Evaluation of the Practical Implementation of the EU Occupational Safety and Health (OSH) Directives in EU Member States

REPORT BY DIRECTIVE: DIRECTIVE 90/270/EEC ON THE MINIMUM SAFETY AND HEALTH REQUIREMENTS FOR WORK WITH DISPLAY SCREEN EQUIPMENT
Evaluation of the Practical Implementation of the EU Occupational Safety and Health (OSH) Directives in EU Member States

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<td>EU-OSHA</td>
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Executive summary

The Directive embodies a requirement for workstations to meet a series of requirements, relating to the furniture and equipment provided, as well as aspects of the environment in which they are installed. In common with the Framework and other individual Directives, the DSE Directive requires employers to assess the risks to health of workers using DSE and to take steps to ameliorate any risks identified. Further duties include a need for eye and eyesight testing, provisions for information and training, and a requirement to enable workers to have periodic breaks or changes in routine.

The main risks that arise from working with DSE, and which are therefore the focus of this Directive, are musculoskeletal disorders. There are many recognised factors contributing to these, including poor upper limb (including shoulder) postures; poor neck and trunk postures; prolonged sitting; and sustained postures with relatively little muscle movement. Each of these has been related to DSE use and associated injuries or illness. The Directive refers also (Article 3(1)) to risks to eyesight and problems of mental stress. However, as noted in this report there is no reliable scientific or medical evidence of damage to eyesight in using DSE (although it can give rise to transient visual symptoms) and, although some aspects of DSE work can contribute to psychosocial risks and mental stress, the evidence suggests that the risk of such problems is no greater amongst DSE users than other workers.

Findings are based on an analysis of the OSH legislation in each of the MSs (embodied in Country Summary Reports (CSRs) prepared by national experts for the project), official statistics at national and EU level, National Implementation Reports (NIRs) (submitted to the Commission by the MSs by end of 2013) as well as on scientific articles, existing studies and interviews with both national and EU stakeholders.

The provisions of the Directive have been transposed into legal instruments in all 27 MSs, and all MSs support these laws with additional material, mainly in the form of guidance. Few have any enforcement or other activities specific to their ‘DSE law’ and few have any measures tailored specifically for SMEs in direct support of these laws.
Evidence is available from very few MSs relating to compliance with national legislation by employers. That which is available appears to suggest that approximately 60-70% of employers do comply.

However, other material seems to suggest that compliance with the requirements of the Directive by employers is not strong, with some MSs reporting less than 50% compliance with risk assessment requirements and a general view that more information and training on ergonomics aspects of the workplace (which could include DSE-related material) was required. Material from expert ergonomists interviewed also suggested that compliance by workers was also deficient, possibly as a result of the inadequate implementation of the requirements for information and training.

Guidance documents are by far the most common action undertaken by Member States, followed by support tools such as workstation checklists. Government material is supplemented in many MSs by additional guidance from social partners who have also published material to assist employers. Further guidance has also been prepared at EU level by EU-OSHA.

Although not necessarily the case for individual specific provisions, evidence of a continuing relatively high level of absence from work, especially that attributable to MSDs, seems to suggest that the Directive remains relevant, at least in respect of its overall focus on MSDs. Available EU statistics do not particularly support any connection between MSDs and DSE work but this appears to be primarily due to shortcomings in the data, as several published epidemiological studies appear to confirm such a relationship.

However, the relevance of some aspects, specifically the Annex of minimum requirements and, to a lesser extent, the requirement for eye and eyesight testing (Article 9) are widely regarded as out of date and of limited relevance.

In general, opinions amongst stakeholders regarding the extent to which the Directive has met its objectives are rated as a little above medium (score 3-4 on a range of 1-5), although as a group, workers are less convinced than other stakeholders (e.g. government, employers) that this is the case. There is a perception that the impact of the Directive has been less amongst smaller enterprises, although this view is not entirely supported by data from some national studies. Actual data on the effectiveness of the Directive in terms of the main intended outcome of a reduction in MSDs is not very clear and not particularly reliable. In part this is due to the fact that data sources do not enable the determination of attribution, or even confirmation that a worker reporting an injury or ill health actually worked with DSE. Some national studies seem to suggest that it has not had a strong impact, if any. Given the concerns regarding compliance by both employers and workers this outcome is perhaps not surprising.
The inadequacies of the available data lead to the first recommendation, namely that consideration is given to creating common reporting and recording frameworks in order to generate more useable and useful data to inform future evaluations.

Apart from this recommendation, which has a relevance to many of the other OSH Directives, it is suggested that that the current Directive needs to be amended.

It is recommended that consideration is given to revising the Annex to the Directive to take account of changes to both the technology used and the manner in which it is used. As part of this, consideration could also be given to preparing it in a less prescriptive form; for example by adopting a more ‘enabling’ approach that required employers to provide furniture and equipment ‘sufficient to enable the worker to adopt a good working posture’ (which does not hinder the development and introduction of further technological solutions) or at least agreeing a mechanism to allow it to be updated more easily in the future should technological advances warrant it.

In addition, Article 9 (‘Protection of workers’ eyes and eyesight’) should be amended. As written, the Article is misleading and inappropriate and should be amended to reflect the current evidence base. However, there are reasons why testing of eyesight might be required, albeit as an ameliorative rather than a preventative measure. As a result it is recommended that consideration is given to amending Article 9 of the DSE Directive to remove the first two subclauses (requiring testing before commencing work and at regular intervals thereafter). Additionally, deletion of the word ‘visual’ in the third subclause might be beneficial, as problems might not directly manifest themselves as visual difficulties (as in the case of adverse postures).

As noted above, a problem with compliance, both by employers and workers, has been identified, which has probably contributed to the apparently minimal impact of this Directive. There is evidence to suggest that the requirement within the Directive to ensure that workers have the opportunity for periodic breaks or changes of activity should be reinforced, as should the need to provide information and training.

Compliance by the individual worker relies heavily on them understanding and appreciating the reasons why they should take such action. Good quality information and training to correctly educate the workforce is therefore required. Therefore, in addition to authoritative guidance on what constitutes a good working posture (and how to achieve it), consideration should be given to the preparation of further EU guidance on this (possibly with training material) to supplement the existing EU-OSHA e-facts and to provide further support for MSs and employers.
1 Introduction

About this report

This report is a Directive-specific report which forms part of the reporting of an overall evaluation of 24 Directives on Occupational Safety and Health (OSH) commissioned by DG Employment. The report concerns Directive 90/270/EEC on the minimum safety and health requirements for work with display screen equipment from here on referred to as the “DSE Directive”.

The evaluation of 24 OSH Directives was initiated in 2013 and finalised in June 2015. The evaluation produced cross-cutting findings on the implementation of the 24 Directives, which are documented in the Main Report. Annexed to this Main Report are Directive-specific reports for each of the 24 Directives (Appendix E) and reports on the implementation of the 24 Directives in the Member States (Appendix G comprising 27 reports as Croatia was excluded from the study).

Objective of the evaluation

The objective was to evaluate the practical implementation of EU OSH Directives in the EU Member States with a view to assessing their impacts and with a view to identifying their strengths and weaknesses with the aim of possibly putting forward improvements to the regulatory framework. The evaluation was guided by a set of questions and evaluation criteria, which were to be addressed for all Directives and Member States. There are two main sets of questions.

The first set relates to the implementation of the Directives in the Member States:

› Implementation: MQ1-MQ7 are mapping questions that as part from addressing the overall implementation of the Directives look into specific implementation issues such as derogations, transitional periods, compliance and enforcement:

MQ1: Across the Member States, how are the different Common Processes and Mechanisms foreseen by the Directives put in place, and how do they operate and interact with each other?

MQ2: What derogations and transitional periods are applied or have been used under national law under several of the Directives concerned?

MQ3: What are the differences in approach to and degree of fulfilment of the requirements of the EU OSH Directives in private undertakings and public-sector bodies, across different sectors of economic activity and across different sizes of companies, especially for SMEs, microenterprises and self-employed?
MQ4: What accompanying actions to OSH legislation have been undertaken by different actors (the Commission, the national authorities, social partners, EU-OSHA, Eurofound, etc.) to improve the level of protection of safety and health at work, and to what extent are they actually used by companies and establishments to pursue the objective of protecting safety and health of workers? Are there any information needs that are not met?

MQ5: What are the enforcement (including sanctions) and other related activities of the competent authorities at national level and how are the priorities set among the subjects covered by the Directives?

MQ6: What are the differences of approach across Member States and across establishments with regard to potentially vulnerable groups of workers depending on gender, age, disability, employment status, migration status, etc., and to what extent are their specificities resulting in particular from their greater unfamiliarity, lack of experience, absence of awareness of existing or potential dangers or their immaturity, addressed by the arrangements under question?

MQ7: What measures have been undertaken by the Member States to support SMEs and microenterprises (e.g. lighter regimes, exemptions, incentives, guidance, etc.)?

The second set addresses the three main evaluation criteria of relevance, effectiveness and coherence (a total of 11 evaluation questions):

› **Relevance:** EQR1-EQR2 relate to the extent to which the provisions of the Directive are relevant for the current as well as future risks and composition of industry sectors:

**EQR1:** To what extent do the Directives adequately address current occupational risk factors and protect the safety and health of workers?

**EQR2:** Based on known trends (e.g. new and emerging risks and changes in the labour force and sectoral composition), how might the relevance of the Directives evolve in the future, and stay adapted to the workplaces of the future in light of the horizon of 2020? Does the need for EU level action persist?

› **Effectiveness:** EQE1-EQE7 explore whether the introduction of the Directive has led to changes to enterprise behaviour and the occupational safety and health of workers:

**EQE1:** To what extent has the Directive influenced workers' safety and health, the activities of workers' representatives, and the behaviour of establishments?

**EQE2:** What are the effects on the protection of workers' safety and health of the various derogations and transitional periods foreseen in several of the Directives concerned?

**EQE3:** How and to what extent do the different Common Processes and Mechanisms that were mapped contribute to the effectiveness of the Directives?

**EQE4:** To what extent do sanctions and other related enforcement activities contribute to the effectiveness of the Directives?

**EQE5:** What benefits and costs arise for society and employers as a result of fulfilling the requirements of the Directives?

**EQE6:** To what extent do the Directives generate broader impacts (including side effects) in society and the economy?

**EQE7:** To what extent are the objectives achieving their aims and, if they are not, what cause could play a role? What factors have particularly contributed to the
achievement of the objectives?

Coherence: EQC1-EQC2 concern the extent to which the objectives and actions from a given OSH Directive interact or overlap with other OSH Directives and/or with other EU policies:

EQC1: What, if any, inconsistencies, overlaps, or synergies can be identified across and between the Directives (for example, any positive interactions improving health and safety outcomes, or negative impact on the burdens of regulation)?

EQC2: How is the interrelation of the Directives with other measures and/or policies at European level also covering aspects related to health and safety at work, such as EU legislation in other policy areas (e.g. legislation: REACH, Cosmetics Directive, Machinery Directive, policy: Road Transport Safety, Public Health, Environment Protection), European Social Partners Agreements or ILO Conventions?

Methodology and sources of information

The overall methodology applied for the evaluation – and thus also for the analysis presented in this report – is presented in detail in Chapter 2 in the Main Report.

The findings in this Directive report are based on the analysis of the OSH legislation in each of the MSs; official statistics at national and EU level; National Implementation Reports (NIRs) submitted to the Commission by each of the MSs by end of 2013, together with scientific articles, existing studies and interviews with both national and EU stakeholders.

The report is structured according to the themes and issues listed above.

Chapter 2 presents the overall understanding of the Directive, i.e. its rationale, its provisions, and its intervention logic, and introduces the issue of measuring the impacts of the Directive.

Chapter 3 provides the relevant findings with regard to the implementation of the Directive in the MSs (addressing questions MQ1-MQ7).

Chapter 4 provides the relevant findings with regard to the relevance of the Directive (addressing questions EQR1-EQR2).

Chapter 5 provides the relevant findings with regard to the effectiveness of the Directive (addressing questions EQE1-EQE7).

Chapter 6 provides the relevant findings with regard to the coherence of the Directive (addressing questions EQR1-EQR2).

Chapter 7 draws the main conclusions emanating from the findings presented in Chapters 3-6.
2 The Directive

2.1 Background and objective

The text of the DSE Directive (Directive 90/270/EEC) refers to Article 118a of the Treaty establishing the European Economic Community, indicating that it provides that the Council shall adopt, by means of directives, minimum requirements for encouraging improvements, especially in the working environment, to ensure a better level of protection of the safety and health of workers.

“This Treaty has since been supplanted by the Treaty on the Functioning of the European Union (TFEU), Article 153 of which provides for the Union to ‘support and complement the activities of the Member States’ including ‘improvement in particular of the working environment to protect workers’ health and safety.’”\(^1\)

Against this general background, a Directive was conceived, which laid down minimum safety and health requirements for work with display screen equipment.

“The purpose of the directive is to introduce minimum requirements for display screen workstations to ensure the safety and health of workers with particular reference to “possible risks to eyesight, physical problems and problems of mental stress” (Article 3(1)). The preamble to the Directive also envisages that employers will be obliged to keep themselves informed of the latest advances in technology and scientific findings concerning workstation design so that they can make any changes necessary so as to be able to guarantee a better level of protection of workers’ safety and health. The Directive establishes a minimum level of requirements for DSE workstation equipment and requires employers to assess and reduce risks arising from the use of that equipment.”


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\(^1\) Consolidated version of the Treaty on the Functioning of the European Union (TFEU), OJ C326/47, 26.10.12
worth noting that the provisions of the Framework Directive are fully applicable (Article 1 (2)) and therefore the employer is also obliged to set up preventive services in the field of work with display screen equipment. Therefore, the Directive does not exclude the requirement for setting up preventive and protective services. It simply does not contain a specific provision addressing this subject.

It also includes a number of further Key Requirements relating to the obligations on employers to ensure that DSE workstations meet specific minimum requirements, and that DSE workers take periodic breaks or changes of activity.

The main impact of the DSE Directive is intended to be a reduction in workstation-related injury or ill-health, with particular reference to musculoskeletal disorders (MSDs), mental stress, and eye related discomfort.

2.2 Risks

As noted above, the DSE Directive addresses the risks to health which arise from working with DSE. The Directive refers to eyesight problems, physical problems and problems of mental stress.

The main health consequences that arise from working with DSE are musculoskeletal disorders. Such disorders can include low back pain and disorders of the upper limb disorders as well as pain and discomfort in the neck and shoulders. However, there is an extensive research literature (summarised in respect of DSE workers by Melrose and co-workers (2006))\(^2\) which questions the extent to which such work directly causes such injuries, as opposed to provoking symptoms of pre-existing disorders.

Similarly, as also summarised by Melrose et al, although prolonged detailed visual work can lead to visual discomfort and transient symptoms such as those associated, for example, with drying of the eyes, there is no reliable evidence to support the suggestion that such work actually damages eyesight (Thomson, 1998\(^3\)).

As noted above, the text of the Directive refers to problems of mental stress in the context of DSE use. The psychosocial risks which can lead to mental stress or other health problems are well-known and have been long-established\(^4\). However, although some of these can be present in work which involves the use of DSE, they are generally recognised as being associated with the nature of the work, rather than any intrinsic risks associated with DSE use.

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\(^3\) Thomson DW (1998) Eye problems and visual display terminals—the facts and the fallacies.

Interaction with other Directives and international legislation in the field

The DSE Directive is the fifth individual Directive within the meaning of Article 16 of the Framework Directive. No internal coherence issues were identified between this Directive and other OSH Directives.

Similarly, no external coherence issues were identified between this Directive and other EU or International policies or legal instruments, although some ISO and CEN publications do have some relevance here. The coherence with Directives and other texts (i.e. ISO and CEN publications) is analysed further in Chapter 6.

2.3 Provisions

The Directive lays down minimum health and safety requirements for work with ‘display screen equipment’ although it details a number of exclusions to this scope (see Table 2-2).

The Directive adopts the following definitions:

‘Display screen equipment’ means an alphanumeric or graphic display screen, regardless of the display process employed.

‘Workstation’ means an assembly comprising display screen equipment, which may be provided with a keyboard or input device and/or software determining the operator/machine interface, optional accessories, peripherals including the diskette drive, telephone, modem, printer, document holder, work chair and work desk or work surface, and the immediate work environment.

‘Worker’ means any worker as defined in Article 3 (a) of Directive 89/391/EEC who habitually uses display screen equipment as a significant part of his or her normal work.5

Hence, from the outset the Directive applies to all sectors where workers are exposed to display screen equipment. However, Article 2 does define a number of exclusions which are presented in Table 2-1.

Table 2-1 lists the provisions of the DSE Directive that have been identified during the analysis as the ones that in particular need to be addressed when assessing the impacts of the Directive. Hence, the assessment focuses on the so-called Common Processes and Mechanisms (CPMs) and other KRs:

› CPMs are the KRs that derive from the Framework Directive and that are included in all or several of the individual Directives (i.e. specific Directives such as the DSE Directive).

Other KRs are the Directive-specific provisions that in addition to the CPMs are considered to be central for generating workplace impacts and safety and health impacts, e.g. provisions on limit values.

5 90/270/EEC, Article 2
The table shows that five of the six CPMs are included in the articles in the DSE Directive. The intervention logic figure (Figure 2-1) provides a little more detail. For example, with respect to information for and training of workers, the employer is required to provide information and training on all safety and health aspects relating to workstations.

### Table 2-1 Key requirements for the DSE Directive

<table>
<thead>
<tr>
<th>Directive 90/270/EEC on the minimum safety and health requirements for work with display screen equipment (DSE).</th>
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<tr>
<td><strong>Key requirements: Scoping and definitions</strong></td>
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<tr>
<td><strong>Scope of application</strong></td>
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<td>Arts 1 and 2</td>
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<tr>
<td>The Directive relates to work with display screen equipment as defined in Article 2 which presents a number of exclusions:</td>
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<td>- drivers' cabs or control cabs for vehicles' or machinery;</td>
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<td>- computer systems on board a means of transport;</td>
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<td>- computer systems mainly intended for public use;</td>
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<td>- 'portable' systems not in prolonged use at a workstation;</td>
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<tr>
<td>- calculators, cash registers and any equipment having a small data or measurement display required for direct use of the equipment;</td>
</tr>
</tbody>
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| - typewriters of traditional design, of the type known as 'typewriter with window'

<table>
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<th><strong>Key requirements: Common processes and mechanisms</strong></th>
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<tr>
<td><strong>CPM</strong></td>
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<td>Conducting a risk assessment</td>
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<td>Ensuring internal and/or external preventive and protective services</td>
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<td>Information for workers</td>
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<td>Training of workers</td>
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<td>Health surveillance</td>
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<td>Consultation and participation of workers</td>
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<td>Relevant Articles</td>
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<td>3</td>
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<tr>
<td>See Framework Directive</td>
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<td>9</td>
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<th><strong>Key requirements: Directive-specific provisions</strong></th>
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<td><strong>Minimum requirements for workstations</strong></td>
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<td>Arts. 4, 5 &amp; the Annex</td>
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<tr>
<td>Employers are required to ensure that DSE workstations meet specified minimum requirements (Art 4) with a deferment for workstations already in service when the Directive came into force (Art 5). Articles 4 and 5 refer the employer the minimum requirements for workstations in the annex.</td>
</tr>
<tr>
<td><strong>Daily work routine</strong></td>
</tr>
<tr>
<td>Art. 7</td>
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<tr>
<td>Employers are required to ensure that workers using DSE have periodic breaks or changes in activity.</td>
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</table>

**Non-key Directive-specific provisions**

The following Directive-specific provisions are not considered to constitute key requirements in the context of the

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6 90/270/EEC, Article 1
7 Article 9 provides for an eye and eyesight examination and a possible ophthalmic examination on commencing display screen work, at regular intervals thereafter, and if they experience visual difficulties which may be due to display screen work.
provisions that do not have a direct impact on the risks arising from work with display screen equipment, such as provisions of a technical nature (adjustments to the annexes, final provisions, (Arts. 10-12)).

The intervention logic figure (Figure 2-1) provides a little more detail. For example, with respect to information for and training of workers, the employer is required to provide information and training on all safety and health aspects relating to workstations.

2.4 Intervention logic

Impact logic

Figure 2-1 illustrates the logical steps of how the DSE Directive – represented by its KRs – leads to impacts, i.e.:

› **CPMs and other KRs** are, as discussed above, the provisions of the Directive that during the analysis have been identified as the ones that in particular need to be addressed when assessing impacts. The figure illustrates that because of the multifaceted nature of the Directive, it is not possible to identify how each of the individual KRs will influence workplace risks and therefore work-related ill-health. The KRs work together to produce impacts and so they are analysed as such.

› **Workplace impacts** constitute the direct changes/improvements that occur at the workplace as a result of implementing the KRs. For instance, removal and/or reduction in safety and health hazards, better safety and health surveillance, organizational changes, higher awareness among workers about potential safety and health issues, etc. These changes come at a cost to the workplace, but are also the drivers by which the safety and health impacts occur.

› **Safety and health impacts** constitute the actual reduction in safety and health problems arising from exposure to work with DSE. These impacts occur as a result of the Directive (KRs) through the above-mentioned workplace impacts.

› **Broader impacts** constitute the impacts that may occur more broadly speaking as a result of the above mentioned safety and health impacts.

Impact storyline

While the assessments of the impacts of the Directive are presented in the following chapters – in particular in Chapter 5 – this assessment has taken a starting point in an impact storyline in which the expected impacts of implementing the Directives are indicated. These expected impacts are then examined via the analysis of such data as are available gathered from statistics, studies and interviews.

Figure 2-1 shows that the DSE Directive is expected to lead to increased evidence of risk assessment being carried out and compliance with the schedule of requirements. This should lead to more actions being taken to improve workstations and the posture of the workers using them. Awareness and
understanding of the hazards inherent in work with DSE should increase as the proportion of workers who are informed, trained and consulted on such hazards and consequent risks and control measures is expected to increase.

Compliance with the minimum requirements for workstations specified in the Directive would be expected to have an enabling function, facilitating the adoption of better working postures by those using them. However, possibly more than any other Directive, the success of this Directive relies heavily on the behaviour of the individual workers in adopting and maintaining good postures. This in turn places a strong reliance on the quality and nature of the information and training provided to ensure correct awareness, attitudes and behaviour. Furthermore, the requirement for breaks in routine are integral to the success of this Directive and this relies jointly on the employers providing adequate opportunities for such breaks and the workers actually taking them.

These workplace impacts are expected to reduce ill-health related to DSE use e.g. MSDs. This should be indicated by the number of sick days and other health indicators which are attributable to DSE use. Furthermore, there should also be an impact on increased safety of workers as indicated by the number of infringements and sanctions processed.

The mental stress arising from psychosocial risks in the workplace have become of increasing concern. However, although some difficulties with using DSE (especially technical software problems) can contribute to the overall psychosocial burden, there is no evidence to suggest that DSE usage in itself makes a major contribution and that the level of such problems is no different amongst DSE users than amongst the general population. In this context, it should be noted that, with the possible exception of references in the Annex of Minimum Requirements to the operator/computer interface and software design, none of the provisions within the Directive would be expected to actually have any direct impact on the burden of psychosocial risks.

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Evaluation of the Practical Implementation of the EU Occupational Safety and Health (OSH) Directives in EU Member States

Key Requirements

CPMs
- Conducting a risk assessment
  * Conduct an analysis and risk assessment of workstations (Art. 3)
- Ensuring internal and/or external preventive and protective services (IA)
  * Information for workers
    * Provide information on all aspects of safety and health relating to workstations (Art. 6)
- Training of workers
  * Provide training in the use of workstations (Art. 6)
- Health surveillance
  * Provide workers with specialist advice appropriate for the work concerned (Art. 9)
  * Provide health surveillance - eye and eyeglasses if workers experience visual difficulties which may be due to display screen work (Art. 9)
  * Provide workers with ophthalmological examination if the results of this test show this to be necessary (Art. 9)
- Consultation of workers
  * Consult with workers (Art. 8)

Other KR
- Minimum requirements for workstations
  * Employers are required to ensure that DSE workstations meet specified minimum requirements (Art. 4)
  * With a statement for workstations already in service when the Directive enters into force (Art. 5)
- Daily work routine
  * Employers are required to ensure that workers using DSE have periodic breaks or changes in activity (Art. 7)

Workplace Impacts

Indicators
- Workplace impacts are measurable changes that occur at the Workplace as a result of the Directive
  * Evidence of compliance with schedule of requirements
  * Evidence of risk assessments
  * Actions taken to improve workstations
  * Proportion of workers informed
  * Proportion of workers trained
  * Proportion of workers consulted
  * Upkeep of eye and eyeglasses
  * Changes in the design of workstations

Health and safety impacts

Indicators
- Health and safety impacts are measurable changes that result from the Directive through workplace changes
  * Reduced ill-health related to DSE (e.g. MSID)
  [indicated by the number of sick days and insurance claims relating to DSE]
  * Injuries to health [indicated by the number of infringements and sanctions]

Broader Impacts

Assessed at acquis level
- Broader impacts are assessed across all Directives and include areas such as:
  * Employment growth
  * Economic growth
  * Increased productivity
  * Improved quality of products and services
  * Improved wellbeing and job satisfaction

Figure 2.1: DSE Directive Intervention Logic
2.5 Measuring impacts

In continuation of the above impact storyline, the assessment of whether the initial impact hypotheses prove to be correct takes place via analysing impacts at three levels; namely (i) workplace impacts; (ii) safety and health impacts; and (iii) broader impacts. There are two important considerations in this regard:

1. While workplace impacts do not necessarily say anything about specific improvements concerning occupational diseases arising from exposure to work with DSE, they can provide important indications about these; i.e. relating to the fact that the safety and health impacts from the Directive stem from the associated changes at the workplace.

2. As indicated in the intervention logic, the broader effects of the Directive have been assessed at the acquis level. This analysis is presented in the Main Report.

Furthermore, the assessment of impacts requires that the addressed impact indicators are quantifiable. Table 2-2 presents a list of workplace as well as safety and health impacts that ideally should be considered in the evaluation of the Directive. However, measuring the impacts of the Directive on this basis requires that the indicators used for the analysis must be quantifiable via available statistics – and this is not always possible.

Table 2-2  Impact indicators

<table>
<thead>
<tr>
<th>Workplace impacts</th>
<th>Safety and health impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evidence of compliance with schedule of requirements</td>
<td>Reduced ill-health related to DSE use (e.g. MSDs) [indicated by the number of sick days and workplace ill-health attributable to DSE use]</td>
</tr>
<tr>
<td>Evidence of risk assessments</td>
<td></td>
</tr>
<tr>
<td>Actions taken to improve workstations</td>
<td></td>
</tr>
<tr>
<td>Proportion of workers informed</td>
<td></td>
</tr>
<tr>
<td>Proportion of workers trained</td>
<td></td>
</tr>
<tr>
<td>Proportion of workers consulted</td>
<td></td>
</tr>
<tr>
<td>Uptake of eye and eyesight testing</td>
<td></td>
</tr>
<tr>
<td>Changes in the design of workstations</td>
<td></td>
</tr>
</tbody>
</table>

On the basis of Table 2-2, Table 2-3 provides an overview of identified specific data variables and statistical sources that are expected to provide some useful information on the above indicators in the evaluation of the Directive. It should be noted that limitations in the availability of data means these do not necessarily map directly onto the factors listed above. As indicated in the footnotes, some data variables were selectively limited to those work sectors where work with DSE is most common.
### Table 2.3 Available statistics

<table>
<thead>
<tr>
<th>Workplace impacts</th>
<th>Variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure to hazard/risk (employers)</td>
<td>For each of the following issues, please tell me whether it is of major concern, some concern or no concern at all in your establishment. Musculoskeletal disorders such as pain in the back, neck, arms or legs.</td>
<td>ESENER(2009) MM2004 Private and public services</td>
</tr>
<tr>
<td>Exposure to hazard/risk (employers)</td>
<td>For each of the following issues, please tell me whether it is of major concern, some concern or no concern at all in your establishment. Work-related stress*</td>
<td>ESENER(2009) MM2005 Private and public services</td>
</tr>
<tr>
<td>Exposure to hazard/risk (employers)</td>
<td>Does your establishment have a procedure to deal work-related stress?*</td>
<td>ESENER(2009) MM250 Private and public services</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Safety and health impacts</th>
<th>Variable</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduced ill-health related to DSE use (MSDs)</td>
<td>&quot;Over the last 12 months, did you suffer from any of health problems - backache?&quot;</td>
<td>EWCS 2010 (Q69-C)</td>
</tr>
<tr>
<td>Reduced ill-health related to DSE use (MSDs)</td>
<td>&quot;Does your work affect your health: backache?&quot;</td>
<td>EWCS 2005 (Q33-A-D)</td>
</tr>
<tr>
<td>Reduced ill-health related to DSE use (MSDs)</td>
<td>&quot;Over the last 12 months, did you suffer from any of health problems - muscular pains in shoulders, neck and/or upper limbs?&quot;</td>
<td>EWCS 2010 (Q69-D)</td>
</tr>
<tr>
<td>Reduced ill-health related to DSE use (work-related stress)</td>
<td>&quot;Does your work affect your health: muscular pains?&quot;</td>
<td>EWCS 2005 (Q33-A-G)</td>
</tr>
<tr>
<td>Reduced ill-health related to DSE use (work-related stress)</td>
<td>Upper extremities, not further specified</td>
<td>ESAW 2012 Accidents at work by economic activity and part of body injured [hsw_n2_06]</td>
</tr>
<tr>
<td>Reduced ill-health related to DSE use (work-related stress)</td>
<td>Back, including spine and vertebra in the back</td>
<td>ESAW 2012 Accidents at work by economic activity and part of body injured [hsw_n2_06]</td>
</tr>
<tr>
<td>Reduced ill-health related to DSE use (work-related stress)</td>
<td>Mental well-being*</td>
<td>LFS 2007 Persons reporting exposure to factors that can adversely affect mental well-being, by sex, age and economic activity sector - % [hsw_exp5]</td>
</tr>
</tbody>
</table>

9 NACE Codes J,K,L,M,N,O,U
10 NACE Codes J,K,L,M,N,O,U
11 NACE Codes J,K,L,M,N,O,U
* Note: Although as indicated above, current evidence suggests that mental stress is not a corollary to DSE work these data sources were included as this risk is referred to in the Directive. No equivalent data on visual problems was identified.

Data challenges

One of the largest challenges with the variables identified in the above table, is that it is not possible to determine to what extent the adverse effects recorded (MSDs & work-related stress) are attributable in any way to DSE work, as the statistics often do not provide details of the nature of the work performed by respondents and the potential outcomes can be caused by factors other than DSE work.

This is particularly the case for work-related stress, where work with DSE would usually be expected to be a relatively minor contributor to the total picture.

Consequently, as well as restricting the data abstracted to the most relevant sectors as referred to earlier, the above variables are, to the extent that data is available, supplemented with national data and information (where it is available), to estimate the effectiveness of the Directive.

Additional data

Note that assessments of the workplace impacts and the safety and health impacts within this evaluation also are based on the results of existing studies and on stakeholder views gathered through interviews, as discussed and referenced throughout this report.
3 Implementation in Member States

For the purpose of the evaluation, a mapping exercise of the implementation of the 24 Directives in the Member States has been conducted. Each Directive, including the DSE Directive, has been mapped according to seven mapping questions. This chapter provides a summary of the findings of the mapping exercise for the DSE Directive.

The National Implementation Reports have constituted an important data source for the mapping, but other sources of data have also been consulted and are cited as relevant below. Additional information on implementation in the individual Member States can be found in the individual country summary reports (CSRs) available in the Main Report. It should be noted that this chapter reflects only the Directive-specific data collected. For an overview of cross-Directive data, please refer to the Main Report.

The chapter is structured in accordance with the seven mapping questions and presents data collected through the country-specific data collection. Data is presented across Member States. For the purpose of presenting information across Member States, country codes are used in the tables in this chapter.

3.1 MQ1: Common Processes and Mechanisms

MQ1: Across the Member States, how are the different Common Processes and Mechanisms foreseen by the Directives put in place, and how do they operate and interact with each other?"
Table 3-1  CPM implementation

<table>
<thead>
<tr>
<th>Member State</th>
<th>One (O) or several (S) laws</th>
<th>Infringement proceedings / delays (Y/N)</th>
<th>Observed discrepancies (Y/N)</th>
<th>More detailed requirements (Y/N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BE</td>
<td>O</td>
<td>N</td>
<td>Y (Art. 3, 9)</td>
<td></td>
</tr>
<tr>
<td>BG</td>
<td>S</td>
<td>N</td>
<td>Y (Art. 3, 9)</td>
<td></td>
</tr>
<tr>
<td>CZ</td>
<td>S</td>
<td>Y</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>DK</td>
<td>S</td>
<td>N</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>DE</td>
<td>S</td>
<td>N</td>
<td>Y (Art. 3)</td>
<td></td>
</tr>
<tr>
<td>EE</td>
<td>S</td>
<td>N</td>
<td>Y (Art. 3, 9)</td>
<td></td>
</tr>
<tr>
<td>IE</td>
<td>O</td>
<td>N</td>
<td>Y (Art. 3, 9)</td>
<td></td>
</tr>
<tr>
<td>EL</td>
<td>O</td>
<td>N</td>
<td>Y (Art. 3)</td>
<td></td>
</tr>
<tr>
<td>ES</td>
<td>O</td>
<td>N</td>
<td>Y (Art. 3)</td>
<td></td>
</tr>
<tr>
<td>FR</td>
<td>O</td>
<td>N</td>
<td>Y (Art. 3)</td>
<td></td>
</tr>
<tr>
<td>IT</td>
<td>S</td>
<td>N</td>
<td>Y (Art. 3, 6, 9)</td>
<td></td>
</tr>
<tr>
<td>CY</td>
<td>O</td>
<td>N</td>
<td>Y (Art. 3)</td>
<td></td>
</tr>
<tr>
<td>LV</td>
<td>O</td>
<td>N</td>
<td>Y (Art. 3, 9)</td>
<td></td>
</tr>
<tr>
<td>LT</td>
<td>S</td>
<td>N</td>
<td>Y (Art. 3, 9)</td>
<td></td>
</tr>
<tr>
<td>LU</td>
<td>O</td>
<td>N</td>
<td>Y (Art. 2)</td>
<td></td>
</tr>
<tr>
<td>HU</td>
<td>O</td>
<td>N</td>
<td>Y (Art. 9)</td>
<td></td>
</tr>
<tr>
<td>MT</td>
<td>O</td>
<td>N</td>
<td>Y (Art. 3, 8)</td>
<td></td>
</tr>
<tr>
<td>NL</td>
<td>S</td>
<td>Y</td>
<td>N</td>
<td>Y (Art. 2)</td>
</tr>
<tr>
<td>AT</td>
<td>S</td>
<td>Y</td>
<td>N</td>
<td>Y (Art. 6)</td>
</tr>
<tr>
<td>PL</td>
<td>S</td>
<td>N</td>
<td>Y (Art. 2, 3, 9)</td>
<td></td>
</tr>
<tr>
<td>PT</td>
<td>S</td>
<td>N</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>RO</td>
<td>O</td>
<td>N</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>SI</td>
<td>S</td>
<td>N</td>
<td>Y (Art. 3, 9)</td>
<td></td>
</tr>
<tr>
<td>SK</td>
<td>O</td>
<td>Y</td>
<td>Y (Art. 9)</td>
<td></td>
</tr>
<tr>
<td>FI</td>
<td>O</td>
<td>N</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>SE</td>
<td>O</td>
<td>N</td>
<td>Y (Art. 3, 9)</td>
<td></td>
</tr>
<tr>
<td>UK</td>
<td>S</td>
<td>N</td>
<td>N</td>
<td>Y (Art. 3)</td>
</tr>
<tr>
<td>Sums</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Summary Reports on each Member State

Table 3-1 shows that, for the majority of the Member States, there have not been infringement proceedings initiated for non-communication of transposing measures. In all the cases where there have been, the cases have been closed as the necessary steps have been taken.

As shown in Table 3-1, the national summary reports indicate that one Member State (Italy) appears to have an observed discrepancy in that the provisions of its national legislation do not apply to portable systems, even in the case of prolonged use.

The majority of the Member States have implemented more detailed requirements. This is particularly in regard to Articles 3 (risk assessment) and 9 (health surveillance).

Examination of the Country Summary Reports reveals that 14 of the 27 MS have more detailed requirements relating to Article 3 (risk assessment). These more detailed requirements generally come under three headings:

- Who should carry out such assessments?
Want should the assessments cover?

When should the assessments be repeated or reviewed?

In some cases, these provisions appear to have the purpose of aligning the requirements of the national DSE legislation with other national OSH legislation, such as integrating the assessments with the provision of health surveillance and broader occupational health provision. No provisions relating to who should perform the assessments emerge as consistent additions across even a large minority. As a result none would seem to warrant consideration as more general requirements to be implemented in any revision of the Directive.

The topic of what the assessments should cover again offers little consistency between MSs, with some apparently transferring provisions from the minimum schedule (Annex) into their main legislation rather than introducing genuinely new issues. Others however introduce organisational issues such as the time spent in a particular (display screen) task or the degree of concentration required. In one MS the legislation places the onus on the manufacturers, importers and suppliers of all kinds of visual display equipment to provide information necessary for assessing risk, including problems of mental stress.

A small majority of those who indicated more detailed provisions for risk assessments (8/14) include requirements for the assessments to be reviewed or repeated. In only one MS does this extend to setting a time period (once a year). In most other cases the requirement is for the assessment to be reviewed when there has been a change. This might reflect changes in equipment or the workplace or that there have been reports of relevant ill-health amongst users.

More stringent requirements for Article 9 were identified for 12 MSs. These generally fell into two groups:

Specifying a frequency for eye and eyesight testing;

Widening the provisions of the examination to encompass other health issues such as MSDs.

Almost all of those who include more stringent requirements for this Article (11/12) specify a frequency for testing to be carried out. The timing varies from one to five years. Three MSs require a shorter break between testing for older workers (or, in the case of one MS, include additional test requirements). Most also allow for such testing ‘on demand’ where there are signs of a health problem.

Four MSs specifically refer to examinations for MSD-related problems with some others linking the requirements for DSE-related medicals to existing general occupational medical requirements.

Of these measures, the requirement to review risk assessments when necessary/appropriate accords with best OSH practice and is consistent with the requirement in the Framework Directive (Article 6) for the employer to ‘be alert to the need to adjust these [risk management] measures to take account of changing
circumstances’. However, any such alteration would be best regarded as part of an overall overview of risk assessment requirements and should not be restricted to the DSE directive.

Finally, several Member States pointed to a number of ambiguities and lack of necessary definitions in the Directive, which caused implementation difficulties, such as for example the term ‘prolonged use’ (Article 1).

The NIR template included a specific question relating to whether or not the exemptions specified in Article 1(3) of the Directive were still appropriate. These exemptions encompass:

(a) drivers’ cabs or control cabs for vehicles’ or machinery;
(b) computer systems on board a means of transport;
(c) computer systems mainly intended for public use;
(d) ‘portable’ systems not in prolonged use at a workstation;
(e) calculators, cash registers and any equipment having a small data or measurement display required for direct use of the equipment;
(f) typewriters of traditional design, of the type known as ‘typewriter with window’.

The following MSs stated that they regard the exemptions as continuing to be appropriate (BG, CZ, IE, LU, MT, RO, SK, ES, UK). The remainder either indicated that all should be removed or that the list should be reviewed. However, it would seem that, in some cases, it was the type of technology which occasioned adverse comment (e.g. typewriters with windows) whilst other MSs seemed to consider the types of work which they reflected.

MSs have implemented the Display Screen Directive in one or several pieces of legislation in almost equal number. Although there are some minor variations in detail in implementing the separate CPMs (and KRs) they appear generally to function as a coherent legal entity.

The majority of the Member States have implemented more detailed requirements, particularly in regard to Articles 3 (risk assessment) and 9 (health surveillance). On risk assessment this usually comprises including the contents of the minimum schedule (contained within an annex to the Directive) in the main text of their legislation. On ‘health surveillance’ (eye and eyesight testing) the most commonly adopted addition is to specify the frequency of such testing.

Changes in technology are the subject of some comments in the NIRs. The implications of such changes for the future relevance of the DSE Directive are discussed in Chapter 4.
3.2 MQ2: Derogations and transitional periods

**MQ2:** “What derogations and transitional periods are applied or have been used under national law under several of the Directives concerned?”

Overall MQ2 answer

The DSE Directive contains a provision for extended deadlines, which can be applied by the Member States. Table 3-2 below provides an overview of the extent to which this has been applied and respected by the Member States and the relevant dates.

Table 3-2: Transitional periods applied and respected

<table>
<thead>
<tr>
<th>Member State</th>
<th>Transitional periods applied</th>
<th>Transitional period respected</th>
<th>Date of end of application of the transitional period</th>
</tr>
</thead>
<tbody>
<tr>
<td>BE</td>
<td>Y</td>
<td>Y</td>
<td>31 December 1996</td>
</tr>
<tr>
<td>BG</td>
<td>N</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>CZ</td>
<td>N</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>DK</td>
<td>Y</td>
<td>Y</td>
<td>1 January 1997</td>
</tr>
<tr>
<td>DE</td>
<td>Y</td>
<td>Y</td>
<td>31 December 1999</td>
</tr>
<tr>
<td>EE</td>
<td>N</td>
<td>N</td>
<td>-</td>
</tr>
<tr>
<td>IE</td>
<td>Y</td>
<td>Y</td>
<td>31 December 1996</td>
</tr>
<tr>
<td>EL</td>
<td>Y</td>
<td>Y</td>
<td>31 December 1996</td>
</tr>
<tr>
<td>ES</td>
<td>Y</td>
<td>N</td>
<td>31 December 1992</td>
</tr>
<tr>
<td>FR</td>
<td>N</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>IT</td>
<td>N</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>CY</td>
<td>Y</td>
<td>Y</td>
<td>1 January 2003</td>
</tr>
<tr>
<td>LV</td>
<td>N</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>LT</td>
<td>N</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>LU</td>
<td>Y</td>
<td>Y</td>
<td>30 December 1996</td>
</tr>
<tr>
<td>HU</td>
<td>N</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>MT</td>
<td>N</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>NL</td>
<td>Y</td>
<td>Y</td>
<td>Unknown</td>
</tr>
<tr>
<td>AT</td>
<td>Y</td>
<td>N</td>
<td>31 December 1992</td>
</tr>
<tr>
<td>PL</td>
<td>N</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>PT</td>
<td>Y</td>
<td>Y</td>
<td>31 December 1996</td>
</tr>
<tr>
<td>RO</td>
<td>N</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SI</td>
<td>Y</td>
<td>N</td>
<td>6 April 2002</td>
</tr>
<tr>
<td>SK</td>
<td>N</td>
<td>N</td>
<td>-</td>
</tr>
<tr>
<td>FI</td>
<td>Y</td>
<td>Y</td>
<td>22 December 1993</td>
</tr>
<tr>
<td>SE</td>
<td>N</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>UK</td>
<td>Y</td>
<td>Y</td>
<td>31 December 1996</td>
</tr>
</tbody>
</table>

**Sums**

| Y= 15 | N= 12 | Y= 12 | N= 5 |

Source: Summary Reports on each Member State

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13 It is worth noting that several of the MSs have reported application of the transitional periods at dates earlier than their own entrance into the EU (AT, BG, CY, ES, FI, SI). This is due to compliance with the requirements of the transitional period being achieved through the MSs pre-existing legislation. This is explained in the relevant Country Specific Reports (CSR), for example the Bulgaria CSR explains this mismatch of dates as follows – ‘Bulgaria became an EU member state on 1st January 2007. To that date, all mentioned Directives below, of which the end dates of the transitional periods had preceded the accession date for Bulgaria, have been transposed into the national OSH legislation.’
Table 3-2 shows that 15 of the 27 Member States have applied the transitional period and that 12 Member States have respected the transitional periods.

The DSE Directive does not contain any provisions for derogations.

Fifteen MSs made use of the provisions within the Directive for transitional periods, all of which are believed to have expired before the evaluation period (2007-2012).

MQ3: What are the differences in approach to and degree of fulfilment of the requirements of the EU OSH Directives in private undertakings and public-sector bodies, across different sectors of economic activity and across different sizes of companies, especially for SMEs, microenterprises and self-employed?

Not surprisingly, interviews with national stakeholders revealed a greater awareness of national legislation implementing the provisions of the Directive than of the Directive itself. These findings are in line with the Dutch ex-post evaluation of the DSE directive conducted by Research voor Beleid (2007). Their research shows that "few employers (16%) and employees (9%) are aware of the European Directive. A small majority (61%) of employers and among half (49%) of the employee respondents know that there are Dutch regulations concerning work with display screen." Clearly, knowledge of the EU Directive is not a main objective, it is however desirable that employers, and workers alike, are aware of their basic rights and obligations stemming from legislation not only at national level but also at EU level; a lack of basic awareness of national legislation is clearly a significant barrier to compliance and effectiveness.

Table 3-3 summarises the information available in terms of the percentage of establishments which comply with the CPM requirements of the Directive. For brevity, only those MS who have information available regarding compliance are shown. All others had no estimates for any aspect of compliance. Similarly, no estimates were available from any MS on the extent of compliance with any of the non-CPM KRs so this entry is omitted for all MS. Note that some of the numbers given are estimates provided by national experts who sometimes found it difficult themselves to differentiate between the different specific provisions of the Directive. In such cases the estimates were usually applied across all requirements.

Table 3-3 Compliance with key requirements in Member States (% of establishments)

<table>
<thead>
<tr>
<th>Member State</th>
<th>Perform regular risk assessments 15</th>
<th>Information to workers</th>
<th>Training of workers</th>
<th>Health surveillance</th>
<th>Consultation of workers</th>
</tr>
</thead>
<tbody>
<tr>
<td>NL</td>
<td>34%</td>
<td>40%</td>
<td>40%</td>
<td>9%</td>
<td>-</td>
</tr>
<tr>
<td>RO</td>
<td>65%</td>
<td>65%</td>
<td>65%</td>
<td>65%</td>
<td>65%</td>
</tr>
<tr>
<td>SK</td>
<td>65%</td>
<td>65%</td>
<td>65%</td>
<td>65%</td>
<td>65%</td>
</tr>
<tr>
<td>UK</td>
<td>72%</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Country Summary Reports on each Member State

Table 3-3 gives rise to two main findings. The first finding is that data on levels of compliance with the requirements of the Directive is scarce. The experience from conducting the studies at the national level is that national authorities do not keep accounts of levels of compliance with directive-specific requirements. Additionally, national stakeholders are reluctant to make concrete statements about levels of compliance during interviews as they consider their knowledge on these specificities to be limited (most have a general idea about levels of compliance across all or groups of directives – but again not down to the individual Directive requirement level).

The second finding is that for the two of the four Member States where data is available (Romania and UK), the level of compliance with the CPMs is assessed as quite high – above 60%. However, that from the UK is based on a very limited survey sample and might not present an accurate national picture. That from Romania stems from an estimate derived by the national expert (hence the uniform figure applied to all CPMs) and is not derived from any survey data. It must be recognised that these findings stem from a very small sample of MSs and should not be taken to necessarily be indicative of the wider EU-27 picture.

The national studies also sought to establish whether there are differences in levels of compliance depending on the sector of industry, the public and private sectors and the size of establishments. No data has been found in respect of such sectorial information.

The data suggests that the level of compliance increases with the size of establishment (although given the limited knowledge of the level of compliance this might be a generalised view; and not based specifically on compliance with the DSE Directive requirements). However, national implementation reports reach a similar conclusion, with a number of Member States highlighting the difficulties faced by SMEs and microenterprises in complying with the requirements. Lack of knowledge or awareness, out-datedness, lack of specialised personnel and financial resources, are common explanations to the challenges in implementation. Some examples are given in Box 3-1 below. However, some other Member States indicate that SMEs have no difficulties in implementing the Directive.

---

15 Is the risk assessment reviewed regularly and in any event when any changes occur in the conditions which may affect workers exposure?
Box 3-1 Examples of difficulties related to compliance for SMEs and microenterprises (from NIRs)

The biggest difficulty is lack of awareness or unwillingness to search for sources that provide information (Estonia).

Heads of enterprise and employees know little or nothing of the regulations or of the principles underlying employees’ adaptation to all the aspects of their workstations (France).

98% of enterprises in Greece are SMEs or micro enterprises. Therefore, the information and awareness raising efforts of our Ministry are mainly addressed to them. Of course, the economic crisis makes it even more difficult for enterprises to comply with the Directive, whereas the specifications set out in the Annex to the Decree - screens, desks, chairs, lighting etc., are not applied and workers are required to complete their work regardless of the equipment used and the working environment (Greece).

The purchasing of modern information technology equipment, the enforcing of ergonomic requirements and the provision of ‘spectacles to ensure sharp-sightedness’ are not fully attained (Hungary).

Since 2007 the Health and Safety Authority in Ireland has been working towards the development of sector specific manual handling risk assessment guides and guidance on compliance with the DSE Regulation (Ireland).

The most frequent reply was that the legislation regulating work with equipment with display screens is not in line with modern technology advances, its requirements are obsolete and no account is taken of the use of portable computers and tablets or interactive boards (Lithuania).

From a general perspective and from research, it is evident that large companies are in a better position to maintain and develop safe operational practices, contrary to smaller enterprises (Malta).

The reduced size of small businesses may be one of the causes of the apparent difficulty in complying with the requirements of the Directive (Portugal).

Because of the costs involved, small and medium-sized enterprises often have difficulties in equipping the workplace with ergonomic display screen equipment and software consistent with rapid technological advances (Slovakia).

According to the information provided by the Autonomous Communities, the greatest difficulty lies in compliance with the minimum provisions contained in the Annex where desktop computers in which the various components are independent are not used (Spain).

Interviews with national stakeholders often indicated that SMEs and micro enterprises had more difficulties with compliance with / implementation of the DSE Directive than larger enterprises. Reasons that were often mentioned include the fact that small companies have fewer financial resources for implementation, a lack of knowledge on the area, and informal organisational structures. Yet, stakeholders from seven Member States explicitly stated that SMEs did not have more difficulties in implementing the DSE Directive than larger enterprises (Stakeholders from Czech Republic, Finland, Italy, Luxembourg, Netherlands, Slovenia and UK).

Several ergonomics experts, interviewed regarding compliance with the minimum workplace requirements, commented that employers should have little difficulty in such compliance. Modern desktop computers comply fully with relevant requirements such as keyboards separate from the screen; and screen and display adjustability, with adaptations readily available to accommodate the use of technologies such as lap tops in the office environment. Similarly, much office furniture is available (without the need for so-called ‘ergonomic’ chairs) which provide separate adjustability of seat height; and backrest height and angle...
allowing individuals to adapt the chair to their own needs. Therefore, unless equipment and furniture has not been replaced within the last 10-15 years, employers should not experience any difficulties or increased costs in meeting these requirements. However, concerns were raised regarding the emergence of new DSE technologies such as smart phones and tablets and the implications of their use for DSE risks, which are not yet well understood.

As noted in Table 3-3, the provision of information and training are CPMs included in the DSE Directive. Specifically: “every worker shall also receive training in use of the workstation before commencing this type of work…” (Article 6). Some insight into the adequacy of compliance with these duties can be found in survey data reported as part of the European Survey of Enterprises on New and Emerging Risks (ESENER), 2009. Figure 3-1 presents data from this survey, illustrating the need for additional training requested by Employee Representatives.

The Figure shows that 64% of Employee Representatives find that they need additional training on the subject of ergonomics, whereas slightly more (69%) require additional training on work-related stress. Although not necessarily related specifically to the DSE Directive, this illustrates general deficiencies in this area.

Generally, insufficient training may mean that workers do not know how to correctly arrange their DSE workstations (arrange equipment, adjust chairs, etc.). Consequently, employers may comply with their duties in providing the components of a physical workstation corresponding to the established minimum requirements, but workers may not sit and work correctly. As a result they will
continue to be at risk of MSDs. According to the Dutch evaluation report, fewer than half of the Dutch employers (40%) were aware that employees should be given information and training concerning the risks of display screen work. This figure indicates a problem as employers remain the most important source of information on the optimal use of DSE, despite the clear increase in available literature and informative material publically available.

Figure 3-2 indicates some reasons why Employee Representatives experience a lack of knowledge on the subjects of MSDs and work-related stress. Again it must be emphasised that this survey was not specifically addressed to DSE workers. However, given the legal duty to provide such training, at least in respect of work with DSE, these figures again suggest that inadequate compliance is a significant problem.

Figure 3-2: Reasons for lack of training on MSDs and work-related stress

![Figure 3-2: Reasons for lack of training on MSDs and work-related stress](image)

Source: EU-OSHA: ESENER (2009), ER162.1-4, NACE Rev 1 codes: J, K, L, M, N, O (data is not available for sector U)

Note: Question asked to employee representatives: “Which of the following are the main reasons for receiving no or not sufficient training on [MSDs and work-related stress]?” Data retrieved from main sectors deemed relevant to the Directive.

Apart from the general problems created by changes in DSE technology, some further challenges to compliance by employers were mentioned in interviews with stakeholders. For example, new and converted offices tend to be designed with large glass facades, making it hard to design the workstation environment ergonomically to prevent glare on display screens (Austria).

Also, some Danish stakeholders point to the problem that some modern LCD screens support relatively few different screen resolutions. This can apparently cause some difficulties in ensuring that characters are large enough to be legible, although many common software packages enable the display size to be manipulated which can help to overcome this. Clearly however, this is a different
problem to that envisaged when the Directive was drafted, when most displays were of a fixed size and resolution.

Data on levels of compliance with the requirements of the Directive is quite sparse with relatively few MSs having numerical data available. Such data as were sourced made no distinction between private undertakings and public-sector bodies, across different sectors of economic activity, or across different sizes of companies.

The level of reported compliance with the CPMs is very varied – ranging from 8% up to 72%. As some of the more extreme values were reported from the same MS it is unlikely that the lower levels are attributable to a lack of awareness of the legal duties. It is widely believed (although there appears to be no objective data to support this belief), that compliance increases with the size of the business. This is reflected in comments from a number of MSs which refer to the difficulties experienced by SMEs.

Survey data, suggests that one of the problems with compliance at the individual level rests with a failure by employers to comply with the requirements for the provision of information and training. Isolated stakeholder comments indicate that some employers might have problems in complying due to technical difficulties regarding the modern office environment and equipment although ergonomics experts interviewed suggested that such problems should not be insurmountable.

3.3 MQ4: Accompanying actions

MQ4: What accompanying actions to OSH legislation have been undertaken by different actors (the Commission, the national authorities, social partners, EU-OSHA, Eurofound, etc.) to improve the level of protection of safety and health at work, and to what extent are they actually used by companies and establishments to pursue the objective of protecting safety and health of workers? Are there any information needs that are not met?*

This section distinguishes between actions at the Member State level (data collected through the national studies) and actions at the EU level (data collected through desk research and interviews with EU level stakeholders).

3.3.1 Actions at Member State level

Table 3-4 shows the type and number of actions undertaken in each Member State. Emphasis is on key documents and actions. In many Member States additional items, such as leaflets etc., may have been produced. For brevity, only those MSs where actions are reported are shown. One shortcoming of this information is that the scope of the enquiry was restricted to 2007-2012. Particularly in some of the more established MSs, some material might predate this period and therefore not be reported. The details reported below should therefore be regarded as a minimum estimate.
Table 3-4  Type and number of accompanying actions in Member States

<table>
<thead>
<tr>
<th>Member State</th>
<th>Guidance documents</th>
<th>Awareness raising campaigns</th>
<th>Support tools (possibly IT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BE</td>
<td>2</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>BG</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>DK</td>
<td>2</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>DE</td>
<td>6</td>
<td>-</td>
<td>8</td>
</tr>
<tr>
<td>EE</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>IE</td>
<td>2</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>ES</td>
<td>6</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>FR</td>
<td>-</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>IT</td>
<td>1</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>CY</td>
<td>2</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>LV</td>
<td>2</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>LU</td>
<td>2</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>HU</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>MT</td>
<td>1</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>NL</td>
<td>2</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>AT</td>
<td>12</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>PL</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>PT</td>
<td>-</td>
<td>-</td>
<td>1</td>
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<tr>
<td>RO</td>
<td>1</td>
<td>-</td>
<td>-</td>
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<td>SI</td>
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<td>-</td>
<td>1</td>
</tr>
<tr>
<td>SK</td>
<td>2</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>FI</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SE</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>UK</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Sums</strong></td>
<td><strong>50</strong></td>
<td><strong>5</strong></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

Source: Country Summary Reports on each Member State

Table 3-4 indicates that guidance documents are by far the most common action undertaken by Member States in respect to supporting the implementation of the legislation transposing the DSE Directive. Support tools are the next most common actions undertaken, followed by awareness raising campaigns. No reports were received regarding financial incentives or centralised provisions for education and training so these columns have been omitted. Similarly, no MSs indicated any gaps in provisions of available information and guidance so again, for clarity and brevity, this column has been omitted. However, as already mentioned above under compliance, some national implementation reports which highlight challenges to SMEs also mention lack of awareness and information, etc. which could indicate a need for additional accompanying actions in this area.

According to national stakeholders interviewed, the DSE directive has resulted in an increased awareness about the risk factors related to the use of DSE. A large majority of Member States reported that they, or national social partners, have published material to assist employers in the implementation of the Directive leading to an increased knowledge of the Directive and the minimum requirements presented in the Annex (countries include Bulgaria, France, Germany, Greece, Ireland, Malta, Portugal, Romania, Spain and Sweden). Several MSs also reported having made campaigns within the last decade addressing the overall OSH impact of ergonomics and MSDs (e.g. Greece and Portugal) during which DSE and the ergonomic organisation of workstations were mentioned as one of several triggers.
3.3.2 Actions at EU level

EU-OSHA:

The following information sheet provides specific guidance on use of office equipment, providing a safe working environment, and workstation practices, including a detailed checklist.

E-facts 13\textsuperscript{16}: Office ergonomics

Guidance documents are by far the most common action undertaken by Member States followed by support tools such as workstation checklist. Government material is supplemented in many MSs by additional guidance from social partners who have also published material to assist employers. Further guidance has also been prepared at EU level by EU-OSHA.

3.4 MQ5: Enforcement

**MQ5**: What are the enforcement (including sanctions) and other related activities of the competent authorities at national level and how are the priorities set among the subjects covered by the Directives?

Table 3-5 below indicates whether there are:

- specific authorities (different from the general OSH enforcement authority) involved in relation to enforcement of the legislation transposing the Directive (column 1);
- specific enforcement strategies, elements of strategies or procedures covering the implementation of the Directive (column 2);
- specific criminal or administrative sanctions which can be applied in cases of non-compliance with the Directive (column 3).

In the case where the answer to the questions is no, reference is made to the Directive report on implementation of the Framework Directive, which provides a summary of the general systems in force. For specific details, please see the individual country summary reports. For brevity, only those MSs who have responded positively to at least one question are shown.

Table 3-5  Enforcement of the DSE Directive

<table>
<thead>
<tr>
<th>Member State</th>
<th>Specific authorities relevant for Directive?</th>
<th>Specific strategic focus on Directive?</th>
<th>Specific criminal or administrative sanction?</th>
</tr>
</thead>
<tbody>
<tr>
<td>BE</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>CZ</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>DE</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>EE</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>IE</td>
<td>N</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>EL</td>
<td>N</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>ES</td>
<td>N</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>LT</td>
<td>Y</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>AT</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>PL</td>
<td>Y</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>PT</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>RO</td>
<td>N</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>SK</td>
<td>N</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>SE</td>
<td>N</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td><strong>Sums</strong></td>
<td><strong>Y = 2</strong></td>
<td><strong>Y = 8</strong></td>
<td><strong>Y = 11</strong></td>
</tr>
<tr>
<td></td>
<td><strong>N = 25</strong></td>
<td><strong>N = 19</strong></td>
<td><strong>N = 16</strong></td>
</tr>
</tbody>
</table>

Source: Summary Reports on each Member State

Table 3-5 shows that two Member States have designated a specific authority responsible for the enforcement of the DSE Directive (Lithuania, Poland). However, in most MSs, the enforcement of the Directive typically comes under the general authority responsible for OSH inspections/enforcement.

Less than a third (8 MSs) have any specific strategic focus on this Directive although slightly more (11 MSs) do have criminal or administrative sanctions specific to the offenses committed under the legislation concerning DSE, with the majority applying standard sanctions in the whole OSH area. Where a specific strategic focus is identified this appears to be directed mainly towards the overall aim of reducing MSDs than prioritising any particular aspect of the provisions of the Directive.

No information is available regarding priorities with different requirements of the Directive, other than a general drive to reduce the incidence of MSDs.

3.5  MQ6: Vulnerable groups

**MQ6:** What are the differences of approach across Member States and across establishments with regard to potentially vulnerable groups of workers depending on gender, age, disability, employment status, migration status, etc., and to what extent are their specificities resulting in particular from their greater unfamiliarity, lack of experience, absence of awareness of existing or potential dangers or their immaturity, addressed by the arrangements under question?"

The findings from the national studies show that most Member States have general approaches to vulnerable groups, which are not targeted at specific Directives (except for the specific provisions of the following Directives, which are designed to address vulnerable groups: Temporary Workers Directive; Pregnant/breastfeeding Workers Directive; Young People Directive). For the purposes of this report vulnerable groups include women (pregnant or breastfeeding), ageing workers,
workers with disabilities, young workers, migrant workers, temporary workers and low-qualified workers\(^{17}\). There are no specific tools or approaches which focus in particular on vulnerable groups and the risks associated with the DSE Directive.

### 3.6 MQ7: SMES and microenterprises

**MQ7**: What measures have been undertaken by the Member States to support SMEs and microenterprises (e.g. lighter regimes, exemptions, incentives, guidance, etc.)?

Table 3-6 below indicates whether the Member States have developed particular measures to support SMEs and microenterprises in the implementation of the legislation transposing the Directive and the types of measures available. For brevity only those MSs where some form of measure has been reported are shown in the table – all other MS did not report any such measures. In addition, no MSs have specific guidance regarding their DSE legislation and so this entry is omitted completely.

#### Table 3-6 Measures to support SMEs and microenterprises

<table>
<thead>
<tr>
<th>Member State</th>
<th>Exemptions (Y/N)</th>
<th>Lighter Regimes (Y/N)</th>
<th>Incentives (Y/N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CZ</td>
<td>Y</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>DK</td>
<td>N</td>
<td>Y</td>
<td>N</td>
</tr>
<tr>
<td>FR</td>
<td>N</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>PL</td>
<td>N</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td><strong>Sums</strong></td>
<td><strong>Y = 1</strong></td>
<td><strong>Y = 2</strong></td>
<td><strong>Y = 2</strong></td>
</tr>
<tr>
<td></td>
<td><strong>N = 26</strong></td>
<td><strong>N = 25</strong></td>
<td><strong>N = 25</strong></td>
</tr>
</tbody>
</table>

Source: Country Summary Reports on each Member State

Table 3-6 shows that very few Member States have developed specific guidance for SMEs - or other measures targeted at SMEs - which are particular to the requirements under the DSE Directive. However, it needs to be understood that many Member States have developed various accompanying actions targeted at SMEs, which are typically of a more general nature (see the report on the Framework Directive).

\(^{17}\) Vulnerable groups as defined within the report: Occupational health and safety risks for the most vulnerable workers.

4 Assessment of relevance

In this section, the relevance of the Directive in relation to the coverage of workforce and Member States, and the severity and extent of risks covered is investigated. The conclusions from the five parameters used to assess relevance are summarised in the table below.

<table>
<thead>
<tr>
<th>Coverage of Workforce and Member States</th>
<th>Accidents and health problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of MS where the Directive is potentially relevant</td>
<td>Proportion of EU workforce to whom the Directive is potentially relevant</td>
</tr>
<tr>
<td>27</td>
<td>52.76%</td>
</tr>
</tbody>
</table>

n/a not applicable

The hazards and risks associated with the use of Display Screen Equipment (DSE) were considered to be virtually ubiquitous and therefore that no verification of their relevance to every MS was considered to be required. The DSE Directive can therefore be regarded as being of potential relevance to all 27 MSs.

Turning to the labour market, determination of the proportion of the labour market covered by the provisions of this directive is therefore a matter of estimating the number of employed persons using DSE likely to be regarded as workers under the definition of the Directive. The Directive is relevant to all such workers.

Establishing the proportions of DSE users in different economic sectors is not straightforward as computers are widely used in offices and virtually every employer will include some form of office function.

The EWCS 2010 survey included the questions: “Does your main paid job involve - working with computers: PCs, network, mainframe?” and “Does your main paid job involve - Using internet / email for professional purposes”. Of the respondents, 52.76% indicated that they did so for a quarter of their time or more to one or both questions (curiously, some individuals responded that they never worked with
computers, despite indicating that their main job involved using the internet/email). Thus, to the extent that the EWCS can be regarded as genuinely representative, this provides a guide to the proportion of the EU workforce to whom the DSE Directive is currently relevant.

As an alternative approach, data was obtained from the LFS\textsuperscript{18}, 2012 data, to calculate the number of employees in relevant sectors likely to be users of computers in some form. DSE will be used by some workers in virtually every sector. For example, a proportion of those working in sectors such as manufacturing will work in supporting office functions. In order to provide an approximate estimate of the proportion of the EU-27 workforce possibly exposed to DSE work, without estimating the numbers in such sectors, a procedure was adopted whereby the whole employment figure was adopted for those sectors where the majority can be assumed to be likely to use DSE and to omit any estimate for those other sectors. This will clearly result in, on the one hand, an overestimate of those potentially at risk and, on the other hand, an underestimate. However, it was considered that this provided a reasonably accurate overall estimate where the intention was to provide a broad view of the proportion of the workforce covered, rather than any detailed calculation.

The database showed a total of 215,678,600 employed persons (15-74 years) in total across the EU-27 for 2012. Within this, the following sectors were selected as predominantly employing workers likely to be DSE users:

- J: Information and communication;
- K: Financial and insurance activities;
- L: Real estate activities;
- M: Professional, scientific and technical activities;
- N: Administrative and support service activities;
- O: Public administration and defence; compulsory social security;
- U: Activities of extraterritorial organisations and bodies.

This yielded a total of 49,613,300 workers or 23% of the total workforce, well short of the percentage provided from the EWCS database. As noted above, not all workers in the selected sectors will use computers, with no means of determining an accurate figure. Additionally, there will undoubtedly be workers in other sectors for whom the Directive is relevant, such as office staff in the manufacturing sector. This makes a sector-based approach particularly problematic and prone to error.

In the absence of a clear criterion based on sectors, it is suggested that the estimate from the EWCS of 52.76% provides the most reliable indication available for defining the proportion of the EU-27 workforce for which the DSE Directive is relevant.

\textsuperscript{18} Employment by sex, age and economic activity (from 2008 onwards, NACE Rev. 2) - 1 000 [lfsa_egan2]
4.1 EQR1: Current relevance

**EQR1: To what extent do the Directives adequately address current occupational risk factors and protect the safety and health of workers?**

The DSE Directive identifies relevant risks as being those relating to ‘eyesight, physical problems and problems of mental stress’. The published scientific literature identifies MSDs, in particular those affecting the back, neck and shoulders and upper extremities.

There is widespread consensus in the scientific literature that work with computers does not cause any damage to the eyes or eyesight, although use of computers can give rise to visual discomfort and other symptoms\(^{19,20}\). For example, in a UK-based study of over 1500 computer users, Melrose et al (2006)\(^ {21}\) found that the level of reported ocular symptoms was no different to the levels reported in population-based studies. Physical eye injuries were not therefore considered further, although possible sources of data on visual symptoms were examined.

Workplace stress can be attributed to a number of recognised psychosocial risk factors. Although these may well have no relationship to DSE work at all, it is recognised that some aspects of such work can contribute to the overall psychosocial burden and so data on stress-related ill health was sought.

Use of DSE equipment does not present any risk of fatal injury. No analyses were therefore performed to explore this outcome.

MSDs such as back or upper limb problems are recorded in some instances as ‘accidents’ although it is not clear to what extent such a designation truly captures what, in some instances, will be problems with a gradual, almost insidious onset. According to the ESW database\(^ {22}\) there were a total of 3,158,111 non-fatal accidents (3 or more days) recorded for 2012 across the EU-27, representing an incidence rate of 1,480.74 per 100,000 employed. From the same database\(^ {23}\), 353,737 were accidents to the back, including the spine and the spinal vertebrae. This can be calculated to equate to an incidence rate of approximately 166 per 100,000 employed. However, the database does not record the apparent cause of such injuries and it is therefore not possible to determine the proportion of these which were attributable to DSE work. It can however be determined that 51,993 (estimated) of these (14.7%) were to workers in the sectors identified earlier as a focus for DSE work. No incidence figure is available although, as these sectors

\(^{19}\) Thomson DW (1998) Eye problems and visual display terminals—the facts and the fallacies.


\(^{22}\) Non-fatal accidents at work by economic activity and sex [hsw_n2_01]

\(^{23}\) Accidents at work by economic activity and part of body injured [hsw_n2_06]
represent around 25% of worker employment, it would appear that the incidence of back injuries is lower in these sectors than in the whole EU-27 workforce.

Data from the same database yields totals of 79,329 accidents to the neck and 1,242,203 accidents to the upper limb (not further specified). These values yield approximate incidence rates of 37 and 583 per 100,000 employed respectively. As with back injuries however, the database gives no indication of apparent causes. Again it can be calculated that approximately 14,444 (12.5%) and 155,624 (18%) of these were to workers in the main DSE-relevant sectors indicating a lower than expected incidence in these sectors.

LFS data can be used to examine the level of work-related health problems (self-reported) relevant to the DSE Directive. Although relying on the self-reporting of work-relatedness, recent evidence from the UK suggests, as mentioned previously, that such reports are generally reliable.\textsuperscript{24} One limitation is that, where respondents reported two or more problems, the data only records that which the respondent considered to be the most serious. In general, the complaint which had the biggest impact on the worker’s activities should be that which is recorded\textsuperscript{25}.

However, EU LFS (2007) data only records ‘musculoskeletal problems’\textsuperscript{26}. It does not differentiate these by the site of injury or the apparent cause. Thus it includes injuries to all parts of the body (e.g. back, neck, upper and lower limbs) whether they were caused by the use of DSE or not. From this database, 54.2% of respondents reported some form of musculoskeletal problem as their most serious health problem in the previous 12 months. No sector-specific breakdown is provided. The equivalent data for 2013 is incomplete. However, for the 25 MSs where data are complete, the equivalent values for the two years are 55.4% (2007) and 57.3% (2013) suggesting a slight increase.

Data from the EWCS 2010 survey includes responses to questions regarding backache; muscular pains in the shoulder, neck and/or upper limbs; headaches and eyestrain; depression or anxiety, each of which, according to the Directive, might be associated with work with computers.

Each of these were analysed in respect of those who indicated that they worked with computers (at least 25% of the time, or worked on the internet or email for a similar minimum duration).

The percentages of people reporting either of the above work activities and various health problems (in the last 12 months) were:

- backache: 21.51%;

\textsuperscript{24} Follow-up and assessment of self reports of work-related illness in the Labour Force Survey. Prepared by the Health and Safety Executive 2013.
\textsuperscript{26} Persons reporting their most serious work-related health problem work in the past 12 months, by type of problem - % [hsw_pb5]
• muscular pains in shoulders, neck and/or upper limbs: 21.05%;
• headache or eyestrain: 22.78%;
• depression or anxiety: 6.11%.

These findings reinforce the view that stress and other problems related to psychosocial risks are not a major risk with computer work compared to MSDs and visual (or potentially visually mediated) problems.

Concerns have been expressed that such problems are not specifically caused by work with computers but that such work makes symptoms more apparent. One way to explore possible causal relationships is to look for so-called dose-response relationships, examining whether the incidence of symptoms can be related to the duration of use. Data from the EWCS on symptoms were therefore plotted against reported daily usage. Figure 4-1 illustrates the outcome.

The figure shows that no discernible dose-response relationship can be identified, with those who report ‘never’ or ‘almost never’ using computers tending to report more problems in most categories than those who report some usage. One obvious omission from these data is any knowledge of what those who reported not using computers actually did as a regular part of their work. The higher percentages in this category perhaps reflect the risks associated with these ‘other’ jobs.

It should be noted that this absence of any dose-response relationship, or indeed any indication of an increased risk amongst computer users, is not consistent with the scientific literature which shows a reasonably strong and consistent exposure-response relationship between computer work and symptoms27.

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A UK-based survey of 1327 DSE users, carried out during 2006, found that 73% reported one or more musculoskeletal symptom in the last 12 months. In addition, 52% reported headaches and 58% reported visual discomfort in the same timescales although, as the report points out, these latter two values are within the prevalence ranges usually cited for the general population and do not therefore indicate any increased incidence amongst DSE users.

The same study found that levels of psychological distress, although higher than values cited for the general population, were no greater than other published figures for a white collar (not necessarily DSE-user) workforce. Again therefore these figures do not necessarily indicate any increased risk of mental stress amongst DSE users.

The DSE Directive was discussed to some extent in eight different interviews with EU-level stakeholders. Amongst those who expressed a specific opinion there seemed to be a general consensus that MSDs remained an important problem but that the current relevance of the DSE Directive was diminished by the developments in relevant DSE technologies which had taken place since the Directive was first drafted. Some concerns were also expressed about the collective failure of this (and the Manual Handling Directive) to adequately address all workplace MSD risks (although these risk seem to relate mainly to industrial workplaces and are therefore of less importance for the DSE Directive). It should be noted however that this was not a universally-held view and that some stakeholders expressed the view that the provisions of the Directive were not out of date and remained relevant.

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Some stakeholders mentioned psychosocial risks in the context of the DSE Directive (which refers to risks of mental stress) although most acknowledged that this was a broader issue than the relevant risks arising from DSE work, and mentioned other (non-DSE) risk factors.

As well as the generally reduced relevance of the Minimum Requirements for Workstations, specific mention was made of the requirement for eyesight testing and examination which was no longer considered to be relevant.

A large majority of the National Implementation Reports identified that the current provisions of the DSE Directive were out of date because of technological change. Furthermore, specific suggestions were included for a review of the exemptions in Article 1(3) of the Directive, because of this technological change. Of those who expressed a specific opinion, 19 held this view whilst five stated that the provisions remained appropriate and did not require to be changed. This view related mainly to the minimum requirements within the Annex to the Directive, although, as noted above, some MSs also commented that the exclusions of certain forms of display screen (e.g. window typewriters) in Article 1(3) also did not reflect current technologies.

Where there was less consistency related to what should be done about this. Although a majority favoured amending the Directive appropriately, one expressed the view that technological change removed the need for the Directive entirely and that it should be repealed. However, it should be noted that this was not a widely expressed view and, as detailed elsewhere in this report, is a view which is not consistent with the evidence of on-going DSE-related health problems.

A minority also expressed concerns regarding Article 9 relating to eye and eyesight testing. However, again there was no consistency, with some advocating widening its scope to include MSDs and the UK recommending its repeal given the evidence-base for the absence of any effect of DSE use on eyesight (as opposed to short-term visual discomfort etc.).

The majority of national stakeholders did not express any views on the current relevance of the DSE Directive. Of those who did, the majority seemed to share the view of the EU-level stakeholders that the relevance of the DSE Regulations was diminished by the failure to update it in the light of the radical developments in relevant computer technology.

A stakeholder from one MS suggested that the relevance of the Directive could be improved by better aligning it with the provisions of International Standards such as the series of Standards ISO 9241.

On the specific issue of the provisions of Article 9 for eyesight testing etc., one MS expressed the view that this was not a relevant requirement. As presented in the Directive it clearly implies that using DSE presents a risk of damaging eyesight. It was stated that there is no scientific evidence to support this. As a consequence, DSE users were entitled to an examination to protect them against a non-existent risk. This was seen as placing an unnecessary burden on employers, both in terms of administering uptake of the entitlements and in meeting the costs involved. It is
noted that this view is consistent with the scientific literature which suggests that, although DSE users can experience symptoms such as visual discomfort, there is no reliable evidence to suggest damage to eyes (or eyesight) as a result which would warrant such surveillance.

In the discussion which followed it was acknowledged that, if a DSE user had a deficiency in their eyesight (particularly in respect of the intermediate screen viewing distance which differs from the normal reading distance for printed material), this could possibly put their health at risk (e.g. through visual fatigue or adverse postures adapted to compensate). It was suggested that, rather than blanket surveillance (which reinforced the 'using DSE damages your eyesight' belief) a needs-based approach would be more equitable, with the entitlement presented as part of the risk management process and targeted at those reporting difficulties in seeing their screen clearly.

It is suggested that the estimate from the EWCS 2010 survey of 52.76% provides the most reliable indication available for defining the proportion of the EU-27 workforce for which the DSE Directive is relevant. Data from the same survey shows that approximately a fifth of those who worked with computers (at least 25% of the time) reported experiencing backache, muscular pains in shoulders, neck and/or upper limbs, or headache or eyestrain. These data support the view that the DSE Directive remains relevant.

However, far fewer reported symptoms potentially related to stress (depression or anxiety) reinforcing the view from other published sources that stress and other problems related to psychosocial risks are not a major risk with computer work.

Two aspects of the DSE Directive attracted a considerable amount of adverse comment. These were the requirement for eye and eyesight testing and the technological shortcomings of the Annex of Minimum requirements for workstations. Both were held to reduce the current relevance of the Directive and, particularly the latter, were likely to reduce it still further in the future.

### 4.2 EQR2: Future relevance

**EQR2:** Based on known trends (e.g. new and emerging risks and changes in the labour force and sectoral composition), how might the relevance of the Directives evolve in the future, and stay adapted to the workplaces of the future in light of the horizon of 2020? Does the need for EU level action persist?

As mentioned above (4.1) it is clear that the Annex of Minimum requirements for workstations, which largely reflects the state of computer technology of the 1980s, is out of date.

Not only does this mean that the Directive is partially out of date at present, but also that it is likely to become more so as further developments in technologies are introduced into the workplace.
Recently published papers in the scientific literature have reported on risks of MSDs associated with technologies such as laptops (Heasman et al, 2000\textsuperscript{29}); smartphones (Kim et al, 2012\textsuperscript{30}; Gustafsson, et al, 2010\textsuperscript{31}; Xiong and Muraki, 2014\textsuperscript{32}; Korpinnen, et al, 2013\textsuperscript{33}; Berolo, et al, 2011\textsuperscript{34}), and tablets ((Young, et al, 2012\textsuperscript{35} & 2013\textsuperscript{36}); and Pereira, et al, 2013\textsuperscript{37}). Risks were identified relating to injuries to various body areas including the neck, general upper limbs, and the thumbs. To a great extent these arise out of changes to the manner in which such devices are used, without use of the respective peripherals commonly used including keyboard and mouse.

In addition to risks specific to the new technologies, one of the problems identified by Heasman and co-workers was the manner in which these new technologies had changed the ways in which individuals worked, in some cases marking a radical departure from the traditional concept of a workstation as envisaged in the Directive.

Thus, it would appear that, although the precise nature of the hazards has changed, and are likely to continue to change as further technological developments are introduced, these hazards are likely to continue to lead to a risk of MSDs from DSE use.

As noted above, the widespread use of such technologies has resulted in a few stakeholders questioning whether MSDs from DSE technologies remained a genuine occupational risk, given the extensive use of the same technologies in the non-work setting. A small minority of stakeholders suggested that, as the technology was ‘ubiquitous’, it was unfair to ‘penalise’ employers by requiring them

\textsuperscript{29} Heasman TA et al. (2000). Health and safety of portable display screen equipment. The Health and Safety Executive, England: London.
\textsuperscript{35} Young, JG. et al. (2012). Touch-screen tablet user configurations and case-supported tilt affect head and neck flexion angles. Work: A Journal of Prevention, Assessment and Rehabilitation 41 (1) (01/01): 81-91.
\textsuperscript{36} Young, JG. et al. (2013). Wrist and shoulder posture and muscle activity during touch-screen tablet use: Effects of usage configuration, tablet type, and interacting hand. Work 45 (1) (05): 59.
\textsuperscript{37} Pereira, A et al. (2013). Holding a tablet computer with one hand: Effect of tablet design features on biomechanics and subjective usability among users with small hands. Ergonomics 56 (9) (09/01; 2014/07): 1363-75.
to take action in the workplace when this action was (potentially) negated by non-
work use. This argument was used to support the contention that the DSE
Directive should be repealed in its entirety as being no longer relevant in a
specifically occupational context.

The issue of the extent to which hazards are no longer uniquely occupational is
one which relates to a growing number of other hazards including psychosocial
risks and the exposure to noise from non-occupational sources. Although this
presents challenges to employers in determining the relative contribution of
workplace factors, OSH experts questioned indicated that exposure to non-
occupational hazards should not be used as a reason for not adequately controlling
the same or similar hazards in the workplace where they presented a risk.

Demographic change was identified by some stakeholders as a factor which would
increase the relevance of the DSE Directive in future years. Many MSDs are
recognised as having an age-related factor, apparently associated with
degenerative change. To some extent therefore the role of the Directive will
change from the prevention of disorders to the reduction in disabling symptoms
from pre-existing conditions. Nevertheless, a need for appropriate control
measures to reduce the risk of MSD symptoms amongst workers will remain, which
suggests that the Directive will continue to be relevant.

As noted above, there is no scientific evidence to support the implication from
Article 9 that using display screen equipment damages the eye or eyesight. There
is thus some justification for the view that there is no need for this provision as a
protective health surveillance measure, although vision testing might still serve a
useful purpose in managing any risk of MSDs.

Similarly as also noted above, current evidence does not support DSE use as a
significant risk factor for mental stress. However, as there are no significant
provisions of the DSE Directive aimed at such risks this does not lead to any its
provisions being considered to no longer be relevant in this regard.

The template for the NIRs asked whether MSs considered that the DSE Directive
needed adaptation to take account of technological developments. In addition to
the comments which reiterated views regarding the exemptions (summarised
above) the following comments were noted:

Austria indicated that they considered the definition of display screen workstations
to be out of date and needing to be revised.

Belgium, Estonia, France, Greece, Hungary, Ireland, Latvia, Lithuania,
Netherlands, Poland, Portugal, Romania, Slovenia, Sweden and the UK indicated
that the Directive (apparently mainly the Annex) needed to be adapted to take
account of the technological changes which have taken place over the last 20
years.

Germany consider that such specifications are part of market directives and are not
appropriate in this Directive. Furthermore, German employers advocated the
repeal of the entire Directive as unnecessary.
Greece also raised the issue of changed ways of working (including to what is now considered to be ‘the workplace’) including working from home. They suggest that the Directive needs to be reconsidered to reflect this. This point was echoed by Lithuania, Romania and Sweden.

Ireland suggested that any amendment needs to be preceded by evidence-based research to determine potential or existing risk factors arising from the use of new technology.

Bulgaria do not consider there to be any need for change. Similarly Luxembourg and Spain expressed the view that the Directive does not need adaptation and in general takes account of technological development. Slovakia also indicated that its inspectorate considered the Directive to be sufficient.

Denmark considered the Annex to be out of date and also raised the issue of new DSE technologies referred to above (such as tablets and smartphones) (although it must be noted that many Danish stakeholders offered conflicting views on aspects of the Government response).

One point of note is that employees considered more attention should be paid to ensuring compliance with, and effective enforcement of, the rules on display screen equipment, especially that in relation to Article 7 of the Directive (relating to the obligation of employers to arrange daily work so that work with display screen equipment is interrupted regularly by breaks or some other variation in the work, so as to reduce the strain caused by work with display screen equipment).

Finally, in the Greek NIR it was commented that the Directive contains no legal duty to require employers to keep themselves informed of the latest advances in technology and scientific findings concerning workstation design. It was suggested that the inclusion of such an obligation would allow them to make necessary changes in order to guarantee a better level of protection of workers’ safety and health as set out in the Directive.

One explicit recommendation for repeal was offered by the UK: ‘Repeal Article 9 (protection of workers’ eyes and eyesight). This perpetuates the misconception that the use of display screen equipment carries the risk of permanent damage to eyes or eyesight.’

Several MSs included explicit recommendations for amendment relating to the issue of changes in technology and working practices:

Austria: ‘The Display Screen Equipment Directive (90/270/EEC) needs to be brought into line with the state of the art. The Directive lays down rules for work equipment which is rarely found in undertakings or has undergone technological change, such as typewriters with window or cash registers.’

Denmark: ‘There is also a need to update the requirements for work with display screen equipment so that they relate to technological and social development.’
Greece: 'Directive 90/270/EEC on display screen equipment should be adapted to take account of technological progress, given that there have been significant changes in recent years (use of flat screens, laptops, tablets, etc.).'

Poland: 'In the light of the scientific and technical advances, Council Directive 90/270/EEC of 29 May 1990 on minimum safety and health requirements for work with display screen equipment needs to be amended.'

Although there is a general view that the DSE Directive is likely to remain relevant, as noted above, two aspects of the Directive attracted adverse comment. These were the requirement for eye and eyesight testing and the technological shortcomings of the Annex of Minimum requirements for workstations. The latter concern in particular was considered likely to reduce its relevance in the future.
5 Assessment of effectiveness

On the basis of the data gathered from statistics, studies and interviews, this Chapter examines the effectiveness of the DSE Directive in reducing the level of relevant health indicators such as the incidence of MSDs.

This was done by looking into the values of impact indicators identified for the DSE Directive and by analysing stakeholder assessments of the effectiveness of the DSE Directive.

Furthermore, a pilot ex-post evaluation of the DSE Directive has been conducted in six Member States (Denmark, Finland, France, Germany, Great Britain, and The Netherlands) in 2007, in the context of seeking to establish a future methodology for the present assessment of the EU OSH-directives. These six national ex-post evaluation reports were integrated into a cross-national report\(^{38}\). Where relevant, the findings from our investigations of the effectiveness of the DSE Directive were compared to the conclusions drawn in this cross-national report. The individual national pilot evaluations, which form the basis for that report, were based on extensive, survey-based data collection which was beyond the scope of the present evaluation.

As noted earlier, seven sectors were identified as being likely to have the majority of workers using DSE. These are listed in Table 5-1.

Table 5-1: Chosen sectors of relevance for the assessment of effectiveness of the DSE Directive

<table>
<thead>
<tr>
<th>Nace codes</th>
<th>Sector</th>
</tr>
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<tbody>
<tr>
<td>J</td>
<td>Information and communication</td>
</tr>
<tr>
<td>K</td>
<td>Financial and insurance activities</td>
</tr>
<tr>
<td>L</td>
<td>Real estate activities</td>
</tr>
<tr>
<td>M</td>
<td>Professional, scientific and technical activities</td>
</tr>
<tr>
<td>N</td>
<td>Administrative and support service activities</td>
</tr>
<tr>
<td>O</td>
<td>Public administration and defence; compulsory social security</td>
</tr>
<tr>
<td>U</td>
<td>Activities of extraterritorial organisations and bodies</td>
</tr>
</tbody>
</table>

5.1 EQE1: Effect on occupational safety and health

**EQE1**: To what extent has the Directive influenced workers’ safety and health, the activities of workers’ representatives, and the behaviour of establishments?

Data on estimates of compliance with the required actions by establishments was presented in Chapter 3.3. This indicated that there is a very low level of knowledge of compliance in MSs, with most not being able to provide any data or even a subjective estimate.

An early cross-cutting review\(^{39}\), commenting on an apparent lack of impact of regulatory provisions on the level of back pain, suggested that this could at least in part be attributable to ‘improper implementation’ of the provisions of Directives such as the DSE Directive, which would be expected to address relevant risks.

A more detailed study, specifically addressing the DSE Directive but limited to just six MSs, found that general awareness of the existence of national legislation on DSE workplaces amongst employers varied from around 50-60% in four of the six, through around 80% in one other, to in excess of 90% in the sixth MS. However, the report then notes that ‘knowledge of the contents of the specific laws regulating occupational safety and health at visual display unit (VDU) workplaces is considerably less widespread among employers than the mere awareness of their existence’. This view is consistent with suggestions that actual compliance (rather than awareness) is lower than these figures suggest.

\(^{39}\) Communication on the practical implementation of the provisions of the Health and Safety at Work Directives 89/391 (Framework), 89/654 (Workplaces), 89/655 (Work Equipment), 89/656 (Personal Protective Equipment), 90/269 (Manual Handling of Loads) and 90/270 (Display Screen Equipment). COM(2004) 62 final
5.1.1 Workplace impacts

Significant challenges are linked to the assessment of the effectiveness of the DSE Directive and to monitoring quantitative DSE workplace indicators. One important reason for this is the extent to which display screen equipment has evolved due to innovation and technological progress, spurred on by factors largely unrelated to OSH, such as technological and commercial interests. For example, significant reductions in the levels of noise and heat produced by display screens and related equipment (especially printers) have been achieved since the DSE Directive was adopted in 1990. Yet, to assign this development to the effectiveness of the DSE Directive would clearly be to neglect the aspect of causality and to disproportionately disregard external drivers of innovation and technological development. In other words, it is most likely that the level of noise associated with DSE and related equipment (such as printers) would have decreased, even without the DSE legislation.

Another challenge is the degree to which display screen equipment is used to an increasing extent in more and more sectors across MSs. Any change in the proportion of the population suffering from problems such as MSDs must therefore be assessed in this light.

One key indicator on the effectiveness of the DSE Directive is therefore the largely qualitative assessment of the awareness of the Directive, as well as of risk factors related to the continued use of display screen equipment.

Figure 5-1 shows that, when interviewed, national stakeholder groups from five MSs considered that the transposed legislation has achieved its objective to reasonable extent (3.6 on a scale from 1-5). However, the figure also shows that there is a higher degree of perceived effectiveness amongst employers (3.8) than amongst workers (3.3) and authorities (3.5). It must be emphasised that this and subsequent national stakeholder assessments were drawn from the limited number of MSs where stakeholders felt able to provide such an assessment and may not be representative of the wider EU-27.

In comparison, EU stakeholders interviewed generally considered that the DSE Directive had been slightly less effective in achieving its objectives than the scores given by national stakeholder organisations (3.1 compared to 3.6). As with the national stakeholders, the EU employer stakeholders generally found the DSE Directive to have had a higher degree of effectiveness (3.3) than EU stakeholder organisations representing the workers (2.7).
Insufficient emphasis on work pressure and the organisation of work

In relation to the high need for training on work-related stress identified (69%), it should be noted that DSE is not the only factor contributing to mental strain. As shown in Chapter 4, this is not a major issue amongst EWCS respondents. During interviews with national stakeholders, several experts emphasised that the DSE Directive does not currently place sufficient emphasis on other psychosocial risk factors such as work pressure and the organisation of work, which in turn compromises the effectiveness of the Directive as regards work-related stress.

From discussions with other experts however it is likely that these problems arise more from the nature and organisation of the work being done, rather than the fact that this work might be carried out using DSE. For example, pressures arising from work demands, requiring workers to prepare reports against tight deadlines, tend to reflect more the impact of the deadline than the fact that the report is being prepared with the use of a computer. However, the propensity for failures in computer systems (e.g. ‘crashes’) to contribute to those pressures has long been recognised. Again, as with physical changes to modern computers, their generally increased reliability has tended to reduce the significance of this as a factor. It would appear likely that provisions to address psychosocial risks would be better addressed elsewhere and not narrowly restricted to DSE users. This is supported by the views widely expressed during the study of a need to address psychosocial risks which were not usually necessarily linked to DSE work.

Overall good workplace impacts achieved

Considering the relevance-issues of the DSE Directive discussed in the previous chapter and the continued demand for information on ergonomics and work-related stress as noted above, the Directive received a relatively high score (mean 3.6/5) from national stakeholders on the extent to which it had fulfilled its objectives. This assessment, with the mentioned reservations, was qualitatively confirmed by the majority of national stakeholders, who generally expressed the opinion that the provisions of the Display Screen Directive and the transposition of these minimum requirements, have contributed overall to better knowledge of display screen work and better ergonomic design of display screen workstations over the last 20 years.
However, a number of specific issues were highlighted as obstructions to the overall effectiveness of the Directive on workplace impacts, which are briefly described below.

During interviews, national stakeholders were asked to estimate the effectiveness of the Directive on a scale from 1-5. Specifically they were asked to consider this in the context of different sizes of establishment, i.e. the extent to which the DSE Directive had affected establishments’ behaviour, in microenterprises, SMEs and large enterprises, respectively. A total of 16 stakeholders from five MSs, namely Finland, Germany, Lithuania, Poland and Slovakia, were able to provide such an estimate. The averages of their scores are presented in Figure 5-2. Again, this figure should not necessarily be regarded as representative of the views of all Member States.

The trend apparent in this data occurs despite the fact that the figure includes the responses from Finland, who gave a score of 5 for all three enterprise size groups.

*Figure 5-2: Workplace impacts – assessed by national stakeholders across Member States*

![Graph showing workplace impacts across different enterprise sizes](image)

**Source:** Member State interviews (Finland, Germany, Lithuania, Poland and Slovakia).

**Note:** Scores from 1 to 5 resemble from very low to very high impact – assessed by the stakeholders by responding to the question: “to what extent has the national legislation transposing the DSE directive affected establishments’ behaviour for securing OSH (rate on a scale of 1-5)?”

This data might give the indication that microenterprises and SMEs experience more difficulties in implementing the DSE directive than larger companies. However, this conclusion opposes the findings of the cross-national report. Additionally, the survey of users reported by Melrose et al showed little evidence of differences in the prevalence of MDSs between companies of different sizes\(^{40}\), suggesting that, even if they did have more difficulty or were less effective in

implementing the provisions of the Directive, this did not seem to manifest itself in the final outcome. Arguably, it is generally more difficult for smaller companies to implement regulations intended to increase environmental or social standards, such as OSH, which may be part of the explanation why numerous stakeholders made this reply. However, the speed of technological progress has caused the minimal requirements of the Directive to be well within reach of most companies. Care should therefore be taken in drawing firm conclusions based on this data on Directive effectiveness by enterprise size.

5.1.2 Safety and health impacts

This section assesses how the improvements to the workplace which stem from, or are specifically related to, the DSE Directive have impacted safety and health in those sectors presumed to be most influenced by implementation of the DSE Directive. More specifically, it assesses whether improvements to existing display screen equipment, developments of new types of DSE and increased public awareness of risk factors related to the use of DSE, as described above, have influenced the rate of MSDs and work-related stress.

Although included in the Directive, as noted earlier it is widely accepted that use of DSE does not ‘damage’ eyes or eyesight, although it can give rise to visual discomfort and other transient symptoms. Evidence cited earlier shows the prevalence of such problems to be no greater than amongst the general population.

Figure 5-3 shows the extent to which, according to ESENER data, worker and management representatives estimate the degree of concern caused by MSDs among workers. 83% of worker representatives and 80% of management reported that MSDs are of major or some concern in their workplaces. Interpretation of this finding is problematic as the question does not differentiate between attitudes which might, for example, include ‘yes I am concerned about them – so we have addressed them’ or ‘no, I am not concerned about MSDs, my workers don’t do heavy work’. Taken at face value, these figures could however give an indication of the high continued relevance of the DSE Directive (and other OSH Directives contributing to the reduction of MSDs, e.g. the Manual Handling Directive).
Figure 5-3: Degree of concern about Musculoskeletal disorders according to Worker Representatives and Management

Two main categories of MSDs can be identified from the available ESAW statistics of reasons for absence from work: ‘pain in the back, including spine and vertebra’, and ‘pain in the upper extremities (not further specified)’. Figures 5-5 and 5-6 present absences from work, which lasted for 4 days or more, attributed to these two factors.

As illustrated in Figure 5-4, the number of periods of sick leave of 4 days or more attributed to pain in the back ranges from 47,341 episodes in 2008 to 52,059 in 2012. The figures on a year by year basis are highly variable so great care should be taken in assigning any increasing trend across the period in question, which appears to be suggested by the general appearance of the data.

In contrast, as illustrated in Figure 5-5 also from ESAW, the number of periods of sick leave of 4 days or more, caused by pain in the upper extremities, dropped sharply from 2008 (170,776 periods) before rising slightly in ensuing years to a total of 155,910 in 2012 (corresponding to a fall of 8.7% from 2008-2012).

As mentioned above, there are many different factors which could have contributed to these changes, not least any changes in work-related use of display screen equipment together with the many other risk factors (both work and non-work) which might have influenced the incidence of MSDs.

As an additional consideration, in many MSs the provisions of the Directive have been in force for many years prior to the period covered by these statistics and any earlier impact will not therefore be discernible.
Figure 5.4: More than 3 days lost (4 days absence or more) caused by back pain

Source: Eurostat Search Database: ESAW. NACE sector codes: J, K, L, M, N, O, U
Note: The year 2011 has been omitted due to a lack of data for the sectors J, K, M for this year, preventing equivalent comparison with the other years.

Figure 5.5: More than 3 days lost (4 days absence or more) caused by pain in the upper extremities.

Source: Eurostat Search Database: ESAW. NACE sector codes: J, K, L, M, N, O, U
Note: The year 2011 has been omitted due to a lack of data for the sectors J, K, M, and Q for this year, preventing equivalent comparison with the other years.

If we look at the numbers from Figure 5.5 on a sector basis (Table 5.2 below), the analysis shows that by far the highest number of periods of sick leave caused by pain in the upper extremities are reported in the sector for Administrative and...
support service activities (106,364 absences of 4 days or more in 2008 corresponding to 62.3% of the total). It also shows that the sector had a sharp reduction in the number of absences of 4 days or more from 106,364 in 2008 to 83,346 in 2009 (21.6% decrease). Simultaneously, the sector of Information and communication shows a 10% decrease while, contrarily, the sector of Public administration and defence shows an 18% increase.

These data present absolute numbers of reported periods and are therefore subject to the influence of difference in employment numbers between sectors and, equally importantly, variations in employment numbers across the difference years. LFS data\(^1\) shows that, across the EU-27, employment in the Information and communication sector declined by a little under 2% in the relevant period whilst that in Public administration and defence remained essentially stable (<0.2% change).

Thus it appears that the sharp overall reduction in periods of sickness absence of 4 days or more, caused by pain in the upper extremities, as illustrated in Figure 5-5, is largely attributable to equivalent changes in the sector for Administrative and support service activities. However, this change is not accounted for by changes in employment, as employment in that decreased by less than 2% over the same period.

<table>
<thead>
<tr>
<th>NACE Sector</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information and communication</td>
<td>6,239</td>
<td>5,672</td>
<td>5,984</td>
<td>N/A</td>
<td>4,696</td>
</tr>
<tr>
<td>Financial and insurance activities</td>
<td>4,234</td>
<td>4,357</td>
<td>4,715</td>
<td>N/A</td>
<td>4,040</td>
</tr>
<tr>
<td>Real estate activities</td>
<td>5,568</td>
<td>6,391</td>
<td>6,009</td>
<td>5,936</td>
<td>5,374</td>
</tr>
<tr>
<td>Professional, scientific and technical activities</td>
<td>14,990</td>
<td>15,202</td>
<td>13,196</td>
<td>N/A</td>
<td>14,077</td>
</tr>
<tr>
<td>Administrative and support service activities</td>
<td>106,364</td>
<td>83,346</td>
<td>84,621</td>
<td>104,831</td>
<td>93,013</td>
</tr>
<tr>
<td>Public administration and defence: compulsory social security</td>
<td>33,041</td>
<td>38,993</td>
<td>39,807</td>
<td>36,152</td>
<td>34,507</td>
</tr>
<tr>
<td>Activities of extraterritorial organisations and bodies</td>
<td>340</td>
<td>321</td>
<td>294</td>
<td>356</td>
<td>203</td>
</tr>
</tbody>
</table>

Note: The sectors J, K and M are missing data from the year 2011

If we compare these figures to the employment figures from 2012, illustrated in Figure 5-6, we find that, while the Administrative and support service sector accounts for 60% of the periods of sick leave in 2012, it is only the third largest of

\(^1\) Employment by sex, age and economic activity (from 2008 onwards, NACE Rev. 2) - 1 000 [lfsa_eg2an]
the relevant sectors in terms of employment, with 8,577.7 thousand workers of 48,798 thousand in the relevant sectors (17.6%). In other words, the sector appears to have a relative excess of absences (of 4 days or more) attributed to pain in the back or the upper extremities. However, great care should be taken in interpreting this observation because it cannot be assumed that all employees in all sectors are equally at risk and that any risks arise from DSE-related work. For example, ‘support services’ is likely to include cleaning staff who have been found to be at risk of MSDs for a number of reasons – but DSE work is unlikely to be one of them.

Figure 5-6: Employment in 2012 (sectors most relevant to DSE)

<table>
<thead>
<tr>
<th>Sector Description</th>
<th>Employment (thousand)</th>
</tr>
</thead>
<tbody>
<tr>
<td>J - Information and communication</td>
<td></td>
</tr>
<tr>
<td>K - Financial and insurance activities</td>
<td></td>
</tr>
<tr>
<td>L - Real estate activities</td>
<td></td>
</tr>
<tr>
<td>M - Professional, scientific and technical activities</td>
<td></td>
</tr>
<tr>
<td>N - Administrative and support service activities</td>
<td></td>
</tr>
<tr>
<td>O - Public administration and defence; compulsory social security</td>
<td></td>
</tr>
<tr>
<td>U - Activities of extraterritorial organisations and bodies</td>
<td></td>
</tr>
</tbody>
</table>


Note: Figures in thousands

Such absence figures will include absences that were not caused by work-induced health problems, in which case they are inherently unrelated to the organisation of workstations or the use of DSE.

In order to explore this, Figures 5-7 and 5-8 below illustrates the percentages of workers who have specifically linked their work to backache and muscular pains, respectively in the period 1995-2005.

As shown in Figure 5-7, the percentage of workers who replied that their work caused their backache was relatively stable from 1995 to 2000/2001 with 47% and 46%, respectively. However, a marked increase can be seen from 2000/2001 till 2005 when 61% of respondents reported backache as a result of their work. Again however, care should be taken over attribution. An individual who suffers from backache, for whatever reason, is quite likely to experience discomfort or pain from prolonged sitting. If their job requires sustained periods of sitting (in front of a computer) they will associate such periods with their symptoms. Such associations are not therefore necessarily causal.
This rising trend is more pronounced when examining the data on work-induced muscular pain. As Figure 5-8 shows, the share of respondents who reported that they experienced work-related muscular pains increased from 25% in 1995 to 60% in 2005. As with backache, similar caution should be applied in interpreting these figures, as any sustained (and unavoidable) use of a sore muscle will provoke symptoms in that muscle.

*Figure 5-7: Work-induced backache, 1995-2005*


Note: The data for 1995 only cover EU12. Question asked: “Does your work affect your health [backache]? Data for 2010 exist but has been excluded due to a difference in question wording that prevents comparisons with the other datasets. Data is not available for sector U, while sectors P and Q are included as they contain the data on sectors M, N and O.
It is worth noting that the proportion of respondents experiencing work-induced backache in 2005 (61%) is at a quite similar level to those respondents who experienced muscular pains (60%). Both values are markedly higher than in 1995, when 47% of respondents reported suffering from work-induced backache, compared to only 25% from work-induced muscular pains.

However, great care should be taken in interpreting the significance of this observation because, as mentioned in section 5.1.1 on Workplace impacts, the EU has witnessed a significant increase in public awareness of MSDs (with a concomitant assumption that they are work-related) since 1995, which may have had an effect on the replies of respondents.

A survey in six MSs showed that general awareness of the existence of national legislation on DSE workplaces amongst employers varied from around 50-60% to in excess of 90%.

When asked to give a numerical rating during interviews, national stakeholder groups suggested that the transposed legislation has achieved its objective to a reasonable extent (mean 3.6 on a scale from 1-5) with a higher degree of perceived effectiveness amongst employers (3.8) than amongst workers (3.3) and authorities (3.5). EU stakeholder groups were less positive (mean 3.1) although their ratings displayed a similar pattern between stakeholder groups.
An ESENER (2009) survey showed that as many as 83% of employee representatives and 80% of management considered MSDs to be of major or some concern in their workplaces.

ESAW data on absence attributed to back pain (2008-2012) show a highly variable pattern, although the general appearance of the data is suggestive of an increasing trend. In contrast, absence due to pain in the upper extremities, drops sharply from 2008-2009 before rising slightly in ensuing years. This sharp decline appears to be largely attributable to the sector ‘Administrative and support service activities’ and is not reflected across other sectors which display no real change.

EWCS data (2000-2010) suggests that, if anything, the proportion of workers reporting work-induced backache or musculoskeletal pain has risen across the period.

Overall, despite the reasonably positive subjective opinions, the objective evidence, although flawed, suggests that there has not been any marked effect in improving workplace health across the years investigated. Many factors will have influenced that lack of change, some positively, others negatively and the lack of change cannot be unequivocally attributed to any failure of the DSE Directive to have an impact. However, apart from the requirements for workstations being generally agreed to be out of date, together with concerns about the requirement for eyesight testing (which would not have been expected to influence MSDs), there are no suggestions that the Directive itself is fundamentally flawed and any possible ‘failure’ on the part of the Directive is more likely therefore to rest with failings in its implementation (as shown for example in the proportion of worker representatives considering that they have not received adequate information and training).

5.2 EQE2: Effect of derogations and transitional periods

Overall EQE2 answer

Transitional periods applied to allow existing workstations not to comply immediately with the schedule of requirements. No relevant data are available which would permit any impact of this to be examined. In any case, in the majority of MSs, any such transitional period would have lapsed long before the evaluation period minimising any potential impact.
5.3 EQE3: Effect of Common Processes and Mechanisms

**EQE3**: How and to what extent do the different Common Processes and Mechanisms that were mapped contribute to the effectiveness of the Directives?

No objective data are available relating to the relative contributions of the different CPMs. In interviews with EU stakeholders, interviewees were asked to assess the relative importance of the CPMs in the context of the DSE Directive. Five stakeholders provided an estimate. They highlighted risk assessments, training and information as having had considerable influence on the effectiveness of the Directive. However, it is not clear whether this is a theoretical viewpoint (i.e. these are the factors which would be expected to have the most effect) or whether it is a view based on experience. Additionally, although questioned in the context of the DSE Directive, it is not clear to what extent the scores reflect considerations of that specific directive or more general OSH considerations. Some evidence for the latter can be drawn from the fact that ‘ensuring prevention and protection services’ featured in the responses despite not being a specific CPM of the DSE Directive.

Health surveillance was not highlighted by EU stakeholders. The interpretation of the requirement within the Directive for the provision of eye and eyesight testing as ‘health surveillance’ is generous, as it is not strictly surveillance (although some MSs might have introduced a periodicity) and, as noted earlier, the scientific literature is quite clear that use of DSE does not damage eyesight.

As very little quantitative data has been collected at EU level on the specific implementation of DSE Directive, for the assessment of the effectiveness of CPMs, in the following chapter, we shall draw on the aforementioned DSE study aggregated in a cross-national report by TNS Infratest (2007). The data thus covers and compares the six Member States of Czech Republic, Denmark, Netherlands, Germany, Finland and the UK. Data should therefore be viewed as providing an insight into DSE implementation on a sample basis rather than as statistically representative of the EU as a whole. Note that training, information and consultation of workers is assessed as one CPM.

According to the cross-national study, a risk assessment (in the cross-national report referred to as a work station analysis), is performed in 31% of companies in Czech Republic, in 50% in the Netherlands and in 47% in Germany (the three Member States, which are directly comparable), (see Table 5-3). The Table shows that risk assessments are performed markedly more often in larger companies than in microenterprises and SMEs. It is interesting to note that that the figure of 75% for the UK is very similar to the figure of 72.2% reported in another survey conducted around the same time.42

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**Table 5-3: Performance rates for CPM Risk assessment**

<table>
<thead>
<tr>
<th>Work station analysis</th>
<th>Total</th>
<th>Size of establishment (no of employees)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1 to 9</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>31%</td>
<td>13%</td>
</tr>
<tr>
<td>Denmark**</td>
<td>68%**</td>
<td></td>
</tr>
<tr>
<td>Netherlands</td>
<td>50%</td>
<td>44%</td>
</tr>
<tr>
<td>Germany</td>
<td>47%</td>
<td>41%</td>
</tr>
<tr>
<td>Finland (employees)***</td>
<td>80%***</td>
<td>79%***</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Regular workstation analyses</th>
<th>Total</th>
<th>2 to 24</th>
<th>25 to 99</th>
<th>100 to 299</th>
<th>300+</th>
</tr>
</thead>
<tbody>
<tr>
<td>United Kingdom****</td>
<td>75%</td>
<td>71%</td>
<td>81%</td>
<td>83%</td>
<td>74%</td>
</tr>
</tbody>
</table>

Source: TNS Infratest 2007: 28

Note: * Differing size-class: 50 or more employees
  ** Danish figure based on a considerably different formulation of the respective question, i.e.: “Does your company pay specific attention to the physical set-up of the screen work workstations?”
  *** Data from employee survey; the respective figures are not available from the employers’ survey.
  **** Reference period: in the last 12 months.

Furthermore, the cross-national study shows a high degree of effectiveness in cases where a risk assessment was performed. In Germany, for instance, employers reported that 73% of risk assessments performed revealed options for workstation improvement. In addition, they reported that 81% of these improvements resulted in a "notable and enduring improvement of work satisfaction" on part of their employees (TNS Infratest, 2007: 43) (these figures were to a large extent confirmed by employee survey data). This finding is in line with the assessment of the relative importance of key requirements made by EU stakeholders in our interviews.

Figure 5-9 below, from the Dutch ex-post evaluation of DSE (Research voor Beleid, 2007), shows the amount of focus which Dutch employers estimate to have paid to stress, eyesight and complaints about arms, neck and/or shoulder (CANS) during performed risk assessments. As illustrated, around 60% of employers who performed risk assessments paid some or more attention to the risks of psychological work strain (stress), risks to eyesight, and MSDs. However, as noted earlier, psychosocial risks are best addressed as a wider issue than just relating to DSE use.
According to the cross-national study, a significant portion of employers report having provided at least some degree of training and information to workers. The study utilised data from the Fourth European Working Conditions Survey 2005 to gain some insight into the perceived quality of health and safety information provided to workers. For the six countries involved, responses to the question “Regarding the health and safety risks related to performance of your job, how well informed would you say you are?” were analysed. The analysis was restricted to those workers who stated that they worked at least half of their working time at a computer, on the assumption that information they had regarding risks related to their DSE work.

Table 5-4, reproduced from that report, gives the outcomes.

<table>
<thead>
<tr>
<th>MS</th>
<th>Very well informed</th>
<th>Well informed</th>
<th>Not very well informed</th>
<th>Not at all well informed</th>
<th>DK/Refusal</th>
</tr>
</thead>
<tbody>
<tr>
<td>CZ</td>
<td>54%</td>
<td>40%</td>
<td>5%</td>
<td>2%</td>
<td>0%</td>
</tr>
<tr>
<td>DK</td>
<td>57%</td>
<td>31%</td>
<td>9%</td>
<td>3%</td>
<td>1%</td>
</tr>
<tr>
<td>DE</td>
<td>45%</td>
<td>47%</td>
<td>4%</td>
<td>3%</td>
<td>1%</td>
</tr>
<tr>
<td>NL</td>
<td>33%</td>
<td>48%</td>
<td>13%</td>
<td>6%</td>
<td>0%</td>
</tr>
<tr>
<td>FI</td>
<td>50%</td>
<td>49%</td>
<td>2%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>UK</td>
<td>64%</td>
<td>27%</td>
<td>7%</td>
<td>1%</td>
<td>1%</td>
</tr>
</tbody>
</table>

Source: TNS Infratest 2007: 32, based on 4th European Working Conditions Survey 2005, valid answers to Q12 only (employees working half of their time or more at a display screen unit).

It shows that varying proportions (81-94%) considered themselves to be ‘well informed’ or better. However, the study also showed that information actually provided to employees is not always put into practice; for reasons such as a lack of concern, that work pressure does not allow it, or because people do not remember the exact recommendations (TNS Infratest, 2007: 45).

In relation to the third CPM, ‘Health surveillance, Table 5-5 shows that the extent to which eyesight tests are offered to workers, varies quite significantly in the MSs studied (Czech Republic, Denmark, Netherlands, Germany, Finland and United Kingdom). Figures in brackets represent the proportion of employers that offer eyesight tests ‘before commencing work and/or at regular intervals’ i.e. in accordance with the provisions of the DSE Directive.
Table 5-5: Provision of eyesight tests – cross-national overview

<table>
<thead>
<tr>
<th>Eyesight tests</th>
<th>Total</th>
<th>Size of establishment (no of employees)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1 to 9</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>17%</td>
<td>9%</td>
</tr>
<tr>
<td>Denmark</td>
<td>65% [19%]</td>
<td>39%</td>
</tr>
<tr>
<td>Netherlands</td>
<td>43% [17%]</td>
<td>39% [14%]</td>
</tr>
<tr>
<td>Germany</td>
<td>28% [25%]</td>
<td>18% [16%]</td>
</tr>
<tr>
<td>Finland</td>
<td>79%</td>
<td>73%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>2 to 24</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>75% [34%]</td>
<td>50% [23%]</td>
</tr>
</tbody>
</table>

Source: TNS Infratest 2007: 36, from National employer surveys. * Differing size class:
   Establishments with 50 or more employees
Note: Values before brackets show the total share of establishments offering eyesight tests
   at any time, the values in brackets refer only to those establishments applying tests
   before commencing work and/or at regular intervals.

Findings in the cross-national report thus show that eye sight tests are generally
provided as intended in fewer than 20% of establishments (with the exception of
Finland and, to a much lesser extent, in the UK). There is a trend for larger
companies to be more likely to provide preliminary tests, especially in Germany
where the share of employers offering initial eyesight tests is more than four times
that in the smallest employers. However, the use of such tests as an ameliorative
measure as appears to be commonly the case, as discussed in section 4.1 is
probably a more appropriate use of this provision.

This overall limited use of preventive eyesight tests is confirmed in the national
stakeholder interviews, some of which point to the fact that workers are generally
not aware of the opportunities for ophthalmological and neurological examinations
in relation to the work they do (e.g. Slovakia). This can be seen as an additional
failure to fulfil the requirements for information and training, as informing workers of
this is a specific requirement under Article 6 of the DSE Directive.

However, some MSs expressed the view that the risk factors related to eyesight
are likely to have decreased due to factors such as improved screen quality (i.e.
stable and non-flickering displays). They therefore propose that eye sight tests
should no longer be the responsibility of employers but only be offered on a need-
and-request basis.

This proposal is consistent with the views expressed earlier that such testing is
best regarded as a possible ameliorative measure, to be adopted for example
where an individual is experiencing postural discomfort or other problems due to
inadequate eyesight.

According to EU stakeholders interviewed, risk assessments, training and
information were highlighted as having the most influence on the effectiveness of
the Directive.
The findings of a study across six MSs suggested that risk assessments, when performed (presumably correctly) had the effect of a “notable and enduring improvement of work satisfaction” amongst employees. In contrast, although 81-94% of workers considered themselves to be ‘well informed’ or better, the study showed that the information provided to employees is not always put into practice.

Further data suggested that eyesight testing was more often conducted when considered necessary rather than tests ‘before commencing work and/or at regular intervals’ as required under the Directive. It was suggested that this was a more appropriate use of this provision.

5.4 EQE4: Effect of enforcement

While it is clearly difficult to quantify the effectiveness of enforcement activities, EU and national stakeholders were asked to identify the enforcement measures they find to have had the highest impact on the effectiveness of the DSE Directive. Six EU stakeholders provided this assessment and highlighted Enforcement combined with guidance as well as the Frequency and Quality of inspections. However, it is not clear if this is a theoretical view or one based on practical knowledge and experience. As with the previous question on CPMs, although stakeholders were asked about enforcement in the specific context of the DSE Directive it is not clear to what extent they answered with that in mind rather than expressing a more general view. The DSE Directive makes no specific references to sanctions or enforcement.

In comparison to EU stakeholders, the 16 national stakeholders who expressed an opinion also emphasized Enforcement and Inspections as the most effective enforcement measures with the average score of 4.1 and 4.0, respectively. The only measure surpassing Enforcement and Inspections was ‘Obligation for corrective actions’, with the average score of 4.2 across stakeholder groups. Interestingly, stakeholder groups representing workers found Fines and Sanctions to be the least effective enforcement measures (perhaps because they are relatively seldom used). Stakeholders representing employers emphasised Obligations (4.5) and Recommendations for corrective actions (4.2) as the most effective enforcement measures apart from Inspections (4.2).
Figure 5-6: Relative importance of enforcement measures according to national stakeholders

Source: Member State interviews (n=16).
Note: Average scores, by stakeholder groups across all Member States, to the question: "Do you consider the following enforcement measures and sanctions to be effective?" rated on a scale of 1 (to a very low extent) to 5 (to a very high extent).

The overall emphasis on the need for Inspections, and the Obligation (and recommendations) for corrective measures corresponds with the findings in the cross-national report, showing that many employers (roughly between one third and close to half) would dedicate less or in some cases even no attention to provisions from the DSE Directive if they were not legally obliged to do so (TNS Infratest, 2007, executive summary).

Furthermore, on the more specific, qualitative level, it was noted in the Danish NIR that they have experienced a need for further provisions that protect employees from unnecessary monitoring.

There is no objective evidence available regarding the impact of sanctions and other enforcement activities on the effectiveness of the DSE Directive.

5.5 EQE5: Benefits and costs

EQE5: What benefits and costs arise for society and employers as a result of fulfilling the requirements of the Directives?

Answer to EQE5: This question is addressed in the Main Report in a cross-Directive perspective.
5.6 EQE6: Broader impacts

EQE6: To what extent do the Directives generate broader impacts (including side effects) in society and the economy?

Answer to EQE6 This question is addressed in the Main Report in a cross-Directive perspective.

5.7 EQE7: Objective achievement

EQE7: To what extent are the Directives achieving their aims and, if they are not, what cause could play a role? What factors have particularly contributed to the achievement of the objectives?

Answer to EQE7 This question is addressed in the Main Report in a cross-Directive perspective.
6 Assessment of coherence

No internal coherence issues were identified between the DSE Directive and other OSH Directives. The DSE Directive sets measures which are specific to risks from display screen equipment and do not overlap or contradict the provisions of the other OSH Directives. Although there have been a few suggestions of overlaps with the Work Equipment Directive (perhaps because they both relate to ‘equipment’) this does not seem to be a real issue.

No external coherence issues were identified between the DSE Directive and other EU policies, legal instruments and international texts although, as noted in section 2.2, some ISO and CEN publications do have some relevance here and are briefly referred to below (section 6.2).

6.1 EQC1: Coherence with other OSH Directives

As background to the analysis of internal coherence it is important to briefly summarise the scope of application of the DSE Directive.

This Directive lays down minimum safety and health requirements for work with display screen equipment. The provisions of the Framework Directive are fully applicable without prejudice to more stringent and/or specific provisions contained in the DSE Directive.

Employers shall be obliged to perform an analysis of workstations in order to evaluate the safety and health conditions to which they give rise for their workers, particularly as regards possible risks to eyesight, physical problems and problems of mental stress. This assessment is very specific to occupational risks from screen equipment. It is not inconsistent with the risk assessment procedure under the Framework Directive.
As a follow-up to the risk assessment employers must be obliged to perform an analysis of workstations in order to evaluate the safety and health conditions to which they give rise for their workers, particularly as regards possible risks to eyesight, physical problems and problems of mental stress.

The DSE Directive does not include any specific requirement in relation to the appointment of preventive and protective services. This does not create any issue of coherence, as the requirement to appoint such services/persons is rather linked with every specific establishment/undertaking and is not risk specific. The requirement applies through the Framework Directive and these services carry out their activities with regards to any risk factor present in the specific workplace, including work entailing display screen equipment.

The Directive contains a ‘without prejudice’ clause referring specifically to Article 10 of the Framework Directive and provides additional more specific requirements on information in relation to their workstation comprising display screen equipment (in particular information on measures related to the analysis of workstations, daily work routine and protection of workers’ eyes and eyesight).

The Directive contains a ‘without prejudice’ clause referring specifically to Article 12 of the Framework Directive and provides additional more specific requirements on training in relation to their workstation comprising display screen equipment (in particular training in use of workstation).

The Directive includes a specific provision on the protection of workers’ eyes and eyesight, which is linked to perceived risks deriving from work with DSE. An appropriate eye and eyesight test, carried out by a person with the necessary capabilities, shall be available to workers in certain cases (before commencing display screen work, at regular intervals and in case they experience visual difficulties potentially resulting from display screen work).

There are no references to health records in this Directive.

This Directive, like the majority of Directives (15) regulating specific risks and categories of workers, does not contain specific worker consultation requirements but mentions that ‘consultation and participation of workers and/or of their representatives shall take place in accordance with Article 11 of Directive 89/391/EEC (Framework Directive) on the matters covered by this Directive including its Annex.

Not applicable to this Directive.

No reference is included to particularly sensitive risk groups of workers

There are no explicit reporting obligations under the DSE Directive; however the general provisions of the Framework Directive do still apply. Article 9 of the Framework Directive requiring employers to draw up reports on occupational accidents suffered by their workers will still apply.
Inspection and enforcement measures.

This Directive does not include any provisions relating to inspections or penalties.

Lighting requirements

This Directive provides that room lighting and/or spot lighting (work lamps) must ensure satisfactory lighting conditions and that employers must ensure an appropriate contrast between the screen and the background environment, taking into account the type of work and the user's vision requirements. It also requires that possible disturbing glare and reflections on the screen or other equipment must be prevented by coordinating workplace and workstation layout with the positioning and technical characteristics of the artificial light sources.

Some lighting requirements already exist under the Workplace Directive which provides that workplaces must as far as possible receive sufficient natural light and be equipped with artificial lighting adequate for the protection of workers' safety and health. However the lighting requirements under this Directive are targeting specific occupational risks related to display screen equipment (possible disturbing glare and reflections on the screen). Therefore there is no overlap in this instance.

Space requirements

The Workplace Directive provides that workrooms must have sufficient surface area, height and air space to allow workers to perform their work without risk to their safety, health or well-being. It requires that the dimensions of the free unoccupied area at the workstation are calculated to allow workers sufficient freedom of movement to perform their work. If this is not possible for reasons specific to the workstation, workers must be provided with sufficient freedom of movement near their workstations.

The DSE Directive also contains space requirements. It provides that the workstation must be dimensioned and designed so as to provide sufficient space for the user to change position and vary movements. This requirement is very similar to the one under the Workplace Directive, leading to a potential overlap between the two Directives. However, this overlap should have no consequences since it does not entail double regulation in practice.

None of the European stakeholders identified internal coherence issues related to the DSE Directive.

None of the Member States identified internal coherence issues related to the DSE Directive.

None of the Member State stakeholders or experts identified internal coherence issues related to the DSE Directive.
No inconsistencies, overlaps, or synergies have been identified across and between the DSE Directive and any other Directives.

6.2 EQC2: Coherence with other EU policies

EQC2: How is the interrelation of the Directives with other measures and/or policies at European level also covering aspects related to health and safety at work, such as EU legislation in other policy areas (e.g. legislation: REACH, Cosmetics Directive, Machinery Directive, policy: Road Transport Safety, Public Health, Environment Protection), European Social Partners Agreements or ILO Conventions?

Other EU non-OSH legal acts

None identified

Other EU Policies

None identified

The Framework Agreement on Telework (2002) is an autonomous agreement signed by ETUC, UNICE, UEAPME and CEEP setting non-binding recommendations to social partners. The agreement defines telework as a “form of organising and/or performing work, using information technology, in the context of an employment contract/relationship, where work, which could also be performed at the employers’ premises, is carried out away from those premises on a regular basis”.

It establishes a general framework for any teleworking activity, specifying general terms and conditions of the job in cases where telework was not part of the initial contract/job description. It further states that teleworkers benefit from the same rights as comparable workers at the employers’ premises. Provisions as to privacy and data protection, equipment, training and collective rights issues are also specifically covered by the agreement. On display screen equipment it provides that if any kind of monitoring system is put in place, it needs to be proportionate to the objective and introduced in accordance with the DSE Directive (i.e. it must not be clandestine). It also recommends that the employer informs the teleworker of the company’s policy on occupational health and safety, in particular requirements on visual display units.

No relevant ILO Convention has been identified.

Because they are not freely available, the texts of European and International Standards were not systematically examined as part of the study. Such Standards

have no legally-binding status on MSs, although individual MSs might choose to encapsulate certain provisions in national law.

There are a series of International Standards (the ISO 9241 series) which have been ratified as CEN Standards. Earlier Standards in the series are specifically addressed at 'Ergonomic requirements for office work with visual display terminals' and address relevant issues such as:

- the design of tasks (9241-2);
- workstation layout and postural requirements (9241-5);
- guidance on the work environment (9241-6).

Thus, although not legally binding, the information contained within these and others provides MSs (or employers) with a potential source of information and guidance to be used in fulfilling the requirements of the DSE Directive.

Some stakeholders have suggested (for example in discussions at the seminar held with stakeholders to discuss some of the main findings from the study ("validation seminar") that more use could be made of such standards within the EU legislative framework. However, as noted above, these are not freely available (for example, just one part – ISO 9241-5 is currently priced at CHF 118 (approx. €100)). As an alternative, it was suggested, material from the standards could perhaps be used to provide guidance. An ergonomics expert involved in the development of CEN & ISO Standards has indicated that such Standards are based on material already in the public domain, although the Standards do have the advantage of having been prepared through a consensus-forming process and involve wider dissemination and comment before publication.

Overall EQC2 answer

No inconsistencies, overlaps, or synergies were identified across and between the DSE Directive and other measures and/or policies at European or International level. The Framework Agreement on Telework reinforces some of the provisions but is non-binding with no legal status.

Some International Standards (ISO) exist which complement the provisions of the Directive and could be used by purchasers as a source of detailed guidance. However, they are not legally binding and, while the content of some might be of some value, the need for employers to purchase them makes them unsuitable as the primary vehicle for disseminating such information, especially for SMEs.
7 Conclusions and recommendations

7.1 Implementation

MSs have implemented the Display Screen Directive in one or several pieces of legislation in almost equal number. Although there are some minor variations in detail in implementing the separate CPMs (and KRIs) they appear generally to function as a coherent legal entity.

The majority of the Member States have implemented more detailed requirements, particularly in regard to Articles 3 (risk assessment) and 9 (health surveillance). On risk assessment this usually comprises including the contents of the minimum schedule (contained within an annex to the Directive) in the main text of their legislation. On ‘health surveillance’ (eye and eyesight testing) the most commonly adopted addition is to specify the frequency of such testing. None of these more detailed requirements would appear to warrant consideration as more general requirements to be adopted in any amendment of the Directive.

Changes in technology are the subject of some comments in the NIRs regarding the requirements. The implications of such changes for the future relevance of the DSE Directive are discussed below.

Fifteen MSs made use of the provisions within the Directive for transitional periods, all of which are believed to have expired before the evaluation period (2007-2012). As noted above there were no provisions for derogations.

Data on levels of compliance with the requirements of the Directive is quite sparse with relatively few MSs having numerical data available. Such data as were sourced made no distinction between private undertakings and public-sector bodies, across different sectors of economic activity, or across different sizes of companies.

The level of reported compliance with the CPMs is very varied – ranging from 8% up to 72%. As some of the more extreme values were reported from the same MS it is unlikely that the lower levels are attributable to a lack of awareness of the legal duties. It is widely believed (although there appears to be no objective data to
support this belief), that compliance increases with the size of the business. This is reflected in comments from a number of MSs which refer to the difficulties experienced by SMEs. It should be noted that some of the numbers given are estimates provided by national experts who sometimes found it difficult themselves to differentiate between the different specific provisions of the Directive. In such cases the estimates were usually applied across all requirements.

Survey data, suggests that one of the problems with compliance at the individual level rests with a failure by employers to comply with the requirements for the provision of information and training. Isolated stakeholder comments indicate that some employers might have problems in complying due to technical difficulties regarding the modern office environment and equipment although a number of ergonomics experts interviewed suggested that such problems should not be insurmountable.

Guidance documents are by far the most common action undertaken by Member States followed by support tools such as workstation checklist. Government material is supplemented in many MSs by additional guidance from social partners who have also published material to assist employers. Further guidance has also been prepared at EU level by EU-OSHA.

Member States typically have a general enforcement authority responsible for OSH enforcement and inspections related to all OSH matters although two have a specific authority for this Directive. Less than a third (8 MSs) have any specific strategic focus on this Directive although slightly more (11 MSs) do have specific criminal or administrative sanctions.

The findings from the national studies show that most Member States have general approaches to vulnerable groups. There are no specific tools or approaches which focus in particular on vulnerable groups and the risks associated with the DSE Directive.

Very few Member States have developed specific guidance for SMEs - or other measures targeted at SMEs - which are particular to the requirements under the DSE Directive.

7.2 Relevance

It is suggested that the estimate from the EWCS 2010 survey of 52.76% provides the most reliable indication available for defining the proportion of the EU-27 workforce for which the DSE Directive is relevant.

Data from the same survey shows that approximately a fifth of those who worked with computers (at least 25% of the time) reported experiencing backache, muscular pains in shoulders, neck and/or upper limbs, or headache or eyestrain. This supports the view that the DSE Directive remains relevant.
However, far fewer reported symptoms potentially related to stress (depression or anxiety) reinforcing the view from other published sources that stress and other problems related to psychosocial risks are not a major risk with computer work.

Two aspects of the DSE Directive attracted a considerable amount of adverse comment. These were the requirement for eye and eyesight testing and the technological shortcomings of the Annex of Minimum requirements for workstations. Both were held to reduce the current relevance of the Directive and, particularly the latter, were likely to reduce it still further in the future.

There is widespread consensus in the scientific literature (and also referred to in some NIRs) that work with computers does not cause any damage to the eyes or eyesight, although use of computers can give rise to visual discomfort and other symptoms. Article 9 (Protection of workers’ eyes and eyesight) is therefore incorrectly named and this provision should not be equated with requirements for preventative health surveillance.

However, whilst some MSs have recommended its repeal, there is a recognition that deficiencies in eyesight can lead to health problems amongst DSE users such as contributing to some MSDs. This is accepted within those MSs where the requirement is more likely to be applied in a needs-based manner to those reporting such problems.

A large majority of the National Implementation Reports identified that the current provisions of the DSE Directive were out of date because of technological change. Of those who expressed a specific opinion, 19 held this view whilst five stated that the provisions remained appropriate and did not require to be changed. This view related mainly to the minimum requirements within the Annex to the Directive, although some MSs also commented that the exclusions of certain forms of display screen (e.g. window typewriters) also did not reflect current technologies.

Although there is a general view that the DSE Directive is likely to remain relevant, the latter concern in particular was considered likely to reduce its relevance in the future.

A small minority of stakeholders suggested that, as the technology was ‘ubiquitous’, it was unfair to ‘penalise’ employers by requiring them to take action in the workplace when this action was (potentially) negated by non-work use. This argument was used to support the contention that the DSE Directive should be repealed in its entirety as being no longer relevant in a specifically occupational context.

The issue of the extent to which hazards are no longer uniquely occupational is one which relates to a growing number of other hazards including psychosocial risks and the exposure to noise from non-occupational sources. Although this presents challenges to employers in determining the relative contribution of workplace factors, exposure to non-occupational hazards should not be used as a reason for not adequately controlling the same or similar hazards in the workplace.
Demographic change was identified by some stakeholders as a factor which would increase the relevance of the DSE Directive in future years.

7.3 Effectiveness

A previous survey in six MSs showed that general awareness of the existence of national legislation on DSE workplaces amongst employers varied from around 50-60% to in excess of 90%.

When asked to give a numerical rating during interviews for the current study, national stakeholder groups suggested that the transposed legislation has achieved its objective to a reasonable extent (mean 3.6 on a scale from 1-5) with a higher degree of perceived effectiveness amongst employers (3.8) than amongst workers (3.3) and authorities (3.5). However, EU stakeholder groups were less positive (mean 3.1). The limited extent of these ratings in terms of the MSs from which they were drawn should be borne in mind.

An ESENER (2009) survey showed that as many as 83% of employee representatives and 80% of management considered MSDs to be of major or some concern in their workplaces.

ESAW data on absence attributed to back pain (2008-2012) show a highly variable pattern although the general appearance of the data is suggestive of an increasing trend. In contrast, leave due to pain in the upper extremities, drops sharply from 2008-2009 before rising slightly in ensuing years. This sharp decline appears to be largely attributable to the sector ‘Administrative and support service activities’ and is not reflected across other sectors which display no real change.

EWCS data (2000-2010) suggests that, if anything, the proportion of workers reporting work-induced backache or musculoskeletal pain has risen across the period.

Overall, despite the reasonably positive subjective opinions, the objective evidence, although flawed, suggests that the DSE Directive has not had any marked effect in improving workplace health.

According to EU stakeholders interviewed, risk assessments, training and information were highlighted as having the most influence on the effectiveness of the Directive.

The findings of a study across six MSs suggested that risk assessments, when performed (presumably correctly) had a "notable and enduring improvement of work satisfaction" amongst employees. In contrast, although 81-94% of workers considered themselves to be 'well informed' or better, the study showed that the information provided to employees is not always put into practise.

Further data suggested that eyesight testing was more often conducted when considered necessary rather than tests ‘before commencing work and/or at regular
intervals’ as required under the Directive. It was suggested that this was a more appropriate use of this provision.

Overall, despite the reasonably positive subjective opinions, the objective evidence, although flawed, suggests that there has not had been any marked effect in improving workplace health across the years investigated. Many factors will have influenced that lack of change, and the lack of change cannot be unequivocally attributed to any failure of the DSE Directive to have an impact. However, apart from the requirements for workstations being generally agreed to be out of date, together with concerns about the requirement for eyesight testing (which would not have been expected to influence MSDs), there are no suggestions that the Directive itself is fundamentally flawed and any possible ‘failure’ on the part of the Directive is more likely therefore to rest with failings in its implementation (as shown for example in the proportion of worker representatives considering that they have not received adequate information and training). There is no objective evidence available regarding the impact of sanctions and other enforcement activities on the effectiveness of the DSE Directive.

7.4 Coherence

No inconsistencies, overlaps, or synergies have been identified across and between the DSE Directive and any other Directives.

No inconsistencies, overlaps, or synergies were identified across and between the DSE Directive and other measures and/or policies at European or International level. The Framework Agreement on Telework reinforces some of the provisions but in non-binding with no legal status.

Some International Standards (ISO) exist which complement the provisions of the Directive and could be used by purchasers as a source of detailed guidance. However, they are not legally binding and their cost might be considered a barrier for SMEs.

7.5 Overall discussion

The Directive has been transposed into national legislation in all MS and estimates (from self-reported computer use at work) suggest that the provisions of the Directive remain relevant for a substantial proportion of the EU workforce (over 50%). There is also evidence that MSDs, affecting the back and the upper limb, neck and shoulders, continue to be a significant cause of sickness absence amongst the EU-wide working population. To the extent that the provisions of the Directive are relevant to this (see below) the Directive again can be regarded as remaining relevant. The text to the Directive (Article 3) indicates that the risks possibly associated with work with DSE encompass more than just MSDs, including eyesight effects and problems of mental stress. The scientific and medical literature is quite clear that there is no reliable evidence that work with DSE causes any damage to eyesight,
although it can give rise to transient visual symptoms. However, there is some evidence that the incidence of visual symptoms amongst DSE users does not differ from that amongst the general population. As a result, Melrose and co-workers qualified their description of ‘visual fatigue’ as “visually mediated problems [that] are often regarded as a consequence of working with computer screens”. This encompasses such terms as eye strain, blurred vision and dry eyes. Some authors, have coined the term of Computer Vision Syndrome to cover these transient symptoms. In a review of this, Blehm and co-workers describe:

“...a variety of ocular symptoms related to computer use. These include eye strain, tired eyes, irritation, redness, blurred vision, and double vision, collectively referred to as computer vision syndrome.”

As noted earlier however, it is necessary to differentiate between the transient symptoms (such as those listed), which can arise from any prolonged and sustained visual task, and damage to eyesight.

Nevertheless, it is recognised that problems with eyesight can lead to difficulties with DSE work, especially potentially contributing to MSDs. For example, reports of neck and shoulder pain can arise from adverse physical postures adopted to compensate for visual deficiencies. Additionally, as noted by Melrose and colleagues, such visual problems can result in tension-related headaches. The need for correct vision cannot therefore be completely neglected but should be seen (as reported to be the case already in a number of MSs) as part of remedial action when users experience problems.

The mental stress arising from psychosocial risks in the workplace have become of increasing concern and, with MSDs, represent one of the main causes of work-related sickness absence amongst the EU workforce. However, although some difficulties with using DSE (especially technical software problems) can contribute to the overall psychosocial burden, there is no evidence to suggest that DSE usage in itself makes a major contribution. In this context, it should be noted that, with the possible exception of references in the Annex of Minimum Requirements to the operator/computer interface and software design, none of the provisions within the Directive actually have any direct impact on the burden of psychosocial risks or on the recognised sources of psychosocial risks to health.

Clearly transposition of the requirements of the Directive is only a first step and the implementation (and enforcement) of national provisions is essential. Only limited information has been found regarding the extent of awareness of national regulations and the implementation within the workplace. This material suggests that, although there is a reasonable level of awareness and implementation, the statistics suggest that there remains a sizeable minority where improvements are required.

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One largely unknown aspect of this information relates to the quality of the implementation (rather than the quantity). Evidence from ergonomics experts suggests that this is not always good, a suggestion which is supported by data on information and training (one of the CPMs embodied in the DSE Regulations) indicating that a sizeable proportion of workers feel that they need more information and training on ergonomics issues.

Data on the impact the Directive has had is not entirely reliable, as it is not usually possible with the collated national data, to determine attribution. For example, even within a sector where DSE is widely used, there will be some workers who do not normally use such equipment and whose job exposes them to risks of MSDs other than DSE use. Even amongst those who do use DSE there is no direct evidence to necessarily demonstrate a causal relationship between, say, an episode of back pain and DSE use. One source of better quality data can be direct surveys of DSE users, where at least the issue of whether or not the respondents were DSE users is resolved. Such surveys tend to suggest that MSDs remain a significant problem amongst such users and that the provisions of the Directive have not had a marked impact.

A number of possible explanations for this lack of impact can be suggested, including:

- The Directive does not address all the risk factors;
- The Directive addresses the wrong risk factors;
- The Directive imposes the wrong solutions;
- The requirements of the Directive are not correctly implemented (and enforced).

Detailed consideration of the provisions, in the light of evidence from the evaluation and from relevant published scientific literature, suggests that all these factors might play a role.

Thus, there is evidence from the scientific literature that there is a strong association between computer work and the incidence of MSDs. However, there is further scientific evidence that other risk factors also present significant risks of MSDs to at least some office workers (who would be regarded as the primary users of DSE). For example, Entin (1968) lists non-work factors such as obesity, pregnancy, the menopause, and diabetes as aetiological factors associated with the upper limb problem Carpal Tunnel Syndrome (CTS)\(^{46}\).

There is considerable concern expressed amongst stakeholders that some work activities which present a potential risk of MSDs (especially repetitive and/or forceful activities or adverse postures) are not adequately encompassed by the

current legislative framework. However, this principally relates to industrial processes such as manipulative assembly procedures. To the extent to which repetitive movements, adverse postures, etc. are a potential consequence of DSE work they are covered by the provisions of this Directive and will not therefore be discussed here. However, it is recognised that the risks of MSDs present a cross-cutting issue that spans the scope of a number of individual Directives. Conclusions on how best to address these risks might therefore impact on any recommendations made in respect of this particular Directive.

There is evidence that the relevance, and possibly therefore effectiveness, of the Directive would be enhanced by changes to its provisions. There is widespread consensus that the provisions of the Directive (in particular those of the minimum requirements for workstations) are much less relevant to modern computer technologies (laptops, tablets, smartphones) than they were when the Directive was first conceived. Expert opinion also emphasises that these changes in technology have resulted in radical changes to the concepts of workstations and that many users no longer use a fixed desk. Furthermore, there is a growing body of evidence (summarised in Melrose et al, 200647) to suggest that remaining in a relatively fixed posture for extended periods has a larger effect on the risk of MSDs than inadequacies in the posture itself.

Discussions with experts in the field of ergonomics suggest that, in addition to poor implementation by employers, poor compliance by workers makes a significant contribution to the apparent ineffectiveness of the Directive. Although this can be regarded as poor enforcement by the employer, the reality is that an employer cannot be expected to monitor the working posture of all workers on a daily basis. The level of education and training provided often appears to be insufficient and there is evidence to suggest that better quality provision of such training can improve individual compliance and thus have a discernible effect on reducing the level of MSDs in office workplaces (Article 6). Similarly, the scientific evidence regarding the risk imposed by a sustained fixed posture suggests that more attention should be paid to the requirement for regular breaks in work routine (Article 7).

Finally, there is a growing concern that the risk factors associated with DSE activities are not exclusively work-related. Many lifestyle factors, including the widespread use of computer-based technologies outside work, contribute to the risks of MSDs and concerns have been expressed by a number of stakeholders, particularly amongst employers, that it is difficult / impossible for an employer to differentiate between work and non-work risks and that this possibly unfairly penalises employers for risks that they have no control over. Some MSs have suggested that this is sufficient reason to justify repealing the Directive entirely.

Drawing all these issues together, it is apparent that the current Directive needs at least to be amended. As a minimum, the Annex of Minimum Requirements needs to be reconsidered. One difficulty is that, in its present form, any amendment upon

similar lines is going to become out of date with developments in technology in the same way as the present one has done so. Consideration should therefore be given to preparing a less prescriptive text, and one which does not preclude alternative approaches. For example, the current requirements for the chair to be provided broadly assume a conventional seated posture and could be considered to have a negative impact on the concept of a standing workstation.

However, one of the difficulties with a prescriptive approach such as this is that, as practical experience with employers has demonstrated, it tends to encourage employers to consider that compliance with these requirements is all that is required. As a result, no actual assessment of the working posture of the worker is carried out. There might be some merit in considering a more ‘enabling’ approach that required employers to provide furniture and equipment ‘sufficient to enable the worker to adopt a good working posture’, supported with authoritative information and guidance as to what constituted a good posture.

One further minimum amendment would be to Article 9 (‘Protection of workers’ eyes and eyesight’). The title of this clause is clearly a misnomer as there is no evidence of anything to protect them from. However, although some stakeholders have used this as a reason for repealing the Article completely there are, as noted above, good reasons why testing of eyesight might be required, albeit as an ameliorative rather than a preventative measure. Nevertheless, the Article as written is misleading and inappropriate and should be amended to reflect the current evidence base.

Many MSs also reported in their NIR the need to review the exemptions in the Directive (Article 1(3)) due to the technological advances which have occurred since the Directive entered into force.

The requirement underpinning the Directive, to ensure that workers have the necessary furniture and equipment to enable them to adopt a good working posture is of little value if workers do not act to adopt such postures. As noted above, this relies heavily on the cooperation and compliance of the individual worker and this, in turn, relies heavily on them understanding and appreciating the reasons why they should take such action. It is essential therefore that good quality information and training to correctly educate the workforce, is required. Consideration could be given to the preparation of EU guidance on this (possibly with training material) to support MSs and employers. As part of this, the need for and entitlement to periodic interruptions to their daily work routine (Article 7) could also be emphasised.

7.6 Overall conclusions and recommendations

However, the relevance of some aspects, specifically data on worker health which can be directly and unequivocally related to DSE use is not available. Although some occupational health data (e.g. on musculoskeletal problems, particularly back pain) is available, the data can only indirectly be attributed to DSE use and, even then, the relationship might be that of the work provoking symptoms of underlying pre-existing conditions rather than directly causal.
It is recommended that consideration be given to creating common reporting and recording frameworks in order to generate more useable and useful data to inform future evaluations.

Subject to these caveats the available data would suggest that there has been no marked downward trend in the incidence of relevant health problems (e.g. back and upper limb/neck/shoulder problems) in recent years. Although there can be many factors which have contributed to this (not least the inadequacies of the available data referred to above) these findings suggest that the DSE Directive has not had a marked impact on improving worker health.

Available data does not allow the determination of whether this is due to:

- The Directive not addressing all the risk factors;
- The Directive addressing the wrong risk factors;
- The Directive imposing the wrong solutions;
- The requirements of the Directive not being correctly implemented (and enforced).
- Other factors.

Limited evidence suggests that, if correctly implemented, it is of some benefit. This would suggest that the Directive addresses at least some of the correct risk factors.

However, there is widespread recognition that the Directive is out of date in that the Annex of minimum requirements for workstations is out of date and does not reflect technological changes in DSE over the last approximately 25-30 years since the Directive was drafted.

It is recommended that consideration is given to revising the Annex to the Directive to take account of changes to both the technology used and the manner in which it is used. As part of this, consideration could also be given to preparing it in a less prescriptive form (which does not hinder the development and introduction of further technological solutions) or at least agreeing a mechanism to allow it to be updated more easily in the future should technological advances warrant it.

One specific concern is that Article 9 of the Directive is factually misleading in that the title ‘Protection of workers’ eyes and eyesight’ implies that use of DSE presents a risk. This is contrary to scientific and medical evidence. There is however, some experience to suggest that workers might experience problems such as visual symptoms, or might adopt compensatory (adverse) physical postures if they cannot see the display clearly due to visual defects. This appears to be tacitly recognised in a number of MSs where testing is made available to those who report problems rather than prior to starting work.

It is recommended that consideration is given to amending Article 9 of the DSE Directive to remove the first two subclauses (requiring testing before commencing work and at regular intervals thereafter). Additionally deletion
of the word ‘visual’ in the third subclause might be beneficial, as problems might not directly manifest themselves as visual difficulties (as in the case of adverse postures).
Appendix A  References

Accidents at work by economic activity and part of body injured [hsw_n2_06]


Communication on the practical implementation of the provisions of the Health and Safety at Work Directives 89/391 (Framework), 89/654 (Workplaces), 89/655 (Work Equipment), 89/656 (Personal Protective Equipment), 90/269 (Manual Handling of Loads) and 90/270 (Display Screen Equipment). COM(2004) 62 final

Employment by sex, age and economic activity (from 2008 onwards, NACE Rev. 2) - 1 000 [Iflsa_egan2]


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Pereira, A et al. (2013). Holding a tablet computer with one hand: Effect of tablet design features on biomechanics and subjective usability among users with small hands. Ergonomics 56 (9) (09/01; 2014/07): 1363-75.

Persons reporting their most serious work-related health problem work in the past 12 months, by type of problem - % [hsw_pb5]


