

European Social Dialogue Committee for
the Postal Sector – Training, Health and
Safety Working Group

POSTAL SKILLS AND WORK ENVIRONMENT IN THE DIGITAL ERA

Final Report

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European Social Dialogue Committee for the Postal Sector

**POSTAL SKILLS AND WORK ENVIRONMENT IN THE
DIGITAL ERA**

FINAL REPORT

PostEurop



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PREAMBLE

The European postal sector continues its process of transformation and diversification in terms of products and services. The financial crisis that began in 2008, the complete liberalization process of the sector, the European social and economic policies launched at the beginning of the Covid-19 pandemic have impacted, and still continue to impact the sector. This period, so rich in transformations, has been accompanied by a deep and fast digital revolution. The European postal sector has been strongly impacted in almost all its aspects by these changes which represent both new opportunities and new challenges. This transformation, together with the digital revolution, strongly impacts the needs for jobs and skills adapted to the current and future situation of the sector, without foregoing the “traditional” jobs which also require adaptation in terms of training and retraining. With reference to this key topic, the “Training, Health and Safety” working group of the European Social Dialogue Committee for the Postal sector with the projects “Matching Skills and Jobs in the European Postal Sector” (2011) and the initiative “Promoting Social Dialogue in the European Postal Sector” (2019) over these years has conducted a profound joint reflection on the skills needed in a constantly changing work context, bearing in mind the impact of phenomena such as digitisation and e-commerce on the sector. Based on the “Joint Declaration on Training in the Digital Era” (2019), the EC funded project “Postal Skills and Work Environment in the Digital Era” allowed an in-depth analysis of two main areas: the impact of digitisation on skills and training and the impact of digitisation on the working environment. These two macros-areas were investigated with respect to three strategic sector’s professional areas: Back-Office operations, Delivery operations, Post-Offices networks. The project, then, given the outbreak of the pandemic, was forced to include among its objectives also the impact of the Covid-19 pandemic on the methodologies of training and retraining programs. The project “Postal Skills and Work Environment in the Digital Era” is also a prospective study as it includes the evolution of the survey areas over the next 5-7 years. This initiative of the Postal Social Dialogue Committee analysed information provided directly by the social partners using modern scientific investigation methods, supported by the consultancy of Ernst & Young. The study confirmed the key role of employees’ training and retraining in managing the profound changes imposed by digitisation. Skills needs are becoming more and more strategic, especially for new products and services affecting the postal sector due to the diversification process. Particularly strategic, moreover, is the growing importance of soft skills for the performance of new products and services, very often of proximity. Heartful thanks go to all those who contributed to the success of this initiative, despite the difficulties caused by the pandemic. In particular, the members of the joint project steering committee who have coordinated the stages of the initiative by jointly working with the experts of Ernst & Young Italy who, with their competence and full availability, have ensured high quality to the project. The success of the joint project is also confirmed by the very interesting outcomes you can find in the publication. Thanks go, also, to those who have virtually hosted the international seminars and to the various speakers and experts who have enriched the studio with ideas, suggestions and experiences.



Jurgen JOOS

President SDC Postal Sector



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The virtual international meetings that replaced the planned in-person ones, ensured good results both in terms of quantity of participation and of quality of contributions, giving to the Postal Social Dialogue Committee the opportunity to share more widely its working methods and activities. The implementation of the project and its high quality outcomes are the results of several contributions. In particular, special thanks go to UNI Europa for the general management of the initiative and to PostEurop for its support also confirmed, during the final conference, by the General Secretary, Botond Szebeny.

The project’ steering committee, composed of Margaux Meidinger (La Poste), Dimitris Theodorakis (UNI Europa), Hendrik Meerkamp (CESI), George Papasteriadis (ELTA), Christoph Troebbs (DPDHL) and Barbaro Francesco Costa (Poste Italiane) worked closely with the external consultants of Ernst & Young, Carlo Chiattelli, Erik Stone Trautman, Luca Marcolin, Jacopo Guzzon and Rrap Kryeziu that ensured their full availability and high quality consultancy in each project’s step.

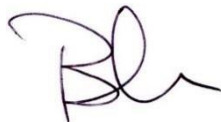
Special thanks are addressed to all the colleagues of the 19 EU members states that in answering the circulated surveys and by engaging phone interviews with the consultants, actively participated and enriched the project with their experiences and inputs. Bulgarian Posts and Poste Italiane are warmly thanked to have hosted 2 of the virtual seminars organized.

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Barbaro Francesco Costa

Chair, Training, Health & Safety Working Group
Social Dialogue Committee Postal Sector

Executive Summary

Digitalisation in the postal sector has drastically impacted both traditional and emerging profiles across Postal Occupational Areas. In this environment, the Training, Health and Safety Working Group of the Social Dialogue Committee for the European Postal Sector (SDC) launched the project, “*Postal Skills and Work Environment in the Digital Era*”. The objective of the project is to **investigate the evolving relationships between digital transformation, new skills and work environments**. Alongside the digitalisation, the study also focused on the future impact of COVID-19 on the postal sector, an issue which is closely intertwined with digital acceleration. The study covers how the change in tasks, skills and work environment has manifested within **three key Occupational Areas** of the postal sector, each including one or more Occupational Profile(s) (OP):

- ▶ **Occupational area 1: Back-office operations** includes two OPs: <https://www.onetonline.org/link/summary/43-5051.00> - Postal Service Clerks
- ▶ **Occupational area 2: Delivery of Postal Items**, which only includes one OP: <https://www.onetonline.org/link/summary/43-5052.00> - Postal Service Mail Carriers
- ▶ **Occupational area 3: Post Office Networks**, which includes two OPs: <https://www.onetonline.org/link/summary/11-9131.00> - Postmasters and Mail Superintendents

The study was based on the implementation of multiple data collection tools, combining desk and field research, primary and secondary sources. **Data collection** occurred in **three rounds**, one for each of the three postal Occupational Areas. The methodology repeated for each round entails several research activities: **desk research** focused on the expected impacts on the postal sector context at large, anticipation of skills and tasks and impact of digitalisation; a **questionnaire** for each profile (105 responses from 19 Member States, with a good balance between postal operators and unions) helped us to identify the top tasks, skills and training needs of the future; 37 **semi-structured interviews** allowed us to perform in-depth analysis of the results of the questionnaires; the **semantic analysis** of data gathered from the EURES job portal on job description for about 2,000 vacancies enriched and validated our findings for each profile; we gathered feedback directly from stakeholders by presenting a **seminar** for each Occupational Area; through the **Skills Reference and Work Environment Framework Report (SWEF)** we finalised and summarised all the main findings for each Area. In addition, at the end of the project, a **final seminar** took place, focused on cross-cutting trends and comparisons between the Occupational Profiles, and a **final report** was completed, gathering insight from the three previous SWEF Reports.

Skills Reference and Work Environment Frameworks

The analysis of the information collected allowed to draw some conclusions on the future of skills and tasks for each Occupational Area.

Back-office Operations

For Back-Office Operations, a significant change in the tasks is not envisioned in the near future. However, a shift in the technology employed in Back-office Operations may cause a disruption of established routines. In terms of future skills, OPs within this Occupational Area in the next 5 years will need soft skills (critical thinking, active listening, time management) more than any technical ‘hard skill’. However, the main future tasks include ‘getting information’ and ‘interacting with computers’, which require, to some extent, digital skills. The training in this Occupational Area is found somewhat lacking, specifically with

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regard to soft skills, whose future importance require dedicated training initiatives. In terms of Health and Safety, the introduction of collaborative robots, and the start of the transition towards a 'smart warehouse' can help reduce physical strain. Yet, other technological advancements such as wearable devices could lead to more stress for workers. Social dialogue can be a mitigating factor and contribute to reduce said stress. In the case of wearable technology, communication between employees and employers to establish clear limits on the kind of data that can gathered may reduce the stress caused by their introduction.

Delivery of Postal Items

Future tasks for this Profile will change drastically in the next 5 years, given the number of new services postal carriers will provide. They may include interfacing with digital devices, data collection, energy diagnosis, proximity services and delivery of essential goods. Future skills include familiarity with devices and new procedures, resilience, product-specific skills and knowledge. Soft skills are very highly considered for this profile, specifically in light of the digitalisation of the sector. Training methodologies are not fit for all future skills. For instance, just-in-time learning is suitable for minor technological updates and for learning quick procedures, but face-to-face learning is essential for soft skills and for major technological changes (e.g. the introduction of a new device). In terms of Health and Safety, the introduction of autonomous mobile robots to assist the delivery person, which could contribute to reduce stress and improve safety, will likely not be introduced in a significant capacity in the near future. Meanwhile the information collected shows some concerns for the potential stress caused by a decrease in interaction between colleagues as a result of the COVID-19 pandemic and a concern for platform work. Improved communication with employees and training administered with suitable modalities may reduce these discomfort factors.

Post Office Networks

The future tasks for this Occupational Area are expected to change significantly in the near future, since new services are starting to be provided in post offices. In particular, new tasks will include consultancy on insurance, energy services or financial matters, familiarity with new procedures and increased interactions with the public. In order to sustain the new service offerings, new skills will be required in the next 5 years: relational skills, product-specific skills and knowledge (relative to the new services), soft skills for both Postmasters and Postal Clerks. Training can be improved, specifically for Postal Clerks and for particular topics, i.e. soft skills, both in terms of quality and quantity. Health and Safety risks include poor posture, eye discomfort and other negative effects of the sedentary office lifestyle, as well as stress for the new roles. Social dialogue has been identified as a mitigating factor when employed to advocate for a stricter separation of training time and working time, as well as between work time and free time.

Cross-cutting findings

The main cross-cutting findings can be summarised into three main topics

Digitalisation

For each new profile, some degree of technological improvement is envisioned in the near future. Such technological changes are recognised as potentially useful for the OPs, both in terms of reducing physical strain and in terms of streamlining of repetitive procedures. Some such changes include: new software, wearable devices and new machinery to handle heavy weights for Back Office Operations; new portable

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devices and new apps and procedures connected with the new proximity services provided for the Delivery of Postal Items; new software and new procedures concerning insurance, energy, connectivity and financial services. Nevertheless, the disruption of established work routines, the lack of familiarity with new devices and insufficient training may also constitute a severe stress factor. For Delivery of Postal Items and Post Office Networks, technological changes are designed to accommodate for new business models and service offerings. The degree of digitalisation throughout the EU is not homogenous. In some areas of Europe, the digital transition is still in its initial phase. Current trends in digitalisation have been accelerated by the COVID-19 pandemic and countries in which postal employees do not have an e-mail account, or post offices are not provided with technological devices, have been forced to expedite the transformation that in other countries took decades.

Soft Skills

As a result of the massive impact that digitalisation is having on the postal sector, the most crucial skills of the future are soft skills, e.g. critical thinking, problem solving, active listening, relational skills like active listening and need understanding. These skills have been consistently ranked at the top of the ranking for future skill needs in all three Occupational Areas. Indeed, the skills required to master a singular technological change are very often micro-skills, or minor changes in procedures that can be learned without excessive efforts. The real discomfort element, our research found, are the continuous updates and technological improvements, their pace and frequency, which can be destabilizing. Soft skills are vital to acquire resilience and adapt to constant transformation of the sector. The ubiquity of soft skills is a direct result of the ubiquity of change in all three Occupational Areas.

COVID-19

COVID-19 had a significant impact on all OPs and on virtually every aspect of the postal sector. Concerning digitalisation, the sudden acceleration of the digital transformation caused discomfort in those European countries where such a process was in its infancy. Regarding work procedures, the pandemic forced postal organisations to implement health and safety protocols (concerning masks, for instance, gloves, limits to the number of people allowed in the post office). Furthermore, existing procedures were modified to accommodate health concerns (e.g., collection of signatures, payment modalities). The pandemic also accelerated the already existing shift from letters to parcels (likely to continue) and caused a spike in e-commerce (which is likely to decrease to pre-COVID-19 levels). In terms of skills, new procedures to be implemented require new skills and new training concerning those skills, as well as specific knowledge of sanitary equipment. Finally, with regard to training, new topics requiring training were introduced and e-learning became the sole method of training, despite not being the most suitable method for a variety of target skills.

Introduction

Digitalisation in the postal sector has drastically impacted both traditional and emerging profiles across Postal Occupational Areas. The introduction of new technologies will inevitably create close relationships between postal workers and machines (technological adaptation of the operational process). In this environment, the **Training, Health and Safety Working Group** of the **Social Dialogue Committee for the European Postal Sector (SDC)** launched the project, “**Postal Skills and Work Environment in the Digital Era**”. This project constitutes the last of a list of initiatives that set out to improve circumstances surrounding training as well as Health and Safety in the postal sector. The project is the result of the collaboration between postal sector unions and major postal operators in the EU within the Steering Committee of SDC, alongside consultants from EY hired to conduct the study.

The objective of the project is to **investigate the evolving relationships between digital transformation, new skills and work environments**. The aim is to provide a better understanding of how employees can (1) benefit from technology, (2) understand the associated risks in terms of possible deterioration of working conditions and (3) envision the potential impact new technologies can have on occupational Health and Safety, following the SDC work programme. This study has, thus, strived to **examine and anticipate transformations in the postal sector within the indicated time horizon of five years**, focusing on skills anticipation and the impact of digitalisation on the working environment (e.g. Health & Safety issues, the man-machine relationship). The outbreak of the Covid-19 pandemic, the way it has impacted the postal sector as a whole, and the way it intertwined with the subject of digitalisation and skills expectations, led us to include the analysis of the pandemic’s long term effects as one of the main focus of the study.

We have conducted desk research and collected data **from key sector stakeholders**, like **SDC members and their affiliates, L&D managers and training specialists, line managers, postal sector experts and trade Union experts** to address employee grievances and social themes such as inclusion and equality and to identify key issues, challenges and needs for both employers and employees. Our research has enabled the staging of three international seminars as well as a Final Conference which allowed the drafting of the Skills and Work Environment Framework (SWEF) Report.

1 Methodology

1.1 Selection of Occupational Areas and Profiles




The study covers how this phenomenon has manifested within **three key Occupational Areas** of the postal sector: **Back-office operations, the Delivery of Postal Items and Post Office Networks**. For each, **Occupational Profiles** (OPs) have been used to represent the digital impact on skills and the work environment in their three respective areas. The O*NET occupational classification system¹ has served for the selection on the OPs and for a first preliminary analysis of various characteristics identified for the profile (tasks, skills, outlook, etc.). In each case, the ISCO/ESCO classification system was also examined for comparison. Table 1 below describes the Occupational Profiles selected for each of the Occupational Areas.

The OPs were selected in cooperation with the project steering committee based on perceived relevance and the presence of homogenous roles across postal operators. It should be noted that Postal Service Mail Carriers are intended as both letter/mail carriers and small/large package carriers.

¹ See at: [link](#).

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Table 1 - Selection of Occupational Profiles

Occupational Area	Occupational Profiles	Common Tasks	Common Titles
Back-office operations 	Production, Planning and Expediting Clerks	<ul style="list-style-type: none"> ▶ Reviewing and distributing production, work, and shipment schedules ▶ Conferring with department supervisors to determine progress of work and completion dates ▶ Compiling reports on progress of work, inventory levels, costs, and production problems 	<ul style="list-style-type: none"> ▶ Material Control Clerk ▶ Production Scheduler ▶ Expeditor
	Shipping, Receiving and Inventory Clerks	<ul style="list-style-type: none"> ▶ Assembling, addressing, stamping, and shipping merchandise or material ▶ Receiving, unpacking, verifying and recording incoming merchandise or material ▶ Arranging for the transportation of products 	<ul style="list-style-type: none"> ▶ Freight Clerk ▶ Route Delivery Clerk ▶ Store Receiving Clerk ▶ Warehouse Clerk
Delivery of Postal Items 	Postal Service Mail Carriers	<ul style="list-style-type: none"> ▶ Sort and deliver mail for postal operators ▶ Deliver mail on established route by vehicle or on foot, ▶ Includes postal service mail carriers employed by contractors 	<ul style="list-style-type: none"> ▶ Postman/Postwoman ▶ City Carrier ▶ City Carrier Assistant (CCA) ▶ City Letter Carrier ▶ City Mail Carrier ▶ Letter Carrier ▶ Mail Carrier ▶ Rural Carrier ▶ Rural Carrier Associate ▶ Rural Mail Carrier ▶ Rural Route Carrier
Post Office Networks 	Postmasters and Mail Superintendents	<ul style="list-style-type: none"> ▶ Plan, direct, or coordinate operational, administrative, management, and support services of a post office, ▶ Coordinate activities of workers engaged in postal and related work in assigned post office 	<ul style="list-style-type: none"> ▶ Postal Supervisor ▶ Postmaster ▶ Postmaster Relief
	Postal Service Clerks	<ul style="list-style-type: none"> ▶ Perform any combination of tasks in post offices, such as receive letters and parcels; ▶ Sell postage and revenue stamps, postal cards, and stamped envelopes; 	<ul style="list-style-type: none"> ▶ Bulk Mail Technician, Clerk ▶ Distribution Clerk ▶ Postal Clerk ▶ Sales and Distribution Clerk

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Occupational Area	Occupational Profiles	Common Tasks	Common Titles
		<ul style="list-style-type: none">▶ Fill out and sell money orders;▶ Place mail in pigeonholes of mail rack or in bags; and▶ Examine mail for correct postage	<ul style="list-style-type: none">▶ Sales and Service Associate▶ Window Clerk

*Source: O*NET Classification Standard*

1.2 Research design

Data collection for the study occurred in **three rounds**, one for each of the three postal Occupational Areas described above. The methodology repeated for each round entails several research activities, as illustrated in **Figure 1**, which starts with **desk research** on the agreed upon Occupational Profiles. Insight from the desk research is then used to draft and **administer a questionnaire** for each profile. The questionnaire responses are then synthesised and presented to respondents along with follow up questions in **semi-structured interviews** for an in-depth analysis according to a **modified version of the Delphi methodology** (see Box 1 below for a more in-depth explanation of the method).

The last data analysis method proposed for the study pertains to a **semantic analysis**. The semantic analysis aims to identify and explore connections between concepts expressed across the collected data in order to bring to light latent insight for the subsequent reports and seminars. We explain each step of the research design in the sections below.

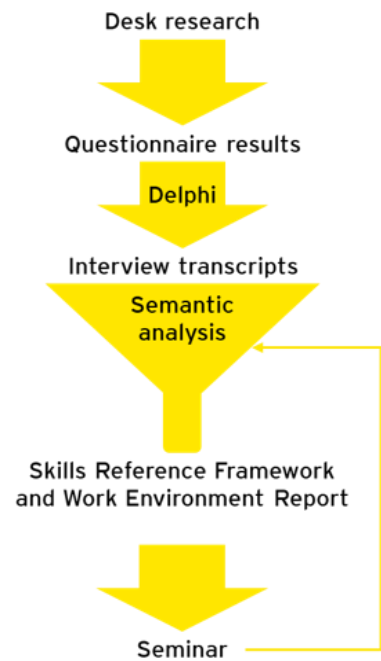


Figure 1 - Research Process

Box 1 - The Delphi method

In line with the guidelines outlined by the European Training Foundation (ETF) in *Developing skills Foresights, Scenarios and Forecasts*², EY adopted a modified, exploratory, Delphi method supported by the emerging insights from desk analysis as well as interviews with key stakeholders for the skill foresight assessment. The ETF guide suggests the combination of these methods and finds the Delphi method among the most suitable foresight methods for skills anticipation. These two methods create synergy in that the desk analysis acts a supplement to the Delphi method by informing the questionnaires with evidence-based research in order to present the expert respondents with insightful questions. The Delphi method is also enticing due to its balanced position in the middle of Popper's foresight diamond.¹

The Delphi methodology typically entails two rounds of questionnaires with selected key experts. Our modified method replaced the second round of questionnaires with semi-structured interviews. The results from the questionnaire have been provided to interviewees during the second round, thus informing them of their colleagues' stances. The results of the second round of inquiry informs the researcher on how the information from the first round influenced expert opinions and thought processes.

The goal of this method is to reach a degree of consensus among experts of differing opinions while eliminating unwanted influence that may arise in other methodological approaches such as expert panels. For instance, online questionnaires eliminate the tendency for more talking time and attention given to more outspoken experts, and they give the same weight to the opinions of more soft-spoken colleagues, which are just as valid and, perhaps, less often considered and, thus, more valuable. More than a simple questionnaire, however, the Delphi method provides the opportunity for an interaction

² Bakule, M. et al, 2016. *Developing Skills Foresights, Scenarios and Forecasts: Guide to Anticipating and Matching Skills and Jobs*. EFT, CEDEFOP, ILO. See at: [link](#).

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in expert opinions without favouring those of the most prestigious or influential figures, thus encouraging dissent and leading toward true consensus.

1.2.1 Desk Research

The preliminary list reproduced in Figure 2 below acted as a starting point for selecting sources. Additional sources were then gathered to bolster the analysis and fill gaps in the research especially in the areas of social dialogue, which drew heavily on previous work from SDC as well as for the section on Covid-19. See the Bibliography for a full list of resources.

Figure 2 - Preliminary list of relevant sources for Desk Analysis

Desk Analysis Sources		
Postal sector context	Skills anticipation	Impacts of digitisation
<ul style="list-style-type: none"> ▪ SDC for Postal sector ▪ IPC International Postal Corporation ▪ UPU - Universal Postal Union ▪ UNI Global Union - Post & Logistics 	<ul style="list-style-type: none"> ▪ OSHA - Occupational Safety and Health Administration ▪ CEDEFOP - European Centre for the Development of Vocational Training ▪ ETF - European Training Foundation ▪ Academic Research ▪ ILO - International Labour Organisation 	<ul style="list-style-type: none"> ▪ Eurofound - European Foundation for the Improvement of Living and Working Conditions ▪ OECD - Organisation for Economic Cooperation and Development ▪ European Commission - DG EMPL & DG CONNECT ▪ WEF - World Economic Forum ▪ Academic Research ▪ ILO - International Labour Organisation

preliminary selection

Information from Cedefop and Eurofound studies provided the foundations for the desk analysis on skills/training needs as well as the impact of digitalisation on labour markets. These studies, however, took a more general approach to the topics and required some narrowing for the specific profiles under analysis.³ Indeed, these studies influenced the methodology of the desk research approach with an adoption of a task-based model.

Modern methods for skills foresight have moved beyond Skills-Biased Technical Change (SBTC) as a model for explaining labour market inequality and have increasingly relied on **task-based models**.⁴ As such, we adopted our methodology for the skills foresight part of the study to a task-based method in which we first focused on future tasks for the OPs, followed by questioning on future skills, then mapping the two together.

The SBTC model posited that technological change increased the productivity and demand for highly skilled labour, resulting in wage inequalities.⁵ However, the polarisation of the labour market in which both low and highly skilled jobs appeared more insulated from technological change (which otherwise impacted jobs in the middle of spectrum) cast doubt on the skilled-biased model.

³ The level of specificity provided in many of the researched reports commonly reached the International Standard Classification of Occupations (ISCO) two-digit level, or sub-major occupational groups. As such, a conversion from the O*NET profiles under analysis into the corresponding ISCO profiles was required in order to determine the correct ISCO sub-major group to analyse.

⁴ Eurofound 2016, What do Europeans do at work? A task-based analysis: European Jobs Monitor 2016, Publications Office of the European Union, Luxembourg.

⁵ Ibid.

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Routine-Biased Technical Change (RBTC) explained this phenomenon by proposing that **jobs with routine tasks were the most likely to be replaced by automation and technological change** (rather than simply low-skilled jobs), indicating a shift of the focus from skills to tasks.⁶ Moreover, these jobs were most commonly found in the middle of the spectrum from low to highly skilled work, thus explaining job loss polarisation. Indeed, this shift in focus and differentiation from skills to tasks allows for not only “a more detailed analysis of the effect of technology on labour demand but also to **introduce, as a critical step in such an effect, the mapping of tasks to skills**, which can change over time”.⁷

Desk research concerning the work environment, rather, leveraged on **SDC initiatives** as principal sources of information, following calls for the further dissemination, follow-up and reporting of previous SDC projects.

1.2.2 Questionnaires

The insight derived from the desk research provided a base on which to draft further questions to investigate specific areas via the questionnaires. The questionnaires were meant to further investigate the findings of the desk research activities in order to operationalise the user’s information into a format that allows for statistical measurement and analysis. The questionnaires aimed to reach a minimum of approximately 15 to 30 respondents as discussed in the steering committee, and had an estimated **overall duration of 30 minutes**.

The questionnaires consisted of a balanced mix of **three types of questions** closed, semi-structured questions (sliders, ranking and multiple choice) and open-ended. In addition to requesting personal data on the respondent’s role, organisation and contact information, the questionnaire followed a general structured divided into **four parts**:

- ▶ **Part A: Skills and Learning needs**
- ▶ **Part B: Impacts of Digitalisation**
- ▶ **Part C: Evolution of Continuous Training**
- ▶ **Part D: Digitation and Social Dialogue**

The questionnaire was hosted and administered on Qualtrics, a leading experience management company that provides, among other services, quality questionnaire tools for professional and reliable surveys. The steering committee provided respondents with an anonymous link to access the questionnaire as well as a brief presentation on how to fill out a Qualtrics questionnaire in any of the project languages of their choosing (DE, EN, ES, FR, or IT). The steering committee additionally provided the questionnaire in Word and PDF format for screening the questions before as well as an alternative in case of any technical difficulties.

Questionnaires were designed on the basis of in-depth desk research for each of the Occupational Profiles. Thus, two questionnaires were designed and distributed for the first and third Occupational Areas (Back-office Operations and Post Office Network) and one for the second round (Delivery of Postal Items).

1.2.3 Semi-structured Interviews

The interviews aimed to **triangulate and validate** the findings of the questionnaires by gathering **additional insight and clarification** from the same respondents of the questionnaires as laid out in our

⁶ Ibid.

⁷ Ibid.

modified Delphi method. The interviewers presented aggregated results of the findings from the questionnaires that invoked further investigation and asked **follow-up questions** to allow for discussing concrete cases and examples and predicting the emergence of unexpected issues.

The interviewers shared the interview guidelines and questions with the interviewees in advance via email in order to allow for the interviewee to take stock of the interview questions and consider their responses in ample time before the interview. The interviews were all held on Microsoft Teams and in any of project language of preference. Each interview had a maximum time allotted to it of one hour, but most finished after 40 minutes. The steering committee agreed on a proportional proposals for interviewee subjects based on the geographic and organisational representation presented in the questionnaire responses.

1.2.4 Semantic Analysis

This research activity has the overall purpose of validating and expanding on what has emerged from the three previous research activities. The semantic analysis acts as a model, a semantic network of emerging concepts from textual information. It identifies the logical structure of sentences to identify the most relevant elements in text and the main relationships between words and content.

Conducting a semantic analysis, therefore, requires a large dataset of texts. We obtained such a dataset through a web scraping exercise of the EURES job portal. Web scraping entails retrieving and extracting information from a website. In this case, the web scraper extracted job descriptions from a random selection of about 2,000 vacancies posted for the transportation and storage sector, which includes the postal sector.

We then conducted the semantic analysis of the job description through the use of R/Python scripts and programming languages. Our approach to the semantic analysis followed that provided in *A Guide to Text Analysis with Latent Semantic Analysis in R with Annotated Code: Studying Online Reviews and the Stack Exchange Community*, which was published in the academic journal *Communications of the Association for Information Systems*.⁸

Finally, we examined how some of the concepts such as the job profiles and Occupational Areas are associated with different concepts in the semantic network, as derived from the job descriptions (see next section for results). It should be noted how semantic concepts are not equivalent to words. Job vacancies descriptions may include, for instance, words such as 'organize', 'organization', 'organizing' or 'organizational'. Despite being different words representing different elements, they all capture the same semantic concept. Thus, semantic analysis results sometimes include concepts like 'organiz', which represents the root, the semantic concept underlying all different derivative words formed by adding a suffix to it.

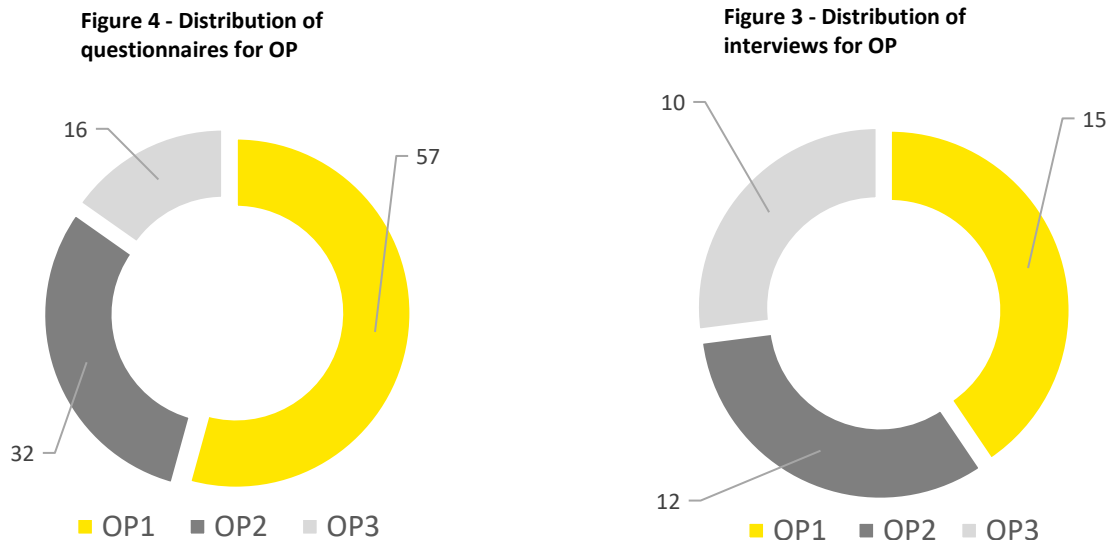
⁸ Gefen, D. et al, 2017. A Guide to Text Analysis with Latent Semantic Analysis in R with Annotated Code: Studying Online Reviews and the Stack Exchange Community. *Communications of the Association for Information Systems*, p. 41.

2 Analysis of results

2.1 Outreach

We received a combined **105 responses** to the five questionnaires for the three Occupational Areas (one for the Delivery of Postal Items and two each for Back-office Operations and Post Office Network). Respondents were from **19 different Member States** and from **all six EU macro-regions** (Balkan, Central, Eastern, Mediterranean, Northern and Western) ensuring the comprehensiveness of the information gathered across the EU. We conducted **37 in-depth interviews** with stakeholders selected on the basis of their answers, to comment and provide further insight on the results of the questionnaires.

As displayed in Figure 4, the distribution of responses to the questionnaires between Occupational Profiles



is not homogenous. However, as shown in Figure 3, we have roughly the same number of in-depth interviews for each Profile, to ensure that the point of view of each Occupational Area was captured. For OP3, for instance, over 60% of respondent were interviewed for follow-up on their questionnaire responses, while for OP1 we interviewed 26% of respondents. Finally, we maintained a **good balance between postal operators** (56 respondents, **53%** of the total) **and unions active in the postal sector** (49 respondents, **47%** of the total), to ensure fair representation of both points of view.

2.2 Skills Reference and Work Environment Frameworks

2.2.1 Skills Reference Framework

Research in the future skills development in the postal sector revealed a few aspects that were common to all of the Occupational Areas. The most striking feature is the **importance that soft skills play**. In each of these Occupational Areas, **these profiles will be more and more concerned with establishing relationships with clients**, thus making **social skills** fundamental for the job.

Secondly, the technical skills required for these jobs may be compartmentalised as “micro-skills”. Many of the **technical skills required are contextual to specific roles** and we do not see much change in the project

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timeframe because only “micro-skills” rather than classes of skills will change in this period. Indeed, these results can be visualised in the outputs of the semantic analysis, provided for each Occupational Area in the sections below (see combined results in Figure 16), with various reference to general soft tasks and skills whereas the technical parts of the job are communicated through reference to specific software applications (e.g. spreadsheet, powerpoint, etc.).

Secondly, the skills reference framework part of the study also addressed training provision. Several training methods are common across Occupational Areas and include **in-house and non-formal education** provided by an external training institution. The most popular reported feature of such training initiatives was an **e-learning platform**, which have come into full action with the Covid-19 pandemic. Some common concerns regarding training pertained to the **location, timing and origin of the trainers** as elements that should be considered when evaluating the evolution of continuous training.

Back-office Operations

The desk research revealed several trends for ISCO major groups (ISCO two-digit codes) and profiles, which the questionnaire subsequently attempted to assess and apply to the context of Postal Back-office Operations. For instance, the desk research identified trends for General Office Clerks, the occupational macro family under which the Postal Back-office Operation profiles can be found. These trends include the following:

- ▶ General office clerks experienced a significant increase in physical tasks despite an overall negative trend seen in other occupations
- ▶ Office clerks saw an increase in routine tasks, both in terms of repetitiveness and standardisation
- ▶ They experienced an increased use of machinery along with high-profile occupations despite overall negative trends
- ▶ An increased use of ICT tools applied to office clerks as well most other occupations

When asked to assess these trends for the Postal Back-office Operations profiles, the questionnaire respondents agreed that all of these **trends moderately applied to both profiles**, especially the **increased use of ICT tools**. Indeed, most postal companies have provided some form of training to digitally up-skill the current workforce, and training appears increasingly focused on IT and computer skills to provide new digital services.⁹ The only trend that respondents disagreed with is the increased use of physical tasks for the Production, Planning and Expediting Clerks (while it moderately applied to the other OP).

It would seem, therefore, that **macro-analysis concerning the expected trends, skills and training needs of office clerks is moderately applicable to the specific context of Postal Back-office Operations**. For instance, the increase in physical tasks and the use of machinery for office clerks, despite overall negative trends, can be seen in some of the task areas for Shipping, Receiving and Traffic Clerks, who are commonly tasked with “packing, sealing, labelling, or affixing postage to prepare materials for shipping, using hand tools, power tools, or postage meter.”¹⁰ Additional questioning confirmed these findings by taking an in-depth look into the profiles’ tasks.

⁹ Cedefop, Eurofound, 2018. Skills forecast: trends and challenges to 2030. Luxembourg: Publications Office. Cedefop reference series; No 108. <http://data.europa.eu/doi/10.2801/4492>

¹⁰“43-5061.00 - Production, Planning, and Expediting Clerks.” O*NET OnLine, National Center for O*NET Development, www.onetonline.org/link/summary/43-5061.00.

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Postal Back-office Operations appear to reflect this trend with O*NET forecasting average growth (three to four percent) for Production, Planning and Expediting Clerks and negative growth (a one percent decline) for Shipping, Receiving and Inventory Clerks whose most common tasks include more physical, routine tasks.

For tasks commonly found in Postal Back-office Operations, respondents judged tasks/work activities that could be classified as “**working with information**” as the most important in the next five years. These tasks ranked higher than those commonly considered as more routine, physical tasks, but also some of the social, communication tasks as well. The highest-ranked tasks for each of the profiles has been provided in Table 2 below. The lower ranking social tasks (not illustrated as they did not figure in the top five ranked skills) are typically considered less vulnerable to routinisation. The moderate risk of routinisation for the highest-ranked tasks might be a source of concern for Postal Back-office Operations.

Table 2 – Questionnaire results on the most relevant tasks for Back-office Operations

Important tasks for Back-office Operations in the next 5 years		
	Shipping, receiving and inventory clerks	Production, planning and expediting clerks
1	Examining shipment contents	Getting information
2	Preparing documents	Interacting with computers
3	Documenting/recording information	Reviewing documents
4	Getting information	Distributing production schedules
5	Recording shipment data	Making decisions and solving problems

Table 3 depicts the average ranking of skills in the next five years for both profiles. On average, the questionnaire respondents ranked what can be **classified as “soft skills”** as those that are the most important both today and in five years.

Table 3 – Questionnaire results on the most relevant skills for Back-office Operations

Important skills for production, planning and expediting clerks		
	Today	In 5 years
1	Active listening	Critical thinking
2	Critical thinking	Active listening
3	Time management	Time management
4	Speaking	Speaking
5	Reading comprehension	Reading comprehension
Important skills for shipping, receiving and inventory clerks		
	Today	In 5 years
1	Active listening	Reading comprehension
2	Reading comprehension	Active listening
3	Critical thinking	Speaking

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Important skills for production, planning and expediting clerks		
4	Monitoring	Critical thinking
5	Data base user interface and query software	Reading comprehension

The importance of soft skills derives from the changing nature of the workplace, which requires a more agile organisational design to respond to increasing temporary and unpredictable situations at work compared to the past when processes were more linear and hierarchical. For example, with letters, the customer often is not aware of delivery or, indeed, wishes to avoid delivery (in the case of fines) whereas, with parcels, the customer is anxiously waiting for delivery. These changes tend to prize relational and collaborative skills. As such, This agile organisational design has workers in Back-office Operations **interacting more with customers and peers**, thus moving more into more administrative roles. According to the assessment of trends for general office clerks, these profiles, however, can still expect an increased need to use basic ICT tools.

Experts often considered these soft skills as more transferable and as enablers for skills development in other areas. Despite the importance in these more “horizontal skills”, training in these areas is reportedly slightly less than adequate for both profiles. A **particular deficiency emerged for training in the processing of business-administrative information**, which corresponds to many of the highest-ranked tasks concerning the handling of information. Nevertheless, when asked about the external and internal transferability of the training that the OPs currently receive, the average answer was that the training that they receive is fairly transferable.

As far as how the training is carried out, the desk research revealed several strategies undertaken in the provision of training offers. Different training strategies included **in-house training, formal and informal education** by training institutions. Some of the most relevant features were **e-learning platforms, gamification, training for targeted groups and AI guidance and assistance**, among others.

Of these learning modalities, however, most respondents reported more traditional methods such as **in-house training and an e-learning platform**. We attempted to showcase those who adopted some more innovative methods during the seminars such as the implementation of training programme by Poste Italiane that leverages on the assistance of machine learning and AI.

To capitalise on trends affecting Postal Back-office Operations, transferable ICT office applications will be featured in the Skills Reference Framework to reinforce the processing of business administration without narrowing it down to “micro-skills”. This training should improve the OPs ability to carry out the highest-ranked tasks pertaining to handling information. Indeed, respondents reported difficulties in Back-office Operations with basic office skills such as with the Microsoft Office applications.

On the other hand, respondents indicated the need for balanced training with soft skill training. In the realm of soft skills, problem-solving, relational skills and autonomy represented the areas on which the interviewed experts focused most of their attention.

We have observed in the desk and field research that these skills are trending and/or predicted to grow on the EU-level for general office clerks as well as for the particular OPs in consideration¹¹, indicating

¹¹ Indicated in the questionnaire responses to skills and tasks of the future

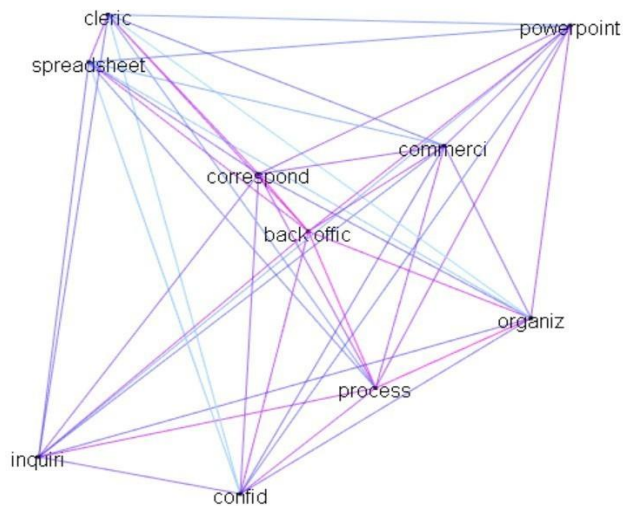
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internal and external transferability of such skills. Furthermore, we can see from the framework that the proposed skills cover the top-ranked future tasks and skills as indicated in the questionnaire and interview results. These skill areas are also currently lacking in training, so there is room for improvement in these training areas. As such, we have included some examples of training topics that could be covered for each of the skills proposed in the framework to give a more detailed picture of the type of skills we have in mind.

Basic office ICT applications, for instance, could start with Microsoft (MS) 365 fundamentals before introducing more advanced, but still applicable, training in Dynamics 365, which includes programmes for Customer Relationship Management (CRM) and Enterprise Resource Planning (ERP) cloud solutions. It is not difficult to imagine how this training, balanced with specific training on the soft skills side, might be useful for these profiles given the emphasis on interfacing with customers and managing work relationships.

Indeed, the results of the semantic analysis for this Occupational Area reveal a mixed bag of tasks and skills. Figure 5 features the 10 words more commonly associated with the term “back office”.¹² Closer vicinity of words in the figure indicates closer semantic similarity.

Figure 5 - Semantic Analysis of Back-office Operations



The concepts most closely associated with Back-office Operations pertain to correspondence, commercial activities and processes. Tying together the commercial activities and processes is organisational skills. On the periphery, we see several digital tools, such as spreadsheets closely connected to the clerical work of this profile and powerpoint connected with the commercial and organisational aspects. Finally, there is the aspect of responding to inquiries and working with confidential information. Here, it is clear how soft skills can prove beneficial.

Given the above analysis, the following table displays the highlights of the Skill Reference Framework (see full version in Annex, Figure 10 and Figure 11).

¹² Words are lemmatised in the semantic analysis so that words of the same root such as organise, organisation, organisational, etc. are considered as the same concept. As such, many words will appear as lemma, or roots/stem words

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Table 4 - Summary of the main datapoints in the Skill Reference Framework for Back-office Operations

Skills Reference Framework Highlights				
	Basic Office Apps	Problem Solving	Relational Skills	Autonomy
Future Tasks	<ul style="list-style-type: none"> ▶ Getting info. ▶ Reviewing docs. ▶ Preparing docs. ▶ Interacting with computer 	<ul style="list-style-type: none"> ▶ Getting info. ▶ Interacting with computers ▶ Making decisions 	<ul style="list-style-type: none"> ▶ Distribute production schedules 	<ul style="list-style-type: none"> ▶ Documenting/recording info.
Future Skills	<ul style="list-style-type: none"> ▶ N/A 	<ul style="list-style-type: none"> ▶ Critical Thinking 	<ul style="list-style-type: none"> ▶ Active Listening ▶ Speaking 	<ul style="list-style-type: none"> ▶ Time management ▶ Monitoring
Training Offer	<ul style="list-style-type: none"> ▶ Less than adequate 	<ul style="list-style-type: none"> ▶ Less than adequate 	<ul style="list-style-type: none"> ▶ Not observed 	<ul style="list-style-type: none"> ▶ Less than adequate

Delivery of Postal Items

The digital impact has caused postal operators to offer **new services** to remain competitive. In delivery operations, these range from the delivery of, for example, food products and medicine, to data collection (e.g. energy diagnosis), installation of postal products (e.g. routers offered by postal operator internet services), and scheduling appointments for public services.

The technical tasks and product-specific knowledge needed to carry out these new tasks, as part of the OP's duties, entails, for instance, **specific knowledge of health protocols** required to handle food and medicine, or the **technical procedures** necessary for data collection and energy diagnosis as can be seen in Table 5.

Table 5 – Questionnaire results on the most relevant tasks for Delivery of Postal Items

Important tasks for mail and parcel carriers	
Current tasks	New tasks
Scanning labels	Data collection
Obtaining signatures	Energy diagnosis
Collecting mail	Delivery of essential goods
Sorting mail	Deliver by appointment
Returning mail to the post office	Installation of delivered technology

Much of the responsibility for carrying out these new services falls on the shoulders of these OPs, requiring a variety of new skills. In general, however, the results of our questionnaire, illustrated in the table below, indicate that these skills can be summarised according to a few skillsets. In general, these services require greater interaction with the client and the handling of sensitive information.

Table 6 – Questionnaire results on the most relevant skills for Delivery fo Postal Items

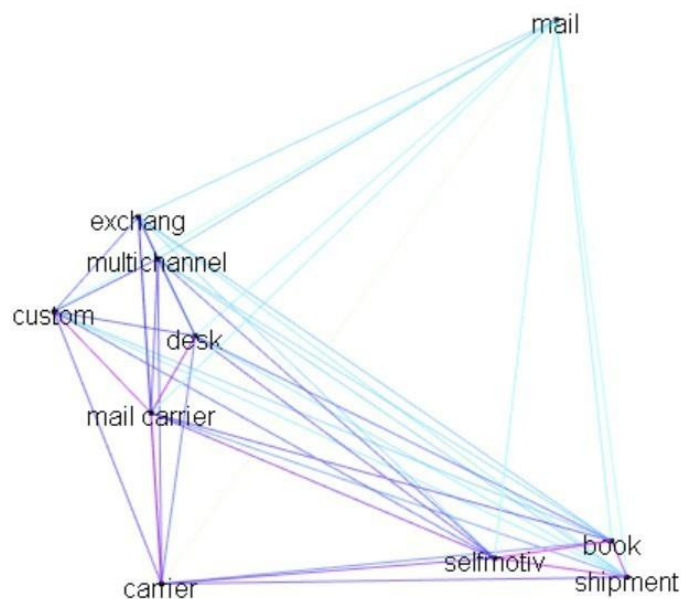
Important skills for mail carriers

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Today		In 5 years	
1	Active Listening		Active Listening
2	Social Perceptiveness		Critical Thinking
3	Speaking		Speaking
4	Critical Thinking		Social Perceptiveness
5	Organisation		Map Creation Software
Important skills for parcel carriers			
Today		In 5 years	
1	Active Listening		Active Listening
2	Critical Thinking		Critical Thinking
3	Social Perceptiveness		Speaking
4	Speaking		Database user interface software
5	Database user interface software		Social Perceptiveness

These profiles will also require new complementary hard skills. Map creation software and database user interface and query softwares both ranked in the top 5 most important skills. Moreover, **familiarity with technological devices** is an important skill for the job, as related during the follow-up interviews. The same applies to **mental flexibility**, a skill which was deemed necessary in an environment where shifts in technological equipment is frequent and fast-paced. This does not apply only to apps and handhelds, but also to more sophisticated technological advancements, such as delivery robots. Operating these machines requires specific skillsets, according to the type of robot and its specific features. These are skills that have never been associated with the profile until now and, thus, require intensive training to ensure the workforce is capable of measuring up to these new responsibilities.

Figure 6 - Semantic Analysis of Delivery of Postal Items



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The semantic analysis for “mail carrier” (seen in Figure 6 above) provides several insights into the required tasks and skills. For instance, we see a close connection to the customer. This is also highly related to multi-channel exchange with the customer. There is also an element of self-motivation related to booking shipments. These associations imply that mail carriers must have the communication skills and familiarity with various digital channels to maintain exchanges with the customers. Furthermore, they must have the organisational and motivational talent to organise and prioritise deliveries.

In terms of training, the most common topics covered were **Health and Safety, GDPR and digital training to increase proficiency with new technological devices or softwares**. In general, this training offered is considered less than adequate. Specifically, many highlighted how different topics require different training modalities. For instance, it is a widespread belief that soft skills cannot be taught effectively via e-learning.

For socio-relational skills, the interviewees recommended a blend of face-to-face training as opposed to just-in-time training for the more technical and operational side of the new tasks. The same holds for product-specific knowledge: face-to-face learning for new products, then constant updates with just-in-time training. For digital skills, face-to-face learning in person should be preferred for introducing new devices or apps. Quick updates, rather, can be learned via e-learning. The key takeaway on training is the necessity for a **different training methods suitable for the different topics**.

The results of our research have been used to compile the Skill Reference Framework. Table 7 illustrates a summary of the main findings, while the full framework is available in the Annex, Figure 12 and Figure 13.

Table 7 - Summary of the main datapoints in the Skill Reference Framework for Delivery of Postal Items

Skills Reference Framework Highlights				
	Digital skills	Logistical Skills	Socio-relational Skills	Specific product knowledge
Future Tasks	<ul style="list-style-type: none"> ▶ Interfacing with digital devices ▶ Tracking deliveries ▶ Deliver in drop off locations 	<ul style="list-style-type: none"> ▶ Data collection ▶ Energy diagnosis ▶ Delivery by appointment 	<ul style="list-style-type: none"> ▶ Pension delivery ▶ Installation of delivered tech ▶ Human support 	<ul style="list-style-type: none"> ▶ Delivery of essential products (food, medicine etc)
Future Skills	<ul style="list-style-type: none"> ▶ Familiarity with devices ▶ Ability to adapt to fast progress 	<ul style="list-style-type: none"> ▶ Familiarity with data gathering procedures ▶ Time management 	<ul style="list-style-type: none"> ▶ Communication skills ▶ Technical skills ▶ Reliability 	<ul style="list-style-type: none"> ▶ Ability to understand the properties of specific products
Training Offer	<ul style="list-style-type: none"> ▶ Less than adequate 	<ul style="list-style-type: none"> ▶ Less than adequate 	<ul style="list-style-type: none"> ▶ Less than adequate 	<ul style="list-style-type: none"> ▶ Not observed

Post Office Networks

For most, digital trends entail the **provision of new services** - the delivery of which will be a primary responsibility for these profiles. In management and front-end operations, these new tasks range from offering insurance and financial services to introducing and operating control systems for the existing and

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new services. The emergence of these new services naturally results in the assignment of new tasks to these profiles and, consequently, new skills.

With respect to the new tasks for the OPs, one could assume that technological advancements (e.g. chat bots) would have caused a reduction in client interaction and a generally more impersonal and mechanical role for these profiles. Instead, new tasks entail a **closer relationship between clients and their postal clerks**, especially in comparison with the current most important tasks associated with the profile, which all require little to no interaction with the customer.

Table 8 – Questionnaire results on the most relevant tasks for Post Office Networks

Important tasks for postmasters		
	Current tasks	Future tasks
1	Monitor employees' work schedules	Interfacing with digital devices
2	Organise and supervise activities	Proficiency in use of internally developed software and apps
3	Making decisions and solving problems	Familiarity with new digital procedures connected with recently introduced tasks
4	Direct operational management	Making decisions
5	Supportive services	Organising and supervising activities
Important tasks for postal clerks		
	Current tasks	Future tasks
1	Weigh letters and parcels	Interfacing with digital devices
2	Compile mailing costs	Proficiency in use of internally developed software and apps
3	Affix correct postage	Familiarity with new digital procedures connected with recently introduced tasks
4	Provide consultancy on new services	Observing, receiving, and obtaining information
5	Financial/consultancy services	Performing for or working directly with the public

During follow-up interviews, respondents emphasised the technical tasks and product-specific knowledge needed to carry out these new services are increasingly reliant on relational skills. Particularly for Postmasters, these new tasks include communicating with supervisors and peers, resolving conflict and negotiation.

In terms of skill needs, the shift from largely administrative tasks, which will be increasingly automated, to sales and client interaction, will naturally lead to the need to develop of new relational skills. The results of our questionnaire responses, illustrated in Table 9 below, indicate that these skills can be summarised according to a few skillsets.

Table 9 – Questionnaire results on the most relevant skills for Post Office Networks

Important skills for postmasters	
Today	In 5 years

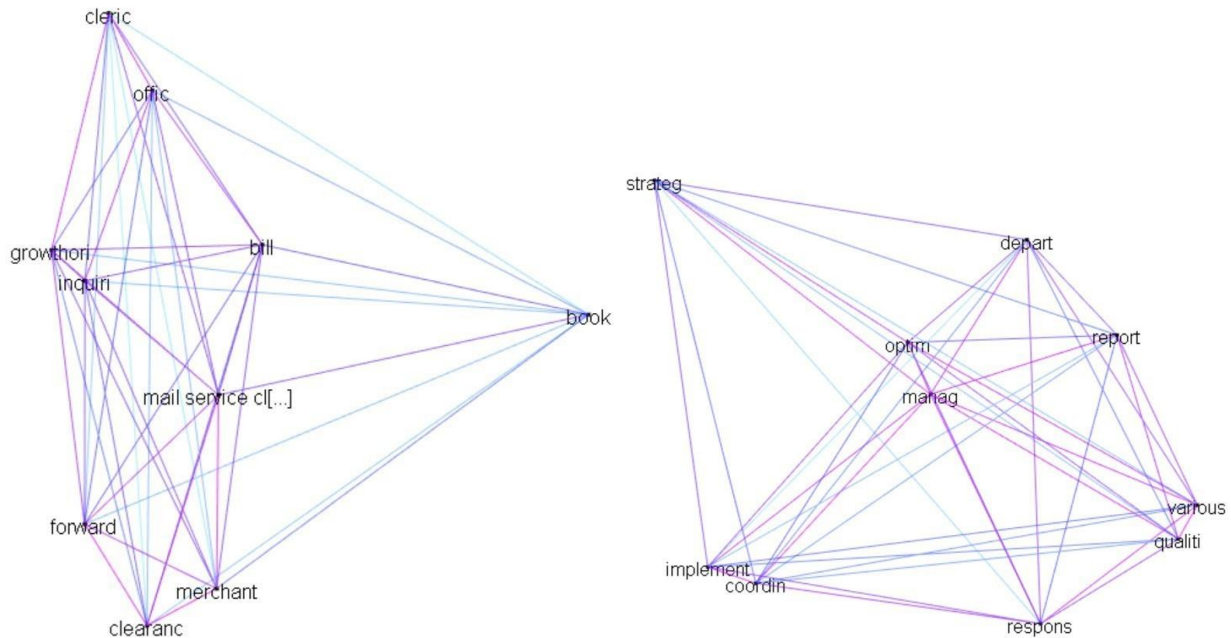
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1	Social perceptiveness	Social perceptiveness
2	Problem-solving	Problem-solving
3	Database user interface	Public Speaking
4	Query software and email software use	Service orientation

Important skills for postal clerks		
	Today	In 5 years
1	Social perceptiveness	Coordination
2	Problem-solving	Familiarity with apps, software and their updates
3	Accounting software	Ability to adapt to digital progress
4	ERP software	Active listening

For mail service clerks, the closest associations in our semantic regard responding to inquiries and billing, demonstrating a balanced skillset of product knowledge, communication skills and accounting skills. Furthermore, closely related to responding to inquiries is growth-orientation. On one side, there is clerical office work. “Office” could also refer to the Microsoft Office package in this context. On the other side, is mercantile work and that related to providing clearance or authorisation. Tying these concepts together is the book-keeping/accounting association.

Figure 7 - Semantic Analysis of Post Office Networks



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For the manager role,¹³ an element of optimisation lies very close to the centre, indicating the work of the manager in optimising operations, requiring logistical skills. Further out, we see implementation and coordination closely related, indicating organisational skills required for coordinating the implementation strategies. Indeed, strategy crowns the semantic analysis albeit somewhat distantly related to other concepts. On the other side, there is reporting and departures, indicating the need for inventory and drafting skills. Indeed, “various” and “qualities” are closely related, implying the multi-faceted role of managers and the need for multitasking, agility and good organisational skills. Finally, there is an aspect related to responding, presumably to both customer and colleague inquiries.

To address the task shift and new skills that will be required, training remains a critical component of a sustainable post office network. Respondents tended to be more appreciative of training for Postmasters than for Clerks. However, the quality of current available training was given a lower score than the quantity of current training, indicating room for quality improvement. During follow-up interviews, respondents remarked on the importance of **clear separation between training moments and active work, and flexibility in scheduling training sessions.**

Today we see a combination of social, soft and technical skills with certain software identified as “hot technology” in the O*NET classification system. Despite calls from the UPU in their 2019 report on *the digital economy and digital postal activities* for talent already available within the organisations for data-related jobs and skills, respondents to our survey found it relatively unlikely that these profiles will be up-skilled to cover any level of data-related activity. Rather, in the future, we see a more general approach to familiarity with different apps and software as well as adaptability to digital progress. The intuition may be summarised as a lack of clear vision about future technological skills and, therefore, an emphasis on technological “resilience”. We see some consistency with social skills with, however, a deepening knowledge toward service orientation and familiarity with a range of new services.

Our findings have been collected in the following Table 10 (for the complete version see Figure 14 and Figure 15 in the Annex).

Table 10 - Summary of the main datapoints from in the Skill Reference Framework for Post Office Networks

Skills Reference Framework Highlights – Postmasters				
Skills	Digital skills	Soft skills	Relational skills	Technical skills
Top Future Tasks	<ul style="list-style-type: none"> ▶ Interfacing with digital devices ▶ Proficiency in use of internally developed software and apps ▶ Familiarity with new digital procedures connected with recently introduced tasks 	<ul style="list-style-type: none"> ▶ Making decisions, organizing and supervising activities ▶ Observing, receiving, and obtaining information 	<ul style="list-style-type: none"> ▶ Communicating with supervisors, peers, or subordinates; resolving conflicts and negotiating with others ▶ Performing for or working directly with the public 	<ul style="list-style-type: none"> ▶ Providing consultancy on energy services, insurance, or financial matters to the client
Top Future Skills	<ul style="list-style-type: none"> ▶ Familiarity with apps, software and their updates 	<ul style="list-style-type: none"> ▶ Problem solving ▶ Social perceptiveness ▶ Coordination 	<ul style="list-style-type: none"> ▶ Public speaking ▶ Active listening ▶ Service orientation 	<ul style="list-style-type: none"> ▶ Specific knowledge required for the

¹³ Specific references to “postmaster” or “mail superintendent” were not found in the semantic network, we used “manager” as a stand-in for a managerial role in the transportation and storage sector.

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	▶ Ability to adapt to digital progress			tasks and awareness of security protocols
Training offer	▶ Less than adequate	▶ Less than adequate	▶ Less than adequate	▶ Not observed

2.2.2 Work Environment Framework

Research on SDC initiatives brought to light several pertinent findings for further investigation and elaboration. In particular, we investigated the following elements concerning the work environment in the postal sector.

- ▶ Digital trends and their impact in the work environment
- ▶ The role of social dialogue in harnessing the benefits from digitalisation while mitigating the harmful effects
- ▶ The social dialogue toolkit

In the work environment, digital trends manifest externally, from shifting consumer preferences, and internally, with, for example, the development of automation. We have examined and summarised these internal and external digital trends below:

- ▶ **Decline in mail volumes and rise of e-commerce:** as digitalisation has reduced the use of traditional letters, it has accelerated the growth of e-commerce¹⁴ with the industry's parcel volume almost doubling since 2008.¹⁵
- ▶ **Emerging technologies & task automation:** autonomous processes have reduced the demand for physical work and increased the need for workers who can monitor automated processes. This trend also entails new risks for Health and Safety in the workplace such as increased stress and strain from repetitive movements and a sedentary work style.¹⁶

Social dialogue can take up certain measures to mitigate digital Health and Safety risks while harnessing the benefits that digitalisation offers. The **tools** employed to bring about such measures have been assessed in order to determine their effectiveness. The SDC final report on *Mobilising Social Partners in a New Context* provides several change management levers utilised in National Postal Operators, including:

- ▶ Work time arrangements
- ▶ Measures to mitigate planned job loss
- ▶ Support & compensation for redundant workers
- ▶ Concessions
- ▶ Training

Training as a tool for social change management will be of particular interest for this analysis seeing as it is also presented as a tool within the support and compensation for redundant workers category, which itself is reflected in social dialogue priorities. In general, respondents to the questionnaires found that **training on health and safety is gaining in importance** as a mitigation measure for health risks and safety in the work environment. A lack of consensus emerged during the interviews on whether and how this

¹⁴ World Economic Forum, 2020. The Future of the Last-Mile Ecosystem.

¹⁵ International Post Cooperation, 2019. Global Postal Industry Report 2019.

¹⁶ Cedefop, Eurofound, 2018. Skills forecast: trends and challenges to 2030. Luxembourg: Publications Office. Cedefop reference series; No 108. <http://data.europa.eu/doi/10.2801/4492>.

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training should be adapted to account for digital trends and the impact of Covid. A psychological perspective on stress will also be of critical importance, but most respondents seemed to indicate that training alone is not sufficient to mitigate the risks arising from digitalisation.

Responses to the questionnaires clearly indicate, however, that **working time arrangements have been the key lever in managing social change** (see Table 15 in the annexes). These changes to work time arrangements are the result of increased competition from different players. Flexible worktime arrangements act as solutions to peaks in demand, which now go beyond seasonal peaks and even consists of daily peaks when the client is more likely to be at home and when there is less traffic.

Other tools, such as **policy reforms** to protect workers from precarious working conditions have been proposed during data collection. The **2020 European Social Partners Framework Agreement on Digitalisation** is the latest and most impactful contribution that social dialogue has made in mitigating such health risks. The agreement covers the 'right to disconnect' and fosters a management culture to protect Health and Safety. Additional priorities in Health and Safety for these profiles that be further developed include access to frequent medical examinations, actively counteracting the potential risk for psychological stress, managing overload and distribution of workloads, limiting traceability and simplification of technological introduction processes. Some joint organisations have gone as far as approval processes to changes in work spaces to ensure health risks are avoided.

Back-office Operations

The e-commerce and automation digital trends have implications for Health and Safety in Back-office Operations. The questionnaire respondents identified **stress, a deteriorating work/life balance, and some musculoskeletal disorders** (poor posture, repetitive movements) as the main health and safety risks as a result of digital trends.

Furthermore, monitoring technologies are viewed as an additional source of stress for these profiles. At the same time, **digital trends can provide benefits to Health and Safety** in the work environment. For instance, while the continued rise of e-commerce poses a risk for health, with the regular handling of increasingly heavy as well as potentially valuable and/or fragile parcels, **automation presents a potential mitigation measure, handling more of the heavy lifting.**

Indeed, the use of technology such as exoskeletons for lifting, automated unloading machines, as well as data glasses and scanner glasses provided **potential digital Health and Safety benefits in the workplace for these profiles.** These technologies will act as important improvements to mitigating H&S risks for these profiles today and in the near future. However, our questionnaire results indicate a shift in role for these profiles to more administrative and monitoring tasks. For the new Health and Safety risks emerging from a **shift to more administrative roles**, detection systems like those used in cars to detect when the driver is fatigued or simple regular intervals during which the computer shuts down might require workers to take more breaks.

As for mitigation measures, the dependence on work-time arrangements as change management lever has likely been a cause of the deteriorating work/life balance as reported in the health risk related to digitalisation. The evolving role of Back-office Operations indicates that training should **focus on both the physical strain of handling large parcels as well as repetitive movements posture and posture issues**, characteristic of the new roles these workers are taking on.

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Potential **policy reforms** entail legislation regarding shared liability for package delivery, which can help to improve working conditions. Incentives for early retirement could help replace older workers with less adaptability to change with younger, more flexible employees. Examples such as the Working Hours Act in Germany, which stipulates minimum breaks between working days and the Social Partnership Council in Bulgaria could act as a springboard for such actions. Examples of actions that aim at limiting the number of working hours have been implemented, but there is no evidence yet that they have contributed to reduce unemployment.

Some have pointed to collective agreements as a starting point for policy reforms and overhaul. For example, to mitigate risks of stress due to monitoring technologies, some have suggested that the monitoring should be aggregated as much as possible to track processes rather than individuals. Collective work agreements can help to limit data collection. In this regard, interviewees also indicated **communication campaigns as a means to improve trust** in technologies, but also as a more general solution to relieve stress from changes to the work environment. Communication campaigns should focus on the reasoning for certain changes to work practices, as well as coping with change and reducing stress.

While some of these policy reforms may be welcomed by workers or employers, others, such as a reduction in weekly work hours, may reduce stress from work, but a reduction in wage might naturally accompany such a measure, introducing additional stress. The possible benefit of such a policy would, thus, be subject to the terms arrived at through negotiations via social dialogue.

The following table summarises the main points on the Work Environment Framework for Back-office Operations.

Table 11 - Summary of the main datapoints in the Work Environment Framework for Back-office Operations

Measures	Training	Policy Reforms	Social Dialogue	Tech. Solutions
Health Risks/ Benefits	Health and safety among the most important topics of training programmes	Observed at national level but abundant	Reduce stress concerning digital change	Exoskeletons, scanner glasses etc can improve productivity
Mitigating Measures	Viable alternative to stressful work-time arrangement	As above	Raise awareness on important changes to Health and Safety training	Weariness about impact from wearable technology
Role of Social Dialogue	Inform training coordinators on adjustments to digital health risks	Inherent to all of the social change management levers	Cannot act alone to mitigate job loss but can alleviate the impact	Reach agreements e.g. on data protection

Delivery of Postal Items

As the postal sector evolves with new ways of working enabled through advancements in digital technology, so do the methods for the delivery of postal items and, consequently, their implications for Health and Safety. The delivery of postal items has always been conducted in a **work environment that is difficult to control in terms of Health and Safety**, with most delivery staff taking to the streets and the potential risks they hold. Therefore, in addition to training on H&S, improvements to health risk factors in

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the work environment for the delivery of postal items have traditionally entailed augmented vehicle safety and enhancement of safety equipment such as helmets for motor-bike delivery.

These improvements to Health and Safety for the delivery work environment continue today, some of them digitally-enabled, such as simulations in training for Health and Safety for delivery staff. However, new digitally-enabled ways of working require new approaches. Some of the main digital trends we investigated in the delivery of postal items include the **impact of platform work made possible with digital advancements, decentralised hubs and local drop-off/pick-up points, and delivery robots.**

The adoption of platform economy models for the delivery of postal items **is considered a prevailing threat for the working conditions of delivery staff.** Platform work in delivery services typically entails contracted delivery workers who provide flexibility during peaks in delivery, but who also create competition that may reduce working standards for postal operators. For instance, one example of increased competition from the platform economy that emerged several times in our research regarded AliExpress. The effects of the platform model on Health and Safety vary, again, by Member State depending on the degree of regulation. In some Member States, the platform economy is less regulated and has greater potential to deteriorate the working conditions of national operators in competition while, in those where it is more regulated, the effects could be tampered.

Digital advancements, however, can also introduce **potential benefits for the Health and Safety of delivery staff** as well, as seen in the other two digital trends. Decentralised hubs and local drop-off/pick-up points (e.g. lockers) already seem to make an impact. Improvements in digital technological have increasingly enabled this method of delivery which **can make the deliverer's journey confined to smaller areas, requiring less driving and reducing the risk of traffic incidents.** This finding, however, can depend on the operator's organisational adoption to accommodate these new delivery methods.

The effects of delivery robots on the Health and Safety of delivery staff will become clearer as they are increasingly implemented in the near to mid-future. Their implementation differs greatly across Member States, with some Member States piloting such programmes and others not seeing any implementation possible in the five year horizon. However, experts speculate that **delivery robots can help to keep the deliverer off the street and further out of harm's way,** although to varying degrees depending on the type of delivery robot. Different applications should also be considered *within* Member States, with some of the most common pilot actions, such as those with drones, taking place strictly in rural environments where air navigation is easiest. In theory, these pilot actions would take delivery staff almost completely off the streets (considering weight limitations, they may still be required for large objects), with implications for H&S, but with the potential to introduce other risks such as an increased risk for stress from such as shift in roles and concerns over job security as well as risks from repetitive movements or prolonged exposure to screens as a result of piloting drones (depending on their level of automation). Other delivery robots, such as robo-vans, are only feasible for densely populated urban centres and may entail any risks associated with operation and maintenance of those vehicles (see Table 14 in the annexes for an analysis of the different types of delivery robots and their impact on H&S).

Overall, the digital trends impacting the delivery of postal items have had both positive and potentially negative implications. Digital tools have **increased efficiency by facilitating tasks and have reduced physical strain** on the worker. At the same time, workers have become **increasingly isolated from their co-workers and supervisors, creating potential for increased stress** when combined with increased pressure to perform in an, at times, fragmented process. Traditionally, these risks have been addressed

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through safety training and policy reforms via social dialogue. These methods will continue to be pivotal in ensuring Health and Safety in the work environment, but will need continuous updating to keep in stride with digital transformations.

Health and Safety training can leverage on **technological advancements for simple improvements to e-learning platforms or more avant-garde implementations such as driving simulations including with virtual reality**. Such training will also need to specifically **address psychological risks such as stress** resulting from digital transformations. Examples include employee assistance (e.g. course on new technologies administered with the most suitable modality, training on new working procedures) and wellness programmes (concerning mental health issues that may be caused by isolation, stress, and disruption of established work routines).

Again, technology can play a role by connecting colleagues digitally to overcome feelings of isolation. Policy reform through social dialogue can help to tackle digital threats from the platform economy, for instance, with **sectoral collective labour agreements** that establish standards at a sectoral level across Member States. Social dialogue will play a pivotal role in bringing about such change such as engaging in negotiations with management to help with business continuity planning and discussing procedural implementations. Again, as with Back-office Operations, social dialogue must encourage and take part in **information campaigns**. Given such considerations, we have summarised and structured our findings on the impact of digitalisation on Health and Safety in the work environment for the Delivery of Postal Items in Table 12 below (for the full framework see Figure 13 in the Annex).

Table 12 - Summary of the main datapoints in the Work Environment Framework for Delivery of Postal Items

Measures	Training	Policy reforms	Social Dialogue	Tech. Solutions
Health risks / benefits	Training on traffic safety: driving refresher course and simulation machines	Updating obsolete job legislation	Dialogue can reduce risk of stress due to digitalisation, skill shift and Covid	Introduction of delivery robots, enhanced electric vehicles for delivery etc.
Mitigating measures	Employee assistance programme (trained counsellor, videos on wellbeing etc.)	Career and wage incentives can improve motivation	Improve communication between employees and between employers to avoid the effect of isolation	Impact from digitalisation can be mitigated via improved communication and differentiation of career paths
Role of Social dialogue	Inform providers on the modality of training best suited for different topics	Stimulate legislation to reduce/regulate discomfort factors (platform work, full automation)	Dialogue is essential both horizontally (employee-employee) and vertically (employer-employee)	Communication between employer and workforce on benefits and reasons behind the adoption of a new technology

By examining the table, the reader can assess how the proposed methods for addressing the impact of digitalisation on Health and Safety for the Delivery of Postal Items derive from digital trends resulting in

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different health benefits and risks. These health benefits and risks are then harnessed or mitigated through the identified measures, each with a specific role for social dialogue.

Post office Networks

More than previous profiles, the Post Office Networks profiles are sheltered from risks to Health and Safety from machinery and the outside environment. However, these profiles are perhaps **more exposed to the psychological and stress-related risks that have emerged across profiles as a result of digitalisation** of the postal services. DG EMPL conducted a study on the *the impact of teleworking and digital work on workers and society*, identifying several trends impacting H&S as a result of digitalisation. While teleworking is not envisioned at this moment as a possible method for the future work of these profiles, several trends were identified as relevant for for in-presence work as well and, thus, investigated accordingly, including:

- ▶ the autonomy paradox¹⁷
- ▶ greater work fragmentation
- ▶ anxiety and stress from ‘anticipatory surveillance’

Of these trends, some received greater emphasis in our surveys. While autonomy and, perhaps consequently, job satisfaction were reported to have only slightly increased, adaptability increased to a large degree along with a high potential impact of increased stress. Adaptability has been seemingly interpreted as flexible work arrangements but, **autonomy, agency to manage one’s own work, can act to counteract negative side effects of increased flexibility**. Postal operators have demonstrated the need for adaptability on behalf of their employees, as a result of digital trends. However, they can and should provide more autonomy to their employees. When further investigating mitigation measures, interview respondents suggested **transition periods** to digital transformations and a **centralised approach** to such change, such as a single login procedure for all digital platforms and apps.

Apart from psychological and mental health risks, the sedentary work environment of these profiles comes with **risks of developing musculoskeletal disorders** resulting from poor posture as well as **vision impairment from long exposure to screens**. Mitigation measures for these risks have ranged from traditional methods such as policy reforms, work arrangements and collective agreements to new digital tools. Training on ergonomics, posture and an office lifestyle, including taking breaks is commonly cited. Digitalisation has also provided potential benefits to Health and Safety for these profiles as well, including digital tools that stimulate synergy with colleagues and those that impose breaks from work. These tools should be used with caution to ensure that they do not cause additional stress from the feeling of falling behind at work.

Given the analysis above concerning Health and Safety in the work environment, we have elaborated the Work Environment Framework as illustrated in Table 13.

Table 13 - Summary of the main datapoints in the Work Environment Framework for Post Office Networks

Measures	Training	Policy reforms	Social Dialogue	Tech. solutions
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¹⁷ The flexibility that technology offers -which initially promises workers control over their work -results in additional demands through encouraging constant availability. Source: Mazmanian, M. et al. 2013. The Autonomy Paradox: The Implications of Mobile Email Devices for Knowledge Professionals. Organization Science.

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Health risks / benefits	Training on risk factors for health issues like poor posture or eyesight resulting from excessive computer use	Several Directives address digital challenges e.g. <ul style="list-style-type: none"> ▶ working time ▶ work-life balance ▶ transparent/predictable working conditions 	Company level dialogue on implementation modalities could lead to unequal implementation of policy reforms across MS	Improvements to work facilitation and potential for decreasing stress Risk of overburdening and overconsumption of digital tools/technology, inducing increased stress
Mitigating measures	More flexibility for the employees to manage their training schedule Training time more strictly separated from work hours	Some need updates to digital work environment (working time) and others need implementation (work-life balance)	Coordination between social dialogue partners involved in company-level implementation of policy reforms across MS	Transition periods for adopting new technology, more centralised approach, communication campaigns
Role of Social dialogue	Stimulate exchange of information and find agreements regarding suitability of training methods and scheduling effectiveness	Ensure implementation of Work-Life Balance Directive	Advocate for improved coordination between company-level implementation of policy reforms	Social dialogue can monitor, evaluate, and promote appropriate tech. solutions and implementation for mitigating health risks

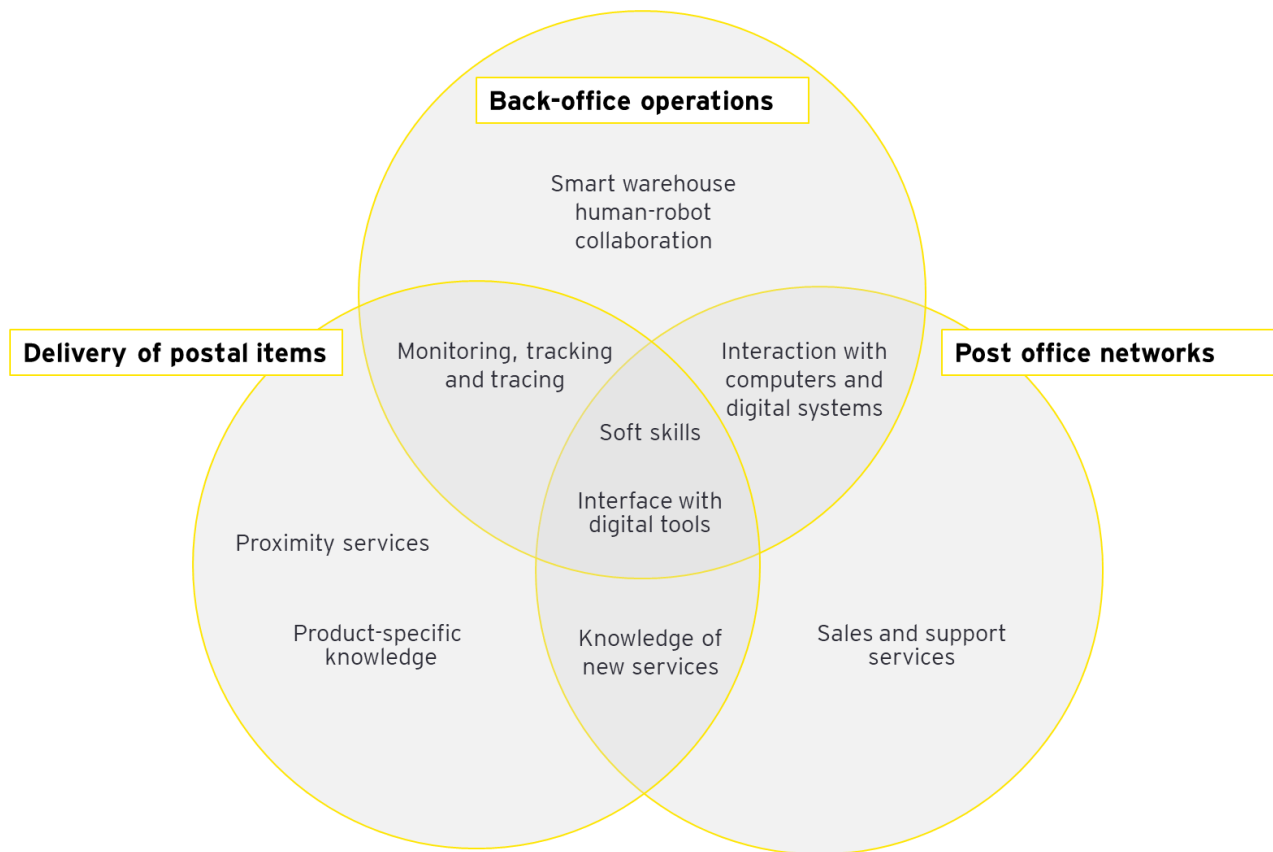
Our proposed methods for improving H&S in the work environment for Postal Network profiles remain the same as the previous two postal families, namely: training, policy reforms, dialogue, and technological solutions. Trends in each of these methods indicate their direction and impact on Health and Safety. They act to reduce health risks from digitalisation or instigate potential benefits. They can act as mitigating measures for many risks, and social dialogue has a role in developing all of the methods. As such, this table is intended to act a guide for social dialogue to act on the tools used to improve Health and Safety in the work environment for these profiles.

2.2.3 Comparison with Back-office Operations and Delivery of Postal Items

Tasks, skills, and training

The main cross-cutting trends in terms of skills and tasks, that apply to all Occupational Areas, are the ever-increasing importance of soft skills and digital skills, since interfacing with digital tools is a crucial task for all profiles.

Figure 8 - Differences and similarities in tasks, skills, and training



However, the type of digital tool employed is different according to the profile at hand: **Back-office Operations** and **Post Office Networks** operate mainly with computers, desktop apps and digital systems, while the digital equipment for **Delivery of Postal Items** include a **variety of devices and applications** such as phone apps, tablets, and smart lockers. **Post Office Networks** will be responsible for introducing and managing control systems for the new technologies for both the new services they are offering in addition to the new technologies that will be used by Back-office Operations and in the delivery of postal items.

Back-office Operations and **Delivery of Postal Items** share some of their tasks, specifically those concerning monitoring, tracking, and tracing.

A trend shared between **Delivery of Postal Items** and **Post Office Networks** concerns new services being provided by postal operators. Delivery staff is **involved in diversified services offered** by national postal operators and will need more specific knowledge of certain products (food, medicine, etc.), on installation of certain products (e.g. routers for internet service provided by postal operator), and data collection (e.g. energy diagnoses). The same applies to the Post Office Network OPs, where new services provided include insurance services, financial services, or internet services. For both these profiles, in-depth knowledge of the new services offered is required in order to perform said services as well as to effectively communicate their features and procedures to the clients. Occupational Profiles from **Post Office Networks** will have more direct contact with the client, providing information on new services offerings and responding to client questions and concerns regarding such products, while delivery staff will need product-specific

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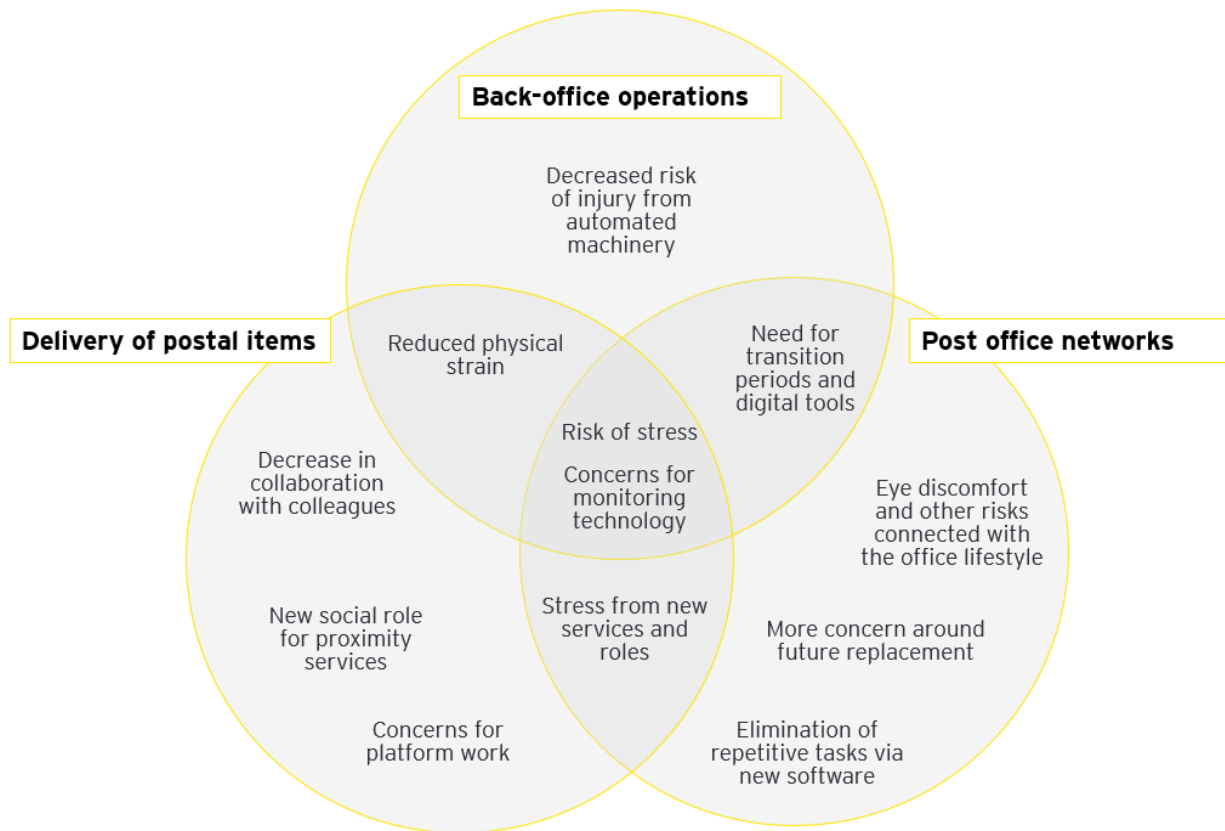
knowledge (privacy regulations for data collection, installation procedures for modems, H&S guidelines to deliver food and medicines).

Considering the increasingly relational nature of the role of Postmasters and Postal Clerks, **Post Office Networks** will provide sales services and client support more than the other OPs. Proximity services are specific to the **Delivery of Postal Items** profile, while interactions and collaboration with smart robots belongs more to **Back-office Operations** profiles for now, even though it is possible that Autonomous Mobile Robots will be increasingly employed for delivery services in the future (more than five years).

With regard to training, delivery staff is in a unique situation compared with the other profiles, given the mobile nature of the job: just-in-time e-learning can play a key role in reaching mobility delivery staff with key training initiatives, but training social skills requires in-presence training as well.

Work environment

Figure 9 - Differences and similarities in work environment



The horizontal trends embraced by all Occupational Profiles include risk of stress and musculoskeletal disorders as the main Health and Safety issue, although for different reasons. For delivery staff and post office staff, stress may be caused by the introduction of new services and by the shift in roles that offering of new services entail. However, specifically for **Delivery of Postal Items**, another prominent stress factor is the decrease in contacts with colleagues, an effect that was not detected for the other Occupational Areas.

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There are also significant differences concerning the risk of musculoskeletal disorders. The main risk factor for **Back-office Operations** are injuries from operating warehouse machinery, while for **Delivery of Postal Items** the risks come from lifting and moving heavy parcels. In both these Occupational Areas, however, automation proved to be an effective mitigating measure, reducing the physical strain required. Finally, musculoskeletal disorders for **Post Office Networks** are caused by the sedentary office lifestyle (long periods of time spent at the desk, poor posture etc.) alongside some specific health issues that are not shared by any other profile, such as eye discomfort for prolonged use of computer screens.

Mitigating measures particularly for **Back-office Operations** and **Post Office Networks** include new digital tools (to stimulate synergy, impose mandatory breaks and streamline procedures) as well as transition periods before the adoption of said new digital tools or devices, in order to allow workers to get acquainted with the new equipment or software.

Finally, there are some stress-inducing concerns specific to the different Occupational Areas: **Delivery of Postal Items** staff is concerned with the potential increase of platform work, which could trigger an unwelcome role change. The Occupation Profiles within the **Post Office Networks** have, compared with all other profiles, the highest degree of concern for replacement, as a result of the ever-growing automation of tasks and activities in the post office. Nevertheless, our research found that both these trends (platform work and full automation) will not impact the postal sector significantly in the near future (5 years).

Back-office Operations and **Delivery of Postal Items** share concerns regarding technological equipment that monitors and tracks their position, which include wearable devices for the former and tracking of vehicle and/or company tablets for the latter. The mitigating measure for both profiles is a clear vertical communication (between employees and employers) concerning the establishment of limits on the amount and type of data that these devices can gather, to ensure the privacy of employees is preserved.

Impact of Covid-19

The onset of Covid had a particular impact on the postal sector as a whole. Given the particular impact Covid has had on the postal sector and its role in the aforementioned trends, the report has dedicated a specific section to the impact of Covid in the digitalisation process, on skill and training needs and on the work environment. Our analysis found that all Occupational Profiles have been heavily affected by the pandemic in all its facets.

Digitalisation

Covid tremendously accelerated **digitalisation**. Post offices in Member States in which the digital transition was still in its infancy had no choice but to adapt to the new needs of the pandemic via a sudden boost of their digital capacities (e.g. equipment, personnel training, stable internet connection, etc.).

In particular for **Post Office Networks**, limited access to the post office to comply with public health protocols entailed a massive shift of postal services online, reducing the number of services for which physical presence at the post office as much as possible. The transition to online offerings of services that had previously been exclusively offline (i.e. drop off procedures, stamp selling, etc) is expected to continue to increase as clients are getting more used to having access to services without going to the post office. Beyond increased uptake of current services offered, in the next 5 years, it is likely that clients will demand more online services from operators.

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Furthermore, changes in consumer habits and a steep acceleration in e-commerce are of particular importance. Indeed, the enforcement of social distancing, lockdowns, and other measures in response to the Covid-19 pandemic has led consumers to ramp up online shopping. At the same time, supply chain disruptions have resulted in delivery delays or outright cancellation of orders.

For **Back-office Operations**, as a consequence of the shift from letter to parcels and the rise of e-commerce, related challenges have arisen or been further amplified during this pandemic. These include price gouging (i.e. increasing prices to unreasonably high levels), product safety concerns, deceptive practices, cybersecurity concerns, the need for increased bandwidth, and development-related concerns.

For **Delivery of Postal Items** the workload increased by 43%, as a result of the drastic spike in postal traffic, in particular regarding e-commerce and parcel delivery, which significantly augmented the volume and weight of postal items to be delivered.

Skills and training

In terms of skills and training, the research indicated that the main consequence of Covid was the shift to e-learning modalities as the main (and often only) method for providing training to employees for every topic and for all three Occupational Profiles.

The displacement of all training programmes to the entirely virtual realm of e-learning resulted in a greater access to training since courses and training materials can be accessed via apps on the phone or on the laptop at the employee's leisure. This method was particularly convenient for mobile workers belonging to the **Delivery of Postal Items** Profile who may need to access learning material briefly and quickly.

On the other hand, however, e-learning is not the most suitable method for all topics covered by postal training, making the learning experience on these topics suboptimal. To meet training needs and safety concerns, hybrid models of learning are being experimented within the sector, for instance, virtual classrooms and enhanced chatbots. Moreover, trainers and trainees experienced difficulties in adapting to the new digital teaching modalities. Additional digital skills were required, as well as soft skills such as flexibility and resilience, to become adjusted to the new training formula.

Work environment

The work environment was also heavily impacted by Covid. The main drivers were:

- ▶ Perceived increase in workload, which varies widely according to the Member State and postal organisation;
- ▶ Reduced human contacts with colleagues and clients, which could cause stress and mental discomfort;
- ▶ Change in office procedures to reduce potential infection;

For **Back-office Operation**, social distancing measures affected the OPs to varying degrees as some may be better positioned for remote work than others. In general, the research revealed that nearly half of the workforce is employed in jobs that entail some risk of infection in the current situation, as they require a higher degree of physical proximity with colleagues.

For **Delivery of Postal Items**, postal operators relied on traditional methods such as masks and social distancing, while others implemented digital procedures such as digital payments and alternative digital

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methods for confirmation signatures. Furthermore, Covid caused a prominent reduction in human relationships. In our research, this has been linked to increased risk of stress and an overall negative impact on workers' mental health.¹⁸

The roles of Postal Clerks and Postmasters (**Post Office Networks**), unlike Back-office Operations, entail not only regular interactions with co-workers but with clients as well. To reduce infection, new procedures included implementation of new digital tools such as digital payments, training for health device usage and the introduction of control systems for new services offerings.

Conclusions

As a whole, the postal sector has been transformed by digitalisation as it changes the mode and methods of services currently offered and expands those to include new services as well. Postal operators will need to collaborate with trade unions to adapt to changes in skill and training needs instigated by disruptions from rapid digitalisation and contingencies such as the Covid-19 pandemic in order to maintain socially responsible handling of shifting labour demands and work environments. The report has been composed as first step into investigating the best methods for such an initiative.

In terms of **skills and training needs**, trends affecting these Occupational Areas will put them into more contact with customers and will require more collaboration with colleagues. Inter-rational and managerial skills will prove useful for these new roles, which will also require greater autonomy from these OPs. The hard skills that they will need are likely contextual "micro-skills" that are subject to change and differences across Member States and organisational structures, so basic office applications might be the most beneficial especially considering the less than adequate training offer in this area.

For **Back-office Operations**, it is also important to focus on the top future tasks pertaining to the processing of information, which these OPs will need to take over as they transfer roles concerning monitoring and tracking. Omnichannel communication with clients and social skills can go a long way for the future of these OPs.

Digitalisation of the postal sector has also brought with it the provision of new services, many of which will be carried out by delivery staff, who will increasingly become responsible for not only the **delivery of postal items**, but "proximity services". In terms of new skills needs, certain digital skills will help prepare this profile for the future including familiarity with a variety of devices and their most relevant applications, which may include mapping software and database interface. New training methods such as improvements to e-learning with, for instance, chat bots for just-in-time learning can help this profile overcome these new obstacles. In-presence training, however, will remain the preferred method for social skills and the launch of new technologies.

The **Post Office Networks** staff, rather, are relied upon to ensure the smooth introduction, integration, and functioning of the new technologies within the broader postal system. **Basic digital competencies** will be increasingly important but also relational skills that facilitate navigating inter-collegial, departmental, and client-staff interactions. Digital skills can be developed through e-learning training that emphasises the quality as much as the quantity of the content covered and social skills might be best developed through, for example, in presence simulation exercises.

¹⁸ World Trade Organization, 2020. E-Commerce, Trade And The Covid-19 Pandemic. Available at: [link](#).

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In terms of **the work environment**, digital transformation will alleviate these OPs of a good deal of the physical strain involved in the job. The growing Health and Safety risks, rather, still include poor posture and repetitive movements, but mostly psychological ones with many respondents reporting high levels of stress.

To protect these OPs for the Health and Safety risk from digitalisation, it will be important to provide adequate and updated training, to update collective agreements, to ensure dialogue is harmonious especially at a company level and to harness technological solutions, such as imposed break time without affecting working hours.

Training on H&S that has been adapted to consider the changing nature of risk to Health and Safety in the work environment can act as a necessary first step to mitigating this risk. Social partners can help to ensure that the training is adept for the risks of today and the near future in digital work environments.

The **Covid-19 pandemic** has accelerated many of the digital transformations already seen in the postal sector such as the shift to parcels and increasing use of local drop-off/pick-up points. In addition, several technological implementations meant to decrease contact and infection, such as digital signature or other alternative for parcels' confirmation are likely to continue after the pandemic recedes and will require yet more familiarity with digital processes and devices. It has resulted in the increase in services offered (insurance, financial, internet service providers) as well as digitalising previously offline activities (postal stamps, pick-up/drop-off processes, etc.). These new services have shifted the staff-customer relationship and underlined the importance of basic digital skills throughout the post office workforce. Relatedly, management of new control systems that cover existing services as well as those that were introduced during the pandemic will continue to require up-/re-skilling of staff.

With these considerations accounted for and mitigation measures put in place, digitalisation of the postal sector can thrive while improving workers' digital skills and work environment in terms of Health and Safety.

Annexes

Skill Reference and Work Environment Frameworks

Figure 10 - Skills Reference Framework for Back-office Operations

Skills Reference Framework				
Skills	ICT Basic Office Applications	Problem solving	Relational skills	Autonomy
Trending	<ul style="list-style-type: none"> ▶ At an EU level ▶ For General Office Clerks ▶ For the OPs 	<ul style="list-style-type: none"> ▶ At an EU level ▶ For the OPs 	<ul style="list-style-type: none"> ▶ At an EU level ▶ For the OPs 	<ul style="list-style-type: none"> ▶ At an EU level ▶ For the OPs
Top Future Tasks	<ul style="list-style-type: none"> ▶ Getting info. (1, 4) ▶ Interacting w/ Computers (2) ▶ Reviewing docs. (3) ▶ Preparing docs. (2) 	<ul style="list-style-type: none"> ▶ Getting info. (1, 4) ▶ Interacting w/ Computers (2) ▶ Making decisions & solving problems (5) 	<ul style="list-style-type: none"> ▶ Distribute production schedules (4) 	<ul style="list-style-type: none"> ▶ Documenting / recording information (,3)
Top Future Skills	<ul style="list-style-type: none"> ▶ N/A 	<ul style="list-style-type: none"> ▶ Critical thinking (1,4) 	<ul style="list-style-type: none"> ▶ Active listening (2,2) ▶ Speaking (4,3) 	<ul style="list-style-type: none"> ▶ Time management (3) ▶ Monitoring (,5)
Training offer	<ul style="list-style-type: none"> ▶ Less than adequate (2.7) 	<ul style="list-style-type: none"> ▶ Less than adequate (2.8) 	<ul style="list-style-type: none"> ▶ Not observed 	<ul style="list-style-type: none"> ▶ Less than adequate (2.8)
Ex. training	<ul style="list-style-type: none"> ▶ MS 365 fundamentals ▶ Dynamics 365 	<ul style="list-style-type: none"> ▶ Creative Thinking & the Nature of Problem Solving 	<ul style="list-style-type: none"> ▶ Global approaches to relationships ▶ Encouraging team communication 	<ul style="list-style-type: none"> ▶ Self-Determination Theory

Figure 11 - Work Environment Framework for Back-office Operations

Work Environment Framework				
Measures	Training	Policy reforms	Dialogue	Tech. solutions
Trends	<ul style="list-style-type: none"> ▶ At EU and national levels (e.g. EU Recommendation on Upskilling Pathways) 	<ul style="list-style-type: none"> ▶ At national level (see below) 	<ul style="list-style-type: none"> ▶ Not observed 	<ul style="list-style-type: none"> ▶ EU level and postal sector
Health risks / benefits	<ul style="list-style-type: none"> ▶ In postal sector - Health & safety training among most important features of training programmes 	<ul style="list-style-type: none"> ▶ Observed at national level but abundant (e.g. Working Hours Act in Germany) 	<ul style="list-style-type: none"> ▶ In postal sector -reduce stress concerning digital change and mitigation measures (e.g. wearable technology) 	<ul style="list-style-type: none"> ▶ In postal sector and elsewhere (e.g. exoskeletons, scanner glasses can improve productivity and reduce strain)
Mitigating measures	<ul style="list-style-type: none"> ▶ In postal sector - important to a moderate extent, improve as a viable alternative to stressful work time arrangements 	<ul style="list-style-type: none"> ▶ As above 	<ul style="list-style-type: none"> ▶ In postal sector -raise awareness on important changes to health and safety training, rationale/limits of technological measures 	<ul style="list-style-type: none"> ▶ In the postal sector - however, weariness about impact from wearable technology, mitigate with communicated limits
Role of Social dialogue	<ul style="list-style-type: none"> ▶ In postal sector - inform training coordinators on adjustments to digital health risks (e.g. study on psychological impact of digitisation) 	<ul style="list-style-type: none"> ▶ Social dialogue level - Possibly inherent to all of the social change management levers 	<ul style="list-style-type: none"> ▶ Not observed - Possibility to introduce as a social change management levers ▶ Cannot act alone to mitigate job loss, but can still alleviate the impact 	<ul style="list-style-type: none"> ▶ In all levels - reach agreements regarding e.g. data protection for wearable devices

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Figure 12 - Skills Reference Framework for Delivery of Postal Items

Skills Reference Framework				
Skills	Digital skills	Logistical skills	Socio-relational skills	Specific product knowledge
Trending	<ul style="list-style-type: none"> ▶ At an EU level ▶ For the OPs 	<ul style="list-style-type: none"> ▶ For the OPs 	<ul style="list-style-type: none"> ▶ At an EU level ▶ For the OPs 	<ul style="list-style-type: none"> ▶ For the OPs
Top Future Tasks	<ul style="list-style-type: none"> ▶ Interfacing with digital devices ▶ Tracking deliveries ▶ Delivering in drop-off locations 	<ul style="list-style-type: none"> ▶ Data collection ▶ Energy diagnosis ▶ Delivery by appointment 	<ul style="list-style-type: none"> ▶ Pension delivery ▶ Simple installation of delivered tech. i.e. modem/cable boxes ▶ Proximity services 	<ul style="list-style-type: none"> ▶ Delivery of essential products and services (food, medicines, vaccines) ▶ Proximity services
Top Future Skills	<ul style="list-style-type: none"> ▶ Familiarity with devices ▶ Ability to adapt to digital progress 	<ul style="list-style-type: none"> ▶ Familiarity with procedures for data gathering ▶ Time management 	<ul style="list-style-type: none"> ▶ Communication skills ▶ Technical skills (installation) ▶ Reliability (when handling essential items) 	<ul style="list-style-type: none"> ▶ Ability to understand the properties of specific products
Training offer	<ul style="list-style-type: none"> ▶ Room for improvement ▶ Preferred modality: face-to-face training for new applications and social skills ▶ E-learning for quick updates 	<ul style="list-style-type: none"> ▶ Room for improvement ▶ Technical training should start off face-to-face and integrate with e-learning 	<ul style="list-style-type: none"> ▶ Room for improvement ▶ Preferred modality: face-to-face training for social skills, just-in-time training for technician skills 	<ul style="list-style-type: none"> ▶ Not observed ▶ Preferred modality: face-to-face launch and then just-in-time training
Ex. training	<ul style="list-style-type: none"> ▶ Familiarise yourself with your device: newly added features ▶ Maps and tracking 	<ul style="list-style-type: none"> ▶ Privacy policies for data collectors 	<ul style="list-style-type: none"> ▶ How to interact with the final customer ▶ CRM systems 	<ul style="list-style-type: none"> ▶ Specific guidelines for the delivery of food

Figure 13 - Work Environment Framework for Delivery of Postal Items

Work Environment Framework				
Measures	Training	Policy reforms	Dialogue	Tech. solutions
Trends	<ul style="list-style-type: none"> ▶ New challenges: promote motivation towards training and find methods more engaging than pure e-learning. 	<ul style="list-style-type: none"> ▶ Sectoral Collective Labour Agreements (CLA) between unions and companies to tackle the new challenges 	<ul style="list-style-type: none"> ▶ Dialogue focused on conventional topics (e.g. wages, health/safety) 	<ul style="list-style-type: none"> ▶ New challenge: facilitate the upholding of Covid measures by technological means (electronic signatures, contactless payments)
Health risks / benefits	<ul style="list-style-type: none"> ▶ Training on traffic safety: driving refresher course and simulation machines 	<ul style="list-style-type: none"> ▶ Updating obsolete job legislation 	<ul style="list-style-type: none"> ▶ Dialogue can reduce risk of stress due to digitisation, skill shift and Covid 	<ul style="list-style-type: none"> ▶ Introduction of delivery robots, enhanced electric vehicles for delivery etc.
Mitigating measures	<ul style="list-style-type: none"> ▶ Employee assistance programme (trained counsellor, videos on wellbeing etc.) 	<ul style="list-style-type: none"> ▶ Career and wage incentives can improve motivation 	<ul style="list-style-type: none"> ▶ Improve communication between employees and between employers to avoid the effect of isolation 	<ul style="list-style-type: none"> ▶ Impact from digitisation can be mitigated via improved communication, more suitable training methods and differentiation of career paths
Role of Social dialogue	<ul style="list-style-type: none"> ▶ Inform providers on the modality of training best suited for different topics (e.g. hybrid methods like virtual classrooms) 	<ul style="list-style-type: none"> ▶ Stimulate legislation to reduce/regulate discomfort factors (platform work, full automation) 	<ul style="list-style-type: none"> ▶ Dialogue is essential both horizontally (employee-employee) and vertically (employer-employee) 	<ul style="list-style-type: none"> ▶ Communication between employer and workforce on benefits and reasons behind the adoption of a new technology

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Figure 14 - Skills Reference Framework for Post Office Networks

Skills Reference Framework				
Skills	Digital skills	Soft skills	Relational skills	Technical skills
Top Future Tasks	<ul style="list-style-type: none"> Interfacing with digital devices Proficiency in use of internally developed software and apps Familiarity with new digital procedures connected with recently introduced tasks 	<ul style="list-style-type: none"> For Postmasters: making decisions, organizing and supervising activities For Postal Clerks: observing, receiving, and obtaining information 	<ul style="list-style-type: none"> For Postmasters: communicating with supervisors, peers, or subordinates; resolving conflicts and negotiating with others For Postal Clerks: performing for or working directly with the public 	<ul style="list-style-type: none"> Providing consultancy on energy services, insurance, or financial matters to the client
Top Future Skills	<ul style="list-style-type: none"> Familiarity with apps, software and their updates Ability to adapt to digital progress 	<ul style="list-style-type: none"> Problem solving Social perceptiveness Coordination 	<ul style="list-style-type: none"> Public speaking Active listening Service orientation 	<ul style="list-style-type: none"> Specific knowledge required for the tasks and awareness of security protocols
Training offer	Basic ICT (out of 5) <ul style="list-style-type: none"> Postmasters: 3 (quantity), 2.5 (quality) Postal Clerks: 2.25, (quantity) 2.75 (quality) 	Problem solving (out of 5): <ul style="list-style-type: none"> Postmasters: 3 (quantity), 2.5 (quality) Postal Clerks: 2 (quantity), 2.5 (quality) 	Serving and selling (out of 5): <ul style="list-style-type: none"> Postmasters: 2.5 (quantity), 3 (quality) Postal Clerks: 2.5 (quantity), .3.5 (quality) 	<ul style="list-style-type: none"> The management population should be trained on technical topics, e.g. omnicanality
Ex. training	<ul style="list-style-type: none"> Refresher courses on technological/digital updates 	<ul style="list-style-type: none"> Lateral thinking for problem solving Flexibility and resilience to work role transformation 	<ul style="list-style-type: none"> How to interact with clients Communication with subordinates for effective management 	<ul style="list-style-type: none"> Policies and protocols for insurance services

Figure 15 - Work Environment Framework for Post Office Networks

Work Environment Framework				
Measures	Training	Policy reforms	Dialogue	Tech. solutions
Trends	Company level initiatives and agreements e.g. for psychological and coaching services to protect employees' wellbeing	3 main trends according to prevalent labour market regulation system <ul style="list-style-type: none"> Guidelines & agreements Legislation Implementation process not completed 	Social dialogue, at sectoral and company level, to determine the modalities of policy reform implementation	Workers have a broad range of digital tools at their disposal to facilitate their work and health e.g.: <ul style="list-style-type: none"> stimulating synergy imposing breaks digitisation of procedures
Health risks / benefits	Training on risk factors for health issues like poor posture or eyesight resulting from excessive computer use	Several Directives address digital challenges e.g.: <ul style="list-style-type: none"> Working time Work-life balance Transparent and predictable working conditions 	Company level dialogue on implementation modalities could lead to unequal implementation of policy reforms across MS, as largely seen in variety of sentiment in responses across MS	<ul style="list-style-type: none"> Proven improvements to work facilitation and potential for decreasing stress Risk of overburdening and overconsumption of digital tools and technology, inducing increased stress
Mitigating measures	<ul style="list-style-type: none"> More flexibility for the employees to manage their training schedule Training time more strictly separated from work hours 	Some need updates to digital work environment (working time) and others need implementation (work-life balance)	Coordination between social dialogue partners involved in company-level implementation of policy reforms across MS	<ul style="list-style-type: none"> Transition periods for adopting new technology A more centralised approach (e.g. one password for all tools) Communication campaigns
Role of Social dialogue	Find agreements regarding suitability of training methods and scheduling effectiveness	Advocate for updates to the Working Time Directive, ensure implementation of Work-Life Balance Directive	Advocate for improved coordination between company-level implementation of policy reforms	Social dialogue can monitor, evaluate and promote appropriate tech. solutions and implementation for mitigating health risks

Other annexes

Table 14 - Types of Delivery Robots and their impact on health and safety

Delivery robot	Description	Environment	Health benefits/risks
Follow-the-carrier	Accompany a human mail carrier, usually on walking routes, and carry heavy parcels for them	Typically urban (requires well-paved surfaces)	Reduced physical strain, potential risk for stress with additional maintenance duties

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Delivery robot	Description	Environment	Health benefits/risks
Autonomous delivery from postal offices	Deliver parcels themselves from local post offices	Typically urban (requires well-paved surfaces)	Reduced exposure to traffic related risk, potential risk for stress due to additional duties, concerns of replacement
Autonomous delivery direct from stores	Deliver parcels between physical stores and customers	Typically urban (requires well-paved surfaces and proximity to commercial centres)	Reduced exposure to traffic related risk, potential risk for stress due to additional duties, concerns of replacement
Robo-vans	Delivery vans loaded with several autonomous delivery robots	Typically urban (requires densely populated areas)	Reduced physical strain, potential risk for stress with additional maintenance duties
Delivery drones	Unmanned aerial vehicles (UAVs) that can deliver lightweight parcels	Typically rural (requires open air space)	Reduced exposure to traffic related risk, potential risk for stress due to additional duties, concerns of replacement and repetitive movements/exposure to screens if not operated autonomously

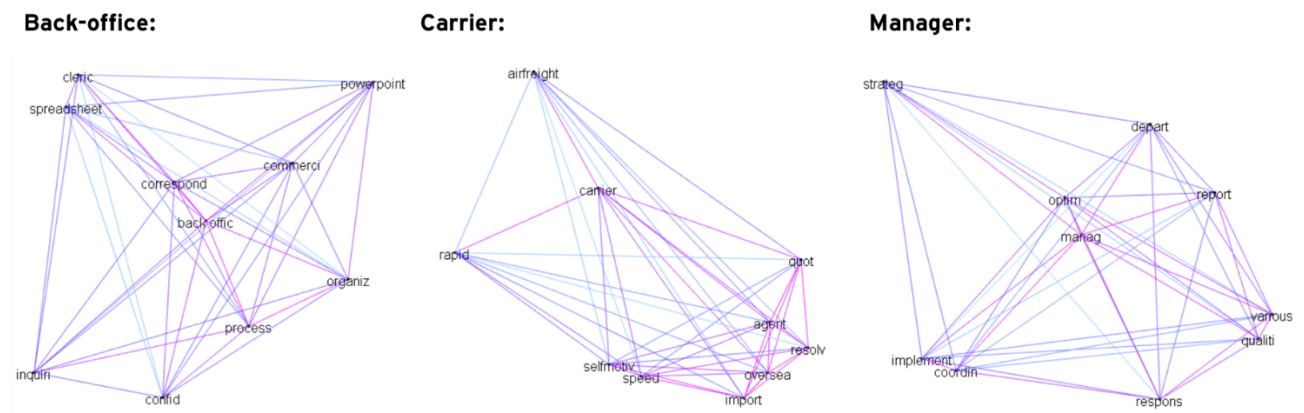
Table 15 - Social change categories

Social change categories	Examples
Work time arrangements	Fixed-term contracts Part-time work Short-time work Working-time modulation Flexible working hours
Measures to mitigate planned job loss	Early retirement Redeployment: internal mobility or external mobility Non-replacement Training Career counselling Support in finding new job / setting up own company Financial arrangements for volunteer leavers Volunteer leave programme Job search assistance
Support & compensation for redundant workers	Severance payments Training

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Social change categories	Examples
Concessions	Job search assistance Career counselling Support in finding new job / setting up own company Redeployment: internal mobility
	Limitations to flexibility (employers) Commitment to full-time contracts (employers) Commitment to avoid compulsory redundancies (employers) Lower standard for auxiliary staff (trade unions) Wages freezes & decreases (trade unions) Decrease in wage levels for new hires
Training	Basic training Restructuring Lifelong learning career development

Figure 16 - Combined results from semantic analysis



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