

EXPLANATORY MEMORANDUM TO
THE RAILWAYS (INTEROPERABILITY) REGULATIONS 2006

2006 No. 397

1. This explanatory memorandum has been prepared by the Department for Transport and is laid before Parliament by Command of Her Majesty.

This memorandum contains information for the Joint Committee on Statutory Instruments.

2. **Description**

2.1 The Regulations give effect in one instrument for the whole of the United Kingdom to three EC Directives on rail interoperability. They are intended to promote the single market in the rail sector and provide for common European assessment and authorisation processes for major rail developments. They involve the removal of technical barriers to the supply of equipment and the through-running of trains across Europe.

3. **Matters of special interest to the Joint Committee on Statutory Instruments**

3.1 None

4. **Legislative Background**

4.1 There are three Directives on railway interoperability. The first, on the trans-European high-speed rail system was adopted in 1996 (96/48/EC) and implemented in the UK by the Railways (Interoperability) (High-Speed) Regulations 2002 (SI 2002 No. 1166) (“High-Speed Regulations”). A second Directive on the trans-European conventional rail system (“Conventional Directive”) was adopted in 2001 (2001/16/EC). A third Directive (2004/50/EC) (“Amendment Directive”) was adopted in 2004 amending the previous two. The Amendment Directive operated to make the text of the High-Speed Directive consistent with the text of the Conventional Directive, and added a number of specific requirements.

4.2 In early 2004 DfT consulted on draft Regulations prepared to give effect to the unamended Conventional Directive. They were to extend the assessment and authorisation processes found in the High-Speed Regulations to the trans-European conventional rail system in the UK. In the light of consultation responses and the adoption of the Amendment Directive it was resolved instead to produce a single set of Regulations applying for all three Directives, revoking and replacing the High-Speed Regulations.

4.3 The Regulations are modelled on the High-Speed Regulations with a number of drafting revisions. As for the High-Speed Regulations, they are made under section 2(2) European Communities Act 1972 and section 247 Transport Act 2000. Section 247 enables effect to be given to appropriate railway standards produced from time to time by the relevant drafting bodies, principally Technical Specifications for Interoperability (“TSIs”) published in the Official Journal, which are prepared by a committee mandated under the Directives.

4.4 On 10 November 2005 the ECJ gave judgement against the UK in infraction proceedings brought for failure to implement the unamended Conventional Directive.

4.5 A transposition note is at Annex A.

5. Extent

5.1 This instrument applies to all of the United Kingdom.

6. European Convention on Human Rights

6.1 As the instrument is subject to negative resolution procedure and does not amend primary legislation, no statement is required.

7. Policy background

7.1 The Directives support the policy objectives of the European Commission, as expressed in the Common Transport Policy, of promoting the single market in the rail sector. Interoperability is focussed on removing mainly technical barriers to the supply of equipment and the through-running of trains across Europe.

7.2 The aim of the Directives is to:

- Achieve interoperability across the trans-European rail network, and in due course, the rest of the mainline rail system;
- Mandate the preparation of common technical standards (TSIs) to be applied across Europe's railways; and
- Establish common assessment and authorisation processes. When new rolling stock is introduced, or new lines are built, or when major work is done on the trans-European rail network, compliance with TSIs under the assessment and authorisation processes will gradually bring about greater harmonisation across the European network.

7.3 Technical harmonisation and common processes will help to break down some of the barriers to open access on the European rail network. Similar provisions for "interoperability constituents" should help do the same for the component supply market.

7.4 The effect of the Regulations will be to extend the assessment and authorisation processes under the High-Speed Regulations to the trans-European Conventional rail system in the UK. In time, following the publication of TSIs relating to the rest of the network, it is expected that this scope will be extended still further to the rest of the mainline railway.

7.5 The Regulations form part of a wider set of changes to the regulatory framework governing the approval of railway assets to be placed into service. Other key changes are to be brought about by the Railways and Other Guided Transport Systems (Safety) Regulations ("ROGS") which are due to be made shortly. Those Regulations have been developed by the Health and Safety Commission (HSC) to replace, amongst other things, the existing approval regime under the Railways and Other Transport Systems (Safety) Regulations 1994 (S.I. 1994 No. 157 as amended) (known as "ROTS") and to implement the Railway Safety Directive (2004/49/EC). Due to the linkages, there has been close co-operation between drafting teams, and relevant parts were included as part of a consultation exercise (see 7.7 below).

Consultation on Conventional Regulations

7.6 In January 2004, the Department consulted on draft Regulations to implement the Conventional Directive. Around 450 companies and other stakeholders were consulted. The consultation exercise ran for 12 weeks, and in total 55 written responses were received. One of the key messages from consultees was that it would make good sense to delay the Conventional Regulations in order to take into account the requirements of the forthcoming Amendment Directive, which would bring the High-Speed and Conventional Directives into line with each other, and avoid amendment of those Regulations a short time afterwards. Other key messages from consultees included the need for more and clearer guidance which could also replace some provisions which respondents considered to be unnecessary in the Regulations (especially screening decisions and staged work decisions). In the light of this feedback, Ministers decided to hold back the draft Conventional Regulations, and instead to produce proposals to provide for all three of the Directives in one instrument.

Further Consultation on Interoperability Regulations

7.7 Although the Department contemplated having the Regulations apply more widely to the whole mainline rail system it finally resolved that, as in the first round of consultation, they should extend only to the trans-European rail network. The resulting combined Interoperability Regulations were the subject of a further round of consultation in the latter part of 2005 which offered stakeholders the opportunity to comment further on those proposals and on the related proposal to extend to the mainline railway the Safety

Verification requirements set out in the draft ROGS. The HSC had first consulted on the new regulatory package for safety in 2004, and this consultation sought views only on the proposed revised approach to Safety Verification contained in the draft ROGS Regulations.

7.8 Around 800 companies and other stakeholders were consulted. As a reconsultation and in the light of the infraction proceedings, the consultation ran for a shortened period of six weeks. The Department received 61 responses (including all the key rail industry stakeholders). The majority of respondents were broadly content with the Department's proposals on interoperability, but a number of significant concerns were raised in relation to the HSC's proposals for extending Safety Verification to the mainline railway. In light of this, and following further discussions with stakeholders, amendments have been made in ROGS to those proposals on Safety Verification.

7.9 Most concern relating to the Interoperability Regulations was expressed over the transitional arrangements for projects straddling the old and new regimes. The Department has acknowledged the concern over the impact on the industry by excluding the provisions from applying to major projects not previously affected by the High-Speed Regulations and which are placed in service before 1 August 2006. Existing assessment work under the old approval regime can also be used to meet assessment requirements under the Regulations.

7.10 A more detailed analysis of the responses to both this consultation and the one conducted in 2004, and the changes which have been made in the light of them, can be found in the two consultation reports available on the Department's website at www.dft.gov.uk/railways/interoperability.

8. Impact

8.1 A Regulatory Impact Assessment is attached to this memorandum at Annex B.

8.2 The impact on the public sector is minimal. The Office of Rail Regulation (“ORR”) is the main public body affected as the Regulations place a number of duties on it as the Safety Authority. However, HM Railways Inspectorate has previously performed many of these functions under the High Speed Regulations and is transferring to the ORR. It is assumed that any extra work created by the implementation of these Regulations will be accommodated within ORR’s existing resources. Furthermore, some of the duties previously undertaken by the Strategic Rail Authority have been transferred to the Department for Transport, following publication of the Government's White Paper, The Future of Rail.

9. Contact

9.1 Tom Hinds at the Department for Transport (Tel: 020 7944 6731 or e-mail: tom.hinds@dft.gsi.gov.uk) can answer any queries regarding the instrument.

ANNEX A

TRANSPOSITION NOTE

Council Directive 96/48 on the interoperability of the trans-European high-speed rail system (“the High-Speed Directive”)

Directive 01/16 on the interoperability of the trans-European conventional rail system (“the Conventional Directive”)

Directive 04/50 amending the High-Speed Directive and the Conventional Directive (“the Amendment Directive”)

The High-Speed Directive was transposed in 2002 in the UK by the Railways (Interoperability) (High-Speed) Regulations 2002 (“the High-Speed Regulations”) (SI 2002 No. 1166).

The Secretary of State is responsible for measures to implement the Conventional Directive and the amendments to both the High-Speed Directive and Conventional Directive effected by the Amendment Directive.

The High-Speed Directive as amended and the Conventional Directive as amended (jointly known as “the Interoperability Directives”) are transposed by the Railways (Interoperability) Regulations 2006 (“the Regulations”). The High-Speed Regulations are revoked.

The Interoperability Directives are aimed at achieving interoperability of the trans-European high-speed and conventional rail systems (“TEN” (trans-European rail network)). The Directives set requirements for technical harmonisation and standardisation and for common processes for the checking and authorisation of parts of the rail system (subsystems) placed into service and for constituent components (interoperability constituents) placed on the market for use on the TEN.

The Conventional Directive also anticipates a gradual extension of scope beyond the TEN to the rest of the mainline rail network. This will arise when technical specifications for interoperability are produced with a wider application.

These Regulation do no more than is necessary to implement the Directives.

In addition, the Safety Management System requirements in the prospective Railways and Other Guided Transport Systems (Safety) Regulations, will, when made, furthermore place duties on train operators and operators of infrastructure to meet the relevant TSI requirements throughout the life-cycle of the equipment or operation of the equipment in question.

In Great Britain the Secretary of State is the Competent Authority (DfT (Rail)), except in relation to the Channel Tunnel system where it is the Intergovernmental Commission. In Northern Ireland the Competent Authority is the Department for Regional Development in Northern Ireland (“DRDNI”).

The Safety Authority has responsibility for the authorisation of structural subsystems to be placed into service. In Great Britain it is the Office of Rail Regulation, except for the Channel Tunnel system where it is the Intergovernmental Commission. The Safety Authority with responsibility for Northern Ireland is the DRDNI.

The Office of Rail Regulation in Great Britain, and in Northern Ireland the Health and Safety Executive for Northern Ireland, have responsibility for the measures taken to enforce the Regulations.

Articles (Unless indicated otherwise article numbers are the same for both Interoperability Directives (HS = High Speed Directive; C = Conventional Directive))	Objective	Implementation
Article 2 and Annexes I, II, III	Definitions of main terms including, interoperability, interoperability constituent, subsystems, technical specifications for interoperability (“TSIs”) and the trans-European high-speed and conventional rail systems.	Regulation 2 contains defined terms. Annexes I to III of the Interoperability Directives are reproduced in Schedules 1 to 6.
Article 4.1	Requires that the trans-European high speed rail system and trans-European conventional rail system respectively, and their subsystems and interoperability constituents, must meet the relevant essential requirements.	Regulation 4(1), (6)(b) and (7), 7 and 19(1) require that structural subsystems may not be placed in service and interoperability constituents may not be put on the relevant rail market unless they meet the essential requirements applying to them. Regulation 12(2) requires that the operator of authorised structural subsystem which is in use must ensure the essential requirements are met.
Article 5.2	Requires that there are to be TSIs for each subsystem. Where a TSI applies to a subsystem the TSI requirements must be met at all times whilst the subsystem in is	By regulation 4(6), 7 and 8(3), a contracting entity must ensure that a subsystem for which authorisation is needed conforms to the relevant TSIs to be placed

	use.	in service. Regulation 12(2) requires the operator of authorised structural subsystem in use to ensure continuing conformity. This includes the related requirements of functional TSIs under regulation 12(2)(d).
Article 7	Provides for derogations from the application of TSIs, and the notification of derogations to the Commission.	Regulation 6 sets out the circumstances in which the UK Competent Authority may derogate from the application of the whole or part of a TSI to a subsystem or interoperability constituent, and the requirement for notifications to the Commission.
Article 8 first para. (HS); Article 8 (a) (C)	Member States are to take all necessary steps to ensure interoperability constituents are not placed on the market unless they enable interoperability to be achieved within the relevant TEN rail system, while meeting their essential requirements.	Regulation 19 prohibits interoperability constituents being placed on the TEN rail market unless they meet the essential requirements. The steps to conformity are set out in regulation 18 (assessment of conformity or suitability for use) including the drawing up of a declaration of conformity or suitability for use by the manufacturer (see Schedule 7).
Article 9	Precludes the Member State on the grounds of the applicable Directive, from prohibiting, restricting, or hindering the placing on the market an interoperability constituent for use on the particular TEN rail system, if it complies with the relevant Interoperability Directive.	Regulation 22 recognises interoperability constituents that have met the requirements of any scheme in force in another Member State for the purpose of implementing the relevant Interoperability Directive.
Article 10.1	Provides that Member States shall consider as complying with the essential requirements of the applicable Directive, those interoperability constituents which bear the EC declaration of conformity or suitability for use	Regulation 19(2) requires the manufacturer to draw up a declaration of conformity or suitability for use in relation to the interoperability constituent. Regulation 17(1) provides a presumption of conformity that an interoperability constituent for

		which an EC declaration has been drawn up meets the essential requirements of the applicable Directive.
Article 10.2	Provides that interoperability constituents shall be assessed by a procedure indicated in the respective TSI and shall be accompanied by the corresponding certificate.	Regulation 18(a) provides that assessment procedures shall follow procedures set in relevant TSIs.
Article 10.3	Provides that Member States shall consider interoperability constituents meet the essential requirements where they meet conditions laid down in the relevant TSI or European Specification developed for those conditions.	Regulation 16 provides that an EC declaration of conformity or suitability for use meets the conditions required by relevant TSIs and any European specification required for that purpose. Regulation 17(1) provides a presumption of conformity that an interoperability constituent for which an EC declaration has been drawn up meets the essential requirements.
Article 12.1 and 12.3	Provides that a Member State shall take all necessary steps to restrict the application, use or access to the market of an interoperability constituent that, despite having an EC declaration of conformity or suitability for use, is found by the Member State to be unlikely to meet the essential requirements. The measures taken are to be notified to the Commission.	Regulation 36 provides for the ORR or HSE for NI as the enforcing authority to take action by notice to a contracting entity that restricts or prohibits the use of an interoperability constituent where of the opinion that it does not meet the essential requirements, despite it having an EC declaration of conformity or suitability for use. Regulation 23 provides for the Safety Authority to give notice to the Commission of the measures taken.
Article 13.1 and 13.2	Provides that the manufacturer of an interoperability constituent has to have the conformity of the item or its suitability for use assessed by a notified body to establish, by applying the relevant TSI	Regulation 19(2) requires the manufacturer to carry out the appropriate conformity or suitability for use assessment. Regulations 16, 18 and Schedule 7 detail the assessment

	requirements, that it can be given a declaration of conformity or suitability for use.	requirements, including the need to follow any procedures specified in a relevant TSI. Regulation 26 (and 27) set out duties on notified bodies to assess where appointed to act.
Article 13.5	Requires the Member State to set conditions to deal with findings that the EC declaration of conformity has been drawn up improperly. The manufacturer shall be required to restore its conformity and terminate any infringement but if non-conformity persists the Member State has to take appropriate action to restrict or prohibit the constituent from the market.	Regulation 37 provides for the ORR or HSE for NI to take action where it has reasonable grounds for suspecting the declaration is improperly drawn up. Failure to respond to notice gives rise to enforcement powers and sanctions under the Health and Safety at Work Act 1974, as applied by regulation 34 or Northern Ireland equivalent (regulation 35).
Article 14 (1 st para. HS) Article 14.1 (C)	Requires that structural subsystems entering into service have to be authorised by Member States, who must check they are designed, constructed and installed in such a way as to meet the essential requirements for them as part of the relevant TEN rail system into which they are being integrated.	Regulation 4 provides for the authorisation of structural subsystems by the Safety Authority before they can be placed into service and the conditions to be met for authorisation.
Article 14.2	Provides that when put into service and at regular intervals afterwards, structural subsystems are to be checked by Member States that they are operated and maintained in accordance with the essential requirements, using the assessment and verification procedures in the relevant TSIs.	Regulation 7 specifies the requirements to be met by a structural subsystem being placed into service, satisfying the essential requirements by reference to the relevant TSIs and notified national technical rules. Regulation 8 sets out the requirements on a contracting entity placing a structural subsystem into service. Regulation 4 provides for the contracting entity to go through an authorisation process before placing the structural subsystem into service.

		Continuing conformity by operators once the subsystem is placed in service is required by regulation 12(2) and subject to the enforcement powers in regulations 34 and 35.
Article 14.3	Requires that a Member State decides in the case of renewal or upgrade whether an authorisation is necessary and, in relation to the conventional TEN, the extent to which TSIs need apply.	Regulation 5 provides for a decision by the Competent Authority on the need for authorisation in the case of renewal or upgrade, and for the application process.
Article 14.4-5	Requires a national vehicle register to be kept of authorised rolling stock.	Regulation 33 provides for the keeping of, and access to, a national vehicle register.
Article 15	Subject to article 19, provides that Member States must not stand in the way of construction, placing in service and operation of structural subsystems forming part of the TEN rail system in the UK which meet the essential requirements. In particular they cannot require duplication of checks which have been already carried out as part of the verification procedure elsewhere.	Regulation 4(6) provides that the Safety Authority is under a duty to authorise placing into service of subsystem meeting the essential requirements. Regulation 4(3) does not permit duplication of checks carried out during the verification assessment procedure.
Article 16.1 - 2	Provides that Member States shall consider structural subsystems meet the essential requirements where they are covered by a declaration of verification, verification being established by reference to TSIs where they apply.	Regulation 8(3) provides for the contracting entity to make a declaration of verification following establishment of conformity with the assessment requirements, including those of applicable TSIs. Regulation 10 provides a presumption of conformity that a structural subsystem in respect of which a declaration of verification has been made meets the essential requirements.
Article 16.3	Provides that national technical rules, notified to the Commission,	Regulation 7 provides for compliance with the notified

	apply for implementing the essential requirements where TSIs do not apply.	national technical rules where TSIs do not apply.
Article 18.1 - 2	Provides that a contracting entity must have subsystem assessed by a notified body applying the EC verification assessment procedures through the design, manufacture and acceptance stages to justify the contracting entity making a declaration of verification.	Regulation 8 requires a contracting entity to appoint a notified body for the carrying out of the appropriate verification assessment procedures provided in regulation 9 and Schedule 9, and throughout the stages to authorisation. Regulation 26 sets out the duties on notified bodies when appointed. Regulation 27(2) debar a notified body from drawing up a certificate of conformity if not satisfied of conformity with regulation 7.
Article 18.3	The notified body has to compile a technical file to accompany the declaration of verification.	Regulation 9(2) requires the notified body to compile the technical file. The contents are specified in regulation 11(1).
Article 19	Provides that a Member State finding that a structural subsystem covered by a declaration of verification does not meet the essential requirements may require additional checks to be carried out.	Regulation 4(3)–(4) provides that additional checks shall not be required where there is a declaration of verification, but they may be required if the Safety Authority considers it necessary where the subsystem appears not to meet the essential requirements under regulation 7.
Article 20.1-3	Provides that a Member State must notify the Commission and other Member States as to the notified bodies it appoints to act for carrying out conformity of use and suitability for use assessments (article 13) and verification assessments (article 18). The bodies must meet certain criteria (annex VII) but must have their appointment removed if they no longer meet the criteria.	Regulation 25(9) provides for the Competent Authority to notify the Commission and other Member States of the appointment and termination of appointment of notified bodies. Regulation 25(2) and Schedule 10 set out the criteria for appointment.
Annexes I to VII	Description of the trans-European	Schedules 1 to 10 reproduce the

	high-speed and conventional rail systems; their subsystems; essential requirements; and requirements for the assessment and verification of subsystems and interoperability constituents and for the appointment of notified bodies.	Annexes. Schedules 7 to 10 contain minor modifications so that the same Schedule relates to both Directives.
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ANNEX B

Regulatory Impact Assessment

UK Implementation of European Directives dealing with railway interoperability

Title of proposal

1. The Railways (Interoperability) Regulations 2006. These Regulations cover both Great Britain and Northern Ireland.
2. The Regulations give effect for the UK to the three European Directives dealing with rail interoperability for the trans-European rail systems (TEN). The Regulations:-
 - a) replace the *Railways (Interoperability) (High-Speed) Regulations 2002*¹ which implemented the first Directive, 96/48/EC², *on the interoperability of the trans-European high-speed rail system*;
 - b) implement the second Directive, 2001/16/EC³ *on the interoperability of the conventional rail system*, and,
 - c) implement Directive 2004/50/EC⁴ which amended the previous two rail interoperability Directives.
3. This full RIA supersedes the partial RIA which went out to public consultation in October 2005. It also supersedes the partial RIA which was subject to public consultation beginning in January 2004, which considered implementation of Directive 2001/16/EC alone (see paragraph 10 below).
4. Working in partnership with key government and industry stakeholders, this RIA has been refined, and produced in the light of additional data, and responses to the consultation process. However, since relatively little cost/benefit data will be available for some years to come (see paragraph 13 below), this RIA is based largely on illustrative examples and hypothetical scenarios.

Purpose and Intended Effect

Objective

5. The three rail interoperability Directives are intended progressively to harmonise technical standards and other processes governing the supply of

¹ SI 2002 No. 1166, came into force 16th May 2002

² of 23rd July 1996

³ of 19th March 2001

⁴ of 29th April 2004 *amending Council Directive 96/48/EC on the interoperability of the trans-European high-speed rail system and Directive 2001/16/EC of the European Parliament and of the Council on the interoperability of the trans-European conventional rail system*

equipment and the through-running of trains on trans-European networks. By removing technical and procedural barriers, the Directives should help to progress the single internal market in the rail sector, challenge inefficiency, stimulate innovation, and help to revitalise and improve the competitiveness of rail transport. The Conventional Directive is also intended to extend progressively to the rest of the mainline rail network in due course.

Background

6. Differences between EC Member States' rail systems impede the development of a single internal market for rail equipment and services. Technical and operational barriers favour incumbent operators and manufacturers, hampering the entry of new players and improvement in services to passengers and freight customers. By introducing common technical standards and conformity assessment/approvals regimes (see paragraphs 12 to 15 below), the interoperability Directives will help to remove barriers to the entry of other operators and manufacturers wanting to take advantage of access rights, or contracts for the supply of equipment, to Member States' rail networks.

7. Differences between rail systems also militate against movement between Member States and impact adversely on the competitiveness of international rail transport compared to, for instance, transport by road or air.

8. The Regulations have been designed to promote competition and improve efficiency in the rail sector. This should help the rail sector to increase demand for its goods and services, increase revenues, and also bring benefits to passengers, freight customers, and (through modal shift) the environment.

9. There are three European Directives dealing with rail interoperability:-

- a) 96/48/EC - the "high-speed Directive" - applies to the construction and upgrading of high-speed rolling stock and high-speed infrastructure. This Directive was implemented in the UK by Regulations which came into force in May 2002,
- b) 2001/16/EC - the "conventional Directive" - applies to the construction, upgrading and renewal of all conventional rolling stock and much conventional infrastructure (c40% of GB conventional infrastructure⁵). This Directive has not previously been implemented in the UK (but a set of draft Regulations were subject to formal public consultation in early 2004 – see paragraph 10 below), and,
- c) 2004/50/EC - the "amendment Directive" - amends the previous two by:
 - bringing the conventional Directive into line with the high-speed Directive (e.g. high-speed includes renewals),

⁵ The Conventional Directive applies only to the "Trans-European Network" – TEN. The length of route open for passenger and/or freight rail traffic in Great Britain that is managed by Network Rail is about 10,000 miles. Some portions of route have two or more tracks and the total length of track is about 21,000 miles. Of this about 11,000 track miles are a part of the TEN in GB and this splits between about 3,000 "high speed TEN" track miles and 8,000 "conventional TEN" track miles.

- introducing a number of detail changes to both earlier Directives, and
- projecting progressive extension of the scope of the conventional Directive to eventually cover all conventional infrastructure.

10. Formal public consultation on draft Regulations to implement the second, Conventional Directive took place in early 2004. Over 50 written responses were received. These suggested a broad industry consensus supporting a different approach to interoperability implementation – in particular, a wish to see just one set of Interoperability Regulations addressing both high-speed *and* conventional interoperability and incorporating the changes introduced by the third, amendment, Directive which was about to be adopted.

11. This general approach received further support following a further round of consultation issued in October 2005. The Interoperability Regulations therefore:

- a) replace the existing High-Speed Regulations,
- b) replace the previously proposed draft Conventional Regulations,
- c) implement the amendment Directive, thus covering all three interoperability Directives with a single set of Regulations (with a single set of underlying processes).

12. Implementation of the interoperability Directives will change the way rail projects are planned, specified, executed and brought into service in the UK and across Europe. Basically, the Directives mandate technical harmonisation/ standardisation and common checking and authorisation processes. These two key elements are summarised in Table 1 below. The Directives do not actually require work to be undertaken, but when infrastructure or rolling stock is built, or upgraded or renewed as part of a major project, it will have to comply.

Table 1 – interoperability in a nutshell (please note that this description is much simplified).

Technical harmonisation and standardisation	Common checking and authorisation processes
<ul style="list-style-type: none"> • The Directives include mandatory "essential requirements" • Rail system divided into "subsystems" (which, in turn, include "interoperability constituents") • subsystems must meet the essential requirements • mandatory, pan-European, Technical Specifications for Interoperability (TSIs) will set out how subsystems meet the essential requirements (see paragraph 13 below) • there is scope for the TSIs to include "specific cases" reflecting the individual circumstances of particular Member States • there is also scope to derogate from the TSIs • in the absence of TSIs, existing national standards may continue to be used instead, so long as they have been pre-notified - "notified national technical rules". 	<ul style="list-style-type: none"> • independent 3rd party conformity assessment by Government accredited "Notified Bodies" (NoBos) • "contracting entity" employs NoBo at outset of new project or major works • NoBo assesses whether or not subsystem complies with essential requirements • NoBo issues certificate of conformity and prepares "technical file" • contracting entity issues "verification declaration" • contracting entity seeks authorisation from "Safety Authority" to place subsystem into service • Safety Authority gives authorisation (confirming that NoBos have correctly assessed the conformity of subsystems with the requirements of the Directives).

13. The TSIs which under-pin the interoperability Directives cover a range of subjects:

(a) for high-speed trains and lines (i.e. under Directive 96/48/EC), a full suite of TSIs is already in place (albeit containing a number of "open points"). These TSIs cover infrastructure, energy, control command and signalling, rolling stock, maintenance and operations. They came into force in late 2003 (and are currently under review, with amendments expected to come into force in early 2006); and

(b) for conventional trains and lines, (i.e. under Directive 2001/16/EC), the requisite TSIs will be adopted in three priority groups. The first group of conventional TSIs are in the process of being adopted, and are expected to come into force in 2006. The second group are not expected to be in force before 2007. A full suite of conventional TSIs is not expected to be in force before 2009. The first tranche of conventional TSIs covers command control and signalling (CoCoSig), freight wagons (with priority to international wagons), telematics for freight applications (TAF), traffic operation & management and noise. The protracted adoption of conventional TSIs complicates the transition to the new regime. For example, the notified national technical rules (NNTRs) to be used pending the adoption of TSIs are not necessarily a good fit with the processes mandated by interoperability. Learning from the experience of high-speed interoperability, a considerable amount of work has been undertaken to refine and rationalise the UK's list of notified national technical rules, with a view to minimising such difficulties and to match particular NNTRs (or parts of them) to specific 'gaps' in the TSI coverage.

14. The TSIs are prepared by industry, and UK businesses are actively engaged in the TSI drafting process. The TSIs for high speed interoperability and the first ones for conventional have been facilitated by the *Association Européenne pour l'Interopérabilité Ferroviaire* (AEIF)⁶ which brings together industry experts from across Europe. However, this work is in the process of transferring to the European Rail Agency (ERA). The Agency is progressively being set up between May 2004 and 2006 to provide Member States and the European Commission with technical assistance in the fields of railway safety and interoperability. This involves the development and implementation of TSIs and a common approach to questions concerning railway safety.

15. The TSI drafting work has been subject to mandates from, and, ultimately, approval by, a regulatory committee of Member States' representatives - the "Article 21 Committee".

Rationale for Government intervention

16. The following paragraphs describe and quantify the market inefficiency which the Regulations are intended to address.

17. Europe's railways reflect a long and complex evolution that started in the early 19th century and which took account of many different national and local economic and physical circumstances. The railways that evolved in different countries had many common features – for instance, the majority of Europe's railways share a common track gauge. However, even within nation states they often also had many significant differences, such as loading gauge, the supply of electric current, the signalling systems, and so on. Across Europe this led to systems and markets that consisted of a patchwork of badly connected systems.

⁶ The AEIF is a pan-European industry body comprised of railway operators and manufacturers.

18. There has been a post war decline in the use of rail transport. In 1970 the railways carried 20% of all freight in the 15 countries of the pre-expansion European Community (Table 2). By 2002 the figure was 8%. Over the same period the proportion of freight going by rail in Britain has declined from 18% to 7%. Passenger use of rail in Britain has increased since 1970 but rail's share of total passenger travel has fallen from 9% to 7% (Table 3). Across the EC, passenger rail's market share has fallen from 12% to 7%. In contrast road and air transport has become cheaper and more accessible, and usage has increased.

19. The lack of international integration of rail transport is only one factor which may have contributed to the decline in rail's share of freight and passenger transport. For example, the decline of heavy industries, such as coal and steel production has had a disproportionate effect on rail. However, the creation of the single internal market within the European Community has increased the demand for cross border movements of passengers and freight, and any lack of integration of rail systems will constrain rail's ability to compete for those traffics.

Table 2: Freight Transport, 1970 -2002

	EU 15				Great Britain			
	Tonne kms, billions 1970	Market share	Tonne kms, billions 2002	Market share	Tonne kms, billions 1970	Market share	Tonne kms, billions 2002	Market share
Road	489	35%	1376	44%	85	63%	157	62%
Rail	282	20%	236	8%	25	18%	19	7%
Waterway	103	7%	125	4%	23	17%	67	26%
Pipeline	64	5%	85	3%	3	2%	11	4%
Sea, intra EU	472	34%	1255	41%	-	-	-	-
	1410		3077		136		254	

Sources: EC, DfT

Table 3: Passenger Transport, 1970-2002

	EU 15				Great Britain			
	Pax. kms, billions 1970	Market share	Pax. kms, billions 2002	Market share	Pax. kms, billions 1970	Market share	Pax kms, billions 2002	Market share
Road	1831	86%	4293	87%	365	91%	734	92%
Rail	253	12%	355	7%	36	9%	48	7%
Air	33	2%	280	6%	2	0.50%	9	1.10%
	2142		4839		403		791	

Sources, EU, DfT

20. Sectors of the economy based on networks often need to have common technical bases if they are to maximise their long-term potential. If left to the

market, differences might be perpetuated, as each party prefers to retain its own technical solution. This might reflect the desire to protect national markets and inefficient firms from competition or to avoid the up-front costs of transition to new standards. If left unchecked, inefficiency is likely to increase costs to users and place an increased burden upon all taxpayers. Subsidy and other public contributions to the rail sector amounted to almost €40 billion in 2001 across the EC. European railway statistics suggest the railways of some Member States may be more efficient than others. For example, Dutch railways carry twice as much passenger traffic as Belgian railways but the Dutch railways have a workforce that is less than two-thirds the size of Belgium's. The basic figures do not, of course, explain the reasons for this difference, but inefficiency may be a part of the explanation.

21. In addition, transport prices generally do not reflect fully the marginal social costs of transport use. Rail use is generally less environmentally damaging than road use, for example, carbon dioxide emissions per passenger kilometre for rail transport are typically about half those for car based travel. Carbon dioxide emissions from rail are generally around two-thirds of car emissions on a per passenger km basis (reference *Figure 6.1, Everyone's railway – the wider case for rail, SRA, 2003*). Therefore, in the absence of road pricing, increasing rail's market share should bring positive environmental externalities. Similarly, with rail transport over 9 times safer than travel by car (*Rail Safety and Standards Board (RSSB) Annual Safety Performance Report for 2004*), any modal shift towards rail travel should also reduce the social and economic costs associated with road accidents.

22. The Regulations are intended to help revitalise the railways. They are intended to contribute to an efficient and competitive industry that serves the European single market and not just local or national markets.

Consultation

Within Government

23. The Department has worked closely with other government departments, not least the Office of Rail Regulation (ORR) which is taking on the safety authority functions from the Health and Safety Executive (HSE), to formulate the processes and procedures which underpin interoperability and the Guidance sets out those arrangements. The Department feeds into the "Article 21 Committee" (see paragraph 15 above) and into the work to co-ordinate UK input into the TSI drafting process (see paragraph 14 above).

24. The Department has also worked closely with the HSE to ensure proper co-ordination of interoperability implementation with implementation of the closely related Rail Safety Directive⁷. The interface between the Interoperability Regulations and the HSE's Railways and Other Guided Transport Systems (Safety) Regulations 2006 (known as ROGS), has been

⁷ Directive 2004/49/EC

significant and was therefore included as a key part of the further consultation package issued in October 2005.

25. Details on HSE's RIA for ROGS can be found at the following link:
<http://www.hse.gov.uk/consult/condocs/cd199.pdf>

26. Given the significance of the relationship between interoperability and the safety interface for first use approvals on the rail network, the Department has produced joint Guidance with HSE on this.

Public consultation

27. In developing the Regulations, before, during and after the public consultations, the Department held discussions with individual firms, key stakeholders and trade bodies representing the rail industry. In addition, the Department established the Interoperability Implementation Forum (IIF) to facilitate a regular dialogue between industry and government to help ensure the smooth implementation of the Regulations.

28. Formal consultation on the accompanying consultation document, draft Regulations and draft Guidance assisted in refining the proposals further, and was supported by discussions/seminars with industry and other stakeholders.

Options

29. Two main options are considered below:-

- a) what would happen if the Directives were not implemented into UK law - a "do nothing" option (see below), and
- b) full implementation of the Directives through regulation of the UK rail industry (see paragraph 34 below). This option is further broken down into the main alternative implementation options.

30. Other options such as voluntary measures would not have sufficient legal force to be thought to meet the UK's obligations to implement the Directive requirements.

31. Whatever option was followed, it seems likely that increased economic development, trade and globalisation will place ever greater demands on all transport modes. Various factors should help improve the relative attractiveness of rail. For instance, in both the UK and across Europe, highway demand management and local congestion charging seems likely to become more prevalent. Similarly, demand for airport and airspace capacity is increasing, and in some cases, reaching capacity limits. Rail should be well placed to benefit from these developments. Within the UK, investments in new rolling stock and route upgrades are delivering capacity improvements. In addition, proposed changes to the structure of the UK rail industry - as set

out in the White Paper "The Future of Rail"⁸ - are expected to improve efficiency, integration, co-operation and co-ordination across the rail industry.

Option 1: Do nothing

32. The implications of doing nothing are unattractive, for instance:-

- a) Member States are obliged to implement Directives in full under the Treaty establishing the European Community. If necessary, the European Commission can force Member States to comply (through infraction proceedings and, ultimately, extremely costly fines),
- b) costs to UK industry (ultimately passed on to consumers) might be unnecessarily high due to limited supply. For instance, foreign (or even British) firms might be unwilling to compete for UK-only contracts that were not relevant to the much wider, European, market (where they might realise economies of scale and/or better defray research and development costs); if the UK did not involve itself fully in the TSI drafting process it would risk the adoption of inappropriate and, potentially, costly standards,
- c) in the absence of Regulations implementing the Directives, the UK's existing standards, checking and authorisation regime would have to continue. Compared to the emerging interoperability model, this existing regime is considered to be unnecessarily complex, opaque and fragmented, and,
- d) UK firms wanting to enter the wider European market would have to meet the requirements of interoperability in any case.

33. Therefore, doing nothing was not a realistic option and is not addressed further.

Option 2: Full implementation of the Directives

34. Full implementation of the Directives in the UK is likely to affect the entire heavy rail industry and its suppliers. The precise impact will depend on various factors such as:

- a) the relative efficiency and transparency of the processes and procedures put in place to support interoperability,
- b) the outcome of the on-going TSI drafting process (see paragraphs 13 to 15 above) and,
- c) the amount and rate of improvements made to the rail system (as the requirements of interoperability - and any associated costs/benefits - will only be invoked when assets are renewed, upgraded, or newly constructed).

⁸ July 2004 ISBN 0-10-162332-1

35. If full implementation leads to increased harmonisation, a wider product market, improved efficiency and cost reductions, this should be to the benefit of customers and the railway supply industry (paragraphs 50 and 65 below deal with potential benefits and costs respectively). In addition, any modal shift could lead to environmental and safety benefits (see paragraphs 61 to 64).

36. The Department for Transport considered three main alternative implementation options:-

a) The first option was to implement the Conventional Directive, unamended - more or less as proposed during formal public consultation in early 2004 (see paragraph 10 above). This would deliver a separate set of Regulations covering just the Conventional Directive and applying only to that part of the UK's heavy rail network considered to be part of the Conventional Trans European Network - TEN. This would, in turn, mean that the UK's heavy rail network would be subject to *three* separate sets of Regulations dealing with checking, approvals and standards:

- earlier Regulations implementing the High-Speed Interoperability Directive (in its original form – i.e. prior to amendment to bring it into line with the Conventional Directive) and covering high speed trains and lines;
- new Regulations which would implement the Conventional Interoperability Directive (again, in its original form) and would cover conventional trains and about 40% of the conventional infrastructure. These would be similar, but not identical, to the High-Speed Regulations (only in their amended forms are the Directives considered close enough to combine into one set of Regulations), and;
- existing Regulations⁹ applying to the 60% or so of conventional infrastructure not covered by the interoperability regime. Checking and approvals arrangements under this regime are fundamentally different to the European model mandated by the interoperability Directives,

b) The second option was to repeal the existing High-Speed Regulations, and provide a single set of Interoperability Regulations for both high speed and conventional rail. These Regulations would reflect the various changes introduced by the Amendment Directive, but would only cover those parts of the mainline rail network immediately required by the Interoperability Directives. A system of Safety Verification (required as part of a duty holder's Safety Management System) would sit alongside, to be 'peeled back', as and when relevant TSIs are published and the scope of interoperability is extended.

c) The third option was to repeal the existing High-Speed Regulations, and instead of a set of Conventional Regulations provide for both with a single set of Interoperability Regulations covering not just the High-Speed and

⁹ the Railways and Other Transport Systems (Approval of Works, Plant & Equipment) Regulations 1994 - commonly known as "ROTS"

Conventional TEN lines, as required by the Directives, but the domestic network as well - i.e. the entire UK mainline railway. Those Regulations would also reflect the various changes introduced by the Amendment Directive. Under this option, the Safety Verification process within the duty holder's Safety Management System would not apply as widely, as authorisation under the Interoperability Regulations would be required in more areas. This approach would be in tune with many of the responses to consultation, in particular those that called for just one regime to apply to the entire mainline railway.

37. On balance, the Department concluded that the second implementation option should be followed.

38. The first implementation option was dropped in view of industry responses to the public consultation in early 2004 which clearly pointed towards the need for a simplified and transparent regime and not three separate arrangements and, any time savings would have been at the expense of a more coherent end product. In addition, the approach would not have implemented the amendment Directive, meaning significant further changes to the process (through further legislation) would have been needed within a few years.

39. The third option was attractive, in particular, because it would have meant a single process for the entire mainline railway from the start, thus increasing simplicity and avoiding further changes in future. However, it was rejected for a number of reasons. As the Directives only envisage that non-TENs lines are brought into the Interoperability regime on adoption of relevant TSIs for those areas, this approach would, technically speaking, have been a form of 'gold plating' in that it would have meant extension of the regime beyond that immediately required.

40. More significantly, because there is still no clear consensus within the rail industry about the costs of the interoperability process compared to alternative processes, the case for extending the regime ahead of the obligation to do so, was not considered to justify the possible benefits. This conclusion was supported by the following factors:

- a) where industry stakeholders have considered the interoperability process to raise costs, they have highlighted the absence of TSIs as a significant contributory factor in this,
- b) concern about the costs of the process was highest among infrastructure managers (see paragraph 73) - the bodies most likely to be directly affected by the decision to extend the regime to non-TEN lines from the start,
- c) it is precisely because the benefits to be derived from interoperability on non-TEN lines were considered to be lower, that these lines were not included as a priority within the Directives' scope,

d) the progressive extension envisaged by the Directives provides more time for the new processes to settle and become streamlined - thus hopefully increasing efficiency - before they are rolled out more widely.

41. The second option shares many of the benefits of the third option:

- a) providing an opportunity for significant simplification of the provisions concerning interoperability by adopting a single set of Interoperability Regulations, and
- b) delivering more straight forward, transparent and consistent Regulations and associated processes.

42. The main differences with the third option is that the *requirement* to adopt the process is more limited - it is restricted to that which is immediately required by the Directives. The main downside of this is that some further amendments to the Regulations will be necessary as and when relevant TSIs are published. However, option two had the following additional benefits:

- a) the industry would not be compelled to adopt the interoperability process in advance of the Directive requirements,
- b) the risk of the process imposing unnecessary or excessive cost on the industry would therefore be reduced, especially during the initial transitional phase and where interoperability benefits are thought to be less clear,
- c) this option would not prevent the voluntary adoption of Interoperability verification processes, the appointment of NoBos or compliance with TSIs in such areas, if the industry believed there was advantage to be gained from doing so,
- d) this option would not reduce application of the new authorisation process to rolling stock, whose stakeholders are more convinced of its benefits.

43. On balance it was considered that the case for extending the regime prematurely did not outweigh the risks associated with doing so, and that the added flexibility provided by option two justified its adoption.

Risk assessment

44. The Department has been unable to precisely quantify the risks associated with implementation of the Regulations, but responses from the consultations indicate that most respondents were broadly satisfied with the assessment made by the Department of the key risks likely to be associated with implementation of the Directives. These have, nonetheless, been updated in the light of the recent consultation responses.

45. Examples of key risks considered to be likely to be associated with full implementation of the Directives are set out in Table 4 below.

Table 4. Full implementation of the Directives, risk management table

Risk / consequence	Likelihood	Mitigation
<i>Risks relating to the new process</i>		
(a) The checking and authorisation processes arising from implementation of the Directive could prove excessively costly or excessively burdensome to sections of the rail industry.	Medium, but diminishing	<p>Experience with high-speed interoperability exposed a number of procedural inefficiencies which have been specifically addressed in the new Regulations and Guidance.</p> <p>The Department is continuing to work with stakeholders in developing its processes, with a view to keeping red tape to a minimum.</p> <p>As familiarity with the new regime increases, it can be expected that the processes will become more efficient.</p>
(b) The transition from the current situation to the new regime may introduce cost, complexity or delay.	Medium, but diminishing	A number of transitional provisions have been included in the new Regulations in order to ease the transfer from the old regime. The Department has also produced Guidance to assist the industry during this time.
(c) Contracting Entities and other stakeholders might have a poor understanding of their responsibilities under the new regime, and may be slow to adjust to the new regime.	Low	<p>The Department has actively consulted stakeholders over several years and sought to increase awareness of the forthcoming changes.</p> <p>Industry already has experience of high-speed interoperability and most of the industry has been expecting the extension to other parts of the network for several years.</p> <p>The Department has produced extensive Guidance to assist the industry in its understanding of the new requirements.</p>
(d) The interface between interoperability and safety	Medium, but	The Regulations and the Guidance have been designed to make the scope of

Risk / consequence	Likelihood	Mitigation
verification legislation may not be clear.	diminishing	interoperability as clear as possible. The Guidance sets out the scope and boundaries in detail, backing this up with practical examples. This Guidance will also be updated with more examples in the light of experience.
<i>TSI related risks</i>		
(e) By requiring compliance with pan-European technical standards (the TSIs) interoperability might stifle innovation.	Low	The TSIs are predominantly concerned with interfaces and standardisation of components. They include plenty of leeway to accommodate innovation.
(f) The TSIs might not properly address UK needs or might contain faults. If this were to occur, compliance with the TSIs might result in costs in excess of benefits or raise unexpected safety concerns.	Medium, but diminishing	The conventional TSIs are still being drafted and it will be a number of years before a full suite is finalised. Industry representatives, co-ordinated by the RSSB, are working hard to ensure that UK circumstances are accommodated, obtaining "specific cases" in the TSIs as necessary, but this cannot be fully guaranteed. As a fallback, the Directive provides for derogation from compliance with the TSIs in certain cases. The TSIs can also be subject to review in the light of experience (as is currently the case with the high-speed TSIs).
(g) Excessive use of "special cases" in the TSIs could minimise the potential benefits of interoperability by perpetuating or prolonging differences between Member States' networks, etc.	Medium	Special cases should only be sought where necessary. Also, this should have a more limited effect in the UK, where many of the benefits come from the supply market and relate to the process, rather than from cross-border traffic.
(h) Excessive use of derogations or non-application of TSIs could also minimise the potential benefits.	Low	Such mechanisms are only likely to be used where compliance would cause other problems or costs. Where there are benefits, there would be no incentive not to comply.
(i) The derogation process is, in itself, potentially time consuming, costly and not without the risk of failure.	Medium	The Department has provided Guidance in order to make the process transparent. This will be monitored with a view to making improvements if necessary. Efforts to ensure that TSIs reflect UK circumstances, see (f), should help to minimise the need to seek derogations

Risk / consequence	Likelihood	Mitigation
		in any case.
<p>(j) In the absence of TSIs, or where they are silent, it might not be clear which notified national technical rules (or parts thereof) should be used.</p> <p>Similarly, those UK technical rules might not be a 'good fit' with the processes associated with interoperability.</p>	Medium, but diminishing	<p>The RSSB, working with Government and industry partners, has been reviewing the UK's list of notified national technical rules with a view to ensuring that:</p> <ul style="list-style-type: none"> ▪ the list includes only those rules, or parts thereof, necessary to cover the absence of TSIs or open issues in published TSIs ▪ it is clear which notified national technical rules, or parts thereof, cover which interoperability requirements, and, ▪ the rules or parts thereof notified describe only technical requirements and not processes, etc <p>In addition, this topic is addressed in the Guidance supporting the new Regulations.</p>
<i>International related risks</i>		
<p>(k) A critical mass of interoperability across the EC might not be achieved, or might take an excessively long time to achieve.</p>	Low	<p>It may take time for the benefits of cross-border traffic to arise, but many of the potential benefits to the UK relate to the supply of components/subsystems and the new process itself. These benefits are less reliant on a critical mass of interoperability.</p>
<p>(l) UK firms could suffer from (or even be forced out of business by) increased competition.</p>	Medium	<p>Conversely, a European single internal market in the rail sector should provide a much wider market for the goods and services provided by UK industry. As UK firms have, arguably, longer experience of a liberalised market than many competitors, this could represent a net benefit.</p>
<p>(m) Inconsistent implementation of the Directives across Europe could give foreign competitors an unfair advantage, or perpetuate barriers to trade, perhaps to the detriment of UK businesses.</p>	Low	<p>The European Commission uses infraction proceedings against Member States to ensure correct implementation of the Directives. In addition, a regulatory committee of Member States' representatives which oversees interoperability ("the Article 21 Committee") helps to ensure consistency.</p>

Risk / consequence	Likelihood	Mitigation
(n) There might be delays, or other difficulties, obtaining authorisation to place subsystems into service in other Member states.	Medium	<p>The Commission and the Article 21 committee should address such issues if they arise. The UK will work with other Member states to ensure that, to the extent that subsystems are TSI compliant, the requisite authorisation to place into service is valid across the EC. In effect, UK authorisations will be in two parts:-</p> <ul style="list-style-type: none"> ▪ where a subsystem complies with a published TSI, the authorisation should be valid across the EC, ▪ where a subsystem complies instead with a national technical rule (e.g. because of open issues in a TSI or, perhaps, a derogation), the authorisation would be relevant to the UK only <p>Over time, the number of TSIs will increase, and the number of notified national technical rules should diminish.</p>
<i>Other risks</i>		
(o) If standardisation were to lead to some consolidation of the supply market, it might become more difficult to obtain bespoke components for legacy systems.	Low	Over time, the need for such components should also diminish, as legacy systems are replaced and if there is a demand for such components, the market would be expected to provide for them.
(p) If a large number of the risks outlined above were borne out, the combined effect could be significant.	Low	The Department has been working closely with other government departments and industry stakeholders for several years, to mitigate these risks, and ensure the most effective implementation of the Regulations.

Costs and Benefits

Sectors and groups affected

46. The Regulations have the potential to affect the entire heavy rail industry¹⁰ in the UK - both passenger and freight - although the impact will be different in different markets.

¹⁰ As already noted, London Underground, light and heritage railways do not fall within the scope of the Directives.

47. For most of the UK's heavy rail network, the largest firm in the industry, Network Rail, has a monopoly in the supply, maintenance and renewal (largely through contractors) of the rail infrastructure services affected by the interoperability Directives. Twenty-seven train operating companies (TOCs) provide passenger services, mostly through franchises granted by the government. Many of the TOCs are subsidiaries of large groups such as National Express which currently owns seven TOCs. The government provides significant subsidies that cover TOCs operating expenses, including the track access charges paid to Network Rail. In the 2003-04 the TOCs received about £3.8 billion in subsidy. Freight services are provided by up to 6 companies. UK industry provides a wide range of goods and services to railways in the UK and across the EC. Sectors include the design, manufacture, supply/installation and maintenance of rolling stock and infrastructure.

48. There is considerable variation in the size of firms in the rail industry. Network Rail employs over 25,000 employees, and many of the TOCs employ more than 500 staff. In the rail sector, "small firms" (i.e. those with less than 50 employees or an annual turnover of less than £4.44 million - see Tables A2 and A3), tend to be concentrated in the railway supply industry.

49. Annex A provides details on the number and size of firms in the UK's rail industry.

Benefits

Economic

50. It is difficult to quantify with any accuracy the potential economic benefits of interoperability at this stage. In particular, the impact of interoperability is difficult to quantify in isolation from other measures being brought forward to revitalise rail services (e.g. other EU rail liberalisation legislation). However, the theoretical benefits (which were endorsed in broad terms in the feedback to our earlier round of consultation - see paragraph 10 above), include:

- a) in the longer term, there are considerable potential benefits to manufacturers and operators (for example, in reducing the need for bespoke solutions) if a significant level of interoperability is realised,
- b) in the medium term, we would expect that standardisation of rail products will lead to larger supply markets, and ultimately, lower prices,
- c) in the shorter term, simplification and rationalisation of the checking and approvals process should help to reduce manufacturers' and operators' costs in comparison with those of the previous regime, and,
- d) the Regulations will also provide significant business opportunities, both in the UK and abroad for Notified Bodies; the UK has more Notified Bodies than other countries, so may be in a good position to exploit these opportunities.

51. One of the policy goals of the Interoperability Directives is to help remove technical barriers to the through running of trains across international borders. As cross-border rail travel is limited in the UK to the Channel Tunnel and links with the Republic of Ireland, the benefits of this may be limited. Nonetheless, technical barriers are not restricted to differences between countries, as different lines in different parts of the UK have, over time, been built to very different standards. Increased harmonisation over time may help to reduce barriers within countries, as well as between them. One of the benefits in the long term might be to reduce the need to check each new train against each piece of infrastructure that it is to run on (route acceptance).

52. Along with other liberalisation measures, increased technical harmonisation will contribute to the development of a single internal market in rail equipment and services. This should help to challenge inefficiency, stimulate innovation and ultimately, help to improve the competitiveness of rail transport.

53. This is because the common technical requirements specified by the TSIs will enable European railways to purchase technical goods from suppliers across Europe. We would expect that an increase in the size of the geographic market would increase the number of firms competing for work, which might, in turn drive down prices. In addition, we might expect that increased production runs for individual firms could allow economies of scale in production and reduced acquisition costs.

54. The Association of Train Operating Companies (ATOC) have suggested that standardisations like this have been seen to yield cost reductions of up to 20-30% - something which is supported by the fact that standard US Rolling Stock tends to be 20-30% cheaper than bespoke European products. However, they estimated the contribution of interoperability to this figure as more in the order of 5-10%.

55. Common technical standards across Europe should also help to reduce the cost to existing rail service providers of passing from one rail system to another. This should lead to simplified access to European markets for open access operators who wish to provide new services which cross previous system boundaries.

56. Common standards should also help to create wider opportunities. It may be easier for different companies to jointly order and purchase equipment. If costs were spread over a larger production range, leasing experts and new financing partnerships may be attracted into the market by lower initial costs and improved residual values. A higher residual value of rolling stock in particular might support new financing mechanisms, thereby encouraging investment. It could also lead to a more competitive rolling stock leasing market which might promote lower leasing costs.

57. Some sections of the industry consider that the Notified Body process provides greater certainty and objectivity, with the result that the checking and approval processes associated with interoperability can be cheaper than

those under the previous regime. This seems to be particularly the case for rolling stock, where some have suggested that the interoperability process could be significantly cheaper. However, responses on this matter have yielded very mixed results and feedback from infrastructure managers has been noticeably less positive (see paragraph 73).

58. There may also be some specific cost savings associated with complying with the TSIs themselves. The European Commission engaged consultants ECORYS to calculate the wider social benefits of the implementation of the first five conventional TSIs. Their interim report of September 2003 showed an overall benefit. Although the results may be changed according to new information, ECORYS are of the view that the direction of the results is correct.

59. In the long term the benefits of all the researched TSIs seems to be positive. However, due to a transition period and a slow implementation process, it might take many years before society as a whole takes advantage of the implementation of the TSIs. Similar research undertaken by the Commission in 2001 estimated the wider social benefits of the high speed TSIs across the European Union to be significantly in excess of the costs of those TSIs.

60. Any reductions in cost, of the types described above, could in turn, be expected to reduce the burden on taxpayers, and reduce costs to passengers and freight users, in turn leading to increased demand. Any modal shift towards rail has the potential to lead to other benefits, as outlined below.

Environmental

61. Where interoperability delivers modal shift to rail (e.g. from road and air) this has the potential to lead to environmental benefits and, for instance, have a beneficial impact on road and airport congestion. Of course, the extent of those benefits will depend on the extent of cost savings.

62. The technical requirements of the TSIs themselves also carry the potential for environmental benefits. For example, in certain circumstances, the high-speed "Energy" TSI mandates "regenerative braking" whereby energy consumption may be reduced (in some instances, electricity generated in this way might even be returned to the national grid). Similarly, the forthcoming "Noise" TSI will set challenging targets for the reduction of rail related noise

Social

63. There may be some wider social benefits associated with interoperability, although again, they are very difficult to quantify. For instance, improved cross-border transport will provide more options for UK consumers, regardless of whether the borders are actually with the UK.

64. In addition, as rail transport is considerably safer than, for instance, road travel, any modal shift to rail, could ultimately lead to fewer road casualties/fatalities.

Costs

Economic

65. At this stage, it is not possible to estimate the likely costs associated with the Regulations with any accuracy. However, this section considers the *potential* for costs and breaks this down into policy costs (paragraph 66 to 68) and implementation costs (paragraphs 70 to 77).

66. For the *policy cost*¹¹, much will depend on the following key factors:

- a) the number of major projects undertaken and their precise specifications (the Directives do not *require* work to be undertaken, but if subsystems are built, renewed or upgraded as part of a major project, they must comply);
- b) the costs associated with employing the “Notified Bodies” – NoBos - which check conformity with the TSIs (or with Notified National Technical Rules in the absence of TSI provisions). Responses to the two public consultations (based largely on experience with High-Speed Interoperability) have provided very mixed results, with some organisations suggesting that these costs can be excessive. However, this view is disputed by other parts of the industry, and we have been working with stakeholders with a view to providing guidance on this and removing any potential for excessive costs;
- c) How efficiently the transition to a full suite of TSIs is managed is largely outside the control of the UK, as TSIs for interoperability drafting is driven by the European Rail Agency;
- d) the eventual content of the TSIs which underpin the Directives. For High-Speed Interoperability, the TSIs are in place and already apply in the UK. So, for high-speed rolling stock and infrastructure, there should be few additional costs arising from the high-speed TSIs compared to now (subject to a review of the TSIs which is currently taking place). However, for conventional rolling stock and infrastructure (the majority of rolling stock and infrastructure in the UK), the position is far less clear. As noted in paragraphs 13 to 15 above, the conventional TSIs are still being drafted by industry and a full suite of TSIs is not expected before 2009. Although there is little cost benefit analysis available, paragraphs 67 to 70 below consider the potential impacts of conventional TSIs;
- e) how many, if any, derogations from the, otherwise mandatory, TSIs are requested and obtained.

¹¹ i.e. the costs directly attributable to achieving the policy goals

67. As suggested above, a key factor in determining any additional costs arising from the Regulations will be the eventual content of the TSIs. These are drafted by industry and are therefore driven by commercial considerations, which should help to ensure that technical solutions are viable (the British railway industry has been and continues to be actively engaged in this). The Directive also promotes the prioritisation of TSIs which are likely to have a high benefit-cost ratio. However, as a fall back, the Directives also provide a number of checks and balances, addressing specific national concerns regarding the TSIs:

- a) through provision for the TSIs to include "specific cases" reflecting the individual circumstances of Member States,
- b) through cost benefit analysis of proposed technical solutions prior to their adoption. At the regulatory committee which adopts the TSIs, the UK has been pushing hard for such analysis (which, for initial TSI proposals, has been limited),
- c) as a fall back, there is some scope not to apply TSIs, or to derogate from them, on a case-by-case basis (perhaps most importantly where the economic viability of a project would otherwise be compromised), and,
- d) on top of this, prior to the publication of the TSIs, where "open points" are identified in the published TSIs, or where derogations are given, existing national technical rules will continue to apply.

68. As noted above, the TSIs have yet to be agreed and resulting costs are difficult to assess. Initial cost-benefit data for the first five priority conventional TSIs (undertaken by ECORYS on behalf of the European Commission) showed that three of them - telematic applications for freight services, command control and signalling and traffic operation and management - had a positive benefit. However, noise and freight wagons had initial negative values of €3.3bn and €676m respectively across the EU as a whole.

69. In addition, the former Strategic Rail Authority (SRA) had undertaken technical studies to assist UK industry in contributing to the AEIF's TSI drafting process, with the intention of minimising or eliminating provisions which would impose undue costs on the UK rail industry without any direct benefit. The following examples are drawn from these technical studies and allow conclusions to be drawn as to the potential for costs arising from conventional interoperability.

Example 1

<i>A TSI which is beneficial to the United Kingdom</i>
Poor track quality tends to increase rolling stock maintenance costs. The analysis carried out for the SRA suggests that adoption of European track maintenance standards would impose a high additional cost on Network Rail. However, these standards would result in savings for train operators. For

example, the adoption of the expected track standard is estimated to increase the track renewal costs by 10% or £50,000 per track mile¹². But to counter this a rolling stock maintenance cost saving of £118,000 per track mile is expected. Thus the net impact is beneficial and the SRA have supported the adoption of this standard in the TSI. This would therefore be a beneficial impact of the Directive, assuming that poor track quality continued in the absence of the Directive.

Example 2

A TSI with mixed impacts

Regenerative braking converts kinetic energy of the train into electrical energy as the train is slowed down. This electrical energy is fed from the traction unit through the current collector back into the power supply system. It is envisaged that the TSIs will mandate regenerative braking as a feature of the AC trans-European network, and assert that its use should be promoted. Implementing regenerative braking on the AC network would involve changes to the electrification system:

- a) much of the regenerated current would be used by trains in the locality;
- b) regenerated power, over and above the instantaneous requirements of the section, would be exported back into the regional network or national grid;
- c) regenerated current needs to conform to the standards for power supply imposed by providers (for example, in terms of phase and harmonics);
- d) in order to make the network capable of accepting regenerated current, the interface with the regional electricity companies may require upgrading;
- e) no changes are necessary to rolling stock as the new designs all have regenerative braking capability and the retrofitting of older stock is neither required nor economic.

Analysis undertaken by consultants LEK on behalf of the SRA found that the incremental cost of an upgrade, on renewal, of the Greater Anglia¹³ network was estimated to be negligible, at about £15,000, while the energy savings from regenerative braking would be significant, over £1m per year. Moreover, these savings also imply large environmental benefits.

The position for regenerative braking on the DC network is currently unclear. It is likely that the decision to permit regenerative braking on a DC route is left to the Infrastructure Manager. Hence, it appears unlikely that the UK would be forced to adopt regenerative braking on the DC network. Since the third rail DC network is specific to the south-east of England and Merseyside, the UK has the possibility to set the standards, ideally as an option within the TSI or else as a specific case

¹² Figures in Example 1 quoted in present value terms, discounted at 3.5% over 25 years.

¹³ The Greater Anglia Network represents a significant proportion of the Conventional Rail Network (i.e. that is not covered by the High-Speed Directive). Greater Anglia is also reasonably representative of different types of traffic, including long distance operators, intensive commuter and freight operators, and also lightly used route sections.

Although the inclusion of a clause requiring that networks accept regenerative braking is an over-specification of the TSIs (since this condition is not necessary for interoperability), the British AC network is moving towards regenerative braking, independently of the TSI drafting process. Thus, the incremental costs incurred by implementing regenerative braking on renewal are believed to be negligible. Furthermore, all new rolling stock has the capability of regenerating power on braking. Cost savings, both financial and in terms of reduced environmental externalities, are estimated to be significant. Therefore, UK could choose to accept the clause in the TSI without any significant additional cost. The DC network should be left as a specific case at the Infrastructure Manager's discretion.

Example 3

A TSI which is not beneficial to the United Kingdom

On the other hand, compliance with the likely EC standard for overhead line geometry would be likely to produce no direct benefits but incur large costs. This is an example where the United Kingdom would seek a specific case in the TSI or where the infrastructure manager is likely to seek a derogation from the TSI.

In the UK, the standard height of the overhead line is 4.7m above rail level, which falls below the minimum limit of 4.95m defined in the proposed TSI for conventional rail. Compliance with the TSI for overhead line height is a step towards continental-gauge rolling stock being able to operate in the UK. This would help promote a common supply base of rolling stock across Europe (and potential vehicle purchase savings), the use of larger (double deck) passenger trains (allowing increasing capacity) and the use of larger freight wagons, all of which would improve the railways' competitive position. However, realisation of these benefits is constrained by the need for major modification to other parts of the infrastructure (specifically tunnels bridges and possibly track spacing). Analysis undertaken by consultants LEK on behalf of the SRA found that, for the entire Greater Anglia network, the estimated incremental costs of increasing the overhead line height, at renewal, to 4.95 metres would be only £4 million. However, this only covers the additional overheadline equipment. It excludes any consequential work to structures that might be involved, for example, to re-siting foundations, raising bridges, digging out tunnels. These are likely to be very significant and a severe underestimation of costs is therefore possible.

This analysis suggests there would be no economic justification for the UK adapting its current infrastructure to meet the European standards for overhead line height, since the policy costs are very likely to exceed the possible benefit resulting from harmonisation and revitalisation

Example 4

Policy costs of high speed interoperability

In 2001 the European Commission estimated the additional policy costs of the high speed TSIs to the United Kingdom to be of the order £80m over 20 years¹⁴. The High-Speed Interoperability Regulations 2002 applied to about 3,000 miles of track while the conventional TEN network in the UK includes an additional 8,000 miles of track. This might suggest that, if the additional TSI costs of extending interoperability are similar to the estimated TSI costs of high speed interoperability then the overall cost to the United Kingdom might be of the order of £200 million over a 20 year period. However, the scope of the TSIs in the Conventional Directive, in terms of rolling stock, is wider still and, unlike the original high-speed requirements, the new Regulations cover renewals as well. Conversely, however, these figures take no account of any off-setting benefits. Similarly, these figures take no account of any specific cases to reflect UK needs that might be incorporated into the TSIs as they are prepared, and derogations that might be secured. In addition, this estimate is subject to a wide range of uncertainty, measured in the tens of millions of pounds

70. The costs and benefits of compliance with the TSIs will occur gradually over time, rather than all at once. Compliance is only required when qualifying works are done to the railway (renewals, upgrades or new construction). Thus the costs and benefits directly attributable to the adoption of any TSI are only those which are incremental to any that would have arisen through compliance with existing national technical rules.

71. Once work has been subjected to interoperability requirements, there will also be some ongoing costs associated with the Regulations (register requirements, for example). It is still unclear as to what the precise level of these costs will be, although we would not expect them to be significant in relation to the general costs of the new regime.

72. The dynamics of interoperability mean that some costs are likely to be borne before all the benefits can be realised. In addition, the analysis has demonstrated that, to an extent, costs and balancing benefits might impact on different sections of the industry.

73. As mentioned in the previous section (see paragraph 57), whilst some consultees reported that the process (under the High-Speed Regulations 2002) had proved cheaper than the previous regime, others believed the precise opposite. According to Network Rail, parts of the West Coast Mainline upgrade cost £25,000 per mile to bring into service - significantly more than would have been the case under the Railways and Other Transport Systems Regulations 1994 (known as "ROTS") approval regime. However, there is also

¹⁴ The Department's High Speed Regulatory Impact Assessment, published 15th May 2002, quoted a central estimate of policy costs of £76 million present value over a 20 year period. This figure was calculated using an 8% discount rate and a conversion rate of £1 = €1.60. This calculation has been updated to take account of latest HM Treasury appraisal guidance which requires use of a 3.5% discount rate, a optimism bias adjustment, +66% in this case, and a conversion rate of £1 = €1.38.

evidence to suggest that where costs were more expensive, some of the expense may have gone on work which was not strictly required by the High-Speed Regulations.

74. A number of additional reasons why costs might be higher under interoperability have also been identified, and the new Regulations, and associated Guidance, have been amended where possible in order to address these and make the process more efficient. We would therefore expect that the cost associated with the new processes will fall, and that they will continue to do so as the industry becomes familiar with the requirements. In time, it is thought that the simplified process could lead to significant savings compared to the previous checking and approval regime, though there is cause for caution in the short term.

75. There will also be some additional short term *implementation* costs¹⁵ as industry moves over to the new regime (again experience with high-speed interoperability should help to minimise this impact).

76. Some rail industry stakeholders have already devoted considerable time and resource to the TSI drafting process. Many of the larger industry organisations have allocated staff on a full time basis to this work, while others have provided ad hoc support. These costs will continue to be incurred at least until the TSIs are agreed.

77. Enforcement of the Regulations is not expected to incur significant additional costs compared to those associated with the existing checking and approvals regime. It is anticipated that existing staff will be redeployed and familiarisation costs will be minor and in any case not passed on to industry.

Environmental

78. There are no obvious environmental costs associated with these Regulations.

Social

79. There may be some risk that any increased foreign competition in the various markets affected could adversely affect UK firms, with potential ramifications for employees of those firms.

Costs (and benefits) for a “typical” business

¹⁵ Implementation costs represent all the costs associated with the introduction and functioning of the Regulations that cannot be directly attributed to the policy goal (see footnote on policy costs). In this case, they can be identified with the costs of switching to compliance with the TSIs. They include any costs associated with understanding the requirements of the Regulations, and with changing internal company procedures. In addition, it includes the costs of changing safety cases and Railway Group Standards, assessing and appointing Notified Bodies, producing and promulgating Regulations and guidance, etc.

80. For the various reasons outlined above, these cannot be accurately assessed at this stage. However, relevant factors will include the extent to which a particular business intends to procure, renew or upgrade rolling stock or infrastructure; the extent to which derogations can be secured; whether or not a manufacturer produces interoperability constituents that are mandated by the TSIs; the impact of foreign competition, etc.

81. The following examples are intended to further illustrate the potential costs and benefits arising from the Regulations.

Example 5

A firm supplying component parts.

If a firm in the railway supply industry produces an "interoperability constituent," for example, a wheel, then that firm will have to:

procure third-party conformity assessment of that interoperability constituent (by a Notified Body) before it can be placed on the market; and,

comply with the requirements of the relevant TSI (for example, comply with a "EuroNorm" mandated by the TSI) rather than with, say, the relevant Railway Group Standard (RGS). Thus one standard is, effectively, being replaced with another.

Although the cost impact to the firm is unclear, it must be borne in mind that once certified by a NoBo as interoperable an interoperability constituent can be placed on the market for use across the whole European Community. This is expected to reduce the barriers to, and cost of, entry into the European Single Market. On the other hand continental firms will also have to opportunity to enter the UK market on the same basis.

If a firm in the railway supply industry produces a product that is not defined as an interoperability constituent, then the relevant Railway Group Standard may well still apply (at least until the scope of any relevant TSI covers or impacts upon that product).

Example 6

A firm using components some or all of which are supplied by others.

A firm that draws on components from a number of different suppliers, for example, a rolling stock manufacturer or an infrastructure maintenance contractor, will have to ensure that such components enable it to deliver "subsystems" that are compliant with the requirements of the new Regulations. For instance, in order to comply with the "essential requirements", such subsystems will have to comply with TSIs or, in the absence of TSIs, with existing "notified national technical rules," for example, the Railway Group Standards.

Example 7

A firm that is a "contracting entity"

A contracting entity might be a train operating company, a freight operating company, a rolling stock leasing company or an infrastructure manager. When required by the Regulations, such firms will have to appoint NoBos to assess whether or not subsystems comply with the requirements under the Regulations of the relevant TSIs and notified national technical rules and to produce the necessary documentation (certificates of conformity, technical files) to support subsequent requests by the contracting entity to the Safety Authority for authorisation to place the subsystems into service. Evidence from the implementation of high-speed interoperability suggests that interoperability procedures can result in time and cost savings compared to the existing regime, although the overall story is mixed. Paragraphs 47 to 49 discuss this further.

Equity and Fairness

82. The structure and ownership of the rail industry means that the cost and benefits of the Directives may be borne disproportionately by different companies or groups of companies. The Department has not been able to assess distributional impacts in a comprehensive manner. However, Example 1 above shows how train operating companies might benefit from improved track quality where the cost is born by the infrastructure manager. In this case the Regulator would be able to adjust access charges at the next track access charge review to reflect a sustained increase in the cost base.

83. The proposals do not discriminate by type of customer or size of business. However, as noted in paragraph 89 below, it is more difficult for small businesses to engage in pan-European technical discussions. Potentially, this could lead to sub-optimal outcomes for such businesses.

84. With regard to passengers, a TSI setting out technical requirements accommodating the needs of "Persons with Reduced Mobility" is planned, although it will not come into force before 2007.

Assessment of balance of costs and benefits

85. For the reasons set out in some detail above, it has not been possible to accurately quantify the costs and benefits of the Regulations, and it is therefore not possible to accurately assess their net cost or benefit. However, the following points about the likely overall impact can be made:

- The costs of verification and authorisation are expected to remain a small proportion of overall project costs (typically less than 1% under ROTS);
- Any assessment of the net cost/benefit of the process established by the Regulations has to include a comparison with the costs of the previous

approvals process (contained in ROTS). The *difference* between the cost of the previous process and the cost of the new process is likely to be a small proportion of the total cost of either process.

86. These points combined mean that the net effect of the Regulations is not likely to be hugely significant when seen against the expenditure of the industry as a whole. If, in a typical example, the approval costs of a project amounted to 0.7% of the total project cost, it would follow that the net impact of the Regulations on the project as a whole would probably be less than (+ or -) 0.1%.

87. Keeping the above perspective in mind, it is considered likely that the initial transition to the new regime, as users familiarise themselves with the new processes, and those processes themselves are refined, could lead to a small increase in overall costs. It would then be expected, as more projects go through the new process, and as more TSIs are refined or published, that the benefits of the new system will become more apparent. It would follow that the costs associated with the new process would be expected to fall over time.

Small Firms' Impact Test

88. The new Regulations are likely to have some impact on small businesses¹⁶. With this in mind, the Department undertook a "Small Firms Impact Test". The test was intended to understand the impact of the Regulations on small business and to consider how any adverse or unintentional impacts on small firms might be reduced or avoided.

89. The most likely area where small firms will be affected is where they manufacture products which are regarded as "interoperability constituents". In such cases, they will have to procure third-party conformity assessment (by Notified Bodies) before they place such constituents on the market. Such checks will impose an implementation cost. However, this is intended to be offset by the advantages of having interoperability constituents pre-certified for sale and use in potentially wider markets than were previously available.

90. In addition to the public consultation on the draft conventional Interoperability Regulations in 2004, which specifically included many small firms the Department contacted 40 small businesses in the rail industry directly, as part of a "Small Firms Impact Test". The Department also contacted 10 small businesses by telephone, and made a presentation to the Railway Industry Association's Smaller Companies Interest Group.

¹⁶ The definition of a small firm is one with:

- fewer than 50 employees; and
- no more than 25% of the business owned by another enterprise (which is not a small business); and either
- less than £4.44 million annual turnover; or
- less than £3.18 million annual balance sheet total.

91. The overall response to this focused consultation was that most thought the overall impact would be minimal. The Railway Industry Association (RIA), which represents a number of small firms, also agreed with this conclusion. For small firms, the key advantage was seen to be the opening up of a wider market, although some expressed concerns that some other Member States might not open their markets as much as they should. In addition, some small firms expressed concern about their ability to participate in the pan-European TSI drafting process.

92. It was also recognised that the initial costs of the NoBo certification could disproportionately affect small firms, due to their tighter cash-flow margins. In an extreme situation, it was possible that some small firms could be forced out of business, as initial start up costs, of say, certifying a product, could be too much up-front for businesses with a small turnover. Conversely, it was also suggested that interoperability could be particularly helpful for smaller, more flexible firms which are able to respond quickly to an extended market.

93. The Department's conclusion is that, in most cases, the Regulations are likely to have a relatively insignificant or straightforward impact on small businesses. The Department reached this conclusion on the basis that the railway industry is already a highly regulated and standards driven sector. Small firms affected by the Regulations will typically be highly specialised and will be switching from one set of standards and one form of regulatory oversight to another. Indeed, some will already be familiar with the concept and practice of interoperability from the High-Speed Interoperability Regulations 2002. Thus our expectation is that the Regulations, and the pan-European standards that they will mandate, should be relatively straightforward to implement and should have a relatively insignificant impact on small firms.

Competition Assessment

94. This section considers the impact of interoperability for UK customers - that is the impact on price, choice, efficiency and innovation. It considers the impact of the Regulations on UK firms in the railway industry and on importers.

95. Firms in the railway industry as a whole range from train operators to specialised component manufacturers. Economic theory suggests that product markets dominated by a small number of firms with a large market share are likely to be less efficient and competitive than product markets where purchasers have a large number of suppliers to choose from. The railway industry consists of many different product markets: firms with large market shares dominate passenger and freight train operations and infrastructure provision either locally on individual routes or nationally. However train operations and track access are subject to public interest regulation. The structure of the rail supply industry, in terms of firms' market shares, in individual product markets is less clear to the Department. Table A3 shows that rolling stock manufacture is a relatively concentrated market:

data for other product markets are not as finely disaggregated in Table A3. Some product markets in the rail industry seem likely to be highly concentrated, others less so.

96. The Interoperability Directives are intended to contribute to extending the reach of the Single Market in the railway sector and the Department concludes that the proposed Regulations should not have a significant adverse impact on competition. In fact there is an expectation of improvement in competition in at least some product and service markets to the benefit of UK customers. We expect harmonisation of standards to make entry into the product markets for railway goods and services easier from both UK firms and, by increasing the geographic market, through imports. It is also possible that UK firms will be in a strong position to benefit from wider markets, having been exposed to more liberalised markets for longer than many European competitors.

97. An increase in the size of the European market would be expected to drive down costs through innovation and the realisation of economies of scale. The increase in efficiency would, on average, be expected to more than offset initial implementation costs. Inefficient incumbent firms that cannot match new competitors on price and quality risk losing market share. The competition benefits of the Regulations might not be evenly distributed: where the product markets remain dominated by specialised firms, implementation costs might be passed onto customers in higher prices.

98. To test the conclusion that the Regulations will not have significant adverse effect on competition, the Department, following the recent consultation, completed a competition filter test for the markets with the greatest risk of an impact by these proposals. The test involved answering a series of nine questions, requiring yes/no answers. If the number of yes answers is low then it is considered the proposal is likely to have little or no effect on competition.

99. The following were identified as markets potentially affected by the proposals: rail component supply, rail infrastructure maintenance, rolling stock manufacture/maintenance, rolling stock leasing, and freight/passenger train operators.

100. On applying the competition test to these markets, the Department found that the proposal would have little effect on competition. The first 3 questions relate to the structure of the industry. Many of the markets were characterised by relatively few large firms, although the component supply market, in particular, appeared less concentrated. There was no evidence that the Regulations would affect some firms substantially more than others in any one market (question 4), that the Regulations were likely to affect market structure (question 5) that new firms would be penalised compared to existing firms (questions 6 and 7) or that the sectors were characterised by rapid technological change (question 8). In relation to question 9 (restrictions on firms), although it was thought that the products sold by the rail supply markets (components and rolling stock manufacture) might be subject to

some restraints imposed by the standards required by the Directives (e.g. TSIs) this did not affect the test's overall conclusions. Virtually all respondents to the public consultations agreed with this assessment.

Enforcement, Sanctions and Monitoring

How will the proposal be enforced?

101. The Regulations will be enforced by the "Safety Authority" using powers taken from the Health and Safety at Work Act 1974

Who will enforce the legislation?

102. Three different Safety Authorities will enforce the Regulations in the UK:-

- a) for Great Britain, the Safety Authority will be the Office for Rail Regulation.
- b) for Northern Ireland, the Safety Authority will be the Department for Regional Development, Northern Ireland, and,
- c) for the Channel Tunnel concession, the Safety Authority will be the Inter-Governmental Commission.

Who will monitor compliance with the legislation?

103. The Department will also monitor compliance with the legislation, for instance, through the collation of infrastructure and rolling stock registers. The Department will continue to work with industry and the relevant Safety Authorities to facilitate feedback on the implementation of the Regulations and engage with the European Commission and other member states.

Implementation and delivery plan

104. Subject to Parliamentary scrutiny procedures, it is our intention that the Regulations will come into force in two stages, with some provisions coming into force shortly after the Regulations have been made (but at least 21 days later); and with the majority of the provisions having effect from 1st April 2006 in order to co-incide with the transfer of safety functions from the HSE to the ORR.

105. Directive 2001/16, as amended does not provide any transitional periods for implementation. In order to allow as much time as possible for the industry to adapt to the new requirements, the Regulations do not apply for some projects, provided they are placed into service before August 1st 2006. The Regulations also include some specific transitional measures to ease the transition for those projects which have started under the old regime and will be placed in service after that date.

106. We will inform all those stakeholders who responded to the consultation exercise when the Regulations have been laid, and from where they can obtain a copy of the Regulations. As set out in the section on

'Consultation' we have met with all of the key industry stakeholders to explain how the Regulations will affect them.

107. To provide industry with greater certainty over whether they are caught by the Regulations the Department has produced detailed Guidance on the Regulations, in consultation with key external stakeholders. This will be available on the Department's website at www.dft.gov.uk/railways/interoperability when the Regulations come into force.

108. As most of the requirements of the Regulations - and any associated costs/benefits - are only invoked when assets are renewed, upgraded, or newly constructed, delivery of interoperability will depend on the amount and rate of improvements made to the rail system. The amount of such work undertaken by key industry bodies such as the infrastructure managers and railway undertakings will therefore heavily influence how much impact the Regulations will have.

109. The railway industry, and the various Competent Authorities and Safety Authorities will play key roles in observing and reporting on the implementation of the Directives and the operation of the Regulations. In terms of ensuring successful delivery, the Regulations contain effective enforcement mechanisms to ensure compliance.

110. The Government bodies responsible have made preparations as part of their business planning to ensure they are resourced to perform functions given to them by these Regulations.

Post-implementation review

111. A planned review of the Regulations will take place within the three year time limit specified by Cabinet Office guidelines. However, a review of the Regulations may take place earlier if we receive substantiated evidence from industry stakeholders that the Regulations are not meeting their intended objectives or if they have created any unforeseen unintended consequences. The ORR, as the Safety Authority and Enforcement body for Great Britain, will have an important role in identifying whether a review is needed. The objective of the Regulations (see also paragraph 5) is to give effect to EC Directives 98/48, 2001/16 and 2004/50 on Railway Interoperability in a cost effective way.

112. The Department will also monitor the situation as regards the ERA's drafting of TSIs which are expected in future to apply to non-TEN lines (see paragraph 14) and any Commission proposals to amend the interoperability regime further.

113. A sunset clause is not appropriate in this instance as the Regulations implement EU Directives and the obligations that they create are intended to be ongoing.

Summary and Recommendation

Summary costs and benefits table

Option	Total cost per annum - economic, environmental, social	Total benefit per annum – economic, environmental, social
1 – Do nothing	<p>The EC can force Member States to comply through infraction proceedings and, ultimately, extremely costly fines.</p> <p>The ECJ gave judgment in November 2005 against the UK in infraction proceedings brought for non-implementation of Directive 2001/16/EC.</p> <p>Unable to quantify, but costs to UK industry (ultimately passed on to consumers) might be unnecessarily high and excessive due to limited supply.</p>	<p>Unable to quantify, as to do nothing is not a lawful or realistic option.</p> <p>Unable to quantify.</p>
<p>2 – Full Implementation of the Directives</p> <p>(a) Implement the conventional Directive, unamended</p> <p>(b) Apply interoperability process initially to TEN rail system only.</p>	<p>Unable to quantify, but costs could be excessive as implementation would mean <i>three</i> separate sets of regulations dealing with checking, approvals and standards, and further disruption to regulatory framework.</p> <p>Unable to quantify, but is considered to be efficient way to deal with</p>	<p>Unable to quantify; would be against early 2004 consultation, whereby industry clearly indicated the need for a simplified and transparent regime and not three separate arrangements</p> <p>Unable to quantify, Does not prevent voluntary adoption of</p>

(b) Apply interoperability process to the whole of the mainline railway from the start.	the progressive extension envisaged by the Directives. Specific cases and derogations should prevent excessive costs. Unable to quantify, but increased risk of unnecessary costs associated with new process	verification process or TSI compliance if benefits are clear. Unable to quantify, but increased risk that benefits could be outweighed by costs associated with new process
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Declaration and publication

I have read the regulatory impact assessment and I am satisfied that the benefits justify the costs.

Signed...Derek Twigg.

Dated 16 February 2006

**Derek Twigg
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Department for Transport**

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Annex A

Table A1: Structure of Rail Industry, Great Britain, 2003¹⁷

	Staff	Turnover (£m)
Infrastructure manager		
Network Rail	13,543	2965
Rolling Stock Leasing Companies		
Angel Trains	150	
HSBC Rail		
Poterbrook		
15 others		
Passenger TOCs		
Anglia	734	
Arriva Trains Merseyside		
Arriva trains Northern	2,944	
c2c	700	
Central Trains	1,954	£231
Chiltern	600	£60
Connex South Eastern	3,000	£375
Eurostar		£426
First Great Eastern	1,200	£175
First Great Western	2,700	£354
First North Western	2,200	£1,069
Gatwick Express		
GNER	3,200	£327
Heathrow Express	200	£58
Hull Trains		
Island Line	36	
Midland Mainline		£122
ScotRail	3,100	£336
Silverlink	1,065	£135
South Central	3,000	

¹⁷ Although individual companies may have changed since 2003, the overall structure of the rail industry remains the same.

South West trains		4,459	£466
Thameslink		800	£143
Thames trains		1,004	£110
Virgin Cross Country		1,616	£156
Virgin West Coast		2,879	£365
Wales & Borders			
West Anglia Great Northern		1,700	
Wessex Trains		1,683	
Freight Train Operating Companies			
EWS			£498
Rail Express Systems			£5
EWSi			£35
Freightliner			£152
DRS			£12
GB Railfreight			£86
Rail infrastructure contractors			
	mkt. share		
Carillion	27%	4,000	
Balfour Beatty	23%		£698
First Engineering	16%	2,800	
Jarvis	16%	5,000	£300
Amec	6%		
Serco Rail	6%	860	
Amey	6%		
Other rail industry suppliers			
<i>[see Business Monitor extracts below]</i>			
Regulatory & Public Bodies			
Department of Transport, Railways Directorate		87	
Strategic Rail Authority		382	
office of the Rail Regulator			
HMRI			
Rail Safety & Standards Board			

Principal sources: *The Comprehensive Guide to Britain's Railways*, 6th edition, EMAP Active Limited and company websites.

Table A2: Structure of the rail industry, by firm size (employees), and small firm (0-50 employees)

Business sectors: rail sectors & sectors which include firms supplying the rail industry	Number of firms by number of employees band								Small firms	
	0-4	5-9	10-19	20-49	50-99	100-249	250+	TOTAL	Number	% of total
Sawmilling and planing of wood, impregnation of wood (includes manufacture of wooden railway sleepers)	510	140	90	70	30	10	5	855	810	95%
Manufacture of Concrete Products for Construction Purposes (includes manufacture of pre-cast concrete railway sleepers)	205	105	110	105	30	20	15	585	525	90%
Manufacture of Basic Iron and Steel and of Ferro-Alloys (includes manufacture of rails made of iron, steel or cast iron)	125	60	25	25	15	5	10	265	235	89%
Manufacture of other electrical equipment not elsewhere classified (includes manufacture of electrical signalling, safety or traffic control equipment for railways and tramways)	1200	250	145	115	60	30	20	1825	1710	94%
Manufacture of Railway and Tramway Locomotives and Rolling Stock	35	10	10	15	10	10	5	90	70	78%
Construction of highways roads, airfields and sport facilities (includes construction of railways)	1005	305	210	135	35	15	20	1720	1655	96%
Wholesale of other machinery for use in industry, trade and navigation (includes wholesale of railway or tramway coaches, vans and wagons)	260	125	125	70	25	5	5	610	580	95%
Transport via Railways (inter-urban)	55	10	5	5	5	0	25	105	75	71%
Other supporting land transport activities (includes operation of terminal facilities such as railway stations)	455	105	65	40	15	10	15	705	665	94%
Activities of other Transport Agencies (includes organisation of group consignments by road, rail, air or sea)	2035	735	445	275	115	55	35	3695	3490	94%
Renting of other Land Transport Equipment (includes railroad passenger vehicles and railroad freight vehicles)	665	140	110	35	15	10	5	980	950	97%
Total number of firms	6550	1985	1340	890	355	170	160	11435	10765	94%

Source: Office for National Statistics, Business Monitor PA1003, Commerce, Energy and Industry, 2003

Table A3: Structure of the rail industry, by firm size, annual turnover (£ thousand), and small firm (£0k - £4999k turnover)

Business sectors: rail sectors & sectors which include firms supplying the rail industry	Number of firms by turnover band (£ thousand)							Small firms		
	£0-£49	£50-£99	£100-£249	£250-£499	£500-£999	£1000-£4999	£5000+	TOTAL	Number	% of total
Sawmilling and planing of wood, impregnation of wood (includes manufacture of wooden railway sleepers)	155	155	195	105	80	110	50	855	610	71%
Manufacture of Concrete Products for Construction Purposes (includes manufacture of pre-cast concrete railway sleepers)	35	75	115	75	100	140	50	585	300	51%
Manufacture of Basic Iron and Steel and of Ferro-Alloys (includes manufacture of rails made of iron, steel or cast iron)	20	45	60	40	30	35	35	265	165	62%
Manufacture of other electrical equipment not elsewhere classified (includes manufacture of electrical signalling, safety or traffic control equipment for railways and tramways)	415	325	385	240	150	225	85	1825	1365	75%
Manufacture of Railway and Tramway Locomotives and Rolling Stock	10	10	10	0	15	20	20	90	30	33%
Construction of highways roads, airfields and sport facilities (includes construction of railways)	160	305	445	265	195	265	90	1725	1175	68%
Wholesale of other machinery for use in industry, trade and navigation (includes wholesale of railway or tramway coaches, vans and wagons)	45	50	90	95	85	175	75	615	280	46%
Transport via Railways (inter-urban)	25	15	10	10	5	10	30	105	60	57%
Other supporting land transport activities (includes operation of terminal facilities such as railway stations)	125	175	145	90	55	85	35	710	535	75%
Activities of other Transport Agencies (includes organisation of group consignments by road, rail, air or sea)	425	480	520	420	485	940	425	3700	1845	50%
Renting of other Land Transport Equipment (includes railroad passenger vehicles and railroad freight vehicles)	225	175	195	120	95	120	45	985	715	73%
Total number of firms	1640	1810	2170	1460	1295	2125	940	11460	7080	62%

Source: Office for National Statistics, Business Monitor PA1003, Commerce, Energy and Industry, 2003