



Good staff scheduling and rostering practices in transport

Final Report

Ecorys and Wmp
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ECORYS




wmp consult
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Glossary

Abbreviation	Full name
ATM	Azienda Trasporti Milanesi (Municipal public transport company Milan)
CBRB	Centraal Bureau voor de Rijn- en Binnenvaart (Employers' organisation for inland shipping and logistics, Netherlands)
CER	Community of European Railway and Infrastructure Companies
EBU	European Barge Union
EU	European Union
Eurofound	European Foundation for the Improvement of Living and Working Conditions
ETF	European Transport Workers' Federation
EVG	Eisenbahn- und Verkehrsgewerkschaft (German railway and transport union)
EWCS	European Working Conditions Surveys
FNV	Federatie Nederlandse Vakbeweging (Federation of Dutch trade unions)
HHLA	Hamburger Hafen und Logistik AG (German logistics and transportation company)
HR	Human Resources
IRU	International Road Transport Union
KLM	Koninklijke Luchtvaart Maatschappij (Royal aviation company, Netherlands)
NACE	Nomenclature statistique des Activités économiques dans la Communauté Européenne (Statistical classification of economic activities in the European community)
ver.di	Vereinte Dienstleistungsgewerkschaft (German united services union)

Executive summary

Objective, scope and approach

The general objective of this study is to identify good staff scheduling and rostering practices and make practical recommendations to companies on how to improve their staff scheduling and rostering practices. All modes of transport – air, road, rail, maritime, ports, inland waterways and urban public transport – and both passenger (including urban) and freight transport are covered by this study.

The focus of the study is on staff scheduling and rostering or measures directly related to the way work is organised. The study carried out an analysis of the framework under which rosters are decided. It then searched for and screened current practices in the transport sector and other relevant sectors, which led to the identification of certain types of good practices. The study analysed and considered the advantages and challenges of these good practices, as well as their potential for replicability, transferability, and scalability. The study also includes a dissemination plan, in order to promote and encourage the adoption of these good practices in the transport sector. The study does not focus specifically on any characteristics of workers, although it does identify good practices per type of job. It includes all types of workers - men, women, young people and older staff. The overall focus is on practices enabling all workers to improve their work-life balance by reconciling their working time with their private life, whether that is in order to care for children or other dependants, or to pursue activities outside of work. This study was carried out during the COVID-19 pandemic and while it acknowledges the overall impact of this, it does not specifically focus on its impacts.

The overall methodology that was followed in this study consists of three main elements:

1. The data collection phase, which includes a combination of literature review, interviews and surveys;
2. The analytical phase, in which (1) the typology of the framework conditions under which rostering is decided is developed, (2) the types of the actual rostering and scheduling practices are identified, (3) current practices are mapped and (4) the practices are critically assessed;
3. The development of conclusions and recommendations, in which a participatory stakeholder workshop was organised to test the results of the analysis, and included developing a list of proposed good practices and developing a dissemination plan.

For the purpose of collecting the necessary information, the study identified some 70 pieces of relevant literature, the majority of which dealt with rostering allocation solutions through algorithms and the framework under which rosters are decided. Relatively few sources focused on discussing and appraising current practices. The stakeholder consultation included 30 targeted interviews and a survey which received 146 replies from social partners, individual companies, and individual workers. A participatory workshop was held on 29 September 2020, attended by 32 stakeholders, which aimed to exchange views on the pre-identified good practices and recommendations and to reflect on possible gaps and future innovative practices that may not yet be in place.

The study was strongly impacted by the COVID-19 pandemic. The immediate implications of this included a reduced response rate to the survey and reduced availability of stakeholders for interviews, despite their expressed interest in participating in the study. The study methodology therefore had to be simplified and more targeted. Despite these challenges, the reaction of the stakeholders was encouraging and considered to be sufficient to provide input for the purposes of this study.

Main findings

The study developed a typology of framework conditions influencing staff scheduling and rostering practices in different clusters of EU countries, as well as in different modes of transport. Four main typologies are identified:

1. ***Social dialogue, collective agreements and co-determination at company level:*** Social dialogue and collective bargaining between workers and employers at company level play a significant role in shaping staff schedules and rosters. In some countries in this cluster, working time may even be a matter for statutory co-determination practice. In addition to this, in these countries, innovative practices and adjustments are also supported by state-led initiatives aimed at the social partners, which generally have a supportive character;
2. ***Driven by collective agreements at a range of levels:*** Social dialogue has a similarly strong influence in this cluster of countries to that in Type 1, but here it is mainly based on strong social partner organisations and collective agreements at cross-sectoral, sectoral and company level that complement each other. Although co-determination rights are less strong, the role of company-level social dialogue, including the conclusion of collective agreements, and its impact on staff schedules and rosters is strong;
3. ***State-centred with influence of collective agreements:*** In contrast to Types 1 and 2, in this cluster of countries, the government plays a more significant role in terms of actions such as providing a legal framework setting the terms and conditions of workers, and providing mechanisms that extend collective agreements across a whole sector. Collective agreements and company-level worker representation bodies cover a smaller scope of topics. The influence of company-level social dialogue and/or agreements between employers and worker representatives at company level on staff schedules and rosters will very much depend on the specific company situation;
4. ***Little influence of collective bargaining but some company-level worker representation and participation:*** This is the most diverse and weakest cluster of countries when it comes to the influence of collective agreements (which hardly exist at sectoral level) on staff scheduling and rostering practices. However, this does not mean that, at company level, workers do not have any influence on these practices. A sub-set of this type includes countries with relatively strong worker consultation and participation rights that may be regarded as the basis of a stronger influence than the influence generally seen among countries in this cluster.

As a next step, the study collected current staff scheduling and rostering practices and clustered them according to the type of practice. Table 1 below contains an overview of practices relating to staff scheduling and rostering collected by sector and type. In total, the study identified 41 practices: 13 from the civil aviation sector, 3 from maritime transport, 8 from ports, none from inland waterways, 3 from railways, 9 from urban public transport, 1 from road transport and 4 from other relevant sectors.

Four types of practices are identified: remote and flexible working arrangements, increased roster control (in deviation of usual planning), fixing shift preference (on a permanent basis) and reducing overnight stays. The study collected 24 practices connected with increased roster control, the most for any type. The next most popular type was practices related to fixing shift preference, with 8 practices. A total of 7 practices were collected related to remote and flexible working, and 1 related to reducing overnight stays. The study also identified 1 relevant cross-cutting practice.

Table 1 Overview of number of practices relating to staff scheduling and rostering collected by sector and type

	Civil aviation	Ports	Maritime transport	Inland waterways	Railways	Urban public transport	Road transport	Other	Total
Type 1: Remote and flexible working arrangements	1	3			2	1			7
Type 2: Increased roster control (in deviation of usual planning)	9	4	3			4		4	24
Type 3: Fixing shift preference (on a permanent basis)	2	1				4	1		8
Type 4: Reducing overnight stays	1								1
Cross-cutting					1				1
Total	13	8	3	0	3	9	1	4	41

The review and appraisal of the identified practices indicated a rather uneven incidence of practices in relation to type of practices and to transport modes. Most of the practices were identified in **civil aviation**, **ports** and **urban public transport**. The high proportion of the workforce engaged in shift and weekend work, recruitment and job attractiveness challenges, large company size, strong collective bargaining and influence of company-level worker representation and participation history and strong role of public ownership have been identified as possible explanations for this. On the other hand, the lower number of identified practices in **maritime transport**, **road transport (freight as well as passenger/coach)** and no identified practice in **inland waterways**, can be linked to operational specific features, a higher share of smaller companies, relatively weak practices of collective bargaining, little influence of company-level worker representation and participation and a strong competitive environment. It should be noted that other transport modes, such as civil aviation, also operate in a highly competitive environment, which creates pressures in terms of balancing the protection of working conditions with competitive challenges. As regards different staff groups, the analysis of identified practices shows a rather even distribution of practices targeting mobile staff (e.g. a ship's crew, pilots, drivers) as well as non-mobile white-collar and blue-collar staff engaged in shift work, working at weekends or on bank holidays.

Staff scheduling and rostering, improvements in the organisation of working time and offering better work-life balance for workers reflects sector-specific objectives and motivations of companies. The practices were evaluated in accordance with these objectives. In this process, the following key themes were found:

- Better work-life balance has emerged as a key theme across all transport modes and can be related to different types of practices;
- In terms of making jobs more attractive, transport companies across nearly all transport modes face significant recruitment problems, particularly in relation to mobile staff;
- Business and operation-driven improvements in rostering and staff scheduling often come in conjunction with IT tools and staffing or rostering software. Companies that have been confronted with high levels of competition in transport in the past have already tried to increase productivity and efficiency by an optimisation of staff scheduling and rostering practices.

Regarding factors facilitating and/or hindering the introduction of rostering and scheduling practices, stakeholder interviewees confirmed that the quantification of costs and benefits of measures and practices is particularly difficult, including because most practices are not designed for a specific purpose but have multiple aims. The following key findings were identified during the analysis:

- With regard to costs, stakeholders noted that apart from direct monetary costs (e.g. development/purchase of new software, fees for an external management consultancy or experts) there are also costs related to HR involvement in the development of a new schedule/roster, project development, pilot measures, and the administration personnel involved.
- In terms of benefits, stakeholder interviews as well as contributions to the participatory workshop have shown that benefits of rostering and scheduling such as lower level of staff turnover, less absenteeism, higher productivity and a higher degree of attractiveness of the workplace are understood and rated differently by employers/management and trade unions/workers.
- Company size appears to be an important factor, as smaller companies face greater difficulties due to limited financial and personnel resources (including the size of the workforce). This means that it seems to be more difficult for smaller companies to develop worker-friendly staff scheduling and rostering practices.
- Collective bargaining and co-determination plays an important role in determining the success of scheduling and rostering practices, in particular when they aim at win-win situations, i.e. combining business needs (such as increased efficiency and productivity) with workers' interests and needs.
- The positive role of public policies for better work-life balance should not be neglected.

The transferability of practices from one mode of transport to another, from one sector to another, or across borders, is not always easy, and the above-mentioned factors can be facilitating as well as hindering factors. Accordingly, simple strategies of identifying, disseminating and transferring good practices are unlikely to work. Any dissemination and transfer of good staff scheduling and rostering practices need to take into account specific sectoral and company-related framework conditions.

Following the critical appraisal of the practices, the study identified 8 practices that can be recommended as good practices, as set out in **Table 2** in alphabetical order. It should be noted that a **good practice on staff scheduling and rostering** is defined here as a practice that is beneficial for the work-life balance of workers and that enhances their autonomy within the rostering system. This is not only beneficial for the work-life balance but also for the overall well-being of workers, as well as for their employer, since it results in a lower level of staff turnover, less absenteeism, higher productivity and a higher degree of attractiveness of the workplace.

Table 2 Eight identified good practices

Good practice	Refers to	Description
Accommodating workers' needs	Non-mobile workers	Under this good practice, an agreement between the employer and the works council led to the joint development and implementation of a new system of shift work that takes the interests and needs of the different groups of workers into account. Due to the use of digital tools and GPS solutions, transport and infrastructure companies are able to better schedule their operations, thereby reducing the amount of overtime work and making productivity gains. Both employer and workers benefit from this, as the employer reduces levels of overtime pay and the workers are better able to reconcile their work with their private life. This solution requires a joint understanding from the management and worker representation of the type of solution that needs to be applied.
Avoiding night shifts for certain groups	Non-mobile workers	This good practice focuses on the introduction of new shift plans that aim to avoid night shifts for certain, more vulnerable, groups, for example older workers. These plans include the provision that older workers and workers who, for health reasons, are not able to work night shifts, will be excluded from working during night shifts. In order to allocate night shifts in accordance with demand, some workers will almost entirely work at night, but this will be carried out on a voluntary basis. The employer can motivate (younger) workers to work in unpopular shifts by offering incentives ¹ . Therefore, a strong engagement of workers from the very start of the design process to the implementation is crucial for the success of this practice.
National-level collective agreement in a particular transport sector on flexibility to workers regarding their working time and location of work	Both mobile and non-mobile workers (horizontal)	Under this good practice, the collective agreement covers all workers in a particular transport sector and provides flexibility to the workers in their working time and in their location of work, both for mobile and non-mobile workers. The main aim of the agreement, in relation to rostering and staff scheduling, is to facilitate a better reconciliation of work and private life and to improve the work-life balance of workers as a result of this.

¹ This does not apply to workers younger than 18 years of age in order to comply with Directive 94/33/EC on the protection of young people at work.

Good practice	Refers to	Description
Preferential shift bidding (persons with whom a worker will be in a shift, 'buddy system')	Mobile workers	This good practice allows staff members to indicate with which colleague they do or do not want to be in the same shift. Under this 'buddy system', workers can nominate a colleague they would always like to work with. They can also nominate a colleague who they would never like to work with. This is especially relevant to improve the work-life balance of partners working as colleagues in mobile jobs, such as aviation, in particular when they need to reconcile their working life with childcare or other caregiver functions. For these workers, certainty with respect to the organisation of the working time of the partner is just as important as certainty in relation to the organisation of their own working time.
Preferential shift bidding (time allocation of shifts)	Mobile workers	Under this good practice, mobile workers are able to choose preferred shifts. These preferences are taken into account and if possible granted when the schedule is drafted. The main objective is to reach a better work-life balance of workers and to reduce labour shortages by accommodating the workers' needs where possible, given organisational and operational constraints. A large factor determining if it is possible to accommodate the needs of workers is the willingness of other workers to be available at short notice. A financial incentive to workers who are willing to be available at short notice can enable this. Ultimately, when working well, this practice should improve the image of the company to customers and also to workers as a good place to work. Another objective is to increase the commitment of workers to the organisation and to increase productivity as a result.
Shift notice	Mobile workers	This good practice includes two concrete actions. First, it covers shared driving regarding routes. This means that two bus drivers share the same route as a drivers' duo on one full-time position, which makes part-time work easier to arrange. Second, it covers internal shift swapping. Due to the nature of a bus driver job, it can be very difficult for the company to fully accommodate the wishes and needs of its workers for a good work-life balance. However, some categories of workers can be willing to be available at short notice if they are provided with a financial incentive and paid accordingly.

Good practice	Refers to	Description
Shift preference (location, as many nights as possible in the home base)	Mobile workers	This good practice enables workers to declare their preferred route or location of work, which would allow them, for example, to spend as many nights as possible in their home base. This accommodates the need of some groups in the workforce to spend as little time away from the home base as possible, in order to reconcile their work schedule with their private life. From the employer's side, this practice can be a way to increase the attractiveness of the sector and the company, especially to workers with young children or other caregiving responsibilities.
Swapping shifts	Non-mobile workers	This good practice focuses on the implementation of digital tools to facilitate the possibility of swapping shifts as well as swapping free days. The aim is to make shift swapping easier, but also to develop tools that allow for more self-organisation of workers. Such tools complement existing company-wide applications (apps) for worker communication and information.

The descriptions of these good practices are based on the current practices for staff scheduling and rostering identified in the mapping exercise. Therefore, these good practices are a combination of current practices identified in the transport sector and in other relevant sectors. These descriptions have been critically elaborated, including as a result of the input from the participatory workshop. The study distinguishes between practices that apply to all workers and those more relevant to either mobile or non-mobile workers.

The study has also developed a plan to support the European Commission in the dissemination of information to companies about how best to organise their staff scheduling and rostering in the context of attracting and retaining workers and particularly women and all workers with a need for a good work-life balance.

In conclusion, the study makes the recommendations below to improve work-life balance in the transport sector. We are however aware of the fact that in some countries or in some associations and trade unions these recommendations are already implemented, but not necessarily with examples from the transport sector.

Recommendation for the European Commission:

1. **Devise initiatives to present and disseminate good practices of rostering and staff scheduling in transport.** The dissemination plan designed in this report is addressed to the European Commission. It contains practical tips for companies willing to change their staff scheduling and rostering system to improve work-life balance in transport. Dissemination could be achieved by means such as events to exchange experiences, seminars to exchange good practices, and material to be included on the European Commission website. Social media can also be used to disseminate messages around good practices. This could take place in the next 2 years.

Recommendation for the EU-level transport social partners:

2. **Use the framework of the European sectoral social dialogue to further discuss good working time scheduling and rostering.** Social dialogue has played a significant role in reducing the gaps that exist between EU countries in relation to work-life balance regulation or practices, and should be further developed in order to contribute to the further improvement of work-life balance. The EU-level transport social partners could do this within the European sectoral social dialogue by discussing the principles around working time scheduling and sharing the good practices identified in this study, in addition to disseminating other material designed to support the development of good working time scheduling and rostering practices in transport.

Recommendations for Member State governments:

3. **Devise national-level initiatives to present and disseminate good practices of rostering and staff scheduling in transport.** Building on the dissemination activities at EU level, Member States should develop national and/or targeted initiatives that aim to increase outreach to individual companies in the transport sector. This could be achieved through means such as national, regional or sectoral seminars, including relevant material on government websites and using social media to disseminate and promote an inclusive national discussion. This will help raise awareness and share knowledge about practices that aim to improve work-life balance in transport;
4. **Encourage rostering and staff scheduling practices in transport that are based on strong cooperation between employers and worker representatives.** Many of the practices identified in this study did not pass the final selection as recommended good practices as they lacked elements such as worker involvement, tailoring and flexibility. It is often difficult for transport companies to balance flexibility with service provision. Communication between the employer and the employees on these practices is key. According to our findings, this is best achieved by strong cooperation and collaboration between employers – either through employer representatives or directly at company level – and worker representatives. Governments should therefore encourage these practices. Practices also need to be flexible enough to be tailored to organisational and individual needs, centring on work-life balance, and adapted to changing circumstances. This increased cooperation could be achieved by encouraging employers and their representatives, including employer associations and worker representatives, to develop an ongoing dialogue at national and/or sectoral level on staff scheduling and rostering in transport.

Recommendations for national-level transport social partners:

5. **Develop sectoral initiatives to share good practices of rostering and staff scheduling in transport.** Social partner organisations should develop sectoral initiatives to share good practices within the transport sector, aimed at improving work-life balance. These initiatives, based on seminars and schemes designed to provide support to companies wishing to introduce new practices, could be developed in the medium term;

6. **Encourage examination of what is possible within existing legal and collective bargaining frameworks.** The social partners should collaborate to find flexibility in terms of staff scheduling and rostering practices, while remaining within the bounds of existing national legislation and collective agreements. All transport social partners should collaborate on an ongoing basis on what is possible and what can benefit both employers and the work-life balance of workers, within the given regulatory framework. To this effect, organising seminars in the medium term and on an ongoing basis at all levels, including national, regional, local and company level, as appropriate to the circumstances, in which views can be exchanged, would be beneficial.

Recommendations for both national governments and national-level transport social partners:

7. **Tailor rostering systems in transport to individual circumstances and relevant contexts.** Given the variety of conditions existing across transport modes and countries, a 'one-size-fits-all' approach to rostering and scheduling practices will most likely meet with little acceptance and possibly have little take-up and positive effects. It could also be in conflict with national legislation and/or social dialogue traditions. Therefore, it is important for relevant actors at national level, which includes national governments and social partners, to tailor approaches in order to achieve the best results for employers and the work-life balance of workers in transport;
8. **Encourage the development of good practices of rostering and staff scheduling in particular in inland waterways and maritime transport.** This study has identified clear sectoral gaps in the selection of good practices. National governments and social partners should aim to encourage the development of good practices on working time scheduling and rostering in inland waterways and maritime transport, where so far none could be identified. This could include targeted seminars for exchange of good practices in the transport sector, aimed specifically at companies in inland waterways and maritime transport. Such seminars could be organised in the medium term.

Recommendations for transport employers and employers' organisations:

9. **Involve transport workers and their representatives in designing new rostering systems.** Close collaboration between employers and workers in the design of a new scheduling and rostering system in transport should be the norm, as it helps not only with take-up but will also make sure that it properly addresses the needs of both sides;
10. **Assess the staff scheduling and rostering system currently in place to understand whether it still meets the needs of the transport workforce.** The next step is to determine whether any improvements or adjustments are needed in order to maximise the benefits for both sides, also with a view to creating incentives for new recruitment. It is of key importance to involve the workforce in this process. The assessment should also identify any necessary staff training that will help the workforce use current or future technology to support adjustments in staff scheduling and rostering in transport;

11. **Plan and prepare implementation of staff scheduling and rostering practices in transport carefully and properly.** Good staff scheduling and rostering practices in transport create benefits for both employers and workers. The introduction of these practices needs to be carefully planned by employers, who need to consider properly the precise needs of their business and the work-life balance needs of their workers. This is particularly important as the management's commitment to the introduction of these practices is key, particularly in larger organisations. Planning should include the provision of the necessary training to enable the workforce to work with the technological tools designed to facilitate staff scheduling and rostering practices in transport;
12. **Learn from good staff scheduling and rostering practices in transport and incorporate elements that best fit the situation.** Practices that work well in other countries or sectors can be particularly inspiring for transport employers and much can be learnt from these practices. It may not be possible to transfer a practice wholesale. Therefore, employers need to identify which elements of a practice could be suited to their particular business in order to gain maximum benefit for all, including improved work-life balance for workers;
13. **Harness technology to meet the needs of both the transport company and its workers.** Technological solutions (e.g. apps) can be important facilitating factors in introducing and working under a new scheduling and rostering scheme. Transport employers should ensure that the technology matches the specific needs and the characteristics of the business and of the diversity of their workers;
14. **Devise training to keep up with technological developments in transport.** Future staff scheduling and rostering practices are likely to involve technology to an increasing degree. It is therefore vital that transport companies and their workers have the capacity to work with evolving technological applications. This is likely to involve a coordinated training programme for all those who will be affected by the development and application of new technologies;
15. **Design crisis-resilient staff scheduling and rostering practices in transport.** The COVID-19 pandemic has shown how difficult it is to maintain even long-standing staff scheduling and rostering practices during times of crisis. Future staff scheduling practices in transport need to be designed to be robust enough to withstand economic shocks so as to continue to ensure the benefits of good staff scheduling and rostering systems to both companies and the work-life balance of workers including in times of crisis.

Recommendations for workers' representatives:

16. **Develop information, advice and guidance for member organisations in transport.** Trade unions and workers' representatives at EU and national level should develop information, advice and guidance for their member organisations on good staff scheduling and rostering arrangements and promote these through different information channels to suit the individual needs of transport companies and workers. This should also include advice on how to ensure that the workforce is adequately trained to use any new scheduling and rostering tools;
17. **Showcase good practices of rostering and staff scheduling in transport.** Trade unions at EU and national level should showcase good practices of staff scheduling and rostering through activities such as seminars in which discussions and exchanges on work-life balance and the implementation of practices in transport and other sectors can take place;

18. **Compile and use information on the needs of the transport workforce.** Worker representative bodies in transport companies should gather and analyse information about the needs and preferences of the workforce in relation to staff scheduling and rostering (e.g. through surveys), in order to know the work-life balance needs of their members and how these might change over time, notably taking into account and anticipating the needs of future workers and new recruits;
19. **Promote a positive attitude in the transport sector towards new technology and upskilling.** It is important that the transport workforce is well equipped to use the relevant technologies that facilitate the introduction of new staff scheduling and rostering practices. Trade unions at EU and national level can play an important role in promoting the benefits of this and in giving practical advice on the relevant upskilling opportunities offered by the employer, and on the use of new technology.

Abstract

The objective of this study is to identify good staff scheduling and rostering practices in the transport sector and make practical recommendations on how rostering systems can be improved. This study was carried out during the COVID-19 pandemic. While it acknowledges the overall impact of this, it does not specifically focus on how this affected rosters and staff scheduling. The methodology for the study includes literature review, stakeholder interviews and surveys of social partners, companies and workers. The study developed a typology of different sources of staff scheduling and rostering practice consisting of four types: based on social dialogue, collective agreements and co-determination; driven by collective agreements at a range of levels; state-centred with influence of collective agreements; and with little influence of collective bargaining but some company-level worker representation and participation. Within this framework, the study collected 41 current practices and clustered them according to specific type of practice. Following the critical appraisal of these practices, eight systems were selected as good practices, based on their sustainability, scalability and transferability. On the basis of the lessons learnt from these practices, the study then makes a number of practical recommendations to the European Commission, the EU-level social partners, national governments, national social partners, employers and employers' organisations and workers and workers' representatives on how to improve current arrangements in order to benefit companies and improve the work-life balance of workers.

1. Introduction

a. Objective of the report

This report presents the main findings from the study on *Good staff scheduling and rostering practices in transport*, mandated by the European Commission's Directorate-General for Mobility and Transport to Ecorys and wmp consult.

b. Background to the study

The purpose of the study is to look at what can be done at company level, in a financially sustainable way, to allow workers to better reconcile their work schedule with their private life. The focus is on staff scheduling and rostering or measures directly related to the way work is organised.

The objective is twofold:

- to identify good staff scheduling and rostering practices in the transport sector;
- to make practical recommendations on how to improve the systems for transport companies for different types of jobs/companies/sectors.

The analysis of the framework under which rosters are decided and the search and a screening of practices in the transport sector and beyond has led to the identification of certain types of good practices. The study analyses and considers the advantages and challenges of the good practices, as well as their potential for replicability, transferability, and scalability. The last step is to come up with a dissemination plan, to spread knowledge about the good practices in the sector.

The **scope** of the study encompasses all EU Member States, all modes of transport and all forms of work. However, platform workers as referred to by the Commission in its staff working document accompanying the consultation on "Improving the working conditions in platform work"² are not in the scope of this study. Solutions are likely to differ depending on the size of the company, the transport mode concerned, as well as the particular aspects of the job (e.g. mobile vs non-mobile). Therefore, the preconditions for the transferability of good staff scheduling and rostering practices from one context to another is one of the key aspects studied.

The study does not focus specifically on any characteristics of workers. It includes all types of workers - men, women, young people and older staff. The overall focus is on practices enabling all workers to improve their work-life balance by reconciling their working time with their private life, whether to care for children or other dependants, or to pursue activities outside of work. Such good practices and exchange of these practices could make a significant contribution to the overall European Commission objective to enhance the attractiveness of the sector to all workers, and in particular to women and young people. This should enable the recruitment of new workers to the sector, which is currently characterised by an ageing workforce and insufficient diversity.

Transport modes

Reflecting also European sectoral social dialogue, the following 7 transport modes have been addressed by this study: civil aviation, inland waterways, maritime transport, ports, railways, road transport and urban public transport. In addition, the study considered practices in relevant non-transport specific sectors.

The different transport modes have been defined in accordance with demarcations on the basis of the classification of economic activities in the European Community (Nomenclature

² https://ec.europa.eu/commission/presscorner/detail/en/IP_21_2944

statistique des activités économiques dans la Communauté européenne – NACE) (Rev.2). This method of defining the sectors has also been adopted by the European Commission and the sectoral social partners in the respective sectors for the purpose of the European sectoral social dialogue committees that exist in all sectors (whereby urban public transport is part of the road transport social dialogue committee) and the representativeness studies that are regularly carried out by Eurofound.³

Civil aviation

The civil aviation sector covers activities involving passenger and freight air transport (both scheduled and non-scheduled) and civil aviation (air crew, ground handling, air traffic management). In terms of NACE (Rev.2), the sector is embracing codes 51.10 (passenger air transport), 51.21 (freight air transport) and 52.23 (Service activities incidental to air transportation).

Inland waterways

According to NACE (Rev.2) the inland waterways sector is defined by NACE codes 50.30 (inland passenger water transport), 50.40 (inland freight water transport) and 52.22 (service activities incidental to water transportation).

Maritime transport

Maritime transport includes the NACE codes 50.10 (sea and coastal passenger water transport), 50.20 (sea and coastal freight water transport); 52.22 (service activities incidental to water transportation).

Ports

The ports sector is defined as embracing activities under the following NACE (Rev. 2) codes: 49.50 (transport via pipeline), 50.10 (sea and coastal passenger water transport), 50.20 (sea and coastal freight water transport), 52.10 (warehousing and storage), 52.21 (service activities incidental to land transportation), 52.22 (service activities incidental to water transportation), 52.24 (cargo handling) and 52.29 (other transportation support activities).

Railways

According to NACE (Rev.2) the sector is defined by NACE codes 49.1 (Passenger rail transport), 49.2 (Freight rail transport) and 52.21 (including operation of terminal facilities such as railway stations and stations for the handling of goods; including operation of railroad infrastructure and switching and shunting).

Road transport

According to NACE (Rev.2), the following activities are related to the road transport sector: codes 49.39 (other passenger land transport, not elsewhere classified), 49.41 (freight transport by road), 49.42 (removal services) as well as relevant activities in 52.10 (warehousing and storage) and 52.29 (other transportation support activities) and 53.2 (other postal and courier activities).

Urban public transport

According to NACE (Rev.2) this sector is defined by code 49.31, including different modes of land transport, such as by motor bus, tramway, streetcar, trolley bus, and underground and elevated railways. The transport is carried out on scheduled routes normally following a fixed time schedule, entailing the picking up and setting down of passengers at normally fixed stops. It does also include town-to-airport or town-to-station lines; operation of funicular railways, aerial cableways, etc. if part of urban or suburban transit systems.

³ See: <https://www.eurofound.europa.eu/de/observatories/eurwork/representativeness-studies>.

c. Structure and content of the report

The report of the study includes the following chapters:

- Chapter 1: is the introduction chapter presenting the background and scope of the study;
- Chapter 2: describes the methodology followed throughout the study and discusses its limitations (in particular the impact of the COVID-19 pandemic);
- Chapter 3: develops the framework conditions affecting working time arrangements across Member States and modes of transport and classification of Member States in clusters in accordance with this;
- Chapter 4: presents a mapping of identified current staff scheduling and rostering practices relevant to the scope of the study in different transport modes and beyond;
- Chapter 5: includes a critical appraisal of the currently applied practices regarding their suitability and transferability across the transport sector and the EU Member States;
- Chapter 6: presents the selected good practices that this study proposes including a discussion of their costs and benefits, their challenges and potential for replicability, transferability and scalability;
- Chapter 7: presents the final overall conclusions and recommendations of the study.

This report also includes a series of annexes:

- I. Methodological approach;
- II. Country-by-country framework conditions;
- III. Mapping of practices;
- IV. Dissemination plan;
- V. Dissemination articles;
- VI. Checklist;
- VII. Dissemination slides;
- VIII. Research document;
- IX. Report on participatory workshop;
- X. References and sources.

2. Study methodology

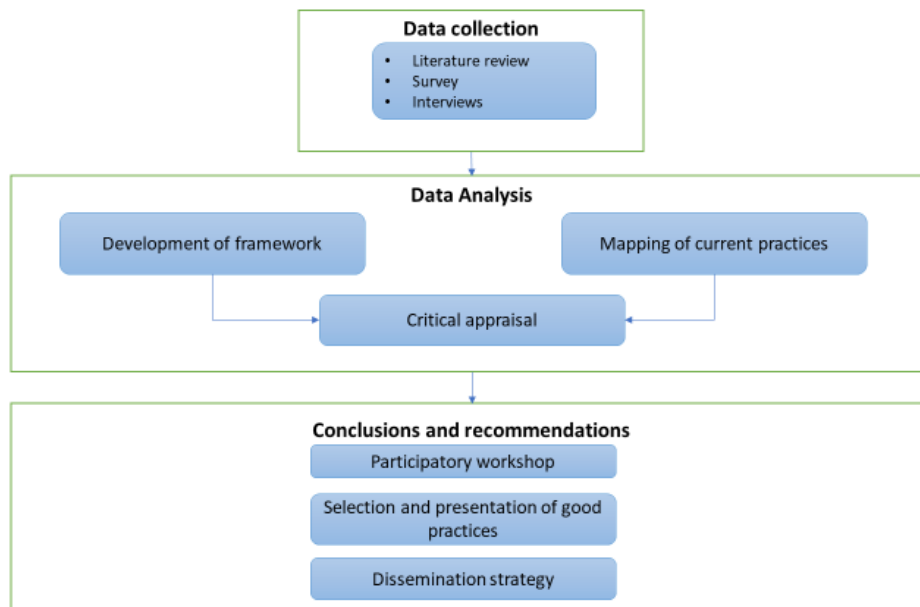
a. Overall methodology

The overall methodology that is followed in this study matches the Tasks as defined in the Terms of Reference. It consists of three main elements:

1. The data collection approach, which defines the methods by which data has been collected from various sources. In this case, a combination of literature review, interviews and surveys are included;
1. The analytical approach, which presents the way the information collected has been analysed. This was important in developing framework conditions and typology for rostering and scheduling practices, the mapping of current practices and their critical assessment;
2. The development of conclusions and recommendations, which includes a participatory workshop, which was intended to test the results of the analysis, although, in practice, there were a number of limitations to the purpose and effectiveness of the workshop due to lower levels of participants, particularly in the breakout groups, the development of a list of proposed current practices and the development of a dissemination plan (see impact of COVID-19 pandemic below).

The overview of the methodology can be seen in Figure 1.

Figure 1 Overview of methodological approach



b. Data collection approach

The data collection approach consisted of an extensive literature review and a comprehensive stakeholder consultation approach, consisting of a mix of targeted interviews and surveys, as described below.

Literature review

Literature was examined from a wide variety of sources, for example, academic publications, industry positions and policy documents. Some 70 pieces of literature have been identified as relevant to this study from this process. The full overview of literature can be found in Annex VI. The insights from the literature are feeding into the subsequent tasks of this study. The sources consulted consisted of the following:

- Legal and other sources (ordinances, decrees, collective bargaining agreements, company agreements (agreements between management and works council), unilateral management rules, individual work contracts) regulating working time in the different transport modes;
- Working and employment conditions in transport modes, in particular those related to working time (overtime, shift work, working at night, weekend work, mobile work, etc.);
- Employment trends and structural patterns, namely demand and supply, recruitment problems, gender issues/female employment, attractiveness, etc.;
- Emergence of new forms of employment, e.g. via agency work, outsourcing, posting, etc.;
- Market developments, in particular competition and business strategies, including unfair practices and social dumping etc.

Table 3 Number of literature references identified per task

Task	#
Framework conditions and typology	24
Mapping of current practices	36
Critical assessment	3
General background sources	7
Total	70

Based on the extensive literature review, screening and analysis, initial research hypotheses as regards the definition of framework conditions were refined and adjusted. The literature review informed also the identification of the current practices on scheduling and rostering not only in the transport sector but also beyond.

There is a great deal of literature available on scheduling and rostering. However, most of this covers allocation problems and provides solutions to these problems by using algorithms.⁴ With respect to literature directly relevant to this particular study, a considerable number of sources have been identified that provide information for the framework under which rosters are decided and which provide information on current practices, both from the transport and other sectors of the economy. However, fewer instances of literature were identified that had relevance to the appraisal of current practices.

⁴ When analysing this type of literature, one should take the potential bias of such algorithms if they are based on non-representative datasets, into account. The degree of accuracy of the algorithm is depending on the level of representativeness of the dataset which has been used as the basis of the algorithm.

Stakeholder consultation

Stakeholder consultation is an important part of this study as a means to collect important information and current practices and ensure that the study results are useful and implementable in practice for companies. As part of the stakeholder consultation we (i) held targeted interviews, (ii) distributed surveys for different stakeholder groups) and (iii) held a participatory workshop.

Targeted interviews

Exploratory interviews as well as semi-structured targeted interviews with stakeholders were used as a source of verifying initial hypotheses and findings. Interviews focused on those social partner organisations and/or senior members involved in the respective sectoral social dialogue committees in transport.

A total of 30 interviews have been conducted with transport stakeholders (see impact of the COVID-19 pandemic below). In order to conduct those interviews, a structured target strategy was developed in the form of a stakeholder matrix. The matrix facilitated a representative sample of both the type of stakeholder and geography.

Table 4 shows an overview of the conducted interviews per transport mode. A more detailed overview of the type of stakeholders can be found in Annex I

Sector	Targeted	Conducted
Civil aviation	11	5
Inland waterways	2	2
Maritime transport	6	0
Ports	5	5
Railways	11	9
Road transport	8	6
Urban public transport	7	2
Horizontal/general (not transport specific)	11	1
Total	61	30

Survey

In order to collect information on a large number of current practices, we used an online survey disseminated to companies across the transport sector. The aim of the survey was to identify and collect relevant information on current staff scheduling and rostering practices, including their costs and benefits. We identified practices from different countries, company types, types of work and modes of transport (or other sectors).

The survey was targeted at the social partners (company associations and worker representatives), individual companies and individual workers. The survey was distributed with a “rolling” approach, where it was first sent to social partners who were in turn asked to distribute the specific questionnaire to their members. A number of individual companies already identified through the literature review were also targeted directly.

According to our stakeholder matrix the following groups were directly approached for the survey:

- Employers' organisations (European and national): 42 in total;
- Individual companies: 39 in total;
- International and European trade unions: 9 in total;
- National general trade unions: 11 in total;
- National transport sector trade unions: 20 in total;
- Universities and training and education institutions: 4 in total;
- Labour authorities: 6 in total;
- Other types of organisations: 10 in total.

The replies to the survey were limited in number and can be broken down as follows:

Table 5 Survey response overview

Survey responded	Partial response	Complete response	
Social partners (total)	22	12	34
• National-level trade union	7	5	12
• National-level employer's association	6	4	10
• International / EU trade union	6	0	6
• Other	3	3	6
Individual companies	27	28	55
Individual workers	32	25	57

c. Data collection challenges – Impact of COVID-19

The study was strongly impacted by the COVID-19 pandemic. In particular, the data collection stage, which was planned for the period of April to June 2020, coincided with strong lock-down measures across the EU and with important impacts on the transport sector. The immediate impact on the study was the reduced response rate and limited availability of stakeholders, despite their expressed interest. This in turn explains the lower than planned number of interviews and the relatively low response rate to the survey questionnaire.

The stakeholder consultation was a critical piece of the methodology, upon which the identification, verification and assessment of the current practices was based. The limited response rate thus impacted the study in two ways:

- It limited the range of practices that could be identified..
- It limited the amount of information that could be collected per case, as it was not possible in most of the cases to follow-up with the companies implementing the practice.

The methodology therefore had to be simplified and more targeted by relying on input from the literature review and by focusing interviews on those social partner organisations and/or senior members involved in the respective sectoral social dialogue committees in transport.

Despite these challenges, the reaction of the stakeholders was encouraging and considered as sufficient to provide input for the purpose of this study.

d. Analytical approach

Framework under which rosters are decided

The first task in the analytical approach aims to develop a typology to facilitate a better understanding of the various parameters influencing staff scheduling and rostering practices. This typology takes into account relevant factors of influence such as legal and other regulatory sources, national and sectoral characteristics as well as other aspects such as company size, public and private status, market conditions, etc. The analysis under this task forms the basis of a refinement of the geographical scope of the study, i.e. identification of groups/clusters of Member States with a similar profile.

Based on the extensive literature review, screening and analysis, initial research hypotheses (as highlighted in the inception report) as regards the definition of framework conditions were refined and adjusted (see next section). At the same time, as regards the focus and contents of existing literature the following characteristics and gaps should be noted:

- Comparative research on the role of different sources (in particular legal regulation and the role of collective bargaining) at national level determining working and employment conditions, including working time, is relatively advanced.⁵ However, there are hardly any comparative studies⁶ that have analysed legal and other sources of working time regulation focusing on specific transport modes;
- By contrast, a relatively large body of literature exists on working and employment conditions, including employment challenges, the role of female work, market developments, social dumping and other topics related to imbalances of social legislation in those transport modes where EU directives or regulations exist;
- Furthermore, it proved not to be possible to gather any data and quantitative/statistical information on issues such as company size, public versus private transport providers/companies, etc., in connection to how decisions on rosters are taken.

In view of the above, the initial concept of elaborating a typology of framework conditions of staff scheduling and rosters had to be adjusted and simplified. The typology presented in the next section includes a limited number of indicators where it was possible to gather respective data and information for all EU Member States.

⁵ Here in particular the European Trades Union Institute ETUI, Eurofound as well as more recently the OECD have published comparative research studies and data (see list of literature).

⁶ The only exemption to our knowledge is railways. See the ETF-CER study on the implementation of the agreement of certain working conditions of cross-border rail mobile staff which includes a detailed analysis of legal sources per EU Member State, focusing however on mobile staff engaged in cross-border transport only. See: https://www.etf-europe.org/wp-content/uploads/2019/02/Rail-Mobile-Workers_final-report-EN.pdf.

Against these blind spots of previous research, exploratory interviews as well as stakeholder interviews became the main source of verifying initial hypotheses and findings. As it was not possible to cover all 27 EU Member States, interviews focused on those social partner organisations and/or senior members involved in the respective sectoral social dialogue committees in transport.⁷

Mapping of current staff scheduling and rostering practices

The next step in the analytical approach was to map current staff scheduling and rostering practices within the different transport modes, and also include several current practices from other relevant sectors of the economy (such as those that operate continuously, i.e. healthcare, manufacturing and emergency services) that can be used to transfer lessons learnt to the transport sector. Additionally, costs and benefits of the current scheduling systems were estimated.

This mapping exercise covered:

- Different transport modes (civil aviation, inland waterways, maritime transport, ports, road transport, urban public transport);
- Various types of jobs (mobile and non-mobile) and work forms (e.g. traditional transport and platform work);
- Different company profiles (small and medium-sized enterprises as well as larger companies, private and public sector companies);
- A range of relevant EU countries;
- Relevant examples from outside the transport sector (e.g. health care, emergency services, customer services, security, process industry) comprising of approximately 20% of the presented current practices.

In order to deliver the above-mentioned objective, this step relied heavily on the inputs from the data collection and more specifically:

- The analysis of existing information on current practices as collected by the exploratory interviews and the literature research;
- The targeted survey to collect current practices from companies across the transport sector;
- A round of targeted interviews with companies implementing current practices aiming to obtain more detailed information on the implementation, costs and benefits of their current practices.

While the COVID-19 pandemic did not impact the mapping methodology as such, it did have an impact, as mentioned above, on the amount and quality of information available.

Critical appraisal of scheduling and rostering practices

The final analytical step was to conduct a critical appraisal and analysis of the identified types of staff scheduling and rostering practices, focusing in particular on the question of how the identified practices are contributing to better work-life balance of staff and whether key stakeholders involved perceive them as satisfactory.

⁷ i.e. civil aviation, inland waterways, maritime transport, ports, road passenger and freight transport, urban public transport, railways. In this context the study approach was presented also to an ETF Women's Committee Meeting in October 2020.

In this context, and based on the results of interviews with stakeholders and company-level workers' and management representatives as well as discussions and contributions in the context of the stakeholder workshop, the following aspects are addressed in the following sections:

- Drivers for changing existing practice;
- Objectives, (expected or actual) benefits and key themes;
- Scope;
- Facilitating factors/impact of digitalisation;
- Crucial success factors;
- Hindering factors and barriers;
- Transferability;
- Scalability;
- Replicability.

e. Development of conclusions and recommendations

Participatory workshop

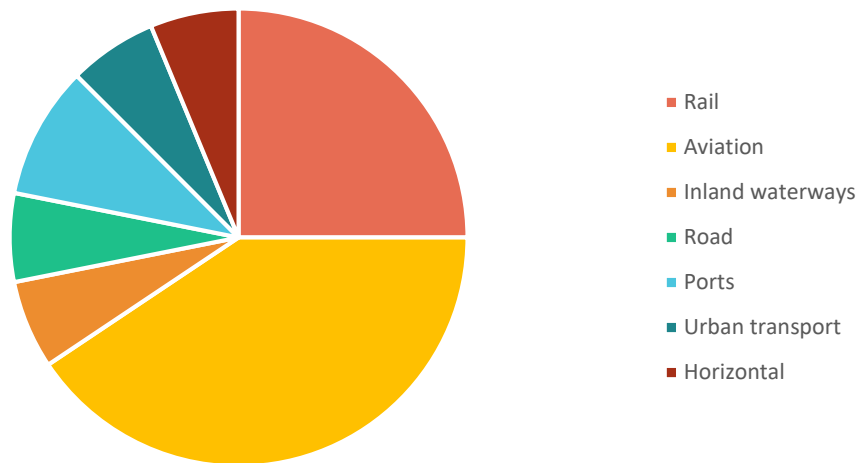
The purpose of the participatory workshop was to validate the selection of specific current practices with industry practitioners. Specifically, the aim was to test measures with selected companies. This exercise enabled the team to collect feedback on the relevance of specific measures and if necessary adjust the description of the practices. It also served to showcase to transport sector practitioners that there is a financially sustainable way to improve work-life balance for workers. It should be noted that, as set out below, the actual number of participants at the workshop was lower than expected and the breakout sessions were also not as well attended as planned. In the breakout sessions, participants often preferred to discuss their own practices rather than concentrate on the practices that were showcased. This was in itself useful and provided information to feed into our reporting, but also meant that the focus was not as strongly on the highlighted practices as had been originally planned.

The workshop took place on 29 September 2020 in the form of a virtual event: due to COVID-19 measures, it could not take place as a physical event in Brussels, as planned. 60 people registered for the event, of whom 33 attended. Participants joined from different countries, modes and stakeholder groups.

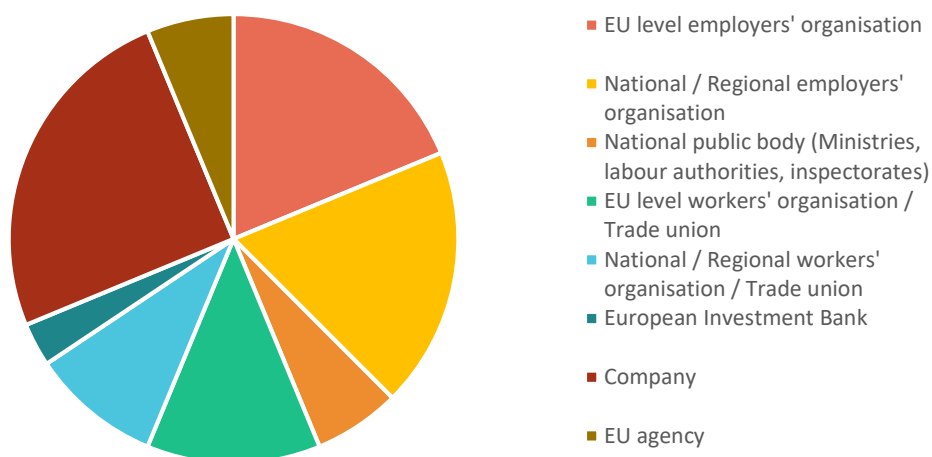
An overview of the breakdown of participants per sector and type of participant is presented in Figure 2.

Figure 2 Overview of workshop participation per sector and type of participant

Number of participants by transport sector



Number of participants by type



The aim of the workshop was to focus on interaction with the participants rather than on the presentation of information from the study team. The views provided by the participants are an important input for the study. The workshop consisted of a plenary session and breakout sessions.

1. **Plenary session:** a general discussion on rostering and scheduling practices revolving around themes such as conditions for implementations of current practices, benefits for all involved, enablers in uptake, etc.;
2. **Breakout sessions:** a more detailed discussion in smaller groups on specific practices, in which elements are considered such as advantages and disadvantages of the practice, transferability and scalability, challenges and recommendations. As noted above, the conversation in the breakout groups often strayed onto the participants' own experiences in their organisations. While this provided useful information for our reporting, it also meant that discussion and testing of the actual practices showcased was limited.

The report of the participatory workshop is presented in Annex IX.

Selection and presentation of case studies

The objective of this task was to decide on the final selection of current practices and to present the relevant information for each of these practices. Initially, it was intended that the list of current practices would be primarily put together based on the survey responses and the follow-up in-depth interviews. However, given the ongoing COVID-19 pandemic, stakeholder cooperation was overall relatively low and the empirical data collection (i.e. the surveys and interviews) suffered from a low response rate, which in turn made it very difficult to obtain accurate, measurable and comparable data. Further, the COVID-19-related study limitations as well as critical assessments of stakeholders and company representatives as regards general difficulties and the complexity of cost-benefit evaluations also made it impossible to include a quantitative analysis of the main costs and benefits associated with each practice, as initially proposed and planned. Nevertheless, a guide indicating how such data can be collected in the future and how such a quantitative cost-benefit analysis can be conducted is provided in Annex I.

Therefore, the selection of the practices was primarily based on an extensive desk research, which consisted of grey and academic literature review.

The 41 initially mapped practices were analysed and critically assessed by the research team as well as in the context of stakeholder interviews, leading to 15 draft cases which were presented at the participatory workshop. The results of the workshop, the literature review and the interviews, were input to this task, which following further analysis elaborated and combined those practices, concluding to a final list of eight practices, which are presented in chapter 6.

Dissemination framework

The dissemination approach is defined at a relatively high level, which provides the flexibility to adapt the final plan to suit the final product. The overarching principles of the plan were discussed and agreed with the European Commission. The overall approach to dissemination is based on the following principles:

- Consider the main target audiences: which types of companies and stakeholders would be most interested in the results of this study? The audiences could also include Member States as well as EU-level stakeholders. Outputs could be tailored to specific audiences;
- Roles and responsibilities for dissemination: who will coordinate the dissemination activity and who will actually disseminate the results of this study?
- Dissemination methods and tools: what are the main methods of dissemination - including written, video and web based tools? Examples of approaches could include social media, website postings of information or slide presentation presentations, posting the information on the European Commission and/or association websites. Utilising the Women in Transport Platform as well as the (future) network of diversity ambassadors will be important;
- In particular, the participatory workshop was expected to be key in receiving feedback from the sector on how to best disseminate the message. While the number of participants was lower than originally planned and the discussion not as targeted as hoped, the workshop nevertheless provided some useful input for our reporting;
- Finally, developing an approach that addresses middle and line management is also important.

For each type of dissemination product, these key areas are highlighted:

- Title of output. This may differ depending on the composition of the target audience;
- Target groups/ audiences. This will determine the content of the dissemination product: it should be tailored differently for company, policy and social partner audiences, for example;
- Key messages. Each dissemination product should contain up to five key takeaway messages;
- Actors responsible for undertaking dissemination. Each dissemination product will be assigned to specific actors for dissemination.

It should be noted that some of the most effective policy learning occurs after a deliverable has been produced and disseminated. Distributing the deliverable and 'hoping' that policy learning happens may not maximise impact. Our dissemination package therefore contains material to enable this report to be presented at meetings and webinars, in order to enable discussion of the learning and to understand how the research is being used.

3. Typology of frameworks under which rosters are decided

a. Introduction

The objective of this section is to provide a typology and better understanding of the various parameters and framework conditions influencing staff scheduling and rostering in the transport sector.

Against the general scarcity of comparative information and evidence (see section 2 on methodology), the initial concept of elaborating a typology of framework conditions of staff scheduling and rosters had to be adjusted and simplified. The typology presented here includes a limited number of indicators where it was possible to gather respective data and information for all EU Member States.

Though stakeholder interviews confirmed that working time issues are of key interest for social partners at national as well as at European level, interviews with secretariats of the EU-level social partners showed that knowledge about framework conditions and the actual practice of working time organisation, including staff scheduling and rostering in the different EU Member States, is limited. This in particular relates also to the role of social partners in the national determination of social and working conditions in the sector that goes beyond the implementation of the agreements on working time and other working condition aspects that were negotiated in railways, maritime transport transport/seafaring, civil aviation and inland waterways for cross-border transport activities (see Table 6 below in alphabetical order).

Table 6 Overview of applicable EU level regulation in transport

Sector	Applicable EU level regulation
Civil aviation	<p>Council Directive 2000/79/EC of 27 November 2000 concerning the European Agreement on the Organisation of Working Time of Mobile Workers in Civil Aviation*</p> <p>Regulation defining EU-wide rules on Flight Time Limitations for European cabin crews and pilots (Regulation 83/2014)</p> <p>The EU's Working Time Directive 2003/88/EC for all other staff not covered by Directive 2000/79/EC (which is for mobile workers only)</p>
Inland waterways	Council Directive 2014/112/EU concerning certain aspects of the organisation of working time in inland waterway transport*
Maritime transport	<p>Council Directive 1999/63/EC on the organisation of working time of seafarers*</p> <p>Directive 1999/95/EC concerning the enforcement of provisions in respect of seafarers' hours of work on board ships calling at Community ports in the maritime transport sector</p>
Ports	The EU's Working Time Directive 2003/88/EC.
Railways	<p>Council Directive 2005/47/EC on certain aspects of working conditions and mobile workers engaged in interoperable cross-border services in railways*</p> <p>The EU's Working Time Directive 2003/88/EC for all other staff not covered by Directive 2005/47/EC which is applicable to mobile workers in cross-border railway activities.</p>

Sector	Applicable EU level regulation
Road transport	Directive 2002/15/EC on working time in road transport regulating issues such as maximum driving time, breaks and rests during days and weeks Regulation 561/2006 on harmonisation of certain social legislation relating to road transport
Urban public Transport	The EU's Working Time Directive 2003/88/EC.

* These Directives are implementing agreements between social partners in the sectors. The latter can be found at the [social dialogue texts database of the European Commission](#).

No further official joint texts or agreements of the European sectoral social partners in transport have been published so far on issues related to working time and work-life balance.

Though staff scheduling and rostering has not been a dedicated topic of the European sectoral social dialogue in the transport modes, interviews with stakeholders showed that challenges in social, working and employment conditions have been addressed by joint projects and activities by the social partners. The impact of liberalisation, outsourcing and an increase in competition on costs have been addressed for example in civil aviation (both ground staff and crew staff), road transport and railways (working conditions of cross-border mobile staff, employability, digitalisation).

In particular national and European trade union representatives in road freight and passenger transport have highlighted the close correlation between working time and work-life balance on the one hand and precarious working conditions as a result of unfair practices, insufficient implementation of national rules of working and driving time, breaks and (weekly) rest periods in the sector. As a result, working conditions and working time practices in the road transport sector worsened significantly during recent years according to trade unions as well as employers' organisations. Also due to the increase in unfair competition practices and social dumping, there is little room for manoeuvre for companies that would like to offer more worker friendly staff schedules and rosters.

In the light of demographic change and the lack of attractiveness of transport jobs, the sectoral social partners at EU level have also addressed, through joint activities, topics such as lack of women workers and gender equality (railways, urban public transport, maritime transport/seafarers), recruitment and improvement of vocational education and training and career perspectives in the respective sectors.

b. Sources of regulating working time, and work-life balance in the European Union

Different systems of regulating working time in the European Union

The 2003 EU **Working Time Directive** constitutes an important basis for transnational regulation of working time and establishing minimum standards of protection of workers. It constitutes the framework for national working time legislation in EU countries. The Working Time Directive sets minimum standards for maximum working hours, breaks to be respected, night work and holidays. According to the Directive, the maximum weekly working time, which must not be exceeded within the prescribed balancing-out periods, is 48 hours, and the minimum rest time for workers per 24-hour period is 11 hours; the paid minimum annual leave is 4 weeks.

Individual EU countries are free to maintain or provide higher levels of protection if they so wish. In many EU countries, national legislation provides a higher level of protection and, often more effectively, collective agreements as highlighted by stakeholders in the context of this study (namely trade unions) and national case studies.⁸ It is therefore no coincidence that in countries with a high level of unionisation and collective bargaining coverage, working hours are shorter than the minimum requirements.

However, the wide range of working time standards in the EU, which is reflected in significant differences in both normal and actual weekly hours between the countries, is not due to differences in union priorities or assertiveness. Rather, it is the result of diverse institutional configurations of legal norms and collective bargaining as well as the interaction between the various institutional actors of working time regulation.

A study by Eurofound on the evolution and regulation of working time has clustered EU Member States in accordance with the role of different sources of regulation.⁹ Three general types of relevance for our study were identified:

Type 1: Working time standards are almost exclusively regulated by law in 8 EU countries (Bulgaria, Estonia, Latvia, Lithuania, Hungary, Poland, Romania and Slovenia). Labour law not only regulates the standard working time and the organisation of work, but also contains specific rules for specific jobs or categories of workers. Collective bargaining on working time is either rare or – as for example in Slovenia – despite being frequent and structured at various levels, only reflects legislative regulation. In other countries (e.g. Hungary) collective agreements mainly have the function of legitimising longer daily or weekly working hours and/or reference periods.

Type 2: In Greece, France, Croatia, Portugal and Slovakia, working time standards (in particular the maximum duration of working hours) are regulated by law. In addition, trade unions conduct negotiations at sectoral and company level with the aim of enforcing more favourable working time arrangements for workers. Legislation is also the most important institutional level in Czechia, Ireland and Malta for setting working time standards, but unlike the other 5 Member States mentioned at the beginning of this paragraph, adjustments resulting from collective agreements are predominantly made at company level.

Type 3: In another third of EU countries, legislation is still relevant for setting working time standards, but it merely sets the general framework for working time arrangements at sectoral or company level. The prevailing institutional level for collective bargaining is in these cases the sectoral level. Employers' organisations and trade unions negotiate here and agree on arrangements for working time. Sectoral agreements are often supplemented by company-level arrangements on working time organisation. This applies to the Nordic countries (Denmark, Finland and Sweden), where there is a long tradition of regulating working time through collective bargaining. This also applies to Belgium, Germany, Spain, Italy, Cyprus, Netherlands, and Austria, where regulation of working time mostly takes place on an industrial level.

⁸ See for example: ETF, ver.di, EVA 2019: Social Conditions in Logistics in Europe: Focus on Road Transport, Berlin. The study includes a detailed analysis of the role of collective bargaining in regulating working and social conditions in seven countries).

⁹ Eurofound (2016), Working time developments in the 21st century: Work duration and its regulation in the EU.

It should be noted that the analysis is based on assessments made as regards the whole economy, taking a 'sector-blind' approach. When specific sectors are considered, the national characteristics may differ from the general patterns and the clustering of countries and the alignment to main sources of regulation can be very different as a result of different influences of collective bargaining. Unfortunately, neither this nor other Eurofound studies on working time include case studies on transport modes.¹⁰

The following Table 7 provides an overview of the different types of systems, including the predominant source of regulation of working time at workplace level.

Table 7 Different systems of working time regulation according to Eurofound

Systems of working time regulation	Countries	Dominant institution of regulation
Exclusively by legislation: The State has a dominant role in regulating working time standards. Legal standards apply to the majority of workers; Collective bargaining and collective agreements concerning the duration of working time or working time arrangements are rarely found in this system.	Bulgaria, Estonia, Latvia, Lithuania, Hungary, Poland, Romania, Slovenia	Statutory legislation
Legislation with a collective bargaining supplement: in this system too, government action dominates the regulation of working time. However, legal norms are often supplemented by collective bargaining. This leads to regulations that tend to be more favourable for workers than the legal norms. Supplementary collective bargaining takes place at sectoral or company level.	Czechia, Ireland, Greece, France, Croatia, Malta, Portugal, Slovakia	Statutory legislation
Working time regulation through collective bargaining: standards are mainly determined by collective bargaining, usually at the sectoral level. However, these can be further supplemented by agreements on working time organisation at the company level. In short: in this system, standards for the duration and organisation of working time as well as the place of work are usually the result of collective bargaining between employers and unions.	Belgium, Denmark, Germany, Spain, Italy, Cyprus, Luxembourg, Netherlands, Austria, Finland, Sweden	Collective bargaining

Source: Eurofound (2016), Working time developments in the 21st century: Work duration and its regulation in the EU.

¹⁰ Eurofound has published annual reviews of working time developments in the EU, which includes sections that address developments and patterns of practice in certain sectors. Previous reports include case studies on chemicals, metalworking, banking, retail and public administration. See: Eurofound (2017): Developments in working time 2015–2016 and Eurofound (2019): Development of working time 2017-2018.

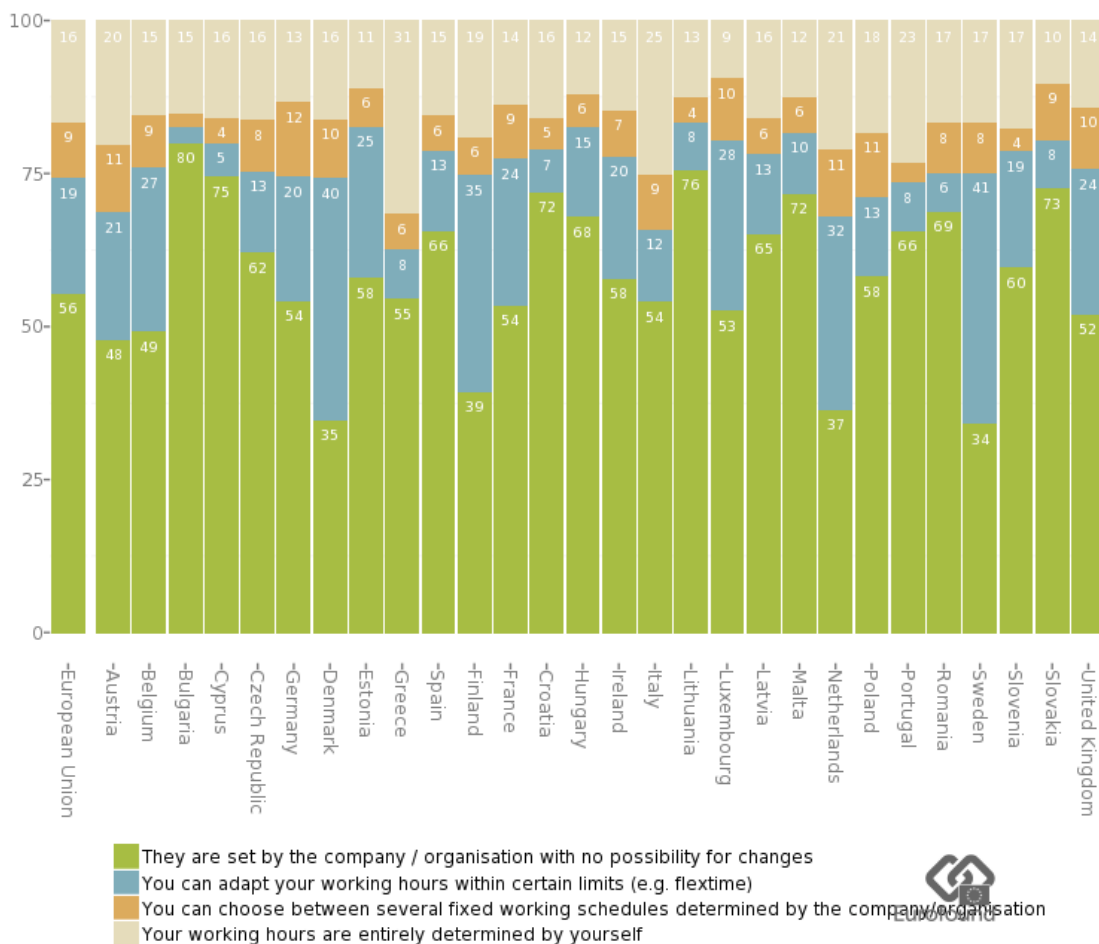
Working time organisation and work-life balance

When it comes to working time setting and staff schedules and rosters that contribute to increased autonomy of the individual worker and a better work-life balance, different sources of regulation as well as company practices and policies are important factors to take into account.

The European Working Conditions Survey (EWCS) illustrates a significant gap between EU countries that exists in relation to the ability of workers to determine or influence working hours.

The EWCS data for 2015 show that most workers, around 60% in the then EU28, have rather rigid working schedules. However, 30% have some flexibility in the determination of their working hours and others report that they have a choice between fixed schedules determined by the organisation they work for. While there is considerable diversity among Member States, workers in the Nordic countries, Netherlands and Austria stand out in terms of their options to flexibly organise their working time either by determining working hours entirely themselves or adapting working hours within certain limits, by practices such as flexitime.

Figure 3 Working time setting for workers, per country 2015



Source: Eurofound, European Working Conditions Survey 2015.

The countries with the highest percentages of working time autonomy and flexible choice are also those with a strong role for collective bargaining and workers' voice at company level. This is also reflected in comparisons between countries in relation to work-life balance clauses in collective bargaining agreements, including at the company level.

As comparative research has shown, clauses on work-life balance issues in collective agreements are more prevalent in countries where collective bargaining is well established and where there is a high influence of company-level worker representation and participation and plays an important role for regulating working time and much less prevalent or non-existent in countries with lower collective bargaining coverage.

Table 8 Prevalence of work-life balance clauses in collective agreements

Degree of prevalence	Countries
Relatively widespread	Belgium, Denmark, France, Italy, Netherlands, Slovenia, Finland, Sweden
Existing in several sectoral agreements	Germany, Malta, Austria (in the case of Malta only for the public sector)
Existing, but prevalence limited	Czechia, Greece, Spain, Latvia, Hungary, Portugal, Romania, Slovakia
Existing, but prevalence unknown	Bulgaria, Estonia
No clauses	Croatia, Cyprus, Latvia, Luxembourg, Poland
No information	Ireland

Source: Eurofound (2017): Work-life balance and flexible working arrangements in the European Union.

c. Further major influencing factors of staff scheduling and rostering

Major factors of influence

Apart from framework conditions such as working time legislation, collective bargaining and the influence of company-level worker representation and participation, staff scheduling, and rostering practice is also impacted by other factors of influence at company level.

From documentary analysis as well as stakeholder interviews, a number of further influencing factors that impact on the organisation of working time, rostering and staff scheduling are emerging that should be taken into account when analysing existing practices and drawing conclusions as regards the development and dissemination of current practices.

Influencing factors can be linked to the following domains: company size, market and competitive environment and changes; legal and policy framework; human resources policy; health and safety; corporate culture, labour relations and trade union policy.

Table 9 provides an overview of findings, including an assessment of the impact on specific transport modes. If relevant, differences between countries or groups of countries are also highlighted.

Table 9 Factors of influence as regards company level working time and staff scheduling practice

Factors of influence	Preliminary assessment of impact on different transport modes
<i>Market and competitive environment of the sector/company</i>	
Company size	Significant differences between transport modes, e.g. small average company size in road transport or inland waterways to transport modes that are predominantly characterised by larger company structures such as railway operators or airlines.
Business-specific factors	New requirements that increase the need of more working time /roster flexibility, e.g. mega container ships that require a higher number of workers while at the same time debarkation times are becoming shorter.
Market opening and competition	All modes affected by increase in competition due to market opening and new entrants.
Business strategies	Outsourcing, agency work, employment of workers from non-EU countries, posting and letterbox companies, affecting all modes but particular widespread in modes such as road transport, ground-handling / security staff in airports as well as shipping (e.g. cruise ships).
<i>Legal reforms and policy framework conditions</i>	
Working time policy	Right to part-time, work-life balance policies, working time flexibility, etc. - affecting all transport modes.
Gender equality policy	National policies or requirements on companies to strengthen recruitment of women and develop policies for career progression – affecting all transport modes. European social dialogue gender initiatives or projects, e.g. in urban public transport, railways, maritime transport and road transport.
Legal/policy frameworks for older workers	e.g. legal or other requirement to offer part-time work for older workers.
<i>Health and safety policy</i>	
Health impact of night and shift work	Link between absenteeism / illness and night or shift work.
Fatigue and transport safety	Very relevant for mobile staff and crews; Close link between fatigue management and rostering/staff scheduling.

Factors of influence	Preliminary assessment of impact on different transport modes
<i>Human resource planning and policy</i>	
Recruitment and retention of workers	Affecting all transport modes, but the labour market situation is particularly important in countries with low unemployment, immaterial benefits get increasingly important to recruit and retain workers.
Attractiveness for younger generations	High average age in modes such as railways, road transport; Expectations and demands of younger generation; Differences between countries.
Promotion of women workers	Increasing issue in modes such as e.g. railways, road transport, urban public transport and maritime transport.
Company age management and regulatory requirements	Differences between countries as well as transport modes, reflecting labour market situation but also human resources practices.
<i>Corporate culture</i>	
Public image and social responsibility	Particularly important for providers of public transport services, e.g. urban/local public transport and railways; Corporate culture also increasingly important for managing human resources challenges.
<i>Labour relations and social dialogue</i>	
Social partners' policies and demands	e.g. trade union and/or employers' demands of working time reduction or flexibility, right to part-time work, work-life balance, gender equality, older workers, inclusion, etc.
Collective agreements on working time innovation	Important impact in companies covered by collective agreements; Significant differences between countries and transport modes.
Role of workers' participation and co-determination at company level	Generally, stronger workers' influence in larger companies (e.g. via board-level worker representation, resources and expertise of works councils or similar worker representation bodies).

Source: Ecorys/wmp.

As can be seen, therefore, actual practices of staff scheduling at company level are influenced by a variety of framework conditions and factors that may also influence each other and are mutually dependent.

This dependency has important consequences for issues such as the transferability of practices as well as their applicability/feasibility: while some practices work well under specific conditions, they may not be feasible under different conditions.

The next section will summarise our findings as regards a typology of framework conditions influencing staff scheduling and rostering in different clusters of countries as well as in different transport modes.

d. Towards a typology of framework conditions influencing staff scheduling and rostering

Based on the considerations and analysis of the previous sections and taking into account existing clustering of EU countries as regards industrial relations and working time, the following table presents an overview of an adjusted typology of different sources of staff scheduling and rostering practice in the EU with a focus on transport modes.

Four main typologies can be identified:

1. Type 1: Social dialogue, collective agreements and co-determination at company level;
2. Type 2: Driven by collective agreements at a range of levels;
3. Type 3: State-centred with influence of collective agreements;
4. Type 4: Little influence of collective bargaining but some company-level worker representation and participation (this type has a number of sub-types).

Table 10 Typology and country clusters as regards staff scheduling and rostering practice

Types	Country Cluster	Key features
Type 1: Social dialogue, collective agreements and co-determination at company level	Germany, Luxembourg, Netherlands, Austria	<ul style="list-style-type: none"> • High collective bargaining coverage rates with high degree of collective bargaining coordination; • Supportive role of the state for collective bargaining (extension of agreements); • Extensive legal rights, including co-determination rights of works councils (Austria, Germany, Netherlands) in company policies including working time organisation and staff scheduling; • Strong board-level worker participation rights.
Type 2: Driven by collective agreements at a range of levels	Denmark, Cyprus, Finland, Sweden	<ul style="list-style-type: none"> • Strong tradition of associational governance and social regulation by collective bargaining at national, sector and company level; • Strong trade unions and employers' organisations with high membership rates; • Collective agreements at company level often provide for a stronger influence of workers' interest representation and social dialogue; • Established tradition and practices of workers' board-level participation; • Works councils and similar bodies have strong rights (including co-determination in Sweden) on a wide range of topics, including working time organisation and staff scheduling.

Types	Country Cluster	Key features
Type 3: State-centred with influence of collective agreements	Belgium, Greece, Spain, France, Italy, Portugal, Slovenia	<ul style="list-style-type: none"> Relatively strong associational governance by collective bargaining but generally weaker than in Type 1 and 2 and more depending on orientation of national government, also as a result of weaker membership rates in trade unions, Role of state relatively stronger in setting a framework for employment terms and conditions and extending collective agreements across a sector; While works councils or similar exist, they have less wide-ranging legal rights than in Type 1 and 2; Board level participation rights are much weaker.
Type 4: Little influence of collective bargaining but some company-level worker representation and participation		<ul style="list-style-type: none"> Weak influence of collective bargaining at sector level and low coverage of companies by collective agreements, low trade union density, generally low performance of social dialogue at company level due to lack of traditions – functioning of social dialogue at company level very much depending on the specificity and culture of labour relations; However, as regards legal role and workers' participation at the company level, there are major differences within this group.
Type 4a	Croatia, Hungary, Slovakia	<ul style="list-style-type: none"> Weak influence of collective bargaining; Comparatively strong role of workers' voice at company level because of statutory works council and board-level participation, relatively strong information, consultation and participation rights of works councils that are comparable to Type 1 and higher than in Type 3; However, functioning of social dialogue at company level very much depends on the labour relations and social dialogue culture of the company leadership.
Type 4b	Bulgaria, Czechia, Ireland, Latvia, Lithuania, Malta, Romania	<ul style="list-style-type: none"> Uncoordinated and decentralised system of collective bargaining, weak trade union influence; voluntary system of workers' voice at company level. Works councils or similar bodies only exist in larger companies and have less influence as in the case of Type 4a. In most countries of this type there is no worker board-level participation.

Types	Country Cluster	Key features
<i>Type 4c</i>	<i>Estonia and Poland</i>	<ul style="list-style-type: none"> • Hardly any associational governance role of collective bargaining, weak social partners and very low levels of collective bargaining. Works council or worker representation rights are mandated by law, partly only as a result of the EU Directive 2002/14/EC establishing a general framework for informing and consulting workers in the European Community; • Social dialogue at company level very much depends on engagement and orientation of management and labour.

As regards the impact of the different typologies in relation to staff scheduling and rostering practices at company level, there are significant differences:

Type 1: Social dialogue, collective agreements and co-determination at company level: Social dialogue and collective bargaining between workers and employers at company level plays a significant role in shaping staff schedules and rosters. In some countries in this cluster, working time may even be a matter for statutory co-determination practice. In addition to this, in these countries, innovative practices and adjustments are also supported by state-led initiatives aimed at the social partners, which generally have a supportive character;

Type 2: Driven by collective agreements at a range of levels: Social dialogue has a similarly strong influence in this cluster of countries to that in Type 1, but here it is mainly based on strong social partner organisations and collective agreements at cross-sectoral, sectoral and company level that complement each other. Although co-determination rights are less strong, the role of company-level social dialogue, including the conclusion of collective agreements, and its impact on staff schedules and rosters is strong;

Type 3: State-centred with influence of collective agreements: In contrast to Types 1 and 2, in this cluster of countries, the government plays a more significant role in terms of actions such as providing a legal framework setting the terms and conditions of workers, and providing mechanisms that extend collective agreements across a whole sector, and collective agreements and company-level worker representation bodies cover a smaller scope of topics. The influence of company-level social dialogue and/or agreements between employers and worker representatives at company level on staff schedules and rosters will very much depend on the specific company situation;

Type 4: Little influence of collective bargaining but some company-level worker representation and participation: This is the most diverse and weakest cluster of countries when it comes to the influence of collective agreements (which hardly exist at sectoral level) on staff scheduling and rostering practices. However, this does not mean that, at company level, workers do not have any influence on these practices. Sub-type 4a includes countries with relatively strong worker consultation and participation rights that may be regarded as the basis of a stronger influence than the influence generally seen among countries in this cluster.

e. Conclusions

Framework conditions differ between countries and clusters of countries as well as transport modes. Thus, rostering and staff scheduling practices that work well in one country and transport mode might not be suitable or relevant in another transport mode or country.

It is expected that certain practices of adjusting staff scheduling might be similar across countries and transport modes because:

- they are directly linked to sector-specific business requirements (operational, work process);
- they are motivated by cost reduction / productivity increase; or
- they are easy to implement without additional costs because of technological developments (e.g. app-based swapping of shifts between workers).

Human resources challenges such as recruitment, retention, inclusion of older workers are particularly relevant in countries with low unemployment rates (nordic, western-continental, some central-eastern countries).

Similar challenges exist throughout Europe when it comes to the increase in competition based on costs, social dumping practices and other pressures on companies that restrict the room for manoeuvre when it comes to introducing more worker-friendly work schedules or working time reduction without pay losses.

Policy frameworks that impact on company practices (or even require adjustments) differ significantly within Europe: there are significant differences between national policies addressing issues such as gender equality, better work-life balance and more autonomy in working time.

When it comes to practices of staff scheduling, it seems necessary to analyse the main objectives, purposes and drivers, e.g.:

- Is a new or adjusted practice related to social objectives (e.g. adjusting practice for older workers, making a job more attractive for women, parents or part-timers)?
- Is it aiming to make a job or a company more attractive for younger workers?
- Is it resulting from operational requirements, cost or productivity needs (more flexible work schedules)?
- Is it resulting from necessary adjustments because of legal changes or a new clause in a sectoral collective agreement (e.g. right to part-time work, avoiding night shifts for workers older than 50)?

4. Mapping of current staff scheduling and rostering practices

This chapter presents the final mapping of practices applied in each of the transport modes as well as the identified relevant non-transport sectors.

In terms of type, we have collected 24 practices connected with increased roster control, the most for any type so far. The next most popular type is practices related to fixing shift preference, with 7 practices. We have collected 7 practices related to remote and flexible working, and one in relation to reducing overnight stays. We have also identified 1 cross-cutting practice.

Table 11 below contains an overview of practices relating to staff scheduling and rostering collected by sector and type. In total, we have 41 practices: 13 from the civil aviation sector, 3 from maritime transport, 8 from ports, none from inland waterways, 3 from railways, 9 from urban public transport, 1 from road transport and 4 from non-transport sectors.

Table 11 Overview of number of practices relating to staff scheduling and rostering collected by sector and typology

	Civil aviation	Ports	Maritime transport	Inland waterways	Railways	Urban public transport	Road transport	Other	Total
Type 1: Remote and flexible working arrangements	1	3			2	1			7
Type 2: Increased roster control (in deviation of usual planning)	9	4	3			4		4	24
Type 3: Fixing shift preference (on a permanent basis)	2	1				4	1		8
Type 4: Reducing overnight stays	1								1
Cross-cutting					1				1
Total*	13	8	3	0	3	9	1	4	41

Annex III contains illustrative tables (Tables 23 to 27) organised by transport sub-sector, containing information about the title of the practice, the company, the country, a description of the measure and classification according to the four identified types.

Civil aviation

For the practices that we have identified in civil aviation, which includes the sub-sectors of airlines and airports, see Table 23 in Annex III. The analysis of these practices shows that the following main themes emerge, as set out next.

Working time flexibility

The way that airlines work means that there is limited room for manoeuvre in terms of working time flexibility for pilots and cabin crew in particular. Nevertheless, many airlines try to accommodate as much flexibility as possible in order to help workers manage their work-life balance. These types of arrangements include part-time working options, for example at KLM where the collective agreement states that requests for part-time working cannot be refused by the company, and some flexibility around shift arrangements. It should also be stressed that in the current COVID-19 context, which has hit the airline sector particularly hard, there is a general tendency among airline crews to be willing to work as and when needed as airlines began to resume operations.

Flexibility around rostering

There are many examples of rostering flexibility in the civil aviation sector. As the drawing up of rosters is a complicated exercise involving many different stakeholders in addition to workers, the best way to introduce flexibility is to issue a formal roster and then permit flexibility between workers – within regulations governing working time – in the form of shift swapping. Some airlines have a more formalised process in which workers can request shift swaps. Others have a process in place under which workers can bid for preferred shifts. A common practice in many airlines is informal shift swapping between workers, which usually takes place via online messaging groups. Linked to this, some airlines use specific rostering software to optimise rostering.

Reducing nights spent away from home

Given the nature of the work for cabin staff and pilots in the airline sector, it is difficult to eliminate the practice of spending nights away from home. However, some airlines try to facilitate workers spending nights at their home base as much as possible. Much will also depend on the individual worker: those at the beginning of their careers will be more willing to travel and spend time away from home, while those in mid- and later career may have family responsibilities and not be as willing to spend time away. It should also be stressed that overnight stays depend on the destination. Airlines will usually try to limit overnight stays as this is costly. For crews, some destinations may be more attractive to fly to and spend time in than others.

Maritime transport and ports

The analysis of **the practices that we have identified in maritime transport and ports, and shipping** shows that the following main themes emerge, as set out below. No example could be identified in inland waterways. (See Table 24 in Annex III.)

Rostering flexibility

Flexibility around shift patterns is a common practice in the ports sector. Shift swapping is permitted, with the permission of the supervisor. There are also provisions that allow for a transfer to a different shift pattern for a period of time (1 year).

Switching between positions

There are some examples of provisions that facilitate the move between different functions. For example, in the shipping sector, Maersk Line has introduced a global programme for all personnel working at sea who are interested in switching to a shore position. Under this programme, for 2 years, participants can retain their offshore wage level (which is in general higher). They can then either return to sea or apply for another position ashore at an ashore salary level.

Use of new technology

Given the complexities around the organisation of working time in parts of the maritime transport and inland waterways, particularly the shipping and maritime arms, it is common to use specific software and apps to help reduce the administrative burden and make the exchange of shifts between colleagues less burdensome. We have found examples of two such software packages in the maritime/shipping sector. There are also examples of apps being used in the ports sector to reduce the burden associated with shift swapping.

Railways

The current practices that we have identified in rail transport, which includes the sub-sectors of railway operators and infrastructure managers, show that many of the larger rail companies in EU countries have a relatively strong trade union presence, therefore working time is often regulated by collective agreements. (See Table 25 in Annex III.)

Against high average ages of railway mobile as well as non-mobile staff groups and significant recruitment problems as well as low shares of women workers in operational and technical fields, railway companies in recent years have engaged in measures to make the sector more attractive to young people and women. At national as well as EU level, this has also been supported by projects and initiatives by the social partners CER and ETF, e.g. studies on the attractiveness of railway jobs and careers or women workers.

In this context, measures and offers of better work-life balance and more flexible working time models have been negotiated at national level, including innovative agreements establishing so-called 'option-models' where workers may choose between annual wage increase or additional holidays¹¹.

Another example reported by railway stakeholders is Italy, where employers' organisations and trade unions have negotiated a national-level collective agreement that provides for flexibility in working time and place of work, under a Smart Working agreement.

The collective agreements in this transport mode cover general working time issues but also contain provisions that are relevant to staff scheduling and rostering. For example, there are provisions that increase working time flexibility by providing more choice for workers over the organisation of their shifts. One example in the Finnish state-owned railway company, VR Group, describes an algorithm that aims to improve the utilisation rates of drivers and to distribute strenuous work tasks evenly among the drivers, while also improving work-life balance. This provides benefits for both the company and workers.

¹¹ A pioneer of such agreements has been, for example, Deutsche Bahn and the EVG trade union in Germany. See DGB: Trend zur Arbeitszeitsouveränität geht weiter, 21. Dezember 2018. <https://www.dgb.de/themen/++co++23d3601c-04f2-11e9-86fe-52540088cada>

Road transport

For practices that we have identified in road transport, which includes the sub-sectors of road freight and passenger transport as well as urban public transport¹² see Table 26.

Analysis of these practices show that most of the practices identified are related to urban public transport. This is not surprising as according to stakeholder interviews, several framework conditions such as comparatively strong trade union presences and higher shares of female workers are favouring working time, rostering and staff scheduling practices that may contribute to better work-life balance, working time flexibility and the offer of part time option models.

Shift flexibility

There are many examples of companies introducing an element of flexibility and limits around shift working, in order to improve work-life balance while preserving continuity of service. At Sofia Electric, for example, workers can choose between morning and afternoon/evening shifts. Further, at Milan Transport (ATM) in Italy, women workers can request to avoid specific shifts such as night shifts. Single parents are also given special consideration in terms of shift working. There are also limits on weekend working in some companies. For example, at Turku Transport Services in Finland, there are limits on Sunday working on a monthly and annual basis.

Shift swapping

As with other modes of transport, the organisation of shifts in order to provide a full and seamless service to passengers is a complex task and it can be difficult to accommodate all work-life balance needs of all workers. Shift swapping among colleagues is therefore a common practice, often coordinated by Human Resources and subject to approval in the context of continuing service delivery. At Dublin Bus, for example, drivers can internally arrange to swap shifts. The company also tries to be flexible, where possible based on the operational requirements of the company, in terms of rostering, and tries to accommodate the preferences of drivers.

Individualised approaches

Many companies engage directly with individual workers in order to accommodate their working time preferences, in order to facilitate work-life balance to the greatest degree possible. At Wiener Linien, Austria, for example, the schedules of bus drivers and mechanics are individually evaluated in order to better respond to their preferences. The company is also looking into a new pilot programme to evaluate whether personalised shifts work better. Similarly, in Italy, at ATM, specific shift management office workers are charged with rearranging schedules as needed in order to respond to family needs in the case of both male and female workers.

¹² Urban public transport (UPT) is included here mainly because in the context of European Sectoral Social Dialogue it is part of the road transport sectoral social dialogue committee. However, it should be noted that UPT is not restricted to urban and local road transport of passengers but also includes rail transport modes such as metros, trams and even local waterway transport of passengers.

Other, non-transport sectors

For the practices that we have identified in relevant non-transport sectors see Table 27 in Annex III. These are IT, digital and healthcare. All four of the practices in this sample relate to increased roster control. For example, this is achieved using specific software in Germany, developed by the 'KompUEterchen4KMU' project, which focuses on the development of a resource planning tool for a medium-sized construction company. Similarly, at Letterkenny University Hospital in Ireland, an e-rostering system helps allocate rostering among the staff in different units.

We also found examples of digital apps helping with nursing rostering in a home care context. In Germany, a digital tool assigns nurses to patient care while respecting requirements such as legal working time restrictions, availabilities of full and part time nurses, and patient requests with differing requirements on qualification and frequency.

In the Finnish health care sector, a participatory planning model enables staff to plan roles and tasks together, based on principles of fairness and equality. This has had a positive effect on staff wellbeing, and has also meant that the quality of nursing has been consistently high, with effective use of resources, motivated and committed workers, and better retention of staff.

5. Critical appraisal of scheduling and rostering practices

a. Introduction

This chapter provides a critical appraisal of those practices of staff scheduling and rostering that have been identified in the context of our research, focusing in particular on the question of how the identified practices are contributing to better work-life balance of staff and whether key stakeholders involved perceive the practices as satisfactory.

The key aspects addressed in the evaluation of practices have already been summarised in Chapter 2 on the methodology:

- **Drivers for changing existing practice**, e.g. business needs, trade union demand (implementation of a collective agreement), legal requirements;
- **Objectives, expected or actual benefits and key themes**, e.g. increasing productivity, efficiency of work, increasing attractiveness of a job, work-life balance, adjusting practice to needs of specific groups of workers (e.g. older workers, women);
- **Scope**, e.g. restriction to certain staff categories (mobile, non-mobile, blue / white collar, older workers, female workers, etc.), restriction to a specific transport mode or company characteristic (e.g. company size, social partners' collective agreement, specific legal framework);
- **Facilitating factors/impact of digitalisation**, e.g. digital tools, apps, software;
- **Crucial success factors**, e.g. involving workers in planning and design, support by highest management level, accompanying communication strategy;
- **Hindering factors and barriers**, e.g. monetary costs, administrative burden, corporate culture, company size.

A further and important objective of the critical appraisal is whether certain practices may suit different framework conditions and company/mode specific characteristics, i.e. the issues of **transferability** between different staff groups, between transport modes as well as between Member States. Here, the analysis also addresses the question of which current practices are concentrated in which clusters of countries and what elements may facilitate a broader dissemination. In this context, we also consider issues related to the potential of applying existing practices in companies of different size (**scalability**) and across countries that feature different legal and labour relations environments (**replicability**).

In the following section, the key results of the appraisal are presented before conclusions are drawn in relation to the above-mentioned aspects.

b. Sectoral, national and work-specific differences of staff scheduling and rostering practices

Practices per transport mode

The review and appraisal of the identified practices indicated a rather uneven incidence of practices in relation to type of practices and to transport modes. Most practices were identified in civil **aviation**, **ports** and **urban public transport** as well as the **railways sector**. In fact, more than 80% of the practices are related to these modes.

In the light of our sector-specific analysis of framework conditions of working time organisation – in particular the role of collective bargaining – as well as resulting from

information gathered in stakeholder interviews and interviews at company level, the following reasons may explain the concentration of practices in these modes:

- A high share of the workforce in these modes (both mobile and non-mobile workers) are engaged in doing shift work and weekend work;
- There are significant challenges with regard to recruitment and job attractiveness (in particular in urban public transport, railways and also civil aviation¹³);
- Predominantly large company sizes (all three modes);
- Labour relations characterised by a relatively strong role of co-determination, social dialogue and collective bargaining;
- Strong role of public owned companies, provision of general interest public services and relatively strong regulation of working time, health and safety and security related conditions (urban public transport, railways).

By contrast, fewer practices were identified in **maritime transport** and **road transport (freight as well as passenger/coach)**. In **inland waterways**, no practices were identified.

For the relatively low incidences of practices of staff scheduling and rostering practices aiming at improving work-life balance of workers in these modes, stakeholder interviews as well as sessions of the participatory workshop have highlighted the following reasons:

- Operational specificities, resulting in long work durations away from home with long working days and working weeks of mobile staff (namely in shipping and waterways but also in longer-distance and international freight and passenger transport);
- Challenges to monitor and enforce legal requirements of working time and rest periods of mobile staff (e.g. as compared to civil aviation);
- High share of smaller companies and self-employed workers (namely road transport, inland waterways);
- Relatively weak practices of collective bargaining and worker involvement in operational matters and work organisation;
- Strong competition based on transport prices and widespread business strategies such as outsourcing, agency work and employment of workers from non EU-countries.

In particular trade unions at European and national level in the road freight as well as passenger transport modes have stressed the worsening of working conditions (in particular of drivers). They have also highlighted the intensification of cost-based competition and social dumping in the sector, which has already resulted in widespread worsening of working time conditions, including excessive driving and working time schedules in particular in international road transport.¹⁴ According to the ETF trade union as well as national trade unions, the new measures related to driving times and rest periods that came

¹³ At least before the COVID-19 pandemic resulted in a sudden breakdown of passenger-related aviation activities.

¹⁴ In this context, the ETF trade union has launched a research study on driver fatigue and road safety. See: <https://www.etf-europe.org/project/safer-roads-in-europe/>.

into force in summer 2020 may even result in a worsening of working and driving time practices and rest periods in international transport.¹⁵

These framework conditions contradict any practices of social partners at national or European level to improve work-life balance, develop and implement more worker friendly staff schedules and rosters or promote working time practices that make working conditions more attractive for women and young recruits.

Further, in the maritime transport sector, the European and international trade unions ETF and ITF have highlighted that in relation to staff schedules and rostering for onboard staff, the key challenge is not a lack of dissemination of current practices, but the worsening of working conditions and increased competition based on cheap labour. Here, the COVID-19 pandemic has worsened the situation even more: a recent research report by the World Maritime University shows that temporary short cuts (beyond the limit of safe hours of work and rest rules) adopted in the sector have been widespread and not only result in very strenuous situations for seafarers but also increased the risks of accidents.¹⁶

Against these differences between the two groups within the transport modes, questions regarding internationalisation and liberalisation of transport markets emerge: Whereas market opening and liberalisation of competition rules have resulted in the desired effect of increased competition and cost reduction, this has also resulted in an increased pressure on working conditions and compliance with social legislation, including on working time, breaks and rest rules for mobile staff.

Practices per country

As regards incidences of practices fostering better rostering and staff scheduling in terms of work-life balance per country, the following should be highlighted.

While practices were found in all Member States, only very few are applied in central and eastern Europe, all of which are concentrated in urban public transport and railways. Most practices across all transport modes were found in the northern and western continental cluster of Member States (Denmark, Germany, Netherlands, Austria, Finland). While some practices across all transport modes were also found in southern Europe, the practices identified in the Anglo-Saxon group of countries are mainly concentrated in the civil aviation sector.

This result strongly confirms the analysis of framework conditions (see chapter 3) and the finding that **collective bargaining and social dialogue at national, sectoral and company level are by far the most important drivers of more worker-friendly staff scheduling and rostering practices**. This is also illustrated by the analysis of the identified practices. The majority of practices are a result of collective agreements negotiated at sector or company level. Against this, it comes as no surprise that current practices are concentrated in countries with strong collective bargaining coverage rates at sector level and a high degree of worker participation and even co-determination (i.e. the requirement to find an agreement with the worker representation body before introducing a new or changing an existent staff schedule, roster or introducing night or weekend work) at company level. This interlinkage between collective bargaining and certain practices of more worker-friendly staff scheduling and rostering practices has implications on the transferability as will be described in more detail in the section below.

¹⁵ Assessments of participants in a discussion of the rostering study in a meeting with the ETF road section meeting in October 2020.

¹⁶ See: https://www.itfglobal.org/sites/default/files/node/news/files/ITF%20MSC%20Report%20September%202020_Beyond_the_limit_v8.pdf.

Practices for mobile and non-mobile staff groups

As regards different staff groups, the analysis of identified practices shows a rather even distribution of practices targeting mobile staff (e.g. ship's crews, pilots, drivers) as well as non-mobile white-collar and blue-collar staff engaged in shift work, working at weekends or on public holidays.

c. Evaluation of practices according to objectives and key themes addressed

As already highlighted in the analysis of framework conditions of working time, staff scheduling and rostering, improvements in the organisation of working time and offering better work-life balance for workers reflect sector-specific objectives and motivations of companies. These are presented in the following sections.

Work-life balance and multiple purpose of practices

A key emerging theme across all transport modes according to desk research, stakeholder interviews and feedback received in the collaborative workshop is better work-life balance. Better work-life balance can be related to different types of practices as it also needs to take into account the specific requirements and interests of different groups of workers, namely older workers, female workers or workers with a second job. Better work-life balance for workers by means of adjusting staff schedules and rosters has also been highlighted by employers as well as trade unions as a key measure to increase the attractiveness of jobs in transport (see section below).

Most of the practices that we found are characterised by multiple purposes, e.g.:

- Combining more individual choice in rostering and staff scheduling with options such as working time reduction, additional holidays or rest time, part-time work, working from home (non-mobile staff, if this is operationally possible);
- Improving shift planning and rostering also with a view of different and sometimes conflicting interests of different staff groups (older workers, women workers, young entrants, etc.);
- Adjusting shift schedules and rosters in order to make the profession more attractive for recruits while also taking into account health or security considerations (e.g. fatigue).

However, some practices have a narrower focus, such as an increase in efficiency of staffing, rostering and staff planning (whereby some take into account individual workers' wishes and preferences). Such narrow-focused practices are in particular those that have been found in the civil aviation sector in relation to better crew staffing/manning and shift works.

Making transport jobs more attractive – improving working conditions

Across nearly all transport modes, transport companies face significant recruitment problems, in particular in relation to mobile staff such as bus and truck drivers, blue-collar workers in technical/maintenance jobs, security guards and customer services and other areas characterised by shift work and work at weekends or at night.

This explains why a lot of practices that aim to contribute to better work-life balance are related to such occupations and sectors where companies mainly rely on the national labour market, i.e. railways, urban public transport or ports.

However, in these modes as well, cross-border recruitment of staff is reported to have increased recently (e.g. in mobile crews involved in train catering or cleaning).¹⁷ This again confirms the analysis that current practices are related to a strong role of worker interest representation and collective bargaining agreements. This is also illustrated by the fact that the few examples of company-based initiatives to improve work-life balance from central and eastern Europe are related to railways and urban public transport (see ‘Shift Choice’ in urban public transport in Bulgaria and offering better work-life balance in railways in Czechia).

Business- and operation-driven improvements of rostering and staff scheduling

In particular, the stakeholder interviews with trade unions and employers’ organisations have shown that against the increase of competition, companies in transport have already tried to increase productivity and efficiency by an optimisation of staff scheduling and rostering practice. This has been a trend in all modes across all EU Member States.

Cases in civil aviation, ground handling and maritime transport are closely linked to the business objective of improving (cost) efficiency by human resources planning and rostering. Such practices often come in conjunction with IT tools and staffing/rostering software. IT and the availability of new digital tools seem to be a clear triggering factor in this context.

This assessment has also been confirmed by feedback and comments received by employer representatives in the collaborative workshop that have highlighted the role of IT and software for better staff scheduling and rostering practices, taking also into account workers’ interests for a better work-life balance.

d. Hindering and favouring factors

Costs and benefits

As regards **costs**, stakeholders noted that apart from direct monetary costs (e.g. development/purchase of a new software, fees for a management consultancy/expert, etc.) there are also costs related to staff involvement in the development of a new schedule/roster, project development, pilot measures, administration personnel involved, etc. In case of comprehensive projects, such costs can be enormous. This is illustrated by the example of the development of a new roster model in a port company where it took nearly two years to evaluate the existing model as regards key weaknesses and needs for improvement, develop a model that took into account and combined business-related requirements as well as requirements and interests of the workforce (including different interests within the workforce) and to roll it out in practice.

Also costs related to cases where new practices directly led to an increase of the number of staff working at reduced weekly working hours or with an increased number of holidays, which resulted in the need to hire additional personnel, have not been quantified according to stakeholders.¹⁸

¹⁷ See the ETF-CER study on the implementation of the agreement of certain working conditions of cross-border rail mobile staff which includes a detailed analysis of legal sources per EU Member State, focusing however on mobile staff engaged in cross-border transport only. See: https://www.etf-europe.org/wp-content/uploads/2019/02/Rail-Mobile-Workers_final-report-EN.pdf.

¹⁸ An example here is the collective agreement in German railways of 2018 (renewed 2019/20) that includes the offer to choose between the agreed annual wage increase or additional free days. According to representatives of the railway employer organisation, more than 50% of employees opted for additional holidays. These options were thus very attractive. While this meant a reduction of costs for the company in terms of (absence of) wage increase, it has resulted in the need to hire additional staff. Neither has been quantified according to employer representatives.

Therefore, costs are extremely difficult to quantify and most management representatives noted that a quantification of the costs to develop and implement a new staff schedule or roster has not been carried out in the context of the specific case. Apart from the fact that due to the COVID-19 situation it was not possible to discuss this issue with many stakeholders directly involved in company and workplace-related rostering and staff scheduling practices, those interviews with company level management representatives and trade union experts confirmed the difficulties as regards the quantification of costs mentioned above.

Further difficulties of cost-benefit calculations emerge because it is also difficult to quantify **benefits**. Here, stakeholder interviews as well as contributions to the collaborative workshop showed that benefits are understood in a qualitative way that can hardly be quantified. Benefits are also rated very differently by employers/management and trade unions/workers:

Employers highlighted recruitment and retention, attractiveness, image of the company as an employer, reduction of absenteeism and reduction of accidents as benefits of the identified current practice example.

Workers stressed benefits such as security and - depending on specific practice – additional holidays, reduced working time, reduction of night work and work on weekends, possibility to combine work and care activities, etc., also depending on individual characteristics such as age, personal/family situation or gender.

Both employers and workers see good health and wellbeing as a benefit. Workers appreciate this in terms of their own health circumstances, while employers appreciate this because a healthy workforce reduces sickness absence. The same would apply to work-life balance: workers appreciate this because it helps them manage their lives, and employers appreciate that a satisfied workforce is more productive. Motivation also benefits both sides as it contributes to workers' own satisfaction in their job. For employers, a motivated workforce is a productive workforce.

Company size

Company size is an important factor in relation to current practices and the ability to provide staff schedules and rosters that contribute to better work-life balance of mobile as well as non-mobile staff groups. Smaller companies face more difficulties due to limited financial and personnel resources (including the size of the workforce) to develop better worker friendly working time practices. Whereas, for example, in larger companies it might be relatively easy to implement a new shift work system that avoids night shifts for older workers or weekend shifts by staffing such shifts with younger workers that prefer to work at night or on weekends because of the respective hourly premiums, this is hardly possible for small companies.

By contrast, smaller companies might offer more flexibility when it comes to personal wishes of workers, in particular if their business is in niche markets with a less harsh competitive environment, such as for example the road transportation of very large or very dangerous goods which requires specific skills and expertise.

However, stakeholders in general have highlighted the fact that small companies across all transport modes are in a disadvantageous position when it comes to the implementation of more worker-friendly staff schedules and rosters for their staff. This has been stressed in particular by stakeholders in sectors that are characterised by a significant share of small companies such as inland waterways and road transport.

Collective bargaining and co-determination

Most of the identified practices that aim at win-win situations, i.e. combining business needs such as increased efficiency and productivity with worker's interests and needs are related to collective agreements at company and/or sector level.

Examples of practices implemented by company level collective agreements are the identified cases in Bulgaria (urban public transport), Czechia (railways), Germany (ports, railways), Netherlands (civil aviation, logistics), Denmark (logistics, maritime transport), Finland and Italy (urban public transport).

Examples for sector-wide agreements improving the practice of all companies in the given sector were found in railways in Germany and Italy.¹⁹ Further, a recent overview of innovative working time practices was gathered in the context of an expert hearing in the German Parliament.²⁰

The positive impact of collective bargaining on more flexibility in working time as regards better work-life balance has also been highlighted in comparative research.

An evaluation of the European Working Conditions Survey as regards the determination of individual working time in Europe has shown that a comparatively high influence of workers on their individual working time schedules exists in those EU Member States that are characterised by a strong role of social dialogue and collective bargaining. According to the study, the situation in countries such as Belgium, Denmark, Germany, France, Netherlands, Austria, Finland, and Sweden is characterised by relatively strong social dialogue and/or collective bargaining structures and coordination that produce regulations other than national legislation.²¹

Public policies fostering better work-life balance and the role of European Social Dialogue

Thus, social dialogue can play a relevant role. Clauses on work-life balance in collective agreements are more prevalent in countries with high collective bargaining coverage.

However, in the context of stakeholder interviews and the collaborative workshop, also the role of public policies for better work-life balance at national as well as EU level has been highlighted as an encouraging element and driver. Furthermore, in the context of the collaborative workshop, employers' as well as trade union representatives have highlighted the role of the European Sectoral Social Dialogue for reducing the significant gaps that exist between countries in relation to work-life balance regulation or practices. Some participants also noted that EU funds such as the ESF may foster the development and introduction of innovation and dissemination of current practices in working time, rostering and staff scheduling in companies.

¹⁹ Also transport trade union representatives in Belgium have indicated that sectoral agreements that improve working time practices in sectors such as road transport exist in the country. However, this information was provided only in the final phase of the study, i.e. after the completion of the identification and mapping of practices.

²⁰ Deutscher Bundestag: Ausschuss für Arbeit und Soziales, Ausschussdrucksache 19(11)752, 26 August 2020.

²¹ Eurofound, 2016: Working time developments in the 21 Century – Working Duration and its Regulation in the EU.

e. Transferability

Stakeholders at the company level as well as national and European level of specific sectors have highlighted in particular the difficulties of transferring practices from one sector to another in a given country as well as the barriers of transferability of current practices across borders in a specific mode of transport. Various reasons have been highlighted for this:

- Differences in the national frameworks and regulation of working time;
- Differences in the influence and role of social dialogue and collective bargaining in the respective country or sector;
- Differences in the market conditions, competition environment as well as business strategy (e.g. when based mainly on wage and personnel costs);
- Differences in the pressure on employers/companies to offer better work-life balance and make working time conditions more attractive depending on how easy or difficult it is to recruit, which can also be linked to levels of unemployment;
- Differences in the operational environment in particular of mobile staff in different transport modes; and
- Company size-related barriers: what works in larger companies may not be possible in smaller companies and vice-versa.

Against this, simple strategies of identifying, disseminating and transferring current practices are unlikely to work. Any dissemination and transfer of current practices of good rostering and staff scheduling need to take into account specific sectoral and company-related framework conditions, including the social dialogue, workers' involvement and collective bargaining. Also, according to stakeholders and company level representatives, public policies play an important role.

In particular, representatives of companies have highlighted that software solutions and smartphone apps for staff scheduling, rostering and shift switching seem to be relatively easy to implement and transfer from one workplace/company to another. Company representatives that have developed IT-based solutions have noted that software-based solutions for more individual choice in rostering or staff scheduling may require more complex considerations if they are related to different purposes, interests or requirements of different groups of workers. In such situations, standard apps or software will not work.

f. Scalability

As regards scalability (defined as the potential to apply the practice in companies of different sizes), several factors must be taken into account. As regards practices involving the application of a new staff scheduling or rostering management software or app that is based on a standard solution and does not require company-specific adjustments or programming work, company size does not matter greatly. However, smaller companies will find it much more expensive to develop their own tailored solutions. Also, certain practices that include specific offers for certain staff groups (e.g. no obligation to work night shifts for older workers or no weekend shifts for women) require a certain workforce size (and the availability of sufficient numbers of workers who are interested or able to work at night or weekend).

g. Replicability

In relation to replicability (defined as the potential to apply the practice in other countries that have a different legal framework), it can be said that practices that are based on collective agreements at sectoral or company level generally might be difficult to implement in an environment where such practices do not exist. In addition, we have seen that public policies, e.g. supporting or obliging companies to adopt better or more work-life balance

working time practices, play a strong role. Thus, in national environments where such policies do not exist or are not compensated by collective agreements at company or higher level, it is rather unlikely that companies will adopt more worker-friendly staff scheduling and rostering practices if they are related to new hiring requirements for example (as in the case of introducing a right to part-time working or avoiding nights shifts for workers older than 55). At the same time, stakeholders from countries with rather weak work-life balance policy practices and collective bargaining agendas reported that EU-level initiatives – either in the context of sectoral social dialogue outcomes or legal and other initiatives and programmes - contribute positively to replicability, the application of practices across countries and the closing of gaps.

h. Conclusions

On the basis of the results of the critical appraisal of identified practices, it seems useful to distinguish **three different forms or groups of practice**:

1. Mainly management and business-driven practices that aim for an optimisation of staff scheduling and rostering.
2. Social partner driven practices at company, sector or public policy level that are aiming to improve work-life balance within a company or sector.
3. Practices that combine both approaches by integrated measures, i.e. improving work-life balance for workers while seeking also to increase efficiency of staff scheduling and rostering.

The following table summarises key features of these groups in relation to main drivers/promoters, scope, objectives, costs and benefits as well as transferability.

Table 12 Key features of practice groups

	Optimisation of staff scheduling and rostering	Work-life balance oriented practices	Integrated measures of better staff scheduling and rostering
Drivers / promoters	Employers	Trade unions, works councils, employers associations, employers/ HR department, sectoral social partners or public policies.	Both social partners at company level.
Scope / focus	Narrow focus on business needs	Focus is on working conditions and work organisation mainly.	Combining business needs with improvements in working (time) conditions.
Objectives	Efficiency and cost reduction	Improving work-life balance, workability, health, motivation, retention, attractiveness, employer image, etc.	Depending on joint interests as well as feasibility.
Costs / Benefits	Limited	Depending on scope of the practice.	Depending on scope of the practice.

	Optimisation of staff scheduling and rostering	Work-life balance oriented practices	Integrated measures of better staff scheduling and rostering
Transferability, scalability and replicability	Relatively easy, but needs adjustment to company specific conditions and needs	Possible when adjusted to company/country specific framework conditions. Social dialogue and/or public policies certainly are a supporting factor.	Possible when adjusted to company/ country specific framework conditions. Social dialogue and/or public policies certainly are a supporting factor.

Based on this appraisal of the practices we gathered and considering also the aspects mentioned above, we have identified a number of good practices that will be introduced and elaborated on further in the next section.

6. Presentation of good practices

In this chapter we present the list of identified good practices, their main characteristics, their advantages and disadvantages as well as recommendations regarding their application.

The selection of good practices that are presented in this section was based on a critical appraisal and analysis of the identified current practices for staff scheduling and rostering. The appraisal focused in particular on the contribution of the practices to the improvement of the work-life balance of staff and also looked at whether the practices are perceived as satisfactory by employers, workers, and other relevant stakeholders.

More specifically, when assessing the practices, the following aspects were considered:

- drivers for change of the existing practice;
- the scope of the practice;
- the objectives of the practice;
- the costs and benefits associated with the practice;
- the transferability of the practice;
- the scalability of the practice;
- the replicability of the practice.

It is important to identify the prerequisites for successful transferability, scalability and replicability of good practice examples to other transport modes and to other countries. We therefore define transferability, scalability and replicability as follows.

- **Transferability** is defined as the extent to which a practice is transferable to other transport modes and other occupations in the transport sector.
- **Scalability** is defined as the potential to apply the practice in companies of different sizes.
- **Replicability** is defined as the potential to apply the practice in other countries that have a different legal framework.

Based on the aspects provided above, overall three types of good practices were identified/distinguished:

- practices that aim to optimise staff scheduling and rostering;
- practices focused on improving work-life balance;
- practices making use of integrated measures that improve staff scheduling and rostering.

a. General observations

A total of **eight good practices** were selected following the critical appraisal in the previous chapter. All of these are from the transport sector. While the practices in other sectors were interesting, we ultimately concluded that the most relevant current practices were the practices identified in the transport sector. Of the practices selected, three were identified in ports, three in civil aviation, two in urban public transport, one in the railway sector, and one in road transport²².

With regards to the type of workers for whom the eight practices were designed (i.e. mobile vs. non-mobile), one practice can be referred to as horizontal (i.e. it applies to both mobile and non-mobile workers), four practices are specifically developed for mobile workers and three specifically to non-mobile workers.

Finally, in terms of the type of practice, all of the practices implemented within the transport sector focus on improving the work-life balance of workers.

b. Horizontal practices

The table below provides a good practice example for a collective agreement.

Table 13 Collective agreement

National-level collective agreement in a particular transport sector on flexibility to workers regarding their working time and location of work	
Practice type	<p>This practice type refers to:</p> <ul style="list-style-type: none"> • Practices focused on improving work-life balance; • Practices making use of integrated measures that improve staff scheduling and rostering.
Scope	<p>This good practice focuses on collective agreements. The inspiration for this good practice comes from examples in the railway sector at national level.</p>
General description	<p>This agreement is inspired by an agreement on working time reached between employers' and workers' representatives. The agreement covers all workers in the sector and provides flexibility to the workers in their working time and in their location of work, both for mobile and non-mobile workers. Concrete examples of the type of flexibility provided by such agreements are, for instance:</p> <ul style="list-style-type: none"> • Limitations to working in the weekend; • Limitations to the number of consecutive working days; • Local agreements and solutions at workplace/site level in order to better taking into account individual wishes and choice in staff schedules.

²² Some good practices were identified in more than one mode, or within the same mode but being variations. In our analysis we have merged those that were similar. This is why the sum is higher than the 8 final cases.

National-level collective agreement in a particular transport sector on flexibility to workers regarding their working time and location of work	
Drivers for changing existing practice	<p>The most significant drivers for change are the recruitment challenges and labour shortages for particular jobs in the transport sector. This holds especially for mobile jobs and for shift work, as these types of jobs are considered as unattractive, in particular by younger people and by women. Jobs can be made more attractive, especially to younger workers, by providing financial incentives. Therefore, there is a common need with employer and worker organisations to increase the attractiveness of these types of jobs in order to reduce recruitment challenges and to reduce labour shortages. In addition, there is also a common need and a common aim to increase the competitiveness of the sector, by improving the productivity of workers. The major aim of the agreement, in relation to rostering and staff scheduling, is to facilitate a better reconciliation of work and private life and, consequently, to improve the work-life balance of workers.</p>
Objectives	<p>The objectives are to increase productivity and to reach a better work-life balance of workers.</p>
Benefits	<p>For the workers the major benefit is an improved work-life balance.</p> <p>For the employers the major benefit is an increase in productivity of their workers. In addition, the practice can increase the attractiveness of a job in the transport sector, thereby helping to reduce their recruitment challenges and labour shortages.</p>
Hindering and facilitating factors	<p>The following two major preconditions have been identified during the research:</p> <ul style="list-style-type: none"> • The culture and size of the companies involved need to allow for the type of flexibility specified in the agreement; • The presence of sufficient worker representatives and the presence of strong and balanced industrial relations is crucial for the development of such an arrangement. <p>In order to ensure that the agreement is successfully and effectively implemented it needs to be rolled out in specific parts of the company first. Elements of the agreement that are not successful or effective in practice can be revisited for the implementation in other parts of the company.</p>
Critical success factors	<p>The critical factor for successful and effective implementation is the existence of national legislation on working time that has helped the introduction as it sets the framework to be followed.</p>
Transferability, scalability and replicability	<p>Transferability to other countries may be hindered by absence of supportive legislation and lack of social dialogue/worker representation framework. As specified above, the size of the company plays an important role in assessing the scalability of the practice. The national framework is crucial for the replicability of this practice.</p>

c. Mobile workers

An overview of the selected good practices for mobile workers is provided in the following tables.

Table 14 Shift notice

Shift notice	
Practice type	This practice type refers to improving work-life balance.
Scope	The inspiration for this practice is coming from examples in urban public transport .
General description	<p>The major challenge with respect to all mobile jobs is to improve the work-life balance of the workers.</p> <p>The company has taken two concrete actions to improve the work-life balance of the drivers (particularly in the case of new drivers who, acting as spare drivers, may be informed of their schedule only 24 hours in advance) as much as possible:</p> <ul style="list-style-type: none"> • Shared driving: Two bus drivers share the same route as a drivers' duo on one full-time position, which makes part-time work easier to arrange; • Drivers can internally arrange to swap shifts.
Drivers for changing existing practice	Work-life balance is increasingly important for both men and women. However, some categories of workers can be willing to be available at short notice if they are sufficiently paid.
Objectives	<p>To reach a better work-life balance.</p> <p>For employers, to increase the commitment of workers to the organisations and to increase productivity as a result.</p>
Benefits	<p>The major benefit for the worker is an improvement in their work-life balance.</p> <p>The major benefits for the employer are an improvement of the image of the company as a place to work, reducing labour shortage and an increasing productivity.</p>
Hindering and facilitating factors	Due to the nature of the job it can be very difficult for the company to fully accommodate the wishes and needs of its drivers for a good work-life balance. Therefore, there needs to be willingness from some drivers to be available at short notice. Some categories of workers can be willing to be available at short notice if they are offered a financial incentive.
Critical success factors	The company culture is the most critical success factor.
Transferability, scalability and replicability	This practice is relatively easily transferable to modes where one ends and starts the day in the same location, for example in an urban context. It may be difficult to apply this practice in contexts where the personnel has multiple nights away from home. This practice is sensitive to company size as regards scalability (it is more difficult for smaller companies to apply it, due to the lower worker numbers available).

The next three good practice examples are all related to indicating shift preference. **The background** for these examples is that working time preferences of workers vary significantly depending on numerous factors, for instance, age, household composition, lifestyle and family situation, including responsibility for care. Therefore, these practices are based on a model in which workers have an influence over their own roster. The individual examples show how the workers can exert influence.

The major driver for change with respect to all three examples is the common need of the company and its workers to accommodate individual rostering preferences and choices as much as possible. The need from the workers' side is reflected in the desire to improve work-life balance. Often, the employers' side is driven by the need to reduce labour shortage and enhance the competitiveness of the sector. However, at the same time accommodating shift preference of staff is causing challenges with respect to keeping the organisation and the operation running.

A trade-off needs to be made between operational requirements and individual preferences. There needs to be a willingness on the part of the company to accommodate individual preferences. However, the operational and organisational needs of the company also need to be taken into account, as unpopular shifts (e.g. unpopular working times, unpopular routes) cannot be unmanned. Moreover, a certain time is required to plan the shifts appropriately. In addition, the extra personnel required in order to have staff in place for all shifts means higher personnel costs. Digital tools and innovative software that is compliant with labour regulation can potentially contribute to a solution in which individual scheduling preferences are accommodated, whilst ensuring that all shifts are manned and minimising the resulting additional personnel costs.

In the next three tables the additional details for each specific example are specified.

Table 15 Shift preference (time)

Preferential shift bidding (time allocation of shifts)	
Practice type	This practice type refers to improving work-life balance.
Scope	The practices identified under this good practice relate to the shifting of preferences in time . This good practice focuses on mobile jobs . The inspiration for this practice is coming from examples in the civil aviation sector , the road sector and the urban public transport sector . Mobile staff working for the companies where this example has been inspired from are able to freely choose preferred shifts, which will be taken into account when the schedule is drafted.
General description	This good practice is focusing on accommodating shift preference . This is especially relevant to jobs where shifts are a large component, which can be to both mobile and non-mobile work. This particular good practice is focusing on accommodating shift preference in relation to working time.

Preferential shift bidding (time allocation of shifts)	
Drivers for changing existing practice	The influence of workers is reflected in, for example, the possibility to declare preferred shifts in relation to time allocation of shifts (e.g. the morning or the evening). A key driver in all of these examples is that the previous practice was not addressing the needs of the workforce, and therefore change was introduced. This will ensure that workers have a better possibility of working during their preferred times. This is coming from a common need of the company and its workers to accommodate individual rostering preferences and choice as much as possible. However, at the same time, accommodating shift preference of staff is causing challenges with respect to keeping the organisation and the operation running.
Objectives	The major objective is to reach a better work-life balance of workers and to reduce labour shortage. This is done by accommodating as much as possible to the individual needs of workers, given the organisational and operational constraints. Ultimately, this should improve the image of the company to customers but also the image of the company as a good place to work. Another objective is to strengthen the commitment of workers to the company and to increase productivity as a result.
Benefits	The major benefit for the worker is an improvement in their work-life balance. The major benefits for the employer are an improvement of the image of the company as a place to work, reducing labour shortage and an increase in productivity.
Hindering and facilitating factors	Due to the nature of the job, it can be very difficult for the company to fully accommodate the wishes and needs of all its workers for a good work-life balance. Therefore, there needs to be willingness from some workers to be available at short notice.
Critical success factors	Critical to the successful and effective implementation is the presence of a cooperative management culture , that is willing to make the necessary changes to the rostering system, that is willing to explore new options when it comes to the manner in which rosters are determined and that is willing to assess what changes can or need to be made within the limits of operational requirements. This practice is relevant because it requires close interaction and good relationships between employers and employees. Therefore, the existence of good relations between workers and management is crucial to build the mutual trust that is required to make shift preference a success.
Transferability, scalability and replicability	A major precondition for transferring this practice to other transport modes and to other mobile and non-mobile transport occupations is the engagement and commitment of the company management to implement changes in the way rosters are determined. However, the success is largely based on coordination, within the context and limits of operational requirements. Smaller sized companies may also find it more difficult to apply such a practice.

Table 16 Shift preference (persons)

Preferential shift bidding (persons with whom a worker will be in a shift, 'buddy system')	
Practice type	This practice type refers to improving work-life balance
Scope	Just as the previous example, this example is focusing on accommodating shift preference. The good practice specified here relates to indicating the staff members with whom one wants to be in the same shift and to indicating the staff members with whom one does not want to be in the same shift. The inspiration for this practice comes from examples in the civil aviation sector.
General description	Under this 'buddy system', workers can nominate a colleague with whom they would always like to fly. This is usually the case for couples who want to have the same roster. Workers can also nominate a colleague with whom they would never like to fly. This is usually the case for couples who need to share childcare. This ensures that one of them is available to care for their children.
Drivers for changing existing practice	The influence of workers is reflected in the possibility to declare preferred staff members to work with. A key driver in all of these examples is that the previous practice was not addressing the needs of the workforce, and therefore change was introduced. The major distinction from this practice compared to the previous example is that one can indicate the persons that the worker wants to work with. This is especially relevant to improve the work-life balance of partners working as colleagues in mobile jobs, in particular when they need to reconcile their working life with childcare. To these workers, certainty with respect to the organisation of the working time of the partner is just as important as certainty with respect to the organisation of their own working time.
Objectives	<p>The main objective is to reach a better work-life balance of workers and to reduce labour shortage. This is done by accommodating as much as possible to the individual needs of workers, given the organisational and operational constraints. Ultimately, this should improve the image of the company to customers but also the image of the company as a good place to work. Another objective is to strengthen the commitment of workers to the company and to increase productivity as a result.</p> <p>In addition, another objective is to enable workers to spend more time with their partner and to organise childcare in due time.</p>
Benefits	<p>The benefits for employers are an improved image of the company as a good place to work, offering a better work-life balance, thus reducing labour shortage by attracting more staff and increasing productivity.</p> <p>A benefit for workers is the improvement of work-life balance, in particular for couples that both have mobile jobs in the same company, thanks to the ability to coordinate their schedules with each other.</p>
Hindering and facilitating factors	Due to the nature of the job it can be very difficult for the company to fully accommodate the wishes and needs of individual workers for a good work-life balance. The major organisational and operational constraint for this specific example is the number of 'buddy' requests coming in.

Preferential shift bidding (persons with whom a worker will be in a shift, 'buddy system')	
Critical success factors	As with the previous example, a cooperative management culture and good relations between workers and management are crucial factors to make this type of practice a success. In addition, acceptance and trust among all workers, including those not taking part in the 'buddy system', is crucial, as all workers need to be treated on a fair and equal basis. In this context, a lack of acceptance of the system will negatively affect the working atmosphere.
Transferability, scalability, replicability	Transferability, scalability and replicability of this practice are highly dependent on the company culture as well as the company size.

Table 17 Shift preference (location)

Shift preference (location, as many nights as possible in the home base)	
Practice type	This practice type refers to improving a better work-life balance.
Scope	This good practice is focusing on accommodating shift preference in relation to the preferred location or route. The inspiration for this practice is coming from examples in the civil aviation sector .
General description	This example covers, for example, facilitating to spend as many nights as possible in the home base. It is only possible for these workers to spend as many nights as possible in the home base if there are other workers who have a flexible attitude and are willing to take the routes where they have to spend more nights away from the home base.
Drivers for changing existing practice	The influence of workers is reflected in the possibility to declare the preferred route or location of work. A key driver in all of these examples is that the previous practice was not addressing the needs of the workforce, and therefore change was introduced. This is coming from the need for some groups in the workforce to spend as little time away from home as possible. From the employers' side, this practice can be a way to increase the attractiveness of the sector to work in, especially to workers with younger children or other care related needs.
Objectives	The major objective is to reach a better work-life balance of workers and to reduce labour shortage. This is done by accommodating as much as possible to the individual needs of workers, given the organisational and operational constraints. In this situation this is being realised by reducing the number of overnight stays and reducing the disruption to family life as much as possible. Ultimately, this should improve the image of the company to customers but also the image of the company as a good place to work. Another objective is to strengthen the commitment of workers to the company and to increase productivity as a result.
Benefits	This facilitation allows staff to spend more time at their home base, improving their ability to reconcile their work schedule with their private life.

Shift preference (location, as many nights as possible in the home base)	
Hindering and facilitating factors	Due to the nature of the job, it can be very difficult for the company to fully accommodate the wishes and needs of all workers for a good work-life balance. Therefore, there needs to be willingness from some workers to be away from the home base, in order to enable other workers to return to the home base. The employer can stimulate the willingness of workers by providing them with incentives, such as additional salary and/or vacation days for night shifts that are increasing for each additional night shift completed
Critical success factors	Critical to the successful and effective implementation is the presence of a cooperative management culture , that is willing to make the necessary changes to the rostering system and ready to explore new options when it comes to the manner in which rosters are determined. Moreover, it needs to be prepared to assess what changes can or need to be made within the limits of operational requirements. On top of this, the existence of good relations between workers and management is crucial to build the mutual trust that is required to make shift preference a success, based on benefits for both workers and management.
Transferability, scalability, replicability	There is scope to transfer this practice as long as there is a balance of different worker needs and circumstances and a willingness on the part of the employer to accommodate the needs of workers in relation to spending or not spending nights away from home. This would not work well in a workforce which predominantly shares the same needs (e.g. only older workers or those with family and/or caring responsibilities). Companies with a larger size may apply this practice more easily.

d. Non-mobile workers

Three good practice examples regarding non-mobile workers are presented below. The first example is more general with respect to accommodating workers' needs. The second focuses on night shifts and the third looks to the potential of digital tools for shift swapping and when it comes to providing workers with more control over their own schedule.

Table 18 Accommodating workers' needs

Accommodating workers' needs	
Practice type	<p>This practice type refers to:</p> <ul style="list-style-type: none"> • Practices that aim to optimize staff scheduling and rostering; • Practices making use of integrated measures that improve staff scheduling and rostering; • Practices focused on improving work-life balance.
Scope	<p>This good practice is focusing on accommodating the workers' needs. The inspiration for this good practice is coming from an example in the port (terminal) sector.</p>
General description	<p>This example is inspired by an agreement reached between the employer (the management) and the workers (the works council) to jointly develop and implement a new system of shift work. This new system takes the interests and needs of the different groups of workers into account. In addition, the new system also takes recent scientific findings about the health impact of working night shifts over the life cycle of individuals into account.</p>

Accommodating workers' needs	
Drivers for changing existing practice	The major drivers for change reflect the need to take action in light of labour shortage and the common need to increase productivity and competitiveness. Besides the need to tackle these challenges, there also has been an opportunity driving this change. Due to digital tools and GPS solutions, transport and infrastructure companies are able to better schedule their operation, thereby reducing the amount of overtime work and making productivity gains. Both, employer and workers benefit from this practice, since the employer reduces the amount of overtime pay and the workers are better able to reconcile their work with their private life.
Objectives	The objectives are to increase productivity and to reach a better work-life balance for workers.
Benefits	For the workers, the major benefit is an improvement in the work-life balance and for the employer an improvement in productivity.
Hindering and facilitating factors	Two major preconditions have been identified during the research: <ul style="list-style-type: none"> • The strong engagement of all workers, notably through the works council, from the very start of the design process to the implementation and evaluation process. This is also important in the context of the need to keep all workers involved, also those workers that are in favour of carrying out overtime work; • The current level of automation and digitalisation and the degree to which the company has the ability to cope with and implement innovative solutions that aim to better plan operations in advance.
Critical success factors	Besides the factors mentioned above, a cooperative management culture is crucial to implement such a practice successfully.
Transferability, scalability and replicability	Such a practice should be easily applicable in all types of transport hubs where operations can be planned ahead, such as container terminals in the port sector, warehouses in the logistics sector and ground handling in the civil aviation sector. It, however, requires a joint understanding from the management and worker representation of the type of solution that needs to be applied.

Table 19 Avoiding night shifts for certain groups

Avoiding night shifts for certain groups	
Practice type	This practice type refers to: <ul style="list-style-type: none"> • Practices focused on improving work-life balance; • Practices making use of integrated measures that improve staff scheduling and rostering.
Sector	This good practice focuses on avoiding nights shifts for certain, more vulnerable, groups, for example older workers. The inspiration for this good practice comes from examples in the ports (terminal) sector .

Avoiding night shifts for certain groups	
General description	This good practice is focused on the introduction of new roster plans. These new plans include the provision that older workers and workers, who for health reasons are not able to work night shifts, will be excluded from working during night shifts. In order to still be able to staff night shifts in accordance with the demands, some workers will have to almost entirely work at night, but will do so on a voluntary basis. The employer can stimulate the willingness of (younger) workers to work in unpopular shifts by providing them with incentives, such as additional salary and/or vacation days for night shifts that are increasing for each additional night shift completed ²³ .
Drivers for changing existing practice	The major drivers for change reflect the need to take action in light of labour shortage and the common need to increase productivity and competitiveness. Given labour shortage, there is a need to retain older workers, even if it is not possible for them to work the same amount and length of shifts as their younger colleagues do. It is for health reasons that there is a need to take the needs and wishes of older workers into account.
Objectives	The major objective is to have more reliability with respect to the schedules. The main interest for the employer is to maintain sufficient supply of personnel that covers labour demand during night, both in the short and in the long term. On the other hand, the main interest for the worker is that health and work-life balance concerns are sufficiently taken into account.
Benefits	For the vulnerable worker, the major benefits are related to an improvement in the work-life balance and for the employer the major benefits are related to an improvement in productivity. For the worker taking over the night shifts the benefits are related to the incentives provided, such as additional salary or additional vacation days.
Hindering and facilitating factors	<p>Hindering factors for this type of practice could include an employer's reluctance to hire older workers, since they would need to be given preferential treatment over younger workers. In addition, there are operational constraints that limit the ability of the employer to accommodate the needs of older workers. Below, the major preconditions to overcome these hindering factors are mentioned.</p> <p>Two major preconditions have been identified during the research:</p> <ul style="list-style-type: none"> • The strong engagement of workers, notably through the works council, from the very start of the design process to the implementation and evaluation process. This is also important in the context of the need to keep all workers involved, also those workers that are in favour of carrying out night shift work; • The current level of automation and digitalisation and the degree to which the company has the ability to cope with and implement innovative solutions that aim to make a better planning of the expected operation ahead.

²³ This does not apply to workers younger than 18 years of age in order to remain compliant with Directive 94/33/EC on the protection of young people at work.

Avoiding night shifts for certain groups	
Critical success factors	Besides the factors mentioned above, a cooperative management culture is crucial to implement such a practice successfully.
Transferability, scalability and replicability	Such a practice should be easily applicable in all types of transport hubs where the operation can be planned ahead, such as container terminals in the port sector, warehouses in the logistics sector and ground handling in the civil aviation sector. It, however, requires a joint commitment from the management and worker representation to the type of solution that needs to be applied.

Table 20 Swapping shifts

Swapping shifts	
Practice type	<p>This practice type refers to:</p> <ul style="list-style-type: none"> • Practices that aim to optimise staff scheduling and rostering; • Practices focused on improving work-life balance; • Practices making use of integrated measures that improve staff scheduling and rostering.
Scope	<p>This good practice is focusing on accommodating swapping shifts.</p> <p>The inspiration for this practice is coming from examples in the port sector.</p>
General description	<p>This good practice is focusing on the implementation of digital tools that should facilitate the possibility of swapping shifts as well as swapping free days. The aim is to make shift swapping easier, but also to develop tools that allow for more self-organisation of workers. Such a tool would complement already existing company-wide apps for worker communication and information.</p>
Drivers for changing existing practice	<p>There is a common need to establish more reliable staff rosters for workers that are better tailored to meet business needs and demands while complying with labour law requirements.</p>
Objectives	<ul style="list-style-type: none"> • Increasing individual choice in the determination of shifts; • Improving work-life balance; • Maintaining the business need for tailoring personnel supply to actual demands.
Benefits	<p>These tools are contributing to a better work-life balance for workers by providing them with a more reliable shift plan over which they themselves have more control.</p> <p>These tools allow employers to establish staff rosters that are better tailored to meet business needs and demands.</p> <p>Therefore, digital tools also have the potential to create win-win situations for workers and employers as regards individual working time choice.</p>

Swapping shifts	
Hindering and facilitating factors	Digital tools have the potential to create win-win situations for workers and employers as regards individual working time choice. However, the implementation of such solutions comes with technological complexity as well as additional administrative efforts for the employer, including the need to provide workers with the necessary skills, which need to be taken into account during the design and the implementation.
Critical success factors	The critical success factor here is to engage workers from the very beginning in the design phase until the very end when the solution is implemented, and eventually evaluated. There is also a need for digital solutions that are easy to use by employees for the solution to be effective.
Transferability, scalability and replicability	As a tailored solution, the digital tool might be rolled out to other terminals that use the same or similar models of shift systems / staff schedules, but it will be difficult to transfer it 1:1 to other areas or even companies.

7. Overall conclusions and recommendations

a. Main conclusions of the report

This study set out to examine actual staff scheduling and rostering practices with the aim of identifying those that allow workers to better reconcile their work schedule with their private life. Following this, the study aims to make recommendations on how improvements can be made for different types of companies, jobs and sectors. As stated in the introduction, the study was impacted by the COVID-19 pandemic, in that the amount of detail that could be identified/collected per identified case study was limited. This, however, did not stop the study from identifying good practices and setting out their main characteristics, and making recommendations as to their application, albeit not in as much detail as originally hoped.

The following main conclusions can be made:

- In terms of available literature, while the issue of rostering and scheduling is being tackled, the focus seems to be more on operational aspects (resource allocation problem) than on the economic and other impacts of the application of rostering and scheduling practices;
- Concerning the framework conditions, the study has highlighted the **importance and value of the legal framework and other regulatory sources, such as social dialogue outcomes and collective bargaining agreements**, as a means of enabling or shaping these practices. The analysis also showed the variations in approach that exist across the EU Member States (which can be clustered into 4 distinct types) as well as variations across transport modes. This variation of approach may influence the transferability and replicability of a practice;
- Regarding the identified current practices, while this study was not able to carry out an exhaustive mapping, it shows that such **practices are applied across different transport modes** (and in sectors beyond the transport sector). However, the different characteristics of each transport mode, the type of work (mobile or non-mobile), and the framework conditions can have an impact on how widely they are spread, as well as on their focus;
- The reasons behind the introduction of such scheduling and rostering practices can vary between each company and naturally reflect a company's specific operating conditions and the market environment. In general terms, these **practices seem to address a range of needs**, from recruitment/retention issues, to accommodating a large number of personnel working in shifts and rosters, to strong social dialogue strong collective bargaining and a high influence of company-level worker representation and participation. On the workers' side, the needs that were reported are improved work-life balance, although the specific needs vary according to the individual situation of workers, and accommodating the needs of specific categories of workers (e.g. older workers, workers with care responsibilities or helping the introduction of new workers);
- According to stakeholders, it is not always easy to implement such practices, even though the benefits to both, employers and workers, are clear. Specific operational features, legal restrictions, levels of acceptance within organisations (often linked to the culture of organisations), weak social dialogue and weak collective bargaining as well as no or weak works councils may hinder their development and introduction;

- Concerning the **costs and benefits** of implementing such practices, it has been difficult to obtain quantifiable data from the respective stakeholders and to go into high levels of detail concerning implementation within organisations, based on stakeholder responses. One of the reasons stated is that the necessary information is simply not collected, or it forms part of confidential business information and therefore cannot be shared. The different situation and challenges of each company also makes it difficult to provide accurate estimates that would be applicable across the board. Finally, it appears that **benefits are considered differently between employers and workers**, with the former focusing on aspects such as recruitment and retention, image of the company, including as a good and attractive workplace, and the latter on better work-life balance;
- The study has also raised the issue of the importance of building **resilience to significant market shocks**, as became evident through the COVID-19 pandemic. While the study did not focus on the impacts of this, it was apparent that such shocks have a negative impact in terms of flexibility of rostering. Many of the companies in the sectors covered by this study – and in particular the civil aviation and road passenger transport sectors – were struggling to survive and were therefore not focusing on work-life balance and working time flexibility for their staff. In some sectors, such as road freight transport or maritime transport, the COVID-19 emergency resulted partly in the suspension of, or exemptions from, breaks, rest periods and other working time rules. This means that discussions around potentially ‘soft’ issues, such as the shift preferences of workers, have been pushed down the agenda in the context of trying to keep businesses afloat. This, of course, is a short-term strategy. It is to be hoped that, in the post-COVID-19 world, discussions about the implementation of rostering that is flexible enough to suit all parties, as a way of enabling work-life balance and enhancing the day-to-day running of organisations, would continue. This would enable companies to recruit and retain staff, making them more resilient and prepared for such shocks. It would also enable workers to enjoy an improved work-life balance.

b. Overall recommendations

Based on the analysis undertaken in this study and the conclusions above, a series of general recommendations can be made. These recommendations are broken down for the following stakeholders: the European Commission; the EU-level social partners; Member State governments; national-level social partners; employers and employers’ organisations; and workers and workers’ representatives.

Recommendation for the European Commission:

1. **Devise initiatives to present and disseminate good practices of rostering and staff scheduling in transport.** The dissemination plan designed in this report is addressed to the European Commission. It contains practical tips for companies willing to change their staff scheduling and rostering system to improve work-life balance in transport. Dissemination could be achieved by means such as events to exchange experiences, seminars to exchange good practices, and material to be included on the European Commission website. Social media can also be used to disseminate messages around good practices. This could take place in the next 2 years.

Recommendation for the EU-level transport social partners:

2. **Use the framework of the European sectoral social dialogue to further discuss good working time scheduling and rostering.** Social dialogue has played a significant role in reducing the gaps that exist between EU countries in relation to work-life balance regulation or practices, and should be further developed in order to contribute to the further improvement of work-life balance. The EU-level transport social partners could do this within the European sectoral social dialogue by discussing the principles around working time scheduling and sharing the good practices identified in this study, in addition to disseminating other material designed to support the development of good working time scheduling and rostering practices in transport.

Recommendations for Member State governments:

3. **Devise national-level initiatives to present and disseminate good practices of rostering and staff scheduling in transport.** Building on the dissemination activities at EU level, Member States should develop national and/or targeted initiatives that aim to increase outreach to individual companies in the transport sector. This could be achieved through means such as national, regional or sectoral seminars, including relevant material on government websites and using social media to disseminate and promote an inclusive national discussion. This will help raise awareness and share knowledge about practices that aim to improve work-life balance in transport;
4. **Encourage rostering and staff scheduling practices in transport that are based on strong cooperation between employers and worker representatives.** Many of the practices identified in this study did not pass the final selection as recommended good practices as they lacked elements such as worker involvement, tailoring and flexibility. It is often difficult for transport companies to balance flexibility with service provision. Communication between the employer and the employees on these practices is key. According to our findings, this is best achieved by strong cooperation and collaboration between employers – either through employer representatives or directly at company level – and worker representatives. Governments should therefore encourage these practices. Practices also need to be flexible enough to be tailored to organisational and individual needs, centring on work-life balance, and adapted to changing circumstances. This increased cooperation could be achieved by encouraging employers and their representatives, including employer associations and worker representatives, to develop an ongoing dialogue at national and/or sectoral level on staff scheduling and rostering in transport.

Recommendations for national-level transport social partners:

5. **Develop sectoral initiatives to share good practices of rostering and staff scheduling in transport.** Social partner organisations should develop sectoral initiatives to share good practices within the transport sector, aimed at improving work-life balance. These initiatives, based on seminars and schemes designed to provide support to companies wishing to introduce new practices, could be developed in the medium term;

6. **Encourage examination of what is possible within existing legal and collective bargaining frameworks.** The social partners should collaborate to find flexibility in terms of staff scheduling and rostering practices, while remaining within the bounds of existing national legislation and collective agreements. All transport social partners should collaborate on an ongoing basis on what is possible and what can benefit both employers and the work-life balance of workers, within the given regulatory framework. To this effect, organising seminars in the medium term and on an ongoing basis at all levels, including national, regional, local and company level, as appropriate to the circumstances, in which views can be exchanged, would be beneficial.

Recommendations for both national governments and national-level transport social partners:

7. **Tailor rostering systems in transport to individual circumstances and relevant contexts.** Given the variety of conditions existing across transport modes and countries, a 'one-size-fits-all' approach to rostering and scheduling practices will most likely meet with little acceptance and possibly have little take-up and positive effects. It could also be in conflict with national legislation and/or social dialogue traditions. Therefore, it is important for relevant actors at national level, which includes national governments and social partners, to tailor approaches in order to achieve the best results for employers and the work-life balance of workers in transport;
8. **Encourage the development of good practices of rostering and staff scheduling in particular in inland waterways and maritime transport.** This study has identified clear sectoral gaps in the selection of good practices. National governments and social partners should aim to encourage the development of good practices on working time scheduling and rostering in inland waterways and maritime transport, where so far none could be identified. This could include targeted seminars for exchange of good practices in the transport sector, aimed specifically at companies in inland waterways and maritime transport. Such seminars could be organised in the medium term.

Recommendations for transport employers and employers' organisations:

9. **Involve transport workers and their representatives in designing new rostering systems.** Close collaboration between employers and workers in the design of a new scheduling and rostering system in transport should be the norm, as it helps not only with take-up but will also make sure that it properly addresses the needs of both sides;
10. **Assess the staff scheduling and rostering system currently in place to understand whether it still meets the needs of the transport workforce.** The next step is to determine whether any improvements or adjustments are needed in order to maximise the benefits for both sides, also with a view to creating incentives for new recruitment. It is of key importance to involve the workforce in this process. The assessment should also identify any necessary staff training that will help the workforce use current or future technology to support adjustments in staff scheduling and rostering in transport;

11. **Plan and prepare implementation of staff scheduling and rostering practices in transport carefully and properly.** Good staff scheduling and rostering practices in transport create benefits for both employers and workers. The introduction of these practices needs to be carefully planned by employers, who need to consider properly the precise needs of their business and the work-life balance needs of their workers. This is particularly important as the management's commitment to the introduction of these practices is key, particularly in larger organisations. Planning should include the provision of the necessary training to enable the workforce to work with the technological tools designed to facilitate staff scheduling and rostering practices in transport;
12. **Learn from good staff scheduling and rostering practices in transport and incorporate elements that best fit the situation.** Practices that work well in other countries or sectors can be particularly inspiring for transport employers and much can be learnt from these practices. It may not be possible to transfer a practice wholesale. Therefore, employers need to identify which elements of a practice could be suited to their particular business in order to gain maximum benefit for all, including improved work-life balance for workers;
13. **Harness technology to meet the needs of both the transport company and its workers.** Technological solutions (e.g. apps) can be important facilitating factors in introducing and working under a new scheduling and rostering scheme. Transport employers should ensure that the technology matches the specific needs and the characteristics of the business and of the diversity of their workers;
14. **Devise training to keep up with technological developments in transport.** Future staff scheduling and rostering practices are likely to involve technology to an increasing degree. It is therefore vital that transport companies and their workers have the capacity to work with evolving technological applications. This is likely to involve a coordinated training programme for all those who will be affected by the development and application of new technologies;
15. **Design crisis-resilient staff scheduling and rostering practices in transport.** The COVID-19 pandemic has shown how difficult it is to maintain even long-standing staff scheduling and rostering practices during times of crisis. Future staff scheduling practices in transport need to be designed to be robust enough to withstand economic shocks so as to continue to ensure the benefits of good staff scheduling and rostering systems to both companies and the work-life balance of workers, including in times of crisis.

Recommendations for workers' representatives:

16. **Develop information, advice and guidance for member organisations in transport.** Trade unions and workers' representatives at EU and national level should develop information, advice and guidance for their member organisations on good staff scheduling and rostering arrangements and promote these through different information channels to suit the individual needs of transport companies and workers. This should also include advice on how to ensure that the workforce is adequately trained to use any new scheduling and rostering tools;
17. **Showcase good practices of rostering and staff scheduling in transport.** Trade unions at EU and national level should showcase good practices of staff scheduling and rostering through activities such as seminars in which discussions and exchanges on work-life balance and the implementation of practices in transport and other sectors can take place;

18. **Compile and use information on the needs of the transport workforce.** Worker representative bodies in transport companies should gather and analyse information about the needs and preferences of the workforce in relation to staff scheduling and rostering (e.g. through surveys), in order to know the work-life balance needs of their members and how these might change over time, notably taking into account and anticipating the needs of future workers and new recruits;
19. **Promote a positive attitude in the transport sector towards new technology and upskilling.** It is important that the transport workforce is well equipped to use the relevant technologies that facilitate the introduction of new staff scheduling and rostering practices. Trade unions at EU and national level can play an important role in promoting the benefits of this and in giving practical advice on the relevant upskilling opportunities offered by the employer, and on the use of new technology.

Annexes

- I. Methodological approach;
- II. Country-by-country framework conditions;
- III. Mapping of practices;
- IV. Dissemination plan;
- V. Dissemination articles;
- VI. Checklist;
- VII. Dissemination slides;
- VIII. Research document;
- IX. Report on participatory workshop;
- X. References and sources.

Annex I – Methodological approach

The table below provides an overview of the organisations interviewed during the study. The study team has contacted a wide variety of organisations for interviews. Not all organisations contacted were able to respond positively due to Covid-related difficulties or other operational circumstances. The list below represents the organisations from which we interviewed representatives.

Interviewees

Organisation	Sector	Type of stakeholder	Country
Airline Coordination Platform	Civil Aviation	Employers' Organisation	EU
ETF	Civil Aviation	Trade Union	EU
European Cockpit Association	Civil Aviation	Employers' Organisation	EU
European Regions Airline Association (ERAA)	Civil Aviation	Employers' Organisation	EU
Vereinte Dienstleistungsgewerkschaft (ver.di)	Civil Aviation	Trade Union	Germany
FNV	Horizontal	Trade Union	Netherlands
CBRB	Inland waterways	Employers' Organisation	Netherlands
EBU	Inland waterways	Employers' Organisation	EU
Cepa	Ports	Company	Belgium
FEPOR	Ports	Employers' Organisation	EU
HHLA	Ports	Works council	Germany
HHLA	Ports	Company	Germany
Vereinte Dienstleistungsgewerkschaft (ver.di)	Ports	Trade Union	Germany
CD Cargo	Railways	Company	Czechia
Deutsche Bahn	Railways	Company	Germany
ETF	Railways	Trade Union	EU
EVG	Railways	Trade Union	Germany
FS	Railways	Company	Italy
ÖBB (Österreichische Bundesbahnen, Austria)	Railways	Company	Austria
PKP (Polskie Koleje Państwowe, Poland)	Railways	Company	Poland

Organisation	Sector	Type of stakeholder	Country
SNCF (Société nationale des chemins de fer français (France's national state-owned railway company))	Railways	Company	France
VSZ (Vasutasok Szakszervezete (Hungarian Trade Union of railwaymen))	Railways	Trade Union	Hungary
3F	Road transport	Trade Union	Denmark
ETF	Road transport	Trade Union	EU
IRU	Road transport	Employers' Organisation	EU
Keolis	Road transport	Trade Union	Netherlands
SNEL	Road transport	Company	Netherlands
Vereinte Dienstleistungs-gewerkschaft (ver.di)	Road transport	Trade Union	Germany
Dublin Bus	Urban Public transport	Company	Ireland
UITP (International Association of Public Transport)	Urban Public transport	Employers' Organisation	EU

Guidance on a final selection of good practices that is motivated by a quantitative cost-benefit analysis

The change of existing staff scheduling and rostering practices or the introduction of new ones can come with important costs and benefits for a company. These should not be neglected.

As part of the study, the following general framework was developed, aiming at identifying and assessing the potential costs and benefits. A series of elements with corresponding indicators and data sources are presented below and suggested as guidance for companies who are in the process of or wish to change their existing practices, as well as for those who wish to measure the impacts following introduction.

Costs

Cost elements should include the initial investments of designing rostering and scheduling policies and putting systems in place that allow for a better work-life balance. They should also include the costs associated with the introduction and implementation of these policies and the operating costs associated with maintaining these policies.

These cost elements could include costs of lost productive hours, costs for purchasing/developing rostering software or working hours of personnel to design a new policy and adjust information systems. Additionally, there may be structural costs involved, including paying a subscription to a rostering programme or the salary of a worker who is making the schedule. These costs should be monetised where possible or expressed in working hours or other relevant indicators when needed.

Table 21 shows an overview of the potential costs and how the costs can be measured, including which data is needed for this measurement.

Table 21 Overview of potential costs

Domain	Cost element	Measurement indicator	Data Requirements
Costs			
Rostering software or app	Costs of developing a software or paying a monthly/yearly subscription for a programme;	Price of buying software or monthly / yearly subscription;	Price of software provider;
	The costs of training staff on how to work with the rostering software.	Number of person hours of developing software / salary.	Estimate of person hours / salary of software developer.
Employing personnel for staff scheduling	Costs of employing a person to make the staff schedules on a regular basis.	# person hours spent on rostering / salary.	Estimate of person hours / salary of planner.
Additional personnel costs	Costs for employing replacement or keeping additional personnel to cover roster gaps.	# person hours kept on reserve / salary or other remuneration costs	Estimate of person hours / salary.
Development of new scheduling and rostering strategies, policies and procedures	Staff time spent to develop new strategies, amend policies, adjust information systems, and designing (flexible) working arrangements.	# person hours spent on policies / salary	Estimate of person hours / salary.
Adjustments to working hours to make work schedule more flexible	Short-term productivity loss and other adaptation costs.	Worker productivity rate.	Estimate of worker productivity.

Source: Ecorys (elements from Lockwood (2003)).

Benefits

The benefits can generally be divided into benefits for the worker and those for the employer. The former mostly include improved health and well-being as well as higher job satisfaction²⁴. Those should be assessed qualitatively based on the relevant survey responses.

As in the case of the costs assessment, the benefits for the employer should be monetised where possible or expressed using other relevant indicators such as absenteeism rates, worker retention rates and worker satisfaction rates.

Table 22 Benefits of scheduling practices

Domain	Benefit element	Measurement indicator	Data requirements
Benefits			
Attractiveness of specific position and employer in general	Higher chances of attracting new workers; Increase in both quantity and quality of job candidates.	# of vacancies or duration of vacancy filling; # of persons applying for vacancies; Qualifications job candidates.	Vacancy data from HR systems.
Public image	Better reputation with the general public.	Public image score.	Data on public image scores.
Workers' engagement	Higher worker engagement, satisfaction and motivation.	Worker satisfaction rate.	Worker satisfaction surveys or data.
Retention/ turnover	Lower turnover rates due to increased morale.	Retention rate or worker turnover.	Retention rates or worker turnover data of workers (from HR systems or annual reports).
Productivity	Higher labour productivity.	Labour productivity per worker.	Productivity data of workers from company systems.
Absenteeism	Reduced absenteeism, due to decrease in number of (stress-related) illnesses.	# of yearly absenteeism hours per worker; # of workers absent per year for longer period due to (stress related) illness; Costs saved by prevented absenteeism.	Absenteeism data from HR systems.
Safety	Safer working practices (e.g. driving), due to well rested workers.	# of accidents.	Accident statistics.
Customers' satisfaction	Better service due to motivated workers.	Client satisfaction.	Client satisfaction reviews; Duration and quality of client relations.

Source: Various (elements from Lockwood (2003))²⁴

²⁴ https://www.etuc.org/sites/default/files/A_TT_secteur_sante_u_EN_1.pdf.

Annex II – Country-by-country framework conditions

The order of this table is in accordance with the Inter-institutional style guide. The legal basis for national frameworks on workign time is the European Working Time Directive is the working time Directive²⁵.

Country	Type	Working time regulation and role of collective bargaining	Working time flexibility
Belgium	3	<p>The law of 16 March 1971 and its amendments comprise the legal framework defining the limits of working time in Belgium. Starting from these regulations, sectors and companies are the most relevant levels where collective agreements related to working time are concluded. Working time standards are sometimes argued at the cross- sectoral level, in the National Labour Council. However, no agreement was concluded at such a level. Finally, individual bargaining on working time issues is rare. The determination of working time standards in Belgium works as a domino system, where levels of bargaining have to consider the regulations and agreements applicable at the higher levels before negotiating. In general, it can be concluded that a lot of flexibility and derogation of the standard regulations are possible (linked to sectors, occupations) and after consultation and/or negotiations with the trade union representation. Belgian social partners are strongly involved in negotiations affecting working time flexibility. As observed by Valenduc and Vendramin (2013), collective agreements often precede the legislative developments that aim to formalise them at the national level. This was particularly the case when the Law of 1 January 2003, based on the work-life</p>	<p>The Law of 16 March 1971 and its amendments is the main legal framework defining limits of working time in Belgium. Starting from these regulations, sectors and companies are the most relevant levels where collective agreements related to working time flexibility are concluded.</p> <p>Leave: The Belgian Workable Work Law, which was agreed in 2017, provides a framework for so-called ‘career saving’, a system that allows workers to save annual leave days to be used later in their career. Since the law’s entry into force on 1 February 2018, all sectors have been able to implement it through collective agreements. If no agreement can be reached at sectoral level, negotiations may take place at company level. Workers are only able to benefit from the system if it has been concluded in a collective agreement at either of these two levels.</p> <p>Flexitime: Despite pressures from the European level, social partners did not reach any major agreements on flexicurity. This remains a major issue for the future. As a result, fixed working hours remain more important than flexible working hours. Nevertheless, over the past decade, a whole range of laws and collective agreements have</p>

²⁵ <https://ec.europa.eu/social/main.jsp?catId=706&langId=en&intPageId=205>

Country	Type	Working time regulation and role of collective bargaining	Working time flexibility
		balance regulation, was published. Its aim was to reduce weekly working time from 40 hours to 38 hours per week. However, this was already applicable in many sectors. In addition, the Labour Act of 29 March 2012 allows the daily 8-hour working time limit to be exceeded in response to extraordinary workload.	attempted to reconcile and shorten individual working hours and lengthen total operating time for companies.
Bulgaria	4b	The Labour Code defines the regular and extended working time duration. The maximum working time is 5 days per week, up to 40 working hours weekly (Article 136, Labour Code) and 8 working hours per day 5 days per week (Article 136, Labour Code). In Bulgaria, night work was the main topic of debate relating to working time during 2018. A key initiative was led by the Confederation of Labour, Podkrepa, which launched a campaign for decent working conditions and remuneration for night work. According to the confederation, there are over 400,000 workers in Bulgaria performing night work while not receiving appropriate wages. These workers also face various health and social problems. Among other issues, night work is associated with fatigue, deterioration in health, higher rates of work-related accidents and injuries, social isolation and higher divorce rates. The confederation claimed that there are still gaps in the legislation regulating night work, pointing specifically to the fact that the ordinance that determines additional remuneration for night work has not been updated since 2007. The Bulgarian Industrial Capital Association (BICA), on the contrary, argued that the ordinance only defines the minimum rate of remuneration for night work, and that collective agreements that can provide higher rates for workers. In October 2018, Podkrepa's proposal to update the minimum rate of additional remuneration for night	<p>The changes in the Labour Code from 2011 (New sections VIIIa and VIIIb, Chapter 5, Article 107b-p) regulate the labour conditions for home-based and telework.</p> <p>Flexible work is still seemingly unpopular among entrepreneurs. In all the different sizes of company, flexibility is an option only for up to 20% of workers. Supporting the ECS result, National Statistics show that about 24,000 workers can determine their own working hours and they represent about 1% of the total workers in the country (NSI indicates that the data concerns respondents that have dependants, children or elderly relatives, and is for 2010).</p>

Country	Type	Working time regulation and role of collective bargaining	Working time flexibility
		work was tabled in the National Council for Tripartite Cooperation (NCTC) but was rejected by employers and the government.	
Czechia	4b	<p>Czech labour legislation stipulates the statutory maximum normal weekly and daily working time in the Labour Code. Article 79 prescribes that the normal weekly working hours might not exceed 40 hours and stipulates shorter normal working hours for specific categories of workers with heavy working conditions. Articles 83, 85(3), 79a and 94 of the Labour Code further determine the statutory maximum normal working day, which must not exceed 12 hours (8 hours in the case of minors and night workers), except for workers in transport listed in Article 100. Standard weekly working time may be shortened without a concurrent reduction of wage only in collective agreements or internal regulations in the private sector. In the public sector the reduction of standard weekly hours is not allowed. In recent years (still ongoing), working time regulation debates in Czechia were influenced by a new appeal by trade unions for a shorter working week – without a reduction in wages. According to the Czech-Moravian Confederation of Trade Unions (ČMKOS), the working week should be reduced from 40 to 37.5 hours. Trade unions argued that working hours have already been reduced in over three-quarters (77%) of companies with operating trade unions. They also noted that such a policy would support employment after the arrival of Industry 4.0, the next phase in the digitalisation of the manufacturing sector. Employers' representatives opposed this proposal, citing labour shortages and the unpreparedness of domestic firms with respect to technology as arguments against the policy. They emphasised that working hours can be shortened only after an increase in labour productivity. Prime Minister Andrej</p>	<p>A flexible working hours scheme is provided for in Article 85 of the Labour Code and defined as working hours that consist of bands of core time and flexi-time. The beginning and the end of these time bands are determined by the employer. An worker is obliged to be at his/her workplace during the determined core working hours, whereas for the flexible working hours s/he can choose the start and the end of the working time. Daily working hours should not exceed the statutory maximum working day. Where a flexible working hours scheme is used, the average weekly working hours must be complied with within a settlement period that is fixed by the employer (a day or a week) and within no longer than 26 weeks, unless a collective agreement prolongs this period up to 52 weeks. Flexible working hours do not have to apply to all workers within a workplace; the employer can decide to which (categories of) workers flexible working hours will be offered. In addition, the Labour Code regulates working hours accounts (Articles 86 and 87). The application of flexible working hours can be agreed both in individual contracts and collective agreements. Collective agreements may also prolong the settlement period up to 52 weeks for both flexible working hours schemes and working hours accounts. The proportion of workers with flexitime can be evaluated on the basis of the large representative survey from 2014 'Promeny kvality pracovního života' ('Transformations in the quality of working life') carried out by the Occupational Safety Research Institute (VÚBP) and the Institute of Sociology of the Czech Academy of Sciences (SoÚ AV ČR). According to this data, only 20% of workers make use of flexitime (Svobodová et. al., 2015).</p>

Country	Type	Working time regulation and role of collective bargaining	Working time flexibility
		Babiš stated that shorter working hours are not yet on the agenda due to the reasons outlined by employers, although he did not exclude this possibility in the future. In addition, the Czech trade unions renewed a previous request for an increase in the statutory annual leave allowance from 4 to 5 weeks. The request received support from the Ministry of Labour and Social Affairs and from the Czech Social Democratic Party, but other governmental bodies, as well as employers' representatives, opposed the proposal. In view of the conflicting opinions among stakeholders, the government took a neutral position towards the suggestion.	
Denmark	2	Working time is mainly regulated by collective bargaining. The exception is the Holiday Act (<i>Ferie-loven</i>) that secures all workers 5 weeks of annual leave, and the minimum resting hours (11 hours) guaranteed in the Act on the working environment (<i>Arbejdsmiljø-loven</i>). The most important level regarding regulation of working time in the collective agreements is the sectoral level. One significant exception is the Industrial Agreement. A paragraph in the agreement allows the company level to deviate from the sector agreement and decide their own working hours provided that both parties at company level agree. Thus, the company level is the most important level under the Industrial Agreement.	Working time flexibility, understood as 'flexi time', is regulated by collective agreement or in individual contracts. Flexible working hours are normally to be placed within the times of 06.00 to 18.00, but can also be agreed for shifts.

Germany	1	<p>Working time is regulated under the Working Time Act (Arbeitszeitgesetz, ArbZG), based on European legislation. The ArbZG does not cover civil servants (covered by ordinances of the Bundeslaender), workers in the transport modes (covered by other national or European legislation, or international regulations), workers in liturgical services (covered by church law) and self-employed workers (no regulation). The ArbZG can be opted out of via collective agreements and – under condition of an opening clause in the collective agreement – via works agreements. If neither a collective agreement nor a works council is in place, the employer may turn to the public authorities for authorisation to deviate from the ArbZG. It can be granted in cases of urgency. The ArbZG stipulates an 8-hour working day and 11 hours of rest. Weekly working time can be extended to a maximum of 60 hours (given that Saturday is a working day) under the condition of an adjustment time of 6 months (the EU Working Time Directive stipulates 4 months). The Act allows sectors with high shares of stand-by service workers to deviate from the rules on resting periods (for example, in hospitals, nursing care, and hotels and restaurants) and to work more than 60 hours (including stand-by work). Agreed working time is strongly influenced by sectoral collective agreements, which define monthly or weekly working time, rest periods and breaks, number of holidays, and hours of shift work and night work. A trend is the concluding of working time accounts or leave regulations by sectoral collective agreements. At establishment level, co-determination rights by the works council and works agreements concluded by the worker representatives and management play the dominant role in settling working hours, overtime regulations, flexible working time arrangements and mobile working. Legal right to reduce working time: Since 1</p>	<p>Working time flexibility and the right to telework is a major issue in public debate since employers call for more working time flexibility and a 40-hour week whereas workers complain about overtime and call for more autonomy in setting their working time. While a reform of the working time act has been postponed, sectoral collective bargaining partners have reached various agreements on working time at sectoral and company level which provide for new working time arrangements or for new options to choose between a wage rise or more leave or days off. Collective agreements and works agreements provide for various forms of working time flexibility in terms of weekend work, overtime, shift work or working time accounts. Flexitime (<i>Gleitzeit</i>) is one of the most longstanding forms; a new development is the provision of leave for training or care purposes (Bispinck 2017). In recent years, collective agreements have gained importance in settling new working time arrangements or in providing options to do so at establishment level. The trend is due to the employers' call for more flexibility in working time and to the trade unions' demands for more autonomy. Under a collective agreement settled in 2016, workers employed with the companies of Deutsche Bahn can choose between a wage increase, a reduction of weekly working hours or an additional 6 days off. In the chemical and mining sector, the collective agreement from 2017 offers an opening clause to deviate from sectoral weekly working hours at establishment level by providing a choice between 35 and 40 hours to particular units or groups of workers. Very long working hours of up to 12 hours are also allowed. Adjustment time is extended to 36 months (the EU Working Time Directive stipulates 4 months). The collective agreement settled in the metal and machinery sector in 2018 contains an opening clause giving all workers the choice to reduce their working time to a minimum of 28 hours for a fixed time period and to</p>
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Country	Type	Working time regulation and role of collective bargaining	Working time flexibility
		<p>January 2019, workers in Germany have the legal right to reduce their working time for between 1 and 5 years and return to their previous working hours after that period (known as <i>Brückenteilzeit</i>). The new law provides that workers can file a request for a reduction in working time without being obliged to provide a justification. The new law is only applicable in companies with more than 45 workers, and medium-sized companies (46 to 200 workers) may only grant such a request to 1 in 15 workers. Employers can deny the request if it means that production will be seriously affected or safety at work jeopardised. In addition, the law seeks to support part-time workers who want to take on more hours in their companies, stipulating that employers must treat such requests preferentially.</p>	<p>return to full-time hours afterwards and to, on the other hand, raise the share of workers working overtime.</p>
Spain	3	<p>In Spain, working time is set up by law and collective bargaining. The law provides basic standards that must be respected by all the collective agreements with regard to maximum working hours per day, rest periods and annual paid leave. Collective bargaining regulates the distribution of working time but respects the statutory legal provisions. Sectoral collective agreements provide general guidelines for working time in the sector, and this is then adapted at company level.</p>	<p>Working time flexibility is regulated by collective bargaining or individual contracts under the limits established by the law. According to the Spanish legislation, 10% of the annual working time can be distributed irregularly throughout the year, thus increasing the maximum working hours (40 hours) in some weeks. In addition, overtime can be compensated with rest. In Spain, many workers have experienced a systematic increase in overtime work that is not appropriately remunerated, leading trade unions to denounce this trend and request stricter regulation on the issue. In 2019, the government responded by introducing an obligation upon workers to record their exact working hours, in order to tackle the abuse of unpaid overtime by employers. A second major debate surrounded the rationalisation of working days. For example, many workers finish the working day as late as 19:00, but the justification given for this is that the workers take a long lunch break in the middle of the day. It has often been argued that such work schedules represent an obstacle to work–life balance.</p>

Country	Type	Working time regulation and role of collective bargaining	Working time flexibility
			Despite calls to change the current situation, there has not yet been any legal change or agreement on the issue.
France	3	French statutory working time is 35 hours per week. The 'Aubry laws' of 1998 and 2000 reduced the statutory working week from 39 to 35 hours since 2000 for all companies employing more than 20 people, and since 2002 for smaller companies. All French companies have negotiated working time reductions between 2000 and 2004. The law permits a variety of flexible arrangements whereby companies may derogate (within limits) from certain provisions of the working time legislation, provided such arrangements are negotiated and organised through collective bargaining. This applies, for example, to the annual calculation of overtime if the agreement provides for an annual adjustment of working hours, or in the calculation of executives' working time by days worked in the course of the year (Boulin & Cette, 2008). In the framework of the labour law reform of 2016, the decrees No. 2016-1553 and 2016-1551 of 18 November 2016 implement Article 8 of the law, which amends the legislation on working time in three ways: it sets out the relevant public policy provisions relevant to the employment relationship, it specifies the scope of collective bargaining in a branch or enterprise, it sets out the provisions that apply in the absence of a collective agreement. Since 1 January 2017, the principle is to give primacy to the company-level agreement over the branch agreement for most provisions concerning working time. There is also a new obligation for employers to negotiate on adequate rest times and annual leave, and to pursue agreements that respect the private and family life of workers. In the absence of an agreement, the employer must clearly set out the procedures under which a	Flexible working time arrangements usually have to be approved by the works council or, if not present, the staff delegate and the labour inspectorate must be informed. If the company has neither a works council nor a staff delegate, the labour inspectorate has to approve the flexible working time arrangement. The labour law reforms of 2016 and 2017 have extended the negotiation of flexibility through company-level agreement.

Country	Type	Working time regulation and role of collective bargaining	Working time flexibility
		worker can exercise the 'right to disconnect' from all work-related communication (<i>droit à la déconnexion</i>).	
Italy	3	The provisions on working hours and overtime are included in Act no. 66/2003, as amended by Act no. 213/2004. In principle, workers are supposed to work 40 hours per week, unless more favourable provisions contained in NCBAs reduce said duration; nevertheless, the ordinary weekly working time shall be referred to the average duration of the working activity within a period no longer than 1 year. In any case, the duration of the weekly working time cannot exceed 48 hours per week, including any overtime hours. Such maximum duration must be calculated within a reference period not exceeding 4 months, unless more favourable provisions contained in NCBAs reduce said duration or increase the reference period up to 6 months. The above-mentioned provisions do not apply to executives. Pursuant to some NCBAs, the provisions on overtime do not apply to managers.	Working time flexibility is not regulated by law. The law only sets out the maximum amount of working hours, leaving all other aspects to social dialogue and contractual freedom within specific limits for certain categories or circumstances (such as night work). Some types of time flexibility strategies are beginning to be provided for or introduced in collective agreements, but the general trend is to fix working hours within a specific time span, generally from 09.00 to 18.00.
Hungary	4a	The Labour Code (Act 1 of 2012, Labour Code) regulates working time in Hungary. The standard normal working time is 8 hours a day (Labour Code Art. 92 Sec 1) or 40 hours a week (calculated on the basis of the standard work pattern of 5 days a week (Labour Code Art. 97 Sec 2), and 8 hours daily working time). The Labour Code provides a specific list of those provisions where derogation from the working time statutory regulations by collective agreement is: not allowed at all (Art. 135 Sec 1); allowed only for the benefit of workers (Art. 135 Sec 2); or for specific groups of workers (Art. 135 Sec 3). Another recent change took place in Hungary, where the regulation of working	In the Hungarian context, it is worth making a distinction between flexibility in the terms of the length of working time and flexibility in the organisation of working time. Regarding the flexibility in the length of working time, the Labour Code (Act 1 of 2012) provides detailed and fairly high maximum limits (daily, weekly hours, overtime), allowing derogation (by collective bargaining or individual contracts) to the benefit of workers only. Flexibility towards reduced hours has also its legislative framework. As regards flexibility in the organisation of working time, the Labour Code provides discretionary right to employers. Employers decide on the actual work schedule (Labour Code Art. 96 Sec 1). While employers have to observe the statutory rules on the

Country	Type	Working time regulation and role of collective bargaining	Working time flexibility
		time changed considerably from 1 January 2019. In December 2018, the Labour Code (Act I of 2012) was amended by Act CXVI of 2018, increasing the maximum duration of the period for working time banking fixed in collective agreements from 12 to 36 months. At the same time, the maximum of 250 hours of overtime that can be requested in a given calendar year was increased to a limit of 400 hours.	various elements of working time, they can schedule actual working hours within a broad framework, especially when a working time frame or longer settlement period (as described earlier) is applied. The employer may transfer the right to set a work schedule to the worker. In that case the worker fully determines his/her personal working schedule (Labour Code Art. 96 Sec 2). Flexible working time schedules, when workers have the opportunity to fix the start and end of a working day, are not legislated for by the Labour Code but left to collective agreements and individual contracts. Workers do not have a legal right to flexitime arrangements, staggered hours, working time banking or a compressed work week, but they can agree on any of these options with their employer. Collective agreements can also cater for such requests.
Netherlands	1	The limits of working time are set out in the Working Time Act (Arbeidstijdenwet). Collective labour agreements use the law as a baseline and framework for stipulating the exact working time, shift duration, breaks, and rest-breaks that may be taken. The Act allows for many deviations in collective agreements from the standard settings in the Act. The contractual length of the weekly working time has been stable for a long time. On average, collective agreements contain a 37.5-hour working week for full-time workers. By international standards, the average working week in the Netherlands is relatively short. This can to a large extent be explained by the high incidence of part-time work. This type of work is exceptionally common in the Netherlands. In 2007, the statutory working week was changed by amending the Act on working time. The maximum number of hours per day is 12 and per week is 60. These amounts are restricted by so-called reference periods. Unlike the former regulation, there is no longer	Workers with at least 6 months' service at an employer with at least 10 workers are entitled to ask their employer for an increase or decrease in their working hours (for example, a switch to or from part-time hours). The request must be made at least 2 months prior to the proposed change in working hours. In principle, the employer should honour such a request unless there are compelling circumstances. These circumstances may include: problems with getting a replacement, safety or work schedule in the case of a request for reduced hours; financial or organisational problems, or lack of work, in the case of a request for increased hours. The worker is entitled to file a new request 2 years after a request has been denied. The figures in the table below indicate that size of establishment is not a major factor in determining working time flexibility from the viewpoint of workers.

Country	Type	Working time regulation and role of collective bargaining	Working time flexibility
		a legal difference between normal working time and overtime (but most collective agreements do make a distinction on this point). For at least two decades, working time has not been a major issue in collective bargaining. The number of actual weekly working hours is on average somewhat higher than the collectively agreed number of hours. For an average full-time worker this would amount to a working week of almost 39 hours.	
Austria	1	The legal regulation on working time in Austria is laid down in the Working Time Act (<i>Arbeitszeitgesetz</i> , AZG) and the Act on Rest Periods (<i>Arbeitsruhegesetz</i> , ARG) setting the legal frame for the working time regulation. According to these laws, deviations from the legal standards at sectoral and at company level are possible but this requires first a sectoral collective agreement and, based on this, a works agreement between works council and management. Hence, working time still remains an issue in collective bargaining. This is particularly the case since the last amendments to the Working Time Act (<i>Arbeitszeitgesetz</i> , AZG), which have increased the options for flexible working hour arrangements, reserving their implementation to regulation by collective agreement, and, most recently (2018), extended the maximum working hours from 10 to 12 hours a day and from 50 to 60 hours a week.	The last amendments to the Working Time Act (<i>Arbeitszeitgesetz</i> , AZG), have increased the options for flexible working hour arrangements, reserving their implementation to regulation by collective agreement. In the meantime, most sectoral collective agreements in Austria have provisions on flexible working time arrangements. This especially refers to bandwidth models and flexitime. Bandwidth models allow companies to exceed the normal working time within a certain scope of fluctuation, for instance, up to 44 hours a week, reaching the normal working time within a certain reference period. Moreover, due to derogation clauses in collective agreements, concrete flexible working time schemes (such as bandwidth models and flexitime) can be agreed upon at company level by works council and management in a works agreement.
Poland	4c	The statutory weekly working time is subject to regulations of Chapter 6 of the Labour Code and amounts to 40 hours. The maximum working week including overtime cannot exceed 48 hours (in line with Directive 93/104/EC and the amended Directive 2000/34/ EC). In general, the working time should	The most important developments with regard to working time flexibility took place in Poland in 2013, involving changes in the Labour Code and the Trade Union Act (in force since 23 August 2013). The changes introduced regulations that enable employers to introduce a one-year reference period for calculating working time instead of 4 months, as

Country	Type	Working time regulation and role of collective bargaining	Working time flexibility
		<p>respect the statutory rest breaks in Poland, which are regulated in Chapter 3 of the Labour Code. Clause 132 says that workers have a right to 11 hours of rest a day. Clause 133 further stipulates that workers are entitled to a 35-hour undisturbed break per week, which also includes 11 hours of rest per day. Chapter 6, Part 4 of the Labour Code introduces various special systems and schedules for the organisation of working time, which can be used depending on job and work organisation requirements. Besides the basic working time schedule (8 hours per day), there are also regulations that allow for exceeding the norm of 8 hours per day and 40 hours per week, task-based systems, interrupted working time systems, shortened working week and weekend work systems. Except for shortened working week and weekend work systems, which need to be introduced in an individual contract, other working time systems can be based on collective agreements or general work regulations introduced by an employer.</p>	<p>long as it is justified by objective, technical or organisational reasons. In unionised workplaces in which company-level collective agreements exist, a new reference period needs to be included in the collective labour agreement (<i>układ zbiorowy pracy</i>) or introduced by a weaker form of an agreement with trade unions (<i>porozumienie zbiorowe</i>). In non-unionised workplaces, the introduction of a longer reference period requires an agreement with the ad hoc worker representatives elected in accordance with the customary rules in a given workplace. In the same legislative reform, flexitime was introduced in the Labour Code. It includes a possible variation in the time when work should start during the working day and the definition of the time span in which an worker decides to start his or her work. Both issues can be introduced either in the same way as the one-year reference period or based on an individual written request from an worker. In addition, it is possible to introduce weekly working schedule variation which covers a period of a minimum of 1 month (Clause 129(3) of the Labour Code).</p>
Portugal	3	<p>Working time is regulated by the Labour Code, by collective bargaining and by employers at company level. The Labour Code sets the general framework by defining basic notions, by setting certain limits, such as for regular weekly working time and possible deviations from it, which may result from regulations regarding flexibility (working time accounts), and by regulating different types of flexible working time arrangements. Collective agreements at branch, professional or company level may regulate the working time in the respective areas within the stipulations of the Labour Code. There is no articulation between the different levels of collective bargaining. Employers regulate working time in their companies within the stipulations of the</p>	<p>Law 7/2009 of 12 February and Law 23/2012 of 25 June 2012 introduced significant changes in working time regulations in Portugal. While the standard working time continued to be 40 hours a week and 8 hours per day, new forms of working time flexibility and new regulations on overtime were introduced. Law 7/2009 of 12 February 2009 introduced the regime of working time adaptability, with the possibility of working 60 hours a week and 12 hours per day, to be set up by collective agreements, with the condition that it would not exceed 50 hours on average for a period of 2 months. It also introduced a regime of individual adaptability whereby employer and worker can have an individual agreement defining periods of normal working time of 10 hours per day and 50 hours per week. Furthermore, it introduced</p>

Country	Type	Working time regulation and role of collective bargaining	Working time flexibility
		<p>Labour Code and of the respective collective agreement (if there is one). The Labour Code introduced in 2009 working time accounts (<i>banco de horas</i>), making their introduction in companies dependent on their regulation by collective agreement. However, since 2012, the Labour Code introduced the possibility of individual negotiations between employers and workers – without unions or worker representatives and circumventing sector collective agreements – on individual working time accounts. This clause is about to be eliminated, following the tripartite agreement 2018 (CES, 2018). This agreement proposes alternative ‘group working time accounts’ to be decided in company referendums organised by employers, under the surveillance of trade unions and worker representatives; however, this alternative was rejected by CGTP on the grounds that it also undermines collective bargaining (working time flexibility).</p>	<p>regulations regarding working time accounts (<i>banco de horas</i>), which allowed 4 hours of additional work per day or up to 60 hours a week, up to a maximum of 200 hours a year, making their introduction in the companies dependent on their regulation by collective agreement. The Law 23/2012 introduced the concept of individual working time accounts (<i>banco de horas individual</i>) to be negotiated between the employer and the individual worker, without the interference of the unions or of worker representatives, a measure that weakened collective bargaining and the bargaining power of the unions. This measure is about to be eliminated – legislation is expected in Q1 2019 – following the tripartite agreement 2018 (CES, 2018), which proposes alternative ‘group working time accounts’ to be decided on the basis of company referendums (see ‘Working time regulation’). The Portuguese Labour Code, in Article 56, provides that the worker with a child under 12 years of age (or with a child, regardless of age, with a disability or a long-term illness) has the right to working time flexibility. Flexible working time is defined as the possibility to choose, within certain limits, the start and end of the working day. The worker with working time flexibility may work up to 6 consecutive hours and up to 10 hours each day and must fulfil the corresponding normal weekly working period, on average for each 4-week period.</p>
Romania	4b	<p>Working time is set by law (the Labour Code). The standard working week for workers over 18 years of age is 40 hours per week, divided into 8 hours per day. For workers under 18 years of age, it is 30 hours per week, divided into 6 hours per day. The maximum length of a working week must not exceed 48 hours, overtime included. In some cases, the working time per week can exceed 48 hours, but only if the average of the working hours calculated for a period of 4 months does not exceed 48 hours per</p>	<p>Flexible work is regulated by individual work contracts or by collective agreements. Flexible work is not a widespread practice in Romania. It is more frequent in small companies than in medium or large companies.</p>

Country	Type	Working time regulation and role of collective bargaining	Working time flexibility
		week. For some sectors of activity or professions, the parties of the collective agreement can agree on a longer reference period, but this period should not exceed 6 months. Through collective agreements a working day longer than 8 hours can be set for some activity sectors, but without exceeding 12 hours per day, in which case the long working day must be followed by a 24-hour break.	
Slovenia	3	The statutory weekly working time is 40 hours. It can be less than 40 hours but not less than 36 hours, unless the job entails great risk of injury or ill-health. Full working time may not be spread over fewer than 4 days a week. Full working time is regulated by the Employment Relationships Act (ERA).	Working time flexibility is not regulated by law. It is regulated by collective agreements or general acts at the company level. In more than one-third of establishments in Slovenia, a majority of workers have the possibility to adapt the start and end of their working day in accordance with their personal needs. This option is two times greater in small establishments (compared to medium-sized and large establishments). This option exists for a certain number of workers in 43% of large establishments. In almost half (46%) of medium-sized establishments, none or fewer than 20% have this option.
Slovakia	4a	Working time is regulated by the Labour Code, according to which working time is the time when an worker shall be at the disposal of the employer, performs work and discharges obligations pursuant to the employment contract. A rest period shall be any period that is not working time. For the purpose of determining the extent of working time and planning working time, a week shall be 7 consecutive days. Working time in the course of 24 hours usually cannot exceed 8 hours. The working time of an adolescent worker (less than 18 years of age) may not exceed 8 hours in the course of 24 hours. The maximum weekly working time of an worker shall be 40 hours. For workers performing work in two shifts it is 38.75 hours, and for workers working in three	Flexibility of working time is regulated by the Labour Code, according to which flexible working time is a method for the even or uneven distribution of working time that an employer may introduce by collective agreement or through agreement with worker representatives. Basic working time is a time segment in which the worker is obliged to be in the workplace. Optional working time is a time segment during which the worker is obliged to be present in the workplace in order to complete operational time. A flexible working period can be implemented as a working day, working week, 4 weeks working period or another working period. The length of a work shift where flexible working time is implemented may be at most 12 hours. According to the ECS 2013, in 33% of establishments, more than 80%

Country	Type	Working time regulation and role of collective bargaining	Working time flexibility
		shifts it is 37.5 hours. Working time is a typical issue in collective bargaining, where weekly working time standards set by the Labour Code can be shortened in favour of workers in multiemployer collective agreements, and consequently in single-employer or company-level collective agreements as well.	of workers had the option to adapt the start and end of their working day in accordance with their personal needs. In 23% of establishments, between 20–80% of workers had this option, and none or less than 20% of workers had this opportunity in 44% of establishments. This implies that in almost half of the surveyed establishments, only a minor group of workers had this option. Under specified circumstances, working time flexibility can also be applied by working time account. When it is implemented, an employer can schedule working time so that when there is a greater need for work, workers work more hours than the established weekly working time, and when there is less need for work, workers work fewer hours or may not work at all. In this case, the employer is obliged to pay an worker the basic wage corresponding to the worker's determined weekly working time.
Finland	2	Working time is primarily regulated by the Working Hours Act and the Annual Holidays Act. The Young Workers' Act includes special provisions on working times of underage workers. Detailed frameworks for working times in each sector are determined in collective agreements through sectoral bargaining between the social partners. The specifics of the working times in individual employment contracts are then negotiated at company level in accordance with the regulations of the collective agreements. A major development in terms of working time was the tripartite Competitiveness Pact signed in Finland, which came into force in 2017. The Competitiveness Pact aims to improve the competitiveness of labour and businesses in Finland, boost economic growth, create new jobs, support fiscal adjustment, and promote local collective bargaining through national collective agreements. One of the most important changes introduced by the Competitiveness Pact was the extension of the annual	Working time flexibility is primarily regulated by the Working Hours Act which has to be followed when specifying sectoral conditions in collective agreements. The sectoral agreements must then be taken into consideration in company-level contracts in addition to national legislation. In accordance with the Act, the flexible working times have to be specified by mutual agreement in the employment contract so that the daily regular working hours can only be extended or reduced by a maximum period of three hours and so that the maximum amount of working hours remains at 40 hours per week. New Working Hours Act: In late September 2018, following a lengthy preparation process and disagreement between the social partners while drafting legislation, the Finnish government presented its proposal for a new Working Hours Act. The changes are designed to update and modernise the current Working Hours Act which dates back to 1996. The proposition includes two main revisions that should come into force from 1 January 2020. The first major revision includes provisions

Country	Type	Working time regulation and role of collective bargaining	Working time flexibility
		working time by an average of 24 hours for those in full-time work – an average of 30 minutes per week – without a corresponding adjustment of earnings. This meant that the collectively agreed average weekly working hours, which had previously stood at 37.5 hours, were increased to 38. The working time extension was implemented through agreement between trade unions and employers' federations in each sector.	for a working time model that allows workers to choose the number of hours they work, when they work and where they work. Such flexible working arrangements would primarily be based on mutual trust between the employer and worker. The second major revision involves the introduction of a ' <i>working hours bank</i> ' that enables a more flexible use of working hours over time.

Annex III – Mapping of practices

Table 23 Measures relating to civil aviation

	Practice	Company	Country	Sector	Type	Description
Airlines						
1.	Rostering/ vacation days	Anonymous Aviation Company 1	US	Civil aviation	2	Workers are paid for flight days beyond 16 days per month. Personal days off are bid by the 15 th of the of the month prior and flight crew can switch days off with another qualified crew when necessary.
2.	Rostering/ vacation days	Anonymous Aviation Company 2	US	Civil aviation	2	Off days are assigned by the 15 th of the month prior to the month in which the day of is scheduled. Weekend stand-by assigned for one aircraft. Crews are on hard days off (ie they will not be called to duty) during weekends that they are not assigned standby.
3.	Rostering /vacation days	Anonymous Aviation Company 3	US	Civil aviation	2	Every second or third weekend per month, driven by the schedule, each pilot is given a 3-day week-end day off. This arrangement can be attached to both ends of vacation.
4.	Preferential shift bidding	easyJet	UK	Civil aviation	2	Preferential bidding: workers can declare their preferred shifts (morning or evening) and days of work and therefore influence as much as possible their roster as easyJet tries to accommodate such requests.
5.	Control over schedules	KLM Group	NL	Civil aviation	2	There is a wide range of policies aimed at scheduling, as a result of collective labour agreements negotiations.
6.	Control over schedules	Common to many airlines	EU	Civil aviation	2	Informal shift swapping among workers via smartphone messaging forums. This is permitted by airlines as long as it does not contravene working time regulations. (Source is an interview with association stakeholder).

	Practice	Company	Country	Sector	Type	Description
7.	Sleep, Activity, Fatigue, and Task Effectiveness (SAFTE)	N/A	N/A	Civil aviation	2	The model (developed by Hursh et al., 2004), uses a biomathematical fatigue model that can improve rosters/schedules, with the aim of decreasing fatigue in workers and reducing accidents caused by human error. The model seems to be used, or advised to be used by researchers, in different transport modes (aviation, rail, road). It is part of the Fatigue Risk Management System.
8.	Using technology to roster better	Piedmont	US	Civil aviation	2	The use of staff planning software, among other systems, to forecast and adjust staffing levels — e.g., the manager typically schedules 4 to 7 workers for each aircraft on the ramp — to meet multiple load-factor assumptions. ²⁶
9.	Control over rostering due to strong worker involvement culture	Southwest Aviation	US	Civil aviation	2	Strong culture of worker involvement, no clear signs of special scheduling and/or rostering, but these types of working arrangements are likely, considering the culture.
10.	Using technology to roster better	Virgin	UK	Civil aviation	3	Virgin Atlantic uses new software ('Quintiq'), with planning and optimisation capabilities to adopt a demand-driven approach to ground staff planning, in accordance with the flight schedule. The software takes into regard all planning horizons, and manages the rostering of the airline's ground staff. These planning horizons include future flight schedule, passenger predictions to model operations and identify the necessary tasks. The system even suggests how many check-in desks need to be opened to meet the required service level agreement. This way, planners can evaluate how many workers need to be scheduled, as well as make better informed last-minute decisions. The system can plan up to 1 year beforehand, and helps

²⁶ <https://www.aviationpros.com/ground-handling/ground-handlers-service-providers/article/21105999/how-automated-scheduling-can-reinforce-airline-productivity>.

	Practice	Company	Country	Sector	Type	Description
						with the optimisation of the recruitment process, shift lengths or unexpected changes in the schedule.
11.	Using technology to roster better	Aer Lingus	Ireland	Civil aviation	3	Aer Lingus uses Mitrefinch Time and Attendance Software to schedule the required number of staff with the necessary skill set in the correct positions, while ensuring that every (flight) schedule goes according to plan and adheres to the predefined rules. The software also uses internal monitoring to make sure that the organisation is in adherence to the full organisational and legal regulations/guidelines, e.g. maximum allowed working hours. Specific tools built into the software will, for example, provide a notification if there are any anomalies. The software can also generate a wide range of reports detailing the scheduling, compliance, attendance management, payroll and planned vacations, which allows for an improvement in efficiency in the short term, and better long-term decisions associated with the workforce. The system is also flexible, and can quickly adapt to new organisational or legal rules.
12.	Reducing overnight stays	easyJet	UK	Civil aviation	4	The company facilitates air crew to spend as many nights as possible in their home base, with less impact on their personal life by their flying roster.
Airports						
13.	Annualised shift rota	Dublin Airport Authority	Ireland	Civil aviation	1	The company has implemented an annualised hours rota system, resulting in significant and sustainable payroll savings, and which provides more flexibility in terms of working time scheduling.

Table 24 Measures relating to ports and maritime transport

#	Practice	Company	Country	Sector	Type	Description
Ports						
1.	No night shifts for older workers	HHLA ²⁷ and other German ports	Germany	Port (terminal)	1	For the German maritime ports there is a collective agreement that regulates various issues of working time, including shift work and the right of older workers (55 or older) not to work night shifts.
2.	Either 2-shift service or 3-shift service	Igma (Bulk terminal)	The Netherlands	Port (terminal)	1	<ul style="list-style-type: none"> Workers either work in 2-shift service, or in 3-shift service; 2-shift: morning shift one week, evening shift the other week; 3-shift: morning shift first week, night shift second week (6 days), evening shift third week.²⁸
3.	Either 2-shift service or 3-shift service	OBA (Bulk terminal)	The Netherlands	Port (terminal)	1	<ul style="list-style-type: none"> Workers either work in 2-shift service, or in 3-shift service; 2-shift: morning shift one week, evening shift the other week. OR morning shift for one week, then evening shift for 2 consecutive weeks; 3-shift: morning shift first week, evening shift second week, night shift third week. And 1 weekend day, once every 6 weeks.²⁸
4.	Shift swaps	Valencia port	Spain	Port	2	Shift swaps: Changing shifts (or free days) for a certain date (for example in the case of the Port police, with three different shifts per day), with the agreement of the unit supervisor. There is also an app available to facilitate exchanging shifts with colleagues, reducing the administrative burden.

²⁷ HHLA is the Hamburger Hafen und Logistik AG, a German logistics and transportation company.

²⁸ <https://www.fnvhavens.nl/attachments/article/527/CAO-%20OBA%20%202016-2020.pdf>.

#	Practice	Company	Country	Sector	Type	Description
5.	Introducing a participation-oriented system of shift work at the CTA terminal ²⁹	HHLA	Germany	Port (terminal)	2	At the beginning of 2019, a new system of shift work was developed <u>jointly</u> by the management and the works council of the terminal that takes into account the interests of different groups of workers (e.g. older workers not allowed to work night shifts according to the council of labour affairs. In contrast to past practices ('flexibility through overtime work'), the new system takes also into account more recent scientific findings about the health impact of working night shifts over the life cycle. Further aspects that have been developed and regulated by a company agreement at CTA are related to automation: Due to sensors and GPS, the location of containers today increasingly is monitored and tracked from the control centres and it is not necessary that workers move around the terminal to track containers. Thus, automation has resulted in a significant work compression and intensification. This productivity gain is remunerated now by additional breaks in accordance with the company agreement.
6.	Adjustment of the shift work mode at container terminals in accordance with new business needs and workers' preferences	HHLA	Germany	Port (terminal)	2	Larger container vessels and the reduction of loading/unloading time have a significant impact on work requirements: human resources requirements have increased significantly at peak hours. While in the past, the response to this need of flexibility was overtime work and double-shifts, HHLA currently is developing jointly with the works council a model of shift work that is based on the principle of voluntariness and aims at increasing flexibility in container handling during peak times (in particular during the morning shift).
7.	Developing digital tools for swapping shifts amongst workers	HHLA	Germany	Port (terminal)	2	In close cooperation between management and works council at the terminal, Tollerort is related to improving the possibility of swapping shifts amongst workers by using digital devices and a new software. This project is currently ongoing and supported by an external consultant. The aim of the project is not only to make shift swapping easier but also to develop tools that foster more self-organisation of workers in rostering and work scheduling.

²⁹ CTA is the Container Terminal Altenwerder in Hamburg.

#	Practice	Company	Country	Sector	Type	Description
8.	2-shift, 3-shift or 5-shift services	OVET (dry bulk terminal)	The Netherlands	Port (terminal)	3	Workers can choose to undertake a temporary (1 year) assignment to the 5-shift service. After this year the worker can choose to go back to the regular 2-shift or 3-shift service. In the 5-shift services, the worker works 6 days and then has 4 days off. ²⁸
Maritime transport						
1.	IT solutions in shipping	BPC Crew Scheduling ³⁰	Greece	Maritime transport	2	BPC Crew Scheduling is a product designed to facilitate the process of crew scheduling and long-term planning for multiple vessels and ranks, targeting marine personnel departments across the industry. It provides an extended planning timeframe, satisfying the increasingly complex regulatory, legal and quality constraints on vessel crews. The system identifies available seafarers, enabling them to be scheduled.
2.	Crewing data management app	V.Group	Worldwide	Maritime transport	2	The app allows seafarers to update their availability for their next assignment, sign contracts, and manage documentation online, often from the comfort of their own home – resulting in fewer expensive journeys and more time spent with their family and friends. The launch of the app is a major milestone for Project Embark, a programme designed to transform the way the leading global marine support services provider handles crewing for its pool of 44,000 seafarers.
3.	Crewing data management app	Anonymous companies	EU	Maritime transport	2	One of the best practices mentioned in this study entails using integrated crewing software packages with functions for all data, as well as crew planning and scheduling, which (automatically) matches manning requirements with available staff. ³¹

³⁰ Best Practice Consulting

³¹ <https://www.cml.fraunhofer.de/content/dam/cml/de/documents/Studien/Best-practice-Studie-2013.pdf>.

Table 25 Measures relating to railways

	Practice	Company	Country	Sector	Type	Description
Railway operators						
1.	More transparent working time rules	Deutsche Bahn (DB ³²)	Germany	Railways	Cross-cutting	The 2019 collective agreement between the employers' organisation AG MOVE and the driver trade union GDL ³³ provides not only for an option model where drivers could choose between wage increase or additional holidays or time but also improvements as regards annual working time, rules for breaks and working at night and weekends. Apart from material provisions the whole working time system will be more transparent for workers. introduction of a system of 'Blockfreizeit' (i.e. additional free days in exchange of reduction of daily working time).
2.	National-level collective agreement on flexible working	FIT-CISL, FILT CGIL, UILTRASPORTI, UGL TAF ³⁴ and the National Railway Company	Italy	Railways	1	Smart Working is an agreement between the National Railway Company and the three main Unions, covering all workers; it introduces flexibility in working hours and working place, while the employment contract stays the same.
3.	Study on rostering options	Finnish state-owned railway company, VR Group	Finland	Railways	1	This company uses a rostering system organised on the basis of an algorithm, which aims to improve the utilisation rates of drivers and to distribute strenuous work tasks evenly among the drivers, while also improving work-life balance. ³⁵

³² Deutsche Bahn

³³ Gewerkschaft Deutscher Lokomotivführer (German train drivers' union)

³⁴ Four large trade unions in Italy.

³⁵ https://sal.aalto.fi/publications/pdf-files/tpor17_public.pdf.

Table 26 Measures relating to road transport

	Practice	Company	Country	Sector	Type	Description
Urban public transport operators						
1.	Fostering a better work-life balance	RATP ³⁶	France	Urban public transport	1	Shift work posts are managed in a way that, instead of working reduced hours (e.g. 50%), workers work for the full shift, so they eventually reduce the number of days they have to work. This point is important because it does not constrain the service (either for drivers, maintenance or other services). The workers are allowed to interchange their shifts with colleagues in a systematic and easy manner.
2.	Flexibility in contractual arrangements and working schedules	Dublin Bus	Ireland	Urban public transport	2	<p>Previously, when new drivers entered the company, they were first engaged as a spare driver, meaning that the company would only inform them of their schedule 24 hours in advance. Only after a couple of years' experience did they receive a regular schedule. This meant that, especially for new drivers, the nature of the job made it harder to accommodate the drivers' need for a good work-life balance. The job was therefore unattractive for new workers. As a result, the company has taken two concrete current practice actions to improve the work-life balance of the drivers as much as possible:</p> <ul style="list-style-type: none"> • Shared driving: Two bus drivers share the same route as a drivers' duo on one fulltime position, which makes part-time work easier to arrange; • Drivers can internally arrange to swap shifts. Dublin Bus also tries to be flexible (where possible, based on the operational requirements of the company) with rostering and tries to accommodate the preferences of the drivers.
3.	Individual evaluation of working shifts for men and women	Wiener Linien	Austria	Urban public transport	2	In order to facilitate part-time work and work-life balance of workers who have shift jobs (especially bus drivers and mechanics), their schedule is individually evaluated in order to better respond to their preferences. The negotiation allows for a balance between being positive and flexible, while also providing the necessary company services. The company is looking into a new pilot programme to assess whether personalised shifts work better.

³⁶ Régie Autonome des Transports Parisiens, France

	Practice	Company	Country	Sector	Type	Description
4.	Shift policy	ATM ³⁷	Italy	Urban public transport	2	Certain specific (shift management office workers) are charged with rearranging schedules in case of family needs for male or female workers. This includes both the arrangement of shifts among workers and the shift duration. This flexibility is facilitated by the constant relationship with HR.
5.	Driver Rostering for Bus Transit Companies	Turku Transport Services Ltd.	Finland	Urban public transport	2	Regular workers cannot work more than 2 Sundays a month and not more than 20 Sundays in a year.
6.	Driver Rostering for Bus Transit Companies	Turku Transport Services Ltd.	Finland	Urban public transport	3	Implementation of an algorithm to improve planning efficiency and workers' satisfaction.
7.	Shift policy	ATM	Italy	Urban public transport	3	Women workers can also request to avoid specific shifts (i.e. night shifts). Specific attention is guaranteed to the needs of single parents.
8.	Shift choice	Sofia Electric transport company	Bulgaria	Urban public transport	3	There are possibilities for both men and women to take only morning or afternoon / evening shifts.
9.	Preferential shifts for parents	EMT ³⁸	Spain	Urban public transport	3	By law conciliation policies are allowed for both men and women, namely: choosing the working schedule and work shift for workers (male and female) who have children between 0-12 years old. Workers can choose which hours they are able to work (from which time to which time and which days). However, the measure is harder to implement for bus drivers, as the bus schedules are fixed. As a result, it can create an imbalance between workers' availability and working hours which need to be covered, which the company tries to address as far as possible, within the limitations of the need for service delivery.

³⁷ Azienda Trasporti Milanesi (Municipal public transport company Milan).

³⁸ Empresa Municipal de Transportes de Madrid (Municipal Transport Company Madrid).

	Practice	Company	Country	Sector	Type	Description
Road						
1.	Roster preference consideration	SNEL	Netherlands	Road	3	There are part-time possibilities as well as flexibility in the scheduling. Drivers can freely choose their preferred schedule shifts as well as the types of freight distribution they would like to operate. Drivers can give preference indications, which will be taken into account when setting up the schedule.

Table 27 Measures relating to non-transport sectors

#	Practice	Company	Country	Sector	Type	Description
IT and digital						
1.	Digital Production and Work Processes	KompUEterchen4KMU	Germany	Technology	2	In the context of one of the projects of the initiative 'German Mittelstand 4.0', 'KompUEterchen4KMU', a software company, developed a resource planning tool for a medium-sized construction company. Like in many traditional smaller construction firms in Germany, resource planning in this company was still mostly carried out using a magnetic chart indicating the current use of all construction sites, machines and workers. Such a chart has the disadvantage of being only locally available, and it can easily be brought into disarray by either an inadvertent stroke with an elbow or even a gust of wind. The software company and the client therefore developed a software for mobile devices embodying all the functionalities of the magnetic chart. The main usability aspect was that the design of the software, in order to facilitate acceptance by the users, kept as close to its analogue predecessor, the magnetic chart, as possible. ³⁹

³⁹ [http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DSTI/ICCP\(2015\)18/FINAL&docLanguage=En](http://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DSTI/ICCP(2015)18/FINAL&docLanguage=En).

#	Practice	Company	Country	Sector	Type	Description
Healthcare						
2.	E-Rostering System	Letterkenny University Hospital	Ireland	Healthcare	2	In 2015, Letterkenny University Hospital (LUH) became the first Irish pilot site for implementation of the Allocate HealthRoster software to roll out to the wider Saolta University Health Care Group. The HealthRoster, an e-Rostering cloud hosted system, was initially launched across five wards and since then, roll out has continued across the hospital. The e-Rostering implementation consisted of five work packages, broken down into the following deliverables: HealthRoster, Bank Module, Roster Perform, SafeCare Module and Interface project. ⁴⁰
3.	Patient-based nurse rostering in home care	Anonymous	Germany	Healthcare	2	The planning is currently carried out manually by experienced senior nurses. However, the planning setup is very complex due to requirements such as legal working time restrictions, availabilities of full and part time nurses, and patient requests with differing requirements on qualification and frequency. The objective is to assign as few different nurses as possible to each patient. It implies the assignment of nurses to weekly recurring patient-visit-tours under consideration of the aforementioned continuity of care. This arrangement proposes different measures of continuity, which are used in five novel mixed integer program (MIP) formulations, each incorporating all hard planning constraints. ⁴¹ MIPs are software programmes that aim to satisfy all hard constraints while satisfying as many of the workers' requests as possible.

⁴⁰ <https://healthservice.hse.ie/filelibrary/onmsd/launch-of-implementation-process-of-e-rostering-system-letterkenny-university-hospital.pdf>.

⁴¹ <https://www.sciencedirect.com/science/article/abs/pii/S221169231420049X>.

#	Practice	Company	Country	Sector	Type	Description
4.	Flexible shift planning model in the Finnish Health Sector	Finnish nurses union SuPer, in partnership with Trade Unions of the Public Welfare Sectors (JHL ⁴²) and the Union of Health and Social Care Professionals (Tehy), and two employers' organisations	Finland	Healthcare	2	<p>An innovative method of shift planning for nurses has been developed in a project led by the Finnish nurses' union SuPer, in partnership with Trade Unions of the Public Welfare Sectors (JHL) and the Union of Health and Social Care Professionals (Tehy), and two employers' organisations. A participatory planning model has been put in place to enable staff to plan roles and tasks together, based on principles of fairness and equality. The shift planning model has adopted principles of ergonomic working time based on a model of two mornings, two evenings, two nights and 4 days off. This is also based on a greater deal of regularity, 8-10-hour shifts, at least 11 hours off duty between shifts, no more than 48 hours working time a week and consecutive days off. Staff are able to plan their work schedules and ward shifts in a participatory way, taking into account skill mix, staffing levels and the preferences of other workers on a ward.</p> <p>There has been a very positive impact on staff who now have more control over their work, which in turn has had an impact on their wellbeing. This has also led to high-quality nursing, effective use of resources, motivated and committed workers, and better retention of staff. The example shows the benefits of a participatory approach and the role that the social partners can play in inspiring positive forms of flexibility with benefits for staff and the organisation.⁴³</p>

⁴² Julkisten ja hyvinvointialojen liitto

⁴³ https://www.etuc.org/sites/default/files/A_TT_secteur_sante_u_EN_1.pdf.

Annex IV – Dissemination plan

a. Objective

The objective of this plan is to support the Commission in the dissemination of information to companies about how best to organise their working time in the context of attracting and retaining workers and particularly women and all workers with a need for a good work-life balance. The information provided for dissemination contains factors relating to the business case for good practice in scheduling and rostering systems, and showcases good practice, based on the examples that we have collected in our study. The dissemination material also contains some practical guidance in the form of a checklist on how to shape working time organisation at company level.

b. Target audience

The target audience for the dissemination products is likely to be varied. The table below contains an overview of the key audience segments.

Audience segment	Details	Dissemination products
Companies that have replied to our survey	53 company responses to the survey.	Slide presentation, research summary document. These are included below in this Annex; Social media, via the Commission website.
Associations that have replied to our survey	11 association responses to the survey.	Slide presentation, research summary document; Social media, via Commission websites.
Key employers' organisations in the transport sector	All relevant sectoral employers' organisations, plus cross-industry (BusinessEurope)	Slide presentation, research summary document; Social media, via Commission websites.
Key trade union organisations in the transport sector	All relevant sectoral trade unions, plus cross-industry (ETUC)	Slide presentation, research summary document; Social media, via Commission websites.
Companies operating in the transport sector	Companies in each of the transport modes	Slide presentation, research summary document; Social media, via Commission websites.
All interviewees for this study	Individuals interviewed in the scoping and ongoing interview phases of the project.	Slide presentation, research summary document; Social media, via Commission websites.
Any other interested parties	Broad reach through social media channels	Social media, via Commission websites

c. Dissemination outputs

The details of our main dissemination outputs are set out below. They include a slide presentation, which includes practical guidance to companies on how to manage shift systems and rostering in a way that encourages work-life balance, a research summary document, a number of shorter content items, and social media communications. For each type of dissemination product, we have included a short dissemination plan. The dissemination products are included below in this Annex.

Outputs	Target groups/ audiences	Key messages
Slide presentation and practical guidance	Targeted at the following groups: <ul style="list-style-type: none"> European employers' organisations in the transport sector; European sectoral trade unions in the transport sector; Cross-industry social partners at EU level; Individual companies/employers; Academics, experts and other interested parties. 	<ul style="list-style-type: none"> Putting flexible work scheduling into place can help enhance work-life balance and job satisfaction for workers; This can help make the transport sector more attractive to young people and women; Employers offering flexible work scheduling can improve the image of their company and are more likely to attract the best talent; A more satisfied workforce reduces labour turnover and increases productivity, which has a concrete and positive impact on costs.
Research summary document		
Short content items (1,000 words, 500 words, 100 words)		
Content for Twitter		

Slide presentation

The main results of the study are summarised in a slide presentation. This will be downloadable for all interested parties. This presentation contains:

- An introductory overview of the research and methodology, the context and general objectives.
- An overview of the good practices that we have found during our research.
- Key results and findings from the research, based on our critical appraisal of the identified good practices; and
- Recommendations, including practical information on how to best organise working time scheduling at company level.

This slide presentation builds upon the presentation that we developed for the stakeholder workshop on 29 September 2020. It also includes some notes so that it can be tailored to different audiences if required.

Research summary document

The research summary document is around 10 pages, with the good practices included as an annex. It is intended to provide background and context to the study, in addition to providing more in-depth information about the study results. It complements the slide presentation detailed above, and is based on the background document prepared for the workshop on 29 September. It contains the following sections:

- An introductory section that gives an overview of the project, the context and the main objectives of the project.
- A section that gives an overview of the main results of the study, including our methodology, the framework for analysis and the framework for the good practices, and our critical appraisal of the good practices.
- A section that focuses on recommendations for different stakeholders.

Short content items

We have also produced short content items, in the form of short news items, for dissemination on websites, such as the European Commission's Directorate-General for Mobility and Transport and other European Commission websites, websites of the social partners and other key stakeholders. These are a longer item of up to 1,000 words, a shorter item of up to 500 words, and a very short item of no more than 100 words, for dissemination via relevant social media channels. All of these items will contain links to the final report for this project, the research summary document, and the slide presentation.

Twitter item

We have also produced content that can be used in Twitter feeds, of up to 280 characters, and which could contain a link to the main report.

d. Recommended dissemination methods

The Commission will, as noted in the Technical Specifications for this study, be responsible for the dissemination of the study results. We would expect that the majority of the dissemination will be by digital means, for example:

- Emailing presentations and the research summary document to key contacts;
- Providing links to the dissemination outputs on relevant websites;
- Using social media sites to disseminate the project results, through the placement of shorter content items;
- Using social media or other online tools to disseminate links to the project outputs.

In addition, there is likely to be dissemination via other channels, such as the future network of diversity ambassadors for the transport sector.

Annex V – Dissemination articles

a. Article of 1,000 words

Study on good staff scheduling and rostering practices in transport

The objective of this study, which was carried out for the European Commission, was to identify good staff scheduling and rostering practices and make practical recommendations to companies on how to improve their staff scheduling and rostering practices. All modes of transport – air, road, rail, maritime, ports, inland waterways and urban public transport – and both passenger (including urban) and freight transport are covered by this study. The study was carried out during the COVID-19 pandemic. While it acknowledged the overall impact of this, it did not specifically focus on how this affected rosters and staff scheduling.

Overview of the methodology

The methodology for the study included literature review, stakeholder interviews and surveys of stakeholders, companies and workers. The study then developed a typology of different sources of staff scheduling and rostering practice in the EU:

- based on social partnership, collective agreements and co-determination;
- driven by collective agreements at a range of levels;
- state-centred with influence of collective agreements; and
- little influence of collective bargaining but some company-level worker representation and participation.

The study then identified 41 current practices and clustered them according to type of practice:

- remote and flexible working arrangements;
- increased roster control;
- fixing shift preference; and
- reducing overnight stays.

A participatory workshop was held in September 2020, to exchange views on the pre-identified practices and recommendations and reflect on possible gaps and future innovative practices.

Appraising the practices

Staff scheduling and rostering, improvements in working time and attempts to improve work-life balance for workers reflect sector-specific objectives in relation to the different modes of transport and motivations of companies. The study identified, in particular, the following issues:

- Better work-life balance has emerged as a key theme across all transport modes and can be related to different types of practices;
- Transport companies across the majority of transport modes face significant recruitment problems, particularly in relation to mobile staff;

- Business and operation-driven improvements in rostering and staff scheduling can play a role that can be positive in terms of increasing efficiency, but can also put pressure on work organisation: companies that have been confronted with high levels of competition in transport have focused on increasing productivity and efficiency by an optimisation of staff scheduling and rostering practice.

With regard to costs, stakeholders noted that apart from direct monetary costs (e.g. development/purchase of new software, fees for an external management consultancy/experts, etc.), there are also costs related to human resources involvement in the development of a new schedule/roster, project development, pilot measures, and the administration personnel involved.

In terms of benefits, stakeholder interviews as well as contributions to the participatory workshop have shown that benefits of rostering and scheduling practices are understood and rated differently by employers/management and trade unions/workers.

Company size appears to be an important factor. Smaller companies face much greater difficulties than big companies to develop worker-friendly staff scheduling and rostering practices due to limited financial and personnel resources (including the size of the workforce).

Collective bargaining and co-determination play an important role in determining the success of scheduling and rostering practices, in particular when they aim at win-win situations, i.e. combining business needs (such as increased efficiency and productivity) with workers' interests and needs.

Social dialogue, and in particular clauses on work-life balance in collective agreements, can play an important facilitating role.

Selection of good practices

Following a critical appraisal of the identified practices, eight practices were selected as good practices, based on the criteria of sustainability, scalability and transferability. Of those selected, three were identified in ports, three were in civil aviation, two in urban public transport, one in the railway sector, and one in road transport (some good practices were identified in more than one mode, or as variations within the same mode, which is why the sum is higher than the 8 final cases).

Overall, three types of good practices were identified:

- Practices that aim to optimise staff scheduling and rostering;
- Practices focused on improving work-life balance;
- Practices making use of integrated measures that improve staff scheduling and rostering.

With regards to the type of workers for whom the eight practices were designed, one practice applies to both mobile and non-mobile workers, four practices are specifically developed for mobile workers and three specifically to non-mobile workers. Finally, in terms of the type of practice, all of the practices implemented within the transport sector focus on improving the work-life balance of workers, which in turn will benefit employers in terms higher employee satisfaction and improved loyalty.

The **transferability** of the practices from one mode of transport to another, from one sector to another, or across borders, is not always easy. As such, simple strategies of identifying, disseminating and transferring good practices may be difficult. Any dissemination and transfer of good practices needs to take into account specific sectoral and company-related framework conditions. However, software solutions and smartphone apps for staff scheduling, rostering and shift switching seem to be relatively easy to implement and to transfer between companies.

As regards **scalability** (defined as the potential to apply the practice in companies of different sizes), smaller companies will find it more expensive to develop their own tailored solutions, which means that they may find it more difficult to apply practices in their company. Further, practices referring to certain staff groups (e.g. no obligation to work night shifts for older employees or no weekend shifts for women) require a certain workforce size.

In relation to **replicability** (defined as the potential to apply the practice in other countries that have a different legal framework), practices that are based on collective agreements at sectoral or company level might be difficult to implement in an environment where such practices do not exist. However, stakeholders from countries with weaker work-life balance policy practices and collective bargaining agendas reported that EU-level initiatives contribute positively to replicability, the application of practices across countries and the closing of gaps.

Recommendations

The study makes a number of recommendations for the European Commission, the EU-level social partners, national governments, national social partners, individual employers and employer organisations and workers and their representatives, based on how to encourage the development and implementation of staff scheduling and rostering practices in order to benefit both employers and workers. These are focused on ensuring that practices are well thought through before implementation, that they are adequately tailored to the needs of organisations and individual workers (which may differ, depending on individual situations) and that all stakeholders, including workers and their representatives, are involved in their development to ensure buy-in. Practices developed in this way can result in a win-win situation for all involved: employers will benefit from a stable, motivated and productive workforce, and employees will benefit from a good work-life balance that contributes to their wellbeing.

b. Article of 500 words

Study on good staff scheduling and rostering practices in transport

The objective of this study is to identify good staff scheduling and rostering practices and make practical recommendations to companies on how to improve their staff scheduling and rostering practices.

Overview of the methodology

The methodology for the study included literature review, stakeholder interviews and surveys of stakeholders, companies and workers. The study then developed a typology of different sources of staff scheduling and rostering practice in the EU, consisting of four types:

- based on social partnership, collective agreements and co-determination;
- driven by collective agreements at a range of levels;
- state-centred with influence of collective agreements; and
- little influence of collective bargaining but some company-level worker representation and participation.

The study then identified 41 current practices and clustered them according to type of practice:

- remote and flexible working arrangements;
- increased roster control;
- fixing shift preference; and
- reducing overnight stays.

A participatory workshop was held in September 2020, to exchange views on the pre-identified practices and recommendations and reflect on possible gaps and future innovative practices.

Appraising the practices

Staff scheduling and rostering, improvements in working time and attempts to improve work-life balance for workers reflect sector-specific objectives in relation to the different modes of transport and motivations of companies.

Following critical appraisal of these practices, eight systems were selected as good practices, based on the criteria of transferability, scalability and replicability. Of those selected, three were identified in ports, three were in civil aviation, two in urban public transport, one in the railway sector, and one in road transport (some good practices were identified in more than one mode, or as variations within the same mode, which is why the sum is higher than the 8 final cases).

The **transferability** of the practices from one mode of transport to another, from one sector to another, or across borders needs to take into account specific sectoral and company-related framework conditions. In terms of **scalability** (defined as the potential to apply the practice in companies of different sizes), smaller companies will find it more difficult to develop their own tailored solutions as practices that include specific conditions for certain staff groups require a certain workforce size. In relation to **replicability**, stakeholders from countries with weaker work-life balance policy practices and collective bargaining agendas reported that EU-level initiatives contribute positively to replicability, the application of practices across countries and the closing of gaps.

Recommendations

The study makes a number of recommendations for the European Commission, the EU-level social partners, national governments, national social partners, individual employers and employer organisations and workers and their representatives, based on how to encourage the development and implementation of staff scheduling and rostering practices in order to benefit both employers and workers. These are focused on ensuring that practices are well thought through before implementation, that they are adequately tailored to the needs of organisations and individual workers (which may differ, depending on individual situations) and that all stakeholders, including workers and their representatives, are involved in their development. In this way, practices can be developed that result in a win-win situation for all involved: employers will benefit from a stable, settled and productive workforce, and employees will benefit from a good work-life balance that contributes to their wellbeing.

c. Article of 100 words

Study on good staff scheduling and rostering practices in transport

The objective of this study is to identify good staff scheduling and rostering practices and make practical recommendations on how companies can improve their practices to increase workers' work-life balance and their own productivity. The study collected 41 current

practices and clustered them according to type of practice: remote and flexible working arrangements; increased roster control; fixing shift preference; and reducing overnight stays. Eight were selected as good practices, based on the criteria of transferability, scalability and replicability.

The study makes recommendations for the European Commission, the EU-level social partners, national governments, national social partners, individual employers and employer organisations and workers and their representatives, showing how the development and implementation of staff scheduling and rostering practices can benefit employers and workers.

d. Material for Twitter

Study prepared for the Commission identifies good practices in staff scheduling and rostering in the transport sector and makes recommendations to policy makers, employers' and workers' representatives on how to implement these practices to benefit both companies and workers.

Annex VI – Checklist

Checklist for companies on the introduction of staff scheduling and rostering practices



Preparing the ground

- ☐ Assess the type of company and the setting in which you are operating (e.g. mode, geography, competitive environment, structure of workforce)
- ☐ Define the company's needs in terms of its operations and/or service provision:
 - ☐ Is a change in staff scheduling necessary/useful?
 - ☐ What are the reasons for this?
 - ☐ Is a change in staff scheduling necessary for the whole workforce or just parts of it?
- ☐ Engage with workers' representatives⁴⁴ to discuss the needs of the workforce in relation to staff scheduling and work-life balance.
- ☐ Carry out an assessment of the current staff scheduling system to understand whether it meets the needs of the workforce. This could include:
 - ☐ Workshops to gather views and information about existing good practices
 - ☐ Surveys of the workforce
- ☐ Identify whether there are different needs for different groups of workers or occupations.
- ☐ In consultation with workers' representatives, carry out an assessment of whether any improvements or adjustments are needed in staff scheduling in order to maximise the benefits of this for both the company and the workforce.

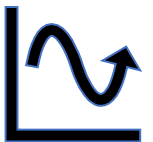
Preparing for implementation

- ☐ Devise a plan focusing on the types of staff scheduling and rostering practices that could feasibly be implemented in the company:
 - ☐ Look at good practices in the transport sector as a whole, in another mode or elsewhere to see what could be implemented in the company, either wholly or partially



⁴⁴ Where equality or diversity coordinators exist, they should also be involved in all stages of the process.

- ☐ Discuss with workers' representatives in order to gain an understanding of any potential challenges relating to implementation from the workers' side
- ☐ Identify any potential problems or conflicts
- ☐ Discuss potential solutions to these problems
- ☐ Review the technology that will be needed to implement the practices.
 - ☐ Check whether it is suited to the needs of the company and the workforce
 - ☐ Identify what is needed to implement it (e.g. additional training, awareness raising measures)
- ☐ Discuss the costs related to the implementation of the practice, as far as possible. These could include:
 - ☐ Management time
 - ☐ Administrative time
 - ☐ Costs of new software (purchase or development and maintenance)
 - ☐ Consultancy fees for external experts
 - ☐ Initial potential disruption to work schedules and conflict resolution
 - ☐ Costs of piloting
 - ☐ Ongoing costs of hiring extra workers to cover for shorter working time or increased levels of time off
- ☐ Once the plan is finalised, ensure that workers and their representatives are fully on board with its provisions, as this will ensure buy-in from all parties



Piloting

- ☐ Devise and implement a pilot that is limited in relation to the number of workers involved and its timescale. Measures could be implemented in a particular division or unit of the company
- ☐ Gather data on the running of the pilot by:
 - ☐ Gathering the views of the workers involved
 - ☐ Gathering the views of the managers involved in implementing the pilot
 - ☐ Gathering data about costs and benefits as far as possible

Rolling out the practice

- ☐ Make any necessary adjustments to the practice after considering the results of the pilot
- ☐ Communicate with the workforce, using workers' representative channels and direct announcements, about the new measures
- ☐ Determine the parameters of the practice, such as:
 - ☐ Is it voluntary or compulsory?
 - ☐ What are the review mechanisms to ensure that the practice is working for individuals and to allow for adjustment if necessary?
- ☐ Ensure that all those involved are fully aware of the practice and of their role in its implementation



Monitoring and review

- ☐ Set up regular monitoring activities, involving workers' representatives
- ☐ Ensure that there is a process for raising and dealing with issues that arise under the implementation of the practice
- ☐ Set up regular review dates in relation to how the practice is working and any adjustments that may be needed after monitoring activities



Annex VII – Dissemination slides



Good staff scheduling and rostering practices in transport

A study for DG MOVE

July 2021

Background to the study



Objectives

- To identify good staff scheduling and rostering practices; and
- To make practical recommendations to companies in the transport sector on how to improve their systems for different types of jobs/companies/sectors



Scope

- EU Member States
- All modes of transport and all forms of work: mobile and non-mobile staff
- Focus on staff scheduling and rostering or measures directly related to the way work is organised and not to any other work-life balance measures
- Both male and female workers

Results of the literature review, survey and interviews



Results and findings

- Generally, a lack of transport-specific studies, data and statistical data on staff scheduling and rostering practices; no comparative studies
- Limited knowledge of EU-level social partners and professional organisations about concrete practices at national, sector and company level
- By contrast, large body of literature and research on general employment and working conditions in transport, in particular as regards mobile staff
- From the cross-sectoral perspective, existing data shows significant varieties/gaps between countries as regards staff scheduling and rostering practices in the transport sector that aim to provide better work-life balance
- COVID-19 impact: growing uncertainty about future employment (needs); acceleration of mobile working and digital tools

Roster typologies by country clusters



Social dialogue, collective agreements and co-determination

- Significant role of social dialogue in shaping rosters and working time practices
- Co-determination and legal obligation to achieve consent
- Supportive role of public policies, e.g. right to working time reduction, care time, etc.

DE, LU, NL, AT

Driven by collective agreements at a range of levels

- Collective agreements at various level play crucial role of shaping working time practices
- Significant role of the social partners at company level

DK, CY, FI, SE

State-centred with influence of collective agreements

- Government and legal regulation (also by declaring collective agreements generally binding) plays a significant role
- Collective agreements and social dialogue role very much depends on company-level situation

BE, EL, ES, FR, IT, PT, SI

Little influence of collective bargaining

- Most diverse group with 3-4 sub-clusters (depending on legal provisions on company level co-determination / social dialogue)
- Lack of social dialogue and collective agreements at sector level as a source of regulating working conditions

HR, HU, SK, BG, CZ, IE, CY, LV, LT, MT, RO, EE, PL



Impacts of framework typology on practice

- Most documented and reported current practices were found in companies and sectors that belong to the first and second groups of countries, i.e. characterised by strong role of company-level co-determination and collective agreements as major source of regulating working time
- It seems that in these countries, the government is also more open to (joint) requests of the social partners demanding better work-life balance, age-related work schedules, promotion of female employment, etc.
- By contrast, hardly any practices were found in the remaining groups of countries (though practices may exist) – here, practices depend much more on the quality of the social dialogue at company level as well as the political focus of governments



Overview of identified current practices



Type 1: Remote and flexible working arrangements: Flexibility in working time and work location (rail); Shared driving and shift-swapping (coach and bus services); Preferential shifts (ports); Worker participation in shift planning (example from the healthcare sector)



Type 2: Increased roster control: Flexible shift working over a 12-week cycle (ports); Participation-oriented shift work patterns (ports); Preferential shift bidding (civil aviation)



Type 3: Fixing shift preferences permanently: Digital tools for shift swapping (ports); Roster preference consideration (logistics); Individual evaluation of shifts for all workers (urban and public transport); Shift buddies (civil aviation)



Type 4: Reducing overnight stays and night working: Avoiding night shifts for older workers (ports); increasing nights spent in the home base (civil aviation)



Type 5: Cross-cutting: Increasing individual choice in shift working (rail)

Critical appraisal of the practices



By mode

Uneven incidence of practices and type of practices amongst transport modes. Most practices – more than 80% - were identified in civil aviation, ports and urban public transport as well as rail.



By country

Only very few practices in Central and Eastern Europe, all of which are concentrated in urban public transport and railways. Most practices across all transport modes were found in the Northern and Western Continental cluster of Member States (Denmark, Finland, Germany, Netherlands, Austria). While some practices across all transport modes were also found in Southern Europe, the practices identified in the Anglo-Saxon group of countries are mainly concentrated in the civil aviation sector.



By staff group

Even distribution of practices targeting mobile staff (e.g. crew members, pilots, drivers) as well as non-mobile white- and blue-collar staff engaged in shift work, working at weekends or on public holidays.



Key themes and objectives

- A key emerging theme for the practices across all transport modes is better work-life balance
- Many have a multiple purpose, such as:
 - combining more individual choice in rostering and staff scheduling with options such as working time reduction, additional holidays or rest time, part-time work, working from home
 - improving shift-planning and rostering
 - adjusting shift schedules and rosters in order to making the profession more attractive
- Strong trend of trying to improve working conditions to fill staff shortages for mobile staff such as bus and truck drivers, blue-collar workers in technical/maintenance jobs, security guards and customer services and other areas characterised by shift work and work at weekends or at night
- Aim of increasing productivity and efficiency by an optimisation of staff scheduling and rostering practice

Hindering and favouring factors



Costs

Direct monetary costs, cost of HR involvement, administrative burden. Costs could be significant, including hiring new staff and purchasing technology, but also difficult to quantify over the longer term.



Benefits

Seen differently by employers and workers:

- Employers highlight recruitment and retention, attractiveness, image of the company as an employer, motivation of workers, reduction of absenteeism, improved health and safety, reduction of accidents and/or increased retention;
- Workers highlight better work-life balance, motivation, health, security, and - depending on specific practice – additional holidays, reduced working time, reduction of night work, reduction of work on weekends, possibility to combine work and care responsibilities.



Other factors

Include company size, presence of collective bargaining and co-determination, public policies and social dialogue.

Transferability, scalability and replicability



➤ Barriers to transferability include:

- Differences in the pressure on employers/companies to offer better work-life balance and make working time conditions more attractive due to recruitment problems
- Differences in the operational environment of mobile staff in different transport modes

➤ Factors that can help transferability include:

- Software solutions and specific IT tools (e.g. smartphone apps)
- Tailoring of solutions to specific circumstances

➤ Barriers to scalability: what works in larger companies may not be possible in smaller companies

➤ Barriers to replicability: differences in the national frameworks and regulation of working time, influence and role of social dialogue and collective bargaining, market conditions, competition environment and business strategy

Results of the critical appraisal

Following the critical appraisal of the good practices, three different forms or groups of practice can be identified:

- **Mainly management and business-driven practices** that aim for an optimisation of staff scheduling and rostering
- **Social partner-driven practices** at company, sector or public policy level that are aiming to improve work-life balance within a company or sector
- **Practices that combine both approaches by integrated measures**, i.e. improving work-life balance for workers while seeking also to increase efficiency of staff scheduling and rostering



Final selection of 8 good practices

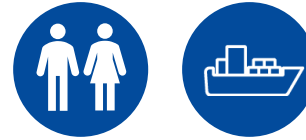
1. Collective agreement



4. Preferential shift bidding (persons)



7. Swapping shifts



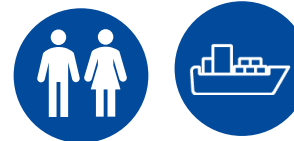
2. Shift notice



5. Shift preference (location)



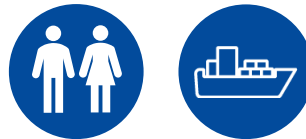
8. Avoiding night shifts for certain groups



3. Preferential shift bidding (time)



6. Accommodating workers' needs



Legend



Conclusions

- Focus: the operational aspects of staff scheduling and resourcing practices, rather than economic or other impacts
- The legal and regulatory framework is valuable for enabling or shaping practices
- Variations of approach exist and may influence the transferability and replicability of practices
- The different characteristics of transport modes and the type of work can impact the implementation of practices
- The reasons for introducing scheduling and rostering practices can vary greatly between companies, covering factors such as recruitment and retention or accommodating the shift patterns of a large workforce
- Worker needs include improved work-life balance, and accommodating specific needs of specific groups of workers

Recommendations at EU level

Recommendation to the Commission:

- 1. Devise initiatives to present and disseminate good practices of rostering and staff scheduling in transport.** This could include mutual learning events, seminars, workshops and material to be included on Commission and national government websites, in addition to social media

Recommendation to the EU-level social partners:

- 2. Use the framework of the European sectoral social dialogue to further discuss good working time scheduling and rostering.** This could be through arranging seminars or workshops through channels such as European social dialogue committees



Recommendations for Member State governments

- 3. Devise national-level initiatives to present and disseminate good practices of rostering and staff scheduling in transport**
- 4. Encourage rostering and staff scheduling practices in transport that are based on strong cooperation between employers and worker representatives**



Recommendations for national-level social partners

- 5. Develop sectoral initiatives to share good practices of rostering and staff scheduling in transport**
- 6. Encourage examination of what is possible within existing legal and collective bargaining frameworks**



Recommendations for both national governments and national social partners

- 7. Tailor rostering systems in transport to individual circumstances and relevant contexts**
- 8. Encourage the development of good practices in particular in inland waterways and maritime transport**



Recommendations for employers and employers' organisations

- 9. Involve transport workers and their representatives in designing new rostering systems**
- 10. Assess the staff scheduling and rostering system currently in place to understand whether it still meets the needs of the transport workforce**
- 11. Plan and prepare implementation of staff and scheduling practices in transport carefully and properly**
- 12. Learn from good staff scheduling and rostering practices in transport and incorporate elements that best fit the situation**



Recommendations for employers and employers' organisations

- 13.** Harness technology to meet the needs of both the transport company and its workers
- 14.** Devise training to keep up with technological developments in transport
- 15.** Design crisis-resilient staff scheduling and rostering practices in transport



Recommendations to workers' organisations

- 16.** Develop information, advice and guidance for member organisations in transport
- 17.** Showcase good practices of rostering and staff scheduling in transport
- 18.** Compile and use information on the needs of the transport workforce
- 19.** Promote a positive attitude in the transport sector towards new technology and upskilling

Thank you



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Annex VIII – Research summary document

a. Introduction

This study on good staff scheduling and rostering practices in transport was carried out by the consortium of Ecorys and wmp consult for the European Commission's Directorate-General for Mobility and Transport. The study was launched at the end of 2019 and ran for a duration of 12 months.

The purpose of the study was to look at what can be done at company level, in a financially sustainable way, to allow employees to better reconcile their work schedule with their private life. The specific focus is on staff scheduling and rostering or measures directly related to the way work is organised.

The objective of the study was twofold:

1. To identify good staff scheduling and rostering practices;
2. To make practical recommendations on how to improve the systems for transport companies for different types of jobs/companies/sectors.

The scope of the study encompasses all EU Member States, all modes of transport and all forms of work. However, solutions are likely to differ depending on the size of the company, the transport mode concerned, as well as the particular aspects of the job (e.g. mobile vs non-mobile/duration of mobility). Therefore, the preconditions for the transferability of good staff scheduling and rostering practices from one context to another is one of the key aspects studied.

The study does not focus specifically on any characteristics of workers. It includes all types of workers - men, women, young people and older staff. The overall focus is on practices enabling all employees to improve their work-life balance by reconciling their working time with their private life, whether that is in order to care for children or other dependants, or to pursue activities outside of work. Such good practices and exchange of these practices could make a significant contribution to the overall Commission objective to enhance the attractiveness of the sector to all workers, and in particular to women and young people. This should enable the recruitment of new workers to the sector, which is currently characterised by an ageing workforce and insufficient diversity.

b. Methodology

The overall methodology that was followed in this study consists of three main elements:

1. The data collection phase, which includes a combination of literature review, interviews and surveys;
2. The analytical phase, in which (1) the typology of the framework conditions under which rostering is decided is developed, (2) the types of the actual rostering and scheduling practices are identified, (3) current practices are mapped and (4) the practices are critically assessed;
3. The development of conclusions and recommendations, in which a participatory stakeholder workshop was organised to test the results of the analysis, developing a list of proposed good practices and developing a dissemination plan.

For the purpose of collecting the necessary information, the study identified some 70 pieces of relevant literature, the majority of which dealt with rostering allocation solutions through algorithms and the framework under which rosters are decided. Relatively few sources focused on discussing and appraising current practices.

The stakeholder consultation included 30 targeted interviews and a survey which received 146 replies from social partners, individual companies, and individual workers. A

participatory workshop was held on 29 September 2020, attended by 32 stakeholders, which aimed to exchange views on the pre-identified good practices and recommendations and to reflect on possible gaps and future innovative practices that may not yet be in place.

The study was strongly impacted by the COVID-19 pandemic. The immediate implications of this included a reduced response rate to the survey and reduced availability of stakeholders for interviews, despite their expressed interest in participating in the study. The study methodology therefore had to be simplified and more targeted. Despite these challenges, the reaction of the stakeholders was encouraging and considered to be sufficient to provide input for the purpose of this study.

c. Main results of the study

This section of this report contains information relating to the framework for the selection of the good practices, the framework for the analysis of the good practices, and information relating to the critical appraisal of the good practices.

c.1 Framework for analysis

The study developed a typology of framework conditions influencing staff scheduling and rostering practices in different clusters of EU countries, as well as in different modes of transport. Four main typologies were identified:

1. ***Social dialogue, collective agreements and co-determination at company level:*** Social dialogue and collective bargaining between workers and employers at company level plays a significant role in shaping staff schedules and rosters. In some countries in this cluster, working time may even be a matter for statutory co-determination practice. In addition to this, in these countries, innovative practices and adjustments are also supported by state-led initiatives aimed at the social partners, which generally have a supportive character;
2. ***Driven by collective agreements at a range of levels:*** Social dialogue has a similarly strong influence in this cluster of countries to that in Type 1, but here it is mainly based on strong social partner organisations and collective agreements at cross-sectoral, sectoral and company level that complement each other. Although co-determination rights are less strong, the role of company-level social dialogue, including the conclusion of collective agreements, and its impact on staff schedules and rosters is strong;
3. ***State-centred with influence of collective agreements:*** In contrast to Types 1 and 2, in this cluster of countries, the government plays a more significant role in terms of actions such as providing a legal framework setting the terms and conditions of workers, and providing mechanisms that extend collective agreements across a whole sector, and collective agreements and company-level worker representation bodies cover a smaller scope of topics. The influence of company-level social dialogue and/or agreements between employers and worker representatives at company level on staff schedules and rosters will very much depend on the specific company situation;

4. ***Little influence of collective bargaining but some company-level worker representation and participation:*** This is the most diverse and weakest cluster of countries when it comes to the influence of collective agreements (which hardly exist at sectoral level) on staff scheduling and rostering practices. However, this does not mean that, at company level, workers do not have any influence on these practices. A sub-set of this type includes countries with relatively strong worker consultation and participation rights that may be regarded as the basis of a stronger influence than the influence generally seen among countries in this cluster.

As a next step, the study clustered staff scheduling and rostering practices according to the type of practice. In total, the study identified 41 practices: 13 from the civil aviation sector, 3 from maritime transport, 8 from ports, none from inland waterways, 3 from railways, 9 from urban public transport, 1 from road transport and 4 from other relevant sectors.

Four types of practices were identified: remote and flexible working arrangements, increased roster control (in deviation of usual planning), fixing shift preference (on a permanent basis) and reducing overnight stays. The study collected 24 practices connected with increased roster control, the most for any type. The next most popular type was practices related to fixing shift preference, with 8 practices. A total of 7 practices were collected related to remote and flexible working, and 1 related to reducing overnight stays. The study also identified 1 relevant cross-cutting practice.

Overview of number of practices relating to staff scheduling and rostering collected by sector and type

	Civil aviation	Ports	Maritime transport	Inland waterways	Railways	Urban public transport	Road transport	Other	Total
Type 1: Remote and flexible working arrangements	1	3			2	1			7
Type 2: Increased roster control (in deviation of usual planning)	9	4	3			4		4	24
Type 3: Fixing shift preference (on a permanent basis)	2	1				4	1		8
Type 4: Reducing overnight stays	1								1
Cross-cutting					1				1
Total	13	8	3	0	3	9	1	4	41

c.2 Critical appraisal of the good practices

The 41 practices listed above were then analysed and critically appraised. This analysis and appraisal focused in particular on the contribution of the practices to the improvement of the work-life balance of staff and also looked at whether the practices are perceived as satisfactory by employers, workers, and other relevant stakeholders. More specifically, when assessing the practices, the following aspects were considered:

- Drivers for change of the existing practice;
- The scope of the practice;
- The objectives of the practice;
- The costs and benefits associated with the practice;
- The transferability of the practice;
- The scalability of the practice;
- The replicability of the practice.

Transferability is defined as the extent to which a practice is transferable to other transport modes and other occupations in the transport sector;

Scalability is defined as the potential to apply the practice in companies of different sizes;

Replicability is defined as the potential to apply the practice in other countries that have a different legal framework.

Based on the aspects provided above, overall three types of good practices were identified/distinguished:

- Practices that aim to optimise staff scheduling and rostering;
- Practices focused on improving work-life balance;
- Practices making use of integrated measures that improve staff scheduling and rostering.

On the basis of the results of the critical appraisal of identified practices, it was possible to distinguish **three different forms or groups of practice**:

1. Mainly management and business-driven practices that aim for an optimisation of staff scheduling and rostering;
2. Social partner driven practices at company, sector or public policy level that are aiming to improve work-life balance within a company or sector;
3. Practices that combine both approaches by integrated measures, i.e. improving work-life balance for workers while seeking also to increase efficiency of staff scheduling and rostering.

The following table summarises key features of these groups in relation to main drivers/promoters, scope, objectives, costs and benefits as well as transferability.

Key features of practice groups

	Optimisation of staff scheduling and rostering	Work-life balance oriented practices	Integrated measures of better staff scheduling and rostering
Drivers / promoters	Employer	Trade unions, works councils, employers associations, employers/ HR department, sectoral social partners or public policies.	Both social partners at company level.
Scope / focus	Narrow focus on business needs	Focus is on working conditions and work organisation mainly.	Combining business needs with improvements in working (time) conditions.
Objectives	Efficiency and cost reduction	Improving work-life balance, workability, health, motivation, retention, attractiveness, employer image, etc.	Depending on joint interests as well as feasibility.
Costs / Benefits	Limited	Depending on scope of the practice.	Depending on scope of the practice.
Transferability, scalability and replicability	Relatively easy, but needs adjustment to company specific conditions and needs	Possible when adjusted to company/country specific framework conditions. Social dialogue and/or public policies certainly are a supporting factor.	Possible when adjusted to company/ country specific framework conditions. Social dialogue and/or public policies certainly are a supporting factor.

Following this critical appraisal, a total of eight good practices were selected, all of which are from the transport sector. Of the practices selected, three were identified in ports, three in civil aviation, two in urban public transport, one in the railway sector, and one in road transport⁴⁵.

With regard to the type of workers for whom the eight practices were designed (i.e. mobile vs. non-mobile), one practice can be referred to as horizontal (i.e. it applies to both mobile and non-mobile workers), four practices are specifically developed for mobile workers and three specifically to non-mobile workers.

In terms of the type of practice, all of the practices implemented within the transport sector focus on improving the work-life balance of workers.

These eight good practices are appended to this report in the form of an annex.

⁴⁵ Some good practices were identified in more than one mode, or within the same mode but being variations. In the analysis merged those that were similar have been merged. This is why the sum is higher than the 8 final cases.

d. Main conclusions of the study

This study set out to examine actual staff scheduling and rostering practices with the aim of identifying those that allow workers to better reconcile their work schedule with their private life. Following this, the study aims to make recommendations on how improvements can be made for different types of companies, jobs and sectors. The study was impacted by the COVID-19 pandemic, in that the amount of detail that could be identified/collected per identified case study was limited. This, however, did not stop the study from identifying good practices and setting out their main characteristics, and making recommendations as to their application.

The following main conclusions can be made:

- In terms of available literature, while the issue of rostering and scheduling is being tackled, the focus seems to be more on operational aspects (resource allocation problem) than on the economic and other impacts of the application of rostering and scheduling practices;
- Concerning the framework conditions, the study has highlighted the **importance and value of the legal framework and other regulatory sources, such as social dialogue outcomes and collective bargaining agreements**, as a means of enabling or shaping these practices. The analysis also showed the variations in approach that exist across the EU Member States (which can be clustered into 4 distinct types) as well as variation across transport modes. This variation of approach may influence the transferability and replicability of a practice;
- Regarding the identified practices, while this study was not able to carry out an exhaustive mapping, it shows that such **practices are applied across different transport modes** (and in sectors beyond the transport sector). However, the different characteristics of each transport mode, the type of work (mobile or non-mobile), and the framework conditions can have an impact on how widely they are spread, as well as on their focus;
- The reasons behind the introduction of such scheduling and rostering practices can vary between each company and naturally reflect a company's specific operating conditions and the market environment. In general terms, these **practices seem to address a range of needs**, from recruitment/retention issues, to accommodating a large number of personnel working in shifts and rosters, to strong social dialogue strong collective bargaining and a high influence of company-level worker representation and participation. On the workers' side, the needs that were reported are improved work-life balance, although the specific needs vary according to the individual situation of workers, and accommodating the needs of specific categories of workers (e.g. older workers, workers with care responsibilities or helping the introduction of new workers);
- According to stakeholders, it is not always easy to implement such practices, even though the benefits to both, employers and workers, are clear. Specific operational features, legal restrictions, levels of acceptance within organisations (often linked to the culture of organisations), weak social dialogue and weak collective bargaining as well as no or weak works councils may hinder their development and introduction;
- Concerning the **costs and benefits** of implementing such practices, it has been difficult to obtain quantifiable data from the respective stakeholders and to go into high levels of detail concerning implementation within organisations, based on stakeholder responses. One of the reasons stated is that the necessary information is simply not collected, or it forms part of confidential business information and therefore cannot be shared. The different situation and challenges of each company also makes it difficult

to provide accurate estimates that would be applicable across the board. Finally, it appears that **benefits are considered differently between employers and workers**, with the former focusing on aspects such as recruitment and retention, image of the company, including as a good and attractive workplace, and the latter on better work-life balance;

- The study has also raised the issue of the importance of building **resilience to significant market shocks**, as became evident through the COVID-19 pandemic. While the study did not focus on the impacts of this, it was apparent that such shocks have a negative impact in terms of flexibility of rostering. Many of the companies in the sectors covered by this study – and in particular the civil aviation sector – were struggling to survive and were therefore not focusing on work-life balance and working time flexibility for their staff. In some sectors, such as passenger road transport or maritime transport, the COVID-19 emergency resulted partly in the suspension of, or exemptions from, breaks, rest periods and other working time rules. This means that discussions around potentially ‘soft’ issues, such as the shift preferences of workers, have been pushed down the agenda in the context of trying to keep businesses afloat. This, of course, is a short-term strategy. It is to be hoped that, in the post-COVID-19 world, discussions about the implementation of rostering that is flexible enough to suit all parties, as a way of enabling work-life balance and enhancing the day-to-day running of organisations, would continue. This would enable companies to recruit and retain staff, making them more resilient and prepared for such shocks. It would also enable workers to enjoy an improved work-life balance.

e. Recommendations for different stakeholders

The study makes the recommendations below to improve work-life balance in the transport sector. We are however aware of the fact that in some countries or in some associations and trade unions these recommendations are already implemented, but not necessarily with examples from the transport sector.

Recommendation for the European Commission:

1. **Devise initiatives to present and disseminate good practices of rostering and staff scheduling in transport.** The dissemination plan designed in this report is addressed to the European Commission. It contains practical tips for companies willing to change their staff scheduling and rostering system to improve work-life balance in transport. Dissemination could be achieved by means such as events to exchange experiences, seminars to exchange good practices, and material to be included on the European Commission website. Social media can also be used to disseminate messages around good practices. This could take place in the next 2 years.

Recommendation for the EU-level transport social partners:

2. **Use the framework of the European sectoral social dialogue to further discuss good working time scheduling and rostering.** Social dialogue has played a significant role in reducing the gaps that exist between EU countries in relation to work-life balance regulation or practices, and should be further developed in order to contribute to the further improvement of work-life balance. The EU-level transport social partners could do this within the European sectoral social dialogue by discussing the principles around working time scheduling and sharing the good practices identified in this study, in addition to disseminating other material designed to support the development of good working time scheduling and rostering practices in transport.

Recommendations for Member State governments:

3. **Devise national-level initiatives to present and disseminate good practices of rostering and staff scheduling in transport.** Building on the dissemination activities at EU level, Member States should develop national and/or targeted initiatives that aim to increase outreach to individual companies in the transport sector. This could be achieved through means such as national, regional or sectoral seminars, including relevant material on government websites and using social media to disseminate and promote an inclusive national discussion. This will help raise awareness and share knowledge about practices that aim to improve work-life balance in transport;
4. **Encourage rostering and staff scheduling practices in transport that are based on strong cooperation between employers and worker representatives.** Many of the practices identified in this study did not pass the final selection as recommended good practices as they lacked elements such as worker involvement, tailoring and flexibility. It is often difficult for transport companies to balance flexibility with service provision. Communication between the employer and the employees on these practices is key. According to our findings, this is best achieved by strong cooperation and collaboration between employers – either through employer representatives or directly at company level – and worker representatives. Governments should therefore encourage these practices. Practices also need to be flexible enough to be tailored to organisational and individual needs, centring on work-life balance, and adapted to changing circumstances. This increased cooperation could be achieved by encouraging employers and their representatives, including employer associations and worker representatives, to develop an ongoing dialogue at national and/or sectoral level on staff scheduling and rostering in transport.

Recommendations for national-level transport social partners:

5. **Develop sectoral initiatives to share good practices of rostering and staff scheduling in transport.** Social partner organisations should develop sectoral initiatives to share good practices within the transport sector, aimed at improving work-life balance. These initiatives, based on seminars and schemes designed to provide support to companies wishing to introduce new practices, could be developed in the medium term;
6. **Encourage examination of what is possible within existing legal and collective bargaining frameworks.** The social partners should collaborate to find flexibility in terms of staff scheduling and rostering practices, while remaining within the bounds of existing national legislation and collective agreements. All transport social partners should collaborate on an ongoing basis on what is possible and what can benefit both employers and the work-life balance of workers, within the given regulatory framework. To this effect, organising seminars in the medium term and on an ongoing basis at all levels, including national, regional, local and company level, as appropriate to the circumstances, in which views can be exchanged, would be beneficial.

Recommendations for both national governments and national-level transport social partners:

7. **Tailor rostering systems in transport to individual circumstances and relevant contexts.** Given the variety of conditions existing across transport modes and countries, a 'one-size-fits-all' approach to rostering and scheduling practices will most likely meet with little acceptance and possibly have little take-up and positive

effects. It could also be in conflict with national legislation and/or social dialogue traditions. Therefore, it is important for relevant actors at national level, which includes national governments and social partners, to tailor approaches in order to achieve the best results for employers and the work-life balance of workers in transport;

8. **Encourage the development of good practices of rostering and staff scheduling in particular in inland waterways and maritime transport.** This study has identified clear sectoral gaps in the selection of good practices. National governments and social partners should aim to encourage the development of good practices on working time scheduling and rostering in inland waterways and maritime transport, where so far none could be identified. This could include targeted seminars for exchange of good practices in the transport sector, aimed specifically at companies in inland waterways and maritime transport. Such seminars could be organised in the medium term.

Recommendations for transport employers and employers' organisations:

9. **Involve transport workers and their representatives in designing new rostering systems.** Close collaboration between employers and workers in the design of a new scheduling and rostering system in transport should be the norm, as it helps not only with take-up but will also make sure that it properly addresses the needs of both sides;
10. **Assess the staff scheduling and rostering system currently in place to understand whether it still meets the needs of the transport workforce.** The next step is to determine whether any improvements or adjustments are needed in order to maximise the benefits for both sides, also with a view to creating incentives for new recruitment. It is of key importance to involve the workforce in this process. The assessment should also identify any necessary staff training that will help the workforce use current or future technology to support adjustments in staff scheduling and rostering in transport;
11. **Plan and prepare implementation of staff scheduling and rostering practices in transport carefully and properly.** Good staff scheduling and rostering practices in transport create benefits for both employers and workers. The introduction of these practices needs to be carefully planned by employers, who need to consider properly the precise needs of their business and the work-life balance needs of their workers. This is particularly important as the management's commitment to the introduction of these practices is key, particularly in larger organisations. Planning should include the provision of the necessary training to enable the workforce to work with the technological tools designed to facilitate staff scheduling and rostering practices in transport;
12. **Learn from good staff scheduling and rostering practices in transport and incorporate elements that best fit the situation.** Practices that work well in other countries or sectors can be particularly inspiring for transport employers and much can be learnt from these practices. It may not be possible to transfer a practice wholesale. Therefore, employers need to identify which elements of a practice could be suited to their particular business in order to gain maximum benefit for all, including improved work-life balance for workers;
13. **Harness technology to meet the needs of both the transport company and its workers.** Technological solutions (e.g. apps) can be important facilitating factors in introducing and working under a new scheduling and rostering scheme. Transport

employers should ensure that the technology matches the specific needs and the characteristics of the business and of the diversity of their workers;

14. Devise training to keep up with technological developments in transport.

Future staff scheduling and rostering practices are likely to involve technology to an increasing degree. It is therefore vital that transport companies and their workers have the capacity to work with evolving technological applications. This is likely to involve a coordinated training programme for all those who will be affected by the development and application of new technologies;

15. Design crisis-resilient staff scheduling and rostering practices in transport.

The COVID-19 pandemic has shown how difficult it is to maintain even long-standing staff scheduling and rostering practices during times of crisis. Future staff scheduling practices in transport need to be designed to be robust enough to withstand economic shocks so as to continue to ensure the benefits of good staff scheduling and rostering systems to both companies and the work-life balance of workers including in times of crisis.

Recommendations for workers' representatives:

16. Develop information, advice and guidance for member organisations in transport. Trade unions and workers' representatives at EU and national level should develop information, advice and guidance for their member organisations on good staff scheduling and rostering arrangements and promote these through different information channels to suit the individual needs of transport companies and workers. This should also include advice on how to ensure that the workforce is adequately trained to use any new scheduling and rostering tools;

17. Showcase good practices of rostering and staff scheduling in transport. Trade unions at EU and national level should showcase good practices of staff scheduling and rostering through activities such as seminars in which discussions and exchanges on work-life balance and the implementation of practices in transport and other sectors can take place;

18. Compile and use information on the needs of the transport workforce. Worker representative bodies in transport companies should gather and analyse information about the needs and preferences of the workforce in relation to staff scheduling and rostering (e.g. through surveys), in order to know the work-life balance needs of their members and how these might change over time, notably taking into account and anticipating the needs of future workers and new recruits;

19. Promote a positive attitude in the transport sector towards new technology and upskilling. It is important that the transport workforce is well equipped to use the relevant technologies that facilitate the introduction of new staff scheduling and rostering practices. Trade unions at EU and national level can play an important role in promoting the benefits of this and in giving practical advice on the relevant upskilling opportunities offered by the employer, and on the use of new technology.

Annex to the research summary document: The eight good practices

Finally, in terms of the type of practice, all of the practices implemented within the transport sector focus on improving the work-life balance of workers.

Horizontal practices

The table below provides a good practice example for a collective agreement.

Practice 1: Collective agreement

National-level collective agreement in a particular transport sector on flexibility to workers regarding their working time and location of work	
Practice type	<p>This practice type refers to:</p> <ul style="list-style-type: none"> • Practices focused on improving work-life balance; • Practices making use of integrated measures that improve staff scheduling and rostering.
Scope	<p>This good practice focuses on collective agreements. The inspiration for this good practice comes from examples in the railway sector on national level.</p>
General description	<p>This agreement is inspired by an agreement on working time reached between employers' and workers' representatives. The agreement covers all workers in the sector and provides flexibility to the workers in their working time and in their location of work, both for mobile and non-mobile workers. Concrete examples of the type of flexibility provided by such agreements are, for instance:</p> <ul style="list-style-type: none"> • Limitations to working in the weekend; • Limitations to the number of consecutive working days; • Local agreements and solutions at workplace/site level in order to better taking into account individual wishes and choice in staff schedules.
Drivers for changing existing practice	<p>The most significant drivers for change are the recruitment challenges and labour shortages for particular jobs in the transport sector. This holds especially for mobile jobs and for shift work, as these types of jobs are considered as unattractive, in particular by younger people and by women. Jobs can be made more attractive, especially to younger workers, by providing financial incentives. Therefore, there is a common need with employer and worker organisations to increase the attractiveness of these types of jobs in order to reduce recruitment challenges and to reduce labour shortages. In addition, there is also a common need and a common aim to increase the competitiveness of the sector, by improving the productivity of workers. The major aim of the agreement, in relation to rostering and staff scheduling, is to facilitate a better reconciliation of work and private life and, consequently, to improve the work-life balance of workers.</p>
Objectives	<p>The objectives are to increase productivity and to reach a better work-life balance of workers.</p>

National-level collective agreement in a particular transport sector on flexibility to workers regarding their working time and location of work	
Benefits	<p>For the workers the major benefit is an improved work-life balance.</p> <p>For the employers the major benefit is an increase in productivity of their workers. In addition, the practice can increase the attractiveness of a job in the transport sector, thereby helping to reduce their recruitment challenges and labour shortages.</p>
Hindering and facilitating factors	<p>The following two major preconditions have been identified during the research:</p> <ul style="list-style-type: none"> • The culture and size of the companies involved need to allow for the type of flexibility specified in the agreement; • The presence of sufficient worker representatives and the presence of strong and balanced industrial relations is crucial for the development of such an arrangement. <p>In order to ensure that the agreement is successfully and effectively implemented it needs to be rolled out in specific parts of the company first. Elements of the agreement that are not successful or effective in practice can be revisited for the implementation in other parts of the company.</p>
Critical success factors	<p>The critical factor for successful and effective implementation is the existence of national legislation on working time that has helped the introduction as it sets the framework to be followed.</p>
Transferability, scalability and replicability	<p>Transferability to other countries may be hindered by absence of supportive legislation and lack of social dialogue/worker representation framework. As specified above, the size of the company plays an important role in assessing the scalability of the practice. The national framework is crucial for the replicability of this practice.</p>

Mobile workers

An overview of the selected good practices for mobile workers is provided in the following tables.

Practice 2: Shift notice

Shift notice	
Practice type	This practice type refers to improving work-life balance.
Scope	The inspiration for this practice is coming from examples in urban public transport .
General description	<p>The major challenge with respect to all mobile jobs is to improve the work-life balance of the workers.</p> <p>The company has taken two concrete actions to improve the work-life balance of the drivers (particularly in the case of new drivers who, acting as spare drivers, may be informed of their schedule only 24 hours in advance) as much as possible:</p> <ul style="list-style-type: none"> • Shared driving: Two bus drivers share the same route as a drivers' duo on one full-time position, which makes part-time work easier to arrange; • Drivers can internally arrange to swap shifts.
Drivers for changing existing practice	Work-life balance is increasingly important for both men and women. However, some categories of workers can be willing to be available at short notice if they are sufficiently paid.
Objectives	<p>To reach a better work-life balance.</p> <p>For employers, to increase the commitment of workers to the organisations and to increase productivity as a result.</p>
Benefits	<p>The major benefit for the worker is an improvement in their work-life balance.</p> <p>The major benefits for the employer are an improvement of the image of the company as a place to work, reducing labour shortage and an increasing productivity.</p>
Hindering and facilitating factors	Due to the nature of the job it can be very difficult for the company to fully accommodate the wishes and needs of its drivers for a good work-life balance. Therefore, there needs to be willingness from some drivers to be available at short notice. Some categories of workers can be willing to be available at short notice if they are offered a financial incentive.
Critical success factors	The company culture is the most critical success factor.
Transferability, scalability and replicability	This practice is relatively easily transferable to modes where one ends and starts the day in the same location, for example in an urban context. It may be difficult to apply this practice in contexts where the personnel has multiple nights away from home. This practice is sensitive to company size as regards scalability (it is more difficult for smaller companies to apply it, due to the lower worker numbers available).

The next three good practice examples are all related to indicating shift preference. **The background** for these examples is that working time preferences of workers vary significantly depending on numerous factors, for instance, age, family situation, household composition, lifestyle and family situation, including responsibility for care. Therefore, these practices are based on a model in which workers have an influence over their own roster. The individual examples show how the workers can exert influence.

The major driver for change with respect to all three examples is the common need of the company and its workers to accommodate individual rostering preferences and choices as much as possible. The need from the workers' side is reflected in the desire to improve work-life balance. Often, the employers' side is driven by the need to reduce labour shortage and enhance the competitiveness of the sector. However, at the same time accommodating shift preference of staff is causing challenges with respect to keeping the organisation and the operation running.

A trade-off needs to be made between operational requirements and individual preferences. There needs to be a willingness on the part of the company to accommodate individual preferences. However, the operational and organisational needs of the company also need to be taken into account, as unpopular shifts (e.g. unpopular working times, unpopular routes) cannot be unmanned. Moreover, a certain time is required to plan the shifts appropriately. In addition, the extra personnel required in order to have staff in place for all shifts means higher personnel costs. Digital tools and innovative software that is compliant with labour regulation can potentially contribute to a solution in which individual scheduling preferences are accommodated, whilst ensuring that all shifts are manned and minimising the resulting additional personnel costs.

In the next three tables the additional details for each specific example are specified.

Practice 3: Shift preference (time)

Preferential shift bidding (time allocation of shifts)	
Practice type	This practice type refers to improving work-life balance.
Scope	The practices identified under this good practice relate to the shifting of preferences in time . This good practice focuses on mobile jobs . The inspiration for this practice is coming from examples in the civil aviation sector , the road sector and the urban public transport sector . Mobile staff working for the companies where this example has been inspired from are able to freely choose preferred shifts, which will be taken into account when the schedule is drafted.
General description	This good practice is focusing on accommodating shift preference . This is especially relevant to jobs where shifts are a large component, which can be to both mobile and non-mobile work. This particular good practice is focusing on accommodating shift preference in relation to working time.

Preferential shift bidding (time allocation of shifts)	
Drivers for changing existing practice	The influence of workers is reflected in, for example, the possibility to declare preferred shifts in relation to time allocation of shifts (e.g. the morning or the evening). A key driver in all of these examples is that the previous practice was not addressing the needs of the workforce, and therefore change was introduced. This will ensure that workers have a better possibility of working during their preferred times. This is coming from a common need of the company and its workers to accommodate individual rostering preferences and choice as much as possible. However, at the same time, accommodating shift preference of staff is causing challenges with respect to keeping the organisation and the operation running.
Objectives	The major objective is to reach a better work-life balance of workers and to reduce labour shortage. This is done by accommodating as much as possible to the individual needs of workers, given the organisational and operational constraints. Ultimately, this should improve the image of the company to customers but also the image of the company as a good place to work. Another objective is to strengthen the commitment of workers to the company and to increase productivity as a result.
Benefits	The major benefit for the worker is an improvement in their work-life balance. The major benefits for the employer are an improvement of the image of the company as a place to work, reducing labour shortage and an increase in productivity.
Hindering and facilitating factors	Due to the nature of the job, it can be very difficult for the company to fully accommodate the wishes and needs of all its workers for a good work-life balance. Therefore, there needs to be willingness from some workers to be available at short notice.
Critical success factors	Critical to the successful and effective implementation is the presence of a cooperative management culture , that is willing to make the necessary changes to the rostering system, that is willing to explore new options when it comes to the manner in which rosters are determined and that is willing to assess what changes can or need to be made within the limits of operational requirements. This practice is relevant because it requires close interaction and good relationships between employers and employees. Therefore, the existence of good relations between workers and management is crucial to build the mutual trust that is required to make shift preference a success.
Transferability, scalability and replicability	A major precondition for transferring this practice to other transport modes and to other mobile and non-mobile transport occupations is the engagement and commitment of the company management to implement changes in the way rosters are determined. However, the success is largely based on coordination, within the context and limits of operational requirements. Smaller sized companies may also find it more difficult to apply such a practice.

Practice 4: Shift preference (persons)

Preferential shift bidding (persons with whom a worker will be in a shift, 'buddy system')	
Practice type	This practice type refers to improving work-life balance
Scope	Just as the previous example, this example is focusing on accommodating shift preference. The good practice specified here relates to indicating the staff members with whom one wants to be in the same shift and to indicating the staff members with whom one does not want to be in the same shift. The inspiration for this practice comes from examples in the civil aviation sector.
General description	Under this 'buddy system', workers can nominate a colleague with whom they would always like to fly. This is usually the case for couples who want to have the same roster. Workers can also nominate a colleague with whom they would never like to fly. This is usually the case for couples who need to share childcare. This ensures that one of them is available to care for their children.
Drivers for changing existing practice	The influence of workers is reflected in the possibility to declare preferred staff members to work with. A key driver in all of these examples is that the previous practice was not addressing the needs of the workforce, and therefore change was introduced. The major distinction from this practice compared to the previous example is that one can indicate the persons that the worker wants to work with. This is especially relevant to improve the work-life balance of partners working as colleagues in mobile jobs, in particular when they need to reconcile their working life with childcare. To these workers, certainty with respect to the organisation of the working time of the partner is just as important as certainty with respect to the organisation of their own working time.
Objectives	<p>The main objective is to reach a better work-life balance of workers and to reduce labour shortage. This is done by accommodating as much as possible to the individual needs of workers, given the organisational and operational constraints. Ultimately, this should improve the image of the company to customers but also the image of the company as a good place to work. Another objective is to strengthen the commitment of workers to the company and to increase productivity as a result.</p> <p>In addition, another objective is to enable workers to spend more time with their partner and to organise childcare in due time.</p>
Benefits	<p>The benefits for employers are an improved image of the company as a good place to work, offering a better work-life balance, thus reducing labour shortage by attracting more staff and increasing productivity.</p> <p>A benefit for workers is the improvement of work-life balance, in particular for couples that both have mobile jobs in the same company, thanks to the ability to coordinate their schedules with each other.</p>
Hindering and facilitating factors	Due to the nature of the job it can be very difficult for the company to fully accommodate the wishes and needs of individual workers for a good work-life balance. The major organisational and operational constraint for this specific example is the number of 'buddy' requests coming in.

Preferential shift bidding (persons with whom a worker will be in a shift, 'buddy system')	
Critical success factors	As with the previous example, a cooperative management culture and good relations between workers and management are crucial factors to make this type of practice a success. In addition, acceptance and trust among all workers, including those not taking part in the 'buddy system', is crucial, as all workers need to be treated on a fair and equal basis. In this context, a lack of acceptance of the system will negatively affect the working atmosphere.
Transferability, scalability, replicability	Transferability, scalability and replicability of this practice are highly dependent on the company culture as well as the company size.

Practice 5: Shift preference (location)

Shift preference (location, as many nights as possible in the home base)	
Practice type	This practice type refers to improving a better work-life balance.
Scope	This good practice is focusing on accommodating shift preference in relation to the preferred location or route. The inspiration for this practice is coming from examples in the civil aviation sector .
General description	This example covers, for example, facilitating to spend as many nights as possible in the home base. It is only possible for these workers to spend as many nights as possible in the home base if there are other workers who have a flexible attitude and are willing to take the routes where they have to spend more nights away from the home base.
Drivers for changing existing practice	The influence of workers is reflected in the possibility to declare the preferred route or location of work. A key driver in all of these examples is that the previous practice was not addressing the needs of the workforce, and therefore change was introduced. This is coming from the need for some groups in the workforce to spend as little time away from home as possible. From the employers' side, this practice can be a way to increase the attractiveness of the sector to work in, especially to workers with younger children or other care related needs.
Objectives	The major objective is to reach a better work-life balance of workers and to reduce labour shortage. This is done by accommodating as much as possible to the individual needs of workers, given the organisational and operational constraints. In this situation this is being realised by reducing the number of overnight stays and reducing the disruption to family life as much as possible. Ultimately, this should improve the image of the company to customers but also the image of the company as a good place to work. Another objective is to strengthen the commitment of workers to the company and to increase productivity as a result.
Benefits	This facilitation allows staff to spend more time at their home base, improving their ability to reconcile their work schedule with their private life.
Hindering and facilitating factors	Due to the nature of the job it can be very difficult for the company to fully accommodate the wishes and needs of all workers for a good work-life balance. Therefore, there needs to be willingness from some workers to be away from the home base, in order to enable other workers to return to the home base. The

Shift preference (location, as many nights as possible in the home base)	
	employer can stimulate the willingness of workers by providing them with incentives, such as additional salary and/or vacation days for night shifts that are increasing for each additional night shift completed
Critical success factors	Critical to the successful and effective implementation is the presence of a cooperative management culture , that is willing to make the necessary changes to the rostering system and ready to explore new options when it comes to the manner in which rosters are determined. Moreover, it needs to be prepared to assess what changes can or need to be made within the limits of operational requirements. On top of this, the existence of good relations between workers and management is crucial to build the mutual trust that is required to make shift preference a success, based on benefits for both workers and management.
Transferability, scalability, replicability	There is scope to transfer this practice as long as there is a balance of different worker needs and circumstances and a willingness on the part of the employer to accommodate the needs of workers in relation to spending or not spending nights away from home. This would not work well in a workforce which predominantly shares the same needs (e.g. only older workers or those with family and/or caring responsibilities). Companies with a larger size may apply this practice more easily.

Non-mobile workers

Three good practice examples regarding non-mobile workers are presented below. The first example is more general with respect to accommodating workers' needs. The second focuses on night shifts and the third looks to the potential of digital tools for shift swapping and when it comes to providing workers with more control over their own schedule.

Practice 6: Accommodating workers' needs

Accommodating workers' needs	
Practice type	<p>This practice type refers to:</p> <ul style="list-style-type: none"> Practices that aim to optimize staff scheduling and rostering; Practices making use of integrated measures that improve staff scheduling and rostering; Practices focused on improving work-life balance.
Scope	<p>This good practice is focusing on accommodating the workers' needs. The inspiration for this good practice is coming from an example in the port (terminal) sector.</p>
General description	<p>This example is inspired by an agreement reached between the employer (the management) and the workers (the works council) to jointly develop and implement a new system of shift work. This new system takes the interests and needs of the different groups of workers into account. In addition, the new system also takes recent scientific findings about the health impact of working night shifts over the life cycle of individuals into account.</p>

Accommodating workers' needs	
Drivers for changing existing practice	The major drivers for change reflect the need to take action in light of labour shortage and the common need to increase productivity and competitiveness. Besides the need to tackle these challenges, there also has been an opportunity driving this change. Due to digital tools and GPS solutions, transport and infrastructure companies are able to better schedule their operation, thereby reducing the amount of overtime work and making productivity gains. Both, employer and workers benefit from this practice, since the employer reduces the amount of overtime pay and the workers are better able to reconcile their work with their private life.
Objectives	The objectives are to increase productivity and to reach a better work-life balance for workers.
Benefits	For the workers, the major benefit is an improvement in the work-life balance and for the employer an improvement in productivity.
Hindering and facilitating factors	Two major preconditions have been identified during the research: <ul style="list-style-type: none"> • The strong engagement of all workers, notably through the works council, from the very start of the design process to the implementation and evaluation process. This is also important in the context of the need to keep all workers involved, also those workers that are in favour of carrying out overtime work; • The current level of automation and digitalisation and the degree to which the company has the ability to cope with and implement innovative solutions that aim to better plan operations in advance.
Critical success factors	Besides the factors mentioned above, a cooperative management culture is crucial to implement such a practice successfully.
Transferability, scalability and replicability	Such a practice should be easily applicable in all types of transport hubs where operations can be planned ahead, such as container terminals in the port sector, warehouses in the logistics sector and ground handling in the civil aviation sector. It, however, requires a joint understanding from the management and worker representation of the type of solution that needs to be applied.

Practice 7: Avoiding night shifts for certain groups

Avoiding night shifts for certain groups	
Practice type	This practice type refers to: <ul style="list-style-type: none"> • Practices focused on improving work-life balance; • Practices making use of integrated measures that improve staff scheduling and rostering.
Sector	This good practice focuses on avoiding nights shifts for certain, more vulnerable, groups, for example older workers. The inspiration for this good practice comes from examples in the ports (terminal) sector .

Avoiding night shifts for certain groups	
General description	This good practice is focused on the introduction of new roster plans. These new plans include the provision that older workers and workers, who for health reasons are not able to work night shifts, will be excluded from working during night shifts. In order to still be able to staff night shifts in accordance with the demands, some workers will have to almost entirely work at night, but will do so on a voluntary basis. The employer can stimulate the willingness of (younger) workers to work in unpopular shifts by providing them with incentives, such as additional salary and/or vacation days for night shifts that are increasing for each additional night shift completed ⁴⁶ .
Drivers for changing existing practice	The major drivers for change reflect the need to take action in light of labour shortage and the common need to increase productivity and competitiveness. Given labour shortage, there is a need to retain older workers, even if it is not possible for them to work the same amount and length of shifts as their younger colleagues do. It is for health reasons that there is a need to take the needs and wishes of older workers into account.
Objectives	The major objective is to have more reliability with respect to the schedules. The main interest for the employer is to maintain sufficient supply of personnel that covers labour demand during night, both in the short and in the long term. On the other hand, the main interest for the worker is that health and work-life balance concerns are sufficiently taken into account.
Benefits	For the vulnerable worker, the major benefits are related to an improvement in the work-life balance and for the employer the major benefits are related to an improvement in productivity. For the worker taking over the night shifts the benefits are related to the incentives provided, such as additional salary or additional vacation days.
Hindering and facilitating factors	<p>Hindering factors for this type of practice could include an employer's reluctance to hire older workers, since they would need to be given preferential treatment over younger workers. In addition, there are operational constraints that limit the ability of the employer to accommodate the needs of older workers. Below, the major preconditions to overcome these hindering factors are mentioned.</p> <p>Two major preconditions have been identified during the research:</p> <ul style="list-style-type: none"> • The strong engagement of workers, notably through the works council, from the very start of the design process to the implementation and evaluation process. This is also important in the context of the need to keep all workers involved, also those workers that are in favour of carrying out night shift work; • The current level of automation and digitalisation and the degree to which the company has the ability to cope with and implement innovative solutions that aim to make a better planning of the expected operation ahead.

⁴⁶ This does not apply to workers younger than 18 years of age in order to remain compliant with Directive 94/33/EC on the protection of young people at work.

Avoiding night shifts for certain groups	
Critical success factors	Besides the factors mentioned above, a cooperative management culture is crucial to implement such a practice successfully.
Transferability, scalability and replicability	Such a practice should be easily applicable in all types of transport hubs where the operation can be planned ahead, such as container terminals in the port sector, warehouses in the logistics sector and ground handling in the civil aviation sector. It, however, requires a joint commitment from the management and worker representation to the type of solution that needs to be applied.

Practice 8: Swapping shifts

Swapping shifts	
Practice type	<p>This practice type refers to:</p> <ul style="list-style-type: none"> • Practices that aim to optimise staff scheduling and rostering; • Practices focused on improving work-life balance; • Practices making use of integrated measures that improve staff scheduling and rostering.
Scope	<p>This good practice is focusing on accommodating swapping shifts.</p> <p>The inspiration for this practice is coming from examples in the port sector.</p>
General description	<p>This good practice is focusing on the implementation of digital tools that should facilitate the possibility of swapping shifts as well as swapping free days. The aim is to make shift swapping easier, but also to develop tools that allow for more self-organisation of workers. Such a tool would complement already existing company-wide apps for worker communication and information.</p>
Drivers for changing existing practice	<p>There is a common need to establish more reliable staff rosters for workers that are better tailored to meet business needs and demands while complying with labour law requirements.</p>
Objectives	<ul style="list-style-type: none"> • Increasing individual choice in the determination of shifts; • Improving work-life balance; • Maintaining the business need for tailoring personnel supply to actual demands.
Benefits	<p>These tools are contributing to a better work-life balance for workers by providing them with a more reliable shift plan over which they themselves have more control.</p> <p>These tools allow employers to establish staff rosters that are better tailored to meet business needs and demands.</p> <p>Therefore, digital tools also have the potential to create win-win situations for workers and employers as regards individual working time choice.</p>

Swapping shifts	
Hindering and facilitating factors	Digital tools have the potential to create win-win situations for workers and employers as regards individual working time choice. However, the implementation of such solutions comes with technological complexity as well as additional administrative efforts for the employer, including the need to provide workers with the necessary skills, which need to be taken into account during the design and the implementation.
Critical success factors	The critical success factor here is to engage workers from the very beginning in the design phase until the very end when the solution is implemented, and eventually evaluated. There is also a need for digital solutions that are easy to use by employees for the solution to be effective.
Transferability, scalability and replicability	As a tailored solution, the digital tool might be rolled out to other terminals that use the same or similar models of shift systems / staff schedules, but it will be difficult to transfer it 1:1 to other areas or even companies.

Annex IX – Report on participatory workshop

Participatory stakeholder event for the study to good staff scheduling and rostering practices in transport, held on 29 September 2020. Online event.

Background of the meeting

This participatory workshop was organised as part of the activities provided for by this study on good staff scheduling and rostering practices in transport, which was tendered by the European Commission's Directorate-General for Mobility and Transport. The consortium of Ecorys and wmp consult is undertaking this study. The study was launched at the end of 2019 and has a duration of 12 months.

The purpose of the study is to look at what can be done at company level, in a financially sustainable way, to allow workers to better reconcile their work schedule with their private life. The specific focus is on staff scheduling and rostering or measures directly related to the way work is organised.

The objective is twofold:

1. To identify good staff scheduling and rostering practices in the transport sector;
2. To make practical recommendations on how to improve the systems for transport companies for different types of jobs/companies/sectors.

The scope of the study encompasses all EU Member States, all modes of transport and all forms of work. Solutions are likely to differ depending on the size of the company, the transport mode concerned, as well as the particular aspects of the job (e.g. mobile vs non-mobile/duration of mobility). Therefore, the preconditions for the transferability of good staff scheduling and rostering practices from one context to another is one of the key aspects studied.

In the work so far, the study team has analysed the framework under which rosters are decided and has conducted a search and a screening of practices in the transport sector and beyond. Information about such practices has been collected to the extent that this has been possible. This has led to the identification of certain types of good practices. The study needs to now analyse and consider the advantages and challenges of the good practices, as well as their potential for replicability, transferability and scalability.

The participatory event (workshop) was an important step in the study. The aim of the workshop was to allow the participants to actively enter into discussions with each other and to exchange views on the pre-identified good practices and recommendations. In addition, we will test the preconditions under which the good practice could be transferred to other companies, other countries and other contexts. In this way, this workshop will provide a valuable input to the study, and serve as a test and evaluation of the pre-identified practices.

Meeting participation

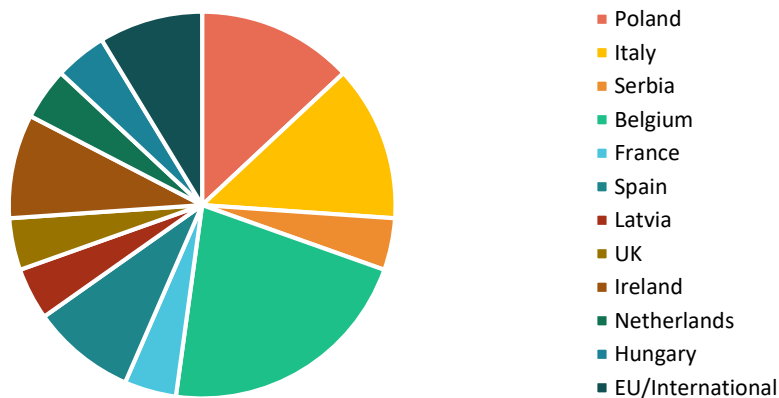
The participatory meeting consisted of three main elements:

- Opening and first plenary session;
- Four parallel breakout sessions;
- Final plenary session and conclusions.

Due to technical difficulties, participants could only contribute by writing rather than speaking; some participants did not take advantage of this option.

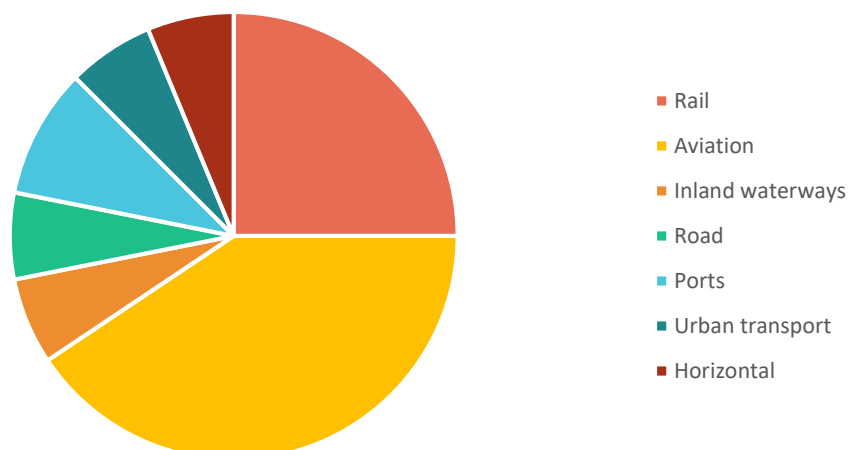
The first plenary session included 32 participants. Out of those, 11 represented EU-level or international organisations (with nine belonging to the former and two to the latter category). The remaining 21 participants represented national-level organisations. The breakdown of participants by country is provided in the pie chart below.

Number of participants by country



The participant group represented a wide range of transport modes, including civil aviation (13 participants), railways (8 participants), ports (3 participants), urban public transport (2 participants), and inland waterways (2 participants). Additionally, there were two participants who covered all transport modes (labeled as horizontal). Those participants represented ETF and the European Investment Bank. A summary is presented in the pie chart below.

Number of participants by transport sector



During the breakout sessions, there was a drop in the participation rate to a total of 17 participants. The remaining participants were divided into four breakout sessions, with the number of participants per breakout session varying from 3 to 5.

The remaining participants also represented a diverse group of countries, including Belgium (7), Ireland (2), Hungary (1), Italy (1), Latvia (1), Poland (1), Spain (1), France (1), Luxembourg (1) and the UK (1); five participants were from EU-wide organisations. With regards to the transport modes represented, the remaining group included individuals from companies/organisations in the civil aviation sector (6), railway sector (5), ports (2), road transport (1), inland waterways (1), urban public transport (1) and horizontal (1, from the European Investment Bank).

The final plenary session included 22 participants – 9 from the civil aviation sector, 7 from the railway sector, 2 from ports and urban transport and 1 from road and inland waterways.

Report of the meeting

First plenary session

Introduction and study overview

The meeting was opened by Ecorys, who provided a welcome note, and the European Commission's Directorate-General for Mobility and Transport, who extended the welcome note and provided the participants with a brief background/context of the study. Next, Ecorys presented the agenda of the meeting and provided an introduction to the workshop, which focused on the objectives of this participatory event and how the information obtained will be used in the study. Following the introduction, wmp consult presented in greater detail the scope and methodology of the study and provided an overview of the results of the analysis of the literature and of the survey responses. Finally, Ecorys provided an overview of the interactive part of the plenary sessions and explained how to participate in it and answer the questions using Sli.do.

Interactive part

The interactive part of the first plenary session consisted of six questions – four multiple choice and two open questions. The questions and the corresponding responses are provided in the table below.

Question	Question type	Answers	Number of respondents
1. What are the main benefits of worker-friendly working time schedules for workers? (please select all applicable answers)	Multiple choice	<ul style="list-style-type: none"> Increased job satisfaction and motivation - 87 %; Increased work-life balance - 96 %; Increased psychological and physical well-being - 74 %; Improved working conditions - 57 %. 	23
2. What are the main benefits of worker-friendly working time schedules for companies? (please select all applicable answers)	Multiple choice	<ul style="list-style-type: none"> Increased attractiveness of the job - 90 %; Recruiting younger generations - 45 %; Getting more diverse/gender balanced teams - 55 %; Increased productivity - 80 %; Reduced absenteeism - 80%; Other - 5%. 	20

Question	Question type	Answers	Number of respondents
3. What are currently the main challenges and barriers for the implementation of worker friendly working time schedules in your sector? (please select all applicable answers)	Multiple choice	<ul style="list-style-type: none"> • Hindering regulatory factors (e.g. legislation on EU, national or sectoral level) - 10 %; • Negative impact on costs or a large negative impact on working processes in the organisation - 40 %; • Technological restrictions - 25 %; • Resistance to change in the organisation - 65 %; • Size of the business - 10 %; • Other - 20 %; • None - 5 %. 	20
4. What are relevant facilitating factors that enable worker-friendly working time schedules in your sector? (please select all applicable answers)	Multiple choice	<ul style="list-style-type: none"> • Facilitating regulatory factors - 39 %; • The need to tackle immediate challenges that disrupt work processes (e.g. labour and/or skill shortage) - 28 %; • The use of new digital tools and devices (IT solutions) - 50 %; • Strong engagement of management, workers and trade unions during the development and implementation - 89 %; • Other - 11 %. 	18
5. What, in your experience or in your expectation, are the consequences of not being able to implement worker-friendly working time schedules?	Open question	<ul style="list-style-type: none"> • Safety and security at risk; • Fatigue; • Can only implement in certain sections of the organisation. This reduces the pool of available people to apply for particular positions; • Workers not feeling in control of their work-life balance; • People leave; • Impact on talent pool at recruitment - Not being able to attract the people into the sector specifically women; • job dissatisfaction disengagement; • Fatigue accidents; • The overall attractiveness of the sector will further decrease and workers' shortage will increase; • Work absenteeism; • Labour demotivation; 	15

Question	Question type	Answers	Number of respondents
		<ul style="list-style-type: none"> • Safety will be compromised for workers and public; • Hard to find new colleagues; • More workers getting sick; • Colleagues looking for a new job; • Lack of motivation from the workers; • Losing attractiveness for talented and motivated workers; • Absenteeism, dissatisfaction, high rates of resignation; • Attracting far less women; • Risk to become less attractive for new comers and career changers; • People leave the sector; • Lack of staff; • Increased workload. 	
6. What are, in your experience or in your expectation, are the impacts from the successful implementation of worker-friendly working time schedules?	Open question	<ul style="list-style-type: none"> • Getting involved younger generations; • Increased motivation and enhanced working atmosphere; • Reduced level of risk and increase safety; • More satisfied, safe and motivated workers who will retain their job and share their long-term experience; • Retention of workers, reduced absenteeism; • Mutual engagement; • Safer sector; less accidents; job satisfaction increase, higher productivity; • Motivation to work, reduction of absenteeism; • Increased motivation of workers; • Team is getting more motivated and remains respectful of safety policy; • More women- whole new talent pool; • Job satisfaction; • Less safety issues; • Increased productivity. Improved customer relations; • More satisfied workers, retention. 	13

Q&A

Wmp consult mentioned the high percentage of participants, indicating that there is a need for a strong engagement of all parties involved in rostering and by the overwhelming assessment that there will be negative effects in the long run in the absence of worker-friendly schedules.

Breakout sessions

Breakout session 1

During this breakout session the participants first provided examples of worker-friendly working time schedules implemented in their organisations.

One participant mentioned that in his company train drivers are notified about their schedule 3 to 2 months in advance. This means that 2 months in advance the schedule is 90% fixed, and practice has consequences for the flexibility of the company's operations. Therefore, to overcome this, train drivers receive a financial incentive if they are flexible and available at short notice (i.e. 48 hours in advance for so-called relief drivers).

The other two participants mentioned that their organisations are facing a similar situation as there are a lot of older staff, who need to be notified well in advance of their schedule. On the other hand, there are also younger drivers with less experience, who are/need to be available at short notice and fill in the gaps when necessary. The fact that drivers need to be available at short notice makes it difficult for the companies to recruit the personnel needed as a job with such a setup is not very attractive for younger individuals or women.

The first participant also mentioned that his company makes use of tablets to notify workers of their schedule. This is an interactive tool and thus the tablets can also be used by workers to indicate their shift preferences. The other two participants indicated that their companies do not use such an interactive tool.

Second, the main benefits of work-friendly rostering and scheduling were discussed. The main aspect that was mentioned in this regard was increased job attractiveness and consequently a reduction in labour shortages.

Third, the group discussed the monetary costs and costs related to personnel efforts that are associated with the design, introduction, and implementation of such practices. The participants stated that a flexible approach that takes into account workers' needs has consequences for the operational planning and therefore more effort is required when developing a reliable schedule. What is more, there are also monetary costs involved with the provision of incentives for staff to be flexible and available on a short notice.

Fourth, the question of whether the benefits associated with the implementation of such a practice outweigh the costs was raised. One of the participants mentioned that overall the approach undertaken by his company has positive consequences, while the remaining two participants indicated they experienced difficulties with the recruitment of younger staff and women.

Fifth, when discussing the main challenges and barriers associated with the implementation of worker-friendly working time schedules in specific sectors, changes in daily communication and resistance to change were mentioned as key issues.

Sixth, when discussing the transferability of the practices, one of the participants indicated that there is a transition period associated with the implementation of the technology that his firm uses, which needs to be taken into account. Finally, with regards to current and

future developments in the sector that are likely to affect the challenges faced with regards to rostering and scheduling, the use of technological tools was mentioned.

Breakout session 2

During this breakout session, participants agreed that there are limits on team working in the ports sector, as working time operates under a very strict framework that enables the docks to work, i.e. freight coming in and going out. There is, however, some flexibility.

The participants also mentioned that the work is more intense when a vessel is in the quay, as it needs to be loaded/unloaded. Then the work is less intense if there is no vessel in the quay, so there are peaks and troughs in work intensity.

Further, the participants argued that more focus needs to be placed on developing digital tools. Digital solutions are needed in order to plan shifts well, although there is a fear on the part of the employer about losing control over shift systems. There was also a discussion about assigning specific shifts, or routes in the case of passenger transport, to individuals on a permanent basis, so that they know what their schedule will be. While such a solution could work, it would also lead to a situation where there are shifts/routes that none of the workers want to take up and that no one would want to get 'stuck' with on a permanent basis.

Participants also mentioned that there needs to be some give and take in terms of shift management. More specifically, everyone will probably need to do an unpopular shift at some time, but in return they will also get to do their preferred shifts. For this to work, people need to feel that they are a part of a larger team. It has also been stated that, where possible, shifts and rostering should be tailored to individuals, as people have different preferences and different priorities.

Finally, the participants agreed that communication is key to assuring flexibility within operating constraints – management needs to communicate with the workforce to make them understand why the work needs to be arranged in a particular way. That way, more buy-in from the workforce will be created.

Breakout session 3

In this session the participants first discussed examples of worker-friendly working time schedules. A participant from the civil aviation sector described two practices used in his own company:

- A 12-day cycle, shifts can be exchanged with colleagues;
- Night shifts: workers who cannot work night shifts need medical proof. Typically, women, who are pregnant do not work night shifts. It is important to have the medical proof otherwise some workers feel that it is an unfair system. For example, in the past, night shifts were hardly given to older workers and this upset the younger and middle-aged workers.

It was also mentioned that in the civil aviation sector some companies use smart phone apps to exchange shifts.

With regards to benefits and barriers, it was mentioned that the more workers participate in the planning of shifts and design of rotas, the more motivated and satisfied they are. It was argued that the human factor is very important – if workers act on a voluntary basis one gets better results than when workers are forced to do something. To illustrate, when management makes a planning mistake in the rota – if it is a voluntary system, workers are much more willing to help out.

The benefits of digitalisation were also discussed and it was mentioned that it is cheap and relatively easy to design an app that can be used to exchange shifts. Still, though, relatively few companies offer these apps to their workers.

Participants also mentioned that the rotas need to consider the framework conditions in which they are embedded. For example, the company child care facility plans 40 days in advance, however in the past, the roster did not plan that far ahead. The management needs to be aware of these factors. That is why worker participation is of high importance.

It is also important for the system to be fair and transparent rather than being based on a 'first come - first served' basis; good shifts cannot be dependent on when one logs in on their smartphone.

Participants also agreed that there is a need for some limits and boundaries with regards to the free choice of shifts, e.g. some workers might want to work 5-6 consecutive shifts to have more days off and maybe go on a holiday, but this leads to fatigue. The system also needs to make sure fatigue is avoided.

With regards to challenges, it was mentioned that management seems to be resistant to change, see for instance the current COVID-19 related situation – for years management did not allow remote working, while now it is not a problem.

With regard to transferability, the participants argued that the size of the organization plays a big role. Not everything that is possible in big companies can be introduced in smaller companies; sometimes small companies are not as flexible.

Breakout session 4

This breakout session started with the assessment of the examples of practices presented and the discussion of further examples. One of the participants noted that the company is working on the basis of the Hungarian working time legislation. According to his knowledge there is also an agreement with the worker representation/trade unions at MAV on shift work, rostering, etc.

Another participant noted that in contrast to other sectors, there might be more practices relevant for the project in the railway sector due to the relatively large size of companies and the strong role of collective bargaining and trade unions (with the latter two being clear drivers for better working time, rostering and staff scheduling).

With regards to the benefits and barriers associated with the implementation of worker-friendly rostering practices, all participants stressed the need to improve work-life balance in transport, including railways and inland waterways.

It was also mentioned that the composition of the IWT sector is very different to that in the railway sector, as 75% of the IWT is made up of owner operator/self-employed companies. One of the participants also highlighted the difficult situation faced by workers in the IWT sector. That is, due to the operational situation (working time and leisure time spend on board of ships), the work-life balance for crews is precarious and thus introducing better rostering and staff scheduling is very difficult.

With regard to the railways sector, it was argued that recruitment problems in railways are a clear driver for improving work-life balance. However, when faced with labour shortages, employers prefer to import cheaper workforce from Asia, rather than to improve the working conditions and facilitate the recruitment of European staff.

In terms of transferability, it has been mentioned that, given the diversity of the sector with regards to mode of transport, type of workers (mobile and non-mobile), there will be no one-size-fits-all-solution. For instance, in the IWT sector a very specific approach is needed.

With regards to the study's preliminary findings, it was noted that the initial assessment is accurate, but perhaps a bit superficial. Given the numerous different types of occupations and sectors, a more in-depth analysis is needed.

In addition, the atypical sectors, such as the IWT sector, need a specific, unique approach. To illustrate, the EU IWT Working time directive maximised daily working time on board, as workers not only work on board, but they also spend their free and rest time on board. This means that they prefer a longer consecutive stay on board, in order to have longer compensatory time at home with their families. It is also important to add that these prolonged absences from home are not particularly appealing for potential young workers and for women.

Participants also highlighted the importance of EU-level framework and guidance. That is, framework agreements reached in the European Sectoral Social Dialogue can facilitate and encourage the uptake of practices that assure best possible work-life balance among companies/sectors while taking into account their particularities. An EU framework setting might in fact compensate the national differences in the approaches taken and enhance the uptake of practices in countries that currently do not have a well-developed framework of worker-friendly rostering and staff scheduling practices.

Finally, one of the participants also noted that the development of software/IT solutions for shift swapping and rostering should be regarded as a facilitating factor for the dissemination of good practices and for the enhancement of greater individual choice in staff scheduling. This can be the case also for companies that do not have the expertise or resources to develop their own, in-house IT solutions.

2nd plenary session

Summary of breakout sessions

Ecorys opened the second plenary session and invited the breakout session moderators to provide a brief summary of the discussions that they moderated.

In the first break out session, the discussion focused on the challenges experienced by the companies that the participants represented. The discussion also touched upon the practice of offering financial rewards for workers in return for being flexible with regard to their schedules and the use of digital tools, which varied greatly among the companies represented as some companies make extensive use of such tools, while others are only in the introduction and development stage.

In the second break out session the discussion focused on the port and urban public transport sector. The participants agreed that the operating environment is a key consideration that needs to be taken into account when implementing practices. It is also important to have good communication between employers and workforce, which enables everyone to understand flexibility constraints that cannot be overcome due to the operating environment. Finally, it was also agreed that there is a need for a give and take approach as sometimes people will have to take shifts that they would rather not take in order to be able to take preferred shifts in other times. It was also noted that shift preferences are not uniform but rather differ among individuals.

In the third break out session, three examples of practices were discussed – flexible working arrangements, increased roster control, and fixing shift preferences. The participants agreed that the more workers participate in the design of practices, the more satisfied they are with the outcomes. It is also better for workers to participate in the design, introduction, and implementation of practices on a voluntary basis (rather than being forced to participate). The participants also highlighted that digitalisation should be used more often as it is easy and cost effective to design an app, for instance. There was some uncertainty as to why such tools are not more commonly used. Finally, with regard to transferability, the participants agreed that company size and other company characteristics are important aspects to consider in this context.

Finally, in the fourth break out session, the participants were presented with two practices from the railway sector related to smart working and work-life balance, and one practice from the port sector regarding the use of digital tool to swap shifts. The participants agreed that work-life balance in the transport sector needs to be improved and that there is a need for worker-friendly practices in order to overcome challenges such as the recruitment of new workers. Also, all participants highlighted that the transport sector is highly diverse in terms of the occupational profiles and the background of the operations; different workers have different, specific requirements and needs that should be catered for. This diversity poses a large challenge for the transferability of practices. It was also mentioned that digital tools are a cost- and time- effective solution for shift swapping that can relatively easily be tailored for a specific company environment.

The participants also mentioned that the European Sectoral Social Dialogue might play a role in enhancing the uptake of practices as it can compensate for national differences. Overall, sector-specific EU-level activities can have a positive effect on the work-life balance of workers in the transport sector and improve the uptake of worker-friendly scheduling.

Interactive part

The interactive part of the second plenary session consisted of five open questions. The questions and the corresponding responses are provided in the table below.

Question	Question type	Answers	Number of respondents
7. Could you provide an example of a current worker-friendly rostering practice that you discussed in the breakout session and that could be (relatively easy) transferred to your sector or to your countries?	Open question	<ul style="list-style-type: none"> • Apps for shift swapping; • Use of tablets to ease communicating; • Increase technology and digital shift swapping; • I did hear some train examples; • Increased use of technology; • The port digital shift preference system; • Smartphone APP to easily swap; • Shifts on a voluntary basis. 	7

Question	Question type	Answers	Number of respondents
8. What do you think are the main barriers and challenges associated with the implementation of such worker-friendly working time schedules for your sector or for your organisation?	Open question	<ul style="list-style-type: none"> • Getting employer agreement; • In aviation employer communication with workers is rare. If there is no regulation, airline operators will not bring it in; • The mindset: The work needs to be done and if we leave it up to the people the shifts will not get filled; • Solving technical issues; • The barrier are new technology and communication; • Risk aversion; • Diversity of operational conditions; • Getting Trade Union agreement; • Transparency; • Communication; • Will only work for non-mobile workers. 	8
9. What do you think needs to be done in your sector or in your organisation to overcome these barriers and challenges	Open question	<ul style="list-style-type: none"> • Increase level of computerization; • Business case for change; • EU horizontal framework to overcome national and sectoral; • Differences and identify remedies; • Public policy initiatives; • Overcoming resistance to change; • Good research that provides proof to conquer the mindset previously mentioned; • Have a great technical tool; • Worker involvement, flexibility and using best practices in aviation; • Develop joint understanding of workers and employers about the needs; • Airlines need harmonised rules about fatigue, that include work-life balance as a requirement. 	7

Question	Question type	Answers	Number of respondents
10. What do you think are the main preconditions for the transferability of such worker-friendly working time schedules to your sector or to your organisation?	Open question	<ul style="list-style-type: none"> • Clarity about benefits and costs; • ETF making sure that local unions are behind this new practice and really collaborate with the companies; • Willingness of the employer to change; • That the solution is fit for the size of the company (one solution does not fit all); • Negotiation with Trade Unions; • Overcoming resistance to change; • Achieved via social dialogue; • Increase the communication; • Mindset change of management; • Size of the company, or collaboration on a sector level (for example for the ports). 	8
11. Can you provide some key recommendations for the uptake of these worker friendly working time schedules?	Open question	<ul style="list-style-type: none"> • Communication and transparency; • Transport sector is very broad with different profiles so you need to focus on subsectors; • Regulatory requirements are needed, otherwise operators will ignore this issue; • Worker satisfaction, better work; • Life balance. Happier and more motivated workers; • Manage the time schedule with technology; • Achieved via social dialogue, guarantee; • transparency, and on voluntary basis; • Involve staff representative from the early beginning of the work on these solutions; • Develop a tool; • Provide research please; 	8

Question	Question type	Answers	Number of respondents
		<ul style="list-style-type: none"> • Convince the higher management of the advantages. 	

Conclusions

Ecorys provided the main conclusions and take-aways from this participatory workshop:

- Within the transport sector, employers and workers operate in a variety of environments – different transport sub-sectors have different operational environments;
- These environments are associated with certain constraints and limitations that impact the flexibility of rostering and scheduling;
- If working time can be organised in a way that satisfies workers, they will become more productive – this is a win-win situation;
- There is a strong link between good rostering and health and safety as worker-friendly schedules can help to avoid fatigue etc;
- Technology should be used to help manage shift organisation;
- Communication is crucial in an environment with constraints and varying workers' needs: communication and social dialogue is important for the achievement of understanding and building trust;
- There is a need for an overarching structure – people cannot just decide what best suits them - there is room for flexibility but within the structure.

Next, Ecorys provided an overview of the study's next steps and elaborated on how the insights gained during the workshop will be used.

Finally, the European Commission's Directorate-General for Mobility and Transport provided a final closing note and emphasised the main issues that were raised during the workshop discussions, i.e. the need for more regulatory initiatives, the need to convince employers that worker-friendly practices are also beneficial for the companies themselves, and the need for more rostering and scheduling practices that assure a better work-life balance.

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