Educational toolkits to help fight gender stereotypes based on the example of the transport sector

Final study report on the development of the toolkits

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Abstract

One of the main reasons for gender imbalance in the EU transport sector — where only 22 % of the workforce are women — is the persistence of strong gender stereotypes. Gendered perceptions about specific jobs and careers are developed at a young age. They shape children's aspirations and their awareness of, and decision to pursue, certain school subjects and careers. Challenging gender stereotypes throughout the education cycle is key to broadening individual aspirations and choices and to reducing gender imbalances in other spheres of life, such as employment. Based on the example of the transport sector, and drawing on desk research, surveys and stakeholder interviews, this study supported the development of two educational toolkits (one for primary schools and one for secondary schools) to help teachers organise discussions in class to effectively address gender stereotypes. This document describes the study's methodological approach and key findings, and the process of developing, testing and finalising the toolkits for use in all EU Member States.

Executive summary

Purpose and scope of the study

Although women's participation in the labour market has been increasing in all sectors across the European Union (EU), the transport sector remains highly gender imbalanced and segregated. In the transport sector, women account for as few as 22 % of workers and are overrepresented in service-related and administrative jobs[1].

Gender stereotypes are among the main reasons for this imbalance and appear to affect children's aspirations from as early as five years old[2], with boys often showing greater interest in traditionally male-dominated professions and girls in nurturing and caring-related roles. These trends persist into adulthood and significantly impact young people's subject choices and awareness of and interest in particular careers[3].

Challenging gender stereotypes throughout the education cycle is key to broadening individual aspirations and choices and to reducing gender imbalances in other spheres of life, such as employment. Following the efforts of the European Commission to challenge gender stereotypes, as set out in the EU Gender Equality Strategy[4], the European Commission's Directorate-General for Mobility and Transport commissioned the study 'Educational toolkits to fight gender stereotypes based on the example of the transport sector' (MOVE/B5/2019-284).

The objective of this study was to **develop two educational toolkits** (one for primary schools and one for secondary schools) that will help teachers organise discussions in class to effectively address gender stereotypes, based on the example of the transport sector. The toolkits can be found under the following references:

- European Commission, Educational toolkit to help fight gender stereotypes in primary school: Challenging learners to discover a world of opportunities based on the example of the transport sector, Luxembourg: Publications Office of the European Union, 2021, DOI: 10.2832/27413.

- European Commission, Educational toolkit to help fight gender stereotypes in secondary school: Challenging learners to discover a world of opportunities based on the example of the transport sector, Luxembourg: Publications Office of the European Union, 2021, DOI: 10.2832/283111.

The toolkits are available in 24 languages, for use in all EU Member States. Their main purpose is to **help young people understand that occupations are not reserved for a particular gender** while learning about the transport sector as a career option for anyone.

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[1] Aggregate data for 2018 for the EU-27; Data taken from Eurostat; Employees by sex, age and economic activity (from 2008 onwards, NACE Rev. 2) - 1 000 (lfsa_eegan2).

[2] Martin, C. L. and Ruble, D., 'Children's search for gender cues: Cognitive perspectives on gender development' *Current Directions in Psychological Science*, Vol. 13, No 2, 2004, 67-70., p. 67.

[3] European Institute for Gender Equality, (2018). '*Study and work in the EU: Set apart by gender: Report*', Vilnius, 2018. Retrieved from: https://eige.europa.eu/publications/study-and-work-eu-set-apart-gender-report.

[4] European Commission, *A union of equality: Gender equality strategy 2020-2025*, COM(2020) 152 final, Brussels, 2020a. Retrieved from: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020DC0152.

Methodological approach

The study was organised into seven consecutive tasks and aimed to deliver impact through the creation of a product (the two toolkits) for educational practice. Tasks 1 to 3 reviewed and presented an overview of existing educational toolkits, materials addressing gender stereotypes in transport and information on current and future occupations in the transport sector. This input directly informed the development of the toolkits' main messages, the pedagogical approach in Task 4 and the drafting of the full toolkits as part of Task 5. Task 6 involved testing the toolkits in primary and secondary schools and Task 7 concerned their finalisation, including their translation into all official EU languages and drawing up a dissemination plan.

The following research tools were used to provide the input to the content of the toolkits:

- desk research to identify, gather and analyse data, information and material from secondary sources;

- two surveys to validate and supplement the desk research, including:
  - o a survey of educational stakeholders (42 complete responses from educational practitioners such as teachers, teacher trainers and educators);
  - o a survey of transport stakeholders (43 complete responses from stakeholders of all transport modes — including rail, road, air and waterborne transport — and logistics and storage).

- 22 interviews with educational and transport stakeholders to validate and supplement the desk research and to gather feedback on the draft toolkits;

- pre- and post-lesson questionnaires and interviews to test the toolkits in primary and secondary schools in five EU Member States (Austria, Finland, Hungary, Lithuania and Spain) in the language of instruction.

Tasks 1 and 2: Reviewing existing educational toolkits and material addressing gender stereotypes in transport

The study team undertook a rapid review of existing educational toolkits and teaching materials that address gender stereotypes, aimed at primary and secondary school teachers, and freely available online material that addresses gender stereotypes in transport. The review showed that transport does not feature heavily in educational materials, but gender features to some degree in transport materials. Overall, these resources often directly informed the development of the toolkits and enriched their content. Annotated overviews of the available materials are provided in Annex 3 and 4.

To collect additional information and validate the desk research findings, the study team consulted educational stakeholders (e.g. teachers, teacher trainers and educators) in the form of a survey programme. The stakeholders indicated they would a toolkit on gender stereotypes especially useful if it offered concrete, ready-to-do activities (e.g. full exercises, group activities) and tools for student engagement (e.g. games, worksheets, videos, press cuttings). Group activities, small group discussions and reflective exercises would be the most appreciated methods, while audio-visual tools and materials, digital tools and applications, and lesson plans would be the type of tools that educational practitioners would find most useful in an educational toolkit addressing gender stereotypes.

Task 3: Understanding current and future occupations in the transport sector

In parallel, the study team conducted a rapid review of the existing literature on current and future occupations in the transport sector and engaged sector stakeholders via a survey programme and a series of interviews to validate the desk research findings and gather further information.

The findings show that the transport and mobility matter to everyone. The sector is a crucial part of the society and economy, enabling access to goods and services to citizens and businesses in the EU and its trading partners. The transport and storage sector employs around 5 % of the EU workforce, or as many as 10 million persons. Almost half of those employed in the transport and storage sector in the EU in 2018 worked in land transport, which includes rail and road transport. The transport and storage sector in the EU is, however, marked by notable gender imbalance: among its total workforce, only 22 % are women[5], and mostly in administrative and clerical roles.

Women's low participation in transport sector employment and the types of roles they occupy is due to several different factors. Historically, many jobs in transport entailed poor working conditions. With technological advancements and the expansion of opportunities in different transport subsectors, this is often no longer true. However, some occupations in transport (e.g. long-distance drivers) still require employees to spend a significant amount of time away from home, and the working hours and conditions — including inflexible shift patterns — are often unattractive to women[6]. The masculine work culture and environment, sexual harassment and violence commonly experienced by transport workers are all deterrents to women[7].

However, the persistent underrepresentation of women in the transport sector is, to a considerable degree, also related to gender stereotyping. Gender stereotyping, which shapes the perception of which jobs are suitable for women and which for men, starts at a young age, influences educational and career choices and prevents women from entering occupations in the transport sector. Although the retention of women in the transport sector is primarily affected by harassment and lack of work-life balance, gender stereotyping, and the low visibility of women who work in the transport sector may exacerbate these issues by making women feel unwelcome when they enter into positions historically occupied by men[8].

Although women are underrepresented in all subsectors of transport, there are considerable differences between transport subsectors – land, air, waterborne transport and warehousing and logistics. For example, in 2018, around 15 % of employees in land transport were women, compared to close to half of the employees in the air transport are women. Considerable differences in gender balance also exist *within* the subsectors of the transport

[5] European Commission, *Sustainable and smart mobility strategy: Putting European transport on track for the future*, COM(2020) 789 final, Brussels, 2020b. Retrieved from: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2020:789:FIN.

[6] European Transport Workers' Federation, *International Women's Day 2020: Making the transport sector fit for women workers*, Brussels, 2020. Retrieved from: www.etf-europe.org/international-womens-day-2020-making-the-transport-sector-fit-for-women-workers

[7] Wright, T., *Gender and sexuality in male-dominated occupations: Women workers in construction and transport*, Palgrave Macmillan, Basingstoke, 2016; Turnbull, P. 'Promoting the employment of women in the transport sector: Obstacles and policy options', Working Paper No 298, International Labour Office, Geneva, 2013.

[8] Wright, T., *The impact of the future of work for women in public transport*. International Transport Workers' Federation, London, 2019. Retrieved from: www.itfglobal.org/en/reports-publications/impact-future-work-women-in-public-transport.

sector. Specifically, although the highest gender balance is observed in interurban passenger rail transport, only 22 % of employees are women. Freight transport by road and removal services has the lowest proportion of women employees, at just 11 %.

The key trends affecting employment in transport are greater use of alternative fuels[9] and the development and integration of new technology, in particular, the automation of vehicles and infrastructure, the maintenance of automated systems, and the development of new digital services and digital user interfaces for customers and equipment operators. These trends are already affecting the transportation of people and freight, and the transport labour force, but the introduction and adoption of new technology is expected to be gradual and sector-specific[10]. Advanced economies are currently in the algorithmic and augmentation waves of automation[11], and the most affected jobs are those that include simple computational tasks and other repeatable and routine tasks. In the transport sector, this means things like ticket sales and checking, roles traditionally occupied by women, but also jobs in warehousing where robots are increasingly being used to move goods.

Jobs in transport will be even more significantly affected by the autonomous wave of automation, projected to come to maturity from 2030, as driving occupations will be lost due to fully autonomous vehicles and robots. The greater use of technology and the transition to greener and sustainable transportation bring forth changes in occupations which the labour force needs to adapt to. However, it is likely that in the future, more of the current occupations in transport will change and include new tasks, rather than being lost completely[12].

According to the consulted stakeholders, the greatest demand for transport labour force is going to be in the area of software development and maintenance of digital and automated systems. These occupations also have the highest risk of a significant gender imbalance in the future, if not appropriately addressed. The transport sector requires highly skilled labour force, particularly in the area of software development and maintenance of digital and automated systems, which across not only transport but also other economic sectors are occupations traditionally dominated by men.

Task 4: Identifying the main messages and designing the pedagogical approach

Based on the study findings, the study team identified key design principles, main messages and pedagogical approach, the draft structure and suggested learning pathways of the toolkits that would guide the teachers along the main concepts explored: gender stereotypes, work and transport.

The first drafts of the toolkits were reviewed by 10 stakeholders, who provided feedback and suggestions for further improvement.

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[9] Skillful Project, *Future scenarios on skills and competences required by the transport sector in the short, mid and long-term*, Brussels, 2017. Retrieved from: http://skillfulproject.eu/ajax/DownloadHandlerFM.php/downloadFile?id=14141.

[10] World Maritime University, *Transport 2040: Automation, technology, employment — the future of work*. Report No 58, Malmö, 2019. Retrieved from: https://commons.wmu.se/lib_reports/58.

[11] PwC — PricewaterhouseCoopers, *Will robots really steal our jobs? An international analysis of the potential long-term impact of automation*, London, 2018. Retrieved from: www.pwc.co.uk/economic-services/assets/international-impact-of-automation-feb-2018.pdf.

[12] European Commission, *Automation in transport: how does it affect the labour force?* Background paper, Brussels, 2018. Retrieved from: https://ec.europa.eu/transport/sites/transport/files/2018-11-20-automation-in-transport-background.pdf.

Messages related to debunking gender stereotypes

- Stereotypical expectations based on socially fixed norms for boys and girls are a root cause of gender inequality. They affect self-perception, well-being and how we interact with others and have a strong influence on whether and how individuals participate in education, training and the world of work.

- Gender stereotypes have a negative impact on both girls and boys as they limit individual aspirations, choices and freedom. In school, gender stereotypes strongly affect a young person's classroom experience, preferences for certain disciplines and overall perception of their own abilities.

- Gender stereotypes often combine with other stereotypes, such as those based on race or ethnic origin, religion or belief, disability, age or sexual orientation.

- Assumptions about gender may be conscious or unconscious and can result in groups being treated differently to one another.

- Addressing gender stereotypes throughout the education cycle is key to enabling children to have equal opportunities independent of their gender. This includes examining the norms, values and beliefs unknowingly conveyed in the classroom, in the social environment (*hidden curriculum*), and in what learners *do not* have the opportunity to learn (*null curriculum*).

- Challenging gender stereotypes in school can help to reduce gender imbalances in other spheres of life, such as at home or in the workplace.

- Providing girls and boys with new role models has a positive impact on making the best use of their potential.

- Out-of-school and family contexts are often rich in implicit messages related to gender; teachers have a responsibility to make the implications of such messages visible and to challenge them.

Messages related to the importance of the transport sector

- Mobility and transport matters to us all. From daily commuting to work or school, from visiting family and friends to leisure and tourism, to the proper functioning of global supply chains that transport goods for commerce and industrial production, mobility is a critical enabler of our economic and social life.

- Free movement of people and goods across its internal borders is a fundamental freedom of the EU and its single market. Travelling in the EU has led to greater cohesion and a strengthened European identity.

- As the second-largest area of expenditure for European households, the transport sector contributes 5 % to European GDP and directly employs 10 million workers.

- The transport sector is bigger and wider than young people perceive it to be, especially in the daily 'backstage' organisational effort to provide services.

- The greatest challenge facing the transport sector is the need to significantly reduce its emissions and become more sustainable. Changes in the sector, in particular those relating to automation and digitalisation, are creating new challenges and presenting new opportunities.

- Some parts of the transport sector are expected to grow and employ more workers in the future. These will need highly skilled workers with competences in engineering and technology.

The pedagogical principles that underly the toolkits are:

- **21st century skills.** The toolkits aim to develop in learners the key competences for lifelong learning needed for personal fulfilment, a healthy and sustainable lifestyle, employability, active citizenship and social inclusion[13].
- **Active methodologies.** The toolkits make learners the centre of their own learning[14].
- **Cooperative learning.** The goal is not individual success: success is shared as it depends on each member of the learning community contributing to it.
- **Learning to learn.** By visible thinking routines, the aim is to help learners better understand what kind of learners they are and how to improve their intrinsic learning capacity.
- **Experiential learning.** The toolkits follow Kolb and Kolb's experiential learning cycle[15]. In this model, a direct experience is provided by the teacher and this experience is followed by individual or group reflections (metacognitive activity).
- **Assessment.** The toolkits provide 'light' assessment tools that can be applied at different stages in the activities to help teachers and learners in their teaching and learning processes.

Task 5: Drafting the toolkits

The study team drafted the two toolkits according to the following functionalities: user-friendly interface; appealing design; appropriate length; clarity of proposed actions; and practical value of provided resources and interdisciplinary scope.

Each toolkit contains seven toolsets, four of which (Toolsets 1, 2, 6 and 7) are the same for both toolkits. The common chapters provide teachers with background information on the toolkit, self-assessment tools and resources to explore and further develop the learning pathways. Toolsets 3, 4 and 5 contain activities adapted to the learner group (that is, primary or secondary school learners). The primary school toolkit presents **22 different activities** to do in class with learners, and **25 activities** in the secondary school toolkit.

Although the toolkits offer a flexible approach for teachers and learners to pursue their specific interests, the toolkits also provide **eight suggested learning pathways**. These pathways vary in length and follow an internal coherence that guide the teachers to explore the key concepts: gender stereotypes, work and transport.

Task 6: Testing the two draft toolkits in schools

In collaboration with national researchers and teachers, the study team tested the two draft toolkits in primary and secondary schools simultaneously in five EU Member States (Austria, Finland, Hungary, Lithuania and Spain) in the language of instruction, between December 2020 and January 2021. Based on the information collected in the testing sessions, the national experts analysed the data and provided the study team with a summary of the **testing lessons' results** for each country.

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[13] In line with the widely adopted competence-based approaches of the European education systems and the Council Recommendation of 22 May 2018 on key competences for lifelong learning. 2018/C 189/01. Retrieved from: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.C_.2018.189.01.0001.01.ENG.

[14] Barnes, D., *Active learning*. Leeds University TVEI Support Project, Leeds (UK), 1989.

[15] Kolb, A. and Kolb, D., 'Eight important things to know about the experiential learning cycle', *Australian Educational Leader*, Vol. 40, No 3, 2018.

Task 7: Finalising the toolkits

The study team finalised the toolkits, taking into account teacher feedback from testing. The finalisation phase included a quality assurance process, covering language editing and proofreading, and **translation** into the 23 remaining EU official languages, besides English. The final visual presentation of the toolkits was developed by an **illustrator** and **graphic designers**. The study team also prepared a **dissemination plan** (see Annex 2). This dissemination plan supports the European Commission in ensuring that teachers and educators, and all interested stakeholders, learn about the release of the toolkits, discover their purpose and utility and encourage their use.

Next steps

Three main suggestions to scale up the toolkits emerged from the toolkits' development process, primarily in the context where many students have been learning from home due to the novel coronavirus 2019 (COVID-19) pandemic. The toolkit's testing suggested that many of the activities could be adapted for online teaching and into a gamified website where learners could explore the material independently. Similarly, in a context where many students are learning from home, some stakeholders highlighted the need to increase parental involvement and adapt toolkit activities to be conducted with the parents. Finally, stakeholders recommended the development of training modules for teachers to facilitate the teachers' use of the toolkits as it would reduce the individual preparation time.

1. Introduction

a. The purpose of the study

Although women's participation in the labour market has been increasing in all sectors across the EU, the transport sector remains highly gender imbalanced and segregated. In the transport sector, women account for as few as 22 % of workers and are overrepresented in service-related and administrative jobs[16]. In contrast, men tend to work as drivers and pilots, technicians, or in occupations involving heavy lifting and physical work.

Gender stereotypes are among the main reasons for gendered divisions within education, training and the labour market. By the age of five, children's aspirations appear to be affected by gender stereotypes (Martin and Ruble, 2004), with boys aspiring to traditionally male-dominated professions and girls showing greater interest in nurturing and caring-related roles. These trends persist into adulthood, with gender stereotypes having a strong impact on young people's subject choices and awareness of and interest in particular types of careers (European Institute for Gender Equality, 2018).

The persistence of strong gender stereotypes were confirmed by the study entitled 'Making the transport sector attractive to future generations' (European Commission 2017a). The study also concluded that young people do not know transport occupations well and would be more inclined to join the sector if provided with adequate information. Similarly, the stakeholders having participated in the conference launching the 'Women in Transport – EU Platform for change' in 2017 proposed that actions be taken to challenge gender stereotypes.

Following the efforts of the European Commission to challenge gender stereotypes, as set out in the EU Gender Equality Strategy (European Commission, 2020a), the European Commission's Directorate-General for Mobility and Transport commissioned the study 'Educational toolkits for fighting gender stereotypes, based on the example of the transport sector' (MOVE/B5/2019-284).

The objective of this study was to **develop two educational toolkits**, one for primary and one for secondary schools, that will help teachers organise discussions in class to effectively address gender stereotypes, based on the example of the transport sector. The toolkits can be found under the following references:

- European Commission, Educational toolkit to help fight gender stereotypes in primary school: Challenging learners to discover a world of opportunities based on the example of the transport sector, Luxembourg: Publications Office of the European Union, 2021. DOI:10.2832/27413.
- European Commission, Educational toolkit to help fight gender stereotypes in secondary school: Challenging learners to discover a world of opportunities based on the example of the transport sector, Luxembourg: Publications Office of the European Union, 2021. DOI:10.2832/283111.

The toolkits are available in 24 languages for use in all EU Member States. Their main purpose is to **help young people understand that occupations are not reserved for a**

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[16] Aggregate data for 2018 for the EU-27; Data taken from Eurostat; Employees by sex, age and economic activity (from 2008 onwards, NACE Rev. 2) - 1 000 (lfsa_eegan2).

particular gender while they learn about the transport sector as a possible career option for anyone.

This report describes the process undertaken to develop the two toolkits. It outlines the methodological approach and outputs of all tasks that informed their preparation. Notably, the toolkits' designing and drafting relied on information gathered through desk research, surveys and interviews with educational and transport stakeholders. Prior to completion, the toolkits were tested in a primary and a secondary class in five different EU Member States. The study also looked at the most appropriate ways to disseminate the toolkits.

b. Structure of the report

The structure of the remainder of this report is as follows.

- **Chapter 2** provides an overview of the methodological approach and the organisation of work into tasks and phases.

- **Chapter 3** provides a summary of the documentation exercise to identify available educational toolkits and online materials addressing gender stereotypes.

- **Chapter 4** presents an overview of the information on current and future occupations in transport.

- **Chapter 5** outlines the main messages and the gender-sensitive pedagogical approach that underline the toolkits.

- Finally, **Chapters 6 and 7** present the process of drafting and finalising the toolkits in consultation with stakeholders and testing in schools.

The report also contains the following annexes:

- Annex 1: Tables on occupations and skills in transport

- Annex 2: Dissemination plan

- Annex 3: An annotated overview of all identified educational toolkits addressing gender stereotypes

- Annex 4: An annotated overview of all identified freely available online material addressing gender stereotypes in transport

c. Acknowledgements

This report, together with the toolkits, is a result of participatory effort and continuous feedback process. We would like to express our deepest appreciation for everyone's support and contribution, especially since much of the work on this project took place in a time of uncertainty and unprecedented events in light of the COVID-19 pandemic.

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We are equally grateful to all the teachers who gave the time to test the toolkits and provide insightful comments that enriched the content, specifically (in alphabetical order) Filiz

2. Methodological approach

The study was designed to deliver impact through a product (the two toolkits) for educational practice. To this end, the project framework was divided into three phases — **preparation, development and finalisation** (Figure 1) — covering seven tasks. The phases involved the collection and analysis of information and material informing the toolkits' content as well as their design and creation.

Figure 1. Key project phases

Here we summarise the steps taken across the three phases, organised by task.

a. Preparation phase

The **preparation phase** encompassed four tasks, the first three of which involved desk research and stakeholder consultation, while the fourth concerned designing the main messages and pedagogical approach for the toolkits. The findings of Tasks 1 and 2 are presented as annotated overviews (see Annex 3 and 4). A summary of the results of Tasks 3 and 4 are presented in this report (see Chapters 4 and 5).

Tasks 1 and 2: Reviewing existing educational toolkits and material addressing gender stereotypes in transport

First, in the form of a rapid review, the study team **collected and analysed existing educational toolkits and teaching materials addressing gender stereotypes** and aimed at primary and secondary school teachers. The search considered materials that elaborated methods, tools and activities for teachers to use in a classroom setting. To ensure the content was up to date with current trends in teacher training on gender and education, the study team considered primarily materials that had been developed and published after 2015. The search was narrowed to identify material that specifically addressed gender stereotypes or proxy concepts, such as gender bias, prejudices or roles. The collection was not limited to any particular geography.

Second, the study team **searched for freely available online material addressing gender stereotypes in transport**. The study team considered recently created or published material that shaped traditional gender representations and attitudes and material that raised awareness about the impacts of gender stereotypes on children's career choices. The geographical coverage was narrowed to the EU (at Member State and EU level) and European Free Trade Association (EFTA) countries. Both this search and the

review of educational toolkits and teaching materials were carried out in Google, using pre-defined keywords specific to the different materials most relevant to the study. The targeted searches enabled the study team to gather diverse materials considering their educational purpose, format and content.

To collect additional information and validate the findings from the desk research, the study team surveyed online educational practitioners (e.g. teachers, teacher trainers and educators). The surveys provided insights into stakeholders' experiences of using educational toolkits in practice. The survey for educational practitioners was open for three weeks (between 27 April and 15 May 2020[17]) and gathered 42 complete responses from 14 EU Member States[18]. More than 40 % of the respondents worked at educational institutions (primary, secondary or vocational education and training schools or colleges). Others were affiliated with non-governmental organisations, academic or research institutions and public authorities. Around two-thirds of respondents had worked with educational toolkits before, most of them as designers or creators of toolkits, while nearly half of respondents also described themselves as users of the toolkits. Most of those who had not used toolkits before explained that they did not know about any toolkits or had not yet had the opportunity to use them and were open to using them in the future.

Task 3: Understanding current and future occupations in the transport sector

The third task aimed to provide supporting information for the transport component of the toolkits, including the following aspects:

- Information about the importance of the transport sector for the economy;

- An overview of occupations in the transport sector;

- An overview of key competences required for occupations in the transport sector, with reference to the European Reference Framework on the key competences for lifelong learning;

- Identification of occupations expected to appear when the target group will reach working age (e.g. with innovation and digitalisation and the greening of the economy);

- A selection of diverse male-dominated occupations that can be used in the two toolkits, considering different subsectors and skill levels and an overview of information about training paths and career prospects in transport.

To this end, the study team undertook **a rapid review of literature**. The study team considered EU-relevant academic and policy literature, available statistical data and other sources, including information from the websites of organisations within the transport sector and multi-stakeholder project outputs relating to the study's key concepts (namely gender, occupations and employment, key competences and skills, training paths and career prospects in the transport sector).

The study team engaged **stakeholders in the transport sector via an online survey programme and a series of interviews**. Through this stakeholder consultation the study team sought to validate the findings from the rapid review and gather further information on

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[17] The survey had been planned to close on 8 May 2020 but, in light of the COVID-19 pandemic and the extra burden the switch to digital education placed on teachers and educators, the survey was extended to provide sufficient time for the respondents to complete the survey.
[18] BE, CZ, DE, IE, EL, FR, HR, IT, HU, NL, PL, PT, FI, SE.

occupations in the transport sector — particularly about the required skills and competences (now and in the future) and routes into different occupations.

The online survey ran in parallel with the survey of educational stakeholders (between 27 April and 15 May 2020) and collected 43 complete responses. In many cases, one person would complete the survey on behalf of an organisation or in consultation with others within the organisation. Respondents worked in all subsectors of transport (rail, road, air, waterborne, and logistics and storage) in 17 EU Member States[19]. On the question of tackling gender stereotypes in the transport sector, 70 % indicated that they were somewhat or completely in favour, 23 % indicated that they were neutral, and the remainder (7 %) were somewhat not or not at all in favour.

To gain a deeper understanding of the transport sector and educational/awareness-raising activities on gender and transport targeting youth, the study team conducted 12 in-depth, semi-structured interviews with transport stakeholders between March and May 2020. The interviewees shared their experiences of working in different areas of the sector, of gender equality in transport and of encouraging girls to pursue careers in transport. They also offered valuable advice on the design of the activities in the toolkits.

Task 4: Identifying the main messages and designing the pedagogical approach

Based on the findings from the desk research and the stakeholder consultation, the study team identified **key design principles cross-cutting to the assignment** and developed **key elements of the toolkits**. This included the main messages for the content, the pedagogical approach, the draft structure and suggested learning pathways. Two key design principles underpinned the development of the toolkits. First, the understanding that **learning is a process leading to change**. Second, the understanding that the toolkits have two dimensions: the **tools** themselves and the **practice** of the toolkit. That is, the toolkit offers all the necessary tools, and the teachers, with their different skills, talent, expertise and sensitivities, develop and operationalise them in their context.

The study team also developed the **gender-sensitive pedagogical approach of the toolkits**. The toolkits' pedagogical approach aims to help learners achieve cognitive, emotional and social development while increasing their understanding of gender equality, respectful relationships, and, especially, that employment and careers are not gender-specific.

b. Development phase

The **development phase** consisted of the drafting of the two toolkits (Task 5) and testing them in schools in five EU Member States (Task 6). Stakeholder consultation of educational and transport stakeholders was an integral part of this phase.

Task 5: Drafting the toolkits

In drafting the toolkits, the study team aimed to meet the following key functional criteria: user-friendly interface, appealing design, appropriate length, clarity of proposed actions and practical value of provided resources, and interdisciplinary scope. The material and activities of each toolkit were also adapted to be age appropriate for their respective primary and secondary learner audiences.

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[19] BE, BG, CZ, DE, EL, ES, FR, HR, IT, LT, HU, NL, AT, PL, PT, SK, SE.

The study team shared the draft toolkits with five transport stakeholders and five education stakeholders from a range of professional and geographic backgrounds, to gather **feedback and suggestions for further improvement**. The study team collected feedback using in-depth interviews, structured around 10 themes that covered the toolkits' presentation and layout, design and structure, length, content, coverage of the key topics, resources, among others. Recommendations for improvement were then integrated into the toolkits.

Task 6: Testing the draft toolkits

The study team **tested the draft toolkits in primary and secondary schools** in five EU Member States (Austria, Finland, Hungary, Lithuania and Spain) simultaneously, in the language of school instruction. The testing, which was conducted by national researchers in collaboration with teachers, aimed to evaluate and validate the draft toolkits and to propose any necessary changes.

The national researchers had planned to collect observational data in class during the testing, in addition to teachers completing pre- and post-lesson questionnaires. However, the COVID-19 pandemic necessitated changes to the approach: the researchers did not collect observational data in class and were able to choose whether they assisted teachers in conducting the testing in class, online, or via prospective testing and interview feedback.

For the first two options, the effectiveness of the draft toolkits was assessed using a pre- and post-lesson questionnaire for teachers. If in-class or online testing were not possible, the researchers required participating teachers to complete the pre-testing lesson questionnaire and then provide feedback on the draft toolkits in an interview. The teachers were asked to fill in the questionnaire from a prospective perspective — that is, planning for a future testing lesson.

The national experts analysed the data and provided the study team with a summary of the results from the testing lessons for each country.

c. Finalisation phase

Task 7: Finalising the toolkits

The study team took the testing feedback into account when finalising the toolkits. This finalisation phase also included a **quality assurance process, including language editing and proofreading**. After receiving approval from the European Commission, the two toolkits were **translated from English into the remaining 23 official EU languages** by professional translators. The final visual presentation of the toolkits was developed by an illustrator and graphic designers. The study team prepared a **dissemination plan** to support the European Commission in informing teachers, educators and all interested stakeholders about the release of the toolkits and their purpose, and in encouraging their use.

Figure 2 provides a summary of all the tasks and steps taken in the study.

Figure 2. Summary of all the tasks and steps

Preparation | Development | Finalisation

Tasks

Task 1 Identify existing educational toolkits addressing gender stereotypes

Task 2 Identify freely available online materials addressing gender stereotypes in transport

Task 3 Gather information on the current and future occupations in transport

Task 4 Design the main messages and pedagogical approach and propose toolkits' structure

Task 5 Draft the two toolkits and gather feedback from educational and transport stakeholders

Task 6 Testing the two draft toolkits in school

Task 7 Finalise the toolkits, translate them and draw up dissemination plan

Methods

Desk research | Pedagogical design | Stakeholder consultation | Mixed-method testing and validation | Finalisation and strategic planning

Stakeholder consultation | Drafting

Outputs

Annotated overview

Annotated overview

Summary of information gathered and selection of diverse occupations dominated by men

Proposed main messages, pedagogical approach and the draft structure for both toolkits

Two draft toolkits and the summary of stakeholders' feedback

Summary of the lessons drawn from the testing of the two draft toolkits, with explanations on necessary changes

Final deliverables

Final version of the two toolkits (available in 24 languages) and a dissemination plan

Final study report

3. Reviewing existing materials relevant to educational toolkits and material addressing gender stereotypes in transport

a. Overview of existing educational toolkits addressing gender stereotypes

The study team identified 55 educational toolkits that address gender stereotypes — 44 through desk research and 11 via the stakeholder survey (see Chapter 2). The collection covers more than 10 languages, and although the majority of the toolkits are in English, some are available in multiple languages. More than three-quarters of the identified toolkits were published in 2015 or later, which guaranteed their relevance for the study.

In analysing the relevance and usefulness of the toolkits, the study team gathered the following information for each (see annotated overview in Annex 3):

- general description (authors, publication year, aim of the toolkit, target group, geographical coverage, language);

- educational relevance (pedagogical structure and approach, teaching methods, tools for teaching and learning);

- gender stereotypes (understanding of gender stereotypes, issue areas);

- reference to the transport sector;

- instrument of evaluation (if available).

Overall, the collected toolkits are highly diverse, providing different tools — from worksheets and audio-visual material to ICT solutions — and different teaching methods — from individual work to group work, reflexive exercises to discussion. Group work and groups discussions appear most frequently within the toolkits. Many of the toolkits do not define a pedagogical approach; where it is outlined, it mostly includes gender-sensitive or reflexive pedagogy. Some of the identified toolkits address gender stereotypes directly, while others situate it within wider concepts, such as gender equality, inclusion and diversity. Altogether, the collection suggests that the transport sector features very little in recently developed educational toolkits, emphasising the relevance and significance of this project.

Most of the toolkits that the study team reviewed had not been assessed or evaluated for effectiveness, or information about the evaluations was not available. Where a toolkit had been assessed, the instruments commonly used were interviews, surveys or other, less structured approaches to gathering feedback from teachers or learners who had participated in lessons that used the toolkit. The lack of systematic evaluation data made it challenging for the study team to identify the most relevant and effective instruments.

To address this gap, the study team relied on the views of educational practitioners, gathered as part of the stakeholder consultation. These stakeholders provided feedback on the usefulness of the educational toolkits they had used in the past and the things they would like to see in any future educational toolkit that addresses gender stereotypes. The majority of respondents indicated they would find concrete, ready-to-do activities (e.g. full exercises, group activities) and tools for student engagement (e.g. games, worksheets, videos, press cuttings) especially useful. Group activities, small group discussions and reflective exercises would be the most appreciated methods, while audio-visual tools and materials, digital tools and applications, and lesson plans would be the type tools that educational practitioners would find most useful in an educational toolkit addressing gender stereotypes.

b. Identification of freely available online material addressing gender stereotypes in transport

In identifying freely available online material that addressed gender stereotypes in transport, the study team focused primarily on those relating to occupations within the sector. In assessing the relevance and usefulness of the materials, the study team gathered the following information (see Annex 4 for an overview of the findings):

- description (authors, year of publication, geographical coverage, language);

- purpose and format;

- target group (intended audience, level of education);

- information relating to the transport sector, including modes of transport, occupations in transport, aims to make the sector attractive to young people;

- information relating to gender stereotypes in the labour market, including content that helps readers/users to understand that occupations are not reserved to a particular gender and/or that gender stereotypes are one of the main reasons for segregation in education and the labour market.

The study team collected 54 freely available online materials addressing gender stereotypes in transport. Most of the materials identified are in the English language, which facilitated the inclusion of the most relevant materials in the two toolkits. Examples in other European languages were also included and some materials are available in multiple languages.

In terms of format, most of the materials are videos, interviews or news articles. Brochures, posters and blog entries were also reviewed. Generally, the identified materials aim to inform people about transport subsectors (air, road, rail, maritime, inland waterways), occupations in transport, or the work of specific companies. Many materials bring attention to gender inequalities and seek to increase the visibility of women and empower them to choose the occupations they want to. Although most materials aim for a wider audience (the general public, or young people), some specifically target young women and girls by showing women role models within transport.

Together, the identified materials address all five transport modes. Some cover more than one mode and many focus on the sector in general. By providing information on the sector and specific occupations, showing potential career paths, personal experiences of women and men in the transport sector, most materials have the potential to increase the attractiveness of the sector to young people and to girls especially. Gender stereotypes, however, are not frequently addressed in explicit terms. This is not necessarily a barrier to the usefulness of these materials; once they are placed into the frame of education, within the toolkit and with the support of an educator, they can help learners to understand that occupations are not reserved for a particular gender.

4. Current and future occupations in the transport sector

This chapter presents findings from the study's review of current and future occupations in the transport sector.

a. The importance of the transport sector

From the local level to the global level, the world today is unimaginable without transport and mobility. They are key enablers in social and economic life — from everyday commuting to education and work to enjoying travel and leisure activities, from accessing health and

social care services to operating commercial distribution and supply chains. Transport provides safe and secure mobility for European citizens, contributing significantly to the free movement of people and goods within the internal market and to an ever-closer Union. In the EU, transport is one of the largest sectors in terms of jobs, employing almost 10 million people (European Commission, 2020b), and it accounts for 5 % of gross domestic product (GDP) (European Commission, 2019a).

The transport sector is expected to grow further, and to employ more workers in the future thanks to increasing consumer demand for the delivery of goods. Demographic trends will also affect recruitment in the sector: the older cohorts that make up much of the workforce in many transport subsectors will soon need to be replaced (Joint Research Centre of the European Commission, 2014). Moreover, given that the transport sector accounts for a quarter of the EU's greenhouse gas emissions and in light of commitments to tackling climate change and environmental degradation (European Commission, 2019b), the European Commission is particularly focused on reducing the sector's emissions and making it more sustainable (European Commission, 2020b). The European Green Deal — the EU's roadmap for a sustainable economy — seeks a 90 % reduction in greenhouse gas emissions in transport by 2050. With road transport responsible for more than 70 % of the sector's emissions, the EU ambition is to deliver more freight by rail or water. This will increase employment in these two subsectors and strengthen energy-efficient, low-carbon and multi-modal transport networks within the Union and between the EU and other countries.

Connected to a push for sustainable mobility, the transport sector is also undergoing changes due to technological developments. Different processes in transport are becoming automated, and digital or computer technology is being introduced or expanded (European Commission, 2020b). This greater use of automation and digital technologies also shapes labour force demand in transport, requiring highly skilled workers with competences in engineering and technology, including IT.

Young people, however, have little awareness of these shifts within the transport sector. A 2017 survey of women and men aged 16-25 years in all EU Member States found that although young people generally have a more positive than negative view of the transport sector, they have limited knowledge of what working in it actually entails (European Commission, 2017a). Young people's perception of the attractiveness of working in transport also varies across different transport subsectors. They perceive air transport very positively, have hardly any knowledge of waterborne transport, and their knowledge of road and rail transport is based on their personal experience. In the specific case of the maritime sector, young people aged 16-28 years not only ranked it low as an employment choice but also saw it as slow, lonely and dirty, associating it with the image of an older male sailor, with a beard, tattoos and no family commitments (European Commission, 2017b). This suggests that building up knowledge and different images that correspond to the reality, diversity and importance of the sector are crucial to stimulating positive thinking and challenging stereotypes about the transport industry among the younger generation.

b. Economic activities in transport

Transport provides a service to national and global communities (World Maritime University, 2019), but its heterogeneity and breadth (Joint Research Centre of the European Commission, 2014) mean that it is also different from other service sectors. The transport sector encompasses areas of rail, road, air and waterborne transport, as well as warehousing and logistics. Although the purpose of all subsectors is the transportation of people and freight, each of transport subsectors has its own culture, different work processes and, importantly, requires specific training and skills among their respective labour forces. The latter is an area this report will address in the following sections.

There are many diverse occupations in transport, requiring low, medium or high levels of skills, but no readily available standardised list of occupations in the sector. In part, this is because there are two standard systems of classification. One system, NACE[20], classifies economic activities or the sector in which a person works. The other, the International Standard Classification of Occupations (ISCO), classifies the occupation in which one works. Therefore, the same occupation can be classified within different sectors of economic activities.

To provide an overview of occupations in the transport sector, it is first necessary to define the sector itself. In the EU, all economic activities are classified using the NACE framework (Eurostat, 2008). NACE has a hierarchical structure and groups economic activities at four levels: 21 sections (alphabetical code), 88 divisions (two-digit numerical code), 272 groups (three-digit numerical code) and 615 classes (four-digit numerical code).

In NACE classification, the transport sector is categorised as Section H. It includes economic activities in land transport (division 49), including both rail and road; waterborne transport (division 50), including both maritime (sea) and inland waterway; air transport (division 51); warehousing and support activities for transportation (division 52); postal and courier activities (division 53). Table A-1 shows the detailed structure of economic activities in the transport and storage sector. In order to remain as precise as possible in linking the data to the transport sector, the table does not include postal and courier activities, since they are beyond the scope of this study.

c. Gender balance in the transport sector

Transport and storage is one of the economic sectors in the EU that is marked by a notable gender imbalance. **Among its workforce of about 10 million persons, only 22 % are women**[21].

Women are underrepresented in all subsectors of transport; however, there is also considerable variation. As shown in Figure 3, in 2018 far fewer women than men worked in land (14 %) and waterborne transport (19 %), while a slightly higher share of women worked in warehousing and support (25 %). In the air transport subsector, gender balance is nearly achieved, with women making up 44 % of its workers; however, this needs to be seen in the context of emerging evidence that suggests significant gender differences in occupations, seniority and skills distribution (SESAR, 2018).

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[20] The Statistical Classification of Economic Activities in the European Community (in French: Nomenclature statistique des activités économiques dans la Communauté européenne).

[21] Aggregate data for 2018 for the EU-27; Data taken from Eurostat; Employees by sex, age and economic activity (from 2008 onwards, NACE Rev. 2) - 1 000 (lfsa_eegan2).

Figure 3. Employment in the transport subsectors in 2018 (%, 15+ years, EU-27)
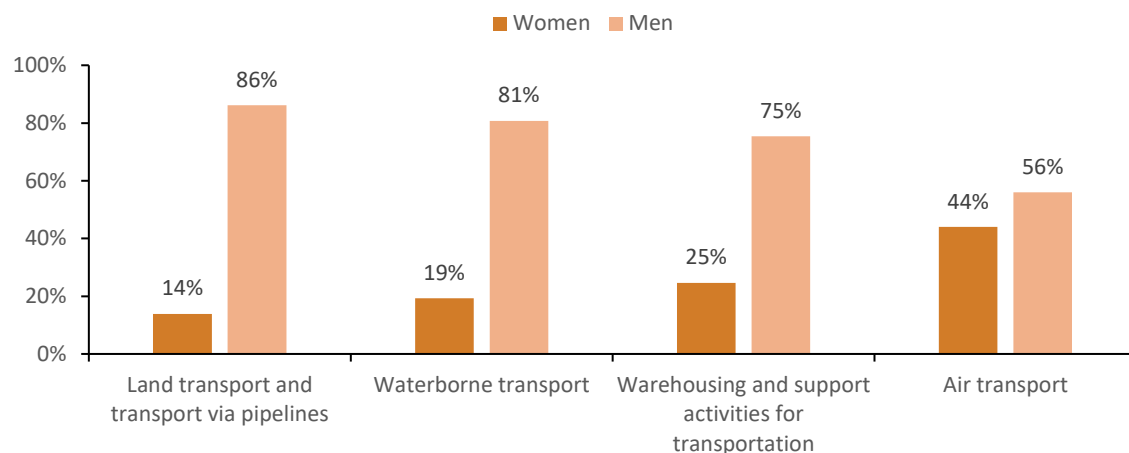
Source: Data taken from Eurostat; Employment by sex, age and detailed economic activity (from 2008 onwards, NACE Rev. 2 two-digit level) - 1 000 (lfsa_egan22d).

Furthermore, there are major differences in the number of employees in different subsectors (Figure 4). Of those women working in the transport sector, 10 % work in air transport and even fewer (3 %) in waterborne transport. Most of the women employed in the transport sector work in warehousing and support (42 %) and land transport (42 %).

Figure 4. Employment in the transport subsectors in 2018 (thousands, 15+ years, EU-27)
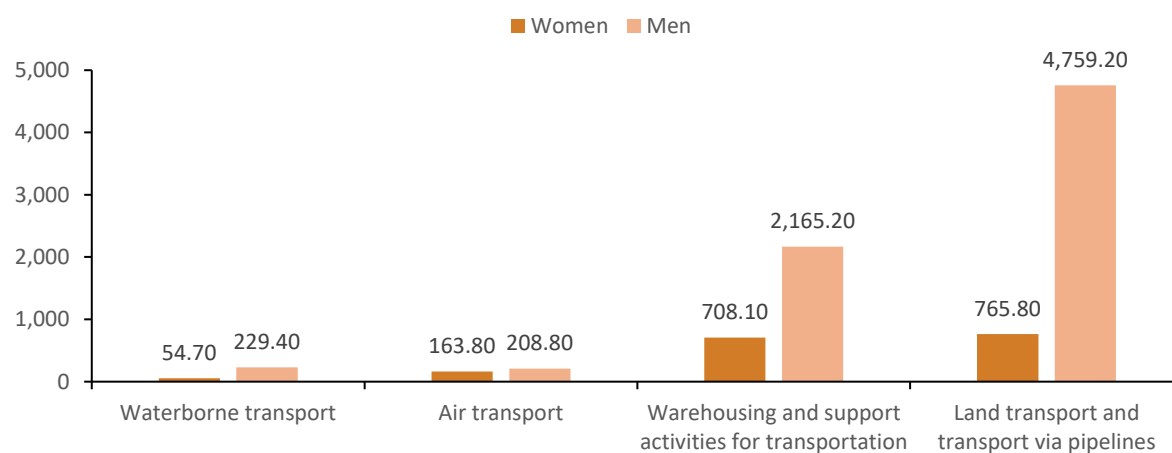
Source: Data taken from Eurostat; Employment by sex, age and detailed economic activity (from 2008 onwards, NACE Rev. 2 two-digit level) - 1 000 (lfsa_egan22d).

Considerable differences in gender balance also exist *within* the four subsectors of the transport sector, most notably **in land transport and transport via pipelines** (see Figure 5). Specifically, although the highest gender balance is observed in interurban passenger rail transport, only 22 % of employees are women. The lowest gender balance is observed in freight transport by road and removal services, where only 11 % of employees are women.

Figure 5. Employment in land transport and transport via pipelines sectors in 2018 (thousands, 15+ years, EU-27)

■ Women ■ Men

	Freight rail transport	Passenger rail transport, interurban	Other passenger land transport	Freight transport by road and removal services
Women	19.36	117.82	261.69	289.75
Men	118.01	429.85	1,501.33	2,350.10

Source: Data taken from Eurostat; Employment by sex, age and detailed economic activity (from 2008 onwards, NACE Rev. 2 two-digit level) - 1 000 (lfsa_egan22d).

In waterborne transport, 19 % of employees are women (see Figure 6). According to the stakeholders interviewed, this low representation of women in this subsector was mostly related to historical reasons. Due to sociocultural expectations that women take care of the home and children, and the fact that ships' officers and crew are deployed for long periods of time, jobs onboard ships have predominantly been done by men. In addition, work on ships was often considered dirty and to require physical strength. With the development of technology, most jobs on board a ship today are neither dirty nor do they require physical strength. However, historically low representation and visibility of women in waterborne transport, coupled with still high cultural demands on women in terms of caring responsibilities and gendered stereotypes that deter women from pursuing careers in technical roles, drive gender imbalance in this area of transport.

Figure 6. Employment in waterborne transport in 2018 (thousands, 15+ years, EU-27)

■ Women ■ Men

	Inland freight water transport	Inland passenger water transport	Sea and coastal freight water transport	Sea and coastal passenger water transport
Women	n/a	n/a	14.10[u]	18.20
Men	13.00[u]	9.50[u]	74.80	73.50
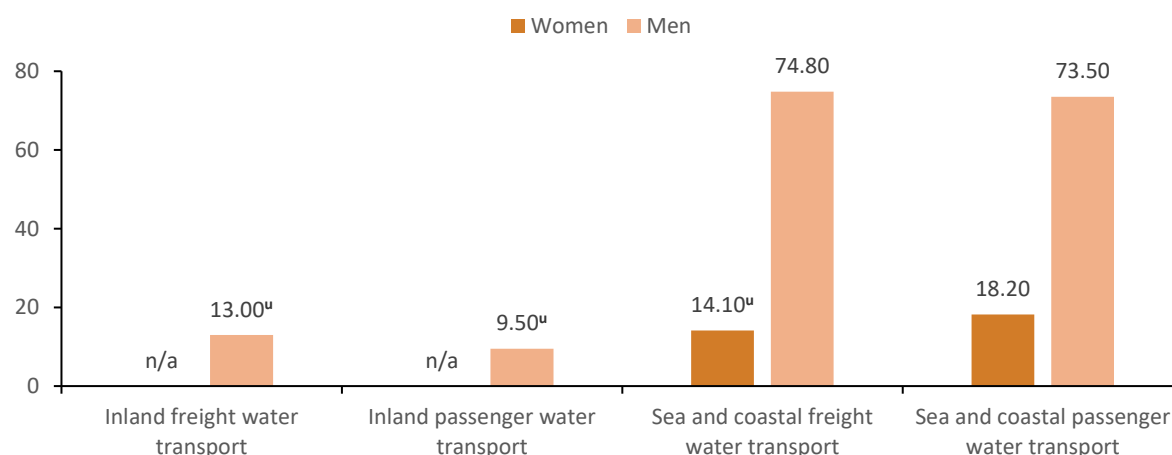
Note: Values followed by a 'u' have low reliability; n/a means that the values are not publishable because of very low reliability.
Source: Data taken from Eurostat; Employment by sex, age and detailed economic activity (from 2008 onwards, NACE Rev. 2 two-digit level) - 1 000 (lfsa_egan22d).

Air transport has the greatest gender balance among all transport subsectors (see Figure 7). However, differences remain. And although women represent 46 % of employees in passenger air transport, they make up only 30 % of employees in freight air transport and space transport. Greater gender balance in air transport overall may be due to the fact that, compared to other sectors, air transport includes more service, sales and clerical support roles, which are occupations typically held by women. In technical roles, women's representation is low, as it is evidenced by the fact that only 5 % of pilots worldwide are women (European Commission, 2019c).

Figure 7. Employment in air transport in 2018 (thousands, 15+ years, EU-27)
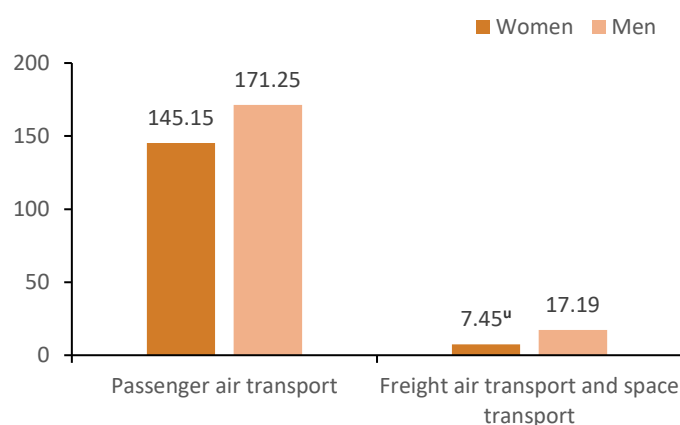
Note: Values followed by a 'u' have low reliability.
Source: Data taken from Eurostat; Employment by sex, age and detailed economic activity (from 2008 onwards, NACE Rev. 2 two-digit level) - 1 000 (lfsa_egan22d).

In warehousing and storage and in support activities for transport, about 25 % of employees are women (see Figure 8). Somewhat greater representation of women in this subsector is likely due to the fact that it includes supporting occupations, such as travel consultants and clerks, cabin and flight attendants, and conductors and ticket inspectors.

Figure 8. Employment in warehousing and support activities for transport in 2018 (thousands, 15+ years, EU-27)
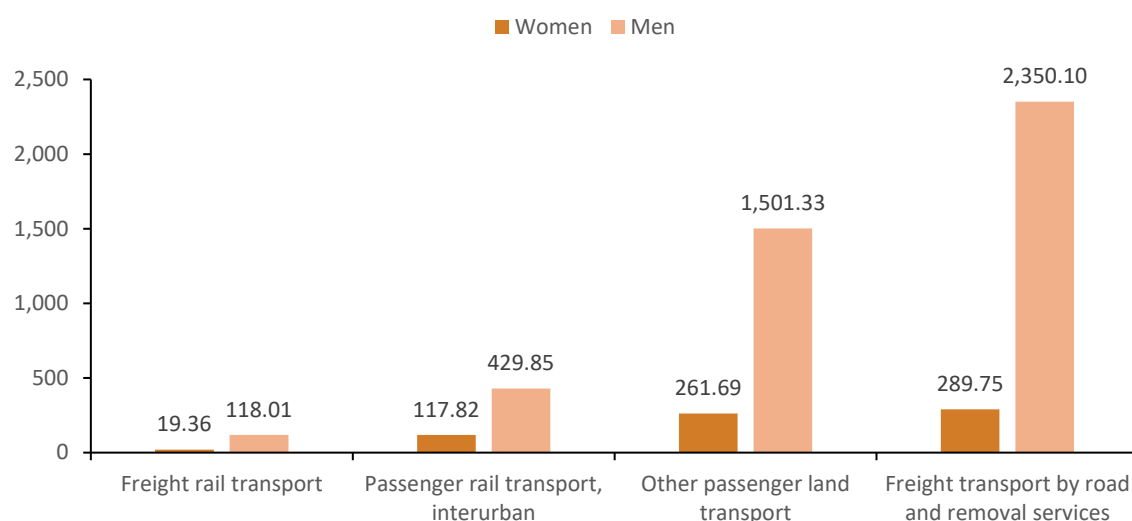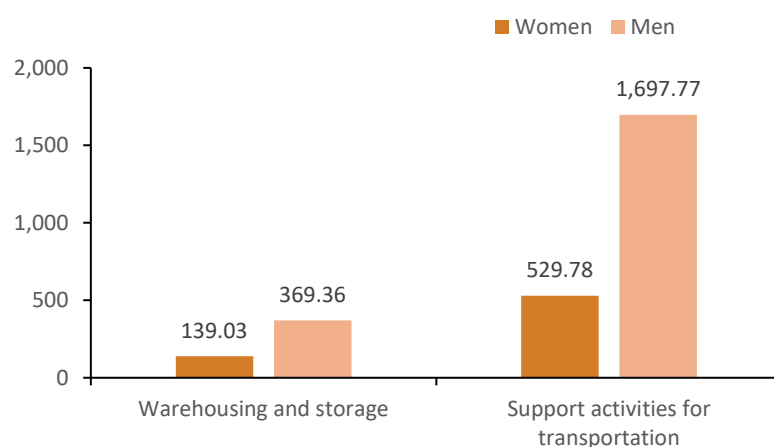

Source: Data taken from Eurostat; Employment by sex, age and detailed economic activity (from 2008 onwards, NACE Rev. 2 two-digit level) - 1 000 (lfsa_egan22d).

Several factors explain women's low overall participation in occupations within transport and that, where they do participate, this is mostly in administrative and clerical

roles. Historically, many of the occupations in transport entailed poor working conditions, and required physical strength and separation from family for long periods. With technological advancements and the expansion of opportunities in different transport subsectors, this is often no longer true. However, working in transport at the operational level, particularly for some of the occupations in transport (e.g. long-distance drivers or jobs on board a ship), still requires employees to spend a significant amount of time away from home, and the working hours and conditions, including inflexible shift patterns, are often unattractive to women (Project WISE, 2012; European Transport Workers' Federation, 2020). Additionally, the masculine work culture and environment, sexual harassment and violence commonly experienced by transport workers are all deterrents to women (Wright, 2016; Turnbull, 2013).

However, the persistent underrepresentation of women in the transport sector is, to a considerable degree, also related to **gender stereotyping**. Gender stereotyping, which shapes the perception of which jobs are suitable for women and which for men, starts at a young age, influences educational and career choices and prevents women from entering occupations in the transport sector. Moreover, while the retention of women in the transport sector is primarily affected by harassment and lack of work-life balance, gender stereotyping and the low visibility of women in the transport sector may exacerbate these issues by making women feel unwelcome when they enter into occupations that have historically employed men (Wright, 2019).

d. Overview of occupations in the transport sector by gender

Given that NACE classifies economic activities and not individual occupations, the study team used ISCO-08 classification to map occupations in the transport sector. ISCO-08 has a hierarchical structure and groups occupations at four levels: the 436 unit groups (four-digit numerical code) are categorised into 130 minor groups (three-digit numerical code), 43 sub-major groups (two-digit numerical code) and 10 major groups (one-digit numerical code), according to the skill level and specialisation that the job requires (ILO, 2016). At the highest level, occupations in the transport sector fall into eight major groups — managers; professionals; technicians and associate professionals; clerical support workers; service and sales workers; craft and related trades workers; plant and machine operators and assemblers; and elementary occupations[22].

Table A-2 lists ISCO occupations in different subsectors of transport (land, water and air transport, warehousing and support).

Figure 9 shows employment in eight major groups of occupations in the transport sector in the EU, by gender. Close to half of employees in the transport and storage sector in the EU in 2018 worked in occupations categorised under 'Plant and machine operators' and 'assemblers'. This ISCO-08 category encompasses all occupations related to driving, such as locomotive engine drivers, car, taxi and van drivers, bus and tram drivers, and heavy truck and lorry drivers. It also includes ships' deck crews and related workers; crane, hoist and related plant operators; and lifting truck operators.

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[22] The additional two major groups, 'Armed forces' and 'Skilled agricultural and fishery workers', do not include any occupations in the transport sector.

**Figure 9. Share of women and men employed in transport occupations in 2018 (thousands, 15+ years, EU-27)**

Note: Values followed by a 'u' have low reliability.
Source: Data taken from Eurostat; Employment by occupation and economic activity (from 2008 onwards, NACE Rev. 2) - 1 000 (lfsa_eisn2).

In each of the ISCO major groups of occupations in transport, there are fewer women than men. However, **the greatest gender imbalance in occupations in transport is observed in two occupation categories: craft and related trades workers** (e.g. aircraft engine mechanics and repairers, and electronics mechanics and servicers); and **plant and machine operators and assemblers**. In these two major groups, women represent only 3 % and 5 % of employees, respectively. This is validated by the results of the stakeholder interviews and the stakeholder survey conducted in May 2020; across the different transport subsectors, respondents pointed out that women are still significantly underrepresented in technical occupations, particularly mechanics and repairers.

The greatest gender balance is mostly observed in administrative occupations (European Commission, 2019d)[23]. These roles are grouped under the categories of clerical support workers (e.g. travel consultants and clerks); service and sales workers (e.g. travel attendants and transport conductors); and professionals (e.g. engineers, software developers, and lawyers). With the changes brought about by the increasing digitalisation and automation in the transport sector, **many of the occupations in clerical support and service and sales are expected to disappear** (Skillful Project, 2017). This suggests potential for even further gender imbalance in the transport sector in the future (European Transport Workers' Federation, 2019). For this reason, particular emphasis should be placed on providing women currently in transport and those entering the workforce with access to the training and skills necessary for emerging jobs and existing jobs that are undergoing changes due to digitalisation and automation. In interviews, stakeholders mentioned the need to focus on strengthening technical and digital competences that are becoming increasingly important in occupations in transport at all skill levels.

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[23] Interestingly, even in these occupations, which are usually female dominated in other sectors, there are more men than women working in administrative roles in transport.

e. Competences and skills required for occupations in the transport sector

This section presents an overview of key competences required for occupations in the transport sector, with reference to the European Reference Framework on key competences for lifelong learning[24]. In this section, we report on the formal skills, transferable skills and digital and language competences that are important for working in the transport sector.

ISCO also includes a classification of skill levels and competences required for all current occupations related to the level of completed formal education. Table A-3 provides an overview of the skill levels required for occupations in the transport sector for all ISCO 4-digit occupational titles in the transport sector. ISCO classification distinguishes between four skill levels: unskilled (ISCO-08 skill level 1); semi-skilled (ISCO-08 skill level 2); skilled (ISCO-08 skill level 3); and highly skilled (ISCO-08 skill level 4). In Table A-2, for easier understanding and comparability with previous reports[25], occupations in the transport sector are instead grouped into three categories: high (ISCO-08 skill levels 3 and 4); medium (ISCO-08 skill level 2); and low (ISCO-08 skill level 1).

In addition to the skill level, Table A-2 also lists the corresponding level of completed education, categorised using the International Standard Classification of Education framework, ISCED-97. For example, for a person to work in an occupation at the high skill level, they would typically need to have completed at least the first stage of tertiary education. Similarly, for a person to work in occupations at the medium skill level, they would need to have completed at least lower secondary education (ISCED level 2) or the first stage of tertiary education (ISCED level 5b), but not necessarily have their first university degree. A majority of occupations in the transport and storage sector are classified under medium skill level. Finally, there are also several occupations in the transport sector classified under low skill level, which requires that a person has completed primary-level education.

Apart from formal skills and technical knowledge, occupations in the transport sector also demand **the development of transferable skills and digital and language competences**. These go beyond the knowledge gained through formal education and certification and are important for working in occupations in transport. This is evidenced by the publicly available online job advertisement data that was prepared and compiled by Cedefop as part of the project Skills Online Vacancy Analysis Tool for Europe (Skills-OVATE, 2020). Table A-3 shows the most commonly mentioned skills associated with occupations in the transport sector in online job advertisements.

For almost all occupations in the transport sector, at high, medium and low skill levels, online job advertisements mention needing to be able to work as a team, adapt to change and use a computer. Many also mention the use of English. Customer service is mentioned in online job advertisements mostly for customer-facing occupations and, as confirmed in the stakeholder interviews, the need for customer service will only grow in the future. For example, one stakeholders working in public transport said that even now, drivers are expected to be more customer-oriented than they were before. Looking further ahead, once public transport vehicles become completely automated (already the case with driverless

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[24] Council Recommendation of 22 May 2018 on key competences for lifelong learning, 2018/C 189/01. Retrieved from: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.C_.2018.189.01.0001.01.ENG.

[25] For example, the World Maritime University report, *Transport 2040: Automation, technology, employment — the future of work*, 2019 (https://commons.wmu.se/lib_reports/58).

metros), there may be fewer drivers but there still will be a need for travel attendants whose role is to provide customer service using digital technology.

To complement data from online job advertisements, the study team identified 10 transferable skills and digital and language competences, based on the Council Recommendation of 22 May 2018 on key competences for lifelong learning[26], that may be relevant for occupations in the transport sector. In the survey conducted during May 2020, the study team asked transport sector stakeholders which skills they thought were important for working in occupations in the transport sector at the high, medium, and low skill level currently, and asked them to indicate whether these would be important in the future. Table A-4 shows the results from the survey.

Overall, the survey results suggest that the transferable skills and digital and language competences are more important currently, and will be even more important in the future, for occupations at the high skill level than for those at medium and low skill levels. For occupations at the medium skill level, well over one-third of respondents indicated that the transferable skills and digital and language competences are important currently. Surprisingly, however, a somewhat lower proportion of respondents indicated that these same skills and competences will be important for occupations at this skill level in the future.

Very few respondents indicated that transferable skills and digital and language competences are important for occupations at the low skill level — either currently or in the future. This finding is surprising given that working in these roles requires good communication skills and, increasingly, competence in digital technology: baggage handlers and loaders need to communicate with colleagues for safety reasons; pedal vehicle drivers and deliverers need to communicate with clients for customer service; and couriers use digital devices to track parcels.

f. Future occupations in the transport sector

The transport sector has always been shaped by technological developments, which are helping to make the movement of people and freight safer, more accessible and more efficient (World Maritime University, 2019). Currently, the transport sector is undergoing multiple changes. Different processes are becoming automated, digital or computer technology is being introduced or its use is expanded, and alternative energy sources are becoming recognised as the way forward (European Commission, 2020b).

The key trends affecting employment in transport are electrification and the increasing use of alternative fuels (Skillful Project, 2017), and the development and integration of new technology — in particular vehicle and infrastructure automation and maintenance of automated systems, the development of digital user interfaces for customers and equipment operators, and the development of new digital services (World Maritime University, 2019). Although these trends are already affecting the transportation of people and freight, as well as the transport labour force, the introduction and adoption of new technology is expected to be gradual and sector-specific (World Maritime University, 2019). We are currently in the algorithmic and augmentation waves of automation (PwC, 2018). In these waves, the most affected jobs in transport are those that include simple computational tasks and other repeatable and routine tasks, like ticket sales and checking, which are roles traditionally occupied by women, but also jobs in warehousing where robots are increasingly being used

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[26] Council Recommendation of 22 May 2018 on key competences for lifelong learning, 2018/C 189/01. Retrieved from: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri= uriserv:OJ.C_.2018.189.01.0001.01.ENG&toc= OJ:C:2018:189:TOC.

to move goods. However, jobs in transport will be even more affected by the autonomous wave, which is projected to come to maturity in the mid-2030s.

Across transport subsectors, automation is affecting occupations in different ways. For example, in rail transport, automation is leading to an improvement in working conditions by reducing dirty, dangerous and difficult tasks. In road transport, automation is being implemented in traffic management, although in the longer term, driving positions are also likely to be affected or lost due to the use of automated vehicles and robots. In air transport, there is high potential for losses in low- and medium-skill occupations, given the trends towards digitalisation in customer support and mechanisation in baggage handling. In waterborne transport, new technology and automation already have multiple applications on ships (e.g. speed control and fuel saving). The most significant impact in this subsector, however, is expected to be the longer term shift to autonomous vehicle operation, with ships crews moving from ship to shore. Finally, in warehousing and storage, the mechanisation of loading/unloading and automated storage and retrieval systems will increasingly affect opportunities for low- and medium-skilled personnel (World Maritime University, 2019). Overall, across different subsectors of transport, there are fewer jobs that are physical in nature and more jobs that require high levels of technical competences[27].

The greater use of technology and the transition to greener and sustainable transportation bring with them changes in occupations to which the labour force needs to adapt. However, rather than being lost completely, it is likely that more of the current occupations in transport will change and include new tasks (European Commission, 2018). Occupations that include a higher share of routine tasks are more likely to become automatised, and therefore lost in the future. A recent study mapped all ISC0-08 four-digit occupations based on their share of routine and non-routine tasks (Mihaylov and Tijdens, 2019), and ranked them according to their risk of automatability (see Table A-5).

Routine task-intensity (RTI) score is a measure of the routine task content of occupations. RTI scores range between -1 and 1, with -1 indicating that an occupation consists only of non-routine tasks, a score of 0 indicating that an occupation consists of the same number of non-routine and routine tasks, and a score of 1 indicating that an occupation consists only of routine tasks. Most occupations in the transport sector have a negative RTI score and include a higher share of non-routine than of routine tasks, meaning they are at lower risk of being wholly automated, at least in the shorter term. Many, however, are at some risk of automation and their scope will potentially change in the future.

With the exception of driving occupations, the overview of automation risk for occupations in transport (Table A-5) corresponds with the results of other projects on the future of occupations in transport and with the findings from the stakeholder interviews conducted for this study. Although it is likely that driving occupations, at least in their current form, will disappear with the development and adoption of autonomous vehicles and unmanned transportation systems (Skillful Project, 2017), this is going to occur only in the longer term. **Currently, and in the near to medium term, occupations most affected by automatisation are medium-skill level positions in warehousing**, which is a subsector that continues to be heavily impacted by advancements in automation and mechanisation. In stakeholder interviews, it was mentioned that another group of occupations, typically employing mostly women, is already disappearing. **Ticketing and payment systems for passenger transport are increasingly digitalised, especially in urban public transport** (UITP, 2017). Although this innovation is creating opportunities for highly skilled labour force specialising in software development and maintenance, it is also negatively affecting the

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[27] European Commission, *Automation in transport: how does it affect the labour force?*, background paper, Brussels, 2018. Retrieved from: https://ec.europa.eu/transport/sites/transport/files/2018-11-20-automation-in-transport-background.pdf.

employability of low and medium-skilled personnel in transport, particularly women (Wright, 2019).

In addition to changes in the current occupations in transport, technological advancements and the shift to greener and sustainable transportation are creating **an increasing demand for high skilled workers in technical occupations** in the areas of automation of vehicles and infrastructure, maintenance of automated systems, the development of digital services and user interfaces for customers and equipment operators (World Maritime University, 2019), and alternative fuel operators and managers. Drawing on the results of the Skillful Project (2017), the study team identified 10 groups of occupations that are predicted to emerge as a result of technological advancements and the shift to green and sustainable transport. Broadly, the occupations (listed in Table A-6) can be grouped under software development and maintenance of digital and automated systems, remote operation, and alternative fuel distribution.

In the stakeholder survey, respondents were asked to indicate which future occupations in transport they thought would be most in demand and which risk significant gender imbalance (Table A-6). The results suggest that the **greatest demand for transport labour force will be in the area of software development and maintenance of digital and automated systems**. These occupations also have the **highest risk of a significant gender imbalance in the future**, if no action is taken. Discussions with stakeholders confirmed these survey results, with interviewees noting that the transport sector requires a highly skilled labour force, particularly in the area of software development and maintenance of digital and automated systems, and that these are occupations traditionally dominated by men (not only transport but also in other economic sectors).

Interestingly, survey respondents mentioned several other occupations that will be in increasing demand in the future — specifically those in sales, marketing and customer care, to which the sector currently uses a traditional approach but should expect greater use of digital technologies. Furthermore, as the labour force in transport is becoming more diverse, there will also be a need for diversity managers. With regard to occupations at risk of gender imbalance in the future, the stakeholders mentioned that in addition to the listed occupations, **engineering positions and maintenance and driving roles do not attract enough women and girls to the transport sector and are at risk of continuing this trend in the future**.

g. Selection of diverse occupations dominated by men

Using statistical data and based on findings from the desk research, stakeholder interviews and the stakeholder survey, the study team identified a diverse set of male-dominated occupations to be used in the two toolkits. The study team selected occupations that are less known to the general public and to young people, in particular, represented low, medium and high skill levels across different transport subsectors and were not at high risk of being automated in the future. An overview of occupations at high, medium and low skill levels is presented in respectively Table A-7, Table A-8 and Table A-9, and the selection of male-dominated and less known occupations in transport is shown in Table A-10.

In the category of managers (Table A-7), less than one-third of employees are women. In the categories of professionals and technicians and associate professionals, the gender balance is slightly higher, with women making up a third of employees. Although the statistical data shows that women are underrepresented in management-level positions, which was also confirmed in the interviews with stakeholders, these roles are not usually entry-level positions. Therefore, in the selection of occupations at high skill level to be used as examples in the two toolkits, the study team focused on the categories of professionals and technicians and associate professionals.

In the stakeholder survey and interviews, respondents mentioned that there is a high need for engineers of all kinds, including computer engineers, electrical engineers, mechanical engineers and civil engineers. These occupations are needed in, for example, the development and execution of predictive and planned maintenance of infrastructure and vehicles or in digital transport management systems, and this demand will only grow in the future. Some of these engineering occupations are present in both transport and other economic sectors; others are specific to the transport sector, such as locomotive engine engineers, signalling engineers, automotive engineers, aeronautical engineers, jet engine engineers, and mechanical engineers. Other occupations in the area of structural engineering and design — for example, ship construction engineers, aircraft, engine and motor designers, and marine and naval architects — are more related to manufacturing and therefore were not chosen as examples for the toolkits.

Unlike occupations in the category of professionals, the category of technicians and associate professionals (Table A-7) lists subsector specific occupations. In selecting occupations to feature, it is also important to consider which have the greatest gender imbalance. Both previous research and stakeholder interviews show that in air transport, there are more women employed in air traffic control, than among aircraft pilots or among air traffic safety electronics technicians. In waterborne transport, women are underrepresented among both ships' engineers and ships' deck officers and pilots. Although occupations on ships are generally visible, the public knows less about different types of ships and therefore the contexts of work on ships. For example, cruise ships are better known to the public and more attractive to young people, whereas work on container ships, tankers, tugboats or barges is likely to be less well-known and less attractive. Finally, occupations in the category of clearing and forwarding, although at a high risk of being automated in the future, were identified in the stakeholder survey as less known to the general public; and in stakeholder interviews, organisation and planning were considered to still be an important component of transport.

Among occupations in transport at medium skill level (Table A-8), there is stark divide between clerical support, service and sales, where women comprise about half of the labour force, and occupations in craft and related trades and plant and machine operators and assemblers, which currently employ very few women. The examples selected for the toolkits therefore focus on the latter two categories.

The category of craft and related trades workers includes occupations in the area of machinery and electronics mechanics, repairers and servicers. In the stakeholder interviews and survey, respondents confirmed that across different subsectors of transport, these occupations are not only male-dominated but are also among the least known to both the general public and young people and could be attractive to girls. Furthermore, interviewees mentioned that, due to technical developments, automation and digitalisation, maintenance and repair positions now involve less physical labour and a greater use of technical and digital skills. For example, one stakeholder noted greater use of predictive maintenance, a technique that uses sensor devices and data to determine when equipment should be serviced.

The category of plant and machine operators and assemblers includes all driving occupations in land transport, such as locomotive engine drivers, car, taxi and van drivers, bus and tram drivers, heavy truck and lorry drivers. Importantly, about half of the labour force in transport is employed in land transport, and a majority of employees there are drivers. As such, tackling women's underrepresentation among drivers will go a long way toward improving gender balance both in land transport and in the transport sector overall. In driving, some occupations are visible and known to the public, but some are also less known. As one survey respondent said, 'Everybody knows that they can work as a professional driver. But it is also crucial to know what a driver is exactly doing and what kind of working conditions apply for professional drivers (e.g. shift work etc.).' In other words,

although in general terms, heavy truck and lorry drivers are visible occupations, interviewees explained that these occupations are highly diverse and that heavy truck drivers work in many different contexts and they transport different types of freight.

For example, drivers can transport wood from forests to production plants, or they can transport goods from central storage to individual recipients like stores and offices. Some drive long distances, within countries and across borders, while others, like delivery drivers for supermarkets, have regular working schedules. Furthermore, there are specific driving occupations in subsectors other than land transport. Airport ground crew, for example, includes bus drivers and aircraft fueller drivers. The stakeholders surveyed indicated that occupations such as railway brake, signal and switch operators (e.g. coupler, shunter, signaller) and operators in warehousing, stationary and mobile cranes and other hoisting equipment are not well known to the public.

A quarter of respondents in the stakeholder survey mentioned that occupations in transport at low skill level (Table A-9), across different subsectors of transport, are less known to the public. However, very few mentioned freight handling and loading/unloading occupations as attractive for girls, possibly due to a greater reliance on physical labour and a low salary level in these occupations. Although opportunities in these occupations are diminishing due to the mechanisation of loading/unloading and automated storage and retrieval systems, these systems will still need operators, which could provide employment opportunities for women. As one survey respondent said, 'Most of these occupations [all occupations in transport] can be a choice for boys or girls equally. On the other hand, some basic occupations considering physical work might not be anybody's first choice but traditionally are occupied by men because of their physical strength. With the technology improvement and innovations these differences are vanishing.'

The study's final selection of male-dominated and less-known occupations in transport is shown in Table A-10. These occupations encompass all transport modes and skill levels, and includes occupations identified through desk research and the stakeholder survey and interviews. In consultation with the European Commission and transport experts, the list was revised for language (e.g. to include both maritime and inland waterways terminology) and for content. Specifically, two well-known occupations — bus and train drivers — were included, as there is strong support for recruiting more women into these occupations and, generally, these positions are well-paid.

h. Overview of information about training paths and career prospects in transport

Occupations in operating vehicles and vessels (Table A-11) can be divided into those that require secondary school training and those that require post-secondary or tertiary training. To be certified to do these jobs, candidates must also acquire practical experience in operating vehicles and vessels, either after or as part of their secondary, post-secondary or tertiary training.

For occupations in waterborne transport at the high skill level a candidate would need to hold a tertiary education degree. In order to get certified as ships' deck officers, candidates also have to spend time in service onboard a vessel working as cadets and passing the certification requirements. The master of the ship (known as the boatmaster or shipmaster) is first in command and is responsible for the crew, ship and cargo. The chief mate/first officer is second in command and performs watchstanding duties and is in charge of cargo and deck crew. The second mate/second officer is third in command and performs navigational duties. The third mates/third officers are responsible for onboard safety, such as fire safety equipment, lifeboats and various other emergency systems.

After receipt of the appropriate certification:

- third mates/third officers can progress and become second mates/second officers;

- second mates/second officers can progress and become chief mates/first officers;

- chief mates/first officers can progress and become boatmaster/shipmaster.

It is also possible for seafarers and inland waterway transport workers to transition from working onboard a ship to land-based jobs and work, for example, as harbour masters in ports and harbours or teachers of trainee seafarers and inland waterway staff. They can also move to fleet and cargo management, logistics, sales and chartering or other similar areas of operation (Zec, 2020). For occupations in waterborne transport at the medium skill level a candidate would need to hold a secondary education degree. To be certified, candidates also have to spend time in service onboard a vessel working as cadets and passing the certification requirements. Deckhands (ordinary sailor and able sailor[28]) operate and maintain the vessel and deck equipment and ensure all parts of a ship, other than areas related to the engine and motor, are in good working order[29]. It is also possible for seafarers to transition from sea to land and work in similar positions — that is, operation and maintenance in ports and harbours.

To work as an aircraft pilot, either as a pilot-in-command/airline captain or the first officer/co-pilot, a candidate needs to complete flight training in a commercial flight school and earn their commercial pilot's licence or an airline transport rating. The costs are between EUR 70 000 and EUR 100 000 and are covered by the student[30]. Alternatively, pilot training can be completed through training in the armed forces. Although at no financial cost to the candidate, this option entails a military service obligation. In addition to a pilot's licence, commercial airlines may require the completion of tertiary education. Pilot-in-command/airline captain is first in command and responsible for the crew, ship and cargo, as well as performing duties relating to the aircraft's operation. First officer/co-pilot is second in command and shares the control of the aircraft with the pilot-in-command/airline captain. After gaining enough experience, first officer/co-pilot can progress to the role of a pilot-in-command/airline captain. In addition to working for airlines and air cargo carriers, pilots in command/airline captains and the first officers/co-pilots can work as flight instructors, corporate pilots, charter pilots, test pilots, and agricultural pilots[31].

Occupations in operating vehicles in rail transport typically require secondary school education and practical training, as a trainee, in operating trains. Locomotive engine drivers/train drivers operate diesel or electric trains. Railway signallers control the flow of railway traffic over sections of line by operating signals and switches from control panels or signal boxes. Railway couplers and shunters switch and couple rolling stock in railway yards and sidings in accordance with orders about loading, unloading and the make-up of trains. Railway brake operators check train systems and equipment such as brakes and brake hoses prior to train run.

Occupations in operating vehicles in road transport typically require secondary school education and practical training in operating trucks or buses. Truck drivers drive and tend to heavy motor vehicles to transport goods, liquids or heavy materials over short or long

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[28] This report adopts a gender-neutral title by replacing 'seaman' with 'sailor'.

[29] Zippia, 'Here's how to become a third mate in 2020', webpage. Retrieved from www.zippia.com/third-mate-jobs.

[30] Vereinigung Cockpit e.V., 'Female pilots' webpage. Retrieved from: www.vcockpit.de/en/vereinigung-cockpit/flight-safety/working-groups/female-pilots.html.

[31] AvJobs – Aviation Career directory, 'Research and explore aviation industry career options', webpage. Retrieved from:
www.avjobs.com/careers/index.asp?Job_Title=Copilot+or+First+Officer&Category=In+Flight&Related=Pilot&RecID=106.

distances. Bus drivers drive and maintain motor buses, trolleybuses or motor coaches to transport local or long-distance passengers, mail or goods.

In rail and road transport there are a lot of opportunities to change duties or careers. For example, driving staff can change positions within the companies and work in supervision service (e.g. as team leaders and managers, driving instructors or traffic supervisors), and in operational control centres or the transport authority (e.g. as schedulers, traffic planners, dispatchers and fleet managers).

Occupations in engineering and maintenance of vehicles and vessels (Table A-12) can be divided into those that require secondary school training, and those that require post-secondary or tertiary training. To be certified to do these jobs, candidates must also acquire practical experience in the maintenance of vehicles, vessels and infrastructure, either after or as part of their secondary, post-secondary or tertiary training.

For occupations in waterborne transport at the high skill level a candidate would need to hold a tertiary education degree. To be certified as ships' engineer, candidates also have to spend time in service onboard a vessel working as cadets and passing certification requirements. The chief engineer is first in command and is responsible for the engine and reports to the master of the ship (boatmaster/shipmaster). The second engineer is second in command and performs duties of supervising the daily maintenance and operation of the engine department. After receipt of appropriate certification, second engineers can progress and become chief engineers. It is also possible for seafarers to transition from sea to land, working as technical superintendents in ports and harbours or teaching trainee seafarers. They can also move to fleet and cargo management, logistics, sales and chartering or other similar areas of operation (Zec, 2020).

For occupations in waterborne transport at the medium skill level a candidate would need to hold a secondary school degree. To be certified as ships' mechanics, electricians or electronics technicians, candidates also have to spend time in service onboard a vessel working as cadets and passing certification requirements. Ships' mechanics, electricians or electronics technicians maintain mechanical and electronic equipment on the ship. It is also possible for seafarers to transition from sea to land and, depending on their skill level, work as technical superintendents or technical maintenance staff in ports and harbours. Here, they are responsible for maintaining fixed assets such as locks, mobile bridges and cranes. Former seafarers can also move to fleet and cargo management, logistics, sales and chartering or other similar areas of operation (Zec, 2020).

For occupations in engineering and maintenance of aircrafts and ground systems a candidate would need to hold a tertiary education degree or a secondary school degree, as well as certificates for maintenance of specific aircrafts if they are licensed mechanics. Aircraft maintenance engineers, mechanics and technicians are responsible for line (pre-flight) maintenance and routine maintenance of systems on aeroplanes and helicopters to ensure that the aircraft is safe to fly. Persons who work in mechanics service the fuselage, engines, landing gear and airframe systems, and persons who work in avionics service the electrical and electronic systems used for navigation, communications and flight control[32].

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[32] Skills and Development Scotland, 'Aircraft maintenance engineer', My World of Work webpage. Retrieved from: www.myworldofwork.co.uk/my-career-options/job-profiles/aircraft-maintenance-engineer.

Apprentice mechanics with experience can acquire certificates and progress to supervisory positions, such as lead mechanics. Aircraft or ground systems engineers and mechanics and maintenance technicians work at airports and flight service stations, but they can also work for transport authorities or as inspectors.

Air traffic safety electronics personnel (ATSEP) is another group of occupations in air transport. ATSEP comprises engineers, technicians and computer hardware and software specialists who are responsible for the ground electronic systems used to help control aircraft movements. This covers the specification, procurement, installation, calibration, maintenance, testing and certification of these systems. ATSEP are required to have a basic level of initial training in the electronics and engineering domains and generally hold qualifications, evidenced by training and work experience, in any of the following areas: communication, navigation, surveillance and data processing[33].

Occupations in engineering and maintenance in rail transport typically require tertiary or secondary school education and practical training. An interesting development due to the digital transformation of rail transport is condition-based maintenance and predictive maintenance (Eisenschmidt et al., 2018), whereby data collected during the operation of equipment is analysed to identify maintenance issues and plan servicing. Different engineering profiles (e.g. civil, electrical, mechanical and computer engineers) and electricians, mechanics and maintenance technicians work in inspection, servicing and maintenance of mobile assets and of fixed assets (infrastructure maintenance), such as servicing bridges, tunnels, train stations and rails.

Occupations in engineering and maintenance in road transport typically require secondary school education and practical training. Automotive mechanics and maintenance technicians work in inspection, servicing and maintenance of mobile assets, such as trucks and buses.

In rail and road transport, there are many opportunities to change duties or careers. For example, maintenance staff can change positions within companies and work in supervision service (e.g. as team leaders and managers) and in operational control centres or the transport authority (e.g. as schedulers or traffic planners).

The many other occupations in transport that support the transfer of people and goods (Table A-13) can be divided into those that require primary education, those that require secondary school training, and those that require post-secondary or tertiary training.

Occupations at high skill level require post-secondary or tertiary training. Traffic or transport planners and analysts develop transport strategies taking into account the impact of economic, legal, political, cultural, demographic, sociological, physical and environmental factors on land use and transport systems. These occupations also model traffic flows and prepare reports and publications. Persons employed in traffic or transport planning have typically completed tertiary education in civil engineering, environmental sciences, town planning, geography or math and they work for transport authorities or transport operators[34].

Clearing, forwarding and shipping agents work in all sectors of transport in the area of warehousing and shipping. They work with companies, importers and exporters, ensuring that goods are transported in the safest, most efficient and cost-effective way. Typically, these workers carry out customs clearance procedures for exports or imports; ensure that insurance, export/import licences and other formalities are in order; sign and issue bills of

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[33] SKYbrary, 'Air traffic safety electronics personnel (ATSEP)', webpage. Retrieved from:
https://www.skybrary.aero/index.php/Air_Traffic_Safety_Electronics_Personnel_(ATSEP) ..
[34] Target Jobs, 'Transportation planner: job description', webpage. Retrieved from:
https://targetjobs.co.uk/careers-advice/job-descriptions/279505-transportation-planner-job-description.

lading; check import/export documentation to determine cargo contents; and classify goods into different fee or tariff groups, using a tariff coding system. Clearing, forwarding and shipping agents work for national and international logistics companies, or for transport companies, and can progress in their careers to shipping managers or export office managers. Although it is not required, persons employed as clearing, forwarding and shipping agents typically have degrees in supply chain, transport or business[35].

Occupations at medium skill level typically require secondary school education. Stationary and mobile cranes and other hoisting equipment operators, such as forklift operators, work in warehousing and other areas across different sectors of transport. For example, they:

- operate and monitor stationary or mobile cranes by raising and lowering jibs and booms to lift, move, position or place equipment, materials or freight;

- operate and monitor machinery used to haul ferries or barges with goods, passengers and vehicles across short stretches of water, to open and close bridges for the passage of road and water traffic (e.g. lock and movable bridge operator);

- operate cranes mounted on boats or barges to lift, move and place equipment and materials.

Career opportunities for stationary and mobile cranes and other hoisting equipment operators are varied, as they have professional skills that can be applied across all areas of transport.

Occupations at low skill level typically do not require the completion of formal education; however, having primary or secondary school qualification is beneficial. Freight handlers can work as loaders/unloaders for railway vehicles, road vehicles, aircraft and ships/barges, and as harbour/port and warehouse personnel. Although much of the work is physical, the mechanisation of loading/unloading and the automated storage and retrieval systems make these jobs available to people who may be less physically strong. Career opportunities for freight handlers are varied, as they possess professional skills that can be applied across all areas of transport.

5. Main messages and pedagogical approach of the toolkits

Based on the findings outlined, the study team developed the main messages and the pedagogical approach for the toolkits.

a. Main messages for teachers and learners

There are two dimensions to the toolkits: **the tools and their practice**. The toolkits offer all the necessary tools; the teachers, with their different skills, talent, expertise and sensitivities, develop and operationalise the practice of the toolkits in their context.

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[35] Target Jobs, 'Freight forwarder: job description', webpage. Retrieved from: https://targetjobs.co.uk/careers-advice/job-descriptions/1035197-freight-forwarder-job-description.

Table 1. Overview of the toolkit dimensions

	Structuring concepts	Changing perceptions and behaviours	Educational aims	Gender sensitive pedagogy
Tools	• Curricula are not neutral (formal, hidden and null)[36] • Schools are stable and solid institutions, with their own specific culture	• Curriculum • Pathways • Toolsets • Glossary • Links to external resources	• Providing early learning interventions • Broadening learners' horizons (real-world experiences) • Acting as role models: 'We become what we see around us'	• Developing self-awareness of own thoughts, beliefs, feelings, motivations and biases • Developing a contextual and empathic understanding of the other
Practice	• Advancing gender balance • The teacher is a facilitator of change • Learning is a cognitive, emotional and social activity	• Change as a process • Culturally responsive teaching and learning • Participative and active methods	• Debunking gender stereotyping • Empowering learners • Developing key competences for lifelong learning • Gender balance	• Towards achieving gender literacy[37] • Promoting a gender-sensitive environment

Learning activities provide a context that stimulates reflection and dialogue, giving learners the opportunity to question and confront their stereotypical thinking and biases and to review both individually and as a group their perceptions. Teachers should be attentive to behaviours that indicate this learning is being processed — such as learners expressing their own beliefs and feelings; accepting critical feedback; active listening; revising their opinions after listening to others'; paying attention to verbal and non-verbal communication; and choosing cooperation rather than competition.

The toolkits' activities were developed around the idea of debunking of gender stereotypes, while engaging with the possibilities that the transport sector offers in terms of career pathways to both girls and boys.

Messages related to debunking gender stereotypes

- Stereotypical expectations based on socially fixed norms for boys and girls are a root cause of gender inequality. They affect self-perception, well-being and how we interact with others and have a strong influence on whether and how individuals participate in education, training and the world of work.

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[36] The 'formal curriculum' can be generally understood as the intentionally taught knowledge and skills in courses, lessons, and learning activities. 'Hidden curriculum' refers to the norms, values and beliefs unwittingly conveyed in the classroom and the social environment, while the 'null curriculum' refers to what learners do not have the opportunity to learn, the concepts and skills that are not part of their learning.
[37] 'Gender literacy' is understood here as the ability, confidence and willingness to engage with gender issues, reflect on and change own perceptions, stereotypes and biases.

- Gender stereotypes have a negative impact on both girls and boys as they limit individual aspirations, choices and freedom. In school, gender stereotypes strongly affect a young person's classroom experience, preferences for certain disciplines and overall perception of their own abilities.

- Gender stereotypes often combine with other stereotypes, such as those based on race or ethnic origin, religion or belief, disability, age or sexual orientation.

- Assumptions about gender may be conscious or unconscious and can result in groups being treated differently to one another.

- Addressing gender stereotypes throughout the education cycle is key to enabling children to have equal opportunities independent of their gender. This includes examining the norms, values and beliefs unknowingly conveyed in the classroom, in the social environment (*hidden curriculum*), and in what learners *do not* have the opportunity to learn (*null curriculum*).

- Challenging gender stereotypes in school can help to reduce gender imbalances in other spheres of life, such as at home or in the workplace.

- Providing girls and boys with new role models has a positive impact on making the best use of their potential.

- Out-of-school and family contexts are often rich in implicit messages related to gender; teachers have a responsibility to make the implications of such messages visible and to challenge them.

Messages related to the importance of the transport sector

- Mobility and transport matters to us all. From daily commuting to work or school, from visiting family and friends to leisure and tourism, to the proper functioning of global supply chains that transport goods for commerce and industrial production, mobility is a critical enabler of our economic and social life.

- Free movement of people and goods across its internal borders is a fundamental freedom of the EU and its single market. Travelling in the EU has led to greater cohesion and a strengthened European identity.

- As the second-largest area of expenditure for European households, the transport sector contributes 5 % to European GDP and directly employs 10 million workers.

- The transport sector is bigger and wider than young people perceive it to be, especially in the daily 'backstage' organisational effort to provide services.

- The greatest challenge facing the transport sector is the need to significantly reduce its emissions and become more sustainable. Changes in the sector, in particular those relating to automation and digitalisation, are creating new challenges and presenting new opportunities.

- Some parts of the transport sector are expected to grow and employ more workers in the future. These will need highly skilled workers with competences in engineering and technology.

b. Pedagogical approach

21st century skills

In line with the widely adopted competence-based approaches of the European education systems, and following European Council Recommendation 2018/C 189/01[38], the toolkits aim to develop in learners the key competences for lifelong learning to enable personal fulfilment, a healthy and sustainable lifestyle, employability, active citizenship and social inclusion. Among these competences are:

- numerical, scientific and engineering skills;
- digital and technology-based competences;
- interpersonal skills, and the ability to adopt new competences;
- active citizenship;
- entrepreneurship.

Active methodologies

Active methodologies for teaching and learning date back as far as the Socratic method in Ancient Greece. However, in recent decades there has been a remarkable movement to put learners at the centre of their own learning. As suggested by Barnes (1989), active learning is purposive, reflective, negotiated, critical, complex, situation-driven and engaging.

Cooperative learning

There is ample choice of active learning methodologies, but the study team favoured cooperative learning because of the way in which it meets the toolkit objectives. Teachers generally agree that this approach increases learning, self-esteem, a positive attitude towards learning and the acceptance of difference by developing constructive interdependence between students. In cooperative learning, the goal is not individual success; instead, success is shared as it requires each member of the learning community to contribute (interdependence). Because of peer accountability cooperative learning is more motivational and therefore, it produces deeper learning, better class relationships, deeper critical thinking, and better acceptance of oneself and others.

Learning to learn

Learning to think and developing self-regulation skills are key for young people to become more effective and autonomous learners. In combination with cooperative learning, this is an enormously powerful tool. By means of visible thinking routines[39], the objective is to help learners better understand what kind of learners they are and how to improve their intrinsic learning capacity.

Teachers support learners by helping them develop the skills they need to be critical and creative in their thinking — to take different viewpoints, make hypotheses, weigh different

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[38] Council Recommendation of 22 May 2018 on key competences for lifelong learning, 2018/C 189/01. Retrieved from: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.C_.2018.189.01.0001.01.ENG&toc=OJ:C:2018:189:TOC.

[39] Visible thinking routines were developed by Project Zero, a research centre at the Harvard Graduate School of Education. More information is available at http://www.pz.harvard.edu/projects/visible-thinking.

options and their consequences, understand how the others think and feel, and therefore become more empathetic.

Experiential learning

To promote deeper learning experiences and to better engage students in their learning process, the study team took inspiration from Kolb and Kolb's experiential learning cycle (2018) in designing the toolkits. In this model, a direct experience is provided by the teacher, followed by individual or group reflections ('metacognitive activity') and then conceptualisation. In the final phase, learners reflect on the application of what they have learnt in their own life.

Assessment

The toolkits provide 'light' assessment tools that can be applied at different stages in the activities to help teachers and learners in their teaching and learning processes. Assessment is understood in these toolkits as a process supportive of reflection and learning, and different tools are provided for teachers and learners in the suggested pathways.

6. Drafting the educational toolkits

With the material gathered, the main messages identified and the pedagogical approach designed, the study team proceeded to draft the two toolkits. The study team aimed to ensure that the toolkits had or met the following key functionalities:

- **User-friendly interface.** Ensuring that the toolkits are easy to navigate and allow teachers to quickly understand the objective, added value and practical utility of the materials.

- **Appealing design.** Capturing the teachers' attention and encouraging them to look through and use the toolkits. The study team worked in partnership with an external professional design developer to ensure professional design is achieved.

- **Appropriate length.** The proportion of more practical content, such as teaching materials and guidelines on how to use them in class, should be greater than the proportion of purely informative and theoretical content, to ensure the toolkits are useful.

- **Clarity of proposed actions and practical value of provided resources.** Ensuring that ready to use 'tools' are provided in the form of pedagogical materials and clear guidelines on how to use them.

- **Interdisciplinary scope.** Proposing activities that all teachers, regardless of their area of specialisation, could use and apply to their own contexts.

The toolkits were developed for primary school teachers and primary school learners (children aged 6-7 years) and secondary school teachers and secondary school learners (young people aged 14-15 years old). The toolkits also allow school leaders and school counsellors to challenge gender stereotypes in schools, where an environment free of stereotypes may lay a firm foundation for children to grow up freely and develop their unique interests and talents. In addition to the aforementioned target groups, teachers, school leaders and school counsellors are also encouraged to share work relating to the toolkits with learners' parents and carers where possible and appropriate.

Each toolkit contains seven toolsets (see Figure 10), of which toolsets 1, 2, 6 and 7 are common to both toolkits. These common chapters provide teachers with background information on the toolkit, self-assessment tools and resources to explore and develop the

learning pathways further. Toolsets 3, 4 and 5 are collections of activities to be done with learners in class or in an online learning environment. In the primary school toolkit, there are **22 different activities** to do in class with the learners, and **25 activities** in the secondary school toolkit. The learning activities, which relate to the main messages of the three toolsets (i.e. gender stereotypes, work and transport), introduce different cooperative strategies and thinking routines to improve learners' thinking skills and develop their capacity for empathy.

While the toolkits provide a flexible approach for teachers and learners to pursue their specific interests, they also provide **eight suggested learning pathways**. The suggested pathways vary in length and follow an internal coherence that will guide the teachers along the three main concepts explored: gender stereotypes, work and transport.

Figure 10. Visual map of the toolkit
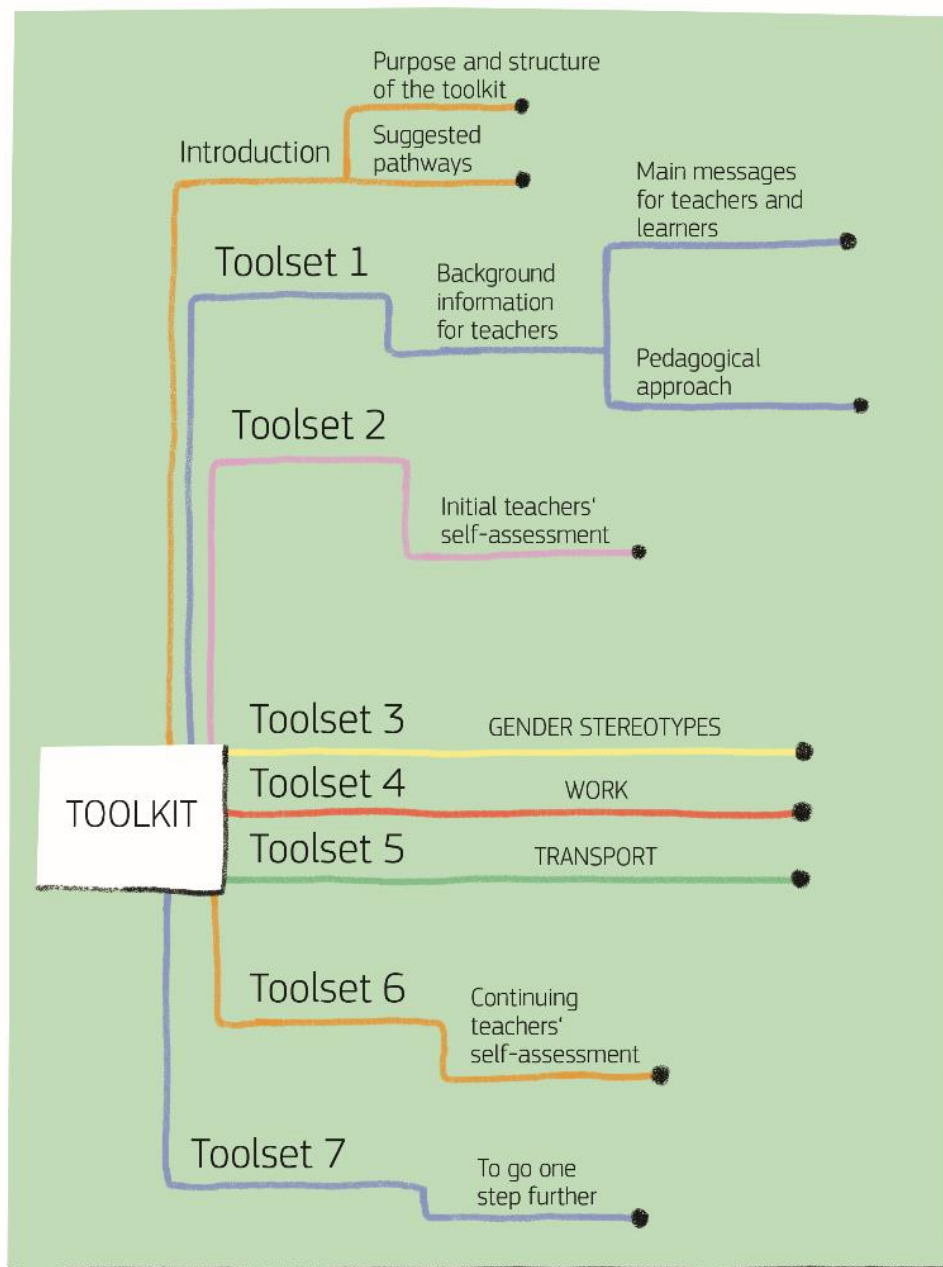
a. Stakeholder consultation

The study team enlisted five transport stakeholders and five educational stakeholders from a range of professional and geographical backgrounds to review the draft toolkits to gather feedback and improve the products. Of the five transportation stakeholders, two came from aviation, one from public transportation, one from a governmental research centre (focusing on transport) and one from vocational training for transport. Of the five education stakeholders, two came from the primary school level, one from secondary school level, one from national education agency and another one from higher education (teacher education department). Geographically, the 10 stakeholders brought in perspectives from all the European regions — Northern, Western, Southern and Central and Eastern Europe.

Feedback was collected through in-depth interviews, structured around 10 themes that covered the toolkits' key functionalities, including overall impressions, presentation and layout, design and structure, length, content, coverage of the key topics, resources, and any other topics that stakeholders found relevant.

Overall, stakeholders expressed having a positive impression of the toolkits, which they found to be a useful tool for teachers, of high quality and great importance. Several stakeholders praised the structure, and how logically the topic of gender bias unfolds within the toolkits. Some education stakeholders mentioned that the focus on the transport sector seemed less relevant for their contexts than the overall focus on gender stereotypes. Gender stereotypes, on the other hand, gained much support from all stakeholders. Transport stakeholders were mostly satisfied with the awareness-raising around gender representation in the sector. However, some expressed a wish for additional content on their work setting.

Reactions to the activities themselves were overwhelmingly positive. Stakeholders found the activities engaging, relevant, clear and age-appropriate. One teacher reflected that the materials would also be appropriate for 16-19-year-olds, suggesting that the material could reach groups beyond the intended learners. Education stakeholders did point out a number of obstacles that might stand in the way of implementation, such as reluctance among teachers and time limitations. Overall, however, the stakeholders interviewed were very interested in receiving project updates and contributing to the toolkits' dissemination.

b. Testing the two draft toolkits in schools

The study team carried out testing in primary and secondary schools in order to validate, evaluate and improve the draft toolkits. In collaboration with teachers, national researchers carried out testing in five Member States (Austria, Finland, Hungary, Lithuania and Spain) in the language of school instruction.

Given the COVID-19 pandemic, which created a number of restrictions including school closures, the study team adjusted the original testing design and did not collect observational data in class. The national researchers were also given some flexibility in how to conduct the testing with teachers with a choice of three options: assisting teachers with testing the toolkits in class; testing the toolkits online; or prospective testing and feedback interview.

For the first two scenarios, the instrument used to evaluate the effectiveness of the draft toolkits was **pre- and post-testing lesson questionnaires to be completed by the teachers**. If in-class or online testing was not possible, the third option required teachers to fill in a pre-testing lesson questionnaire after which they would provide feedback on the draft toolkits in an interview with the researchers. The teachers were asked to fill in the questionnaire from a prospective perspective — that is, planning for a hypothetical testing lesson.

Based on the information collected from the pre- and post-testing lesson questionnaires and/or the interviews, the national experts analysed the data and provided the study team with a summary of the testing lessons' results.

Summary of the lessons learnt from the testing of educational toolkits

The setting

The testing was conducted in five countries from December 2020 to January 2021. Two teachers – one primary school teacher and one secondary school teacher – were involved in the testing for each country, except for Austria, where two primary school teachers and one secondary school teacher tested the toolkits. The testing was conducted in schools that broadly corresponded to the average demographics of each country. Most often it took place in the capitals of the countries. In Finland and Spain, the testing was conducted in schools located in smaller towns.

Four teachers were able to test the toolkits face-to-face with their learners in class — both teachers in Spain, the secondary school teacher in Finland and the primary school teacher in Hungary. Three teachers (two primary school teachers and one secondary school teacher) tested the toolkits in an online setting, and three provided feedback based on a prospective testing (the secondary school teacher from Austria and both teachers from Lithuania). Table 2 provides a summary of the testing setting across the five countries.

Table 2. Summary of testing setting

	Spain	Lithuania	Hungary	Austria	Finland
Primary	In class face-to-face	Prospective testing	In class face-to-face	In class online (x 2)	Prospective testing
Secondary	In class face-to-face	Prospective testing	In class online	Prospective testing	In class face-to-face

The teachers dedicated a whole lesson to testing the toolkits, using the suggested activities but adapting them to fit the curriculum or to shorten the session. The majority of the teachers were particularly interested in the activities related to the topic of gender stereotypes. Only one teacher (the secondary school teacher from Spain who teaches social sciences) explicitly expressed interest in the transport component of the toolkits, as transport is part of her curriculum. Teachers did not use the suggested pathways because of time constraints. The majority of the teachers used the ethics class or the tutorial hour to conduct the testing.

Summary of feedback

The teachers' overall impression was that the content of the toolkits is relevant as there is a need to talk about gender equality at schools. In general, they also expressed that they would use the toolkits in the future and would recommend them to other colleagues. The teachers generally agreed that the toolkits are a compelling and accessible source of material to discuss topics such as gender stereotypes. Overall, the majority of teachers indicated that they perceived learners to be engaged during the test session and interested in the topics discussed. Teachers also reported that the toolkits helped to increase the learners' knowledge and awareness on gender stereotypes.

Feedback on the primary school toolkit

The primary school teachers expressed that learners were motivated by the activities and enjoyed them. Girls and boys were equally interested and engaged, and the activities helped teachers to raise students' awareness of gender stereotypes. The teachers agreed that the activities in the toolkit were appropriate for the age group and could be used in small and bigger groups. Nonetheless, some teachers indicated that the language in some sections could be simplified.

In general, the teachers agreed that the toolkits could be used in an online setting with some adaptations. Additionally, one of the primary school teachers commented that some activities could be easily adapted to be done at home with the learners' parents or carers.

Primary school teachers were less satisfied with the current interface of the toolkit. Some teachers reported that the layout made it difficult to grasp the purpose of the toolkits and the suggested pathways. Similarly, in terms of the activities, some teachers recommended making them more straightforward and easily accessible.

Overall, the teachers agreed that the toolkit could easily be used in different subject matters or to work on a common project across subjects.

Feedback on the secondary school toolkit

The secondary school teachers agreed that the learners were engaged and interested in the topics covered during the testing sessions. This was particularly the case for the group involved in testing that used online videos and magazines. The teachers agreed that the session helped them to raise students' awareness of gender stereotypes. The teachers shared that they did not find any differences in engagement between girls or boys.

In terms of the content, teachers agreed that the content is well-suited for learners of this age. However, some said that the connection between the transport sector and gender stereotypes could be made more explicit in the introduction.

In general, the secondary school teachers felt that the toolkit was well-structured and user-friendly and that different components are clear. In this vein, some teachers shared some recommendations to improve the navigation of the layout by including more cross-references, bullet points and boxes. They also indicated that including a brief summary about each pathway would make it easier to understand the purpose of each pathway.

Some teachers said that the length of the toolkit could be reduced, particularly the introductory section, and that the language could be simplified. Despite these concerns, teachers highlighted that the toolkit provides teachers with a wide choice to accommodate different activities and uses for the toolkits.

The secondary school teachers agreed that the toolkit could be used online, but it would need to be adapted. Finally, the teachers did not use or review the additional material but said that they would do so with more time. Teachers felt similarly about the self-evaluations and assessments.

Summary of recommendations

The following table provides a summary of the recommendations that emerged from the testing of the toolkits and the decisions and follow-up actions by the study team to integrate them.

Table 3. Summary of recommendations

Recommendations	Decision and rationale
Improve the design and layout, the visual and content overview. Make the toolkits more attractive for teachers and learners.	The final versions of the toolkits contain illustrations and are graphically designed. The navigation is facilitated with integrated links and cross-references. The structure, suggested pathways and a map of the toolsets were better explained and made prominently visible.
Ensure professional proofreading and editing.	The final versions were edited and proofread by a professional.
Provide ready-to-use worksheets.	Activity worksheets were revised and added to provide ready-to-use material.
Use more bullet points and boxes rather than long descriptions. Condense the instructions.	The text structure and content were simplified in collaboration with the language editor.
Improve the headings.	Headings were made more engaging in collaboration with the language editor.
Reduce theoretical background information, especially at the beginning of the toolkits.	This was done to a level that the reduction in the text would not compromise the presentation of the most important content.
Make the connection between gender stereotypes and the transport sector more explicit.	The focus on the transport sector was the key rationale of this assignment. More explanation and strategic framing were integrated to make the focus persuasive.
Make the purpose of the pathways more obvious.	Explanation on the purpose of the pathways was added.
Organise online trainings for teachers.	The organisation of training and other online events for teachers is suggested in this report.
Digitalise the content and make activities accessible to students through a website.	This request is beyond the scope of this project.
Provide information for parents.	A letter for parents was developed. Activities also contain remarks on the possibilities of engaging parents.

7. Finalising the toolkits

The toolkits were finalised following the testing and taking into account teacher feedback. The finalisation stage also included a quality assurance process, including professional language proofreading and editing. The final versions of the toolkits in English were translated by professional translators into the 23 remaining EU official languages. The final presentation of the toolkits includes illustrations created by a professional illustrator and are graphically designed.

The study team also prepared a dissemination plan (see Annex 2) that outlines main objectives, target audiences and activities, along with timelines for dissemination activities and indicators to monitor and evaluate impact. The dissemination plan supports the European Commission in ensuring that teachers and educators, and all interested stakeholders learn about the release of the toolkits, discover their purpose and utility, and encourage their use. The plan also ensures that the final versions of the toolkits are easily accessible to teachers and educators, and includes a summary presentation about the purpose and content of each toolkit, rationale for their use and recommendations on how teachers can best involve parents and carers.

8. Conclusions

Stereotypical expectations based on fixed norms for girls and boys are a root cause of gender inequality and affect all areas of society. They affect self-perception and wellbeing, the ways we interact with others and have a strong influence on whether and how individuals participate in education and training and the world of work. Education is key to breaking down gender stereotypes and to enabling girls and boys to have equal opportunities and the right to choose throughout their education and careers. Challenging gender stereotypes throughout the education cycle, from primary school to lifelong learning, can reduce gender imbalances in other spheres of life.

This study on the preparation of educational toolkits contributes to a narrow but growing knowledge base on gender-sensitive teaching materials and training for teachers to address gender stereotypes in class from an early age. Transport is one of the EU sectors with the greatest gender imbalance and is less well-known and less attractive sectors to young people. The toolkits developed in this study strive to help children and young people to understand that occupations are not reserved for one particular gender, while also fostering their interest in science, technology, engineering, and mathematics (STEM) careers — particularly in the transport sector.

Tackling gender stereotypes in education and employment is a key policy priority for the European Commission. However, less is known about how to do this in practice. The toolkits developed in the context of this study aim to contribute to closing that knowledge gap by providing primary and secondary school teachers with ready-to-use materials to discuss gender stereotypes and expectations in class. Given that the transport sector appears very little in recently developed toolkits, the toolkits developed also make a contribution by using the transport sector as a real-life example.

The toolkits were developed in line with the understanding that teachers are agents of change. Teachers play a key role in addressing gender stereotypes among children, and in challenging them to think freely about education and employment. The toolkits aim to empower teachers to foster these conversations and help children and young people to make education and employment choices unconstrained by gender stereotypes.

The study team worked closely with educational and transport stakeholders, who provided expert inputs, guidance and feedback at various stages of the project. Guidance from

transport stakeholders allowed the study team to build a set of toolkits that successfully respond to both present and future challenges in the sector — such as in relation to digitalisation and greening the economy. Testing with primary and secondary school teachers and learners also proved highly valuable in finetuning the toolkits. Moreover, by engaging stakeholders throughout the study, we developed a network of ambassadors who expressed their interest in helping to disseminate the toolkits.

Through the development of the toolkits, and in the context of COVID-19, three main suggestions emerged to scale up their use: digitalise the toolkits; involve parents and carers; and provide training for teachers.

Due to the pandemic, many students across the EU and around the world had to get used to online learning during 2020 (at the time of writing, in June 2021, many learners still have not returned to face-to-face lessons). This provided the study team with an opportunity to test the toolkits in an online setting and to anticipate some of the advantages and challenges of the digitalisation of the toolkits. While some activities would still require face-to-face interaction, the results of the testing suggest that many could be successfully adapted for online teaching and brought into a digital learning environment with a gamified website through which learners could explore the material independently.

Similarly, in a context where many students are learning from home, some stakeholders highlighted the need to increase parental/carer involvement. Many of the toolkits' activities could be adapted to be conducted at home between parents/carers and learners. Another recommendation from stakeholders to scale up the project included the development of training modules or events for teachers. According to stakeholders, this would facilitate teachers' use of the toolkits as it would reduce individual preparation time. Some of these suggestions were already incorporated during the finalisation of the toolkits and in the dissemination plan, with a view to boosting the toolkits' impact.

The dissemination and impact of the toolkits will rely on both stakeholders that are already engaged and other stakeholders, including in the education sector, EU institutions and European and international organisations. Certainly, the interest and enthusiasm shown by those engaged throughout the project suggest a promising future.

ANNEXES

1. Annex: Tables on occupations and skills in transport

Table A-1. Economic activities in NACE Section H, the transport and storage sector (excluding postal and courier activities)

NACE DIVISION	NACE GROUP	NACE CLASS
(49) Land transport and transport via pipelines	(49.1) Passenger rail transport, interurban	(49.10) Passenger rail transport, interurban
	(49.2) Freight rail transport	(49.20) Freight rail transport
	(49.3) Other passenger land transport	(49.31) Urban and suburban passenger land transport
		(49.32) Taxi operation
		(49.39) Other passenger land transport
	(49.4) Freight transport by road and removal services	(49.41) Freight transport by road
		(49.42) Removal services
	(49.5) Transport via pipeline	(49.5) Transport via pipeline
(50) Waterborne transport	(50.1) Sea and coastal passenger water transport	(50.10) Sea and coastal passenger water transport
	(50.2) Sea and coastal freight water transport	(50.20) Sea and coastal freight water transport
	(50.3) Inland passenger water transport	(50.30) Inland passenger water transport
	(50.4) Inland freight water transport	(50.40) Inland freight water transport
(51) Air transport	(51.1) Passenger air transport	(51.10) Passenger air transport
	(51.2) Freight air transport and space transport	(51.21) Freight air transport
		(51.22) Space transport
(52) Warehousing and support activities for transportation	(52.1) Warehousing and storage	(52.10) Warehousing and storage
	(52.2) Support activities for transportation	(52.21) Service activities incidental to land transportation

		(52.22) Service activities incidental to water transportation
		(52.23) Service activities incidental to air transportation
		(52.24) Cargo handling
		(52.29) Other transportation support activities

Source: Eurostat, Statistical Classification of Economic Activities in the European Community, Rev. 2, 2008.

Table A-2. ISCO occupations in transport

ISCO-08 MAJOR GROUP OCCUPATIONS	ISCED LEVEL OF COMPLETED EDUCATION:	SKILL LEVEL	ISCO-08 4-DIGIT CODE	ISCO-08 UNIT GROUP OCCUPATIONS	EXAMPLES OF OCCUPATIONS	NACE DIVISION
Managers	6 — Second stage of tertiary education (leading to an advanced research qualification) 5a — First stage of tertiary education, first degree (medium duration) 5b — First stage of tertiary education (short or medium duration)	High	1120	Managing directors and chief executives	Chief executives of railway companies, urban transit system, transport corporations, major airports	Land transport and transport via pipelines, waterborne transport, air transport, warehousing and support activities for transportation
			1324	Supply, distribution and related managers	Managers of transport companies, urban transit systems, storage and distribution departments Railway station managers and masters	
Professionals	6 — Second stage of tertiary education (leading to an advanced research qualification) 5a — First stage of tertiary education, first degree (medium duration)	High	2144	Mechanical engineers	Engine and motor designers Locomotive engine engineers Automotive engineers Engine, aircraft, and motor designers Aeronautical, aeronautics, jet engine, mechanical engineers Marine and naval architects Ship construction engineers	Land transport and transport via pipelines, waterborne transport, air transport, warehousing and support activities for transportation
			2149	Engineering professionals not elsewhere classified	Traffic engineers	

			2164	Town and traffic planners	Traffic planners	
			2511	Systems analysts	Systems analysts	
			2512	Software developers	Software developers	
			2513	Web and multimedia developers	Web and multimedia developers	
			2514	Applications programmers	Applications programmers	
			2521	Database designers and administrators	Database designers and administrators	
			2522	Systems administrators	Systems administrators	
			2523	Computer network professionals	Computer network professionals	
			2611	Lawyers	Lawyers	
Technicians and associate professionals	6 — Second stage of tertiary education (leading to an advanced research qualification) 5a — First stage of tertiary education, first degree (medium duration) 5b — First stage of tertiary education (short or medium duration)	High	3151	Ships' engineers	Ships engineers (chief and second engineers, officers of the watch, electro-technical officer, electrical engineer) Shore-based personnel (e.g. port engineer)	Waterborne transport
			3152	Ships' deck officers and pilots	Ships deck officers (e.g. masters, chief mates, officers of the watch, radio officer) Shore-based personnel (e.g. harbour master, technical superintendents)	
			3153	Aircraft pilots and related associate professionals	Aircraft pilots and related associate professionals (e.g. navigator)	Air transport
			3154	Air traffic controllers	Air traffic controllers and air-traffic control equipment operators	
			3155	Air traffic safety electronics technicians	Air traffic safety electronics technicians (e.g. engineer, technician)	
			3331	Clearing and forwarding agents	Clearing, forwarding, shipping agents	Warehousing and support activities for transportation
Clerical support workers	4 — Post-secondary, non-tertiary education 3 — Upper secondary level of education	Medium	4221	Travel consultants and clerks	Travel consultants and clerks (including check-in desk clerks and ticket issuers)	
			4321	Stock clerks	Freight, stock, storeroom, weighing clerks	
			4323	Transport clerks	Clerical controller (transport service), clerical dispatcher (transport service)	

	2 — Lower secondary level of education					
Service and sales workers	4 — Post-secondary, non-tertiary education 3 — Upper secondary level of education 2 — Lower secondary level of education	Medium	5111	Travel attendants and travel stewards	Cabin attendant Flight attendant Ships steward	
			5112	Transport conductors	Train conductor Bus, cable car, tram conductors and ticket inspector (public transport)	
Craft and related trades workers	4 — Post-secondary, non-tertiary education 3 — Upper secondary level of education	Medium	7232	Aircraft engine mechanics and repairers	Maintenance technician Aircraft, airframe, jet engine, helicopter, pneudraulic systems mechanic Engine fitter Service technician	Air transport
	2 - Lower secondary level of education		7421	Electronics mechanics and servicers	Avionics maintenance engineers and technicians	Warehousing and support activities for transportation
Plant and machine operators and assemblers	4 — Post-secondary, non-tertiary education 3 — Upper secondary level of education 2 — Lower secondary level of education	Medium	8311	Locomotive engine drivers	Locomotive engine driver	Land transport and transport via pipelines
			8312	Railway brake, signal and switch operators	Railway brake, signal and switch operators (e.g. coupler, shunter, signaller)	
			8321	Motorcycle drivers	Motorcycle drivers (e.g. courier, deliverer)	
			8322	Car, taxi and van drivers	Car, taxi and van drivers (e.g. attendant: parking, chauffer, courier, deliverer)	
			8331	Bus and tram drivers	Bus and tram drivers	
			8332	Heavy truck and lorry drivers	Heavy truck and lorry drivers	
			8350	Ships' deck crews and related workers	Ships deck crews and related workers (e.g. ordinary sailor, able sailor, bosun)	Waterborne transport
			8343	Crane, hoist and related plant operators	Stationary and mobile cranes and other hoisting equipment operators	Warehousing and support activities for transportation
			8344	Lifting truck operators	Lifting truck operators	
Elementary occupations	1 — Primary level of education	Low	9331	Hand and pedal vehicle drivers	Pedal vehicle driver (e.g. bicycle courier, deliverer)	Land transport and transport via pipelines

		9332	Drivers of animal-drawn vehicles and machinery	Drivers of animal-drawn vehicles and machinery	
		9333	Freight handlers	Airport attendant for baggage handling Airport attendant for ramp Freight handler Loader for railway vehicles Loader for road vehicles Loader for aircraft Docker/stevedore/longshoreman Loader for boat/ship	Warehousing and support activities for transportation
		9621	Messengers, package deliverers and luggage porters	Messengers, package deliverers and luggage porters	

Source: Surveycodings.org; Occupation measurement; Eurostat, Statistical Classification of Economic Activities in the European Community, Rev. 2 (2008); International Standard Classification of Occupations ISCO-08. Retrieved from: www.ilo.org/public/english/bureau/stat/isco/isco08/

Table A-3. Transferable skills and digital and language competences in online job advertisements for occupations in transport

SKILL LEVEL	ISCO-08 UNIT GROUP OCCUPATIONS	TRANSFERABLE SKILLS AND DIGITAL AND LANGUAGE COMPETENCES									
		Teamwork	Adaptability to change	Computer use	English	Customer service	Problem solving	Project management	Work independently	Think proactively	Think creatively
High	Managing directors and chief executives	x	x	x	x			x			
	Supply, distribution and related managers	x	x	x	x	x					
High	Mechanical engineers	x		x	x	x	x				x
	Engineering professionals not elsewhere classified	x		x	x	x	x				
	Town and traffic planners	x		x	x		x	x			x
	Systems analysts	x	x	x	x		x	x			

	Software developers	x	x	x				x			x
	Web and multimedia developers	x	x	x				x			
	Applications programmers	x	x	x	x			x			x
	Database designers and administrators	x		x							
	Systems administrators	x		x	x			x			
	Computer network professionals	x	x	x	x	x	x	x			
	Lawyers	x	x	x	x	x	x	x			
High	Ships' engineers	x	x	x	x		x				
	Ships' deck officers and pilots	x	x	x	x	x					
	Aircraft pilots and related associate professionals	x	x	x	x	x	x				x
	Air traffic controllers	x	x		x						
	Air traffic safety electronics technicians	x	x	x	x	x					
	Clearing and forwarding agents	x		x	x		x			x	
Medium	Travel consultants and clerks	x	x	x	x	x				x	
	Stock clerks	x	x	x	x					x	
	Transport clerks	x	x	x	x	x	x			x	
Medium	Travel attendants and travel stewards	x	x	x	x	x					
	Transport conductors	x	x	x	x				x	x	x

Medium	Aircraft engine mechanics and repairers	x	x	x	x		x			
	Electronics mechanics and servicers	x		x	x					
Medium	Locomotive engine drivers	x	x		x	x	x			
	Railway brake, signal and switch operators		x	x	x	x				
	Motorcycle drivers		x							
	Car, taxi and van drivers	x	x		x	x	x		x	x
	Bus and tram drivers	x	x			x			x	
	Heavy truck and lorry drivers		x	x					x	
	Ships' deck crews and related workers		x							
	Crane, hoist and related plant operators	x	x	x	x				x	
	Lifting truck operators	x			x	x	x		x	x
Low	Hand and pedal vehicle drivers		x							
	Drivers of animal-drawn vehicles and machinery									
	Freight handlers	x	x	x			x		x	
	Messengers, package deliverers and luggage porters	x	x	x	x		x		x	

Source: Compiled by PPMI using data from Cedefop, 'Skills-OVATE: Skills online vacancy analysis tool for Europe', webpage, 2020. Retrieved from: www.cedefop.europa.eu/en/data-visualisations/skills-online-vacancies/skills-occupations

Table A-4. Transferable skills and digital and language competences important now and in the future for occupations in transport

SKILL LEVEL		TRANSFERABLE SKILLS AND DIGITAL AND LANGUAGE COMPETENCES																	
		Communication skills		Critical thinking skills and problem solving		Foreign language skills		Mathematical skills, scientific literacy and the ability to draw evidence-based conclusions		Digital literacy and effective use of digital technologies		Teamwork and collaboration		Ability to cope with uncertainty and complexity		Tolerance and understanding of different viewpoints		Creativity		Ability to express and interpret figurative and abstract ideas	
High	Important today	54.9 %	↑	74.5 %	↑	47.1 %	↑	37.0 %	↑	54.9 %	↑	63.5 %	↑	58.0 %	↑	45.8 %	↓	36.2 %	↑	40.9 %	↑
	Important in the future	59.2 %		77.1 %		53.2 %		42.2 %		70.6 %		64.6 %		76.1 %		43.5 %		49.0 %		48.9 %	
Medium	Important today	39.2 %	↓	19.6 %	↓	39.2 %	↓	52.2 %	↓	37.3 %	↓	28.8 %	↑	38.0 %	↓	47.9 %	↑	48.9 %	↓	40.9 %	↓
	Important in the future	34.7 %		16.7 %		34.0 %		46.7 %		23.5 %		29.2 %		19.6 %		50.0 %		36.7 %		38.3 %	
Low	Important today	5.9 %	↑	5.9 %	↑	13.7 %	↓	10.9 %	↑	7.8 %	↓	7.7 %	↓	4.0 %	↑	6.3 %	↑	14.9 %	↓	18.2 %	↓
	Important in the future	6.1 %		6.3 %		12.8 %		11.1 %		5.9 %		6.3 %		4.3 %		6.5 %		14.3 %		12.8 %	
Total (100 %)		*n* = 51		*n* = 51		*n* = 51		*n* = 46		*n* = 51		*n* = 52		*n* = 50		*n* = 48		*n* = 47		*n* = 44	
Total (100 %)		*n* = 49		*n* = 48		*n* = 47		*n* = 45		*n* = 51		*n* = 48		*n* = 46		*n* = 46		*n* = 49		*n* = 47	

Source: Compiled by PPMI using data from the stakeholder survey conducted in May 2020. Green arrows denote a higher percentage of respondents indicated the skill will be important in the future, and red arrows denote a lower percentage of respondents indicated the skill will be important in the future.

Table A-5. Job tasks in occupations in the transport and storage sector by routine task-intensity (RTI) of occupation

SKILL LEVEL	RTI SCORE	ISCO-08 4-DIGIT CODE	ISCO-08 UNIT GROUP	NACE DIVISION
High	-1	1120	Managing directors and chief executives	Land transport and transport via pipelines, waterborne transport, air transport, warehousing and support activities for transportation
High	-1	2144	Mechanical engineers	
High	-1	2149	Engineering professionals not elsewhere classified	
High	-1	2164	Town and traffic planners	
High	-1	2511	Systems analysts	
High	-1	2512	Software developers	
High	-1	2513	Web and multimedia developers	
High	-1	2514	Applications programmers	
High	-1	2521	Database designers and administrators	
High	-1	2611	Lawyers	
High	-1	3154	Air traffic controllers	Air transport
High	-1	3155	Air traffic safety electronics technicians	
Medium	-1	8311	Locomotive engine drivers	Land transport and transport via pipelines
Medium	-1	8350	Ships' deck crews and related workers	Waterborne transport
High	-0.86	1324	Supply, distribution and related managers	Land transport and transport via pipelines, waterborne transport, air transport, warehousing and support activities for transportation
High	-0.78	2523	Computer network professionals	
Medium	-0.78	7421	Electronics mechanics and servicers	Warehousing and support activities for transportation
Low	-0.78	9332	Drivers of animal-drawn vehicles and machinery	Land transport and transport via pipelines
Medium	-0.71	8331	Bus and tram drivers	
Medium	-0.6	7232	Aircraft engine mechanics and repairers	Air transport
Medium	-0.6	8321	Motorcycle drivers	Land transport and transport via pipelines
Medium	-0.6	8343	Crane, hoist and related plant operators	Warehousing and support activities for transportation

Low	-0.6	9331	Hand and pedal vehicle drivers	Land transport and transport via pipelines
Medium	-0.5	5111	Travel attendants and travel stewards	Warehousing and support activities for transportation
High	-0.45	3152	Ships' deck officers and pilots	Waterborne transport
Medium	-0.4	5112	Transport conductors	Warehousing and support activities for transportation
High	-0.33	2522	Systems administrators	Land transport and transport via pipelines, waterborne transport, air transport, warehousing and support activities for transportation
High	-0.33	3151	Ships' engineers	Waterborne transport
Low	-0.33	9333	Freight handlers	Warehousing and support activities for transportation
Low	-0.33	9621	Messengers, package deliverers and luggage porters	
Medium	-0.25	8322	Car, taxi and van drivers	Land transport and transport via pipelines
Medium	-0.2	8312	Railway brake, signal and switch operators	
High	-0.14	3153	Aircraft pilots and related associate professionals	Air transport
Medium	0.09	4323	Transport clerks	Warehousing and support activities for transportation
Medium	0.14	8332	Heavy truck and lorry drivers	Land transport and transport via pipelines
Medium	0.25	4221	Travel consultants and clerks	Warehousing and support activities for transportation
High	1	3331	Clearing and forwarding agents	
Medium	1	4321	Stock clerks	
Medium	1	8344	Lifting truck operators	

Source: Mihaylov, E. and Tijdens, K., *Measuring the routine and non‑routine task content of 427 four‑digit ISCO‑08 occupations*, Tinbergen Institute, Amsterdam, 2019. Retrieved from: https://papers.tinbergen.nl/19035.pdf.

Table A-6. Future occupations likely to emerge in the transport sector due to digitalisation and the greening of the economy

EMERGING OCCUPATION	DESCRIPTION OF RESPONSIBILITIES	WILL BE IN HIGH DEMAND IN THE FUTURE[1]	ARE AT RISK OF GENDER IMBALANCE IN THE FUTURE[1]
Experts on artificial intelligence (AI), digital technology, Big Data	New transport/travel software development to customise travel and transport. Experts will apply machine learning algorithms to improve efficiency by implementing autonomous data interpretation and control	65.4 %	46.8 %
Software engineers and developers	Development of client-specific customised solutions	44.2 %	46.8 %
Automation and robotics experts and maintenance of automated systems	Development and maintenance of automated systems	44.2 %	31.9 %
Security (and cyber security) experts, legal services personnel and privacy protection specialists	Responsible for safety policies	30.8 %	23.4 %
Infomobility experts	Responsible for connecting the transport services to the online network	23.1 %	6.4 %
Transport and mobility integrators	Integrating mobility expertise with ICT capabilities and provision of new transportation solutions developed from forecast based on real data	25.0 %	21.3 %
Transport planners and tool developers for smart delivery	Operation of distribution vehicles for delivery to customers	26.9 %	10.6 %
Automated vehicle, drones and remote flying object operators	Operation of highly automated vehicles, monitoring and control of automated fleets remotely, operation of semiautonomous ships-vehicles-airplanes, drones, etc.	19.2 %	40.4 %
Alternative fuels distributors and charging station operators and managers	Operators and managers of alternative fuel distribution	11.5 %	27.7 %

Source: List of occupations compiled by PPMI, using data from Skillful Project, *Future scenarios on skills and competences required by the transport sector in the short, medium and long term*, Brussels, 2017. Retrieved from: http://skillfulproject.eu/ajax/downloadhandlerfm.php/downloadfile?id=14141; results from the stakeholder survey; percentage of respondents who marked the respective occupation.

Table A-7. Occupations at high skill level

ISCO-08 MAJOR GROUP OCCUPATIONS	ISCED LEVEL OF COMPLETED EDUCATION	RTI SCORE	ISCO-08 4-DIGIT CODE	ISCO-08 UNIT GROUP OCCUPATIONS	NACE DIVISION	SHARE OF WOMEN EMPLOYED
Managers	6 — Second stage of tertiary education (leading to an advanced research qualification) or 5a — First stage of tertiary education, 1st	-1	1120	Managing directors and chief executives	Land transport and transport via pipelines, waterborne transport, air transport, warehousing and support activities for transportation	26 % Number of women employed (in thousands): 114.5
		-0.86	1324	Supply, distribution and related managers		

	degree (medium duration) or 5b — First stage of tertiary education (short or medium duration)				Number of men employed (in thousands): 325.1
Professionals	6 — Second stage of tertiary education (leading to an advanced research qualification) or 5a — First stage of tertiary education, 1st degree (medium duration)	-1	2144	Mechanical engineers	Land transport and transport via pipelines, waterborne transport, air transport, warehousing and support activities for transportation	38 % Number of women employed (in thousands): 171.6 Number of men employed (in thousands): 279.9
		-1	2149	Engineering professionals not elsewhere classified		
		-1	2164	Town and traffic planners		
		-1	2511	Systems analysts		
		-1	2512	Software developers		
		-1	2513	Web and multimedia developers		
		-1	2514	Applications programmers		
		-1	2521	Database designers and administrators		
		-0.33	2522	Systems administrators		
		-0.78	2523	Computer network professionals		
		-1	2611	Lawyers		
Technicians and associate professionals	6 — Second stage of tertiary education (leading to an advanced research qualification) or 5a — First stage of tertiary education, first degree (medium duration) or 5b — First stage of tertiary education (short or medium duration)	-0.33	3151	Ships' engineers	Waterborne transport	31 % Number of women employed (in thousands): 304.2 Number of men employed (in thousands): 675.6
		-0.45	3152	Ships' deck officers and pilots		
		-0.14	3153	Aircraft pilots and related associate professionals	Air transport	
		-1	3154	Air traffic controllers		
		-1	3155	Air traffic safety electronics technicians		
		1	3331	Clearing and forwarding agents	Warehousing and support activities for transportation	

Note: Aggregate data for 2018 for the EU with 27 Member States (without the United Kingdom; see https://ec.europa.eu/eurostat/help/faq/brexit).
Source: Data taken from Eurostat; Employment by occupation and economic activity (from 2008 onwards, NACE Rev. 2) - 1 000 [lfsa_eisn2]; Additional extraction received on 2020-04-10; Unit of measurement is thousands; RTI Score, Mihaylov, E. and Tijdens, K., *Measuring the routine and non-routine task content of 427 four-digit ISCO-08 occupations*, Tinbergen Institute, Amsterdam, 2019. Retrieved from: https://papers.tinbergen.nl/19035.pdf.

Table A-8. Occupations at medium skill level

ISCO-08 MAJOR GROUP OCCUPATIONS	ISCED LEVEL OF COMPLETED EDUCATION	RTI SCORE	ISCO-08 4-DIGIT CODE	ISCO-08 UNIT GROUP OCCUPATIONS	NACE DIVISION	SHARE OF WOMEN EMPLOYED
Clerical support workers	4 — Post secondary, non-tertiary education or 3 — Upper secondary level of education or 2 — Lower secondary level of education	0.25	4221	Travel consultants and clerks	Land transport and transport via pipelines, waterborne transport, air transport, warehousing and support activities for transportation	47 % Number of women employed (in thousands): 1,045.3 Number of men employed (in thousands): 1,179.5
		1	4321	Stock clerks		
		0.09	4323	Transport clerks		
Service and sales workers	4 — Post secondary, non-tertiary education or 3 — Upper secondary level of education or 2 — Lower secondary level of education	-0.5	5111	Travel attendants and travel stewards		48 % Number of women employed (in thousands): 229.3 Number of men employed (in thousands): 244.1
		-0.4	5112	Transport conductors		
Craft and related trades workers	4 — Post secondary, non-tertiary education or 3 — Upper secondary level of education or 2 — Lower secondary level of education	-0.6	7232	Aircraft engine mechanics and repairers	Air transport	3 % Number of women employed (in thousands): 11.6u Number of men employed (in thousands): 408.2 u = low reliability
		-0.78	7421	Electronics mechanics and servicers	Warehousing and support activities for transportation	
Plant and machine operators and assemblers	4 – Post secondary, non-tertiary education or	-1	8311	Locomotive engine drivers	Land transport and transport via pipelines	5 %
		-0.2	8312	Railway brake, signal and switch operators		

	3 — Upper secondary level of education or 2 — Lower secondary level of education	-0.6	8321	Motorcycle drivers		Number of women employed (in thousands): 231.5 Number of men employed (in thousands): 4,379.8
		-0.25	8322	Car, taxi and van drivers		
		-0.71	8331	Bus and tram drivers		
		0.14	8332	Heavy truck and lorry drivers		
		-1	8350	Ships' deck crews and related workers	Waterborne transport	
		-0.6	8343	Crane, hoist and related plant operators	Warehousing and support activities for transportation	
		1	8344	Lifting truck operators		

Note: Aggregate data for 2018 for the EU-27; values followed by a 'u' have low reliability.
Source: Data taken from Eurostat; Employment by occupation and economic activity (from 2008 onwards, NACE Rev. 2) - 1 000 [lfsa_eisn2]; Additional extraction received on 2020-04-10; Unit of measurement is thousands; RTI Score, Mihaylov, E. and Tijdens, K., *measuring the routine and non-routine task content of 427 four-digit ISCO-08 occupations*, Tinbergen Institute, Amsterdam, 2019. Retrieved from: https://papers.tinbergen.nl/19035.pdf.

Table A-9. Occupations at low skill level

ISCO-08 MAJOR GROUP OCCUPATIONS	ISCED LEVEL OF COMPLETED EDUCATION	RTI SCORE	ISCO-08 4-DIGIT CODE	ISCO-08 UNIT GROUP OCCUPATIONS	NACE DIVISION	SHARE OF WOMEN EMPLOYED
Elementary occupations	1 — Primary level of education	-0.6	9331	Hand and pedal vehicle drivers	Land transport and transport via pipelines	21 %
		-0.78	9332	Drivers of animal-drawn vehicles and machinery		Number of women employed (in thousands): 184.2
		-0.33	9333	Freight handlers	Warehousing and support activities for transportation	Number of men employed (in thousands): 676.7
		-0.33	9621	Messengers, package deliverers and luggage porters		

Note: Aggregate data for 2018 for the EU-27.

Source: Data taken from Eurostat; Employment by occupation and economic activity (from 2008 onwards, NACE Rev. 2) - 1 000 [lfsa_eisn2]; Additional extraction received on 2020-04-10; Unit of measurement is thousands; RTI Score, Mihaylov, E. and Tijdens, K., *Measuring the routine and non-routine task content of 427 four-digit ISCO-08 occupations*, Tinbergen Institute, Amsterdam, 2019. Retrieved from: https://papers.tinbergen.nl/19035.pdf.

Table A-10. Selection of male-dominated occupations in transport

ISCO-08 MAJOR GROUP OCCUPATIONS	ISCED LEVEL OF COMPLETED EDUCATION	SKILL LEVEL	ISCO-08 UNIT GROUP OCCUPATIONS	EXAMPLES OF OCCUPATIONS	NACE DIVISION
Professionals	6 — Second stage of tertiary education (leading to an advanced research qualification) 5a — First stage of tertiary education, 1st degree (medium duration)	High	Engineers	Mechanical engineers (locomotive, automotive, aircraft, ships, harbour technical superintendence) Civil engineers (e.g. infrastructure maintenance in rail transport) Electrical engineers Computer engineers	All transport modes
			Planners and analysts	Traffic planners and analysts (e.g. in urban public transport)	All transport modes
Technicians and associate professionals	6 — Second stage of tertiary education (leading to an advanced research qualification) 5a — First stage of tertiary education, 1st degree (medium duration) 5b — First stage of tertiary education (short or medium duration)	High	Ships' deck officers and pilots	Ships deck officers Boatmasters	Waterborne transport
			Aircraft pilots and related associate professionals	Aircraft pilots	Air transport
			Air traffic safety electronics technicians	Air traffic safety electronics technicians	Air transport
			Clearing and forwarding agents	Clearing, forwarding, shipping agents	All transport modes
Craft and related trades workers	4 — Post secondary, non-tertiary education 3 — Upper secondary level of education 2 — Lower secondary level of education	Medium	Engine mechanics and repairers	Maintenance technicians and mechanics (mobile assets such as locomotive and railway, automotive, aircraft, ships, barges and fixed assets such as locks, mobile bridges and cranes)	All transport modes
Plant and machine operators and assemblers	4 — Post secondary, non-tertiary education 3 — Upper secondary level of education 2 — Lower secondary level of education	Medium	Locomotive engine drivers	Locomotive engine drivers	Land transport - Rail
			Railway brake, signal and switch operators	Railway brake, signal and switch operators (e.g. coupler, shunter, signaller) Tunnel operator	Land transport - Rail
			Heavy truck and lorry drivers	Heavy truck and lorry drivers	Land transport – Road
			Bus and tram drivers	Bus drivers	Land transport – Road

			Seagoing ships and inland waterway vessels crew members	Seagoing ships and inland waterway vessels crew members	Waterborne transport
			Crane, hoist and related plant operators	Stationary and mobile cranes and other hoisting equipment operators (e.g. in a harbour or at a multimodal terminal)	Warehousing and support activities for transportation
Elementary occupations	1 — Primary level of education	Low	Freight handlers	Loader/unloader for railway vehicles, road vehicles, aircraft, ship/barge and warehouse personnel	Warehousing and support activities for transportation

Source: Compiled by PPMI from the International Standard Classification of Occupations ISCO-08. Retrieved from: https://www.ilo.org/public/english/bureau/stat/isco/isco08.

Table A-11. Occupations in operating vehicles and vessels

ISCO-08 MAJOR GROUP OCCUPATIONS	ISCED LEVEL OF COMPLETED EDUCATION	SKILL LEVEL	ISCO-08 UNIT GROUP OCCUPATIONS	EXAMPLES OF OCCUPATIONS	NACE DIVISION
Technicians and associate professionals	6 — Second stage of tertiary education (leading to an advanced research qualification) 5a — First stage of tertiary education, 1st degree (medium duration) 5b — First stage of tertiary education (short or medium duration)	High	Ships' deck officers and pilots	Ships' deck officers Boatmasters	Waterborne transport
			Aircraft pilots and related associate professionals	Aircraft pilots	Air transport
Plant and machine operators and assemblers	4 — Post-secondary, non-tertiary education 3 — Upper secondary level of education 2 — Lower secondary level of education	Medium	Locomotive engine drivers	Locomotive engine drivers	Land transport - Rail
			Railway brake, signal and switch operators	Railway brake, signal and switch operators (e.g. coupler, shunter, signaller) Tunnel operator	Land transport - Rail
			Seagoing ships and inland waterway vessels crew members	Seagoing ships and inland waterway vessels crew members	Waterborne transport
			Heavy truck and lorry drivers	Heavy truck and lorry drivers	Land transport – Road
			Bus and tram drivers	Bus drivers	Land transport – Road

Table A-12. Occupations in engineering and maintenance

ISCO-08 MAJOR GROUP OCCUPATIONS	ISCED LEVEL OF COMPLETED EDUCATION	SKILL LEVEL	ISCO-08 UNIT GROUP OCCUPATIONS	EXAMPLES OF OCCUPATIONS	NACE DIVISION
Professionals	6 — Second stage of tertiary education (leading to an advanced research qualification) 5a — First stage of tertiary education, 1st degree (medium duration)	High	Engineers	Mechanical engineers (locomotive, automotive, aircraft, ships, harbour technical superintendence) Civil engineers (e.g. infrastructure maintenance in rail transport) Electrical engineers Computer engineers	All transport modes
Technicians and associate professionals	6 — Second stage of tertiary education (leading to an advanced research qualification) 5a — First stage of tertiary education, 1st degree (medium duration) 5b — First stage of tertiary education (short or medium duration)	High	Air traffic safety electronics technicians	Air traffic safety electronics technicians	Air transport
Craft and related trades workers	4 — Post secondary, non-tertiary education 3 — Upper secondary level of education 2 — Lower secondary level of education	Medium	Engine mechanics and repairers	Maintenance technicians and mechanics (mobile assets such as locomotive and railway, automotive, aircraft, ships, barges and fixed assets such as locks, mobile bridges and cranes)	All transport modes

Table A-13. Other occupations in transport

ISCO-08 MAJOR GROUP OCCUPATIONS	ISCED LEVEL OF COMPLETED EDUCATION	SKILL LEVEL	ISCO-08 UNIT GROUP OCCUPATIONS	EXAMPLES OF OCCUPATIONS	NACE DIVISION
Professionals	6 — Second stage of tertiary education (leading to an advanced research qualification) 5a — First stage of tertiary education, 1st degree (medium duration)	High	Planners and analysts	Traffic planners and analysts (e.g. in urban public transport)	All transport modes
Technicians and associate professionals	6 — Second stage of tertiary education (leading to an advanced research qualification) 5a — First stage of tertiary education, 1st degree (medium duration) 5b — First stage of tertiary education (short or medium duration)	High	Clearing and forwarding agents	Clearing, forwarding, shipping agents	All transport modes
Plant and machine operators and assemblers	4 — Post secondary, non-tertiary education 3 — Upper secondary level of education 2 — Lower secondary level of education	Medium	Crane, hoist and related plant operators	Stationary and mobile cranes and other hoisting equipment operators (e.g. in a harbour or at a multimodal terminal)	Warehousing and support activities for transportation
Elementary occupations	1 — Primary level of education	Low	Freight handlers	Loader/unloader for railway vehicles, road vehicles, aircraft, ship/barge and warehouse personnel	Warehousing and support activities for transportation

2. Annex: Dissemination plan

This dissemination plan has been prepared to inform the target audiences of the gender stereotypes in transport toolkits about these products and to encourage their use.

The plan focuses primarily on reaching primary and secondary school teachers; however, educators working in other settings could also benefit from using this material.

First, the plan aims to ensure that teachers learn about the release of the toolkits and understand their purpose and educational value. Second, the plan seeks to ensure that toolkits are easily available to all interested stakeholders. To achieve the objectives outlined above, two main outputs were developed:

- A summary presentation describes the purpose and content of the toolkits and the key objectives. The summary presentation provides the information for additional dissemination material, such as informational one-pagers, news articles and social media posts.

- The informational material for parents includes a model explanation letter for parents with the information about the toolkits and why it is important to have such discussions also at school.

a. Summary presentation

The educational toolkits developed for the European Commission challenge learners in primary and secondary schools to identify and question gender stereotypes and discover career opportunities in the transport sector. The transport sector is bigger and wider than young people see and perceive it to be. The transport sector is also changing rapidly and is becoming increasingly more digitalised and sustainable. It is expected to grow and employ more highly skilled workers in the future, especially those with competences in engineering and technology. These toolkits aim to show that the rapidly changing transport sector offers career possibilities that are not restricted to a particular gender. Currently, only 22 % of the people working in the transport sector are women. Many girls do not consider a career path in the transport sector because of gender stereotypes and expectations that lead them in a different professional direction. The toolkits aim to encourage learners to challenge gender stereotypes, explore the world of opportunities and develop transferable skills critical for the 21st century.

Stereotypical expectations based on socially fixed norms for boys and girls are a root cause of gender inequality. They affect self-perception and well-being, the ways we interact with others and have a strong influence on how individuals participate in education and training and the world of work. Addressing gender stereotypes throughout the education cycle is key to enabling children to have equal opportunities independent of their gender and can reduce gender imbalances in other spheres of life, including home and work.

Teachers, educators, school leaders and counsellors can use these toolkits to organise discussions and activities. These toolkits provide an opportunity for children to explore unknown or unconventional career options, and thus an opportunity to challenge gender stereotypes within and outside the classroom. An educational environment that is free of gender stereotypes provides a firm foundation for children to grow freely and develop their unique interests and talents.

The toolkits are useful for developing transferable skills and competences for lifelong learning; tackling gender inequality and increase opportunities for girls and boys; and

informing learners about future opportunities in the transport sector, thus preparing them for the rapidly changing world.

The toolkits employ active learning methodologies that place the learner at the centre of their own learning. The activities provide a context that stimulates reflection and dialogue, in which learners have the opportunity to question and confront their stereotypical thinking and biases, both as a group and as individuals.

Activities within the toolkits are based on three main pillars: cooperative learning, experiential learning and learning to learn. Cooperative learning increases self-esteem, creates positive attitudes towards learning and encourages teamwork and tolerance. Experiential learning allows learners to reflect on their experiences in class and beyond, and to develop their own valuable insights. Learning to learn is a critical skill in our constantly changing world, and it allows learners to develop critical thinking and time management skills, empowering them to become effective and autonomous learners.

The active learning strategies adopted in the toolkits also help to develop the key competences for lifelong learning that are needed for personal fulfilment, a healthy and sustainable lifestyle, employability, active citizenship and social inclusion. These toolkits and the resources within them can be easily applied across the curriculum and offer multiple opportunities for interdisciplinarity. The toolkit is available for download in 24 different languages.

b. A model letter to parents

Dear Parent(s) or Guardian(s),

We are writing to let you know about the educational toolkits that will be used in class this semester. In addition to the regular curriculum, we will introduce a series of activities to start and facilitate discussions about gender stereotypes and career choices, based on the example of the transport sector. We are writing to explain the purpose and benefits of these toolkits for your child's education and ask for your support.

The educational toolkits were developed for the European Commission, with the aim to challenge learners in primary and secondary schools to question gender stereotypes and discover new opportunities in the transport sector. The transport sector is a rapidly growing strategic economic domain that is becoming increasingly more digitalised and environmentally friendly, creating new career opportunities that are for all. The toolkits provide information about the transport sector's unique importance, explain less known transport occupations, and highlight the wide range of competences required for the various occupations in this sector.

Currently, only 22 % of the people working in the transport sector are women. Many girls do not consider a career path in the transport sector because of gender stereotypes and expectations that lead them in a different professional direction. Challenging gender stereotypes throughout the education cycle, from primary school to lifelong learning, can reduce gender imbalances in other spheres of life, and open up new opportunities and horizons including at home and at work.

It is particularly important to address gender stereotypes as early as possible in the educational curriculum to ensure that girls and boys are given the same opportunities to explore their diverse interests and potential. These toolkits will be used to facilitate discussions, collaborative work, and interactive activities to provide learners with role models that break traditional gender roles and inspire them to use their potential and explore their unique interests.

The toolkits will be used to encourage learners to challenge gender stereotypes, explore the world of opportunities and develop transferable skills critical for the 21st century. These skills, such as autonomous learning, decision-making, cooperation, conflict resolution, are becoming increasingly important for learners at early ages. The toolkits help primary and secondary school learners acquire these skills through innovative experiential, discussion-based reflexive teaching methodology.

The toolkits contain various in-class activities that might require some preparation at home. To support the learners, we would kindly ask you to engage with such questions at home. Engagement in these conversations may entail answering questions related to home assignments, sharing your experiences related to career choices, division of work at home, or helping your child find and learn about inspiring individuals in non-conventional roles within the family, community or society.

We are counting on your cooperation.

Yours sincerely,

Teachers

c. Suggested additional dissemination material

Building on the outputs presented above, additional dissemination materials could be developed for a wide range of communication channels. These could include informational one-pagers, social media posts, press releases, instructions for use, and programmes for online informational events.

Table A-14. Suggested additional material

Additional material	Suggested features
Informational one-pagers	- Brief description of the toolkits; **Visualisation** of gender gaps, skills gaps, growing demand for new skills in the transport sector to introduce the problem; - Optimisation for **digital-only** use.
Press releases, articles	**Blog posts, news items, or articles** connecting the toolkits with the broader EU policy issues related to sustainable transport, digitalisation and automation, gender segregation in education and the labour market; - Links included guiding readers to the download page.
Social media posts	**Concise description** and a link to the toolkits; **Synchronised hashtags** if used across various social media platforms or as part of certain events; **Visuals,** such as the one-pager infographic, attached to the social media posts.
Event/training programmes	Recorded or live **demonstration of a selected activity** from the toolkits.

d. Stakeholders as agents of dissemination

This section outlines the key stakeholders that could serve as dissemination agents and promote the toolkits across a wide range of subgroups within the target audience.

Dissemination agents are responsible for distributing information using various forms of dissemination mechanisms. This section first identifies main education stakeholders, such as EU-level networks, associations and organisations, which could be contacted and asked to disseminate information about the toolkits within their networks. Second, the section points out the key role of transport stakeholders as dissemination agents. Third, it offers coordination of the dissemination strategy among EU institutions to employ already established communication channels and broaden the reach of the activities. Finally, this section presents three international organisations working at the intersection of education, gender equality, and sustainable development, which could be contacted to expand the dissemination strategy further. The European Commission could provide the stakeholders with relevant information and material to be disseminated through their channels.

Education stakeholders as key agents of dissemination

Education stakeholders contacted at the earlier stages of the project can serve as dissemination agents. Once the toolkits are ready and publicly available, the European Commission could contact these stakeholders directly and request that they disseminate the information within their networks and events. Several stakeholders, such as teachers who participated in the interviews, expressed their interest in receiving the final version of the toolkits. Many of the education stakeholders involved in the earlier stages of the project represent EU-wide educational networks, professional associations, and organisations that connect national actors across all Member States. The information shared by the European Commission with these stakeholders would be communicated to their members at the national level through newsletters, events or another appropriate communication format. Thus, utilising education stakeholders as dissemination agents allows reaching a large segment of the target audience.

For example, **European SchoolNet** is a network of 32 European Ministries of Education, schools, teachers, and industry partners that could disseminate the information about the toolkits through educational ministries. The European SchoolNet has a news section and allows interested actors to sign up for their policy or teachers' newsletter. **European School Network**, connecting 25 secondary schools from 12 European countries, promote exchange among students to improve educational outcomes. The network allows reaching the selected schools directly and connecting toolkits' activities with broader network programming. Several secondary schools that participated in the earlier stages of the project were contacted through this network. A more extensive list of potential educational stakeholders is provided below.

Table A-15. Education stakeholders

Type of stakeholder	Stakeholder
Networks	- European Schoolnet; - European School Network; - European Association of Institutions of Non-formal Education of Children and Youth (EAICY); - Global Education Network Europe (GENE); - European Network of Education Councils (UNEC); - The VOICE of European TeacherS (VOICES); - European Parents' Association (EPA); - INTERPARENTS.
Professional associations	- Association for Teacher Education in Europe (ATEE); - European Federation of Education Employers (EFEE); - European Trade Union Committee for Education (ETUCE);

	• European Association of Education (AEDE); • European Association of History Educators (EuroClio); • European Association for International Education (EAIE); • European Association of Teachers (EAT); • European Voice Teachers Association; • European School Heads' Association (ESHA).
EU platforms	• EPALE – Adult Learning EU.
Other	• European Forums for Technical and Vocational Education and Training; • Education Endowment Foundation (EEF); • Federation for Education in Europe (FEDE); • European Teacher Training Institute UG (ETTI); • European Institute of Education (EIE). • European Agency for Special Needs and Inclusive Education.

Transport stakeholders as key agents of dissemination

Transport stakeholders are likewise crucial agents of the toolkits' dissemination. Engagement of the transport community has the potential to promote the toolkits' use in education and training chain relevant specifically for the transport sector. It can also stimulate interest among the transport stakeholders to support the toolkits' implementation and increase their impact. Many of the toolkits' activities strongly encourage the engagement of transport professionals to expose learners to first-hand experience and role models. Involving transport stakeholders in the dissemination would be highly beneficial to this end.

Also, in this case, many stakeholders have expressed interest in receiving the final versions of the toolkits and contributing to the dissemination process. The transport stakeholders involved or identified in the earlier stages of the project represent various types of organisations working at both EU and national levels. Organisations committed to improving women's employment in transport come together under the Women in Transport - EU Platform for change. Some of the member organisations have already adopted diverse actions to tackle gender imbalance in the transport sector, including various education and training programmes (e.g. presentations and visits at schools, organisation of tech camps and Girls' Days, educational campaigns). They are well-positioned to act as a bridge between the transport and education and training community, by both sharing the toolkits in their networks as well as integrating them into their own programmes and tools if appropriate. Other stakeholders could include various transport companies, organisations and associations in transport (e.g. European Transport Workers' Federation) and various initiatives and platforms promoting gender balance, sustainability and youth awareness of the transport sector (e.g. Aviadoras, Women in Motion, Skillful project, POLIS – Cities and regions for transport innovation, European Greenways Association).

EU institutions as agents of dissemination

Utilising a wide range of communication channels already available through different Directorates-General of the European Commission, committees in the European Parliament and relevant EU bodies and agencies would extend the reach of the toolkits. Table A-16 lists the Directorates-General of the European Commission, Committees in the European Parliament and other relevant EU bodies and agencies that the European Commission's Directorate-General for Mobility and Transport (MOVE) could engage:

Table A-16. Institutional stakeholders as dissemination agents

Institution Type	Institution
European Commission's Directorates-General	• DG Communication (COMM); • DG Education, Youth, Sport and Culture (EAC); • DG Justice and Consumers (JUST); • DG Employment, Social Affairs and Inclusion (EMPL).
Committees in the European Parliament	• European Parliament Committee on Culture and Education; • European Parliament Committee on Women's Rights and Gender Equality; • European Parliament Committee on Transport and Tourism.
EU bodies	• European Economic and Social Committee (EESC), SOC and TEN Sections; • European Committee of the Regions (CoR), SEDEC and COTER Commissions.
EU agencies	• European Institute for Gender Equality (EIGE); • European Centre for the Development of Vocational Training (Cedefop); • European Maritime Safety Agency (EMSA); • European Railway Agency (ERA); • European Aviation Safety Agency (EASA).

European and international organisations as dissemination agents

Various European and international organisations and networks working at the intersection of education, gender equality and children's rights could be contacted to disseminate information about the toolkits. These actors would broaden the reach of the dissemination and reach audiences working outside of traditional formal educational settings. The suggested organisations have an extensive presence at the national level across the EU and the world:

- Eurochild is a network of organisations and individuals working with and for children in Europe, especially those in poverty and disadvantage. Eurochild supports various initiatives related to education and investment in children. The organisation could be contacted to post information about the toolkits in their news section, newsletter, or social media to reach educators and organisations.

- UNESCO focuses on educational development from pre-school to higher education, covering topics such as sustainable development, human rights and gender equality, health, and technical and vocational skills development. The information about the toolkits and their goals of educating children about the transport sector could be posted on UNESCO's news section.

- Plan International promotes equal access to quality education for all children. The organisation works with children, their families, schools and broader communities to ensure equal access, focusing primarily on girls. Plan International offers an opportunity for interested stakeholders and individuals to sign up for their newsletter. Thus, the information about the toolkits could be posted on their blogs and included in their newsletter.

e. Dissemination tools and activities

The key tools and activities to raise awareness about the toolkits and encourage their use include events, websites and online platforms, newsletters, news media and social media. These tools and activities could be used to target education stakeholders as well as broader audiences through coordinated, targeted events and promotions at selected thematic events. These tools and activities aim to effectively reach as many as possible teachers, educators, and other interested stakeholders within the established networks and the broader public.

Websites and online platforms

Once the final versions of the toolkits are stored on the EU Publications website and made available to download, the next step could be to utilise various websites and electronic platforms to raise awareness about the toolkits and access them. The news about the launch of the toolkits, information about their goals and content, and links to access them could be posted on a number of websites and online platforms. Some of the platforms are membership-based and include an option to sign up for newsletters; thus, the toolkits' announcement could also be disseminated through their newsletters. These websites and online platforms can be divided into those **directly managed** by the European Commission, and those **managed by external actors.** To disseminate the information about the toolkits to external actors, The European Commission would have to reach out to respective organisations with requests to promote the toolkits.

Some of the suggested websites and platforms include **School Education Gateway** and **eTwinning Community.** School Education Gateway is an online platform for teachers, heads of schools, educators, and other professionals working in schools and education sector, including early childhood education and care (ECEC) as well as vocational education and training (VET). The platform provides resources, information and updates on various teaching practices, new research, and informational material for teachers. The toolkits could be included under the resources section and announced in the newsletter and in the news section. The related platform, eTwinning Community, connects thousands of teachers across Europe, facilitating best practice exchange and mutual learning. Information about the toolkits could be posted as a news item on the platform's newsroom and included into its 'get inspired' section along with other educational material, and shared on its Twitter and Facebook accounts, which have an extensive number of followers. The list of potential platforms, in which news about the toolkits could be announced, is provided in Table A-17.

Table A-17. Key websites and online platforms for dissemination

	Website/ Online Platform
Directly managed	- DG MOVE – Mobility and Transport (and Women in Transport Platform) - DG EAC – Education, Youth, Sport and Culture; - DG EMPL – Employment, Social Affairs, and Inclusion; - DG JUST – Justice and Consumers.
Managed by other actors	- School Education Gateway under section 'resources' and included into the site's newsletter for subscribers; - eTwinning Community newsroom and 'get inspired' sections; - Science on Stage platform for science teachers; - Scientix platform for science education; - EIGE's website under the education topic section and Eurogender platform;

	• **European Mobility Week's** news section and newsletter.

Events

Targeted events can be an effective way to increase awareness about the toolkits among interested stakeholders and encourage their use. Given the constraints of the pandemic, the suggested promotional events could be organised as webinars or online (pre-recorded) informational sessions. We propose two types of events. The first is a training or informational session for teachers about the toolkits and their application in class. The second type of event is targeted promotional events or activities at selected international awareness-raising campaigns or events. The training would be aimed at teachers and educators, and the invitations to these training sessions could be shared through networks connecting schools, teachers and educators across Europe (Table A-15). Whether in person or online, similar informational or training events could be developed for a broader audience, connecting the main themes in the toolkits with various awareness-raising events and campaigns. Some of the suggested target events include:

- The European Week of Action for Girls (EWAG) is a week-long programme involving various events and activities that takes place around the International Day of the Girl Child, 11 October. Among a wide range of topics covered, the week also focuses on the education and economic empowerment of girls. The toolkits' sections on career choices are particularly relevant.

- European Mobility Week (16-22 September each year)) is a week-long awareness-raising event dedicated to various mobility issues. The 2021 edition focuses on the different options and more sustainable modes of commuting. The event allows various stakeholders to register their initiatives as 'mobility actions' and become part of their mobility week. The opportunities to utilise 'mobility actions' section to raise awareness about the toolkits and highlight their connection to sustainability could be explored.

- International Day of Education (24 January) aims to honour education and its central role in promoting human well-being and sustainable development goals.

- International Day of Women and Girls in Science (11 February) seeks to highlight the persisting gender gap at all levels of STEM disciplines across the world and promote more active involvement of girls in these fields from early stages of education;

- European Sustainable Development Week (20-26 September) seeks to facilitate the organisation of various activities that promote sustainable development goals and provide a common platform to promote and share these activities.

Media

News articles about the launch of the toolkits and their relevance for the future of transport could be publicised on various news media channels. Short articles about sustainable transport, the need for 21st-century skills and the importance of gender equality could be publicised on specialised media targeting teachers.

Social media

Social media, such as Facebook and Twitter, can be used to announce the launch of the toolkits and deliver periodical posts to encourage their use. Announcements on websites

and platforms are most effective for one-time news items to inform the audience about the toolkits' launch. In turn, social media provides opportunities for additional posts to sustain attention and further encourage the use of toolkits over a longer time. To ensure comprehensive and efficient dissemination through social media, we recommend announcement posts from **key social media accounts**. The key social media accounts could post information about the toolkits at key points in time, reaching those accounts' followers. The key points in time can be the toolkits' launch; the time before the school begins; special relevant events, e.g., European Mobility Week, European Week of Action for Girls, etc. Table A-18 provides a list of some of the key social media accounts and recommended message delivery format.

Table A-18. Key social media channels

Social Media Type	Accounts
Twitter	- DG MOVE Twitter EU Transport; - DG EAC Twitter 'European Youth'; - European Mobility Week Twitter; - Erasmus+ Twitter; - eTwinning Europe Twitter; - European Commission Twitter.
Facebook	- DG EAC Facebook 'European Youth'; - eTwinning Europe Facebook; - European Mobility Week Facebook; - Erasmus+ Facebook; - European Commission Facebook.

f. Implementation and monitoring

This section provides suggestions for effective implementation of the dissemination plan. Critical components of effective dissemination activities are clarifying activities and tools, setting deadlines, and establishing mechanisms for monitoring and achieving set out targets. The overall dissemination activities, regardless of the format, can be divided into **one-time** and **periodical activities.** The one-time dissemination activities should be arranged around the date when the toolkits are officially made available for use. The periodical dissemination activities should focus on the ongoing promotion and awareness-raising, exploiting various relevant events to garner attention. Table A-19 summarises one-time and periodical dissemination activities and suggested dissemination formats.

Table A-19. One-time and periodical dissemination materials

Type	Time frame	Dissemination activity
One-time	September 2021	- Emails to stakeholders providing relevant material to disseminate across their networks, events, websites; - News posted on the European Commission's websites, social media accounts, news media.
Periodical	Recurrent at selected dates or events	Social media posts on the Commission's social, media accounts on the selected critical dates.

The proposed dissemination tools and activities provide opportunities to set measurable targets and track the progress and effectiveness of these measures. Table A-20 provides sample indicators and targets for monitoring the effectiveness of dissemination activities proposed in this dissemination plan. The European Commission can select the most relevant indicators and set its own outreach targets. Monitoring of dissemination activities can be divided into three main steps. The first step involves **tracking the number and type of stakeholders** contacted to ask as dissemination agents and intermediaries. The second step entails using **Google analytics** to check the number of downloads for each toolkit. The third step focuses on using **social media analytics** to understand how many people were reached through social media posts.

Table A-20. Examples of monitoring indicators and targets

Measurable indicator	Target value
Number of stakeholders contacted as dissemination agents	• At least 23 EU-level networks and associations (see Table A-16); • 27 national education ministries; • relevant Commission's DGs, parliamentary groups, agencies
Number of events (in person or online)	• At least 3 events related to broader awareness-raising campaigns, e.g., The Day of the Girl or EU Mobility Week; • At least 4 training webinars or events for teachers;
Number of downloads for each toolkit	• X number of downloads within 1 month, 3 months, 6 months after the launch, and adjust periodical promotional activity accordingly.
Number of followers reached on social media	• A number of combined followers of the relevant social media accounts, e.g. EU Transport Twitter followers (46.6K) + eTwinning Platform Twitter (23.1K) = 69.7K users

3. Annex: An annotated overview of all identified educational toolkits addressing gender stereotypes

NAME (with embedded link)	Description						Relevance and usefulness							Evaluation
							Educational				Gender stereotypes		Appearance of transport sector	
	Author	Year	Aim	Target group	Geographical coverage	Language	Pedagogical structure	Pedagogical approach	Teaching methods	Tools for teaching and learning	Understanding of gender stereotypes	Issue areas		
STING	STING – STEM teacher training innovation for gender balance	2017	to raise gender awareness in STEM teaching	secondary	EU (ES, CY, DK, SI, NL, NO), Turkey, UK	English, Basque	practical-oriented	not defined	group work	ICT tools, audio-visual, worksheets	explicitly; Gender stereotypes as expectations/assumptions in teaching style; prejudices, implicit associations, implicit gender biases and their impact on behaviour; stereotypes as result of other's assumptions	educational segregation (STEM)	no	the toolkit was tested in 8 pilots during 2016 (see individual reports partner organisation)
Hypatia	Hypatia Project Partners	2017/2018	engage youngsters, especially girls in STEM and assist them to discover STEM related careers	secondary	AT, NL, BE, IE, DK, SE, FR, IT, ES, EL, EE, PL, Israel, UK, Serbia	EN, DK, NL, EE, FR, DE, EL, IT, PL, ES, SE, UK, Albanian, Serbian, Hebrew	practical-oriented, implementation guidelines	not defined	group work, project work, individual work, group discussion, role play/ dialogue	ICT, visual elements, work material (cards)	explicitly; Gender stereotypes as social perception regarding the attributes of males and females and tendency to relate such attributes to individuals, prior to meeting them; self-identification with stereotypes; unconscious expressions of stereotypes	educational segregation (STEM); interests/ career aspiration and perceived competences	no	interviews, find (final) evaluation report here; e.g. students reported more interest in STEM subjects, change in attitude of male teachers
GRP4ECE toolkit	FAWE. VVOB	2019	to challenge gender stereotypes in the earliest years	(pre) primary	South Africa	EN	practical-oriented, guidance	gender-responsive pedagogy	group, individual work, group discussion, dialogue	worksheets and material, visual elements	explicitly; sets of beliefs about personal attributes, behaviours and roles of a specific social group, based on their sex; biases which are repeated in the everyday life	gendered assumptions in Early Childhood Education	no	no
Breaking the Mould: Boys' things and girls' things?	NEU	2013	to bring awareness to gender stereotypes and its effect as well as challenge those through classroom practice	primary	UK	EN	practical-oriented	not defined	group work, individual work, play	worksheets, visual material, books	explicitly; gendered assumptions about how to act as a girl or a boy; barrier to individual fulfilment	gendered assumptions in children	no	no formal evaluation; feedback in form of cases in the material
apprenticeship toolkit	WISE	n.a.	inform how to recruit (female) students for STEM apprenticeships while supporting their long-term career	secondary	UK	EN	practical oriented (case studies and guidelines)	not defined	not applicable	not applicable	implicitly; gender role understanding as barrier to enter certain job markets; bias in recruitment	occupational segregation in STEM apprenticeship	no	increase of candidate applications and female job offers in STEM for company who worked on this project; see individual case studies (e.g. embedded link)
Let toys be toys	Let Toys be toys	n.a.	eliminate gender stereotypes in toys	primary, secondary	UK	EN	practical - oriented	not defined	individual, pair, group work	worksheets, link to gender-sensitive reading material	explicitly; gender stereotypes as barrier in educational achievement	toys	no	no formal evaluation; has been developed with advice and feedback of teachers

Title	Organization	Year	Objective	Level	Region	Language	Background		Methods	Materials	Stereotypes	Focus	Transport	Evaluation
Actions challenging gender stereotypes and gender segregation (2011-2012)	European Trade Union Committee for Education	2011	promoting gender equality in the labour market by challenging gender stereotypes in education	not specified	EU (ES, PL, DE, BG)	EN, FR, DE, ES, PL	n.a.	not defined	n.a.	n.a.	explicitly; gender stereotypes being reproduced in school, with long term consequences of segregated labour market		just as example of segregated labour market	no evaluation
Plurales, preliminary intervention model	Ministerio de Sanidad, Servicios Sociales e Igualdad	2014	provide tools to develop and implement equality plans in school	not specified	ES	ES, EN	n.a.	n.a.	n.a.	n.a.	tackling gender stereotypes and gender roles with the aim of gender equality	n.a.	n.a.	yes, in Spanish
Education Guides for Gender and Citizenship Project - A strategy to implement gender mainstreaming in the Portuguese education system - pre-school	Commission for Citizenship and Gender Equality (CIG)	2013	tackle stereotypes based on gender and mainstream gender perspective in formal education practices and organisational dynamics	pre-school	PT	EN	provides background information (from the field of psychology, pedagogy, and educational sciences); practice-guidelines with activities, case studies	not defined	individual and group work	visual material, worksheets	explicitly; gendered stereotypes as predefining gendered expectations and limiting their life choices	gender roles	briefly	yes (evaluation in Portuguese)
Education Guides for Gender and Citizenship Project - A strategy to implement gender mainstreaming in the Portuguese education system - 3rd cycle	Commission for Citizenship and Gender Equality (CIG)	2013	tackle stereotypes based on gender and mainstream gender perspective in formal education practices and organisational dynamics	secondary	PT	EN	heavily focused on background information	not defined	individual and group work	visual material, worksheets	explicitly; gendered stereotypes as predefining gendered expectations and limiting their life choices	gender roles	briefly	no
BREAK! - overcoming gender stereotypes in Europe through cross-media learning-guidelines for teachers	Meril Ümarik, Tiia Õun, Virve Kinkar, Marju Põld	2019	overcoming gender stereotypes and the effect is has on adolescent's career choice and career management	secondary	EE, LT, PL, Iceland	EN	information providing; example activities for the classroom	not defined	discussion, group work	TV series produced as part of the projects	explicitly; gender stereotypes are understood as beliefs and attitudes in society on the differences, characters, attributes, suitable roles, suitable professions, conduct, appearance, etc. of men and women	segregation in career choices	no	no
The struggle for equality - a toolkit for the feminist fight!	International Union of Socialist Youth	2020	provide gender equality tools for the youth sector	independent	global	EN	information providing, guidance	not defined	not focused on the classroom	n.a.	explicitly; gender stereotypes as part of power imbalance	feminist perspective to gender inequality	no	no

Gender in Education Network in Asia-Pacific (GENIA) toolkit: promoting gender equality in education	UNESCO	2019	facilitate and manage gender mainstreaming in education	independent; one chapter devoted to ECEC, one chapter devoted to primary and secondary education	Asia-Pacific region	EN	information providing, policy background and guidelines, school and classroom management, practical approach in conveying the information	gender-responsive education	group and individual work, possibility for self-study	worksheets, hand-outs, visual material	no explicit definition is given; overcoming gender stereotypes is understood as part of gender mainstreaming	gender mainstreaming in education	no	no; however, this is the fifth edition of the toolkit
National gender-responsive teacher training package: Building gender equality in very classroom in Rwanda	Rwandan Ministry of Education, UNICEF Rwanda	2018	guide teachers and school leaders in facilitate teaching in a school environment that is gender responsive	(pre)primary and secondary	Rwanda	EN	guidance, information providing, as well as activities	gender-responsive pedagogy	reflective activities, individual and small-groups	worksheets, visual material	explicitly; gender stereotypes as ideas people have on masculinity and femininity: what men and women of all generations should be like and are capable of doing; attention to gender stereotypes as part of gender sensitive pedagogy	gendered difference in education and pedagogy	no	no
FAWE Gender Responsive Pedagogy Toolkit for Teachers and Schools 2nd Edition	FAWE	2020	providing a tool to create an inclusive classroom, where students can thrive and become critical and creative thinkers without gender bias	primary, secondary	Africa	EN	foundational information and guidance, complemented by activities, case studies, examples and self-assessment questions	gender-responsive pedagogy	group, individual activities, reflective exercises	worksheets	explicitly; gender stereotypes linked to gender roles	gendered difference in education and pedagogy	no	no
Gender Responsive Pedagogy (GRP): A teacher's handbook	FAWE	2017	provides insight into gender-responsive pedagogy and assists in developing classroom practices that are gender friendly	both	Africa	EN	guidance, information providing, as well as activities	gender-responsive pedagogy	group, individual activities, reflective exercises	worksheets, visual material	explicitly; gender stereotypes as constant portrayal of women and men occupying social roles according to a traditional gender role or division of labour	gendered difference in education and pedagogy	no	no
Training Tools for Curriculum Development: A Resource Pack for Gender-Responsive STEM Education	IBE-UNESCO	2017	share a broader understanding of the theory and practice of gender-responsive STEM education, in order to support its effective development at the policy, school, classroom and community levels	primary, secondary	global	EN	foundational information and guidance, complemented by activities, case studies, examples and self-assessment questions	gender-responsive pedagogy, inquiry-based learning, project-based learning	group, individual activities, reflective exercises	worksheets, visual material	explicitly; the practice of ascribing specific attributes, characteristics or roles to an individual woman or man or groups of women/ men only by reason of her or his membership in the social group of women or men	influence of gendered perception in STEM	no	no

Training Kit: Gender Socialisation in Early Childhood Education	Caribbean Development Bank and The University of the West Indies	2018	to improve gender relations and children's understanding of gender roles, by engaging in more equitable socialisation practices in the classroom	pre-primary	Caribbean	EN	practical oriented	not defined	individual, group work, reflective exercises	worksheets, lesson plans	explicitly; gender stereotypes as part of gender socialisation; understanding of gender roles	gender socialisation as barrier in education	no	no
Gender Mainstreaming Toolkit for Teachers and Teacher Educators	Commonwealth of Learning	2014	show the importance of gender mainstreaming and how teachers can make changes to help girls and boys succeed at school	primary and secondary	Canada, Global	EN	background information complemented by practical exercises	gender-responsive education	individual, group work, reflective exercises	worksheets, visual material	explicitly; roles, attitudes or behaviours to describe girls/women and boys/men differently	gender mainstreaming in education	no	no
Gender loops: Toolbox for gender-conscious and equitable early childhood centres	genderloops	2008	implement Gender Mainstreaming strategies in vocational training institutions for educators (schools, colleges and universities), further qualification institutions for educators and early childhood education institutions	(pre) primary	DE, LT, NO, ES, Turkey	EN, DE, ES, TR, NO	provides information and guidelines	not defined	not defined	worksheets	explicitly; gender stereotypes as restriction to discovery and exploration of gender unconforming interests	role of early education as measure for gender mainstreaming	no	no
TWIST-towards women in science and technology (teacher's guide)	TWIST	2015	help in developing a programme for the professional development of teachers on the theme of enhancing gender awareness in schools	primary and secondary	SK, NL, IT, SE, SL, UK, IE, BE, Israel	Danish, Hebrew, Dutch, Slovenian, Swedish, Italian, Arabic	information-providing, as well as best practice examples together with practical tips	not defined	individual, group work, reflective exercises	online resources, worksheets	explicitly; gender stereotypes as influence for career choice as well as educational aspiration	gender segregation in Science and Technology	no	no
Inasp – gender mainstreaming in higher education toolkit	inasp	2018	attention for gender imbalance in (higher) education and tools to address those to work towards gender mainstreaming	higher education, however, there are exercises independent of educational level (directed for teaching staff)	Africa, Latin America, South Asia	EN	workshop with information, practical exercises, case studies and reflection	not defined	individual, group work, reflective exercises	worksheets	explicitly; relation between gender stereotypes and gender inequality	gender barriers in the labour market	no	no
PERFORM: Participatory Engagement with Scientific and Technological Research through Performance	Perform	2016-18	develop young people's interest in STEM through the use of scenic arts	secondary	FR, ES, UK, AT	EN, FR, ES, Catalan	practical oriented	performing arts	group work	audio-visual material	not explicitly addressed; gender stereotypes as barrier for certain occupations (occupations are not reserved for one gender)	abstract field of STEM	no	survey of students who participated in the workshop; activities were found enjoyable, more likely to consider STEM as personal career choice after participation, less stigmatised beliefs over Science after workshop

Genderclick' in pre-primary education, handling differences, working for equality (Genderklik in de kleuterklas-omgaan met verschillen, werken aan gelijkheid)	Genderatwork, Gelijke Kansen Vlaanderen (Equal opportunities Flanders)	2011	learning to be oneself and respect others without the influence of gender stereotypes	pre-primary	BE	NL	practical oriented, guidelines, examples	not defined	group work, individual work, play	worksheets	explicitly; gender stereotypes as learned constructs in early years, manifesting stronger over time; barrier to develop yourself	Gender stereotypes in play and early education	no	no
Learning Gender Stereotypes – Lesson plan	Men for change	2012	develop a critical view of culturally inherited stereotypes and the images presented in media	secondary	Canada	EN	practical oriented	not defined	group work, individual work, discussion	worksheets, teaching material, visual material	explicitly; gendered stereotypes learned through socialisation	gender stereotypes in media	no	no
A school for girls and boys (Eine Schule fuer Maedchen und Jungen-Praxishilfe mit Unterrichtsentwuerfen fuer eine geschlechtergerechte Bildung)	Frauen in der GEW (Women in Education and Science Worker's Union)	2007	provide practical tips for implementing gender equality in the school setting	primary, secondary	DE	DE	Provides background information (scientific), guidelines, practices, provides information for further gender-sensitive teachers training, recommended literature	not defined	group work, individual work, discussion, reflective exercises	quiz, worksheets	not explicitly; gender stereotypes as understanding of gender roles	gender roles and how they reflect in classroom settings	no	no
Promoting gender equality in education	UNESCO Bangkok	2009	provide a guide to reflect on the current measures towards gender equality and help to implement gender mainstreaming measures	primary, secondary	Asia-Pacific region	EN, Nepali	provide background information, guidance	gender-responsive	reflective exercises	worksheets	no explicit definition is given; overcoming gender stereotypes is understood as part of gender mainstreaming	gender inequality in education and civil society	no	no
Boys in Care	Boys in care work	2017-19	assisting youth workers and teachers in career counselling to help in the job orientation phase in a gender sensitive manner with the goal to support boys in atypical vocational pathways	Secondary	DE, AT, UK, IT, BG, SI, LT	EN, DE, IT, BG, SI, LT	practical oriented	gender-sensitive	group, individual work, discussion	worksheets; audio-visual material	explicitly; learned associations; gender stereotypes and its relation to masculinity	asymmetry of gender in the care sector	no	no
Lesson material Nr 90: Stereotypes	Bundeszentrale fuer politische Bildung	2011	start a discussion about stereotypes in German society	secondary	DE	DE	practical oriented	not defined	group work, discussion groups	visual material	not explicitly; gender stereotypes as source of discrimination; focused on gendered stereotypes in immigrant communities	stereotypes in politics and society	no	no
"Like a girl" - analysing gender stereotypes	Lehrer online; Themenportal Pubertaet	n.a.	strengthening media competence in adolescents, visibility to gender stereotypes and empowerment of girls	secondary	DE	DE	practical oriented	not defined	group work, individual work, discussion	work sheets	not explicitly; gender prejudices/ clichés and roles and its presentation in media as critical	gender stereotypes in media	no	no

Name	Author	Year	Aim	Target			Type	Approach	Method	Material	Understanding of stereotypes	Topic		
Method set: "Klischee macht Schule" (cliché makes schools)	Klische frei (project author)	2019	Assisting youth in their career choice, freed of gender stereotypes	primary, secondary	DE	DE	practical oriented	not defined	individual, group work, reflective exercises	work sheets, visual material	explicitly; understood as practice, enforced by societal roles of how we ought to behave, dress as women or men; cliché instead of stereotypes (when addressed to students)	gender stereotypes/ gendered understanding in career choice	no	no
"Gender what?"	Saesische Landeszentrale fuer politische Bildung	2018	educate youth about women rights and gender stereotypes	primary, secondary	DE	DE	practical oriented	not defined	individual and group work	work sheets, visual material	gender cliché instead of stereotypes; 'what others think of a member of a group'	origins of gender roles	no	no
Images of women and men in media	Klicksafe	n.a.	sensitivity towards images of women and men in media	secondary	DE	DE	providing information	not defined	reading, group work	reading material	understood as barrier to identity forming	gendered images in media	no	no
Gender, School and University	Universitaet Erfurt	2016	making teachers aware of gendered dynamics in teaching context and helping them to identify internal gender biased perception	primary, secondary (and higher education)	DE	DE	providing information, practical/ reflective	gender-aware	reflective/ individual	reading material	explicitly; gendered stereotypes as part of thought patterns to understand and navigate in our environment; cultural and individual basis; behaviour scripts	teacher's gendered perception in teaching	no	no
Same same but different, girls = boys	Landeszentrale für politische Bildung, Baden Württemberg	2018	making youth question gender stereotypes	secondary	DE	DE	practical oriented	not defined	group work	work sheets	implicitly; gender roles	gender roles in youth	no	no
CoolKit - games for non-violence and gender equality	Coolabora, CRL - Intervenção Social	2011	Approach gender issues and foster conflict management competences in teenagers and young people	secondary (youth)	PT	PT	practical oriented	game-based learning	group work, discussion	games with step-by-step instructions	implicitly with a particular focus on relationships, violence, bullying	Gender stereotypes, violence, gender equality, relationships	no	Yes
Educational Guide - Knowledge, Gender and Citizenship - Secondary Education	CIG - Comissão para a Cidadania e a Igualdade de Género	2017	Support teachers from secondary education to foster critical thinking about life and relationships of men and women in their pupils	secondary	PT	PT	providing information	not defined	supports teachers in organising pedagogical programmes for several disciplines (gender in biology, gender in history etc.)	reading material	wide-encompassing and touching upon several key aspects of gender issues such as gender identity, stereotypes, gender as a social construct etc.	gender stereotypes, gender violence	no	no
Guide for the integration at local level of the gender perspective in education	LGE - Local Gender Equality project	2016	To encourage local municipalities to include the gender perspective in education	Local municipalities	PT	PT	providing information	not defined	n.a.	n.a	implicitly; gender inequality	gender stereotypes and inequality	no	no

Pedagogical game Grow-up + Equal	Questão de Igualdade - Associação para a Inovação Social	n.a.	Disseminate the principles of gender equality among young people	3rd cycle of basic education (grade 7 to 9)	PT	PT	practical oriented	game-based learning	n.a.	n.a.	implicitly; gender equality	gender equality, occupational stereotypes, gender roles	no	no	
Guide for mothers, fathers, educators and primary school teachers regarding stereotype-free education for girls and boys	CPE - Centrul Parteneriat pentru Egalitate	2013	To support parents, educators and teachers to educate little girls and boys in a way that doesn't impose on them (gender) limitations	Primary education and below	RO	RO	providing information	not defined	n.a.	n.a.	implicitly; gender stereotypes	gender equality, occupational stereotypes, gender roles	only briefly when discussing professions often associated to a particular gender (e.g. Ship captain, driver often depicted as men)	no	
Educational toolkit - Justice has no gender	Agenția Națională pentru Egalitatea de Șanse între Femei și Bărbați	n.a.	Provide information on different types of stereotypes, including gender	not specified	RO	RO	providing information	not defined	n.a.	n.a.	About stereotypes in general, gender stereotypes appear as one category, among others	gender roles, sex vs gender	no	no	
Peers for Equality T-Kit on tackling gender based discrimination	Peers for equality project	2019	To modernise and improve the quality of peer education programmes and develop capacity of their networks to tackle gender inequality at society level.	youth	EU and Kyrgyzstan	EN, FR, RO, RU	providing information, practical/ reflective	peer-learning	group work/discussion	work sheets	implicitly with a particular focus on discrimination	gender-based discrimination	no	Yes	
The Teachers Toolkit E4E for education in kindergarten and elementary school	E4E project - Education for Equality - Going Beyond Gender Stereotypes	n.a.	Support teachers and potentially parents to approach gender stereotypes with their students/families	primary and pre-school	IT	IT	providing information, practical	not defined	group work, discussion	work sheets	implicitly; gender roles and socialisation	gender roles and stereotypes	no	no	
Girls and boys at school, cliches and all that	académie de Clermont-Ferrand	2011	sensitize practitioners to gender stereotypes and provide them tools for daily practice	primary/ secondary	FR	FR	providing tips/ guidance and additional resources	not defined	reflective exercises, group, individual	work sheets	explicitly; schematic representation of what girls and boys 'naturally' are	gender stereotypes	no	no	

Inclusive Schools Educational Pack	British Council (and six partners)	2019 ?	overall focus is increasing inclusive education in schools, through a flexible one-year project	not specified	EU	EN	providing information, practical tools, and guidance	not defined	individual reflections, group-work, whole class discussions	specific activities (mostly non-tech)	gender is only one dimension mentioned, it is not a central element of the toolkit	as one of the potential barriers related to access to/engagement with learning	no	no
Procrustes toolkit	Procrustes project		to provide inspiration and support to secondary schools and school supervisors in preventing underachievement of boys and girls	secondary	Flanders	Flemish	providing information, practical tools and guidance	gender-sensitive; reflexive and interactive teaching and learning, self-regulatory learning	interactive teaching, reflective exercises	reading materials; classroom activities	explicitly; from multiple perspectives	gendered thinking, gender gap in education, gender stereotypes, gender and equal opportunities, gender stereotypes and identity development	no	no available information
Worksheet: Gender and ethnicity at school	Schools of Equality - Equality begins in school project	2019	to introduce students to the topics of intersectionality - gender and ethnicity at school	primary and secondary	CZ	CZ	worksheet with three exercises	not defined, but it builds on the concepts of equality and intersecting inequalities	discussions and reflections	according to the description it includes practical exercises, but the material is not accessible to the general public	not explicitly; the material focuses on inequalities, how they interact and what are their impacts	gender inequality and intersections with other aspects (such as ethnicity)	no	no available information
Worksheet: Gender, age and inequalities in life course	Schools of Equality - Equality begins in school project	2019	raising awareness on stereotypes and prejudices concerning gender and age, as well as to fight stereotypes through education	primary and secondary	CZ	CZ	worksheet with practical exercises and activities	not defined, but it builds on the concepts of equality and acknowledges the complexity of the issue of stereotypes and prejudice	not available (the material is not accessible to the general public)	according to the description it includes practical exercises, but the material is not accessible to the general public	explicitly; the complexity of the issue is acknowledged	stereotypes and prejudice based on gender and age	no	no available information

Gender Equality Matters (GEM)	GEM project	n.a.	raise awareness, challenge attitudes concerning gender stereotyping and promote behavioural changes in relation to gender-based violence generally and especially LGBTI community in and around schools	not specified	EU (project partners are in IE, ES, IT, EL and NL)	EN mostly (materials are available in other languages)	not applicable	not defined	not applicable (the toolkit includes a collection of relevant materials, but no overarching teaching method or approach)	3 types of resources: multimedia materials (video, text, multimedia), which can be integrated and used in teaching practice; free trainings for parents and teacher trainers; and a MOOC	explicitly, although the focus is on media and gender-based violence	rights and equality; gender stereotyping and the media; gender-based bullying and gender-based violence	no	no
Guiões de Educação Género e Cidadania [Gender and Citizenship Education Guidelines]	Commission for Citizenship and Gender Equality (CIG)	2013-2017	integrating gender equality in curricula of the different cycles of basic and secondary education (separate toolkits for different cycles)	pre-primary, primary and secondary (separate toolkits)	PT (and EU)	PT, EN (pre-primary and 3rd cycle translated)	provides information, includes practical guidance/ suggestions	not defined	the 5 toolkits include diverse methods; examples: individual work, group work, class discussions, role play, brainstorming	activities specific to the themes of the toolkits	explicitly; the whole toolkit is based on a theoretical framework and scientific background	gender and body/ health/ leadership/ ICT/ vocational choices (toolkit for 3rd cycle; for pre-primary level the themes are more general)	yes, mentioned in the section on gender and vocational choices	no available information
Gender Matters: a manual on gender-based violence	Council of Europe	2020	providing reflections on gender and gender-based violence, a background to key social, political and legal issues	youth (for non-formal education)	EU	EN (also translated into several languages)	provides information, practical methods and resources	not defined	not available (the material is not accessible to the general public)	practical methods and resources for education and awareness-raising activities	not explicitly	gender-based violence	not available	no
Carrés genre	Outil pédagogique [Gender squares	Educational tool]	Le Monde selon les femmes [The World According to Women]	2016	providing information and critical analysis around gender stereotypes in order to deconstruct them	secondary	BE	FR	not available (the material is not accessible to the general public)	feminist pedagogy	not available (the material is not accessible to the general public)	games, animation tools	explicitly	not available	no	no
Pop Modèles – La stigmatisation des femmes dans la culture médiatique populaire [Pop Models - The stigmatization of women in	Média Animation	2017	aims to provide information and raise attention to how women (and gender stereotypes) are portrayed in popular media culture	not specified	BE	FR	not applicable	not defined	not defined	videos and their analysis	explicitly	gender stereotypes in media and popular culture	no	no

popular media culture]														
Guidelines on how teacher unions can contribute to mitigating and tackling gender stereotypes in education and gender segregation in the labour market	ETUCE	2013	providing a set of recommendations for teacher unions (national and EU level) on possible social dialogue and collective bargaining actions to challenge gender stereotypes in the education sector with the wider objective of having a significant impact on gender segregation in the labour market	not specified	EU	EN	The recommendations include: - Raising awareness amongst teachers, education employees and social partners in education on the issue of gender stereotypes with the aim to tackle them in the education sector; - Developing tools to contribute to gender sensitive education; - Mitigating gender stereotypes in students' choice of career paths. But they do not refer to specific pedagogical approach, teaching methods or tools.				explicitly	gender stereotypes in education, gender sensitive education; gender segregation in the labour market	no	not applicable
Inspira STEAM (the toolkit is not available on the website)	Inspira STEAM project	2018	encouraging young people, mainly girls, to approach science and technology, as well as awareness raising of existing stereotypes	primary	ES	EN, ES	practical exercises and activities with embedded links providing information	not defined	individual work, group work, group discussions	videos, reflective exercises, worksheets, creative activities (e.g. drawing)	explicitly; the focus is on women in science and technology, but there is an entire section (with activities) addressing gender stereotypes	women in science and technology	no	no available information

4. Annex: An annotated overview of all identified freely available online material addressing gender stereotypes in transport

Name (with embedded link)	Description				Purpose	Format	Target group		Relevance and usefulness					
	Author	Year	Geographical coverage	Language			Intended audience	Level of education	Provides information about the transport sector	Mode of transport	Occupation(s)	Makes the transport sector attractive to youth	Helps to understand that occupations are not reserved to a particular gender	Helps to understand that gender stereotypes are one of the main reasons for segregation in education and the labour market
Remarkable Women in Transport	Transformative Urban Mobility Initiative (TUMI)	2019	Global	EN	empowering women experts, creating visibility, stimulating behavioural change; showcasing the diversity of female change makers in transport	Publication (text)	fellow female experts, anyone	secondary	Introduces more than 60 highly qualified women transport experts, and highlights their contribution to sustainable mobility solutions on the ground.	All	A variety of different positions including women in political office, founders and leaders of various organisations, executive director, CEOs, project managers, university professors, project coordinators, activists	Yes, the variety of jobs, positions, companies/organisations and countries, and providing information about the work and achievements of women in the sector can promote the transport sector to youth, especially to young women.	It raises awareness on how women can all hold these positions and accomplish good things in the sector, in all different positions.	No
Inspirational Women in the Bus Industry - 100 Years of Women in Transport	Transport for London	2015	UK	EN	creating visibility, empowerment, showing role models	Video	General public	Primary - for English-speaking students Secondary - for students with a good level of English proficiency	Growing number of women in different positions (bus drivers, engineers) and of women with higher education degrees. Day-to-day activities of the women interviewed in different positions. It shows diversity in the type of occupations there are in the sector.	Land	Main: Bus driver; Network duty manager; Assistant training manager Apprentice engineer Mentioned:	It shows personal experience and that the work they do gives them a feeling of success and satisfaction as they see the impact of what they do.	Challenges how driving a bus is not men's job ("It's a human driving the bus").	Not explicitly
Women in rail - is the industry on the right track?	Rail Technology Magazine	2019	UK	EN	giving voice to women's view on the sector	interview	People from the industry	secondary	gives an overview of the sector	Rail	not specified	shows future opportunities for women	yes	rather the lack of role models instead of stereotypes

Making the case for women in aviation	Spanish Piolots Association SEPLA	2018	ES	ES (with subtitles in EN)	Raise awareness and promote an initiative (article) Show role models and raise awareness (video)	News article (text) + video	girls, young women; public	secondary	Initiative in Europe trying to tackle the male-dominance of aviation: Aviadoras started by the Spanish Pilots Association SEPLA	Air	Aviation, pilot	Yes, by showing personal experiences	The video mentions that this is a men's field, and it challenges that by showing many women pilots and how they work. Many of the interviewees mention that they wanted to become pilots, this was their dream, and they did which implicitly suggests that this work is not reserved to a particular gender.	Explicitly addresses gender stereotypes as a barrier for women to become pilots. Also, mentioned women being discouraged from pursuing the career of a pilot, as well as that many women are not informed properly about the opportunities for training.
Diversity@Eurocontrol: meet the 22% women talk about careers	eurocontroltv	2019	EU	EN	representation and visibility	video	public	secondary	insights into careers and motivations	air	e.g. economist, airport management, contract manager	yes, shows occupations one does not usually know	yes, shows women role models	no
Women in transport: meet …	Women in transport	2019	EU	EN, FR (with EN subtitles), SE (with EN subtitles)	representation and visibility	video	public	secondary, primary (if native)	insights into motives for working the job they do	Road, air, maritime	logistic consultant, airline pilot, truck driver, marine pilot	neutral	yes	no
Women in the transport sector: Promoting employment by preventing violence against women transport workers	ILO	2013	global	EN	Raising awareness about violence against women in the transport sector; Aiming to achieve change in policy by analysing policy options to enhance the opportunities and mitigate the barriers facing women in the transport sector	Policy brief (text)	General public	secondary (for both language and content-related reasons)	Provides information about gender inequalities in transport (and in access to transport services) - gender imbalance in the sector, vertical segregation, violence against women in the sector.	all (general)	The text is general, no focus on specific occupations	Not directly. It rather provides information on why the transport sector is not attractive to young women, more specifically how GBV at work can hinder "attraction".	not explicitly	Yes, it includes that "transport jobs are unlikely to be 'advertised' to young girls at school as a potential career choice because of gender stereotype". It is part of the career cycle.

Career that deliver: Opportunities in logistics	FTA	n.a.	UK	EN	creating visibility for logistics and its career opportunities	brochure (text)	young people before career choice, and those before a change in career	secondary	Yes, it introduces career opportunities and guidance for specific occupations within logistics (in the UK)	All	Driver: forklift driver, van driver, HVG driver; Engineer: HVG technician; Transport manager; CEO	Yes, through providing information of a specific area of the sector and showing career opportunities and paths also providing examples (case studies) of both women and men.	"Whatever your skills and interests, in logistics there is a job suited for everyone". In the case study about a women HVG driver it says: "For all those thinking this isn't a job for a young woman then think again. Leonie says, "*I would encourage all females into the industry, put aside whatever is stopping them and to fulfil their dreams.*""	No.
Video of two women pilots (specific illustration of what they do)	Air-Clips.com	2019	N/A (global)	EN	creating visibility for the profession	video	General public	secondary	Provides detailed information about the work of pilots in action (preparation before a flight and then follows them through a complete flights)	Air	Pilot	Not directly.	Not directly	No.
Video of a women tram driver in Switzerland	Verkehrbetriebe Zuerich	n.a.	Switzerland	DE (Swiss)	Visibility for the job of tram driver	video	General public	secondary, primary (if native)	provides insight into the daily work routine	rail	Tram driver	yes, shows the pros about the job and insights into the career path	not explicitly	no
Video of a women manager in logistics and shipping in Austria	ANDRITZ	n.a.	Austria	DE (Austria)	evoke interests in logistics	video	Youth	secondary	insight into (daily) tasks in logistic	maritime (but not maritime specific)	Logistics	Gives advice to the youth how to make career path decision	not explicitly	no
Video of a women in air traffic management, capacity planning in airports in Germany	DFS Deutsche Flugsicherung GmbH	n.a.	Germany	DE	evoke interests in consulting and aviation	video	youth	secondary	insight into (daily) tasks in aviation	air	consultant aviation management	gives advice and personal note to the job, insight in the daily work and career path	not explicitly	no
The road to gender equality - Women in polish transport agency	IRU	2018	Poland	PL, EN subtitles	show a good example	video	General public	secondary	insights into career paths	road	management, forklift driving, logistics	shows female role models	slightly	Yes, it includes that there are only few women driver
The female voice of pilots (ECA)	European Cockpit Association	2018	AT, FR, IS, DE	EN	representation	News article	General public	secondary	Provides more personal insights into the career	air	pilot	presents women pilots and their life in a personal and relatable level	yes	yes
Women in Mobility	ERTICO	2019	DE	EN	representation and visibility	Article	General public	secondary	broadly	transport generally	not mentioned	talks about women empowering themselves and other women, stressing the social aspect	yes	yes

Next stop: Gender equality in public transport	Thomas Avanzata	2017	EU (not specific)	EN	attention to the gender disparity in the transport sector	blog entry	general public, employers in transport	secondary	not specifically	transport generally	not mentioned	it talks about the positive benefits for the industry if more women were employed	yes	yes
Gender equality at full throttle	SESAR	2018	EU (not specific)	EN	attention to the gender imbalance in the transport sector; inspiring to address the problems and tackle them	article + video	general public, employers in transport	secondary	not specifically	transport generally	not mentioned	not specifically	yes	yes
Violeta Bulc speech - SESAR conference on the digitalisation of aviation	SESAR	2017	EU (not specific)	EN	show the modernisation process of Europe's air traffic (digitalisation)		general public	secondary	yes; steps in digitalisation	air	e.g. Research (innovation & development)	shows that there is a future job market and many chances in the job market	more or less (European commissioner for transport is a woman and present the information - role model)	no
Dit doe ik (this is what I do)	VhTo (landelijk expertisebureau meijses/ vrouwen en beta techniek)	n.a.	NL	NL	shows unconventional (unknown) jobs in science, technique, and ICT, also transport among others; helps teachers to assist students in their career choice	interactive online platform, with posts, material, videos	Youth	primary, secondary	not specifically, but some of the occupations are connected to or in transport	transport generally	e.g. road/ route developer, mechanical engineer, project leader and consulting for harbours	yes, gives insights into the career path, training or education possibilities, needed talents, and explains the working life in an easy way	more or less (all the occupations are hold by women)	no
100 Years of Women in Transport - The Present & Future	Transport for London	2014	UK	EN	attention to gender imbalance in transport sector, praising women who are good in what they do, recruitment	video	general public	primary, secondary	yes, portrays women in their daily life and what they do	inland waterways, road, rail	captain, designer, transport planning management, section manager, rail station manager, engineer, analytic	yes, it shows what people love about their job	yes	yes, talks about stereotypes in workplace
Celebrating 100 Years of Women in Transport - TfL Campaign launch event, 11 November 2014	Transport for London	2014	UK	EN	showing the history of women in transport	video	general public	secondary	yes, historic perspective	not specified	diverse	yes, shows the impact the transport sector hs	yes	yes
WIR – Women in Rail: Good Practices and Implementation Guide	European Transport Workers' Federation (ETF)	2019	EU	EN	showing best practices and giving examples of how to implement steps towards more equality	rapport	employers	secondary	yes, insights into the sector	Rail	diverse	shows possibilities to work in the sector and can inspire the youth to be changemakers in the field of transport	yes	yes, among others
60 seconds with… Adeline Ginn, founder of Women in Rail	Rail Technology Magazine	2017	UK	EN	show the outlook of the rail industry and what role women play	interview article	People from the industry	secondary	yes	Rail	not specified	talks about opportunities	yes	yes
Rail: A woman's world	Rail Technology Magazine	2018	UK	EN	Discuss the issues of gender diversity in rail	article	People from the industry	secondary	yes	Rail	not specified	not explicitly	yes	yes, provides background/overview of gender barriers

Title	Source	Year	Country	Language	Description	Type	Audience	Level		Mode	Jobs			
The women behind the Northern Powerhouse	Rail Technology Magazine	2016	UK	EN	shows how branches of the company collaborate to integrate more gender diversity	article	public	secondary	yes	Rail	diverse, e.g. Region's director of transport, senior manager for Network Rail	yes	yes	yes, explains its relation to other issues
Women in Motion	Ferrovie dello Stato Italiane	2017	IT	text EN; video IT (doesn't rely on language)	visibility	video + text		primary (video)	shows women performing their job	Rail	diverse	yes, by showing daily activities	yes, through role models	no
Factsheet: Making the transport sector fit for women to work in	ETF	2020	Europe (unspecified)	EN	attention to the problems women face in the transport sector	poster	broad audience, transport employers	secondary	yes	all, general transport	e.g. docker, logistics aviation worker, maritime worker, tourism worker, railway worker, bus driver	no/yes (points out problems, could demotivate but also motivate to change something)	yes, women role model and examples that barriers are because of structural inequality	Not explicitly
Pilots answer 50 most googled passenger questions	Captain Joe	2019	NL + EU + global	EN	Information about being a pilot	video	public	secondary	yes, insights in the life of a pilot	air	pilot	yes, informal and on eye-level communication	implicitly; male and female role model	no
Information material: maritime jobs	Verband Deutscher Reeder	n.a.	DE	DE	information for youth interested in maritime career paths	flyers	youth, secondary students	secondary	yes, shows different occupations and what kind of training or education is needed for the job	maritime	captain, engineer, logistics, maritime officer	yes, targets youth in career orientation	yes, attention to inclusive language (e.g. female job description) and pictures women role models	yes, explains that stereotypes have been one of the reasons why there were less women than men in maritime
Careers in international shipping	International Chamber of Shipping	2009	UK + global	EN (and ES, FR, IT, GR, RU and Mandarin on demand)	providing information on careers in shipping	video	school and audience of career events	secondary, primary	yes, shows how the life looks like on a cargo, what task are executed in the sector	maritime	shipping	yes, makes it more visual what shipping entails	no	no
Redraw the balanace-video	Educationan demployers	2016	UK	EN	Attention to the stereotypes young children have about gendered career paths	video	public, parents, educators, children	primary, secondary	not in depth	air	pilot	not specifically	yes, shows women role models	yes, shows that young children have gendered assumptions about who does what job
Redraw the balance recreated	Educationan demployers	2020	Denmark	Danish + EN subtitles	Attention to the stereotypes young children have about gendered career paths	video + text	public, parents, educators, children	primary	not in depth	maritime	captain, engineer	yes, tells really shortly what their job is	yes, shows women role models	yes, shows that young children have gendered assumptions about who does what job
RAF Pilot video	Educationan demployers	2016	UK	EN	Empowerment of young girls	video	girls, young women; educators, parents, public	primary	career path, challenges, advise to girls	air	pilot	yes, informal and on eye-level communication	yes, shows women role models	yes
Fawcett – gender stereotypes	Fawcett Society	2019	UK	EN	Fighting stereotypes in early childhood	video + literature review	public, parents, children, educators, policy makers	primary (video), secondary (literature review)	no	air	captain	no	yes	yes, explains extensively about gendered beliefs and stereotypes

I will be a pilot („Ik word later piloot")	The sesamestreet	2018	NL	NL	Empowerment of young girls	video	children	primary	no	air	captain	not specifically	yes, the little girl explains that she can become a pilot if she wants to	yes, the little girl defeats stereotypes and flies away
Women challenging male-dominated transport professions	ITF Global	2020	PL + global	EN subtitles	Empowering women, showing role models defeating stereotypes	video	public	secondary, primary if native	yes, shows a rather unknown job	maritime	crane operator	yes, insights into the various daily activities, personal connection with a role model	yes, women role model	yes, she talks about barriers she encountered due to stereotypes (internally and externally)
Women at work around the world	ppsnet.wordpress.com	2017	Global; Switzerland	EN	visibility	pictures/ slideshow	public	primary, secondary	not specifically	diverse	e.g. Minister of Transport	Yes, shows that there are job prospects	yes, shows women role models	yes, women talk about the gendered problems they encounter at work
Women in maritime	IMO	2020	Global, incl. EU	(mainly) EN	visibility	pictures/ posts	public	primary, secondary	some posts do	maritime	divers	yes, shows all kinds of jobs	yes, shows abundance of women role models	no
Skillfull project poster	Skillfull	2016	EU	EN	visibility of transport sector, recruitment	posters	public, employers, youth	primary, secondary	yes, shows occupations	all	divers	yes, by also showing the long-term career prospects	not specifically	no
Remote crane operator stories, Part 1: Jan Peeman, APM Terminals Maasvlakte II	ABB Marine & Ports	2018	NL	EN	visibility of digitalisation, recruitment, promotion	video	public, possible employees	secondary	yes, explains the advantages of the digitalisation (new job possibilities)	maritime	remote crane operator	yes, explains that the new job is safer, demands less physical stress, is more comfortable in general through digitalisation	no	no
Gender diversity - towards building and maintaining a diverse shipboard team	Anglo-Eastern	2018	UK; Hongkong	EN	attention to diversity in maritime/ on the ship	booklet	maritime workers	secondary, primary (if only partially)	partially; it illustrates what comes with living on a ship	water	applies to every occupation on a ship	not necessarily; names a lot of issues regarding diversity	yes	no
Jobs split along gender lines	Eurostat	2018	EU	EN	Attention to gendered imbalance in certain occupations	data + illustration	public	primary, secondary	no	road	driver	no	not explicitly	no
Top 18 COOL Transportation Jobs You May Not Have Known About!	WTS international	2011	US& international	EN	visibility of unknown professions	leaflet	youth	secondary	yes, lists different professions and explains briefly	all	divers, e.g. transportation planner, roadway designer	yes, lists job opportunities and inspiration for possible occupations	no	no
Women Employment in Urban Public Transport Sector	WISE Project	n.a.	EU	EN, DE, FR, BG, RO	visibility, empowerment	report	public, trade unions, employers, employees	secondary	yes, shows career paths	road, rail	drivers	yes, shows e.g. future prospects	yes, women employment is the main focus	yes, addresses these explicitly
Guide for the inclusion of the gender dimension in the transport sector in the context of climate	Proiectul ADA/PNUD	2015	MD	RO	To raise awareness regarding gender among experts in the transport and road infrastructure	PDF brochure	Transport sector experts	secondary	Yes	mainly land	not specified	not specifically	not specifically	yes

change					sectors, in the context of climate change									
A gender perspective for more sustainable mobility	Caterina Di Bartolo & Ivan Uccelli	2012	IT	IT	Raise awareness of inequality in terms of mobility of women and men	Article	public	secondary	yes	in general	not specified	not specifically	not specifically	no
Trasnport: no gender equality	Maria Teresa Cirillo	2018	IT	IT	Report existing inequalities in the transport sector and announce the launch of Women in Transport - EU Platform for change	News article	public	secondary	yes	in general	not specified	not specifically	yes	no
Scania trains women to drive trucks & buses in Accra	Scania	2018	Global	EN	Show the example of women becoming truck and bus drivers in the capital of Ghana	Online video	public	secondary	yes	inland	truck, bus drivers	yes	yes	yes
Women get more space in road cargo transport	Diário do Comércio	2020	BR	PT	Report on the significant increase of women working in the transport sector at several levels in Brazil	News item	public	Secondary	Yes	in general	diverse	yes	yes	no
She Pilots	Rachna (personal blog)	2019/ 2020	Global	EN	share a personal story of how she became a pilot and sharing opinions about the aviation industry and how the industry is evolving towards becoming more female-friendly	personal blog	public	primary, secondary	yes, insights into the career path and education of a pilot	Air	pilot	yes	yes	Not explicitly
Female Pilots	Vereinigung Cockpit (Flight Safety, Female Pilots Working group)	n.a.	DE	DE, EN	provide information about training paths for becoming pilots, working conditions and social protection with special focus on work-life balance, home care as well as on workplace harassment	flyers and brochures (4 documents)	public	secondary	yes	Air	pilot	yes, especially for women, by providing information on the working conditions (considering training paths, work-life balance, home care and sexual harassment)	yes	no

Sunny Swift: Flight instructor	EASA	2019/2020	EU	EN (many materials are translated into several EU languages)	providing information about general aviation (complexity of the airspace, new technologies) and promotion of flight safety with a female instructor	multiple flyers and posters with comics	general aviation pilots	primary, secondary	yes (specifically about general aviation)	Air	pilot	not explicitly, but yes	not explicitly, but putting a woman instructor in the focus can be used to promote this message	no	
Tous ces métiers de la SNCF que je ne soupçonnais pas [All these SNCF jobs that I never suspected]	madmoiZelle (and SNCF)	2020	FR	FR	providing information about occupations within the French rail (SNCF), and encouraging women to apply	article + videos	women (potential applicants)	secondary	yes	Rail	Known occupations: Train driver, Railway station agent, Station sales person, Rail switch person, Mechanic of the rail network, tow truck; Not known occupations: Maintenance and electrical engineer, Electrical engineer, Maintenance and civil engineer, Telecommunications engineer, Electrician, Train maintenance manager, Train shunting agent, Referral manager, Rail traffic (operational framework), Electromechanical technician, Railroad maintenance team leader, Overhead electrical cable fitter, Shunting manager and local lines, Train driving team manager, Railway security officer, production agent	not specifically to youth, it aims to make it more attractive to women	yes	no	
Je suis aiguilleure du rail à la SNCF, voici à quoi ressemble ma vie ! [I am a railroad switch at SNCF, this is what my life looks like!]	madmoiZelle (and SNCF)	2020	FR	FR	providing insight into the life of a women operating railway points (studies, job, daily task, work-life balance)	article (personal story)	public (specifically women)	primary, secondary	yes	Rail	Railroad switch person (operating railway points)	Yes, by showing personal experiences	not explicitly	no	

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