



TNO-report

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Economic and social impact of the agreement concluded between social partners on certain aspects of the working conditions of mobile workers engaged in interoperable cross-border services in the railway sector

Final report

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- (3) to support and monitor the implementation of Community law, where applicable, and policy objectives in the Member States, and assess their effectiveness and impact;
- (4) to promote networking, mutual learning, identification and dissemination of good practice and innovative approaches at EU level;
- (5) to enhance the awareness of the stakeholders and the general public about the EU policies and objectives pursued under each of the policy sections;
- (6) to boost the capacity of key EU networks to promote, support and further develop EU policies and objectives, where applicable.

For more information see:

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Executive Summary

Introduction

Since the early 1990s EU legislation has an objective of reversing the railway sector's declining share in the transport market. Transport by rail is supported by policy makers, because it is considered as more sustainable for the environment than transport by road and it can help to reduce congestion on the roads. The EU published its rail policy in three railway packages. This legislation aims at improving efficiency and competitiveness by opening market access (liberalisation) and the development of safe trans-European traffic and thus interoperable services. Although at the moment the interoperability of railway services is still limited in scale, technological development will make these services more and more available in the near future. The ultimate goal is to open up the rail transport market.

In order to protect the health and safety of the mobile workers and to avoid competition based solely on differences in working conditions, the Community of European Railways (CER) and the European Transport Workers' Federation (ETF) concluded an Agreement regarding certain aspects of the working conditions of mobile workers engaged in interoperable cross-border services in the railway sector (27 January 2004, further referred to as the Agreement). This Agreement includes minimum standards with regard to driving and resting time. On 18 July 2005 the Council adopted Directive 2005/47/EC, thereby making the Agreement legally binding on all Member States (further referred to as the Directive). Member States shall, after consultation with the social partners, bring into force the laws, regulations and administrative provisions necessary to comply with this Directive by 27 July 2008 or shall ensure that the social partners have adopted the necessary provisions by means of an Agreement by that date.

During the negotiations in the Council of the proposal for the Directive, Clause 4 in particular was discussed. This Clause stipulates that a daily rest away from home must be followed by a daily rest at home. Some delegations expressed concerns about the adequacy of this Clause, due to the length of some routes and to the time needed to operate these routes. Regarding the rest away from home social partners agreed that a *second consecutive rest away from home* could be negotiated between social partners at undertaking or national levels (Footnote of Clause 4). At the European level, the question of *the number of consecutive rests away from home* as well as *compensation* for the rest away from home would be renegotiated.

At the time of adoption of the Directive, the Commission made the following statement (see the Tender Specifications, Annex 1): "The Commission attaches great importance to the development of rail transport resulting from the Community Directives adopted to develop European railways, including moves towards opening up the market. It hopes that the social partners will contribute to this development and that the social dialogue will reflect the evolution of the sector. It intends forthwith to ask the social dialogue committee to widen its representativity in line with that evolution. In this context, the Commission proposes to submit to the Council before the date referred to in Article 5 of the Directive a report taking account of the economic and social impact of the social partners' agreement on undertakings and workers and of the social dialogue talks held under Clauses 10 and 11 of the agreement on all pertinent issues, including Clause 4. It intends to take the initiatives necessary, by proposing an amendment to the Directive, should the social partners reach any new

agreement, even if it is concluded before the date referred to in Article 5 of the Directive.”

DG Employment, Social Affairs and Equal opportunities has commissioned a study on the economic and social impact of this Agreement on workers and companies within the railway sector. For the purpose of this study, TNO has formed a multi-disciplinary team with expertise in the field of working hours, working conditions and employee’s health and safety, and with expertise in the field of international railway transport. This TNO team has been completed with TNS NIPO, in order to carry out case studies in the necessary Member States.

Aim of the project

The purpose of the study is threefold:

1. To provide an overview of the development of interoperable cross-border transport in the railway sector within the EU (and, when applicable, the EEA countries), based essentially on existing research;
2. To assess the economic impact of the Agreement annexed to the Directive, especially of Clause 4, on undertakings, with particular regard to any impact on new companies and the development of cross-border activities;
3. To assess the economic and social impact of the Agreement annexed to the Directive, especially of Clause 4, on cross-border mobile workers, with particular regard to the protection of health and safety.

In order to assess the economic and social impact of the Agreement it was also necessary to provide an overview of the current working hours and working conditions of the workers concerned and any changes that have been made.

Methodology

Several research methods have been used:

- *Analyses on the TRANS-TOOLS model:* The TRANS-TOOLS Model is an European wide computer-aided transport planning tool. The model covers both passenger and freight transport with interactions to an economic model and impacts models. This model turned out to be a valuable instrument in order to describe the developments within the railway sector and estimate the number of personnel needed for cross-border services;
- *Study of scientific literature:* We have studied available documents and scientific literature on working conditions, working hours and industrial relations in the European railway sector. The scientific literature turned out to be very valuable in defining important risks factors in the field of employees’ health and safety in relation to working time;
- *Interviews with European stakeholders:* We have interviewed the main stakeholders, involved in cross-border railway services, at the European level. These stakeholders have provided us with useful insight information into the subject and with contacts in relation to the case studies;
- *National case studies in six Member States:* The main body of the research is, however, formed by newly gathered information by interviews with managers of ten railway companies and six union representatives. These case studies were limited in scope but valuable because of the representativeness. The sample contains the broad range of different European countries, private/public companies and passenger and freight transport.

Development of interoperable cross-border transport in the railway sector within the EU

At the moment of the study, 62 international operating railway companies were active in the EU: 17 in freight transport, 19 in passenger transport, 23 in both types of transport, and of 3 companies it is unknown in what type of transport they operate in. The market appears to be quite volatile.

For passenger transport we see that state companies or former state companies are still responsible for most of the transport. At present, more high speed railway lines are constructed between countries within Europe. These lines are operated by newly founded joint ventures of state companies of the countries which are crossed. In future, it might be possible that private companies perform more cross-border passenger services, but because the market uses concessions to allow passenger transport it is more difficult to start a service than in the freight market. Cross-border passenger trains were, in 2005, operated mostly between Paris, London, Brussels, Amsterdam and the Ruhr-area. Furthermore, in the Alps (Switzerland, Austria and Northern Italy) a lot of cross-border rail transport could be found. The most intensive used rail connection will remain the same between 2005 and 2020. However, the length of the journey will be shortened due to the use of more high speed rail sections.

We have estimated the number of people (drivers and conductors) working in cross-border passenger transport in Europe at 5,563 (in full time equivalents: FTEs) in 2005. With this, the estimated growth will be 8% until 2020.

Within the *rail freight transport* market more private companies are active. This can be observed on the national market as well as the cross-border freight market. The growth of rail freight in and between some countries can partly be explained by the liberalization of the market. In 2005 most cross-border freight trains were operated on the corridor Rotterdam (NL)-Northern Italy and in Germany, Central Europe and the Baltic States. In 2020 the intensity of rail freight will rise all over Europe, but will be the highest between the countries in North-western Europe and in Central Europe. We have estimated the number of people (drivers) working in cross-border freight transport in Europe at 4,677 FTE in 2005. This amount is estimated to grow considerably: 200% (over 14,000 FTE in 2020!).

These figures may be lower, in particular when more of the working time will be spent driving, but also due to a productivity increase that is currently taking place (because of the development of dedicated rail freight network, corridor development, signalling systems).

The Directive stipulates:

- Clause 3: Daily rest at home must be a minimum of 12 consecutive hours per 24-hour period. However, it may be reduced to a minimum of nine hours once every seven-day period (...);
- Clause 4: The minimum daily rest away from home shall be eight consecutive hours per 24-hour period. A daily rest away from home must be followed by a daily rest at home (...);
- Clause 5: If the working time of a driver is longer than eight hours, a break of at least 45 minutes shall be taken during the working day. Or: When the working time is between six and eight hours, this break shall be at least 30 minutes long and shall be taken during the working day (...). For other on-board staff, a break of at least 30 minutes shall be taken if the working time is longer than six hours;
- Clause 6: Any mobile worker engaged in interoperable cross-border services is entitled, per seven-day period, to a minimum uninterrupted weekly rest period of 24 hours plus the 12 hours daily rest period referred to in Clause 3 above (...);
- Clause 7: The driving time (...) shall not exceed nine hours for a day shift and eight hours for a night shift between two daily rest periods. The maximum driving time over a two-week period is limited to 80 hours.

Working time and working conditions in cross-border services: current situation and changes due to the Directive

Overall, the current driving and resting time in the European railway sector is already in line with the rules of the Agreement. It was found in the interviews that in some cases the national rules or collective agreements are more protective than the European Agreement.

We have asked the companies about their actual working time arrangements. Based upon the interviews we can say that the average working week is in between 35 and 40 hours a week for both passenger and freight transport. The maximum driving time is in between 24 and 40 hours a week. The Agreement limits driving time to 9 hours for a day shift and 8 hours for a night shift. This limit is not followed by 2 out of 10 companies. On the average, shifts vary between 8 and 10 working hours and between 6.5 and 10 driving hours. These results indicate that only few companies need to change their rules with regard to the maximum driving time, and indeed only 1 company intends to change its practice with regard to driving time per shift and 2 companies intend to change their practice with regard to driving time per week.

Most companies follow the rules on the minimum daily rest periods. Two out of ten companies do not follow these rules, either at home or away from home. With regard to the rule on the consecutive daily rest periods, 5 out of 10 companies feel that it is *not* always possible (or in one case even *impossible*) to follow this rule. Companies can follow three different strategies:

- Transport personnel home after a shift (applied by one freight transport company);
- Re-organise the rosters in such a way that personnel will always end their shift at home (applied by 3 freight and 2 passenger companies);
- Have workers located at different regions (3 freight companies) or countries (2 freight companies) in order to create shorter routes per worker.

Following this part of the Agreement seems to be more problematic for freight transport. It should be noted that rail freight operations are less stable and more vulnerable to unforeseen factors than passenger transport.

As for the rest periods during the shifts, all companies do seem to provide sufficient breaks. However, in this sector it is not always possible to take this break at the exact moment when needed, and workers cannot always leave their work stations in order to

take their breaks. Three companies intend to change their practices with regard to rest periods. Negotiations were still taking place at the time of the study.

From the literature we know that the actual impact of working hours on health and safety is complex and depends upon a lot of other job related aspects. In order to assess the social impact of working time, it is therefore not only important to know the actual working and resting time, but it is also important to have insight into other aspects of the working conditions and to have insight in the involvement of workers in their own working time. Work during the night or in the early morning, for instance, might pose the risk of fatigue in combination with long working hours. Work during weekends and unpredictable work hours might pose a risk in the field of work/family balance. Workers' autonomy over working time could function as a buffer on these risks.

We have asked the unions if they feel that workers on cross-border services are at risk in several aspects of the working time. The highest risk is felt to be working long shifts followed by working long hours, lack of rest in between shifts and unpredictable work schedules. Another risk reported by the unions is working during the night.

We have asked both managers and unions if they feel that workers on cross-border services are at risk in several aspects of their working conditions. Union representatives report more and higher risks in the field of working conditions than managers. The highest risk reported by unions is poor ambient conditions and high time pressure. The highest risk reported by managers is to carry out monotonous tasks. The unions in our case study do *not* feel that workers are at risk due to a lack of involvement in the development of the work schedules or a lack of individual autonomy over working time. The managers of the case companies report this involvement in different ways: either by involving employees' representatives in the making of the work schedules, or by incorporating individual wishes into the work schedules. One company only occasionally includes individual wishes into work schedules and reports no other involvement, and another company reports no involvement of any kind.

Impact of the Agreement on the operation of current routes and estimation of economic costs

Since the labour costs are relatively small in comparison to all other costs of exploitation, we do not expect the Agreement to have an impact on the operation of routes in the future. There are several independent trends in the sector that influence the development of routes, such as new technology, enlarged infrastructure capacity, etc. Putting limits to driving time per person is only a very small aspect in the total development of the sector. The fact that overall the rules on driving and resting time are already in line with the Directive or more protective, will also mean that the economic impact of the Agreement will be limited.

In our study we found that national stakeholders feel positive about the fact that the Agreement sets a common framework and clear rules for all parties involved.

Of all aspects in the Agreement, in particular the rule that one rest away from home should be followed by one rest at home (Clause 4) seems to pose the highest problem for companies in freight transport. Five out of six freight companies are not (always) able to transport their workers home after one rest away from home. We have received examples of work schedules where the driver is away during the week and at home during the weekend, but we do not know how representative these examples are. Three out of six freight transport mention that the longest period away from home is 3 days and 1 freight companies even mentions 2/3 weeks. However, no unions mention periods away from home that are longer than 2 days. On the whole, the economic

impact of Clause 4 is viewed more positively than negatively. Companies do experience problems with making rosters but also feel positive about common European standards.

It should be noted that a company can choose different combinations of the above mentioned strategies. With this, the company will assess the costs and benefits of the different combinations: for instance the costs of training new employees for the entire route, hiring new employees at different locations or investing in more high quality rest facilities along the route. In view of the labour market problems that companies will face, we suggest that companies develop different new strategies in co-operation with their personnel, in order to provide attractive employment packages for an increasingly diverse work force.

Impact of the Agreement on workers' health and safety and estimation of social costs

Due to the fact that the current working hours are mostly in line with the Agreement or more protective, the (short term) social impact of the Agreement will be limited.

However, the Agreement might lead to an increase in the total length of the working week. It is clear that the Directive can not be implemented in a way which regresses on existing levels of protection (non-regression clause: Clause 9 of the Agreement). However, based upon the minimum standards of the Agreement, the maximum driving time may be up to 80 hours over a two-week period and the actual working time can be longer than that. Based upon our research we cannot predict whether or not this will take place, but it should be monitored with care.

With regard to Clause 4, in particular the consecutive rest away from home and at home, the national stakeholders are divided in their view on the social impact. There are also differences in opinion about the possible compensation for working abroad or resting away from home.

From the perspective of workers' health and safety the duration of the shift in combination with the duration and the quality of rest is important. From the literatures we know that the quality of the rest is more important than the place of rest: workers can also have problems with the quality of rest at home, in particular when rest needs to be taken during the day: for instance when there are other people in the household that are active during the daytime. From the perspective of work/family balance, the place of rest might be important. However, employees can have different preferences with regard to their working hours, as well as with regard to the way they want to be compensated (payment, additional time off). In this particular case, the Agreement appears to *limit* the possibilities to answer to these preferences and does not provide an answer to the trend towards more diverse and individualised employment relations. This is seen as a problem of the Agreement by several respondents. An important issue with regard to work/family balance is the influence of individual employees on their working hours. Autonomy over working time can be seen as a moderator in the impact of working time. Based upon the national case studies, this influence appears to be present in different ways: by way of formal agreement with the unions, but also by way of incorporating individual wishes into the work schedules.

Another problem or unwanted side effect is mentioned by one of the managers: routes and work schedules can be organised in such a way that employees spend more time at home, but this will mean that individual employees will work *less varied* routes.

Differences between companies and countries

We do not find large differences between private and public companies. There are also more similarities than differences between the different European companies (or countries). We did find relevant differences between passenger transport and freight transport, due to the different characteristics of these types of transport.

Recommendations

- This study is based on a limited number of case studies and was carried out at the moment that the implementation of the Directive was taking place. We have seen that some of the rules on working time are more protective than the Agreement. We have also seen that companies are still searching for a way to cope with the rules on the resting time. Both at the European and the national level future developments should be monitored with care by the authorities and social partners.
- We recommend in particular to monitor the total shift length and the length of the working week, since Clause 7 only limit the driving time and not the total working time. From the perspective of health and safety shifts longer than 9 hours or 8 hours (day and night) time are not to be recommended.
- However, in all rosters, it is important to take into account all roster principles, and the impact of the shift length on health and safety can be moderated (or strengthened) by the duration of the rest time (time to recuperate).
- Since the impact of working conditions on health and safety is part of a complex model, it is important that work schedules should be designed upon ergonomic principles that go beyond the rules of the Agreement: this could mean that several healthy work schedules might emerge as a specific combination of variables such as shift length, number of shifts in a row, time of work, rest periods, job content and the ability to take a break, and individual preferences. With this the railway sector can become (or stay) an attractive employer within a tight labour market.
- In negotiations on Clause 4, we also suggest that all aspects of the rosters are taken into account in order to create (or keep) healthy jobs. This includes the length of the shift, the duration and quality of the rest, working at night or early morning shifts, but also the content of the job.
- In negotiation on Clause 4, we also suggest that both the need for flexibility by the company as the need for tailor-made employment relations for the employee are taken into account. Employees can have different preferences with regard to their work life balance or their employment relation (working hours, job content, development, salary). Bearing in mind a need for personnel in rail transport and a tight labour market, it is important that rail companies show themselves as attractive employers.
- One aspect we find missing in the Agreement at the moment, is that of the involvement of employees at the level of the company in the definition of their rosters and working hours. At the moment, the respondents in the cases are positive about this involvement. However, we find that many companies choose between either collective or individual involvement.
- We have learned from our literature study that employees' autonomy over working time is an important moderator between working time and health and safety and between working time and work/family balance. We have also seen that different companies follow different strategies with regard to workers' influence. In order to create healthy working conditions and be an attractive employer, we recommend stimulating further dialogue between workers and management within the companies, both at the collective level and at the level of the individual employment relation, as complementary measures.

Key points

- There is an overall growth in international rail transport, in particular in freight transport.
- The total need for personnel in cross-border services is estimated to grow with 68% from 2005 to 2020.
- Since the labour costs are relatively small in comparison to all other costs of exploitation, we do not expect the Agreement to have an impact on the development of routes.
- There are several independent trends in the sector that influence the development of routes.
- Overall, the current driving and resting time in the European railway sector is already in line with the rules of the Agreement.
- This means that the (social and economic) impact of the Agreement will be limited.
- In some cases the total length of the shift is longer than allowed by the rules of the Agreement.
- Long shifts can be seen as a risk factor with respect to health and safety (in particular in combination with working at night and carrying out monotonous tasks).
- The development of the actual shift length needs to be monitored with care.
- Another risk factor is the unpredictability of the work schedules.
- The rule that one daily rest away from home must be followed by a daily rest at home poses operational problems for companies and is not always followed in practice. One of the practices in freight transport seems to be that drivers spend a working week away from home (driving and resting according to the train schedule) and spend the weekend at home. In these cases a second consecutive rest at home will not be sufficient, since they are five days away from home.
- This rule also seems to be limiting the process towards more tailor made employment relations.
- From the six unions, three want to negotiate on this topic. From the ten companies, six want to negotiate on this topic.
- Both collective *and* individual influence of workers on their work schedules and places of rest is an important factor in preventing health risks, but also in remaining an attractive employer in a tight labour market.

Résumé

Introduction

Depuis le début des années 1990, l'UE s'est fixé pour objectif d'inverser la tendance à la réduction de la part du chemin de fer sur le marché des transports. Les décideurs politiques soutiennent le développement du transport ferroviaire car il est considéré comme étant plus respectueux de l'environnement que le transport routier et plus à même de réduire la congestion du trafic. L'UE a publié sa politique de transport ferroviaire par le biais de trois "paquets ferroviaires". Cette législation vise à améliorer l'efficacité et la compétitivité par l'ouverture de l'accès au marché (libéralisation) et le développement d'un trafic trans-européen sûr et donc de services d'interopérabilité. Bien qu'à l'heure actuelle le niveau d'interopérabilité des services ferroviaires reste limité, les développements technologiques rendront ces services de plus en plus disponibles dans un avenir proche. L'objectif définitif est l'ouverture du marché des transports ferroviaires.

Afin de protéger la santé et la sécurité des travailleurs mobiles et d'éviter une compétition basée seulement sur les différences de conditions de travail, la Communauté européenne du rail (CER) et la Fédération européenne des travailleurs des transports (ETF) ont conclu un accord le 27 janvier 2004 (ci-après dénommé "l'Accord") sur certains aspects des conditions d'utilisation des travailleurs mobiles effectuant des services d'interopérabilité transfrontalière dans le secteur ferroviaire. Cet Accord prévoit des normes minimales concernant le temps de conduite et le temps de repos. Le 18 juillet 2005 le Conseil a adopté la Directive 2005/47/CE (ci-après dénommée "la Directive") donnant force obligatoire à l'Accord dans tous les États membres de l'UE. Après consultation avec les partenaires sociaux concernés, les États membres mettront en vigueur les lois, réglementations et dispositions nécessaires pour se conformer à cette Directive à compter du 27 juillet 2008 ou garantiront que les partenaires sociaux ont adopté les dispositions nécessaires par voie d'un Accord à cette date.

Lors des négociations concernant la Directive, la Clause 4 a fait l'objet d'une attention particulière. Cette Clause prévoit qu'un repos journalier hors de la résidence doit être suivi d'un repos journalier au lieu de résidence. Certaines délégations ont fait part de leur inquiétude concernant le caractère adéquat de cette Clause, compte tenu de la longueur de certains trajets et du temps nécessaire à leur exploitation. Pour ce qui est du repos hors du lieu de résidence, les partenaires sociaux ont convenu qu'un *second repos hors résidence* pouvait faire l'objet d'une négociation entre les partenaires sociaux au niveau de l'entreprise ou au niveau national (Note de la Clause 4). Au niveau européen, le *nombre de repos hors résidence consécutifs* ainsi que la *compensation* des repos hors résidence doivent être renégociés.

Lors de l'adoption de la Directive, la Commission a fait la déclaration suivante (voir les Spécifications de l'Offre, Annexe 1): « La Commission attache une grande importance au développement du transport ferroviaire qui résulte des directives communautaires adoptées pour développer les chemins de fer européens, y compris les évolutions relatives à l'ouverture du marché. Elle souhaite que les partenaires sociaux apportent une contribution à ce développement et que le dialogue social reflète l'évolution du secteur. Elle entend saisir immédiatement le Comité de dialogue social pour qu'il élargisse sa représentativité parallèlement à cette évolution. Dans ce contexte, la Commission se propose de faire rapport au Conseil, avant la date prévue à

l'article 5 de la directive en tenant compte de l'impact économique et social de l'accord sur les entreprises et les travailleurs et des discussions dans le cadre du dialogue social menées aux termes des clauses 10 et 11 de l'accord des partenaires sociaux sur l'ensemble des sujets pertinents, y compris la clause 4. Elle entend prendre les initiatives nécessaires en cas de nouvel accord des partenaires sociaux, en proposant une modification de la directive, y compris si un tel accord est conclu avant la date prévue à l'article 5 de la directive ».

La DG Emploi, Affaires sociales et Egalité des chances a commandé une étude sur l'impact économique et social de cet Accord pour les travailleurs et les entreprises dans le secteur des chemins de fer. Aux fins de cette étude, TNO a constitué une équipe multidisciplinaire possédant une expertise en matière de temps de travail, de conditions de travail, de santé et de sécurité des travailleurs ainsi qu'en matière de transports ferroviaires internationaux. Cette équipe a été complétée par TNS NIPO afin de procéder à des études de cas dans les États membres si cela s'avère nécessaire.

Objectif du projet

L'objectif du projet est triple:

- fournir un aperçu du développement des activités d'interopérabilité transfrontalière dans le secteur des transports ferroviaires au sein de l'Union européenne (et, le cas échéant, des pays de l'EEE), en se basant principalement sur la recherche existante;
- évaluer l'impact économique de l'accord annexé à la directive (notamment la clause 4) sur les entreprises, en examinant tout particulièrement ses incidences éventuelles sur les nouvelles entreprises et le développement des activités transfrontalières;
- évaluer l'impact économique et social de l'accord annexé à la directive (notamment la clause 4) sur les travailleurs transfrontaliers mobiles, en examinant tout particulièrement la protection de la santé et de la sécurité.

Afin de contrôler l'impact économique et social de l'Accord, il a été également nécessaire de fournir un aperçu des heures et des conditions de travail effectives des travailleurs concernés et des changements apportés.

Méthodologie

Plusieurs méthodes de recherche ont été utilisées:

- *Analyses sur le modèle TRANS-TOOLS*: Le Modèle TRANS-TOOLS est un outil de planning de transport assisté par ordinateur à l'échelle européenne. Ce modèle recouvre aussi bien le transport de passagers que le transport de fret, comprenant des interactions avec un modèle économique et des modèles d'analyse d'impact. Il constitue un outil précieux pour décrire les développements au sein du secteur ferroviaire et évaluer les effectifs nécessaires pour les services transnationaux;
- *Étude de la bibliographie scientifique*: Nous avons étudié les documents et la littérature scientifique disponibles sur les conditions de travail, les heures de travail et les relations industrielles dans le secteur européen des transports. La littérature scientifique a été particulièrement utile pour définir les facteurs de risque importants en matière de santé et de sécurité du personnel en relation avec la durée du temps de travail;
- *Interviews avec les parties prenantes européennes*: Nous avons interviewé les principales parties prenantes européennes actives dans les services ferroviaires transfrontaliers au niveau européen. Ces personnes nous ont fourni des informations précieuses sur le sujet ainsi que des contacts utiles en relation avec les études de cas;

- *Études de cas nationales dans six États membres*: La partie principale de la recherche est toutefois constituée par les interviews de directeurs de dix entreprises ferroviaires et de six représentants syndicaux, ce qui représente une nouvelle source d'information. L'échantillon recouvre la large gamme des différents pays européens, des entreprises ferroviaires privées/publiques et des secteurs du transport de passagers/de fret ferroviaire.

Développement du transport ferroviaire transnational interopérable au sein de l'UE

À la date de l'étude, 62 entreprises ferroviaires étaient actives au sein de l'UE, à savoir 19 dans le transport des passagers, 17 dans le transport de fret ferroviaire et 23 dans les deux secteurs (Il n'a pas été possible d'établir le secteur d'activité pour trois entreprises). Le marché semble plutôt instable.

Pour le transport de passagers, nous constatons que les entreprises nationales ou anciennes entreprises nationales assurent encore la majeure partie des transports. À l'heure actuelle, des lignes à grande vitesse sont construites entre les différents pays européens. Elles sont exploitées par des joint-ventures nouvellement fondées entre les entreprises nationales des pays concernés. Il est possible que dans l'avenir des entreprises privées fournissent plus de services transfrontaliers, mais étant donné que le marché utilise des concessions pour permettre le transport de passagers, il est plus difficile de démarrer une nouvelle activité sur ce marché que sur celui du fret ferroviaire. En 2005, les trains de passagers transfrontaliers étaient en majeure partie exploités entre Paris, Londres, Bruxelles, Amsterdam et la région de la Ruhr. De plus, on trouvait de nombreux transports ferroviaires transfrontaliers dans les Alpes (Suisse, Autriche et Italie du Nord). Les connexions ferroviaires utilisées de la manière la plus intensive resteront les mêmes entre 2005 et 2020. Cependant la durée des trajets sera réduite grâce à l'utilisation accrue de sections ferroviaires à grande vitesse.

Nous avons estimé le nombre de personnes (conducteurs et contrôleurs) travaillant en 2005 dans le transport transfrontalier de passagers à 5 563 équivalents temps plein (ci-après ETP). Ainsi, la croissance estimée sera de 8% jusqu'à 2020.

Le nombre d'entreprises privées actives sur le marché du transport fret ferroviaire est plus important. Ceci peut être observé sur les marchés nationaux comme sur le marché du transport de fret ferroviaire transnational. La croissance du fret ferroviaire s'explique en partie par la libéralisation du marché. En 2005, la plupart des trains de fret transfrontaliers étaient exploités dans le corridor Rotterdam (NL)-Italie du Nord et Allemagne, Europe Centrale et États Baltes. En 2020, le fret ferroviaire sera plus intensif dans toute l'Europe, mais plus particulièrement entre les pays du Nord-ouest de l'Europe et en Europe Centrale. Nous avons estimé le nombre de personnes (conducteurs) travaillant dans le transport de fret en Europe en 2005 à 4 677 ETP. Selon les estimations, ce chiffre connaîtra une augmentation considérable, à savoir 200% (plus de 14 000 ETP en 2020 !).

Ces chiffres pourraient être plus faibles, particulièrement si plus de temps de travail est consacré à la conduite, mais également en raison de l'accroissement de la productivité qui a lieu actuellement en raison du développement du réseau consacré au fret ferroviaire, du développement de corridors, et des systèmes de signalisation.

La Directive stipule:

- Clause 3: Le repos journalier à la résidence est d'une durée minimale de 12 heures consécutives par période de 24 heures. Cependant, il peut être réduit à un minimum de 9 heures consécutives une fois par période de 7 jours. (...);
- Clause 4: Le repos hors résidence a une durée minimale de 8 heures consécutives par période de 24 heures. Un repos journalier hors résidence doit être suivi par un repos journalier à la résidence (...);
- Clause 5: Si la durée du temps de travail d'un conducteur est supérieure à 8 heures, une pause d'au moins 45 minutes sera assurée pendant la journée de travail. Ou: Lorsque le temps de travail se situe entre 6 heures et 8 heures, cette pause sera d'au moins 30 minutes et sera assurée pendant la journée de travail. (...) Pour le personnel d'accompagnement, une pause de 30 minutes sera assurée si le temps de travail est supérieur à 6 heures;
- Clause 6: Tout travailleur mobile effectuant des services d'interopérabilité transfrontalière bénéficie, par période de 7 jours, d'une période minimale de repos ininterrompu d'une durée de 24 heures auxquelles s'ajoutent les 12 heures de repos journalier prévu à la clause 3 (...);
- Clause 7: La durée du temps de conduite (...) ne peut être supérieure à 9 heures pour une prestation de jour et à 8 heures pour une prestation de nuit entre deux repos journaliers. La durée du temps de conduite maximale par période de 2 semaines est limitée à 80 heures.

Temps et conditions de travail dans les services transfrontaliers: situation actuelle et changements apportés par la Directive

Dans le secteur ferroviaire européen, la durée du temps de conduite et du temps de repos est déjà en conformité avec les dispositions de l'Accord. Les interviews ont révélé que dans certains cas, les règles ou accords collectifs nationaux apportaient une meilleure protection que l'Accord européen.

Nous avons interrogé les entreprises ferroviaires sur leurs aménagements réels du temps de travail. Nous basant sur les interviews, nous déduisons que la semaine de travail moyenne se situe entre 35 et 40 heures pour le transport de passagers comme pour le transport de fret. L'Accord limite le temps de conduite à 9 heures pour une prestation de jour et à 8 heures pour une prestation de nuit. Cette limite n'est pas respectée par 2 des 10 entreprises interrogées. En moyenne, la durée des prestations se situe entre 8 et 10 heures de travail et entre 6,5 et 10 heures de conduite. Ceci indique que seulement un petit nombre d'entreprises doivent changer leurs règles concernant le temps de conduite maximum, et que seule une entreprise a l'intention de changer ses pratiques relatives au temps de conduite maximal par prestation et que 2 entreprises ont l'intention de changer leurs pratiques relatives au temps de conduite par semaine.

La plupart des entreprises ferroviaires observent les règles concernant les périodes minimales de repos quotidien. Deux des dix entreprises ne respectent pas ces règles, soit pour le repos à la résidence, soit pour le repos hors résidence. Pour ce qui est de la règle relative aux périodes consécutives de repos journalier, 5 des 10 entreprises pensent qu'il n'est *pas* toujours possible (et dans un cas qu'il est *impossible*) d'observer cette règle. Les entreprises peuvent suivre trois différentes stratégies:

- Transport du personnel à la résidence après une prestation (appliqué par une entreprise de transport de fret ferroviaire);
- Réorganisation des emplois du temps de façon à ce que le personnel finisse toujours ses prestations à la résidence (appliqué par 3 entreprises de fret et 2 entreprises de transport de passagers);

- Personnel situé dans différentes régions (3 entreprises de fret ferroviaire) ou différents pays (2 entreprises de fret ferroviaire) afin de créer des trajets plus courts par travailleur.

Le respect de cette partie de l'Accord semble plus problématique pour le transport de fret. Il convient de noter que les opérations de fret ferroviaire sont moins régulières et plus vulnérables aux imprévus que le transport de passagers.

En ce qui concerne les périodes de repos pendant les prestations, les entreprises semblent fournir suffisamment de pauses. Cependant, dans ce secteur, il n'est pas toujours possible de prendre la pause au moment exact où cela est nécessaire et les travailleurs ne peuvent pas toujours quitter leur poste de travail pour se reposer. Trois des entreprises interrogées ont l'intention de modifier leurs pratiques concernant les périodes de repos. Les négociations étaient encore en cours à la date de l'étude.

La littérature sur le sujet nous apprend que l'impact effectif des heures de travail sur la santé et la sécurité des travailleurs est complexe et dépend de plusieurs autres facteurs liés au travail. Afin de vérifier l'impact social du temps de travail, il est donc important non seulement de connaître le temps de travail et de repos effectif, mais aussi d'avoir un aperçu d'autres aspects des conditions de travail et de l'implication des travailleurs dans leur propre organisation du temps de travail. Le travail de nuit ou tôt le matin, par exemple, en combinaison avec de longues heures de travail, peut causer un risque de fatigue. Le travail pendant le week-end et les heures de travail imprévisibles peuvent entraîner un risque au niveau de l'équilibre entre vie professionnelle et vie familiale. L'autonomie des travailleurs vis-à-vis du temps de travail pourrait permettre de limiter ces risques.

Nous avons demandé aux syndicats s'ils pensent que les travailleurs effectuant des services transfrontaliers courent des risques au niveau des différents aspects du temps de travail. Les longues prestations suivies de longues heures de travail, le manque de pauses pendant et entre les prestations et les emplois du temps imprévisibles sont ressentis comme présentant le niveau de risque le plus élevé. Le travail de nuit est un autre facteur de risque rapporté par les syndicats.

Nous avons demandé aux managers comme aux syndicats s'ils pensent que les travailleurs effectuant des services transfrontaliers sont exposés à des risques professionnels pour plusieurs aspects de leurs conditions de travail. Les représentants syndicaux font état de plus de risques et de risques plus élevés que les managers. Le risque le plus élevé rapporté par les syndicats réside dans les mauvaises conditions de travail et la forte pression de temps. Le risque le plus élevé rapporté par les managers serait la monotonie des tâches.

Dans notre étude de cas, les syndicats ne pensent *pas* que les travailleurs courent un risque dû au manque d'implication dans le développement des emplois du temps ou au manque d'autonomie concernant le temps de travail. Les managers interrogés dans le cadre de l'étude de cas rapportent cette implication de différentes manières, à savoir soit par la participation des représentants des travailleurs à la fixation des emplois du temps, soit par la prise en compte des souhaits personnels dans les emplois du temps. Une entreprise tient occasionnellement compte des souhaits personnels dans les emplois du temps. Une autre ne rapporte aucune implication des travailleurs du tout.

Impact de l'Accord sur l'exploitation des trajets actuels et estimation des coûts économiques

Etant donné que le coût du travail est relativement faible en comparaison aux autres frais d'exploitation, nous ne pensons pas que l'Accord aura une influence sur l'exploitation des trajets dans l'avenir. Le secteur connaît plusieurs tendances indépendantes influençant le développement des trajets, telles que les nouvelles

technologies, les capacités d'infrastructure élargies, etc. Fixer des limites au temps de conduite par personne ne constitue qu'un aspect mineur du développement total du secteur. Le fait que les règles sur le temps de conduite et le temps de pause soient déjà conformes aux dispositions de la Directive ou apportent une meilleure protection signifie également que l'impact économique de l'Accord restera limité.

Notre étude nous a révélé que les parties prenantes nationales se montrent positives sur le fait que l'Accord définisse un cadre commun et des règles claires pour toutes les parties concernées.

Parmi toutes les dispositions de l'Accord, la règle selon laquelle un repos hors résidence doit être suivi d'un repos à la résidence (Clause 4) semble poser le plus de problèmes aux entreprises de transport de fret. Cinq des six entreprises de transport de fret ne sont pas (toujours) en mesure de ramener leurs employés chez eux après un repos hors résidence. Nous avons reçu des exemples d'emploi du temps dans lesquels le conducteur est parti pendant la semaine, mais passe le week-end chez lui. Nous ignorons toutefois dans quelle mesure ces exemples sont représentatifs. Trois des six entreprises de transport de fret mentionnent que la période la plus longue passée hors résidence est de trois jours et une entreprise de fret mentionne même 2 à 3 semaines. Cependant, aucun syndicat ne mentionne des périodes hors résidence excédant 2 jours. Globalement, l'impact économique de la Clause 4 est considéré de manière plus positive que négative. Les entreprises rencontrent des problèmes dans la définition des emplois du temps mais perçoivent également les normes européennes communes comme positives.

Il est à noter qu'une entreprise peut choisir différentes combinaisons des stratégies visées ci-dessus. Ainsi elle pourra évaluer les coûts et les avantages des différentes combinaisons: par exemple les coûts de formation de nouveaux employés pour l'ensemble du trajet, l'embauche de nouveaux employés sur différents sites ou l'investissement dans plus d'installations de repos de grande qualité le long du trajet. Au regard des problèmes de marché du travail que les entreprises ferroviaires rencontreront, nous suggérons que les entreprises développent de nouvelles stratégies en collaboration avec leur personnel afin de fournir un ensemble de mesures intéressants au niveau de l'emploi pour un marché du travail de plus en plus diversifié.

Impact de l'Accord sur la santé et la sécurité des travailleurs et estimation des coûts sociaux

Etant donné que les règles en cours sur les heures de travail sont déjà largement en conformité avec les dispositions de la Directive ou apportent une meilleure protection, l'impact social (à court terme) de l'Accord restera limité.

Cependant, l'Accord peut donner lieu à une augmentation de la longueur totale de la semaine de travail. Il est clair que la Directive ne peut pas être mise en œuvre d'une façon réduisant les niveaux actuels de protection (clause de non-régression: Clause 9 de l'Accord). Cependant, sur la base des normes minimales de l'Accord, le temps de conduite maximal pourrait atteindre 80 heures sur une période de deux semaines, et le temps de travail peut excéder ce nombre d'heures. Notre recherche ne nous permet pas de prédire si ce sera effectivement le cas, mais cet aspect doit être suivi avec attention.

Pour ce qui concerne la Clause 4, notamment le repos consécutif hors résidence et au lieu de résidence, les parties prenantes nationales sont divisées quant à leur vision de l'impact social. Il existe également des divergences d'opinion concernant la rémunération du travail à l'étranger et le repos hors résidence.

Du point de vue de la santé et de la sécurité des travailleurs, la durée de la prestation, associée à la durée et à la qualité du repos est importante. La littérature sur le sujet

nous apprend que la qualité du repos est plus importante que le lieu de repos: les travailleurs peuvent avoir également des problèmes de qualité du repos chez eux, notamment lorsqu'ils doivent se reposer dans la journée alors qu' par exemple lorsque d'autres membres du ménage sont actifs pendant la journée. Du point de vue de l'équilibre entre la vie professionnelle et la vie familiale, le lieu de repos peut être important. Cependant, les employés peuvent avoir des préférences différentes pour ce qui est des heures de travail, ainsi que sur la manière dont ils souhaitent être compensés (paiement, temps libre supplémentaire). Dans ce cas particulier, l'Accord *limite* les possibilités de réponses à ces préférences et n'apporte pas de réponse aux tendances en direction de relations de travail plus diverses et plus personnalisées. Plusieurs répondants considèrent cet aspect comme un problème. Une question importante pour ce qui est de l'équilibre travail/famille est l'influence des employés sur leurs heures de travail à titre individuel. Leur autonomie sur l'organisation de leur temps de travail pourrait atténuer l'impact du temps de travail. Les études de cas nationales révèlent que les travailleurs peuvent influencer l'organisation de leur temps de travail de diverses manières, par exemple par voie d'un accord formel par le biais des syndicats, mais aussi sous forme d'une prise en compte des désirs personnels dans les emplois du temps.

Un des managers a mentionné un autre problème ou effet secondaire non désiré: les trajets et emplois du temps peuvent être organisés de façon à ce que les employés individuels passent plus de temps chez eux, mais ceci signifiera que ces employés individuels travailleront sur des trajets *moins variés*.

Différences entre entreprises ferroviaires et entre pays

Nous ne trouvons pas de différences importantes entre les entreprises ferroviaires publiques et les entreprises ferroviaires privées. Il existe également plus de similitudes que de différences entre les différentes entreprises ferroviaires (ou pays) européennes. En revanche, nous avons trouvé des différences significatives entre le secteur du transport de passagers et celui du transport de fret ferroviaire. Ceci est dû aux caractéristiques différentes de ces types de transport.

Recommandations

- Cette étude est basée sur un nombre limité d'études de cas et a été conduite au moment de la mise en œuvre de la Directive. Nous avons vu que certaines règles nationales sur le temps de travail apportent une meilleure protection que l'Accord. Nous avons également vu que les entreprises ferroviaires sont encore à la recherche d'une façon de se conformer à la réglementation sur le temps de repos. Les autorités et partenaires sociaux au niveau européen comme aux différents niveaux nationaux devront surveiller les futurs développements avec attention.
- Nous recommandons notamment de contrôler la longueur totale de la prestation et la durée totale de la semaine de travail étant donné que la Clause 7 ne limite que le temps de conduite et non pas le temps de travail total. Du point de vue de la santé et de la sécurité, les prestations durant plus de 9 heures ou de 8 heures (jour et nuit) sont déconseillées.
- Cependant, il est important de tenir compte de tous les principes de l'emploi du temps, tandis que l'effet de la durée de la prestation sur la santé et la sécurité peut être atténué (ou renforcé) par la durée du temps de repos (temps de récupération).
- Considérant que l'impact des conditions de travail sur la santé et la sécurité relève d'un modèle complexe, il est important que les emplois du temps soient conçus selon des principes ergonomiques allant au delà des règles de l'Accord. Ainsi des organisations du temps de travail respectueuses de la santé peuvent combiner des variables telles que la longueur de la prestation, le nombre de prestations

successives, le temps de travail, le contenu du travail, la possibilité de prendre des pauses et les préférences personnelles. Ainsi le secteur ferroviaire peut devenir (ou rester) un employeur attractif au sein d'un marché du travail étroit.

- Pour les négociations sur la Clause 4, nous suggérons que tous les aspects de l'emploi du temps soient pris en compte afin de créer (ou de conserver) des emplois sans risques pour la santé. Ceci comprend la longueur de la prestation, la durée et la qualité du repos, le travail de nuit ou les prestations effectuées tôt le matin, mais aussi le contenu de l'emploi.
- Pour les négociations sur la Clause 4, nous suggérons également de tenir compte aussi bien du besoin de flexibilité de l'entreprise que du besoin de relations de travail sur mesure de l'employé. Les employés peuvent avoir des préférences différentes pour ce qui est de l'équilibre entre leur vie professionnelle et leur vie de famille ou de leurs relations de travail (heures de travail, contenu de l'emploi, développement, salaires). Si l'on garde à l'esprit le besoin de personnel du transport ferroviaire et l'étroitesse du marché du travail, il est important que les entreprises ferroviaires se présentent comme des employeurs proposant des emplois attractifs.
- Un aspect qui nous semble manquer dans l'Accord à l'heure actuelle est celui de l'implication des employés au niveau de l'entreprise dans la définition de leurs emplois du temps et de leurs heures de travail. Actuellement, les répondants dans les différentes études de cas se montrent ouverts à une plus grande implication des travailleurs. Cependant, nous constatons que de nombreuses entreprises choisissent soit l'implication collective, soit l'implication individuelle.
- La littérature consultée nous a appris que l'autonomie des employés en matière de temps de travail, et de santé et de sécurité constitue un modérateur important entre le temps de travail et l'équilibre entre vie professionnelle et vie familiale. Nous avons également vu que les différentes entreprises ferroviaires suivent des stratégies différentes concernant l'implication des travailleurs. Nous recommandons de plus stimuler le dialogue entre les employés et le management au sein de l'entreprise, aussi bien au niveau collectif qu'au niveau de la relation de travail individuelle comme mesures complémentaires, afin de créer des conditions de travail respectueuses de la santé des travailleurs et d'accroître l'attractivité de la profession au sein des entreprises ferroviaires.

Points essentiels

- Il existe une croissance globale dans le transport international ferroviaire, notamment pour le transport de fret ferroviaire.
- Le besoin total de personnel dans les services transfrontaliers augmentera probablement de 68% de 2005 à 2020.
- Etant donné que le coût du travail est relativement faible en comparaison aux autres coûts d'exploitation, nous ne pensons pas que l'Accord aura une influence sur l'exploitation des trajets dans l'avenir.
- Le secteur connaît plusieurs tendances indépendantes influençant le développement des trajets, telles que les nouvelles technologies, les capacités d'infrastructure élargies, etc.
- Dans le secteur ferroviaire européen, la durée du temps de conduite et du temps de repos est actuellement en conformité avec les dispositions de l'Accord.
- Cela signifie que l'impact (social et économique) de l'Accord restera limité.
- Dans certains cas, la longueur totale de la prestation effectuée par un conducteur excède celle autorisée par les règles de l'Accord.
- Les prestations longues peuvent être considérées comme un facteur de risque au niveau de la santé et de la sécurité (notamment en combinaison avec le travail de nuit et les tâches monotones).
- Le développement de la longueur effective des prestations doit être suivi avec attention.
- Le caractère imprévisible du temps de travail constitue un autre facteur de risque.
- La règle selon laquelle un repos hors résidence doit être suivi d'un repos journalier à la résidence pose des problèmes opérationnels aux entreprises et n'est pas toujours suivie dans la pratique. L'une des pratiques dans le secteur du transport de fret ferroviaire semble être que les conducteurs passent une semaine hors de chez eux (conduisant et se reposant en fonction des horaires du train) et passent un week-end chez eux. Dans ce cas, même un second repos à la résidence sera insuffisant, étant donné qu'ils passent cinq jours hors résidence.
- Cette règle semble également limiter les possibilités de relations de travail plus personnalisées.
- Sur les six syndicats, trois veulent négocier sur cette question.
- Une influence collective comme individuelle des travailleurs sur leur emploi du temps constitue un facteur important de prévention des risques sur la santé, mais aussi d'attractivité de la profession sur un marché du travail étroit.

Zusammenfassung

Einleitung

Seit Anfang der neunziger Jahre wird EU-Recht mit dem Ziel umgesetzt, den bisher rückläufigen Anteil der Eisenbahnen am Verkehrsaufkommen wieder zu erhöhen. Die Beförderung auf dem Schienenweg wird von den politischen Entscheidungsträgern unterstützt, weil sie gegenüber dem Straßentransport als die umweltschonendere Alternative gilt und zur Entlastung der Straßen beitragen kann. Die Europäische Union hat ihre Eisenbahnpolitik in drei Eisenbahnpaketen bekannt gegeben. Zweck dieser Rechtsvorschriften ist die Verbesserung der Effizienz und der Wettbewerbsfähigkeit, was durch eine Marktöffnung (Liberalisierung) und die Entwicklung sicherer, transeuropäischer und interoperabler Dienste erreicht werden soll. Wenngleich eine Interoperabilität des Eisenbahnverkehrs derzeit noch in nur sehr geringem Umfang gegeben ist, wird es dank der technischen Entwicklung in naher Zukunft zu einer immer besseren Verfügbarkeit dieser Dienste kommen. Das Endziel ist die Öffnung des Marktes für die Beförderung auf dem Schienenweg.

Um die Gesundheit und Sicherheit der im Bahnverkehr tätigen Personen zu gewährleisten und zu verhindern, dass die Wettbewerber ausschließlich unter Ausnutzung unterschiedlicher Arbeitsbedingungen miteinander konkurrieren, haben die Gemeinschaft der europäischen Bahnen (CER, Community of European Railways) und die Europäische Transportarbeiter-Föderation (ETF) eine Vereinbarung miteinander geschlossen, in der bestimmte Aspekte der Einsatzbedingungen des fahrenden Personals im interoperablen grenzüberschreitenden Verkehr im Eisenbahnsektor geregelt werden (27. Januar 2004, nachstehend als "Vereinbarung" bezeichnet). Dieses Abkommen enthält Mindeststandards in Bezug auf die Fahrt- und Ruhezeiten. Am 18. Juli 2005 erließ der Rat die Richtlinie 2005/47/EG (nachstehend als "Richtlinie" bezeichnet), mit der die Vereinbarung für alle Mitgliedstaaten rechtsverbindlich wurde. Dadurch sind die Mitgliedstaaten verpflichtet, nach einer Konsultation der Sozialpartner alle für die Einhaltung der Richtlinie erforderlichen Gesetze, Verordnungen und Verwaltungsvorschriften bis zum 27. Juli 2008 in Kraft zu setzen oder sicherzustellen, dass die erforderlichen Vorschriften von den Sozialpartnern bis zu diesem Datum mittels einer Vereinbarung eingeführt worden sind.

Bei der Besprechung des Richtlinienentwurfs durch den Rat wurde insbesondere über Ziffer 4 diskutiert. Diese Ziffer enthält die Bestimmung, dass auf eine tägliche auswärtige Ruhezeit eine tägliche Ruhezeit am Wohnort folgen muss. Einige Delegationen brachten ihre Bedenken bezüglich der Zweckmäßigkeit dieser Bestimmung zum Ausdruck, da manche Strecken und somit auch die auf solchen Strecken gegebenen Fahrzeiten sehr lang sind. In Bezug auf die auswärtige Ruhezeit einigten sich die Sozialpartner darauf, dass zwischen den Sozialpartnern auf Unternehmensebene oder auf nationaler Ebene über eine *zweite zusammenhängende auswärtige Ruhezeit* verhandelt werden kann (Fußnote zu Ziffer 4). Auf europäischer Ebene sollte über die Frage der *Zahl der zusammenhängenden auswärtigen Ruhezeiten* sowie des *Ausgleichs* für die auswärtigen Ruhezeiten neu verhandelt werden.

Zum Zeitpunkt der Verabschiedung der Richtlinie gab die Kommission die folgende Erklärung ab (siehe Ausschreibungsbedingungen, Anhang 1): "Die Kommission legt großen Wert auf die Entwicklung des Schienenverkehrs, die aus den für die Entwicklung der europäischen Eisenbahnen eingeführten Richtlinien der Gemeinschaft

resultiert, zu denen auch Schritte gehören, die zu einer Marktöffnung führen sollen. Sie hofft, dass die Sozialpartner zu dieser Entwicklung beitragen werden und dass sich die Entwicklung des Sektors in dem sozialen Dialog widerspiegeln wird. Sie hat die Absicht, den Ausschuss des Sozialen Dialogs unverzüglich darum zu bitten, seine Repräsentativität entsprechend dieser Entwicklung zu erweitern. Vor diesem Hintergrund schlägt die Kommission vor, dem Rat vor dem in Artikel 5 der Richtlinie genannten Datum einen Bericht vorzulegen, in dem die wirtschaftlichen und sozialen Auswirkungen der von den Sozialpartnern getroffenen Vereinbarung für Unternehmen und Arbeitnehmer sowie der auf Grund der Ziffern 10 und 11 der Vereinbarung geführten Gespräche im Rahmen des sozialen Dialogs über sämtliche relevanten Themen einschließlich Ziffer 4 Berücksichtigung finden. Sie beabsichtigt, die erforderlichen Initiativen zu ergreifen, indem sie einen Antrag auf Änderung der Richtlinie stellt, wenn die Sozialpartner eine neue Vereinbarung treffen, selbst wenn diese vor dem in Artikel 5 der Richtlinie genannten Datum getroffen wird."

Die GD Beschäftigung, soziale Angelegenheiten und Chancengleichheit hat eine Studie zu den wirtschaftlichen und sozialen Auswirkungen dieser Vereinbarung auf Unternehmen und Arbeitnehmer im Eisenbahnsektor in Auftrag gegeben. Für die Durchführung dieser Studie hat TNO ein multidisziplinäres Team gebildet, in dem Fachleute auf dem Gebiet der Arbeitszeiten, der Arbeitsbedingungen und der Gesundheit und Sicherheit von Arbeitnehmern sowie ferner Fachleute auf dem Gebiet des internationalen Schienenverkehrs vertreten sind.

Unterstützt wird dieses TNO-Team von dem niederländischen Marktforschungsunternehmen TNS NIPO, dessen Aufgabe die Durchführung von Fallstudien in den notwendigen Mitgliedstaaten war.

Ziel des Projekts

Mit der Studie werden drei Ziele verfolgt:

1. Es soll ein Überblick über die Entwicklung des interoperablen grenzüberschreitenden Verkehrs im Eisenbahnsektor in der Europäischen Union (und, falls anwendbar, in den EWR-Staaten) geschaffen werden, der im Wesentlichen auf vorhandenen Forschungsdaten basiert.
2. Es soll untersucht werden, welche wirtschaftlichen Auswirkungen die als Anhang in die Richtlinie aufgenommene Vereinbarung, insbesondere die darin enthaltene Ziffer 4, für Unternehmen hat, wobei das besondere Augenmerk den eventuellen Auswirkungen für neue Unternehmen und der Entwicklung grenzüberschreitender Tätigkeiten gilt.
3. Es soll untersucht werden, welche wirtschaftlichen und sozialen Auswirkungen die als Anhang in die Richtlinie aufgenommene Vereinbarung, insbesondere die darin enthaltene Ziffer 4, für grenzüberschreitend arbeitendes fahrendes Personal hat, wobei das besondere Augenmerk dem Schutz der Gesundheit und Sicherheit gilt.

Um die wirtschaftlichen und sozialen Auswirkungen der Vereinbarung beurteilen zu können, war es außerdem erforderlich, eine Übersicht der derzeitigen Arbeitszeiten und Arbeitsbedingungen der betroffenen Arbeitnehmer sowie eventueller diesbezüglicher Änderungen zu erarbeiten.

Angewendete Methode

Es wurden mehrere Untersuchungsmethoden angewendet:

- *Analysen mit Hilfe des TRANS-TOOLS-Modells:* Das TRANS-TOOL-Modell ist ein für ganz Europa einzusetzendes Programm für die computergestützte Verkehrsplanung. Das Modell erlaubt die Simulation von Personenbeförderung

wie auch Gütertransport und bietet die Möglichkeit einer Verknüpfung mit einem Wirtschaftsmodell und mit Auswirkungsmodellen. Dieses Modell hat sich als wertvolles Instrument für die Beschreibung der Entwicklungen im Eisenbahnsektor und die Schätzung des Personalbedarfs für den grenzüberschreitenden Verkehr erwiesen.

- *Studium der wissenschaftlichen Literatur:* Wir haben die verfügbaren Unterlagen und die wissenschaftliche Literatur über Arbeitsbedingungen, Arbeitszeiten und Arbeitgeber-Arbeitnehmerbeziehungen im europäischen Eisenbahnsektor studiert. Die wissenschaftliche Literatur erwies sich als sehr nützlich für die Festlegung wichtiger Risikofaktoren hinsichtlich der Frage des Zusammenhangs zwischen der Gesundheit und Sicherheit von Arbeitnehmern einerseits und ihren Arbeitszeiten andererseits.
- *Befragung europäischer Stakeholder:* Wir haben auf europäischer Ebene Gespräche mit den wichtigsten Stakeholdern im grenzüberschreitenden Bahnverkehr geführt. Von diesen Stakeholdern erhielten wir nützliche Informationen zu diesem Themenbereich sowie Kontakte für die Durchführung der Fallstudien.
- *Nationale Fallstudien in sechs Mitgliedstaaten:* Den Kern der Untersuchung bilden jedoch neue Daten, die durch die Befragung von Managern von zehn Eisenbahngesellschaften sowie von sechs Gewerkschaftsvertretern gesammelt wurden. Zwar wurde mit diesen Fallstudien nur ein begrenzter Bereich abgedeckt, doch sie waren auf Grund ihrer Repräsentativität von großem Nutzen. Die Auswahl repräsentiert die breite Palette der verschiedenen europäischen Länder, öffentlich-rechtlichen Unternehmen und des Personen- und Güterverkehrs.

Entwicklung des interoperablen Verkehrs im Eisenbahnsektor in der EU

Zum Zeitpunkt der Studie waren in der Europäischen Union 62 international operierende Eisenbahngesellschaften aktiv. Davon waren 19 auf dem Gebiet des Personenverkehrs tätig, 17 auf dem Gebiet des Güterverkehrs und 23 auf beiden Gebieten; bei drei Unternehmen ist nicht bekannt, in welchem Sektor des Transportwesens sie operieren. Der Markt vermittelt den Eindruck, dass er einem deutlichen Wandel unterliegt.

Im Bereich des Personenverkehrs ist festzustellen, dass staatliche oder ehemals staatliche Gesellschaften nach wie vor die meisten Transportleistungen ausführen. Derzeit werden zwischen den Ländern in Europa zusätzliche Hochgeschwindigkeits-Bahnstrecken gebaut. Diese Bahnlinien werden von neu gegründeten Joint-ventures betrieben, an denen staatseigene Gesellschaften aus den mit der Linie verbundenen Ländern beteiligt sind. In der Zukunft könnte die Möglichkeit geschaffen werden, den grenzüberschreitenden Personenverkehr von einer größeren Zahl privater Unternehmen ausführen zu lassen, doch weil nach dem geltenden Marktsystem eine Konzession für die Beförderung von Personen benötigt wird, gestaltet sich der Aufbau eines Schienenbetriebs schwieriger als im Güterverkehrssektor. Passagierzüge waren 2005 im grenzüberschreitenden Verkehr vor allem zwischen Paris, London, Brüssel, Amsterdam und dem Ruhrgebiet unterwegs. Darüber hinaus war in den Alpen (Schweiz, Österreich und Norditalien) ein hohes Aufkommen im grenzüberschreitenden Schienenverkehr zu beobachten. Die Schienenverbindungen, die 2005 das höchste Aufkommen hatten, werden auch im Jahr 2020 am stärksten genutzt werden. Allerdings werden die Fahrzeiten kürzer ausfallen, weil eine größere Zahl von Hochgeschwindigkeitsverbindungen zur Verfügung steht.

Wir haben die Zahl der Personen (Triebfahrzeugführer und Schaffner), die im Jahr 2005 in Europa im grenzüberschreitenden Verkehr tätig waren, auf 5.563 FTE-

Einheiten (Vollzeitarbeitseinheiten) geschätzt. Auf der Grundlage dieser Zahl beträgt die Zunahme bis zum Jahr 2020 8 Prozent.

Auf dem Sektor des *Schienengüterverkehrs* ist die Zahl der privaten Unternehmen größer. Diese Feststellung trifft sowohl für den nationalen Markt als auch für den grenzüberschreitenden Güterverkehrssektor zu. Der Anstieg des Frachtaufkommens innerhalb bestimmter Länder sowie zwischen verschiedenen Ländern erklärt sich zum Teil aus der Liberalisierung des Marktes. Im Jahr 2005 waren die meisten grenzüberschreitend betriebenen Güterzüge in dem Korridor Rotterdam-Norditalien und in Deutschland, Mitteleuropa und den baltischen Staaten unterwegs. Im Jahr 2020 wird der Schienengüterverkehr in ganz Europa gewachsen sein; das höchste Aufkommen wird es jedoch zwischen den nordwesteuropäischen und den mitteleuropäischen Ländern geben. Wir haben die Zahl der Personen (Triebfahrzeugführer), die im Jahr 2005 in Europa im grenzüberschreitenden Güterverkehr tätig waren, auf 4.677 FTE-Einheiten geschätzt. Diese Zahl wird den Erwartungen nach erheblich zunehmen, und zwar um 200 Prozent (mehr als 14.000 FTE-Einheiten im Jahr 2020!).

Diese Zahlen können auch niedriger ausfallen, insbesondere dann, wenn ein größerer Teil der Arbeitszeit für das Führen der Züge aufgewendet wird, aber auch auf Grund der sich derzeit vollziehenden Produktivitätssteigerung (durch die Entwicklung von Schienennetzen, die dem Güterverkehr vorbehalten sind, von Korridoren und von neuer Signaltechnik).

Die Richtlinie schreibt Folgendes vor:

- Ziffer 3: Die tägliche Ruhezeit am Wohnort hat eine Dauer von mindestens 12 zusammenhängenden Stunden pro 24-Stunden-Zeitraum. Sie kann innerhalb eines Zeitraums von 7 Tagen einmal auf ein Minimum von 9 zusammenhängenden Stunden reduziert werden (...).
- Ziffer 4: Die auswärtige Ruhezeit hat eine Dauer von mindestens 8 zusammenhängenden Stunden pro 24-Stunden-Zeitraum. Auf eine auswärtige Ruhezeit muss eine tägliche Ruhezeit am Wohnort folgen (...).
- Ziffer 5: Beträgt die Arbeitszeit eines Triebfahrzeugführers mehr als 8 Stunden, wird eine Pause von mindestens 45 Minuten während des Arbeitstages gewährt. Oder: Beträgt die Arbeitszeit zwischen 6 und 8 Stunden, dauert diese Pause mindestens 30 Minuten und wird während des Arbeitstages gewährt. (...) Für das übrige Personal an Bord des Zuges wird eine Pause von mindestens 30 Minuten gewährt, wenn die Arbeitszeit mehr als 6 Stunden beträgt.
- Ziffer 6: Dem fahrenden Personal, das im interoperablen grenzüberschreitenden Verkehr eingesetzt ist, wird pro 7-Tage-Zeitraum eine zusammenhängende Mindestruhezeit von 24 Stunden zuzüglich der täglichen Ruhezeit von 12 Stunden gemäß Ziffer 3 gewährt (...).
- Ziffer 7: Die Fahrzeit (...) darf bei einer Tagesschicht 9 Stunden und bei einer Nachtschicht zwischen zwei täglichen Ruhezeiten 8 Stunden nicht überschreiten. Die maximale Fahrzeit ist pro Zeitraum von zwei Wochen auf 80 Stunden begrenzt.

Arbeitszeiten und Arbeitsbedingungen im grenzüberschreitenden Verkehr: derzeitige Situation und durch die Richtlinie bewirkte Veränderungen

Insgesamt entsprechen die heutigen Fahr- und Ruhezeiten im europäischen Eisenbahnsektor bereits den Regeln der Vereinbarung. Aus den Befragungen ging hervor, dass die nationalen Vorschriften oder Tarifabkommen striktere Schutzbestimmungen enthalten als die europäische Vereinbarung.

Wir haben die Unternehmen nach ihren tatsächlichen Arbeitszeitenregelungen befragt. Auf der Grundlage der Gespräche kann festgestellt werden, dass die durchschnittliche

Arbeitswoche sowohl im Personen- als auch im Güterverkehr zwischen 35 und 40 Stunden lang ist. Die maximale Fahrzeit beträgt zwischen 24 und 40 Stunden pro Woche. In der Vereinbarung wird die Fahrzeit bei einer Tagesschicht auf neun Stunden und bei einer Nachtschicht auf acht Stunden begrenzt. Zwei der zehn Gesellschaften halten sich nicht an diese Grenze. Im Schnitt dauern die Arbeitsschichten zwischen acht und zehn Arbeitsstunden sowie zwischen 6,5 und zehn Fahrstunden. Diese Ergebnisse lassen darauf schließen, dass nur eine geringe Zahl von Unternehmen seine Regeln in Bezug auf die maximal zulässige Fahrzeit wird ändern müssen; tatsächlich plant nur eine der Gesellschaften, die praktizierten Fahrzeiten pro Schicht zu ändern, und haben zwei Gesellschaften vor, die bei ihnen geltenden wöchentlichen Fahrzeiten zu ändern.

Die meisten Unternehmen folgen den Regeln für die täglichen Mindestruhezeiten. Zwei der zehn Gesellschaften folgen diesen Regeln, sei es in Bezug auf die auswärtige Ruhezeit oder die Ruhezeit am Wohnort, nicht. In Bezug auf die Vorschrift für die zusammenhängenden täglichen Ruhezeiten vertreten fünf der zehn Gesellschaften die Meinung, dass die Einhaltung dieser Bestimmung *nicht* immer möglich ist (oder in einem Fall sogar *unmöglich* ist). Die Unternehmen haben die Wahl aus drei Möglichkeiten:

- Rückbeförderung des Personals zum Wohnort nach dem Ende der Schicht (von dieser Methode macht eines der Gütertransportunternehmen Gebrauch);
- Neueinteilung der Dienstpläne, so dass die Schicht eines Mitarbeiters immer an dessen Wohnort endet (von dieser Methode machen drei Gütertransportunternehmen und zwei Personenbeförderungsunternehmen Gebrauch);
- Beschäftigung von Personen aus unterschiedlichen Regionen (drei Gütertransportunternehmen) oder Ländern (zwei Personenbeförderungsunternehmen), so dass die Strecken für einzelne Mitarbeiter kürzer ausfallen.

Die Einhaltung dieses Teils der Vereinbarung bringt beim Gütertransport offenbar verstärkt Probleme mit sich. Es ist zu bedenken, dass der Betrieb im Schienengüterverkehr von geringerer Konstanz ist und unvorhergesehenen Einflüssen stärker ausgesetzt ist als die Personenbeförderung.

Was die Ruhezeiten während der Schichten angeht, so scheinen alle Gesellschaften ausreichend lange Pausen zu gewähren. Allerdings ist es in diesem Sektor nicht immer möglich, sich diese Pause genau zu jenem Zeitpunkt zu nehmen, an dem man sie braucht, und die Mitarbeiter haben nicht immer die Möglichkeit, ihren Arbeitsplatz für eine Pause zu verlassen. Drei Gesellschaften haben die Absicht, neue Regeln für ihre Ruhezeiten festzulegen. Zum Zeitpunkt der Studie waren die Verhandlungen darüber noch nicht abgeschlossen.

Aus der Literatur ist bekannt, dass die faktischen Auswirkungen der Arbeitszeiten auf die Gesundheit und Sicherheit komplex sind und von einer Vielzahl anderer arbeitsbezogener Faktoren abhängig sind. Um die sozialen Auswirkungen von Arbeitszeiten beurteilen zu können, müssen deshalb nicht nur die tatsächlichen Arbeits- und Ruhezeiten bekannt sein, sondern kommt es auch darauf an, sich einen Einblick in andere Aspekte der Einsatzbedingungen zu verschaffen und sich ein Bild davon zu machen, inwiefern die Arbeitnehmer Einfluss auf ihre eigene Arbeitszeit nehmen können. So kann eine Tätigkeit etwa zu nächtlicher Stunde oder am frühen Morgen in Kombination mit langen Arbeitszeiten die Gefahr der Übermüdung mit sich bringen. Muss am Wochenende oder zu unregelmäßigen Zeiten gearbeitet werden, so besteht eine Gefahr für die Vereinbarkeit von Berufs- und Familienleben. Wenn die Arbeitnehmer selbst über ihre Arbeitszeit bestimmen können, ließen sich diese Risiken möglicherweise verringern.

Wir haben die Gewerkschaften hinsichtlich einer Reihe von Aspekten in Bezug auf die Arbeitszeit gefragt, ob sie glauben, dass das Personal im grenzüberschreitenden Verkehr Risiken ausgesetzt ist. Als größtes Risiko gilt die Tätigkeit in langen Schichten; dahinter folgen die Arbeit zu später Stunde, zu wenig Erholung zwischen den Schichten und unregelmäßige Arbeitszeiten. Als weiteres Risiko wurde von den Gewerkschaften die Nacharbeit genannt.

Wir haben sowohl Manager als auch Gewerkschafter hinsichtlich einer Reihe von Aspekten in Bezug auf die Arbeitsbedingungen gefragt, ob sie glauben, dass das Personal im grenzüberschreitenden Verkehr Risiken ausgesetzt ist. Die Gewerkschaftsvertreter nennen eine größere Zahl von Risiken und einen höheren Risikograd als die Manager. Die höchsten der von den Gewerkschaften genannten Risiken sind schlechte Umgebungsbedingungen und starker Zeitdruck. Die Manager nannten als höchstes Risiko die Ausführung monotoner Aufgaben.

Die in unserer Fallstudie befragten Gewerkschaften sind *nicht* der Meinung, dass das Risiko für die Arbeitnehmer in mangelndem Einsatz bei der Ausarbeitung der Dienstpläne oder mangelnder Selbstbestimmung bei der Einteilung der Arbeitszeit liegt. Die Manager der in der Fallstudie untersuchten Gesellschaften machen unterschiedliche Aussagen in Bezug auf dieses Engagement: Sie beteiligen entweder Arbeitnehmervertreter an der Aufstellung der Dienstpläne oder ändern die Dienstpläne ab, um individuelle Wünsche zu berücksichtigen. Eines der Unternehmen berücksichtigt nur gelegentlich individuelle Wünsche in seinen Dienstplänen und gibt an, dass es keine sonstigen Maßnahmen durchführt; ein anderes Unternehmen erklärt, dass es in diesem Punkt überhaupt keine Maßnahmen trifft.

Auswirkungen der Vereinbarung auf den Betrieb entlang der derzeitigen Strecken und Schätzung der wirtschaftlichen Kosten

Da die Lohnkosten im Vergleich zu den anderen Betriebskosten gering ausfallen, hat die Vereinbarung nach unserer Erwartung keine Auswirkungen auf den Betrieb der Verbindungen in der Zukunft. In diesem Sektor gibt es mehrere unabhängige Trends, die Einfluss auf die Entwicklung von Schienenverbindungen haben, wie zum Beispiel den technischen Fortschritt und eine größere Kapazität der Infrastruktur. Die Begrenzung der Fahrzeit einzelner Personen stellt in der Gesamtentwicklung des Sektors nur einen sehr kleinen Aspekt dar. Die Tatsache, dass die Regeln für die Fahr- und Ruhezeiten insgesamt schon jetzt der Richtlinie entsprechen oder noch strenger sind, bedeutet auch, dass die wirtschaftlichen Auswirkungen der Vereinbarung begrenzt sein werden.

In unserer Studie haben wir festgestellt, dass die nationalen Stakeholder positiv darüber urteilen, dass mit der Vereinbarung einheitliche Rahmenbedingungen und klare Regeln für alle Beteiligten geschaffen werden.

Von allen Aspekten der Vereinbarung scheint insbesondere die Regel, dass auf eine auswärtige Ruhezeit eine Ruhezeit am Wohnort folgen muss (Ziffer 4) für die im Frachttransport tätigen Unternehmen das größte Problem darzustellen. Fünf von sechs Frachtunternehmen sind nicht (immer) in der Lage, ihre Arbeitnehmer nach einer auswärtigen Ruhezeit nach Hause zu befördern. Uns liegen Beispiele von Arbeitszeitplänen vor, bei denen der Triebfahrzeugführer die Woche über nicht nach Hause kommt und das Wochenende zu Hause verbringt, doch wir wissen nicht, wie repräsentativ diese Beispiele sind. Drei von sechs Frachtunternehmen teilen mit, dass Arbeitnehmer bis zu drei Tage von zu Hause fort sind; ein Unternehmen spricht sogar von zwei bis drei Wochen. Allerdings werden auswärts verbrachte Zeiträume, die länger als zwei Tage sind, von keiner der Gewerkschaften erwähnt. Insgesamt sieht man eher positive als negative Auswirkungen von Ziffer 4. Die Aufstellung der

Dienstpläne bereitet den Unternehmen zwar Probleme, doch sie freuen sich auch über einheitliche europäische Normen.

Es wird darauf hingewiesen, dass einem Unternehmen verschiedene Kombinationen der oben stehend erwähnten Möglichkeiten zur Wahl stehen. Dies wird die Unternehmen zu einer Abwägung der Kosten und Nutzeffekte der einzelnen Kombinationen veranlassen: So muss beispielsweise eine Entscheidung zwischen den Kosten für die Ausbildung neuer Mitarbeiter für die gesamte Strecke, den Kosten für die Einstellung neuer Mitarbeiter an verschiedenen Standorten und den Kosten einer Investition in hochwertigere Anlagen entlang der Strecke getroffen werden, in denen sich das Personal ausruhen kann. Mit Blick auf die Probleme, denen sich die Gesellschaften auf dem Arbeitsmarkt gegenübersehen werden, empfehlen wir den Gesellschaften, in Zusammenarbeit mit ihren Beschäftigten neue Methoden zu entwickeln und auf diese Weise attraktive Beschäftigungsangebote für eine divergierende Belegschaft zu schaffen.

Auswirkungen der Vereinbarung auf die Gesundheit und Sicherheit der Arbeitnehmer und Schätzung der sozialen Kosten

Da die derzeit geltenden Arbeitszeiten überwiegend der Richtlinie entsprechen oder noch strikter formuliert sind, ergeben sich durch die Vereinbarung (kurzfristig) nur begrenzte soziale Auswirkungen.

Allerdings kann die Vereinbarung dazu führen, dass die Gesamtdauer der Arbeitswoche zunimmt. Es ist klar, dass die Umsetzung der Richtlinie nicht dazu führen darf, dass der bisherige Schutz der Arbeitnehmer auf ein geringeres Niveau abgesenkt wird (Rückschrittsklausel: Ziffer 9 der Vereinbarung). Nach den in der Vereinbarung enthaltenen Mindeststandards darf die maximale Fahrzeit jedoch pro Zeitraum von zwei Wochen bis zu 80 Stunden betragen; die tatsächliche Arbeitszeit kann sogar noch länger ausfallen. Unsere Untersuchungen lassen keine Aussagen hinsichtlich der Frage zu, ob dieser Fall eintreten wird, doch eine sorgfältige Beobachtung ist angebracht.

In Bezug auf Ziffer 4, und dabei insbesondere auf die zusammenhängende auswärtige Ruhezeit und die zusammenhängende Ruhezeit am Wohnort, sind die nationalen Stakeholder hinsichtlich der sozialen Auswirkungen geteilter Meinung. Unterschiedliche Ansichten bestehen auch in Bezug auf den möglichen Ausgleich für den Einsatz im Ausland oder die auswärtige Ruhezeit.

Unter dem Gesichtspunkt der Gesundheit und Sicherheit der Arbeitnehmer spielt die Dauer der Schicht in Kombination mit der Dauer und der Qualität der Ruhepause eine wichtige Rolle. Aus Literaturquellen ist bekannt, dass die Qualität der Ruhepause wichtiger ist als der Ort, an dem die Pause stattfindet: Auch am Wohnort kann die Qualität der Ruhepause ein Problem sein, vor allem dann, wenn die Pause tagsüber stattfindet, und über Tage zum Beispiel andere Personen im Haus aktiv sind. Unter dem Gesichtspunkt der Vereinbarkeit von Berufs- und Familienleben könnte der Ort für die Ruhepause einen wichtigen Faktor darstellen. Allerdings kann es unter den Beschäftigten unterschiedliche Präferenzen sowohl in Bezug auf ihre Arbeitszeiten als auch auf die Art und Weise der diesbezüglichen Abgeltung geben (Bezahlung, zusätzliche Urlaubstage). In dem vorliegenden Fall werden die Möglichkeiten, diesen Präferenzen Rechnung zu tragen, von der Vereinbarung offenbar *ingeschränkt*; sie bietet keine Antwort auf den Trend zu breiter gefächerten und individueller gestalteten Arbeitsverhältnissen. Dies wird von mehreren Befragten als Problem der Vereinbarung angesehen. Ein wichtiges Thema in Bezug auf die Vereinbarkeit von Berufs- und Familienleben ist der Einfluss einzelner Arbeitnehmer auf ihre Arbeitszeiten. Die selbständige Festlegung der Arbeitszeiten kann als Mittel zur Abmilderung möglicher

arbeitszeitbedingter Auswirkungen betrachtet werden. Legt man die Ergebnisse der nationalen Fallstudien zugrunde, so macht sich dieser Einfluss in unterschiedlicher Weise bemerkbar: zum Beispiel durch einen formellen Vertrag mit den Gewerkschaften, aber auch durch die Berücksichtigung individueller Wünsche in die Dienstpläne.

Ein weiteres Problem - oder unerwünschter Nebeneffekt - wird von einem der Manager erwähnt: Strecken und Dienstpläne können so gestaltet werden, dass die Arbeitnehmer mehr Zeit zuhause verbringen können; dies bedeutet jedoch, dass der einzelne Mitarbeiter *öfter auf den gleichen Strecken* arbeitet.

Unterschiede zwischen Unternehmen und Ländern

Zwischen privaten und öffentlichen Unternehmen sind keine großen Unterschiede festgestellt worden. Auch zwischen den verschiedenen europäischen Unternehmen (oder Ländern) ist die Zahl der Gemeinsamkeiten größer als die der Unterschiede. Relevante Unterschiede wurden allerdings zwischen dem Bereich des Personenverkehrs und dem Bereich des Güterverkehrs festgestellt, was auf die unterschiedlichen Merkmale dieser Beförderungsarten zurückzuführen ist. Diese Unterschiede hängen mit dem unterschiedlichen Charakter dieser Verkehrsbereiche zusammen.

Empfehlungen

- Diese Studie stützt sich auf eine begrenzte Zahl von Fallstudien und wurde durchgeführt, als die Richtlinie umgesetzt wurde. Wir haben festgestellt, dass einige der Vorschriften in Bezug auf Arbeitszeiten über das Schutzniveau in der Vereinbarung hinausgehen. Wir haben außerdem festgestellt, dass die Unternehmen noch immer nach einem Weg suchen, die Bestimmungen über Ruhezeiten zu erfüllen. Sowohl auf europäischer als auch auf nationaler Ebene sollten die zukünftigen Entwicklungen von den Behörden und den Sozialpartnern sorgfältig beobachtet werden.
- Wir empfehlen insbesondere, die Gesamtdauer der Schicht und die Länge der Arbeitswoche zu beobachten, da von Ziffer 7 nur die Fahrzeit und nicht die Gesamtarbeitszeit begrenzt wird. Unter dem Gesichtspunkt des Arbeitsschutzes sind Schichten, die mehr als neun Stunden (Tag) beziehungsweise acht Stunden (Nacht) dauern, nicht zu empfehlen.
- Allerdings sollten bei jedem Dienstplan sämtliche diesbezüglichen Grundsätze Berücksichtigung finden; die Auswirkungen der Schichtlänge auf die Sicherheit und Gesundheit können durch eine Änderung der Ruhezeit (Zeitspanne für die Erholung) gemildert (oder verschärft) werden.
- Da die Auswirkungen der Arbeitsbedingungen auf die Gesundheit und Sicherheit Teil eines komplexen Musters sind, ist darauf zu achten, dass die Dienstpläne nach ergonomischen Grundsätzen gestaltet werden, die über die in der Vereinbarung enthaltenen Bestimmungen hinausgehen. Dies könnte bedeuten, dass eine Reihe von "gesunden" Dienstplänen ausgearbeitet werden, die jeweils eine bestimmte Kombination aus Variablen wie der Schichtdauer, der Zahl der hintereinander abzuleistenden Schichten, der Tageszeit, zu der gearbeitet wird, den Ruhezeiten, dem Arbeitsinhalt und der Möglichkeit zu pausieren sowie den persönlichen Präferenzen darstellen. Damit kann der Eisenbahnsektor auf einem knappen Arbeitsmarkt ein attraktives Tätigkeitsfeld werden (beziehungsweise bleiben).
- Bei Verhandlungen über Ziffer 4 schlagen wir außerdem vor, alle Aspekte der Dienstpläne dahingehend zu berücksichtigen, dass gesunde Arbeitsplätze geschaffen (oder erhalten) werden. Dazu zählen etwa die Länge der Schicht, die

Dauer und Qualität der Ruhepause, die Arbeit in Nacht- und Frühschichten, aber auch die jeweilige Tätigkeit des Arbeitnehmers.

- Bei Verhandlungen über Ziffer 4 schlagen wir außerdem vor, dass sowohl das unternehmerische Bedürfnis nach Flexibilität als auch das Bedürfnis der Beschäftigten nach maßgeschneiderten Arbeitsverhältnissen in die Überlegungen einbezogen werden. Unter der Belegschaft kann es unterschiedliche Präferenzen in Bezug auf die Art und Weise geben, in der Privatleben und Beruf vereint werden, oder in Bezug auf ihr Beschäftigungsverhältnis (Arbeitszeiten, Arbeitsinhalt, beruflicher Aufstieg, Gehalt). Im Hinblick auf den Personalbedarf im Schienenverkehr und das knappe Angebot am Arbeitsmarkt ist es wichtig, dass sich die Eisenbahngesellschaften als attraktive Arbeitgeber präsentieren.
- Ein Aspekt, den wir in der derzeitigen Vereinbarung nicht finden, ist die Beteiligung der Arbeitnehmer auf Unternehmensebene an der Gestaltung ihrer Dienstpläne und Arbeitszeiten. Zurzeit äußern sich die Befragten in den untersuchten Fällen positiv zu dieser Beteiligung. Allerdings stellen wir fest, dass sich viele Unternehmen jeweils entweder auf eine kollektive oder eine individuelle Mitbestimmung festlegen.
- Wir haben anhand unserer Literaturstudie festgestellt, dass die Selbstbestimmung der Arbeitnehmer bei der Einteilung der Arbeitszeit ein wichtiges Mittel für den Ausgleich zwischen der Arbeitszeit einerseits und der Gesundheit und Sicherheit andererseits sowie für den Ausgleich zwischen Beruf und Familie ist. Ferner haben wir festgestellt, dass verschiedene Unternehmen unterschiedliche Methoden wählen, um den Arbeitnehmern Einflussmöglichkeiten zu bieten. Um gesunde Einsatzbedingungen zu schaffen und die Attraktivität als Arbeitgeber zu wahren, empfehlen wir als ergänzende Maßnahme, den Dialog zwischen den Arbeitnehmern und der Geschäftsleitung innerhalb des Unternehmens sowohl auf kollektiver Ebene wie auch auf der Ebene einzelner Arbeitsverhältnisse zu fördern.

Kernpunkte

- Der internationale Schienenverkehr wächst in allen Bereichen und insbesondere im Güterverkehrssektor
- Der Gesamtbedarf an Personal im grenzüberschreitenden Eisenbahnverkehr steigt zwischen 2005 und 2020 um schätzungsweise 68 Prozent.
- Da die Lohnkosten im Vergleich zu den anderen Betriebskosten gering sind, hat die Vereinbarung nach unserer Erwartung keine Auswirkungen auf die Entwicklung von Strecken.
- Innerhalb des Sektors gibt es mehrere unabhängige Trends, die von Einfluss auf die Entwicklung von Strecken sind.
- Insgesamt betrachtet entsprechen die Fahr- und Ruhezeiten im europäischen Eisenbahnsektor schon jetzt denn in der Vereinbarung enthaltenen Bestimmungen.
- Das bedeutet, dass die Vereinbarung nur begrenzte (soziale und wirtschaftliche) Auswirkungen haben wird.
- In einigen Fällen liegt die Gesamtdauer einer Schicht über der in der Vereinbarung festgelegten Höchstdauer.
- Lange Schichten können als Risikofaktor für die Gesundheit und Sicherheit angesehen werden (insbesondere in Kombination mit Nacharbeit und der Durchführung monotoner Aufgaben).
- Die Entwicklung der tatsächlichen Schichtdauer muss sorgfältig beobachtet werden.
- Ein weiterer Risikofaktor ist die vorher nicht bekannte Einteilung der Dienstpläne.
- Die Regel, dass auf eine auswärtige Ruhezeit eine Ruhezeit am Wohnort folgen muss, stellt die Unternehmen vor operationelle Probleme und wird in der Praxis nicht immer befolgt.. Zu den im Gütertransportsektor praktizierten Methoden gehört es offenbar auch, dass die Triebfahrzeugführer eine Arbeitswoche auswärts verbringen (wobei sich die Fahr- und Ruhezeiten nach dem Fahrplan richten) und am Wochenende zu Hause sind. In diesen Fällen wird eine zweite zusammenhängende Ruhezeit am Wohnort nicht ausreichend sein, weil die Mitarbeiter fünf Tage lang nicht nach Hause kommen.
- Diese Bestimmung stellt auch ein Hindernis für die Bemühungen dar, einzelne Arbeitsverhältnisse individueller zu gestalten.
- Von den sechs Gewerkschaften haben drei den Wunsch, Gespräche über dieses Thema zu führen. Von den zehn Unternehmen möchten sechs über dieses Thema sprechen.
- Die Möglichkeit der Arbeitnehmer, Einfluss auf ihre Dienstpläne und Pausenorte zu nehmen, stellt sowohl auf tarifvertraglicher als auch auf individueller Ebene einen wichtigen Faktor bei der Vermeidung gesundheitlicher Gefährdungen dar und hilft darüber hinaus, auf einem knappen Arbeitsmarkt als Arbeitgeber attraktiv zu bleiben.

1 Introduction

On 27 January 2004 the Community of European Railways (CER) and the European Transport Workers' Federation (ETF) concluded an agreement regarding certain aspects of the working conditions of mobile workers engaged in interoperable cross-border services in the railway sector (further referred to as the Agreement: see Annex 2). This Agreement includes minimum standards with regard to working conditions, such as daily and weekly rest times, breaks, working time and driving periods.

Since the early 1990s EU legislation is implemented in order to reverse the railway sector's declining share in the transport market. Transport by rail is supported by policy makers, because it is considered as more sustainable for the environment than transport by road and it can help to reduce congestion on the roads. The EU published its rail policy in three railway packages (see: ec.europa.eu/transport/rail/package2003/index_en.htm). This legislation aims at improving efficiency and competitiveness by opening market access (liberalisation) and the development of safe trans-European traffic and thus interoperable services. Although at the moment the interoperability of railway services is still limited in scale, technological development will make these services more and more available in the near future. The ultimate goal is to open up the rail transport market.

To protect the health and safety of the mobile workers and to avoid competition based solely on differences in working conditions, social partners concluded the above mentioned Agreement. This was necessary since Directive 2003/88/EC, having repealed the two previous Directives that lay down minimum requirements to encourage improvements in the working environment, made it possible for national legislation to provide for specific working conditions for workers working on trains.

On 18 July 2005 the Council adopted Directive 2005/47/EC, thereby making the Agreement legally binding on all Member States (further referred to as the Directive; see Annex 2). Member States shall, after consultation with the social partners, bring into force the laws, regulations and administrative provisions necessary to comply with this Directive by 27 July 2008 or shall ensure that the social partners have adopted the necessary provisions by means of an Agreement by that date.

The Directive stipulates:

- Clause 3: Daily rest at home must be a minimum of 12 consecutive hours per 24-hour period. However, it may be reduced to a minimum of nine hours once every seven-day period (...);
- Clause 4: The minimum daily rest away from home shall be eight consecutive hours per 24-hour period. A daily rest away from home must be followed by a daily rest at home (...);
- Clause 5: If the working time of a driver is longer than eight hours, a break of at least 45 minutes shall be taken during the working day. Or: When the working time is between six and eight hours, this break shall be at least 30 minutes long and shall be taken during the working day (...). For other on-board staff, a break of at least 30 minutes shall be taken if the working time is longer than six hours;
- Clause 6: Any mobile worker engaged in interoperable cross-border services is entitled, per seven-day period, to a minimum uninterrupted weekly rest period of 24 hours plus the 12 hours daily rest period referred to in Clause 3 above (...);

- Clause 7: The driving time (...) shall not exceed nine hours for a day shift and eight hours for a night shift between two daily rest periods. The maximum driving time over a two-week period is limited to 80 hours.

During the negotiations in the Council of the proposal for the Directive, Clause 4 was particularly discussed. Some delegations expressed concerns about the adequacy of this Clause, due to the length of some routes and to the time needed to operate these routes. Regarding the rest away from home social partners agreed that a *second consecutive rest away from home* could be negotiated between social partners at undertaking or national levels (Footnote of Clause 4). At the European level, the question of the *number of consecutive rests away from home* as well as *compensation* for the rest away from home would be renegotiated. At the time of the study (Spring 2008), at the EU level such negotiations between CER and ETF were still taking place.

At the time of adoption of the Directive, the Commission made the following statement (see the Tender Specifications, Annex 1): “The Commission attaches great importance to the development of rail transport resulting from the Community Directives adopted to develop European railways, including moves towards opening up the market. It hopes that the social partners will contribute to this development and that the social dialogue will reflect the evolution of the sector. It intends forthwith to ask the social dialogue committee to widen its representativity in line with that evolution. In this context, the Commission proposes to submit to the Council before the date referred to in Article 5 of the Directive a report taking account of the economic and social impact of the social partners' agreement on undertakings and workers and of the social dialogue talks held under Clauses 10 and 11 of the agreement on all pertinent issues, including Clause 4. It intends to take the initiatives necessary, by proposing an amendment to the Directive, should the social partners reach any new agreement, even if it is concluded before the date referred to in Article 5 of the Directive.”

DG Employment, Social Affairs and Equal opportunities has commissioned a study on the economic and social impact of this Agreement on workers and companies within the railway sector.

For the purpose of this study, TNO has formed a multi-disciplinary team with expertise in the field of working hours, working conditions and employee's health and safety, and with expertise in the field of international railway transport. This TNO team has been completed with TNS NIPO, in order to carry out case studies in the necessary Member States.

In this Final Report we will describe the results of this study. In Chapter 2 the starting points and objectives are formulated. In Chapter 3 we will describe the research method. Chapter 4 describes the results of the study. Annex 1 gives an extract of the Tender Specifications. Annex 2 presents the text of the Agreement. Annex 3 describes developments within the European railway sector, cross-border routes and number of workers engaged. Annex 4 shows maps of all cross-border transport within Europe. Annex 5 gives an overview of all railway companies active at the moment of the research. Annex 6 describes the results of a literature study on working time within the railway sector and presents indicators for healthy working hours. Annex 7 shows the research model, used in order to analyse the impact of the Agreement. Annex 8 presents the results of the national case studies.

2 Starting Points, Problem Definition and Objectives

2.1 Subject of the study

The purpose of the study is threefold:

1. To provide an overview of the development of interoperable cross-border transport in the railway sector within the EU (and, when applicable, the EEA countries), based essentially on existing research;
2. To assess the economic impact of the Agreement annexed to the Directive, especially of Clause 4, on undertakings, with particular regard to any impact on new companies and the development of cross-border activities;
3. To assess the economic and social impact of the Agreement annexed to the Directive, especially of Clause 4, on cross-border mobile workers, with particular regard to the protection of health and safety.

More in detail, the following goals were given by DG Employment, Social Affairs and Equal opportunities:

1. Identify the railway companies operating cross-border interoperable services;
2. Identify the cross-border routes operated by each company and types of goods carried;
3. Collect information on number of workers engaged in cross-border activities, working hours of workers concerned, working time arrangements, working conditions in general, etc.;
4. Identify the main patterns of working time which were in effect before the conclusion of the Agreement, any changes already made as a result of the Agreement, and those which will be required in order to comply with the Directive;
5. Assess the benefits to workers' health and safety of the implementation of the minimum requirements contained in the Directive, whether further change should be considered regarding working time, and the expected social and economic impact of such changes;
6. Assess whether the application of the provisions of the Directive will entail changes in the operation of the current routes;
7. Estimate whether the application of the provisions of the Directive could hinder the development of new routes in the future;
8. Estimate the economic and social costs, if any, of the application of the Directive and their importance compared with total costs of exploitation;
9. On the basis of the previous results, identify the areas where improvements could be made to the text.

2.2 Translation of objectives into Work Packages

For the study, these goals are broken down into two Work Packages (WP1 and WP2: see Chapter 3 for the research method):

1. Development of interoperable cross-border transport in the railway sector and the economic impact of the Agreement, with a particular regard to any impact on new companies and the development of cross-border activities (WP 1);
2. Development in working conditions in general and working time arrangement in particular, and the economic and social impact of the Agreement on cross-border

mobile workers, with a particular regard to the protection of health and safety (WP 2).

In Table 1, we show the division of tasks among these two Work Packages.

Table 1 Division of tasks among the two Work Packages (WP)

Description of tasks	WP1	WP2
1. Identify the railway companies operating cross-border interoperable services	X	
2. Identify the cross-border routes operated by each company and types of goods carried	X	
3. Collect information on number of workers engaged in cross-border activities (a), working hours of workers concerned, working time arrangements, working conditions in general, etc. (b)	Xa	Xb
4. Identify the main patterns of working time before the conclusion of the Agreement, any changes already made, and those which will be required in order to comply with the Directive		X
5. Assess the benefits to workers' health and safety		X
6. Assess changes in the operation of the current routes	X	
7. Estimate the development of new routes in the future	X	
8. Estimate the economic (a) and social (b) costs, if any, of the application of the Directive and their importance compared with total costs of exploitation	Xa	Xb
9. On the basis of the previous results, identify the areas where improvements could be made to the text	X	X

In Chapter 3 these Work Packages are further translated into a practical stepwise approach of the project. Figure 1 shows the Stepwise Approach.

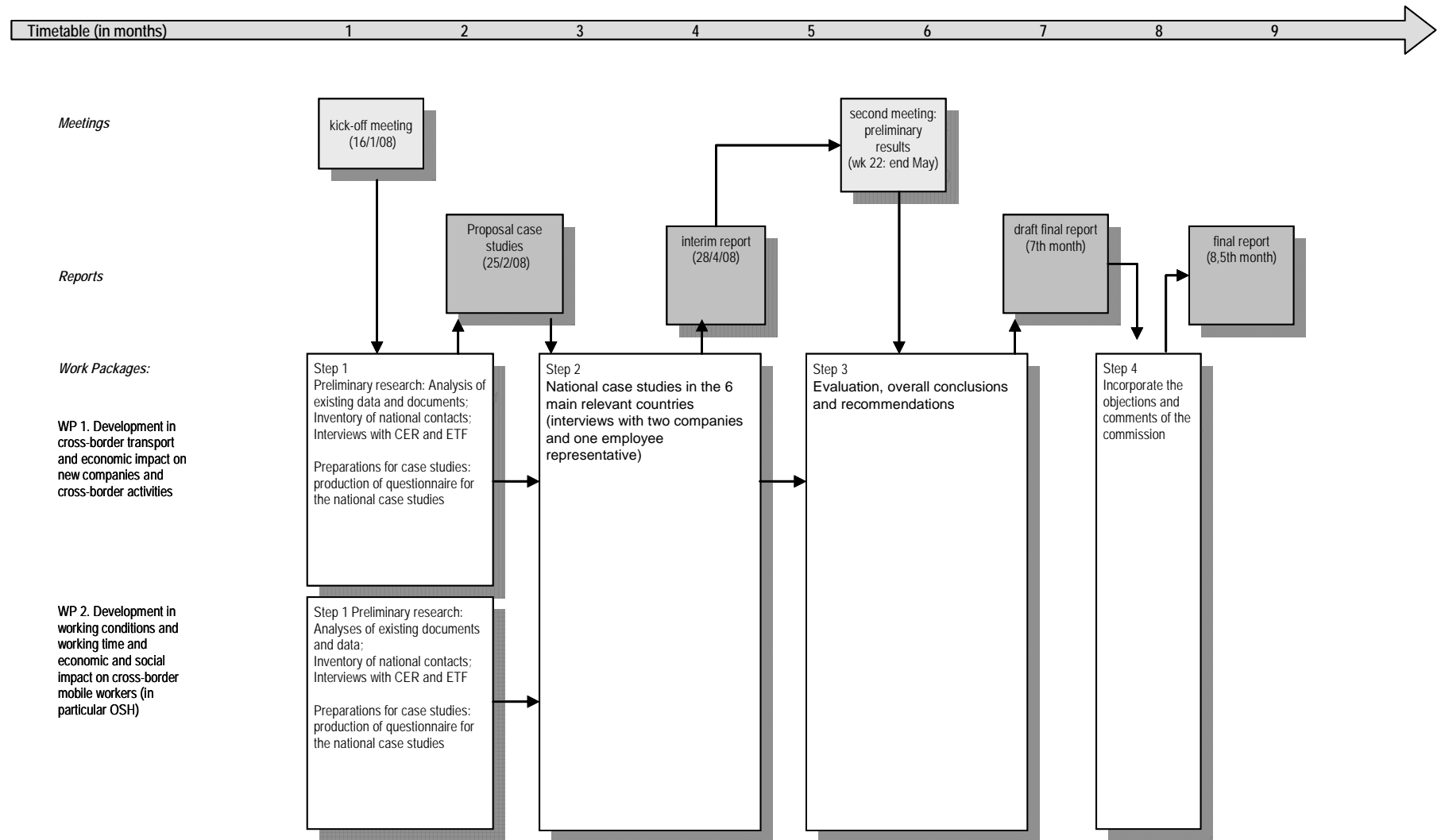


Figure 1 Stepwise approach of the project

3 Method: A Stepwise Approach in Two Work Packages

As mentioned in the previous Chapter, we have translated the two Work Packages into a practical, stepwise approach to the research that we will discuss in this Chapter.

The aim of Work Package 1 (WP1) is to provide an overview of the development of interoperable cross-border transport in the railway sector within the EU (and, when applicable, the EEA countries) (companies, routes, number of workers) and to assess the economic impact of the Agreement, especially of Clause 4, on undertakings, with particular regard to any impact on new companies and the development of cross-border activities.

The aim of Work Package 2 (WP2) is to provide more insight into the working time arrangements and working conditions within the railway sector and to assess the economic and social costs, if any, of the Agreement, especially of Clause 4, on cross-border mobile workers, with particular regard to the provision of health and safety.

3.1 Step 1. Preliminary research

3.1.1 *Analysis of existing data on the development of cross-border services (WP1)*

We have used the TRANS-TOOLS Transport model in order to describe the number of international trains in Europe and the forecasts for the number of trains in the EU27 for the year 2020. This model is also used to get insight in the number of train drivers working in international rail transport in the European Union. Annex 3 describes the developments within the railway sector and estimates the number of workers needed, based upon this model. Annex 4 shows maps of all cross-border routes.

The TRANS-TOOLS Model is an IPR (intelligent property rights) free European wide computer-aided transport planning tool. The model covers both passenger and freight transport with interactions to an economic model and impacts models. The TRANS-TOOLS Model is a network-based transport model of Europe. It was developed for DG Energy and Transport (DG TREN) in the 6th Framework Program (FP6) and founded by a consortium of eight parties of which TNO was consortium leader.

The TRANS-TOOLS Model serves as a tool for strategic transport policy analysis at EU level. It should not be used in evaluation of local appraisals e.g. building of a new road segment in or around a city.

The model supports transport policy makers in two ways. First, to monitor trends in the operation of the transport system in the EU and identify issues for which policy intervention may be required. Second, to assess the impact of specific transport policy measures on the transport system in the EU, as well as on selected economic and environmental issues.

The TRANS-TOOLS Model addresses changes to land use and economics. However, the model should not be used in calculation of transport related impacts up to more than 25-30 years in the future depending on the significance of the changes. For instance, social and economic changes in new EU Member States may have such a magnitude that it cannot be captured by the model which is calibrated to an observed base year 2000.

The TRANS-TOOLS Model provides the opportunity to calculate the number of tonnes and passengers in and out all EU countries. Since the information on the

companies themselves is confidential, the data do not contain information on company names, division between public and private companies or market shares.

In our research we used the TRANS-TOOLS model to determine the number of tonnes and the number of passengers transported from one country to another country by train. We have then translated these tonnes and passengers into a number of freight and passenger trains. Based upon assumptions on the number of workers on either freight or passenger trains, assumptions on the average working week of these workers, and the average driving time, we have translated this number of trains into number of workers. These assumptions are based upon the results of the national case studies.

3.1.2 *Analysis of existing documents on working conditions and working hours in cross-border services (WP2)*

We have studied available documents and scientific literature on working conditions, working hours and industrial relations in the European railway sector. The results of this study are described in Annex 6.

We searched for scientific literature through international databases, in particular the 'Arbocatalogus' ('working conditions catalogue') from TNO, Scopus (an abstract and citation database of research literature), and Occupational Safety and Health database. We also used Google Scholar to search for interesting publications about working conditions in the railway sector. We also used former reports from TNO about the transport sector. In addition, we have asked our scientific network on working hours about relevant articles or papers in this area (see the References for relevant documents).

Based upon the literature we can provide an overview of indicators for healthy working hours (see Annex 7). We found literature about shift work in general and shift work in the railway sector. Most literature focuses on fatigue as a consequence of shift work in the railway sector. Most railway studies describe the risks of fatigue for train drivers.

We did not find information about the current working conditions in the railway sector. The European data available on working conditions only provide information on the sector transport, storage and communication as a whole. In consultation with DG Employment, Social Affairs and Equal opportunities, we have decided not to present this general information in this report. To get more insight into the current working conditions and working hours for cross-border workers in the railway sector, we have carried out national case studies. These results are included in Annex 8.

3.1.3 *Interviews with European stakeholders (WP1 + WP2)*

We have interviewed the main stakeholders, involved in cross-border railway services, at the European level:

- Community of European Railway and Infrastructure Companies (CER): www.cer.be;
- European Transport Workers' Federation (ETF): www.itfglobal.org/etf/index.cfm;
- Autonome Lokomotivführer-Gewerkschaften Europa (ALE) (Autonomous Train Drivers' Unions of Europe): www.ale.li.amadeus.sui-inter.net;
- European Rail Freight Association (ERFA): (<http://www.railfreightgroup.com/GUESTERFA/>);
- European Rail Infrastructure Managers (EIM): www.eimrail.org.

These interviews have been used to get more insight into the debates and views on the subject. We have used this information in developing a comprehensive questionnaire

for the national cases studies. We have also asked the European stakeholders for contact persons within the six countries for the case studies. This information has helped us to make a final list of companies and unions for the national case studies. We are very grateful to these European Stakeholders for their help with this study.

3.2 Step 2. National case studies in 6 Member States: interviews with companies and social partners

3.2.1 Selection of case studies

We have carried out a limited but consistent case study in 6 selected Member States, located on one of the main international railway corridors. We have selected the following countries for inclusion in the study: the Netherlands (1), Germany (2), Hungary (3) and Romania (4). These countries are the main constituents for an east-west corridor. By choosing this corridor, we have focussed on those Member States where a large part of the interoperable services will take place now and in future and where the impact of the Agreement (if any) on the employees and sector will be the highest. Also, by choosing the east-west corridor, we will have a representation of both eastern and western European Member States and industrial relations systems. Besides this east-west corridor, we have also included the United Kingdom (5) and France (6). Although the UK has only one international link in rail transport, this country is interesting because of its special role in privatisation of railway markets. France has a large international market and is interesting because of the absence of new private companies and a high level of industrial conflict over the reform of the sector. With this selection of countries, we have included ‘traditional companies’ and ‘new entrants’, state owned and private companies in a variety of industrial relations systems.

Within these Member States we have organised interviews with the management of ten companies and with six representative of one of the unions active in international rail transport. Annex 8 provides an overview of the characteristics of the companies and unions and presents the main results of the case studies.

3.2.2 Development of the questionnaires

Two questionnaires (a management version and a union version) have been developed and discussed with DG Employment, Social Affairs and Equal opportunities. Both questionnaires have similar questions. In order to develop a comprehensive questionnaire, we have used the information in the interviews with the European stakeholders, the scientific literature and a list of impact assessment indicators of the European Commission (European Commission SEC(2005) 791 “IMPACT ASSESSMENT GUIDELINES” of 15 June 2005). We have developed a research model on the basis of this information for our further analyses (see Annex 7). Annex 8 summarizes the contents of both questionnaires.

3.2.3 Field work

The field research has been carried out by offices of TNS NIPO in the Member States. The two questionnaires have been translated by TNS NIPO into the native language. Also the Agreement has been provided to the respondents in their native language. The interviews were held by phone in the language of the country. In each of the six selected countries one union and two railway companies have been contacted. The respondents received a letter of recommendation of DG Employment, Social Affairs

and Equal opportunities and an email of their EU-representatives. In two cases it has been impossible to make an appointment with a manager of the company. In total, six union representatives have been interviewed and ten managers of railway companies of either freight or passenger transport. The respondents are promised confidentiality, so we will not report at the level of the individual company or at the level of the country. When appropriate we will report the results for the following categories:

- Union versus management questionnaire;
- Passenger versus freight transport.

3.3 Step 3. Evaluation, overall conclusions and recommendation

Based upon all the previous material, an assessment has been made by TNO of the possible economic and social impact of the Agreement. Both the results of this assessment and the general conclusions are included in this Draft Final Report (Chapters 4 and 5).

3.4 Step 4. Incorporate the comments of DG Employment, Social Affairs and Equal opportunities into a Final Report

Finally, the comments of DG Employment, Social Affairs and Equal opportunities on the Draft Final Report have been incorporated in a Final Report.

4 Results

4.1 Introduction

In this Chapter the results of the study will be discussed. In this Chapter, we will follow the detailed goals as described in Chapter 2. With this, we will provide brief answers to all these goals. The extended description of the results of the study is given in the Annexes. The overall conclusions are given in Chapter 5.

4.2 Results 1: Description of railways companies, cross-border routes and number of workers engaged

4.2.1 *Railway companies operating cross-border interoperable services*

Based upon desk research and contacts with relevant stakeholders we have made a list of all railway undertakings in the EU (see Annex 5 for the complete table) with their characteristics: private or public company, freight and/or passenger transport, active in international transport. For some companies we also could provide the number of employees on the basis of easy accessible public sources, but this is only available for a few of the companies. Moreover it is not indicated at all which is the specific group of cross-border workers. Therefore, we have added the categories small or large company. Information on turnover is generally not available on easy accessible public sources.

In total we have identified 62 international operating railway companies: 17 active in freight transport, 19 in passenger transport and 23 in both categories (of 3 companies it is unknown in what type of transport they operate) (see also Annex 3). It should be mentioned that this list is a snapshot of today's activities, firms that have a licence to carry out traction services are not all active on the railway market. However the market is quite volatile and companies who are not providing service might decide to start these tomorrow.

For *passenger transport* we see that state companies or former state companies are still responsible for most of the transport within the countries in Europe. There are some exceptions like the United Kingdom, where the state company was divided into several smaller private companies. Furthermore, there are several countries with a large (former) state company and many small private companies on certain tracks. Two main European railway companies for passenger transport are emerging, Arriva and Veolia. These companies are buying the private initiatives in the different countries.

A more recent trend is that regional authorities have started their own joint venture with the state company for regional transport in a certain area of a country, like for instance in Germany.

At present more high speed railway lines are constructed between countries within Europe. These lines are operated by newly founded joint ventures of state companies of the countries which are crossed by the high speed line. Examples of these kinds of companies are Thalys and Eurostar. The traditional cross-border trains are mostly operated by state companies.

In future, it might be possible that private companies perform more cross-border passenger services, but because the market uses concessions to allow passenger transport it is more difficult to start a service than in the freight market.

Within the *rail freight transport* market more private companies are active. This can be observed on the national market as well as the cross-border freight market. Private freight transport has a larger market share compared to private passenger transport. It is plausible that this difference will remain the coming years, because of the characteristics of the freight market.

In a number of countries the freight part of the state company (also referred to as “public companies”) merged with other companies. It is a market with many new entrants and companies that were taken over by others (or ceased operations). In later years it can be observed that a consolidation of the railway companies is taking place. Two companies are taking over many smaller companies, which makes them large players in the rail freight market like for instance Veolia (also active in passenger transport) and Railion. Railion is the former state company of Germany DB Cargo, which merged with the Dutch state company, NS Cargo.

Based on the trends and growth rates of freight rail transport, we think that the growth of rail freight in and between some countries can be explained partly by the liberalization of the market. The new entrants are responsible for growth in freight volumes, but when the (former) state company can change into a commercial company and act like a private party, it may also have the same growth rates as the new entrants. In countries where a liberalized rail market is not progressing, the public companies will probably lose their market share to other modes of freight transport (road and waterways) as has been observed in some cases.

4.2.2 *Cross-border routes operated by each company and types of goods carried*

Based upon TRANS-TOOLS we have identified cross-border routes in and from all European countries, this analysis is carried out for both freight transport and passenger transport. The maps can be found in Annex 4.

In 2005 most *cross-border freight trains* were operated on the corridor Rotterdam (NL)-Northern Italy and in Germany, Central Europe and the Baltic States. In 2020 the intensity of rail freight will rise all over Europe, but will be the highest between the countries in North-western Europe and in Central Europe.

Cross-border passenger trains were, in 2005, operated mostly between Paris, London, Brussels, Amsterdam and the Ruhr-area. Furthermore, in the Alps (Switzerland, Austria and Northern Italy) a lot of cross-border rail transport could be found.

The most intensive used rail connection will remain the same between 2005 and 2020. However, the length of the journey will be shortened due to the use of more high speed rail sections.

4.2.3 *Number of workers engaged in cross-border activities*

The TRANS-TOOLS model (see for an explanation Annex 3) allows to calculate the number of train kilometres in 2005 and to make a forecast for 2020. Knowing the average speed, we can calculate the number of workers needed (see Annex 3 for the calculations). We have calculated the number of workers engaged in cross-border activities, based upon some assumption about the number of workers on each train and the average working week. These assumptions are based upon the information provided by the companies in the case studies. On the average, each freight train will be driven by one driver (at a time) and each passenger train will be manned by one driver and two conductors.

The average working week in the railway sector is estimated at 40 hours a week. We assume that three quarters of this time is actual driving time.¹

Based on the information above, the number of people working in cross-border services in Europe could be estimated. In 2005 this amounted to 10,240 FTE (Full Time Equivalent), of which 4,677 in freight transport and 5,563 in passenger transport. It should be stated that these are averages and it is not the aim to provide exact figures. For the companies of which we have insight in international, cross-border, personnel these figures for 2005 could be validated.

When we translate the forecasts of the growth of the sector between 2005 and 2020, the number of people needed on cross-border trains is estimated to almost double up to 20,250 FTE, a growth of 98% (14,234 in freight transport and 6,016 in passenger transport). In particular freight transport is expected to show an enormous growth and will need large numbers of new drivers in cross-border transport. This shows the importance of the labour market being able to absorb this increase in demand.

4.3 Results 2: Description of working hours and working conditions in the railway sector

4.3.1 *Working hours of workers concerned, working time arrangements, and working conditions in general*

We have studied existing documents on working hours and working conditions within the railway sector. As expected, there are no representative European quantitative data available to describe the current working conditions or working hours in railway companies in detail. The existing data are only available at the level of the transport and communication sector as a whole. Therefore, we have gathered information on the current working hours and working conditions in our national case studies. Our literature search on working conditions and working hours in the railway sector did provide us with relevant qualitative information on the possible risk factors in the relationship between working hours and health and safety (see Annex 6). These indicators are also valid for the railway sector.

Important for healthy work schedules are apart from several aspects of the working time itself other work characteristics, the autonomy of workers over their own working time and the characteristics of the worker (see Figure 2).

¹ This assumption is based upon figures in the past. Based upon our case studies it might be a possible scenario that in future driving time will be almost *all of the working time*. In that case, our calculations of the number of people needed in 2020 are different. If the driving time would evolve from (as an example) 30 hours per week in 2005 to 37 hours per week in 2020, the growth will be 60% (16,419 FTE: 11,541 in freight and 4,878 in passenger transport).

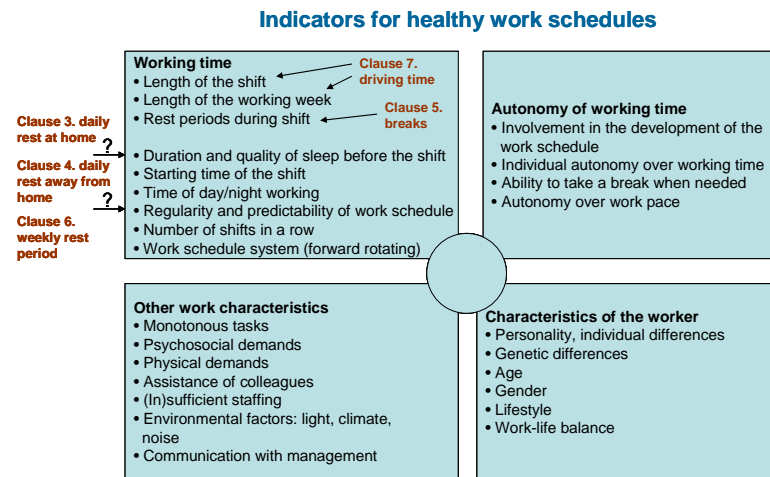


Figure 2 Research model: indicators for healthy work schedules

In order to get an overview of the possible risk factors with regard to working hours and working conditions for cross-border workers, we have asked both managers within the companies and union representatives in the national case studies about the current working hours for cross-border workers, about other work characteristics and about the autonomy of workers over their working time (see Annex 8). The managers have been asked about all aspects of the working time arrangements within their company, both practices and their intentions for change due to the implementation of the Agreement. Both managers and unions have been asked about their view on possible risk factors in the field of working time, autonomy and other work characteristics. The scope of this project did not allow us to interview a representative sample of workers. This means that we did not focus on the fourth box of Figure 2, namely the characteristics of the worker.

Working time: Based upon the interviews we can conclude that the average working week within the companies is in between 35 and 40 hours a week for both passenger and freight transport. The maximum driving time is in between 24 and 40 hours a week. The maximum working time per shift varies between 8 to 10 hours per shift (both day and night shifts). The reported maximum driving time varies between 6.5 to 10 hours per shift (both day and night shifts). Based upon the literature we know that shifts that are longer than 9 hours may pose a risk of fatigue, in particular during the night. The Agreement limits driving time at 9 hours for a day shift and 8 hours for a night shift. This limit is not followed by 2 out of 10 companies.

In the literature on working time and health and safety, we found that the *duration* of the shift in relation to the *duration and the quality* of rest is an important issue. It is not the *place* of rest that is the most important for health, but the *quality* of the rest. We know from the literature that people can also have problems with this quality of rest at home, in particular, when rest needs to take place during the day and there are children in the household. In our interviews, most managers report a minimum of 12 hours rest for a daily rest at home and a minimum of 8 hours rest for a daily rest away from home. Two out of ten companies do not follow one of these rules. As for the rest periods during the shifts, all companies do seem to provide sufficient breaks. However, in this sector it is not always possible to take this break at the exact moment when needed, and workers cannot always leave their work stations in order to take their breaks. One of the questions raised was about the quality of sleep during the rest away

from home. This might be a problem due to the fact that not all facilities are private. However, the majority of the managers and unions feel that the place of rest is quiet. Another risk factor within this sector is the high level of unpredictability of the work schedules. In 6 out of 10 companies the work schedules are only known 1 month or even less than 1 week in advance. We have asked the unions if they feel that workers on cross-border services are at risk in several aspects of the working time. The highest risk is felt to be working long shifts followed by working long hours, lack of rest in between shifts and unpredictable work schedules. Another risk reported by the unions is working during the night.

Other work characteristics: We have asked managers and unions if they feel that workers on cross-border services are at risk in several aspects of their working conditions. Union representatives report more and higher risks in the field of working conditions than managers. The highest risk reported by unions is poor ambient conditions (environmental conditions such as temperature and noise) and high time pressure. Other (lower) risks reported by the unions are to carry out monotonous tasks, lack of assistance of colleagues and poor communication with management. The highest risk reported by managers is to carry out monotonous tasks. Both managers and unions do not report risks in the field of physical demands or performing tasks without training.

Autonomy of workers: With regard to the impact of working hours on health and safety and on work/family balance it is important that workers have a certain amount of autonomy over their own working time. Based upon the literature we may conclude that it is better to involve employees in the making of their work schedules and include individual wishes than to provide *one general rule* for all with regard to the amount of days spent away from home. This will provide the opportunity to create more tailor-made employment relations. But, then workers should indeed have a choice.

The unions in our case study do *not* feel that workers are at risk due to a lack of involvement in the development of the work schedules or a lack of individual autonomy over working time. The managers of the case companies report this involvement in different ways: either by involving employees' representatives in the making of the work schedules, or by incorporating individual wishes into the work schedules. One company only occasionally includes individual wishes into work schedules and reports no other involvement, and another company reports no involvement of any kind.

The opinions about the choice for working cross-border are divided: half of the managers and half of the unions feel that individuals cannot choose to work cross-border since it is part of the job. The other half answers that only volunteers are assigned (provided that they have the appropriate knowledge of the language and technical skills). Seven out of ten managers and three out of six unions mention that working cross-border is compensated in salary.

4.3.2 *Main patterns of working time before the conclusion of the Agreement, any changes already made, and those which will be required in order to comply with the Directive*

In the national case studies we have included questions about the main patterns of working time, and we have asked about changes that have been made (or are intended) due to the Agreement (see Annex 8).

The Agreement sets rules with regard to:

- Daily rest period at home of 12 consecutive hours (Clause 3);
- Daily rest period away from home of 8 consecutive hours (Clause 4);
- Daily rest away from home must be followed by a daily rest at home (Clause 4);
- Breaks (Clause 5);
- Maximum driving time during day shifts of 9 hours (Clause 7);

- Maximum driving time during night shifts of 8 hours (Clause 7);
- Maximum driving time of 80 hours over a two-week period (Clause 7).

As we have mentioned above, the current practice as reported by the companies does not (often) exceed the rules in the Agreement. Exceptions are the length of the night shift in some cases, the minimum daily rest period in some cases and the practices with regard to consecutive rest periods. Therefore, only few companies intend to change their driving time per shift (1 company) or per week (2 companies). Three companies intend to change their practice with regard to their rest periods. Since negotiations were taking place at the moment of the research, we do not know what the changes will be.

With regard to the maximum driving time over a two-week period, we may conclude that no company exceeds this limit at the moment. In most cases the current working week is no longer than 40 hours.

With regard to the rule on the consecutive rest periods, 5 out of 10 companies feel that it is not always possible (or in one case even impossible) to follow this rule. Six out of ten managers and three out of six unions feel the need to negotiate at the national (or company) level on a second consecutive rest away from home. However, the content of the wishes of managers and unions differ. The unions have several wishes, of which the most mentioned are: to provide more rules on the accommodation, to extend the number of days of rest at home that follow a daily rest away from home and to increase the daily rest away from home. We presume that this means an increase with more hours, not with more days. Managers have other wishes, of which the most mentioned are: remove the part that states that one daily rest away from home should be followed by a daily rest at home and provide compensation in salary.

4.4 Results 3: Impact of the Agreement on operation of current routes and estimation of economic costs

4.4.1 Assessment of changes in the operation of the current routes and the development of new routes in the future

Changes in routes have been forecasted for 2020, through the analyses of the TRANS-TOOLS model (see Annex 3). Colour maps of the most important routes are shown in Annex 4. As mentioned above, the intensity of the rail freight will rise all over Europe, but will be the highest between the countries in North-Western Europe and in Central Europe. In passenger transport the most intensive used rail connection will remain the same between 2005 and 2020. However, the length of the journey will be shortened due to the use of more high speed rail sections.

Since the labour costs are relatively small in comparison to all other costs of exploitation, we do not expect the Agreement to have an impact on the operation of routes in the future. There are several independent trends in the sector that influence the development of routes, such as new technology, enlarged infrastructure capacity, etc. The Agreement that we describe in this document is only a very small aspect in the total development of the sector.

4.4.2 Estimation of the economic costs

We estimate that labour costs are around 9% percent of the total costs needed to operate a freight railway service (see case description below). We have included an example below that supports this figure.

Case: RETRACK project

The RETRACK project is applying a rail freight service concept to the movement of rail freight across Europe between Rotterdam (Netherlands) and Constanza (Romania) on the Black Sea.

An estimation of the total costs of the demonstrator in the first 12 months period amount to 12.0 million Euro. These costs are divided as follows:

Overview of pilot demonstration costs

Corridor Rotterdam – Constanza

Corridor Rotterdam - Constanza in km	2,643
Planned roundtrips per year (3 times/week)	150

	Annual costs
Traction costs (eight Taurus locomotives)	€ 3,500,000
Personnel costs (operational personnel in 5 countries corridor)	€ 1,020,000
Infrastructure costs (use of rail infrastructure in 5 countries corridor)	€ 1,980,000
Wagons costs (9 sets of 20 wagons: 14 6-axle and 6 4-axle wagons)	€ 1,910,000
Energy costs (electric/diesel, depending on country)	€ 2,060,000
TCC agency fees	€ 150,000
CIC usage fees	€ 50,000
Transshipment costs (2 terminal moves)	€ 300,000
Overhead costs (office, personnel, IT systems, etc.)	€ 600,000
Risks (insurance, actions in case of delays)	€ 450,000
TOTAL COSTS FOR OPERATION	€ 12,020,000

The personnel costs are 1,020,000 Euro. The total amount of costs for operating the service is per year 12.0 million Euro. In this example the personnel costs amount to 8.5% of the total costs.

In order to understand the economic impact of the Agreement on the sector, we have defined several indicators in our research model, in particular competition, operating costs and conduct of business and innovation (see Annex 7). In our interviews in the national case studies we have made this operational by asking both managers and unions if they feel that the Agreement will have a positive or negative impact on the competitive strength of the company/sector, the operating costs of the company/sector, the conduct of business and the innovation by the company/sector (see Annex 8 for the results).

Based upon the views of the managers and unions the Agreement is expected to have either a *positive* or *no* economic impact, with the exclusion of operating costs, where 5 managers view a negative impact. The unions view no negative economic impact.

One of the problems mentioned by managers has to do with the making of the rosters. The Agreement is felt to be inflexible and poses a problem in this field. As a negative side-effect one mentions that a more efficient roster will lead to less variety in routes for the individual employees.

In particular the consecutive rest away from home and at home (clause 4) appears to be a problem for freight transport companies. Five out of six freight companies are not (always) able to transport their workers home after a daily rest away from home. We have received examples of work schedules where the driver is away during the week and at home during the weekend, but we do not know how representative these examples are. Three out of six freight transport mention that the longest period

away from home is 3 days and 1 freight companies even mentions 2/3 weeks. However, no unions mention periods away from home that are longer than 2 days.

If companies want to organise more quality places of rest at specific locations, investments need to be made. One of the possible solutions for the long term could be a more regional distribution of the personnel over a country to reduce the transport costs.

Overall, the Agreement is expected to have a positive impact on the competitive strength of the sector. Benefits in this field mentioned by managers are more uniformity and stability within the sector.

Although the respondents do find problems in implementing the Agreement, they also acknowledge the main benefits: in particular the fact that this Agreement creates a common European basis.

4.5 Results 4: Impact of the Agreement on workers' health and safety and estimation of social costs

4.5.1 Assessment of the benefits to workers' health and safety

In order to estimate the impact of the Agreement on workers' health and safety and to estimate social costs, we need to use several parts of our study. In the first place, we studied scientific literature on the possible impact of working hours on employees' health and safety (see Annex 6). This study shows a rather comprehensive overview of indicators that are of importance with regard to this relationship. With this, the study shows that this relationship is a complex one and many indicators are important. This has led to our research model (Annex 7). In order to assess the benefits to workers' health and safety, we must know the *existing* job quality (working time, other work characteristics and autonomy over working time). We also need to know if the working hours *will change* due to the Agreement. This information is gathered through our national case studies (Annex 8).

As we have already described in section 4.3, the current practice within the railway sector is already mostly in line with the limits of the Agreement. Exceptions are the length of the night shift in some cases, the minimum daily rest period in some cases and the practices with regard to consecutive rest periods. There are therefore not many changes to be expected. We might expect the occasional company to change their rules with regard to night shifts or minimum rest periods in order to comply with the Agreement and therefore, we might expect some benefits for workers' health and safety. However, the Agreement might lead to an increase in the total length of the working week. It is clear that the Directive can not be implemented in a way which regresses on existing levels of protection. However, based upon the minimum standards of the Agreement, the maximum driving time may be up to 80 hours over a two-week period and the actual working time can be longer than that. Based upon our research we cannot predict whether or not this will take place, but it should be monitored with care.

4.5.2 Estimation of the social costs

In order to understand the social impact of the Agreement on the sector, we have defined several indicators in our research model, in particular the quality of the job, balance between work and family life, workers health and safety, social inclusion and equality and job creation (see Annex 7). In our interviews in the national case studies we have made this operational by asking both managers and unions if they feel that the Agreement will have a positive or negative impact on the quality of the job, the balance between work and family life, employees' health and safety, equal

opportunities of employees within the sector and job creation within the sector (see Annex 8 for the results).

Based upon the views of the managers and unions we can see that the Agreement is mainly viewed as *positive* on the social aspects (or *no* impact is expected). There are no big differences between the unions and management.

Five out of six unions feel that the Agreement will have a positive impact on the quality of the job and four out of ten managers feel the same. One manager expects a negative impact. Others see no impact. Five out of ten managers feel that the Agreement will have a positive impact on employees' health and safety and three out of six unions feel the same. One union expects a negative impact. Others see no impact.

In the field of work/family balance, also five out of ten managers see a positive impact, but only two unions. One union expects a negative impact. Others have mixed feelings or expect no impact.

Few respondents expect an impact in the field of equal opportunities. Only three managers and three unions expect a positive impact. With regard to job creation there are mixed feelings. Most respondents think the Agreement will have a positive (5 respondents) or no impact (7 respondents) on the job creation within the sector/company. However, four companies expect a negative impact. One passenger company says there will be more employees needed, because of the maximum driving time during early shifts. This company doesn't see this as a positive development. One freight company says in theory the Agreement will have a positive impact on the job creation within the sector, but in practice it is imaginary that because of a strict implementation of the Agreement, the company will not make it financially and jobs will be lost within the company. Of course, this is seen from the perspective of this one company. On the whole more jobs will be needed due to the growth of the sector. When companies do not want the implementation of the Directive to lead to an additional need for personnel, they will have to find ways for increasing their productivity.

5 Conclusions and recommendations

5.1 Conclusions

Overall growth in the railway sector

- It is expected that due to a considerable growth in international rail freight transport there will be an increase in the demand for personnel that carries out cross-border operations. In passenger transport this growth is less prominent. It should be noted that rail freight operations are less stable and more vulnerable to unforeseen factors than passenger transport. At present, a passenger train is for example given priority over a freight train in allocating capacity in unforeseen situations (however this is likely to change). Besides this trend there is also a trend that productivity increases due to the development of dedicated rail freight network, corridor development and signalling systems. This trend will cause personnel to operate more effectively and productively.
- The increase in demand for personnel might however cause problems on the labour market. It should be noted that this stress on the labour market requires companies to provide attractive packages (tailor made employment relations) to personnel.

Driving and resting time

- Overall, the current driving and resting time in the European railway sector is already in line with the rules of the Agreement. It was found in the interviews that in some cases the national rules or collective agreements are more protective than the European Agreement.
- This, plus the non-regression clause (Clause 9 of the Agreement), will mean that the impact of the Agreement (both social and economic) will be limited.

Economic impact of Clause 4

- Of all aspects in the Agreement, in particular the rule that one rest away from home should be followed by one rest at home (Clause 4) seems to pose the highest problem for companies in freight transport. Five out of six freight companies are not (always) able to transport their workers home after one rest away from home. We have received examples of work schedules where the driver is away during the week and at home during the weekend, but we do not know how representative these examples are. Three out of six freight transport mention that the longest period away from home is 3 days and 1 freight companies even mentions 2/3 weeks. However, no unions mention periods away from home that are longer than 2 days.
- However, the national stakeholders are not as negative about the economic costs of the Agreement as expected by the researchers on the basis of the interviews with the EU stakeholders.
- Due to the Agreement one of the company strategies (namely to have workers work several days in a row after which they have an extra long period at home; applied by one freight transport company and one passenger transport company) is no longer possible.
- Companies can follow three different strategies:
 - Transport personnel home after a shift (applied by one freight transport company);

- Re-organise the rosters in such a way that personnel will always end their shift at home (applied by 3 freight and 2 passenger companies);
- Have workers located at different regions (3 freight companies) or countries (2 freight companies) in order to create shorter routes per worker.²
- It should be noted that a company can choose different combinations of the above strategies. This can be aligned in with the specific wishes of the personnel, it was mentioned earlier that tailor made employment relations can be provided in order to alleviate the stress on the labour market (different combinations of work contracts, job content, working hours, professional development and income).
- Also it should be noted that the above strategies depend also on the size of the company. Larger companies can provide more diverse packages.
- National stakeholders feel positive about the fact that the Agreement sets a common framework, with clear rules for all parties involved.

Social costs: risks in the field of employees' health and safety

- Since the current working hours are mostly in line with the Agreement or even more strict, the (short term) social impact of the Agreement will be limited.
- However, it does set a common bottom line with regard to driving time. This means that differences that could have appeared in future are hereby limited.
- One of the topics that should be monitored is whether or not companies will, despite the non-regression clause, stretch their current rules towards the larger rules of the Agreement.
- Also, the impact of unforeseen delays on the actual working time should be monitored.
- Current risks in the field of working time and working conditions might be: long shifts, combined with working at night and monotonous tasks.
- Another characteristic of the sector is the unpredictability of the work schedules (more so in freight transport).
- Risks due to insufficient training do *not* seem to be a problem in international rail transport. Only workers who have the right amount of training are admitted to this type of work.

Social impact of Clause 4

- With regard to Clause 4, in particular the consecutive rest away from home and at home, the national stakeholders are divided in their views on the social impact.
- Based upon the literature, the impact of this part of the Agreement will in particular be found in the field of work/family balance. However, since there are many different types of employees, there is no single way of organising work and family life.
- An important issue with regard to work family balance is the influence of individual employees on their working hours. Autonomy over working time can be seen as a moderator in the impact of working time. Based upon the national case studies, this influence appears to be present in different ways: by way of formal agreement with the unions, but also by way of incorporating individual wishes into the work schedules. Both ways are important and complementary.
- There are also differences in opinion about the possible compensation for working abroad or rest away from home. Employees can have different preferences with regard to their working hours, but also with regard to working abroad or the way they want to be compensated (payment, additional time off). The Agreement does

² Some companies are worried about the definition of rest at home, in particular when it concerns employees who are permanently stationed abroad.

not provide an answer to the more diverse and individualised employment relations. This is seen as a problem of the Agreement by several respondents.

- Another problem or unwanted side effect is mentioned by one of the managers: routes and work schedules can be organised in such a way that employees spend more time at home, but this will mean that individual employees will work *less varied* routes.

Private versus public companies

We do not find large differences between private and public companies. In practice, there are strict rules with regard to quality of equipment and personnel that limit entry towards the sector. In many cases employees of the “old players” have started a private company and with this also the traditions of the labour relations of the old sector have been brought into these new companies.

Differences between countries

We do not find large difference between the companies within the different countries. There are more similarities than differences. Due to the small numbers of cases we cannot generalise from these differences.

Passenger versus freight transport

- We do find relevant differences between passenger transport and freight transport, due to the different characteristics of these types of transport.
- These differences relate to the different character of both types of transport. Passenger transport can be planned with a bit more certainty on a yearly basis than freight transport, and the routes are simpler (there and back) whereas the routes in freight transport are more complex.

5.2 Recommendations

- This study is based upon a limited number of case studies and was carried out at the moment that the implementation of the Directive was taking place. We have seen that some of the rules on working time are more protective than the Agreement. We have also seen that companies are still searching for a way to cope with the rules on the resting time. Both at the European and the national level future developments should be monitored with care by the authorities and social partners.
- We recommend in particular to monitor the total shift length and the length of the working week, since Clause 7 only limit the driving time and not the total working time. From the perspective of health and safety shifts longer than 9 hours or 8 hours (day and night) time are not to be recommended.
- However, in all rosters, it is important to take into account all roster principles, and the impact of the shift length on health and safety can be moderated (or strengthened) by the duration of the rest time (time to recuperate).
- Since the impact of working conditions on health and safety is part of a complex model, it is important that work schedules should be designed upon ergonomic principles that go beyond the rules of the Agreement: this could mean that several healthy work schedules might emerge as a specific combination of variables such as shift length, number of shifts in a row, time of work, rest periods, job content and the ability to take a break, and individual preferences. With this the railway sector can become (or stay) an attractive employer within a tight labour market.
- In negotiations on Clause 4, we also suggest that all aspects of the rosters are taken into account in order to create (or keep) healthy jobs. This includes the

length of the shift, the duration and quality of the rest, working at night or early morning shifts, but also the content of the job.

- In negotiation on Clause 4, we also suggest that both the need for flexibility by the company as the need for tailor-made employment relations for the employee are taken into account. Employees can have different preferences with regard to their work life balance or their employment relation (working hours, job content, development, salary). Bearing in mind a need for personnel in rail transport and a tight labour market, it is important that rail companies show themselves as attractive employers.
- One aspect we find missing in the Agreement at the moment, is that of the involvement of employees at the level of the company in the definition of their rosters and working hours. At the moment, the respondents in the cases are positive about this involvement. However, we find that many companies choose between either collective or individual involvement.
- We have learned from our literature study that employees' autonomy over working time is an important moderator between working time and health and safety and between working time and work/family balance. We have also seen that different companies follow different strategies with regard to workers influence.
- In order to create healthy working conditions and be an attractive employer, we recommend stimulating further dialogue within the companies, both at the collective level and at the level of the individual employment relation.

References

Axelsson J. Long shifts, short rests and vulnerability to shift work. Stockholm: Department of Psychology, Stockholm University National Institute of Psychosocial Medicine, 2005.

BEST European Studies on Time. Dublin: European Foundation for the Improvement of Living and Working Conditions, 2000.

Caruso CC, Hitchcock EM, Dick RB, Russo JM, Schimt JM. Overtime and extended work shifts: recent findings on illnesses, injuries and health behaviors. Cincinnati: US Department of Health and Human Services, NIOSH, 2004.

Chung H, Kerkhofs M, Ester P. Working Time Flexibility in European companies. Dublin: European Foundation for the Improvement of Living and Working Conditions, 2007.

Commission of the European Communities. Proposal for a Council Directive on the agreement between the Community of European Railways (CER) and the European Transport Workers' Federation (ETF) on certain aspects of the working conditions of mobile workers assigned to interoperable cross-border services. COM(2005)32final. Brussels: Commission of the European Communities, 2005.

De Looze MP, Van Rhijn JW. The incorporation of time aspects in work system design for a more productive and healthy assembly. In: Fallon EF, Karwowski W, eds. Proceedings of the 9th International Conference of Aspects of Advanced Manufacturing: Agility & Hybrid Automation (HAAMAHA). Galway: HAAMAHA, 2004:140-151.

Edkins GD, Pollock CM. The influence of sustained attention on railway accidents. *Accid Anal Prev* 1997;29(4):533-9.

European Monitoring Centre on Change (EMCC). Employment, industrial relations and working conditions in the European rail transport sector. Dublin: European Foundation for the Improvement of Living and Working Conditions, 2006.

Hak A, Kampman R. Working irregular hours, complaints and state of fitness of railway personnel. In: Reinberg A, Vieux N, Andlauer P, Eds. *Night and Shift Work: Biological and Social Aspects*. Oxford: Pergamon Press, 1981:229-236.

Härmä M, Sallinen M, Ranta R, Mutanen P, Müller K. The effect of an irregular shift system on sleepiness at work in train drivers and railway traffic controllers. *J. Sleep Res.* 2002;11:141-151.

Hildebrandt G, Rohmert W, Rutenfranz J. 12&24 rhythms in error frequency of locomotive drivers and the influence of tiredness. *Int. J. Chronobio.* 1974;2:175-180.

Goudswaard A, Kwantes J.H. Arbeids- en rusttijden. Richtlijn voor de arbocatalogus. Den Haag: SDU Uitgevers, 2004.

Goudswaard A, Houtman ILD, Jettinghof K, Kuipers B, Osinga DSC, Ruijs PAJ, Savenije WM, Schoenmaker N. Road Transport Working Time Directive: Self-employed and Night Time Provisions. Final Report. Hoofddorp: TNO Quality of Life, 2006. Publ.nr. R0622373/018-31364.

http://ec.europa.eu/transport/road/studies/doc/2006_12_road_working_time_en.pdf.

Jansen NWH, Kant I, Nijhuis FJN, Swaen GMH, Kristensen TS. Impact of working time arrangements on work-home interference among Dutch employees. *Scandinavian Journal of Work & Environmental Health* 2004;30(2):139-148.

Jay SM, Dawson D, Lamond N. Train drivers' sleep quality and quantity during extended relay operations. *Chronobiology International* 2006;23(6):1241-1252.

Knauth P, Hornberger S. Preventive and compensatory measures for shift workers. *Occupational Medicine* 2003;53:109-116.

Lamond N, Darwent D, Dawson D. How well do train drivers' sleep in relay vans? *Industrial Health* 2005;43:98-404.

Meijman TF, Kampman R, De Vries-Griver AHG. Rock around the clock. Chronopsychologische en chronobiologische aspecten van onregelmatige werktijden. Amsterdam: Nederlands Instituut voor Arbeidsomstandigheden NIA, 1988.

Nachreiner F, Raediker B, Janssen D, Schomann C. Untersuchungen zum Zusammenhang zwischen der Dauer der Arbeitszeit und gesundheitlichen Beeinträchtigungen. Oldenburg: Gesellschaft für Arbeits-, Wirtschafts- und Organisationspsychologische Forschung, 2005.

Sallinen M, Härmä M, Mutanen P, Ranta R, Virkkala J, Müller, K. Sleep-wake rhythm in an irregular shift system. *J. Sleep Res.* 2003;12:103-112.

Sallinen M, Härmä M, Mutanen P, Ranta R, Virkkala J, Müller, K. Sleepiness in various shift combinations of irregular shift systems. *Industrial Health* 2005;43:114-122.

Shen J, Botly LCP, Chung SA, Gibbs AL, Sabanadzovic S, Shapiro CM. Fatigue and shift work. *J. Sleep Res.* 2006;15:1-5.

Stone B, McGuffog A, Spencer M, Turner C, Mills A. Fatigue and shift work in UK train drivers. In: *Proceedings of the 2005 International Conference on Fatigue Management in Transportation Operations*, September 2005 (TP 14620E).

Thornthwaite L, Sheldon P. Employee self-rostering for work-family balance. Leading examples in Austria. *Employee Relations* 2003;26(3):238-254.

Totterdell P. Work schedules. In: Barling J, Kelloway EK, Frone MR, Eds. *Handbook of Work Stress*. London: Sage, 2005.

Tucker P, Rutherford C. Moderators of the relationship between long work hours and health. *Journal of Occupational Health Psychology* 2005;10(4):465-476.