***
Public	13	55	13	19	328
Private	22	45	16	17	791
Total (%)	20	47	15	18	
Total (*N*)	220	533	169	197	1119

The extent of knowledge of employers of the Regulations suggests that more knowledge facilitates the changing of workstations in the public sector. For example, while 64 per cent of businesses in the public sector with limited knowledge had not changed workstations, this proportion was reduced among those with extensive knowledge where only eight per cent had not changed any of their workstations. See Table 9.11.

Table 9.11: Proportion of workstations changed in the last 12 months *by* sector *by* knowledge

	Extent of Knowledge														
	Limited					***Neither***					***Extensive***				
	Workstations changed in last 12 months														
Sector	*0%*	*1-33%*	*34-66%*	*67-100%*	*Total*	*0%*	*1-33%*	*34-66%*	*67-100%*	*Total*	*0%*	*1-33%*	*34-66%*	*67-100%*	*Total*
Public	64	21	7	7	100	16	54	7	23	100	8	58	16	18	100
Private	42	29	11	18	100	27	40	14	19	100	13	52	17	17	100
Total (*%*)	47	27	10	15	100	25	43	12	20	100	12	54	17	18	100
Total (*N*)	28	16	6	9	59	77	135	39	63	314	77	357	112	116	662

9.3 REASONS FOR ALTERING WORKSTATIONS

The businesses were asked to list any changes that they made to display screen workstations in the last 12 months. These changes could have resulted from doing a risk assessment, from other requirements of health and safety law, and for other reasons, such as office refurbishment. The participants could state also if they had not made changes. Some of the changes that businesses made that were as a direct result of the risk assessment are presented in Table 9.12.

Table 9.12: Changes as a direct result of risk assessments

Changes	Businesses Implementing Changes (%)
The provision of suitable lighting	32
The provision of a new computer	16
The provision of a new display screen	25
The provision of a window covering	27
Ensuring that the screen could swivel/tilt	34
Reduced noise at workstation	14
Moving the screen to avoid glare	42
The provision of an adjustable chair	44
The provision of a new keyboard	26
The provision of a larger desk	21
The provision of a footrest	44
The provision of easy to use software	16
The provision of an anti-glare screen	26
The redesign of tasks	24
The provision of a low emission monitor	15
The provision of hand/wrist support	45
Ensuring that sufficient space is available around the workstation	40
Ensuring that the temperature is comfortable	29
Ensuring that humidity levels are adequate	21
Ensuring that the characters on screen are well-defined, clearly formed, and adequately spaced	32
Ensuring that the image on screen is stable, with no flickering	35
Ensuring that the brightness/contrast is easily adjustable by the operator	36
Ensuring that the height of the screen is adjustable	42

The listings of the other reasons for the specific changes are in Tables D2A to D2W in Appendix 4.

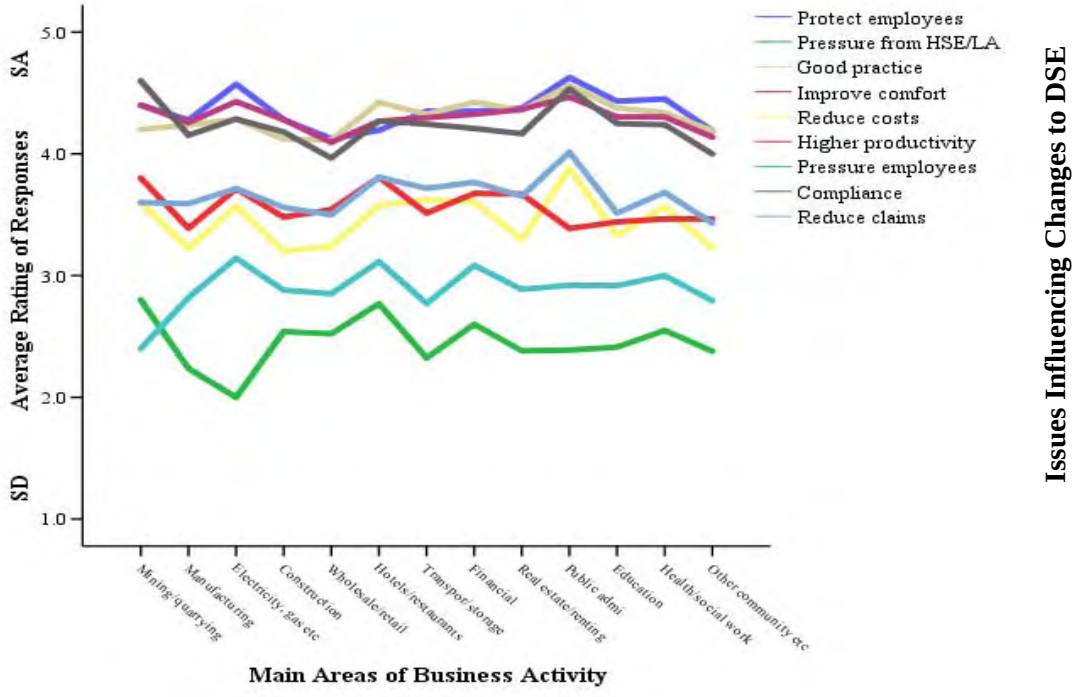
In order to gain an understanding of the factors which influenced the business into acting, the participants were asked, "*Overall, to what extent were any of the following important in leading you to take the actions you have regarding display screen equipment*?" The nine responses were recoded so that 1 = Strongly disagree to 5 = Strongly agree.

Overall, among all of the businesses there was a higher level of agreement (a combination of ratings 4 and 5) about the following factors. See Table 9.13.

Table 9.13: Factors influencing actions regarding display screen equipment

Factors	Businesses Acting (%)
Following good practice	91
Improving the comfort of the employee	91
Protecting employees from risks	89
Complying with the Regulations	85
Reducing potential claims caused by Repetitive Strain Injury	64
Increasing productivity or product quality	60
Reducing the costs of absence	53
Pressure from employees or safety representatives	34
Pressure from the HSE or local authority inspectors	19

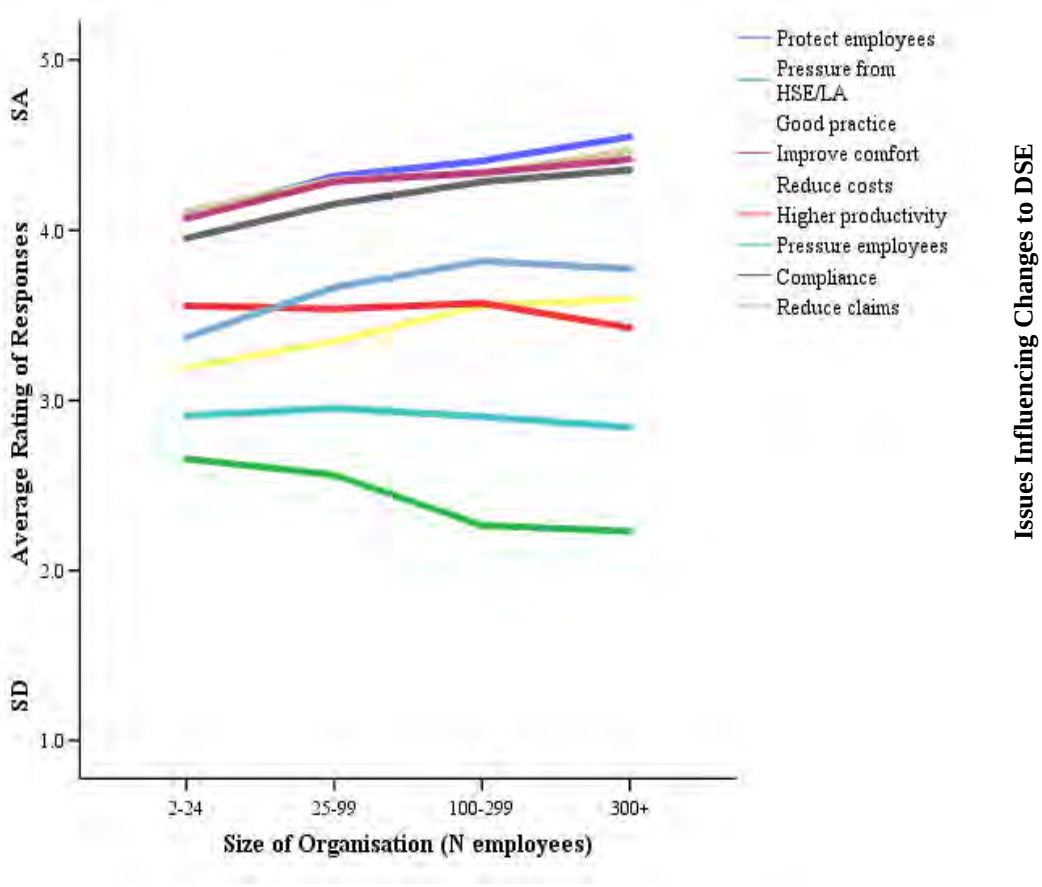
A comparative analysis of the employers' responses to the issues influencing changes that they made to the DSE showed that across all of the business activities the need to protect employees was a major factor in making changes (a mean rating of 4.3 out of 5), while pressure from the HSE/LAs was low (2.4 out of 5). Pressure from the HSE's/LA's inspectors was lowest among businesses operating within electricity, gas and water supply sector. See Figure 9.1.



SD = Strongly disagree, SA = Strongly agree

Figure 9.1: Importance of issues influencing changes taken to DSE *by* the main areas of business activity (average ratings)

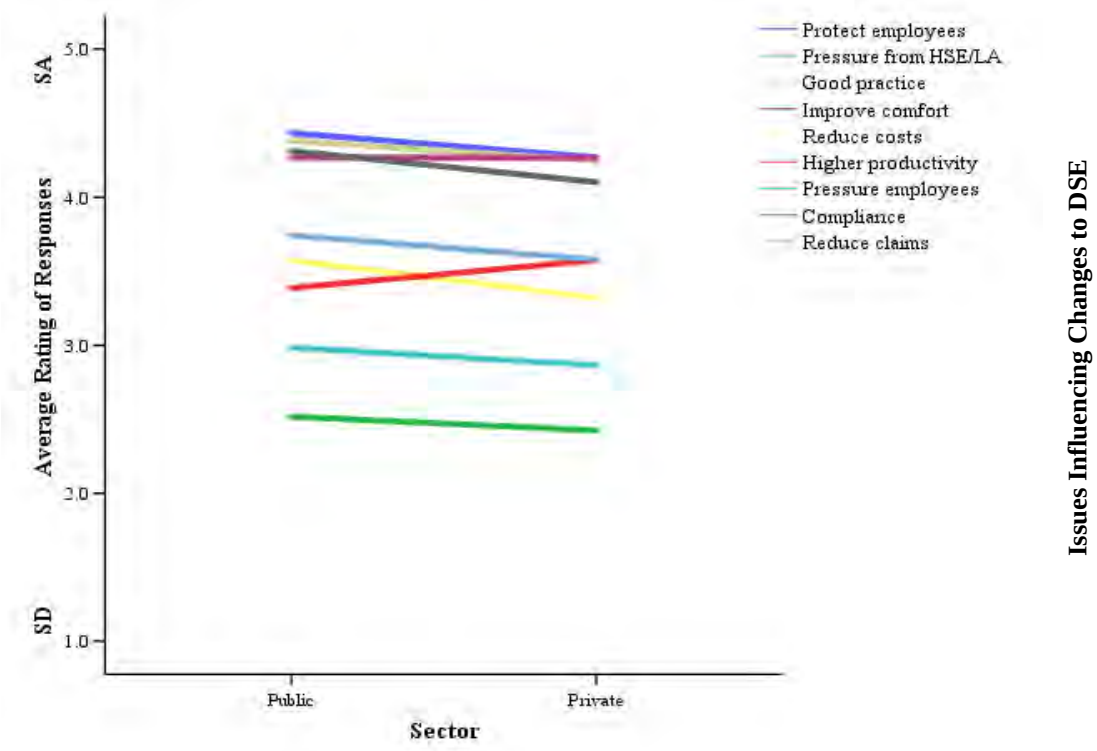
Large-sized businesses, rather than those categorised as smaller in size were less likely to agree that pressure from the HSE/LAs was important in leading to changes. Large-sized organisations, rather than those smaller in size were more likely to agree that protecting employees and following good practice were important in contributing to changes. See Figure 9.2



SD = Strongly disagree, SA = Strongly agree

Figure 9.2: Importance of issues influencing changes taken to DSE *by* size of organisation (average ratings)

Businesses within the public sector were more likely to have slightly higher levels of agreement on the importance of the nine factors than those within the private sector. See Figure 9.3. As with the previous analyses the more important factors were to protect employees and following good practice, while the less important was pressure from the HSE or local authority inspectors.



SD = Strongly disagree, SA = Strongly agree

Figure 9.3: Importance of issues influencing changes taken to DSE *by* sector (average ratings)

9.4 PLANNED ALTERATIONS TO WORK STATIONS

The participants were asked, "*Are you planning to do anything else to workstations to comply with the Health and Safety (Display Screen Equipment) Regulations*?" Only 27 per cent of the participants stated that they were planning to do something else in order to comply with the Regulations. Some of the changes reported by those who responded in the affirmative included, *providing suitable lighting* (7%), *providing a new computer* (8%), *providing an adjustable chair* (8%) and *carrying out a risk assessment* (3%). Table D5 in Appendix 4 provides a full listing of the reported changes.

A larger proportion of the seven businesses within the electricity, gas and water supply (43%) and the 54 businesses within the construction (43%) sectors stated that they would be making other changes in order to comply with the Regulations. See Table 9.14.

The results comparing the future plans for compliance to main business activity were statistically significant, χ^2 (12) = 27.73, $p < .01$, indicating that carrying out future changes was associated with main business activity.

Table 9.14: Future plans to comply with regulations *by* main business activity

	Future Plans for Compliance		
Main business activity	***Yes (%)***	***No (%)***	***Total (N)***
Mining and quarrying	20	80	5
Manufacturing	23	77	142
Electricity, gas and water supply	43	57	7
Construction	43	57	54
Wholesale/retail trade; repair of motor vehicles, motorcycles/personal/household goods	25	75	264
Hotels and restaurants	38	62	26
Transport, storage and communication	30	70	74
Financial intermediation	27	73	124
Real estate, renting and business activities	19	81	115
Public administration and defence, compulsory social security	34	66	73
Education	31	69	111
Health and social work	38	62	138
Other community, social and personal service activities	18	82	68
Total (%)	28	72	
Total (*N*)	335	866	1201

More small-sized businesses were less likely to state they would be making further changes in order to comply with the Regulations. See Table 9.15.

The results comparing the future plans for compliance to size of organisation were statistically significant, χ^2 (3) = 12.17, $p < .01$, indicating that carrying out future changes was associated with size of organisation.

Table 9.15: Future plans to comply with regulations *by* size of organisation

	Future Plans for Compliance		
Size of Organisation (N employees)	***Yes (%)***	***No (%)***	***Total (N)***
2-24	21	79	382
25-99	29	71	301
100-299	32	68	221
300+	32	68	297
Total (%)	28	72	
Total (*N*)	335	866	1201

An assessment between the sectors showed that businesses within the public sector were more likely to state that they were planning to be making changes in the future. See Table 9.16.

The results comparing the future plans for compliance to sector were statistically significant, χ^2 (1) = 14.86, $p < .001$, indicating that carrying out future changes was associated with sector.

Table 9.16: Future plans to comply with regulations *by* sector

Future Plans for Compliance			
Sector	***Yes (%)***	***No (%)***	***Total (N)***
Public	36	64	360
Private	25	75	813
Total (%)	28	72	
Total (*N*)	328	845	1173

9.5 DECISIONS REGARDING SOFTWARE AND TASK DESIGN

The contribution of software and task design was considered with regard to display screen equipment, specifically, "*Does your organisation take into account the following when purchasing, designing, selecting, commissioning and modifying software, and in designing tasks using display screen equipment*?" Across all of the businesses priority was given to most factors, except for systems that give feedback. See Table 9.17.

Table 9.17: Some of the factors influencing display screen equipment

Factor	**Businesses Taking Factors into Account (%)**
Software suitable for the task	93
Software easy to use and adaptable to the operator's level of knowledge	90
Systems display information in a format and at a pace adaptable to operators	81
Principles of software ergonomics are applied in particular to human data processing	67
System gives feedback to workers on their performance	34

The full set of responses is provided in Tables E1 - A to E in Appendix 4.

9.6 CONCLUSIONS

One of the interesting findings from this section is that three-quarters of the businesses stated that they conducted risk assessments every 12 months. Further, the undertaking of risk assessments was not associated with either main business activity or sector, but rather by size of organisation, with fewer of the smallest-sized organisations (2-24 employees) reporting that they did risk assessments. However, when the relationship between extent of knowledge of the Regulations and undertaking risk assessments was done among the different sizes of organisations, the results showed that a larger percentage of organisations with more knowledge regardless of size undertook risk assessments. This finding suggests that if information is provided to a larger proportion of small-sized organisations then the proportion of these organisations conducting risk assessments should increase.

Although the majority of businesses had changed workstations within the last 12 months most of these changes had occurred on one-third or less of the workstations. The more popular changes carried out to the workstations by just under half of all businesses included, moving the screen to avoid glare, providing an adjustable chair, providing hand/wrist support and ensuring that the height of the screen was adjustable.

One finding showed that a larger proportion of those employers with more knowledge admitted to changing workstations in the last 12 months. Further, a comparable proportion (to the wider sample) of these types of businesses that had more knowledge did risk assessments, with more than one-half of those with less knowledge not reporting that they did risk assessments. This implies that acquiring knowledge is a strong influencing factor in how responsive the businesses are in implementing changes.

Those factors that influenced the businesses into acting showed that while good practice, improving the comfort of the employee, and protecting the employee from risks were afforded a fairly high priority, the pressure from employees or safety representatives and pressure from the HSE or local authority inspectors were afforded a fairly low priority.

Finally, most organisations did not plan to make further changes in order to comply with the Regulations. While the businesses were not asked their reasons for making or not making further changes, one factor that may have influenced this decision is that they might have considered that they are fully compliant.

10 COSTS AND BENEFITS

Section ten looks at the costs and benefits associated with ensuring compliance with the DSE Regulations. The information considered ranged from the costs of risk assessments and altering workstations to specific benefits such as reduced labour turnover to increased productivity or quality of output.

10.1 COSTS

In order to gauge the costs of compliance, the interviewees were asked, "*Do you have a separate budget to meet the costs of complying with the Regulations?*" The majority of participants did not have a separate budget for health and safety or DSE (68%). Further, only three per cent of the participants had a separate budget, with an additional eight per cent meeting the costs through an itemised part of their Health and Safety budget. Another 16 per cent noted that their costs were met as part of an un-itemised part of their Health and Safety budget.

The businesses within electricity, gas and water supply and education were the most consistent in budgeting costs for compliance either as a separate DSE budget or as part of a Health and Safety budget. Those within the construction, wholesale/retail trade, financial intermediation and public administration industries were more likely not to have a separate budget. See Table 10.1.

The results comparing the type of budget in place to main business activity were statistically significant, χ^2 (36) = 60.35, $p < .01$, indicating that type of budget was associated with business activity.

Table 10.1: Budget for costs of compliance *by* main business activity

	Type of Budget				
Main Business Activity	***Separate DSE Budget (%)***	***Itemised Part - Health & Safety Budget (%)***	***Un-itemised Part - Heath & Safety Budget (%)***	***No Separate Budget (%)***	***Total (N)***
Mining and quarrying	0	20	20	60	5
Manufacturing	6	10	15	69	143
Electricity, gas and water supply	14	0	29	57	7
Construction	4	4	17	76	54
Wholesale/retail trade; repair of motor vehicles, motorcycles/personal/household goods	4	5	13	77	259
Hotels and restaurants	8	8	23	62	26
Transport, storage and communication	1	12	17	70	69
Financial intermediation	3	9	11	76	118
Real estate, renting and business activities	2	13	18	67	113
Public administration and defence, compulsory social security	1	7	17	75	72
Education	3	11	32	54	111
Health and social work	2	8	14	76	139
Other community, social and personal service activities	6	0	20	74	66
Total (%)	4	8	17	71	
Total (*N*)	43	96	199	844	1182

An evaluation of the budget by size of organisation showed that smaller-sized businesses were less likely to have a separate budget, than medium or large-sized businesses. See Table 10.2.

The results comparing the type of budget in place to size or organisation were statistically significant, χ^2 (9) = 93.03, $p < .001$, indicating that type of budget was associated with size of organisation.

Table 10.2: Budget for costs of compliance *by* size of organisation

	Type of Budget				
Size of Organisation (N employees)	***Separate DSE Budget (%)***	***Itemised Part - Health & Safety Budget (%)***	***Un-itemised Part - Heath & Safety Budget (%)***	***No Separate Budget (%)***	***Total (N)***
2-24	3	3	6	87	375
25-99	2	8	17	73	292
100-299	5	11	26	58	219
300+	5	13	23	59	296
Total (%)	4	8	17	71	
Total (*N*)	43	96	199	844	1182

The findings showed also that there was little difference between the public and private sectors in the type of budget that they used to ensure that they complied with the Regulations. See Table 10.3.

Table 10.3: Budget for costs of compliance *by* sector

	Type of Budget				
Sector	***Separate DSE Budget (%)***	***Itemised Part - Health & Safety Budget (%)***	***Un-itemised Part - Heath & Safety Budget (%)***	***No Separate Budget (%)***	***Total (N)***
Public	2	8	18	71	354
Private	4	8	16	72	803
Total (%)	3	8	17	71	
Total (*N*)	40	94	196	827	1157

In respect of stating a total cost to the organisation of complying with the Regulations in the past 12 months, the majority of participants did not provide this information (94%). Of those businesses that did respond, the cost ranged from ≤ £500 (1% of businesses) to £10,001 - £75,000 (1%). The specifics by size of organisations are presented in Table 10.4.

Table 10.4: Cost of compliance *by* size of organisation

	Cost of Compliance (%)				
Size of Organisation (N employees)	***≤£500***	***£501 - £5,000***	***£5,001 - £10,000***	***£10,001 - £75,000***	***Total (n)***
2-24	33	67	0	0	6
25-99	23	54	23	0	13
100-299	28	44	8	20	25
300+	11	33	22	33	36
Total (%)	20	43	16	21	
Total (*n*)	16	34	13	17	80

The majority of businesses also did not provide a breakdown of specific costs. Table 10.5 highlights the main spend among the six per cent of businesses (n = 75) that provided this information. For example, the table shows that these businesses (6% of the full sample) used their budget to alter work routines and to provide spectacles to employees. Of these businesses, a few (4% of the full sample), conducted risk assessments or workstation assessments.

Table 10.5: Spend for the different aspects of the regulation

Aspects of the Regulation	*n*	% (of full sample)
Risk/workstation assessments	52	4
Altering workstations	53	4
Altering work routine	75	6
Provision of eye or eye sight tests	60	5
Provision of spectacles	72	6
Training and information	68	5
Other	61	5

10.2 BENEFITS

The businesses were asked to comment on, "*To what extent have any of the following benefits been observed as a direct result of implementing the measures associated with the Display Screen Equipment Regulations in the workplace?*" Overall, there was not strong agreement that the businesses were able to observe benefits. The positive level of agreement was obtained by combining ratings 4 and 5 on a five-point scale, where 1 = strongly disagree and 5 = strongly agree.

Only 30 per cent of businesses agreed that *reduced labour turnover* was a direct benefit, with 61 per cent acknowledging that *staff stress was reduced*. Forty-five percent of businesses thought that *sickness absence was reduced*, with 52 per cent noting an *increase in productivity or quality of output*. The highest recognition of a benefit was in respect to i*mproved staff morale*, with 64 per cent of businesses noting an improvement. Finally, 35 per cent noted that they experienced *fewer compensation claims*.

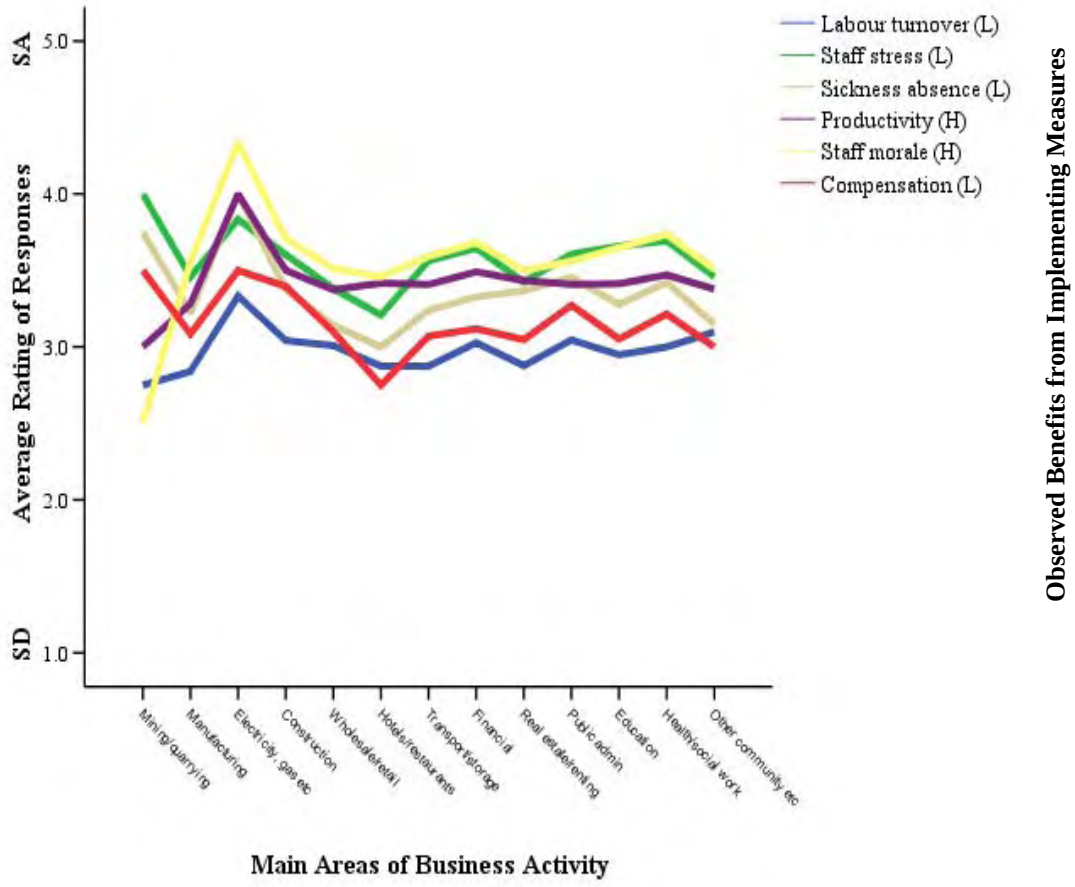
The other benefits listed included, *fewer complaints* (1%), *increased awareness of Health and Safety/Health and Safety improved overall* (3%), and *our image/professional status improves/thought of as a caring employer* (1%). The full listing of responses is provided in Tables K1a to K1g in Appendix 4.

An assessment of the benefits by main business activity showed that businesses in the electricity, gas and water supply sector stated they were more likely to observe benefits as a result of implementing the measures of the Regulations. Those in the hotel and restaurant sector stated they were less likely to observe any benefits. See Figure 10.1.

The results comparing observed benefits to main business activity[7] were statistically significant for the following: *reduced staff stress*, F (12, 1174) = 1.95, p < .05, with businesses in mining/quarrying and electricity, gas and water supply observing more benefits; *reduced*

[7] *The analysis of variance (ANOVA) was used to test the relationships between the different factors, for example such as the listed benefits above and the main business activity. The F-test of the difference of the group means checks for differences between the groups (those within main business activity), and that these differences did not occur by chance.*

sickness absence, F (12, 1144) = 2.07, $p < .05$, with businesses in mining/quarrying and electricity, gas and water supply observing more benefits; and *improved staff morale*, F (12, 1174) = 1.95, $p < .05$, with businesses in electricity, gas and water supply observing more benefits.

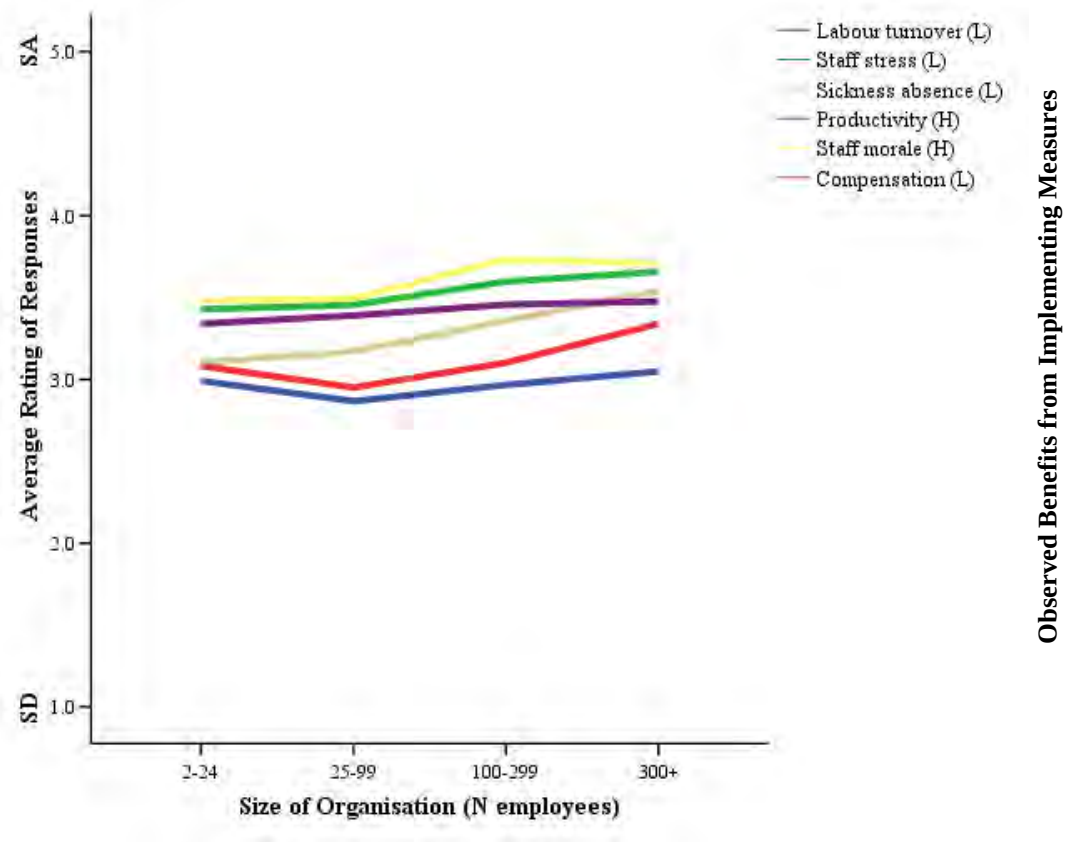


(L) = reduced or fewer; (H) = increased or improved; SD = strongly disagree, SA = strongly agree

Figure 10.1: Observed benefits from implementing measures taken to DSE *by* main areas of business activity (average ratings)

The influence of the size of organisation on the observation of benefits showed that large-sized businesses were more likely to observe benefits as a result of implementing the measures of the Regulations, rather than small-sized or medium-sized businesses. See Figure 10.2.

The results comparing observed benefits to size of organisation were statistically significant for the following: *reduced staff stress*, F (3, 1188) = 5.60, $p < .001$, with large-sized businesses observing more benefits; *reduced sickness absence*, F (3, 1153) = 12.81, $p < .001$, with large-sized businesses observing more benefits; *improved staff morale*, F (3, 1187) = 8.63, $p < .001$, with large-sized businesses observing more benefits; and *fewer compensation claims*, F (3, 1132) = 7.00, $p < .001$, with large-sized businesses observing more benefits.



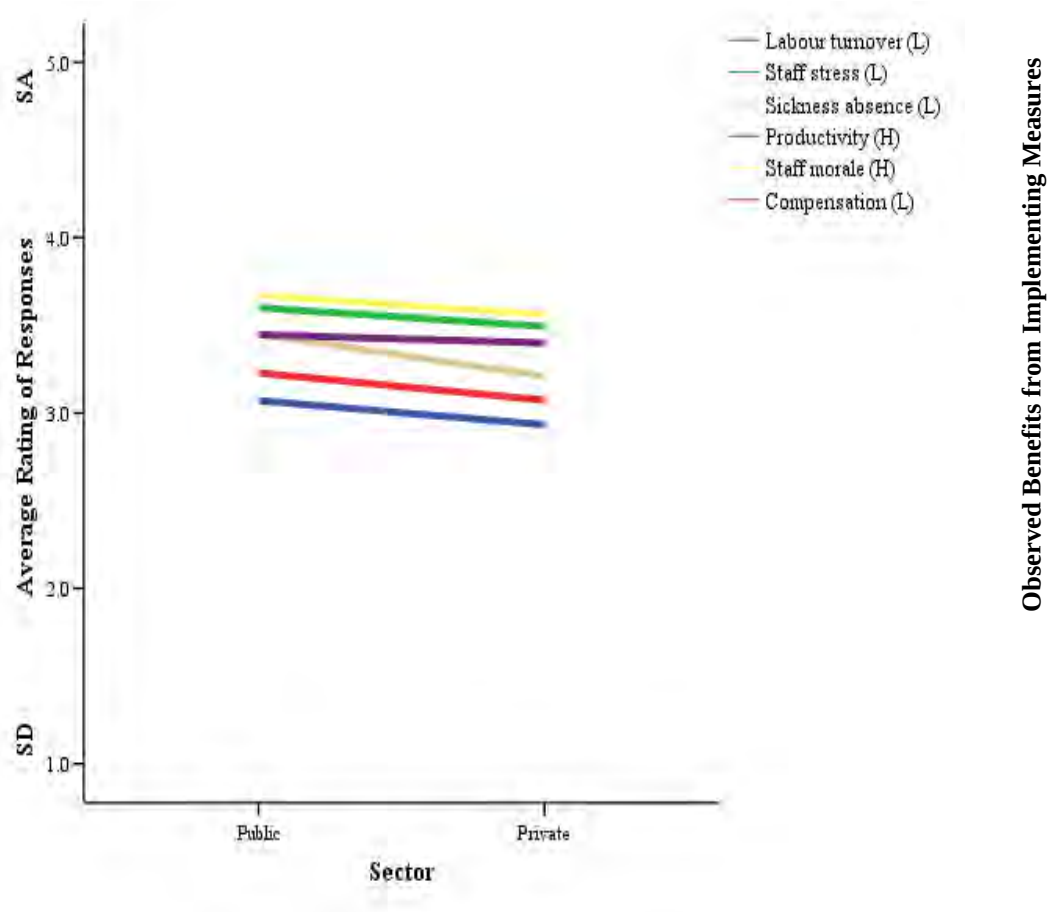
(L) = reduced or fewer; (H) = increased or improved; SD = strongly disagree, SA = strongly agree

Figure 10.2: Observed benefits from implementing measures taken to DSE *by* size of organisation (average ratings)

The influence of sector on the observation of benefits showed that businesses in the public sector stated they were more likely to observe benefits as a result of implementing the measures of the Regulations, rather than those businesses in the private sector. See Figure 10.3.

The results comparing observed benefits to sector[8] were statistically significant for the following: *reduced labour turnover*, t (1120) = 2.14, $p < .05$, with public sector businesses observing more benefits; *reduced sickness absence*, t (1128) = 4.02, $p < .001$, with public sector businesses observing more benefits; *improved staff morale*, t (1163) = 2.10, $p < .05$, with public sector businesses observing more benefits; and *fewer compensation claims*, t (1108) = 2.26, $p < .05$, with public sector businesses observing more benefits.

[8] *The analysis on which these results are based is the independent sample t-test. The t-test compares the average ratings (means) of two independently sampled groups, to determine if they differ in their perceptions of different factors. In the present analysis the two groups are the public sector and private sector and the factors against which they were assessed were the observed benefits from implementing the Regulations. A significant result ($p < .05$) implies that the two groups differ in their perceptions, while a non-significant result ($p > .05$) implies that they do not differ in their perceptions.*



(L) = reduced or fewer; (H) = increased or improved; SD = strongly disagree, SA = strongly agree

Figure 10.3: Observed benefits from implementing measures taken to DSE *by* sector (average ratings)

Although there was a minimal response to stating the costs involved in complying with the Regulations, the existing data show that there are relationships between the type of budget in place and acknowledging the benefits seen as a result of compliance. Table 10.6 illustrates for example that businesses with more specific budgets, rather than inclusive budgets, were more likely to agree that labour turnover was reduced ($r = 0.05$, $p < .05$). Similarly, those businesses with a higher total cost to the organisation of ensuring compliance were more likely to agree that productivity had increased ($r = 0.31$, $p < .01$). The full set of statistical results is presented in Table 12.8 in Appendix 5.

Table 10.6: Relationships between benefits, types of budgets and total cost to organisations

Benefits	Existence of Separate Budget	Total Cost to Organisation
Reduced labour turnover	Separate budget = stronger agreement	Higher cost = stronger agreement
Reduced staff stress	Separate budget = stronger agreement	Higher cost = stronger agreement
Reduced sickness absence	Separate budget = stronger agreement	Higher cost = stronger agreement
Increased productivity	Separate budget = stronger agreement	Higher cost = stronger agreement
Improved staff morale	Separate budget = stronger agreement	Higher cost = stronger agreement
Fewer compensation claims	Separate budget = stronger agreement	Higher cost = stronger agreement

10.3 CONCLUSIONS

As the findings for the present section show, there was a lack of information on the direct costs involved in implementing the Regulations. Further, a large proportion of businesses did not have a separate budget to meet the costs involved in complying with the Regulations. Due to the lack of a separate budget many businesses may not have been able to provide information on specific costs, and this may account for the low response rate to this issue.

Interestingly, the positive agreement of the observation of particular benefits was noted by between 30 per cent and 64 per cent of all the businesses. However, there are positive and significant relationships between the various benefits observed, the types of budgets and the total cost to the businesses.

11 CONCLUSIONS

11.1 IMPACT

The present research looked at the impact and success of the Directive in the UK by surveying employers across the different business sectors. The majority of employers (93%) were aware of the Regulations, a vast increase from the 1995/96 IES research (55%), and more than half (60%) felt that they had a great deal of knowledge of the Regulations. This implies that self-reported awareness and understanding are relatively high and provides a good basis for examining the impact that the Regulations may have had.

One of the ways in which the impact and success could be assessed is by whether or not the Directive has had an effect on improving the working conditions and the safety and health of employees. The findings in support of this measure are for the most part mixed. While there have been improvements to working conditions, with for example, most employers reporting that they undertake risk assessments (75%) and have changed some proportion of their workstations (92%), this needs to be taken in context. As such, there is a need to be cognisant that some of these changes might still have happened if there had not been a directive. Although eighty-five per cent of employers mentioned complying with the Regulations as a reason for making changes, this figure is only slightly behind the numbers that cited other reasons like following good practice (91%) or protecting employees from risks (89%).

One factor that seemed to influence decisions in the workplace was the degree of knowledge of the Regulations that was available to the employers. The findings in respect of the assessments for this factor showed that a larger proportion of those employers with more knowledge admitted to changing workstations in the last 12 months and undertaking risk assessments. This implies that acquiring knowledge is a strong influencing factor in how responsive the businesses are in making changes or responding to the needs of the workforce.

Interestingly, Melrose et al. (2007) investigated symptoms of ill health in DSE workers and did not find evidence of any decline in symptoms during the period that the Regulations have been in effect, which suggests that there may be limited positive evidence that the Regulations have improved safety and health. However, it cannot be concluded that the Regulations have not had an effect.

Another measure that could be used as a success factor is assessing which of the instruments of the Directive are ineffective, and which instruments are inefficient. While there is insufficient evidence to enable a judgement of the overall success of the Directive, there is also little or no evidence that would single out any one part of the Directive as being ineffective or inefficient.

One important focus for assessing the impact is the reasons for the successes and deficits found thus far. These can include, for example, the Directive itself, the national transposition and the national enforcement strategies. There are signs that if deficits exist they are more likely to reflect incomplete implementation by dutyholders, rather than any defects in the Directive or its national transposition. There are indications that some employers have not complied fully with the legislation. For example, the present study and the ill health research mentioned previously (Melrose et al. 2007) found evidence that in a significant minority of cases safety and health training was not provided to display screen users. Further, just over one-quarter of employers had not provided eyesight tests. This may need to be explored further to determine if a more proactive approach on the part of the employer may realise more success.

There is no evidence from the present study or the reviewed literature that changes to the legislation are necessary. However, there are indications that more needs to be done to improve its practical implementation. Melrose et al. (2007) concluded that the issue of taking sufficient breaks from display screen work needs attention, as does the particular issue of taking breaks during intensive use of a mouse. Other research (Woods et al., 2002) supports the inconsistency of the practice of VDU users of taking breaks, with 38 per cent of the interviewees of that study not taking frequent breaks, and with nine per cent of these not taking a lunch break. The results from the listed research tend to support the findings of the present study, where there are indications that employers are relying on the natural breaks in the work or breaks being taken entirely at the employee's discretion.

The levels of awareness of the law reported by employers in the present study were generally good, but other results from this study suggest there is room for improvement in some cases, for example, where employers are not providing training or eye tests. Moreover, in respect of whether or not the Directive has led to a uniform level playing field concerning the management of the occupational safety and health risks associated with DSE use, this is for consideration when the results of the different national evaluations across the EU are compared.

Finally, it is important to assess if an intervention in the form of a Directive is a suitable way to improve the working conditions and the safety and health of employees using VDUs in workplaces in the future. The project has not found any convincing indications that it is necessary to either remove, adapt or replace the existing legislation. Caution would therefore be advisable in contemplating any changes.

It is important also to ensure that the focus of legislation remains as goal setting and does not introduce technical detail that could go out of date quickly. The UK's experience has been that the existing Directive, while it does contain detail in its annex, is sufficiently flexible. It has, for example, provided a framework that has allowed the successful introduction of guidance on newer aspects of display screen work, such as using portable equipment and working with a mouse or other pointing devices.

11.2 IMPROVEMENTS TO THE REGULATIONS

The findings from the present study show that it is difficult to highlight one area in which improvements can be recommended, as no areas have emerged as showing evidence of disregard or non-implementation of the Regulations. Rather, self-reported awareness of the Regulations has increased amongst employers, since the IES report in 1997. In the present research, eighty-five per cent of employers mentioned complying with the Regulations in respect of the changes they made, while the 1995/96 assessment noted that 71 per cent of changes were due to office refurbishment and upgrading IT policy, and not as a result of health and safety legislation. Further, in the present research, most employers (75%) undertake risk assessments. These are substantial advancements to employers' responding to the Regulations and their requirements.

However, there are a few areas that may profit if they were brought to the attention of employers. Firstly, as with the findings from the previous study assessing the Regulations, the onus of obtaining eyesight tests remained with the employee. While employees do have to maintain certain responsibility for their health, employers should be encouraged to pursue a stronger focus on ensuring that employees are aware of their entitlement to eyesight tests.

As expected, in the present research, smaller businesses were less aware, had less knowledge, found the Regulations less relevant, were less confident, were less likely to provide training and were less likely to carry out risk assessments. There may need to be a stronger emphasis on providing more information to smaller-sized businesses, due to their limited resources, in ensuring that they comply adequately with all the necessary regulations with which they need to comply. The DSE Regulations is only one of these. The present research highlighted, for example, that those small-sized organisations that were in possession of more knowledge of the Regulations were more likely to conduct risk assessments.

Finally, Cloke (2003) reported a lack of training in the safe use of workstations, especially in the correct adjustment of the user's chair. The present research showed that 63 per cent of businesses stated they provided suitable training in the arrangements of workstations to all DSE users, with 13 per cent providing training to some users. This implied that although the majority of employers have stated that they are providing the relevant training, this could be improved among the remaining one-quarter of businesses. The Regulations are very specific in noting the duty of employers to provide training to the users whom they employ. The HSE may wish to consider emphasising this duty with employers.

Overall, the present study has underscored that employers are aware of and acting on the Regulations. However, there are a few areas that may be improved and the HSE may wish to pursue these in future research or campaigns.

12 APPENDICES

12.1 APPENDIX 1 - RESEARCH METHODOLOGY

The research methodology focused on collecting data from employers concerning their health and safety management practices for risks to employees arising from DSE use.

12.1.1 Questionnaire Design

The purpose of the questionnaire was to collect data evaluating Directive 90/270/EEC for the European Working Group, and to also provide a point of comparison for other data sources, most notably CRR 130/1997, in order to gauge the extent of change over time.

The questionnaire used in the research report CRR 130/1997 formed the basis of the terms of reference identified by the European Working Group, and so was used as a basis for the current questionnaire. The HSE customer was consulted also on the development of the questionnaire. The final questionnaire is presented in Appendix 3. The development of the final questionnaire was subject to 11 iterations, and covered the following issues:

- Background Information
- Use of Display Screen Equipment
- Perceived Risks
- Alterations to Workstations
- Operator Computer Interface
- Daily Routine of DSE Users
- Information and Training
- Eyes and Eyesight
- The Regulations
- Costs and Benefits

12.1.2 Cognitive Piloting of Questionnaire

The questionnaire was subject to a process of cognitive piloting, from which feedback from both the respondents and interviewers was incorporated into the final version. In total seven pilot interviews were conducted, each lasting approximately 30 minutes. A detailed record of each interview was made, taking notes of major issues such as logical progression and routing, and less substantive issues such as typographical errors. By the seventh interview, it was considered that the process had reached saturation point, no additional novel information was being obtained, and no concerns related to substantive issues had been recorded.

Each pilot interview was conducted with a designated DSE assessor within the Health and Safety Laboratory. These individuals are employees from varying occupations but have been trained to take on the additional responsibility of assessing other employees with regard to DSE use. They assess employees at their workstations and provide DSE guidance and information as required.

From the cognitive pilot interviews no major issues were identified but several minor points were raised:

- Initially, the first pilot interview was conducted via telephone, without the participant having visual access to the questionnaire. From this, it was apparent that it would not be possible for participants to complete the questionnaire without being able to see it. Several of the questions required participants to retain a considerable amount of

information prior to answering, making it problematic to complete verbally. Additionally, several questions and the possible answers were of a considerable length and had to be repeated several times. It should be noted that within the fieldwork interviews, participants had access to read the questionnaire.

- All subsequent pilot interviews were conducted face to face. The researcher read through the questions, one at a time, with the participants. At the end of each question, participants were asked for their opinion on the questions. They were asked how comprehensible the question was, if the language and length of question was appropriate and if there was anything they thought could be changed to improve the question or method of answering.
- The pilot interviews raised the issue of language use for several questions (e.g. the use of the word 'habitually' was commented upon). It was suggested that more popular or commonplace language should be used and this was changed as appropriate.
- Participants raised the issue of lack of consistency amongst the scales used in several questions. These were changed as appropriate to provide greater consistency.
- As requested by several participants a definition of RSI (Repetitive Strain Injury) was provided.
- The introduction was changed to provide assurances of confidentiality/anonymity and also to provide information on the anticipated time to complete the questionnaire.

12.1.3 Sample Design

The sampling strategy was determined by the requirements to:

- Provide sufficient number of employers and industrial sectors to reflect the current situation in Great Britain so as to make a contribution to the International Working Group.
- Allow comparison with the sample from CRR 130/1997 in terms of sample number and stratification.
- Adhere to the financial limitations for engaging a sub-contractor to administer the survey to around 1200 respondents.

A stratified quota sample was used, as this was the approach adopted in CRR 130/1997. Table 12.1 presents the actual number of respondents according to the employer size and SIC (Standard Industrial Classification[9]) Section Descriptors for the original survey described in CRR 130/1997.

[9] *A Standard Industrial Classification* (SIC) *was first introduced into the United Kingdom in 1948 for use in classifying business establishments and other statistical units by the type of economic activity in which they are engaged. The classification provides a framework for the collection, tabulation, presentation and analysis of data and its use promotes uniformity. In addition, it can be used for administrative purposes and by non-government bodies as a convenient way of classifying industrial activities into a common structure.*

Table 12.1: Number of respondents according to the employer size and SIC for CRR 130/1997

SIC	Employer size bands				Total
	1-24	***25-99***	***100 - 299***	***300 plus***	
Energy/Water Supply	20	28	27	20	95
Metal/mineral extraction	27	27	38	31	123
Engineering	20	40	32	46	138
Other manufacturing	28	25	57	45	155
Construction	21	13	6	6	46
Distribution/Hotels	34	30	27	27	118
Transport/Communications	24	21	15	22	82
Business Services	67	60	63	65	255
Other services	87	68	58	45	258
Total	**328**	**312**	**323**	**307**	**1270**

This quota sample of respondents to some extent does not reflect the target sample that was intended in the original strategy, partly because the use of postal questionnaires made it difficult to guarantee the desired sample quotas.

The CRR 130/1997's sample frame was based on the 1980 SIC. The provision of a current sample frame that is comparable is problematic as the classification was revised in 1992, 1997 and 2003. Revision is necessary because, over a period of time, new products and new industries emerge and shifts of emphasis occur in existing industries. Appendix 2 gives a broad comparison between the sections used now and the divisions used in SIC (80), although the correlation is not exact as relatively minor differences in coverage are ignored. Table 12.2 presents the correlation of the Former Divisions used in SIC (80) for the sample frame; with the current SIC (03) descriptors used in the current sample frame.

Table 12.2: Comparison of Industrial Sector Descriptors for CRR 130/1997 and Current Study

Former Divisions (SIC 80) (Brackets denote part of a division)	Categorisation used in CRR 130/1997	Present Section Descriptors used in SIC 2003	SIC 2003 Section descriptors for Current Sample Frame
0 (Agriculture and Forestry)	Not used	A Agriculture, Hunting and Forestry	Not used
0 (Fishing)	Not used	B Fishing	Not used
1 (Extraction of fuels) 2 (Extraction of minerals and ores)	Metal/mineral extraction 2	C Mining And Quarrying	C
1 (Fuel processing and production) 2 (Manufacture of chemicals and man-made fibres) 3 Metal goods, engineering and vehicles industries 4 Other manufacturing industries	Engineering 3 Other manufacturing 4	D Manufacturing	D
1 (Production and distribution of electricity, gas; Water supply)	Energy/Water Supply 1	E Electricity, Gas and Water Supply	E
5 Construction	Construction 5	F Construction	F
6 (Wholesale and retail distribution; Commission agents; Repairs)	Distribution/Hotels 6	G Wholesale and Retail Trade; Repair of Motor Vehicles, Motorcycles and Personal and Household Goods	G
6 (Hotels and catering)	Distribution/Hotels 6	H Hotels and Restaurants	H
7 Transport and communication	Transport/Communications 7	I Transport, Storage and Communication	I
9 (Tourist offices; Radio and TV transmission) 8 (Banking, finance and insurance)	Business Services 8	J Financial Intermediation	J, K
8 (Business services; Dealing in real estate)	Business Services 8	K Real Estate, Renting and Business Activities	
9 (Research & development; Other services) 9 (Public administration, national defence and compulsory social security)	Other services 9	L Public Administration and Defence; Compulsory Social Security	L
9 (Education)	Other services 9	M Education	M
9 (Health and veterinary services; Other general services to the public)	Other services 9	N Health and Social Work	N, O
9 (Sanitary, recreational and personal services)	Other services 9	O Other Community, Social and Personal Service Activities	
9 (Domestic services)	Other services 9	P Private Households Employing Domestic Staff and Undifferentiated Production Activities of Households for Own Use	
9 (Diplomatic representation, international organisations, allied armed forces)	Other services 9	Q Extra - Territorial Organisations and Bodies	

As with CRR 130/1997, industrial sectors assumed to have a low prevalence of DSE (i.e. Agriculture, Fishing, Hunting and Forestry) were not included in the sampling frame. Table 12.3 provides the correlation between the descriptors for CRR 130/1997 and the sample frame used for the current study.

Table 12.3: Correlation of the descriptors for CRR 130/1997 and the sample frame for the current study

SIC (80) Section descriptors for CRR 130/1997	SIC 2003 Section descriptors for Current Sample Frame
Energy/Water Supply	E: Electricity, gas and water supply
Metal/mineral extraction	C: Mining and quarrying
Engineering	D: Manufacturing
Other manufacturing	D: Manufacturing
Construction	F: Construction
Distribution/Hotels	G: Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods H: Hotels and restaurants
Transport/Communications	I: Transport, storage and communication
Business Services	J: Financial intermediation K: Real estate, renting and business activities
Other services	L: Public administration and defence; compulsory social security M: Education N: Health and social work O: Other community, social and personal service activities

In order to provide a sample frame that was representative of the spread of employment across range of industries and size of organisations in Great Britain, a stratified sampling frame was devised based upon the 2004 Annual Business Inquiry Workplace Analysis conducted by the Office for National Statistics, where employee data are collected and coded by data (or local) units.[10] This basis for the sample frame to reflect the spread of employment was partly decided as the scope of the research was not able to focus specifically on the responses of employees. Table 12.4 provides the breakdown of the total numbers of employees for the different industrial sectors and size of organisations. As with the sample selection for CRR 130/1997, sole traders and the self-employed were excluded.

[10] *Data (or local) units do not readily correspond to the commonly used terms firms, companies or businesses by which employers are sometimes identified. They are roughly equivalent to workplaces but because of the way the data are collected two or more units can be present in the same workplace. For example, a bank may have several branches and offices in a city; each one of these would be counted as a separate data unit.*

Table 12.4*:* Total numbers of employees by industrial sector and size of organisation according to the 2004 Annual Business Inquiry Workplace Analysis

Industry (SIC 2003 Sector Descriptors)	Total Number of Employees	One to 24 employees	% of total workforce	25 - 99 employees	% of total workforce	100 - 200 employees	% of total workforce	300 plus employees	% of total workforce
C: Mining and quarrying	55,155	10,993	**0.04**	13,310	**0.05**	10,925	**0.04**	19,928	**0.08**
D: Manufacturing	3,092,131	704,897	**2.73**	746,677	**2.89**	737,013	**2.86**	903,544	**3.50**
E: Electricity, gas and water supply	99,864	7,497	**0.03**	18,796	**0.07**	35,057	**0.14**	38,513	**0.15**
F: Construction	1,178,329	575,907	**2.23**	269,235	**1.04**	192,912	**0.75**	140,274	**0.54**
G: Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods	4,643,536	2,073,863	**8.04**	1,100,767	**4.27**	688,604	**2.67**	780,303	**3.03**
H: Hotels and restaurants	1,774,988	937,687	**3.64**	579,419	**2.25**	173,107	**0.67**	84,775	**0.33**
I: Transport, storage and communication	1,544,141	353,402	**1.37**	340,770	**1.32**	358,907	**1.39**	491,060	**1.90**
J: Financial intermediation	1,066,238	250,521	**0.97**	204,336	**0.79**	174,231	**0.68**	437,149	**1.69**
K: Real estate, renting and business activity	4,127,214	1,652,215	**6.41**	798,379	**3.10**	751,746	**2.91**	924,874	**3.59**
L: Public administration and defence; compulsory social security	1,435,191	161,299	**0.63**	296,875	**1.15**	382,661	**1.48**	594,356	**2.30**
M: Education	2,378,900	288,501	**1.12**	955,964	**3.71**	596,656	**2.31**	537,779	**2.09**
N: Health and social work	3,058,174	729,752	**2.83**	867,641	**3.36**	354,031	**1.37**	1,106,750	**4.29**
O: Other community, social and personal service activities	1,338,181	669,671	**2.60**	340,784	**1.32**	178,023	**0.69**	149,703	**0.58**
Total	**25,792,042**	**8,416,205**	**33.00**	**6,532,953**	**25.00**	**4,633,873**	**18.00**	**6,209,008**	**24.07**

The percentages for the workforce totals, according to the levels of stratification presented in Table 12.4, were used to construct a stratified quota sample (for a total of 1200 respondents) that represented the spread of employment in Great Britain across the different industrial sectors and sizes of organisation (Table 12.5). For example, according to Table 12.4, 1.9 per cent of employees work in I: Transport, Storage and Communication, where the employing organisation has 300 or more employees. For a sample size where the total number of respondents is 1200, this equates to 23 respondents. Where the percentages of the total workforce in the industrial sector were less than 0.5 per cent across the different sizes of organisation (e.g., C: Mining and Quarrying, and E: Electricity, Gas and Water Supply) these were combined with Manufacturing and Construction respectively. This provided a categorisation of 9 industrial sectors to aid comparison with the sample used in CRR 130/1997.

Table 12.5: Final sampling frame for respondents according to the employer size and SIC

Industry (SIC 2003 Section Descriptor)	**Number of Employees in Organisation**			
	One to 24	**25 - 99**	**100 - 299**	**300 plus**
C: Mining and quarrying D: Manufacturing	34	36	35	43
E: Electricity, gas and water supply F: Construction	27	14	11	9
G: Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods H: Hotels and restaurants	140	78	40	40
I: Transport, storage and communication	16	16	17	23
J: Financial intermediation K: Real estate, renting and business activities	89	47	43	63
L: Public administration and defence; compulsory social security	8	14	18	28
M: Education	13	44	28	25
N: Health and social work	34	40	16	51
O: Other community, social and personal service activities	31	16	8	7
Total respondents by size of organisation **Total number of respondents = 1202**	**392**	**305**	**216**	**289**

Achieving the target numbers of respondents for each cell was facilitated by the combined approach to data collection of a Computer Assisted Telephone Interview (CATI) and an Internet based survey. The total number of respondents (1200) is partly determined also by the financial constraints applied to using a sub-contractor (see Section 12.1.4).

12.1.4 Data Collection

A sub-contractor was engaged to administer the questionnaire and collate the data. Sufficient contact details for organisations to guarantee the quotas outlined in the sampling frame were gained initially from the Inter Departmental Business Register (IDBR). These contact details were selected randomly from within the IDBR. These contacts did not include sole traders or individuals who are self-employed. However, the sub-contractor found that the contact information from this database was not sufficiently accurate to guarantee achieving the quota sample, and so further contact details were randomly selected from the Dun and Bradstreet database.

The unit of selection for the contact details was at the local data or unit level, e.g. the individual workplace or branch (as with the 2004 Annual Business Inquiry Workplace Analysis). Replication of branches of the same organisation was avoided. Respondents were

representatives of employers, who in each instance had knowledge and experience of the organisation's management of the health risks associated with Display Screen Equipment. The individuals were defined within their job role as having knowledge of, and responsibility for, the employees' health and safety (H&S) within the employing organisation. The titles for such a job title included H&S Officer, or H&S Manager etc. Respondents were asked to reference their responses to the individual workplace of which they had direct experience.

An integrated approach to data collection was used, combining Computer Assisted Telephone Interviews (CATI) and a web based questionnaire survey. Respondents were recruited initially via the telephone. They were given then the option of completing the survey questionnaire over the telephone, or they were e-mailed a link to the online version of the questionnaire for them to complete. Records were kept of non-respondents. The fieldwork took place between December 2006 and March 2007.

12.1.5 Achieved Sample and Response Rates

In total, data were collected from 1241 respondents. Table 12.6 presents the totals for the target sample, and the total of the sample that was achieved.

Table 12.6: Actual totals achieved for quota sample

Industry (SIC 2003 Section Descriptors)	**Number of Employees in Organisation**			
	One to 24	25 - 99	100 - 299	300 plus
C: Mining and quarrying	Target = 34 ACH = 34	Target = 36	Target = 35	Target = 43
D: Manufacturing		ACH =36	ACH = 36	ACH =45
E: Electricity, gas and water supply	Target = 27	Target = 14 ACH =14	Target =11	Target =9
F: Construction	ACH =27		ACH =11	ACH =10
G: Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods	Target = 140	Target =78	Target =40	Target =40
H: Hotels and restaurants	ACH =140	ACH =79	ACH =41	ACH =42
I: Transport, storage and communication	Target =16 ACH =16	Target =16 ACH =19	Target =17 ACH =17	Target =23 ACH =24
J: Financial intermediation	Target =89	Target =47	Target =43	Target =63
K: Real estate, renting and business activities	ACH =90	ACH =48	ACH =43	ACH =63
L: Public administration and defence; compulsory social security	Target =8 ACH =8	Target =14 ACH =14	Target =18 ACH =21	Target =28 ACH =32
M: Education	Target =13 ACH =15	Target =44 ACH =45	Target =28 ACH =29	Target =25 ACH =26
N: Health and social work	Target =34 ACH =35	Target =40 ACH =42	Target =16 ACH =16	Target =51 ACH =54
O: Other community, social and personal service activities	Target =31 ACH =31	Target =16 ACH =17	Target =8 ACH =14	Target =7 ACH =7

In total, 904 interviews were completed using the CATI method, and 337 interviews were completed using the online version of the questionnaire. In total 13,751 individual contacts were made with potential respondents. There were 12,510 non-respondents, giving a response rate of just under 10 per cent. Although it is problematic to gauge the extent that the non-respondents introduce an element of bias into the sample, e.g. through self-selection, the non-responses were in part due to failure to make contact from the outset or inaccuracies in the

contact details. The details for the non-responses included: the contact details were of a residence and not a business (n = 74); the contact telephone number was an answering machine (n = 523); the telephone number was engaged/busy (n = 312); the telephone was disconnected (n = 976); the size of the company was not that required within the quota sample (n = 130).

12.1.6 Data Analysis

The questionnaire data were analysed using SPSS (Statistics Package for the Social Sciences). Due to the nature of the questions the main analyses focused on providing a descriptive assessment of the data, as well as tests of association between relevant questions, according to the different industries and also between companies of different sizes.

12.2 APPENDIX 2 - SIC 2003 AND SIC 80 DEFINITIONS

The following table gives a broad comparison between the sections used now and the divisions used in SIC(80), although the correlation is not exact as relatively minor differences in coverage are ignored.

Table 12.7: Comparison between sectors and SIC

Present Sections (SIC 2003)	Former Divisions (Brackets denote part of a division - SIC 80)
A Agriculture, Hunting and Forestry	0 (Agriculture and Forestry)
B Fishing	0 (Fishing)
C Mining And Quarrying	1 (Extraction of fuels) 2 (Extraction of minerals and ores)
D Manufacturing	1 (Fuel processing and production) 2 (Manufacture of chemicals and man-made fibres) 3 Metal goods, engineering and vehicles industries 4 Other manufacturing industries
E Electricity, Gas and Water Supply	1 (Production and distribution of electricity, gas; Water supply)
F Construction	5 Construction
G Wholesale and Retail Trade; Repair of Motor Vehicles, Motorcycles and Personal and Household Goods	6 (Wholesale and retail distribution; Commission agents; Repairs)
H Hotels and Restaurants	6 (Hotels and catering)
I Transport, Storage and Communication	7 Transport and communication 9 (Tourist offices; Radio and TV transmission)
J Financial Intermediation	8 (Banking, finance and insurance)
K Real Estate, Renting and Business Activities	8 (Business services; Dealing in real estate) 9 (Research & development; Other services)
L Public Administration and Defence; Compulsory Social Security	9 (Public administration, national defence and compulsory social security)
M Education	9 (Education)
N Health and Social Work	9 (Health and veterinary services; Other general services to the public)
O Other Community, Social and Personal Service Activities	9 (Sanitary, recreational and personal services)

P Private Households Employing Domestic Staff and Undifferentiated Production Activities of Households for Own Use	9 (Domestic services)
Q Extra - Territorial Organisations and Bodies	9 (Diplomatic representation, international organisations, allied armed forces)

12.3 APPENDIX 3 - EMPLOYERS' QUESTIONNAIRE

The purpose of this questionnaire is to gather views about the Health and Safety (Display Screen Equipment) Regulations. These Regulations first came into effect in 1993 and minor changes were made in 2002.

Display screen equipment (DSE) includes typical office visual display units (VDUs), such as personal computers and laptops. It also includes other alphanumeric or graphic display screens, for example, non-electronic display systems such as microfiche and process control screens.

The responses to this questionnaire will provide the Health and Safety Executive with information about the relevance and practical usefulness of the regulations governing work with DSE. All your answers will be collated by HI Europe and analysed by researchers at the Health and Safety Laboratory. Your answers will be confidential, and no individuals or organisations will be able to be identified from the survey.

Please answer the following questions **for your organisation, but only for the workplace location where you are situated**. Please answer by ticking the boxes or writing in the spaces provided. Even if you think that you do not have any display screen equipment at your workplace we would be grateful if you would at least complete the first section, **Section A**. The full questionnaire should take less than 30 minutes to complete.

If you have any queries, please contact HI Europe (HI to add contact details)

Thank you for your help

A. Background Information

A1. What is your main business activity, i.e. what are your main products or services?
Please tick the appropriate box.

Mining and quarrying	□
Manufacturing	□
Electricity, gas and water supply	□
Construction	□
Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods	□
Hotels and restaurants	□
Transport, storage and communication	□
Financial intermediation	□
Real estate, renting and business activities	□
Public administration and defence; compulsory social security	□
Education	□
Health and social work	□
Other community, social and personal service activities	□

A2. Approximately how many people are currently employed at this organisation? *Please include full-time and part-time permanent employees i.e. total head count, not full-time equivalents. Please tick the appropriate box.*

2-24 □ 25-99 □ 100-299 □ 300+ □

A3. Which of the following best describes your organisation? *Please tick the appropriate box.*

Public Sector □ Private Sector □

A4. What is your role within the organisation? (i.e. job title)
Please write in.

……

A5. Do you have a recognised trade union at your workplace? *Please tick one box.*

Yes □ No □ Don't Know □

A6. Do any staff in your organisation routinely use display screen equipment as a significant part* of their normal work? *Please tick one box.*

*For example: people using DSE more or less continuously on most days. Or others who:

- Normally use DSE for continuous spells of an hour or more at a time; and
- Use it in this way more or less daily; and
- Have to transfer information quickly to or from the screen; and
- Also need to apply high levels of attention or concentration; or are highly dependent on DSE or have little choice about using them; or need special training or skills to use the equipment.

Yes □ No □ Don't Know □

If you answered YES to question A6 above, please complete the rest of the questionnaire.

If you answered NO or DON'T KNOW, Thank You for your time you do not need to complete the rest of the questionnaire.

B. Use of Display Screen Equipment

B1. Please estimate the percentage of permanent employees in your company who **always**, **occasionally**, or **never**, work with display screen equipment? (The total must be 100%)

a.		% Always work with a display screen
b.		% Occasionally work with a display screen
c.		% Never work with a display screen
Total	100	% Employees

B2. Approximately how many display screens in total do you have at this organisation? *Please tick the appropriate box.*

1 to 4	□	5 to 9	□	10 to 24	□
25 to 49	□	50 to 99	□	100 to 249	□
250 to 499	□	500 to 1000	□	over 1000	□

B3. Is there anybody **not** permanently employed by your organisation that uses display screen equipment owned or supplied by you? *Please tick as many boxes as apply.*

Temporary / agency staff who are employed by the agency □

Temporary / agency staff who are self-employed □

Other self-employed □

Sub-contractors □

People on short-term contracts of fewer than 6 months □

Other, please specify □

None □

Don't know □

B4. If yes to any of the above, approximately how many jobs involving the use of display screen equipment, have been filled with individuals **not** permanently employed by your organisation over the last 12 months? *Please write in.*

……

B5. What are the main tasks that require staff to routinely use display screen equipment as a significant part of their normal work? *Please tick as many boxes as apply.*

Word processing	□	Desktop publishing	□
Data entry	□	CAD / CAM	□
Process control	□	Internet-based work	□

Other, please specify
……
……

C. Perceived risks

C1. In this question we are trying to find out your perceptions of the risks (real or otherwise) associated with use of display screen equipment. In your opinion, which of the following health problems may be caused by the use of display screen equipment?
Please tick one box for each health problem.

		Yes	No	Don't know
A	Upper limb pains and discomfort	□	□	□
B	Permanent eye and eyesight effects, e.g. short sight	□	□	□
C	Temporary eye strain leading to symptoms such as red or sore eyes or headaches	□	□	□
D	Tiredness and stress	□	□	□
E	Epilepsy	□	□	□
F	Skin complaints	□	□	□
G	Health damage from radiation	□	□	□
H	Miscarriages and birth defects	□	□	□
I	Back pain	□	□	□
J	Other - Please specify			

D. Alterations to workstations

D1. Does your organisation undertake risk assessments of workstations i.e. the display screen equipment and the immediate work environment every 12 months? *Please tick one box.*

Yes □ No □ Don't Know □

D2. Has your organisation made any changes to display screen workstations in the last 12 months? *Please indicate what changes have been made and why by ticking the appropriate boxes.*

		Yes, as a direct result of undertaking risk assessment	Yes, as a direct result of other requirements of health & safety law	Yes, but for other reasons e.g. office refurbishment / upgrade policy	No, have not made such changes
A	Provided suitable lighting	☐	☐	☐	☐
B	Provided new computer	☐	☐	☐	☐
C	Provided new display screen	☐	☐	☐	☐
D	Provided window covering	☐	☐	☐	☐
E	Ensured screen could swivel/tilt	☐	☐	☐	☐
F	Reduced noise at workstation	☐	☐	☐	☐
G	Screen moved to avoid glare	☐	☐	☐	☐
H	Provided adjustable chair	☐	☐	☐	☐
I	Provided new keyboard	☐	☐	☐	☐
J	Provided larger desk	☐	☐	☐	☐
K	Provided footrest	☐	☐	☐	☐
L	Provided easy to use software	☐	☐	☐	☐
M	Provided anti-glare screen	☐	☐	☐	☐
N	Redesigned tasks	☐	☐	☐	☐
O	Provided low emission monitor	☐	☐	☐	☐
P	Provided hand/wrist support	☐	☐	☐	☐
Q	Ensured sufficient space is available around workstation	☐	☐	☐	☐
R	Ensured temperature is comfortable	☐	☐	☐	☐
S	Ensured humidity levels are adequate	☐	☐	☐	☐
T	Ensured characters on screen are well-defined, clearly formed, and adequately spaced	☐	☐	☐	☐
U	Ensured image on screen is stable, with no flickering	☐	☐	☐	☐
V	Ensured brightness / contrast easily adjustable by operator	☐	☐	☐	☐
W	Ensured height of screen is adjustable	☐	☐	☐	☐

D3. Approximately what proportions of workstations at your organisation have been changed in the last 12 months? *Please write in.*

……%

D4. Are you planning to do anything else to workstations to comply with the Health and Safety (Display Screen Equipment) Regulations? *Please tick the appropriate box.*

Yes □ No □ **Go to Q.D6** Don't Know □ **Go to Q.D6**

D5. If yes, which of the changes from question D2 are you planning to make? *Please write in appropriate letter(s) from question D2(A-X).*

……
……

Other, *please specify*
……
……

D6. Overall, to what extent were any of the following important in leading you to take the actions you have regarding display screen equipment? *Please tick one box for each of the questions.*

		Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
1	To protect employees from risks	□	□	□	□	□
2	Pressure from HSE or local authority inspectors	□	□	□	□	□
3	To follow good practice	□	□	□	□	□
4	To improve comfort of employee	□	□	□	□	□
5	To reduce the costs of absence	□	□	□	□	□
6	To increase productivity/product quality	□	□	□	□	□
7	Pressure from employees/safety representatives	□	□	□	□	□
8	To comply with the Regulations	□	□	□	□	□
9	To reduce potential claims caused by Repetitive Strain Injury (RSI)	□	□	□	□	□
Other *please specify*		…… …… …… ……				

E. Operator Computer Interface

E1. Does your organisation take into account the following when purchasing, designing, selecting, commissioning and modifying software, and in designing tasks using display screen equipment? *Please tick one box for each question.*

		Yes	No	Don't Know
A	Software suitable for the task	□	□	□
B	Software easy to use and adaptable to the operator's level of knowledge	□	□	□
C	System gives feedback to workers on their performance	□	□	□
D	Systems display information in a format and at a pace adaptable to operators	□	□	□
E	Principles of software ergonomics are applied, in particular to human data processing	□	□	□

F. Daily routine of DSE users

F1. Do any of the jobs in your workplace involve spells of intensive display screen equipment work, i.e. work that has no natural breaks such as continuous data entry? *Please tick one box.*

Yes □ No □ **Go to Q.F4** Don't Know □ **Go to Q.F4**

F2. If yes, are staff in those jobs allowed to take breaks or changes in activity? *Please tick one box.*

Yes □ No □ **Go to Q.F4** Don't Know □ **Go to Q.F4**

F3. For how long and how often are these breaks undertaken? *Please tick* as *many boxes* as *apply.*

Irregularly depending on work pattern □

Irregularly depending on the individual □

Regularly □

Don't know □

If regular breaks are taken, please indicate the most common pattern in terms of the length and the frequency of the break *(e.g.* a ten minute break every hour). *Please write in.*

…….minute break every. ……hours

F4. Which of the following occur with regard to work routines of all DSE users? *Please tick as many boxes as apply.*

Supervisor / manager reminds staff to take breaks from screen work □

It is left to employees' discretion to take breaks / change activities □

Jobs have been redesigned to incorporate non-screen work □

Guidance is issued but it is not compulsory □

Reminders for breaks are programmed into the software □

Breaks occur naturally in the work anyway □

G. Information and Training

G1. Are employees who are DSE users in your company given information about how to prevent the health risks associated with display screen work? *Please tick the appropriate box.*

Yes - all DSE users □ Some □ No □ **Go to G3** Don't know □ **Go to G3**

G2. When would an employee be given such information? *Please tick* as *many boxes* as *apply.*

On commencement of employment □
At regular intervals □
When workstations have been substantially modified □

G3. Have employees who are DSE users in your company been given training on how to arrange their workstation in such a way as to avoid health problems? This refers to information on aspects such as the proper height of the desk and the chair and the distance they should sit from the screen and keyboard. *Please tick the appropriate box.*

Yes - All DSE users □ Some □ No □**Go to H1** Don't know □ **Go to H1**

G4. When would an employee be given such training? *Please tick the appropriate box.*

On commencement of employment □
At regular intervals □
When workstations have been substantially modified □

H. Eyes and eyesight

H1. Do you provide eyesight tests for users of display screen equipment? *Please tick the boxes that apply.*

Yes, on request of user, before starting display screen work ☐

Yes, on request of user, after starting display screen work ☐

Yes, for all employees using display screen equipment, before starting display screen work ☐

Yes, for all employees using display screen equipment, after starting display screen work ☐

Yes, if they experience visual difficulties due to display screen work ☐

No ☐ **Go to I1**

Don't know ☐ **Go to I1**

H2. What proportion of display screen equipment users do you estimate have received eyesight tests in the last 12 months (by registered ophthalmic optician)? *Please write in.*

……%

H3. How are these tests provided? *Please tick* as *many boxes* as *apply*

By an external optician who visits the firm ☐

By arrangement with a local optician on his/her premises ☐

Through a voucher scheme ☐

By company doctor or optician ☐

User makes his/her own arrangements and is reimbursed ☐

Don't know ☐

Other, *please specify*……

H4. When did your organisation first provide eyesight testing for users of display screen equipment? *Please tick one box.*

	Eyesight tests
Within the last three years	□
Between three and five years ago	□
Over five years ago	□
Don't know	□
Not applicable	□

H5. What proportion of individuals having had an eyesight test do you estimate have been prescribed spectacles for use specifically with display screen equipment? *Please write in.*

……%

I. The Regulations

I1. Are you or someone in your organisation aware of the Health and Safety (Display Screen Equipment) Regulations? *Please tick one* box.

Yes □ No □ **Go to J1** Don't Know □ **Go to J1**

I2. Please indicate the extent of <u>your</u> knowledge of the Regulations by circling a number from 1 to 5 on the scale below, with 1 = full knowledge, through to 5 = no knowledge at all.

Full knowledge Have no knowledge at all

1 2 3 4 5

If answering 5 please go to J1

I3. How understandable do you think the Health and Safety (Display Screen Equipment) Regulations are? Please indicate by circling a number from 1 to 5 on the scale below with 1 = easy to understand, through to 5 = difficult to understand.

Easy to understand Difficult to understand

1 2 3 4 5

I4. How relevant do you find the Health and Safety (Display Screen Equipment) Regulations for daily work? Please indicate by circling a number from 1 to 5 on the scale below with 1 = Not at all relevant, through to 5 = Very relevant.

Not at all relevant Very relevant

1 2 3 4 5

I5. How useful do you find the Health and Safety (Display Screen Equipment) Regulations for daily work? Please indicate by circling a number from 1 to 5 on the scale below with 1 = Not at all useful, through to 5 = Very useful.

Not at all useful Very useful
1 2 3 4 5

I6. How have you decided which employees are covered by the Regulations at your workplace? *Please tick* as *many boxes as apply.*

We consider that everybody is covered □

We follow HSE guidance □

We apply the Regulations where employees use DSE for over half their working time □

We apply the Regulations to all workstations □

We only set criteria for those wanting eyesight tests □

Other, *please specify*
……
……

I7. How would you generally describe the situation in regard to your organisation's access to information about regulations concerning work with Display Screen Equipment? *Please tick the appropriate box.*

Good □ Adequate □ Fair □ Poor □ Don't know □

I8. Who do you go to for advice regarding display screen equipment and its use in the workplace? *Please tick as many boxes as apply.*

Trade or sector organisations □

Trade unions □

Manufacturers or suppliers of DSE, workstations or software □

External consultants or training organisations □

Health & Safety Executive / inspectors □

Local Authority / Environmental health inspectors □

Other, *please specify*
……
……

I9. How **confident** are you that your organisation has done all it needs to do to comply with the Health and Safety (Display Screen Equipment) Regulations? Please indicate by circling a number from 1 to 5 on the scale below with 1 = Not at all confident, through to 5 = Very confident.

Not at all confident Very confident

1 2 3 4 5

I10. How much more do you think could be done in your current organisation to comply with the Health and Safety (Display Screen Equipment) Regulations? *Please tick one box.*

Very little	A slight amount	A moderate amount	Quite a lot	A great deal	Don't Know
□	□	□	□	□	□

J. Costs

J1. Do you have a separate budget to meet the costs of complying with the Regulations? *Please tick one box.*

Yes, as a separate DSE budget □

Yes, but as an itemised part of the Health & Safety budget □

Yes, as an un-itemised part of the Health & Safety budget □

No, no separate budget for Health & Safety or DSE □ **Go to Q.K1**

Don't know □ **Go to Q.K1**

J2. What has been the total cost to the organisation of complying with the Health and Safety (Display Screen Equipment) Regulations in the past 12 months? (This is only additional costs incurred to comply with the regulations and does not include purchase of standard computers and furniture.)

*Please give an **estimated** total cost and, if possible, indicate how this breaks down between each aspect of the Regulation.*

		Don't know
Total Cost:	£……	☐
Risk assessments or workstation assessments	£…….	☐
Altering workstations	£……..	☐
Altering work routine	£…….	☐
Provision of eye or eye sight tests	£……..	☐
Provision of spectacles	£……..	☐
Training and information	£……..	☐
Other, *please specify*	£……..	☐

K. The benefits

K1. To what extent have any of the following benefits been observed as a direct result of implementing the measures associated with the Display Screen Equipment Regulations in the workplace? *Please tick one box for each statement.*

Compliance with the Regulations has led to:	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Reduced labour turnover	☐	☐	☐	☐	☐
Reduced staff stress	☐	☐	☐	☐	☐
Reduced sickness absence	☐	☐	☐	☐	☐
Increased productivity or quality of output	☐	☐	☐	☐	☐
Improved staff morale	☐	☐	☐	☐	☐
Fewer compensation claims, e.g. linked to RSI	☐	☐	☐	☐	☐
Other, *please specify* …… ……					

L. General Comments

L1. Below are a series of statements about the use of display screen equipment in your workplace. *Please indicate the extent to which you agree with the following statements by circling* a *number from* 1 *to* 5 *against each statement with* 1 = *strongly agree, through to* 5 = *strongly disagree.*

		Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
1	Senior management lack commitment to DSE assessments	1	2	3	4	5
2	Employees forget how to use DSE equipment properly	1	2	3	4	5
3	We have had a positive reaction from staff to the changes we have introduced	1	2	3	4	5
4	Benefits to the organisation of compliance with the Regulations outweigh costs	1	2	3	4	5
5	The Regulations are complex and definitions confusing	1	2	3	4	5
6	Costs of compliance with the Regulations are easy to identify	1	2	3	4	5
7	Complying with the Regulations are onerous	1	2	3	4	5
8	It is difficult to ensure that employees take regular breaks	1	2	3	4	5
9	Employers should not have to pay for eye tests or spectacles	1	2	3	4	5

Thank you very much for completing this questionnaire

If you have any queries about the study, please contact HI Europe (add contact details)

12.4 APPENDIX 4 - OVERVIEW OF QUESTIONNAIRE (FREQUENCY TABLES)

Display Screen Equipment in the Workplace - Type of Survey Administered

Survey Mode	*N*	%
Web	324	26
CATI live	917	74
Total	1241	100

A. Background information

A1. What is your main business activity, i.e. what are your main products or services?

Main business activity	*N*	%
Mining and quarrying	5	<1
Manufacturing	146	12
Electricity, gas and water supply	7	1
Construction	55	4
Wholesale and retail trade, repair of motor vehicles, motorcycles and personal and household goods	276	22
Hotels and restaurants	26	2
Transport, storage and communication	76	6
Financial intermediation	125	10
Real estate, renting and business activities	119	10
Public administration and defence; compulsory social security	75	6
Education	115	9
Health and social work	147	12
Other community, social and personal service activities	69	6
Total	1241	100

A2. Approximately how many people are currently employed at this organisation?

Number of Employees	*N*	%
2-24	396	32
25-99	314	25
100-299	228	18
300+	303	24
Total	1241	100

A3. Which of the following best describes your organisation?

Type of Organisation	*N*	%
Public Sector	375	30
Private Sector	838	68
Decline to answer	3	<1
Not sure	25	2
Total	1241	100

A4. What is your role within the organisation? (i.e. job title)

Type of Job	*N*	%
Administration	21	2
Admin Manager	11	1
Assistant/PA	22	2
Assistant Manager	3	<1
Business Manager	9	1
Bursar	8	1
Company Secretary	11	1
Commercial Manager/Director	5	<1
Director - Other	80	6
Estate Manager	3	<1
Facilities Manager/Director/Officer/Coordinator	37	3
Finance Manager/Director	12	1
Financial Controller	4	<1
General Manager	19	2
Head Teacher	9	1
Head of Health/Safety/Environment/Risk	10	1
Health/Safety/Environment/Risk Advisor	115	9
Health/Safety/Environment/Risk Coordinator	34	3
Health/Safety/Environment/Risk Director	6	<1
Health/Safety/Environment/Risk Manager	210	17
Health/Safety/Environment/Risk Officer	90	7
Health/Safety/Environment/Risk Other	54	4
HR Manager/Director	27	2
IT Manager	6	<1
Manager - Other	113	9
Managing Director	38	3
Office Manager	30	2
Operations Manager/Director	30	2
Owner/Proprietor/Partner	38	3
Personnel Manager	4	<1
Practice Manager	20	2
Production Manager/Director	10	1
Project Manager/Director	7	1
Sales Manager/Director	8	1
Site Manager	3	<1
Property Manager/Director	3	<1
Technical Manager/Director	5	<1
Training Manager	5	<1
Service Manager	5	<1
Other	113	9

Refused to answer	3	<1
Total	1241	100

A5. Do you have a recognised trade union at your workplace?

Trade Union at Work Place	*N*	%
Yes	425	34
No	799	64
Decline to answer	3	<1
Not sure	14	1
Total	1241	100

A6. Do any staff in your organisation routinely use display screen equipment (DSE) as a significant part of their normal work?

Use of DSE	*N*	%
Yes	1241	100

B. Use of Display Screen Equipment

B1a. Please estimate the percentage of permanent employees in your company who always work with display screen equipment.

Percentage of Permanent Employees	*N*	%
≤ 33%	535	43
34 - 66%	253	20
67 -100%	450	36
No response	3	<1
Total	1241	100

B1b. Please estimate the percentage of permanent employees in your company who occasionally work with display screen equipment.

Percentage of Permanent Employees	*N*	%
≤ 33%	909	73
34 - 66%	183	15
67 - 100%	146	12
No response	3	<1
Total	1241	100

B1c. Please estimate the percentage of permanent employees in your company who never work with display screen equipment.

Percentage of Permanent Employees	*N*	%
≤ 33%	843	68
34 - 66%	176	14
67 -100%	219	18
No response	3	<1
Total	1241	100

B2. Approximately how many display screens in total do you have at this organisation?

Number of Display Screens	*N*	%
1 to 4	171	14
5 to 9	145	12
10 to 24	215	17
25 to 49	145	12
50 to 99	117	9
100 to 249	142	11
250 to 499	102	8
500 to 1000	70	6
Over 1000	119	10
Not sure	15	1
Total	1241	100

B3. Is there anybody not permanently employed by your organisation that use display screen equipment owned or supplied by you?

Non-Permanent Staff	*N*	%
Temporary/Agency staff employed by Agency	354	29
Temporary/Agency staff self employed	91	7
Other self-employed	73	6
Sub-contractors	127	10
People on short-term contracts of fewer than 6 months	207	17
Students/Work placement/Experience	46	4
Volunteers	13	1
Trainees	5	<1
Part-time/Temporary staff	17	1
Other	37	3
None	711	57

B4. If yes to any of the above, approximately how many jobs involving the use of display screen equipment have been filled with individuals not permanently employed by your organisation over the last 12 months?

Number of Jobs	*N*	%
≤ 10	237	19
11 - 20	34	3
21 - 30	19	2
31 - 40	5	<1
41 - 100	32	3
101 - 1000	35	3
1001 - 100000	159	13
No response	720	58
Total	1241	100

B5. What are the main tasks that require staff to routinely use display screen equipment as a significant part of their normal work?

Main Tasks	*N*	%
Word processing	1116	90
Desktop publishing	520	42
Data entry	1126	91
CAD/CAM	335	27
Process control	501	40
Internet-based work	881	71
Spreadsheets/Excel	28	2
Database	16	1
E-mail	14	1
Financial task e.g. Insurance/accounting	42	3
CCTv/Security Cameras	3	<1
Programming	4	<1
Stock Control	7	1
Teaching/Education/Lesson planning	8	1
Till/Checkout operation	8	1
Research/surveys	5	<1
Other	84	7
None	6	<1

C. Perceived Risks

C1. In this question we are trying to find out your perceptions of the risks (real or otherwise) associated with use of display screen equipment. In your opinion, which of the following health problems may be caused by the use of display screen equipment?

Health Problem	Yes	No	Decline to answer	Not sure	Total
	N (%)	*N* (%)	*N* (%)	*N* (%)	*N* (%)
Upper limb pains and discomfort	1002 (81)	207 (17)	4 (<1)	28 (2)	1241 (100)
Permanent eye and eyesight effects, e.g. short sight	672 (54)	499 (40)	5 (<1)	65 (5)	1241 (100)
Temporary eye strain leading to symptoms such as red or sore eyes or headaches	1096 (88)	120 (10)	1 (<1)	24 (2)	1241 (100)
Tiredness and stress	1029 (83)	190 (15)	1 (<1)	21 (2)	1241 (100)
Epilepsy	309 (25)	787 (63)	4 (<1)	141 (11)	1241 (100)
Skin complaints	177 (14)	990 (80)	1 (<1)	73 (6)	1241 (100)
Health damage from radiation	101 (8)	1059 (85)	1 (<1)	80 (6)	1241 (100)
Miscarriages and birth defects	65 (5)	1075 (87)	2 (<1)	99 (8)	1241 (100)
Back pain	1009 (81)	217 (18)	1 (<1)	14 (1)	1241 (100)
Other - please specify	171 (14)	1049 (85)	5 (<1)	16 (1)	1241 (100)

Other Health Problems That May be Caused by the Use of DSE

Health Problems (Other)	*N*	%
Upper limb pains and discomfort	14	1
Temporary eye strain leading to symptoms such as red or sore eyes or headaches	3	<1
Tiredness and stress	7	1
Epilepsy	1	<1
Skin complaints	1	<1
Back pain	3	<1
RSI – Repeated Strain Injury	66	5
MSD - Musculoskeletal Disorder	7	1
DVT - Deep Vein Thrombosis	6	<1
Headaches	13	1
Lower Limbs discomfort and pains	14	1
CTS (Carpal Tunnel Syndrome)	9	1
Neck Pain	15	1
Other	33	3
Nothing/None	8	1
Refused/declined to answer	4	<1

D. Alterations to Workstations

D1. Does your organisation undertake risk assessments of workstations i.e. the display screen equipment and the immediate work environment every 12 months?

Undertake Risk Assessments	*N*	%
Yes	935	75
No	286	23
Not sure	20	2
Total	1241	100

D2. Has your organisation made any changes to display screen workstations in the last 12 months?

D2A. Provided suitable lighting

Reason for Change	*N*	%
Yes, as a direct result of undertaking risk assessment	394	32
Yes, as a direct result of other requirements of health & safety law	127	10
Yes, but for other reasons (e.g. office refurbishment /upgrade policy)	286	23
No, have not made such changes	421	34
Decline to answer	1	<1
Not sure	12	1
Total	1241	100

D2B. Provided a new computer

Reason for Change	*N*	%
Yes, as a direct result of undertaking risk assessment	204	16
Yes, as a direct result of other requirements of health & safety law	30	2
Yes, but for other reasons (e.g. office refurbishment /upgrade policy)	643	52
No, have not made such changes	342	28
Decline to answer	2	<1
Not sure	20	2
Total	1241	100

D2C. Provided a new display screen

Reason for Change	*N*	%
Yes, as a direct result of undertaking risk assessment	319	26
Yes, as a direct result of other requirements of health & safety law	56	4
Yes, but for other reasons (e.g. office refurbishment /upgrade policy)	518	42
No, have not made such changes	334	27
Decline to answer	1	<1
Not sure	13	1
Total	1241	100

D2D. Provided a window covering

Reason for Change	*N*	%
Yes, as a direct result of undertaking risk assessment	340	27
Yes, as a direct result of other requirements of health & safety law	75	6
Yes, but for other reasons (e.g. office refurbishment /upgrade policy)	224	18
No, have not made such changes	579	47
Decline to answer	1	<1
Not sure	22	2
Total	1241	100

D2E. Ensured the screen could swivel/tilt

Reason for Change	*N*	%
Yes, as a direct result of undertaking risk assessment	423	34
Yes, as a direct result of other requirements of health & safety law	112	9
Yes, but for other reasons (e.g. office refurbishment /upgrade policy)	317	26
No, have not made such changes	377	30
Decline to answer	1	<1
Not sure	11	1
Total	1241	100

D2F. Reduced noise at workstation

Reason for Change	*N*	%
Yes, as a direct result of undertaking risk assessment	173	14
Yes, as a direct result of other requirements of health & safety law	52	4
Yes, but for other reasons (e.g. office refurbishment /upgrade policy)	124	10
No, have not made such changes	861	69
Decline to answer	4	<1
Not sure	27	2
Total	1241	100

D2G. Screen moved to avoid glare

Reason for Change	*N*	%
Yes, as a direct result of undertaking risk assessment	527	42
Yes, as a direct result of other requirements of health & safety law	89	7
Yes, but for other reasons (e.g. office refurbishment /upgrade policy)	161	13
No, have not made such changes	440	35
Decline to answer	1	<1
Not sure	23	2
Total	1241	100

D2H. Provided adjustable chair

Reason for Change	*N*	%
Yes, as a direct result of undertaking risk assessment	548	44
Yes, as a direct result of other requirements of health & safety law	121	10
Yes, but for other reasons (e.g. office refurbishment /upgrade policy)	280	22
No, have not made such changes	280	22
Decline to answer	1	<1
Not sure	11	1
Total	1241	100

D2I. Provided new keyboard

Reason for Change	*N*	%
Yes, as a direct result of undertaking risk assessment	321	26
Yes, as a direct result of other requirements of health & safety law	40	3
Yes, but for other reasons (e.g. office refurbishment /upgrade policy)	482	39
No, have not made such changes	382	31
Decline to answer	1	<1
Not sure	15	1
Total	1241	100

D2J. Provided larger desk

Reason for Change	*N*	%
Yes, as a direct result of undertaking risk assessment	257	21
Yes, as a direct result of other requirements of health & safety law	44	3
Yes, but for other reasons (e.g. office refurbishment /upgrade policy)	247	20
No, have not made such changes	671	54
Decline to answer	2	<1
Not sure	20	2
Total	1241	100

D2K. Provided footrest

Reason for Change	*N*	%
Yes, as a direct result of undertaking risk assessment	547	44
Yes, as a direct result of other requirements of health & safety law	73	6
Yes, but for other reasons (e.g. office refurbishment /upgrade policy)	108	9
No, have not made such changes	497	40
Decline to answer	1	<1
Not sure	15	1
Total	1241	100

D2L. Provided easy to use software

Reason for Change	*N*	%
Yes, as a direct result of undertaking risk assessment	197	16
Yes, as a direct result of other requirements of health & safety law	49	4
Yes, but for other reasons (e.g. office refurbishment /upgrade policy)	458	37
No, have not made such changes	498	40
Decline to answer	2	<1
Not sure	37	3
Total	1241	100

D2M. Provided anti-glare screen

Reason for Change	*N*	%
Yes, as a direct result of undertaking risk assessment	324	26
Yes, as a direct result of other requirements of health & safety law	63	5
Yes, but for other reasons (e.g. office refurbishment /upgrade policy)	237	19
No, have not made such changes	589	47
Decline to answer	2	<1
Not sure	26	2
Total	1241	100

D2N. Redesigned tasks

Reason for Change	*N*	%
Yes, as a direct result of undertaking risk assessment	298	24
Yes, as a direct result of other requirements of health & safety law	51	4
Yes, but for other reasons (e.g. office refurbishment /upgrade policy)	117	9
No, have not made such changes	728	59
Decline to answer	2	<1
Not sure	45	4
Total	1241	100

D2O. Provided low emission monitor

Reason for Change	*N*	%
Yes, as a direct result of undertaking risk assessment	185	15
Yes, as a direct result of other requirements of health & safety law	38	3
Yes, but for other reasons (e.g. office refurbishment /upgrade policy)	345	28
No, have not made such changes	578	46
Decline to answer	1	<1
Not sure	94	8
Total	1241	100

D2P. Provided hand/wrist support

Reason for Change	*N*	%
Yes, as a direct result of undertaking risk assessment	554	45
Yes, as a direct result of other requirements of health & safety law	93	7
Yes, but for other reasons (e.g. office refurbishment /upgrade policy)	137	11
No, have not made such changes	444	36
Decline to answer	1	<1
Not sure	12	1
Total	1241	100

D2Q. Ensured sufficient space is available around workstation

Reason for Change	*N*	%
Yes, as a direct result of undertaking risk assessment	492	40
Yes, as a direct result of other requirements of health & safety law	113	9
Yes, but for other reasons (e.g. office refurbishment /upgrade policy)	294	24
No, have not made such changes	328	26
Decline to answer	2	<1
Not sure	12	1
Total	1241	100

D2R. Ensured temperature is comfortable

Reason for Change	*N*	%
Yes, as a direct result of undertaking risk assessment	361	29
Yes, as a direct result of other requirements of health & safety law	168	14
Yes, but for other reasons (e.g. office refurbishment /upgrade policy)	302	24
No, have not made such changes	392	32
Decline to answer	1	<1
Not sure	17	1
Total	1241	100

D2S. Ensured humidity levels are adequate

Reason for Change	*N*	%
Yes, as a direct result of undertaking risk assessment	255	21
Yes, as a direct result of other requirements of health & safety law	103	8
Yes, but for other reasons (e.g. office refurbishment /upgrade policy)	201	16
No, have not made such changes	652	53
Decline to answer	1	<1
Not sure	29	2
Total	1241	100

D2T. Ensured characters on screen are well-defined, clearly formed, and adequately spaced

Reason for Change	*N*	%
Yes, as a direct result of undertaking risk assessment	393	32
Yes, as a direct result of other requirements of health & safety law	75	6
Yes, but for other reasons (e.g. office refurbishment /upgrade policy)	275	22
No, have not made such changes	467	38
Decline to answer	3	<1
Not sure	28	2
Total	1241	100

D2U. Ensured image on screen is stable, with no flickering

Reason for Change	*N*	%
Yes, as a direct result of undertaking risk assessment	438	35
Yes, as a direct result of other requirements of health & safety law	94	8
Yes, but for other reasons (e.g. office refurbishment /upgrade policy)	292	23
No, have not made such changes	395	32
Decline to answer	1	<1
Not sure	21	2
Total	1241	100

D2V. Ensured brightness/contrast is easily adjustable by operator

Reason for Change	*N*	%
Yes, as a direct result of undertaking risk assessment	445	36
Yes, as a direct result of other requirements of health & safety law	97	8
Yes, but for other reasons (e.g. office refurbishment /upgrade policy)	296	24
No, have not made such changes	384	31
Decline to answer	1	<1
Not sure	18	1
Total	1241	100

D2W. Ensured height of screen is adjustable

Reason for Change	*N*	%
Yes, as a direct result of undertaking risk assessment	527	42
Yes, as a direct result of other requirements of health & safety law	103	8
Yes, but for other reasons (e.g. office refurbishment /upgrade policy)	240	19
No, have not made such changes	346	28
Decline to answer	1	<1
Not sure	24	2
Total	1241	100

D3. Approximately what proportions of workstations at your organisation have been changed in the last 12 months?

Proportion of Workstations	*N*	%
≤ 33%	770	62
34-66%	171	14
67-100%	204	16
No response	96	8
Total	1241	100

D4. Are you planning to do anything else to workstations to comply with the Health and Safety (Display Screen Equipment) Regulations?

Plans for Compliance	*N*	%
Yes	335	27
No	866	70
Not sure	40	3
Total	1241	100

D5. Which of the following changes are you planning to make?

Prospective Changes	***N***	**%**
Provide suitable lighting	84	7
Provide a new computer	105	8
Provide a new display screen	103	8
Provide a window covering	64	5
Ensure the screen can swivel/tilt	82	7
Reduce noise at workstation	56	5
Move screen to avoid glare	82	7
Provide adjustable chair	97	8
Provide new keyboard	94	8
Provide larger desk	60	5
Provide footrest	85	7
Provide easy to use software	65	5
Provide anti-glare screen	73	6
Redesign tasks	64	5
Provide low emission monitor	62	5
Provide hand/wrist support	82	7
Ensure sufficient space is available around workstation	93	7
Ensure temperature is comfortable	75	6
Ensure humidity levels are adequate	65	5
Ensure characters on screen are well-defined, clearly formed	71	6
Ensure image on screen is stable, with no flickering	73	6
Ensure brightness/contrast is easily adjustable by operator	78	6
Ensure height of screen is adjustable	88	7
Carry out risk assessment	35	3
Change is an ongoing process	25	2
Provide Training	10	1
Other	49	4
I’m not planning to make any changes.	11	1

D6. Overall, to what extent were any of the following important in leading you to take the actions you have regarding display screen equipment?

D6 - 1. To protect employees from risks

Level of Agreement	*N*	%
Strongly agree	543	44
Agree	564	45
Neither agree nor disagree	77	6
Disagree	33	3
Strongly disagree	7	1
Decline to answer	3	<1
Not sure	14	1
Total	1241	100

D6 - 2. Pressure from HSE or local authority inspectors

Level of Agreement	*N*	%
Strongly agree	48	4
Agree	185	15
Neither agree nor disagree	225	18
Disagree	564	45
Strongly disagree	189	15
Decline to answer	5	<1
Not sure	25	2
Total	1241	100

D6 - 3. To follow good practice

Level of Agreement	*N*	%
Strongly agree	462	37
Agree	673	54
Neither agree nor disagree	66	5
Disagree	12	1
Strongly disagree	9	1
Decline to answer	4	<1
Not sure	15	1
Total	1241	100

D6 - 4. To improve comfort of employee

Level of Agreement	*N*	%
Strongly agree	446	36
Agree	679	55
Neither agree nor disagree	73	6
Disagree	19	2
Strongly disagree	6	<1
Decline to answer	4	<1
Not sure	14	1
Total	1241	100

D6 - 5. To reduce the costs of absence

Level of Agreement	*N*	%
Strongly agree	163	13
Agree	499	40
Neither agree nor disagree	248	20
Disagree	257	21
Strongly disagree	45	4
Decline to answer	5	<1
Not sure	24	2
Total	1241	100

D6 - 6. To increase productivity/product quality

Level of Agreement	*N*	%
Strongly agree	149	12
Agree	599	48
Neither agree nor disagree	234	19
Disagree	201	16
Strongly disagree	31	2
Decline to answer	4	<1
Not sure	23	2
Total	1241	100

D6 - 7. Pressure from employees/safety representatives

Level of Agreement	*N*	%
Strongly agree	80	6
Agree	342	28
Neither agree nor disagree	271	22
Disagree	438	35
Strongly disagree	88	7
Decline to answer	5	<1
Not sure	17	1
Total	1241	100

D6 - 8. To comply with the Regulations

Level of Agreement	*N*	%
Strongly agree	423	34
Agree	633	51
Neither agree nor disagree	104	8
Disagree	46	4
Strongly disagree	11	1
Decline to answer	3	<1
Not sure	21	2
Total	1241	100

D6 - 9. To reduce potential claims caused by Repetitive Strain Injury (RSI)

Level of Agreement	*N*	%
Strongly agree	231	19
Agree	565	45
Neither agree nor disagree	194	16
Disagree	182	15
Strongly disagree	42	3
Decline to answer	6	<1
Not sure	21	2
Total	1241	100

Other factors that led to the taking of actions regarding DSE

Factors	*N*	%
To protect employees from risks/for safety	42	3
Pressure from HSE or local authority inspectors	2	<1
To follow good practice	28	2
To improve comfort of employee	78	6
To reduce the costs of absence	4	<1
To increase productivity/product quality	22	2
Pressure from employees/safety representatives	4	<1
To comply with the Regulations	59	5
Age of equipment	19	2
Result of assessment	33	3
Upgrading technology/office refurbishment	65	7
To avoid litigation/claims	6	1
Improve staff welfare/health/care	81	7
Cost (general)	14	1
For ease of use	12	1
Improve staff morale	41	3
Request from staff/staff needs	35	3
Want good image for company/seen as a caring employer	11	1
To improve the working environment (general)	15	1
None/nothing	651	53
Other	112	9
Not answered	20	2
Not sure/don't know	6	1

E. Operator Computer Interface

E1. Does your organisation take into account the following when purchasing, designing, selecting, commissioning and modifying software, and in designing tasks using display screen equipment?

A. Software suitable for the task

Taking Account	*N*	%
Yes	1158	93
No	38	3
Decline to answer	4	<1
Not sure	41	3
Total	1241	100

B. Software easy to use and adaptable to the operator's level of knowledge

Taking Account	*N*	%
Yes	1114	90
No	73	6
Decline to answer	5	<1
Not sure	49	4
Total	1241	100

C. System gives feedback to workers on their performance

Taking Account	*N*	%
Yes	426	34
No	698	56
Decline to answer	4	<1
Not sure	113	9
Total	1241	100

D. Systems display information in a format and at a pace adaptable to operators

Taking Account	*N*	%
Yes	1007	81
No	166	13
Decline to answer	5	<1
Not sure	63	5
Total	1241	100

E. Principles of software ergonomics are applied, in particular to human data processing

Taking Account	*N*	%
Yes	829	67
No	236	19
Decline to answer	9	1
Not sure	167	13
Total	1241	100

F. Daily Routine of DSE Users

F1. Do any of the jobs in your workplace involve spells of intensive display screen equipment work, for example, work that has no natural breaks such as continuous data entry?

Jobs of intensive Work	*N*	%
Yes	280	22
No	950	77
Not sure	11	1
Total	1241	100

F2. If yes, are staff in those jobs allowed to take breaks or changes in activity?

Allowance of Breaks	*N*	% (overall)	% (specific)
Yes	278	22	99
No	2	<1	1
Total	280	23	100

F3. For how long and how often are these breaks undertaken?

Frequency of Breaks	*N*	% (overall)	% (specific)
Irregularly depending on work pattern	20	2	7
Irregularly depending on the individual	103	8	38
Regularly	149	12	55
NA	963	78	
Not sure	6	<1	
Total	1241	100	

If regular breaks are taken, please indicate the most common pattern in terms of the length and the frequency of the break (*e.g.* a ten minute break every hour).

	Hours							Total (*n*, %)
Minutes	***0***	***1***	***2***	***3***	***4***	***15***	***20***	
0	1 (1)	0	0	0	0	1 (1)	0	2 (1)
2	0	1 (1)	0	0	0	0	0	1 (1)
3	0	0	0	0	0	0	1 (1)	1 (1)
4	0	1 (1)	0	0	0	0	0	1 (1)
5	0	50 (34)	3 (2)	0	0	0	0	53 (37)
6	0	1 (1)	0	0	0	0	0	1 (1)
10	0	46 (32)	11 (8)	3 (2)	0	0	0	60 (41)
15	0	7 (5)	10 (7)	2 (1)	1 (1)	0	0	20 (14)
20	0	0	1 (1)	0	0	0	0	1 (1)
25	0	0	1 (1)	0	0	0	0	1 (1)
30	0	0	1 (1)	2 (1)	1(1)	0	0	4 (3)
Total	1	106 (73)	27 (19)	7 (5)	2 (1)	1 (1)	1 (1)	145 (100)

* The percentages **(*n*, %)** in the table are representative of the total.

F4. Which of the following occur with regard to work routines of all DSE users?

Issues Affecting Work Routines	***n***	**%**
Supervisor/manager reminds staff to take breaks from screen	514	41
It is left to employees' discretion to take breaks/change activities	986	79
Jobs have been redesigned to incorporate non-screen work	381	31
Guidance is issued but it is not compulsory	635	51
Reminders for breaks are programmed into the software	63	5
Breaks occur naturally in the work anyway	1005	81
Other	29	2

G. Information and Training

G1. Are employees who are DSE users in your company given information about how to prevent the health risks associated with display screen work?

Provision of Information re Preventing Health Risks	***N***	**%**
Yes - all DSE users	972	78
Yes – some	105	8
No	155	12
Decline to answer	1	<1
Not sure	8	1
Total	1241	100

G2. When would an employee be given such information?

Time Scale for Provision of Information	*N*	%
On commencement of employment	926	75
At regular intervals	632	51
When workstations have been substantially modified	560	45

G3. Have employees who are DSE users in your company been given training on how to arrange their workstation in such a way as to avoid health problems?

Provision of Training re Avoiding Health Risks	*N*	%
Yes - all DSE users	780	63
Yes – some	160	13
No	279	22
Decline to answer	4	<1
Not sure	18	1
Total	1241	100

G4. When would an employee be given such training?

Time Scale for Provision of Training	*N*	%
On commencement of employment	803	65
At regular intervals	543	44
When workstations have been substantially modified	507	41

H. Eyes and Eyesight

H1. Do you provide eyesight tests for users of display screen equipment?

Provision of Eyesight Tests	*N*	%
Yes, on request of user, before starting display screen work	333	27
Yes, on request of user, after starting display screen work	590	48
Yes, for all employees using display screen equipment, before starting display screen work	242	20
Yes, for all employees using display screen equipment, after starting display screen work	328	26
Yes, if they experience visual difficulties due to display screen work	384	31
No	292	24

H2. What proportion of display screen equipment users do you estimate have received eyesight tests in the last 12 months (by registered ophthalmic optician)?

Percentage of Users	*N*	%
≤ 33%	561	45
34 - 66%	114	9
67 - 100%	91	7
No response	475	38
Total	1241	100

H3. How are these tests provided?

How Tests Provided	*N*	%
By an external optician who visits the firm	72	6
By arrangement with a local optician on his/her premises	317	26
Through a voucher scheme	201	16
By company doctor or optician	62	5
User makes his/her own arrangements and is reimbursed	573	46
This is determined by Occupational Health	5	<1
Other	5	<1
None	1	<1

H4. When did your organisation first provide eyesight testing for users of display screen equipment?

When Eyesight Testing First Provided	*N*	%
Within the last three years	118	10
Between three and five years ago	144	12
Over five years ago	593	48
Not applicable	24	2
No response	310	25
Not sure	52	4
Total	1241	100

H5. What proportion of individuals having had an eyesight test do you estimate has been prescribed spectacles for use specifically with display screen equipment?

Percentage of Users	*N*	%
≤ 33%	650	52
34 - 66%	39	3
67 - 100%	30	2
No response	522	42
Total	1241	100

I. The Regulations

I1. Are you or someone in your organisation aware of the Health and Safety (Display Screen Equipment) Regulations?

Awareness of Regulations	*N*	%
Yes	1150	93
No	81	6
Decline to answer	1	<1
Not sure	9	1
Total	1241	100

I2. Please indicate the extent of your knowledge of the Regulations by using a scale from 1 to 5 where 1 means 'have no knowledge at all' and 5 means 'have full knowledge'.

Extent of Knowledge	*N*	%
1 Have no knowledge at all	5	<1
2	57	5
3	344	28
4	402	32
5 Have full knowledge	342	28
No response	91	7
Total	1241	100

13. How understandable do you think the Health and Safety (Display Screen Equipment) Regulations are?

Understandability of Regulations	*N*	%
1 Difficult to understand	18	1
2	67	5
3	348	28
4	399	32
5 Easy to understand	299	24
No response	96	8
Not sure	14	1
Total	1241	100

I4. How relevant do you find the Health and Safety (Display Screen Equipment) Regulations for daily work?

Relevance of Regulations	*N*	%
1 Not at all relevant	19	2
2	87	7
3	267	22
4	379	31
5 Very relevant	383	31
No response	96	8
Not sure	10	1
Total	1241	100

I5. How useful do you find the Health and Safety (Display Screen Equipment) Regulations for daily work?

Usefulness of Regulations	*N*	%
1 Not at all useful	29	2
2	96	8
3	326	26
4	376	30
5 Very useful	304	24
No response	96	8
Decline to answer	1	0
Not sure	13	1
Total	1241	100

I6. How have you decided which employees are covered by the Regulations at your workplace?

Coverage of Employees	*N*	%
We consider that everybody is covered	677	55
We follow HSE guidance	647	52
We apply the Regulations where employees use DSE for over half their working time	428	34
We apply the Regulations to all workstations	557	45
We only set criteria for those wanting eyesight tests	64	5
Result of assessment	12	1
If used for an hour +	6	<1
Other	13	1
None	2	<1

I7. How would you generally describe the situation in regard to your organisation's access to information about regulations concerning work with Display Screen Equipment?

Access to Information	*N*	%
Good	697	56
Adequate	326	26
Fair	95	8
Poor	21	2
No response	96	8
Not sure	6	<1
Total	1241	100

I8. Who do you go to for advice regarding display screen equipment and its use in the workplace?

Advice Providers	*N*	%
Trade or sector organisations	203	16
Trade unions	71	6
Manufacturers or suppliers of DSE (Display Screen Equipment)	337	27
External consultants or training organisations	455	37
Health & Safety Executive / inspectors / advisors / departments	666	54
Local Authority / Environmental health inspectors	237	19
Colleagues	8	1
Online - Internet/Intranet	44	4
HSE Website	41	3
HSE Guidance/notes	6	<1
IOSH	10	1
Internal advice	58	5
Occupational health personnel	20	2
Croner (all mentions)	7	1
Other	70	6
None	8	1

I9. How confident are you that your organisation has done all it needs to do to comply with the Health and Safety (Display Screen Equipment) Regulations?

Confidence Levels	*N*	%
1 Not at all confident	8	1
2	41	3
3	223	18
4	551	44
5 Very confident	317	26
No response	96	8
Decline to answer	2	<1
Not sure	3	<1
Total	1241	100

I10. How much more do you think could be done in your current organisation to comply with the Health and Safety (Display Screen Equipment) Regulations?

Improvement to Compliance Levels	*N*	%
Very little	406	33
A slight amount	341	27
A moderate amount	314	25
Quite a lot	59	5
A great deal	15	1
No response	96	8
Decline to answer	3	<1
Not sure	7	1
Total	1241	100

J. Costs

J1. Do you have a separate budget to meet the costs of complying with the Regulations?

Budget to Meet Compliance	*N*	%
Yes, as a separate DSE budget	43	3
Yes, but as an itemised part of the Health & Safety budget	96	8
Yes, as an un-itemised part of Health & Safety budget	199	16
No, no separate budget for Health & Safety or DSE	844	68
Decline to answer	4	<1
Not sure	55	4
Total	1241	100

J2. What has been the total cost to the organisation of complying with the Health and Safety (Display Screen Equipment) Regulations in the past 12 months?

Total Cost to Compliance	*N*	%
≤ £500	16	1
£501 - £5,000	34	3
£5,001 - £10,000	13	1
£10,001 - £75,000	17	1
No response	1161	94
Total	1241	100

J2a. Risk assessments or workstation assessments

Proportion to Assessments	*N*	%
≤ 33%	52	4
34 - 66%	13	1
67 - 100%	10	1
No response	1166	94
Total	1241	100

J2b. Altering workstations

Proportion to Workstations	*N*	%
≤ 33%	53	4
34 - 66%	12	1
67 - 100%	9	1
No response	1167	94
Total	1241	100

J2c. Altering work routine

Proportion to Workstations	*N*	%
≤ 33%	75	6
No response	1166	94
Total	1241	100

J2d. Provision of eye or eyesight tests

Proportion to Eye or Eyesight Tests	*N*	%
≤ 33%	60	5
34 - 66%	12	1
67 - 100%	3	<1
No response	1166	94
Total	1241	100

J2e. Provision of spectacles

Proportion to Spectacles	*N*	%
≤ 33%	72	6
34 - 66%	2	<1
67 - 100%	1	<1
No response	1166	94
Total	1241	100

J2f. Training and information

Proportion to Training and Information	*N*	%
≤ 33%	68	5
34 - 66%	5	<1
67 - 100%	1	<1
No response	1167	94
Total	1241	100

J2g. Other

Proportion to Other	*N*	%
≤ 33%	61	5
34 - 66%	9	1
67 - 100%	4	<1
No response	1167	94
Total	1241	100

K. The Benefits

K1. To what extent have any of the following benefits been observed as a direct result of implementing the measures associated with the Display Screen Equipment Regulations in the workplace?

K1a. Reduced labour turnover

Level of Agreement	*N*	%
Strongly agree	41	3
Agree	332	27
Neither agree nor disagree	380	31
Disagree	346	28
Strongly disagree	49	4
Decline to answer	11	1
Not sure	82	7
Total	1241	100

K1b. Reduced staff stress

Level of Agreement	*N*	%
Strongly agree	94	8
Agree	653	53
Neither agree nor disagree	262	21
Disagree	156	13
Strongly disagree	22	2
Decline to answer	8	1
Not sure	46	4
Total	1241	100

K1c. Reduced sickness absence

Level of Agreement	*N*	%
Strongly agree	75	6
Agree	479	39
Neither agree nor disagree	339	27
Disagree	235	19
Strongly disagree	29	2
Decline to answer	10	1
Not sure	74	6
Total	1241	100

K1d. Increased productivity or quality of output

Level of Agreement	*N*	%
Strongly agree	71	6
Agree	575	46
Neither agree nor disagree	318	26
Disagree	180	14
Strongly disagree	24	2
Decline to answer	10	1
Not sure	63	5
Total	1241	100

K1e. Improved staff morale

Level of Agreement	*N*	%
Strongly agree	113	9
Agree	677	55
Neither agree nor disagree	253	20
Disagree	130	10
Strongly disagree	18	2
Decline to answer	9	1
Not sure	41	3
Total	1241	100

K1f. Fewer compensation claims (e.g. linked to RSI)

Level of Agreement	*N*	%
Strongly agree	97	8
Agree	337	27
Neither agree nor disagree	392	32
Disagree	234	19
Strongly disagree	76	6
Decline to answer	13	1
Not sure	92	7
Total	1241	100

K1g. Other benefits

Benefits	*N*	%
Reduced labour turnover	3	<1
Reduced staff stress	1	<1
Reduced sickness absence	3	<1
Increased productivity or quality of output	13	1
Improved staff morale	81	7
Fewer compensation claims (e.g. linked to RSI)	4	<1
Fewer complaints	11	1
Staff health/well-being/care improve	32	3
Increased awareness of Health & Safety/H&S improved overall	32	3
Tidier workplace/workplace environment improved	14	1
Our image/professional status improves/thought of as a caring employer	11	1
Other	45	4
Not sure/don't know	7	1
None/No/nothing	982	79
Not answered	24	2

L. General Comments

L1. Below are a series of statements about the use of display screen equipment in your workplace. ***Please indicate the extent to which you agree with the following statements by circling a number from 1 to 5 against each statement with 1 = strongly agree, through 5 = strongly disagree.***

L1a. Senior management lack commitment to DSE assessments

Level of agreement	*N*	%
Strongly agree	27	2
Agree	206	17
Neither agree nor disagree	139	11
Disagree	667	54
Strongly disagree	178	14
Decline to answer	4	<1
Not sure	20	2
Total	1241	100

L1b. Employees forget how to use DSE properly

Level of agreement	*N*	%
Strongly agree	40	3
Agree	519	42
Neither agree nor disagree	140	11
Disagree	473	38
Strongly disagree	37	3
Decline to answer	4	<1
Not sure	28	2
Total	1241	100

L1c. We have had a positive reaction from staff to the changes we have introduced

Level of agreement	*N*	%
Strongly agree	104	8
Agree	762	61
Neither agree nor disagree	240	19
Disagree	79	6
Strongly disagree	12	1
Decline to answer	8	1
Not sure	36	3
Total	1241	100

L1d. Benefits to the organisation of compliance with the Regulations outweigh costs

Level of agreement	*N*	%
Strongly agree	94	8
Agree	703	57
Neither agree nor disagree	244	20
Disagree	130	10
Strongly disagree	14	1
Decline to answer	4	<1
Not sure	52	4
Total	1241	100

L1e. The Regulations are complex and definitions confusing

Level of agreement	*N*	%
Strongly agree	19	2
Agree	251	20
Neither agree nor disagree	247	20
Disagree	610	49
Strongly disagree	66	5
Decline to answer	3	<1
Not sure	45	4
Total	1241	100

L1f. Costs of compliance with the Regulations are easy to identify

Level of agreement	*N*	%
Strongly agree	33	3
Agree	707	57
Neither agree nor disagree	198	16
Disagree	224	18
Strongly disagree	19	2
Decline to answer	4	<1
Not sure	56	4
Total	1241	100

L1g. Complying with the Regulations is onerous

Level of agreement	*N*	%
Strongly agree	25	2
Agree	274	22
Neither agree nor disagree	235	19
Disagree	611	49
Strongly disagree	57	5
Decline to answer	4	<1
Not sure	35	3
Total	1241	100

L1h. It is difficult to ensure that employees take regular breaks

Level of agreement	*N*	%
Strongly agree	55	4
Agree	495	40
Neither agree nor disagree	132	11
Disagree	488	39
Strongly disagree	53	4
Decline to answer	3	<1
Not sure	15	1
Total	1241	100

L1i. Employers should not have to pay for eye tests or spectacles

Level of agreement	*N*	%
Strongly agree	79	6
Agree	316	25
Neither agree nor disagree	148	12
Disagree	541	44
Strongly disagree	119	10
Decline to answer	7	1
Not sure	31	2
Total	1241	100

12.5 APPENDIX 5 - RELATIONSHIPS: BENEFITS, TYPES OF BUDGETS AND TOTAL COST TO ORGANISATIONS

Table 12.8: Relationships between benefits, types of budgets and total cost to organisations

Benefits	Existence of Separate Budget	Total Cost to Organisation
Reduced labour turnover	$r = 0.05$, $p < .05$; $n = 1103$	$r = 0.29$, $p < .01$; $n = 79$
Reduced staff stress	$r = 0.10$, $p < .001$; $n = 1136$	$r = 0.23$, $p < .05$; $n = 79$
Reduced sickness absence	$r = 0.11$, $p < .001$; $n = 1111$	$r = 0.28$, $p < .01$; $n = 79$
Increased productivity	$r = 0.09$, $p < .01$; $n = 1121$	$r = 0.31$, $p < .01$; $n = 80$
Improved staff morale	$r = 0.13$, $p < .001$; $n = 1143$	$r = 0.22$, $p < .05$; $n = 80$
Fewer compensation claims	$r = 0.06$, $p < .05$; $n = 1092$	$r = 0.27$, $p < .05$; $n = 80$

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2. Evaluation of the VDU directive (90/270/EWG). Overview about terms of reference for the preparation of empirical investigations: *Lists in more detail aspects of the Directive that should be investigated in the evaluation. Note that what is to be evaluated in each member state is not the Directive itself, but the corresponding parts of the national legislation that implements the Directive. Also note that the last 4 columns of the table contain "national hypotheses" to be investigated by individual member state. HSE will discuss this with the chosen contractor and indicate whether there are any UK-specific issues to be listed in this section, though it is not thought these will be extensive.*
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Health and Safety Executive

Evaluation of the success in Great Britain of the Directive on minimum safety and health requirements for work with display screen equipment

This research was commissioned to provide the UK contribution to an EU working group studying the effectiveness and efficiency of existing EU health and safety legislation. To achieve this an ex post evaluation of the EU Directive 90/270/EEC, which regulates work at Visual Display Units (VDU), was carried out in six member states. This Directive was chosen because the transposition into national law was generally made in a comparable way in all six countries. The EU working group established common requirements for the evaluation to provide comparative data for the cross-country evaluation. It is based on a structured sample of employers in Great Britain, in which data were collected from 1241 respondents. The study involved also a literature review, but this revealed only a limited amount of relevant research on the topic. Research report RR622 uses the same data to provide a comparison with the previous UK evaluation of the DSE Regulations in 1997. The EU working group has been published electronically by the EU.

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RR628

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