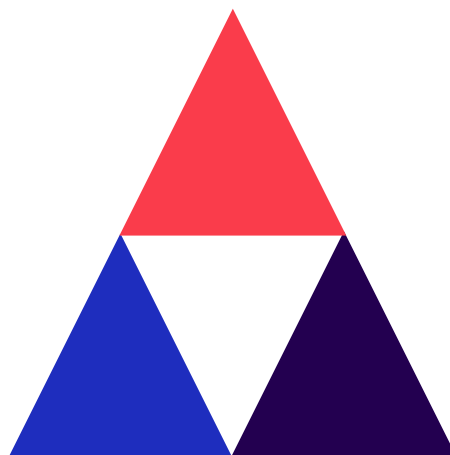




► Occupational Safety and Health in Retail in a Changing World of Work: Risks, Prevention and the Role of Technology

Report for the Technical Meeting on Occupational Safety and Health in the Retail Sector
(Geneva, 28 September–2 October 2026)





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► Abbreviations

AI	artificial intelligence
CCTV	closed-circuit television
EU-OSHA	European Agency for Safety and Health at Work
ILOSTAT	ILO Department of Statistics database
MSD	musculoskeletal disorder
MSME	micro, small and medium-sized enterprise
OECD	Organisation for Economic Co-operation and Development
OSH	occupational safety and health
PPE	personal protective equipment
SDA	Shop, Distributive and Allied Employees' Association
WHO	World Health Organization

► Background

At its 355th Session in November 2025, the Governing Body of the International Labour Office endorsed a “Technical Meeting on Occupational Safety and Health in the Retail Sector”.

The technical meeting has been convened to discuss occupational safety and health (OSH) issues in the retail sector, with particular attention to the evolving world of work and the growing use of technology. It will explore the opportunities and challenges these developments may bring, with the aim of reaching conclusions, including recommendations for future action.¹

This report has been prepared by the International Labour Office as a basis for discussion at the meeting.

¹ ILO, *Sectoral Meetings Held in 2025 and Proposals for Sectoral Work in 2026–27*, GB.355/POL/3, 2025.

► Introduction

1. At its 110th Session in June 2022, the International Labour Conference decided to include “a safe and healthy working environment” in the ILO’s framework of fundamental principles and rights at work and to designate the Occupational Safety and Health Convention, 1981 (No. 155), and the Promotional Framework for Occupational Safety and Health Convention, 2006 (No. 187), as fundamental Conventions. This designation requires all Members, regardless of their ratification status, to promote, respect and realize, in good faith and in accordance with the ILO Constitution, the principle and right to a safe and healthy working environment.²
2. The purpose of this report is to present and analyse issues around OSH in the retail sector, paying particular attention to the evolving world of work and the growing use of technologies, exploring both opportunities and hazards this may bring. The report will consider the workforce profile and employment patterns, as well as the main categories of hazards (physical, biological, ergonomic, psychosocial and environmental), and the associated risks and prevention measures.
3. In terms of scope, the report covers wholesale and retail operations, and enterprises of all sizes and types – from large multinational retail chains to micro, small and medium-sized enterprises (MSMEs), cooperatives, and other social and solidarity economy entities, and market vendors.
4. Building on the conclusions of the 2023 sectoral meeting on digitalization in the retail sector, the analysis spans the retail sector as a whole, covering bricks-and-mortar retail, e-commerce warehouses and distribution services, click-and-collect and delivery undertaken by retailers or outsourced providers, as well as the wider behind-the-scenes digital transformation of retail operations (for example, inventory and workforce management systems, and data-driven marketing) that can shape OSH conditions across occupations.
5. Finally, the report identifies practices and policies around OSH challenges and opportunities through social dialogue.

► 1. Overview of the retail sector

6. Retail is a major contributor to economic growth and employment in many regions.³ Recent OECD data indicate that in Europe the sector accounts for 11.5 per cent of total value added.⁴ It contributed 6.2 per cent of gross domestic product in both the United States of America (2025)⁵ and Japan (2023),⁶ and 17 per cent and approximately 8 per cent in Zambia and Kenya, respectively (2025).⁷

² ILO, “A Safe and Healthy Working Environment Is a Fundamental Principle and Right at Work”.

³ ILO, *The Future of Work in Retail: Digitalization as an Engine for Sustainable Economic Recovery and Decent Work*, Report for discussion at the Technical Meeting on Digitalization in the Retail Sector as an Engine for Economic Recovery and Decent Work, 2023.

⁴ Organisation for Economic Co-operation and Development (OECD), *Local Retail, Global Trends: How Digital, Green and Skills Shifts in the EU are Reshaping SMEs in Towns And Cities*, 2026.

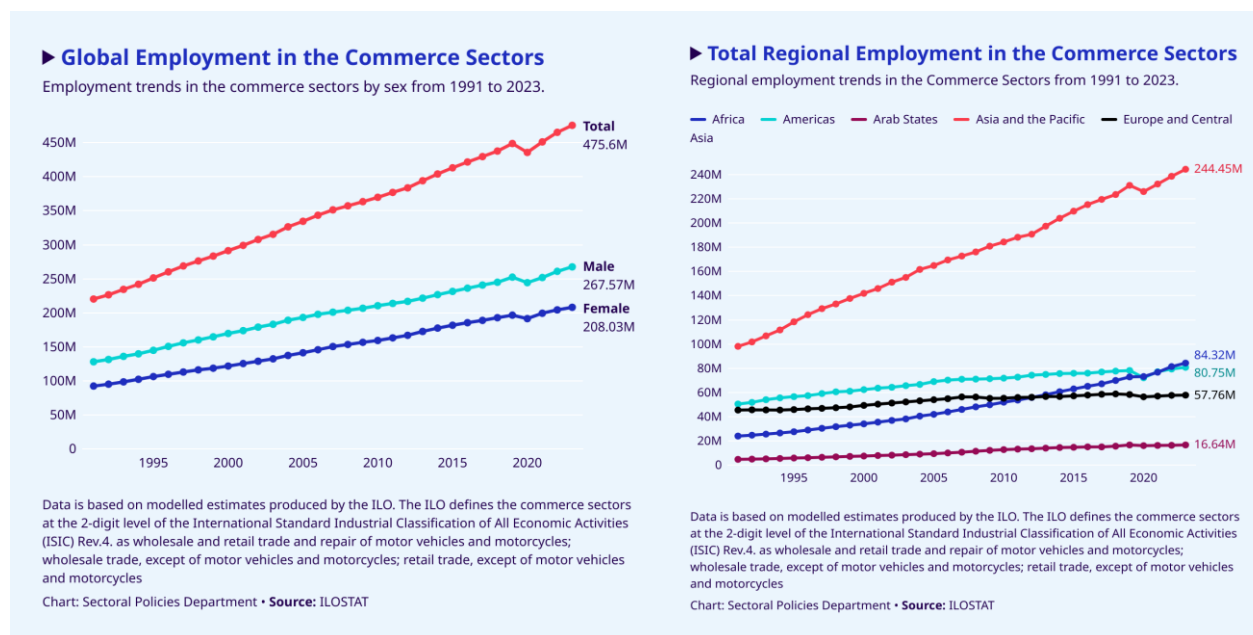
⁵ Trading Economics, “United States – Value Added by Industry: Retail Trade as a Percentage of GDP”, 2026.

⁶ Statista, “Retail trade as a share of the nominal gross domestic product (GDP) in Japan from 1995 to 2023”, accessed April 2026.

⁷ Kenya National Bureau of Statistics (KNBS), *Economic Survey 2026: Popular Version*, 2026 and Zambia Statistics Agency, *The Monthly*, Vol. 273, December 2025.

7. Jobs in retail include not only shop salespeople and cashiers, but also white-collar, back-office staff, warehouse workers, online operators, shelf stockers and own-account street vendors.⁸ Retail is estimated to account for a quarter of all informal, non-agricultural jobs worldwide, and a third of such employment is in developing countries.⁹ In 2023, the ILO estimated that more than 475 million people were working in wholesale and retail trade, with Asia and the Pacific accounting for over 244 million (figure 1).

► **Figure 1. Employment in the commerce sectors (2023)**



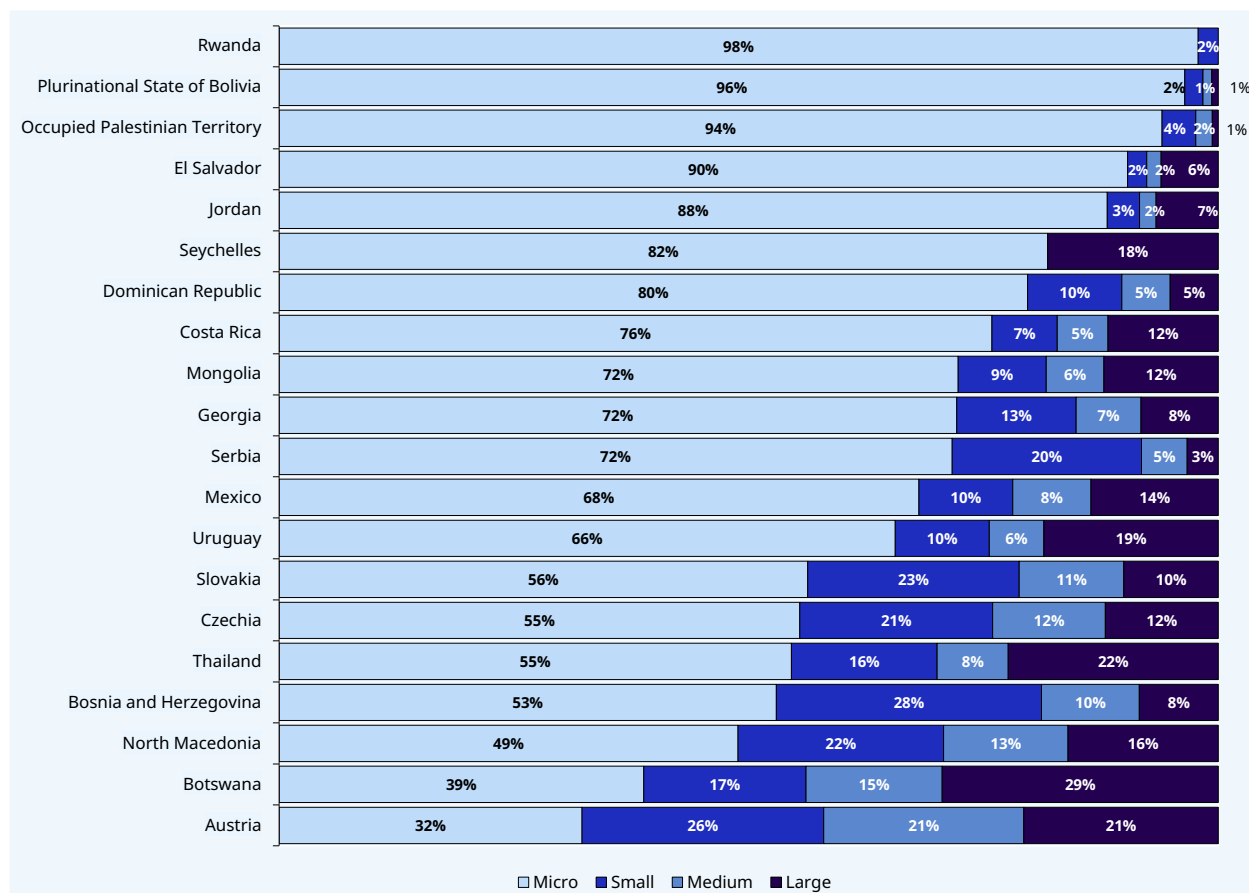
Source: ILO, “Commerce” – data and statistics, accessed 30 April 2026.

8. It should be noted that the wholesale and retail sector is largely composed of MSMEs (figure 2), which can influence the resources and capacity available for OSH management, including both human expertise and digital capabilities.

⁸ ILO, *Occupational Safety and Health and the Future of Work in Retail in the Post-COVID-19 Context*, ILO Brief, March 2024.

⁹ ILO, *Impact of Lockdown Measures on the Informal Economy*, ILO Brief, April 2020, 3.

► **Figure 2. Employment share in the wholesale and retail trade sector by enterprise size, selected countries or territories (2020) ***



* Based on countries or territories with available data for 2020.

Source: ILO harmonized microdata; see <https://ilostat.ilo.org>.

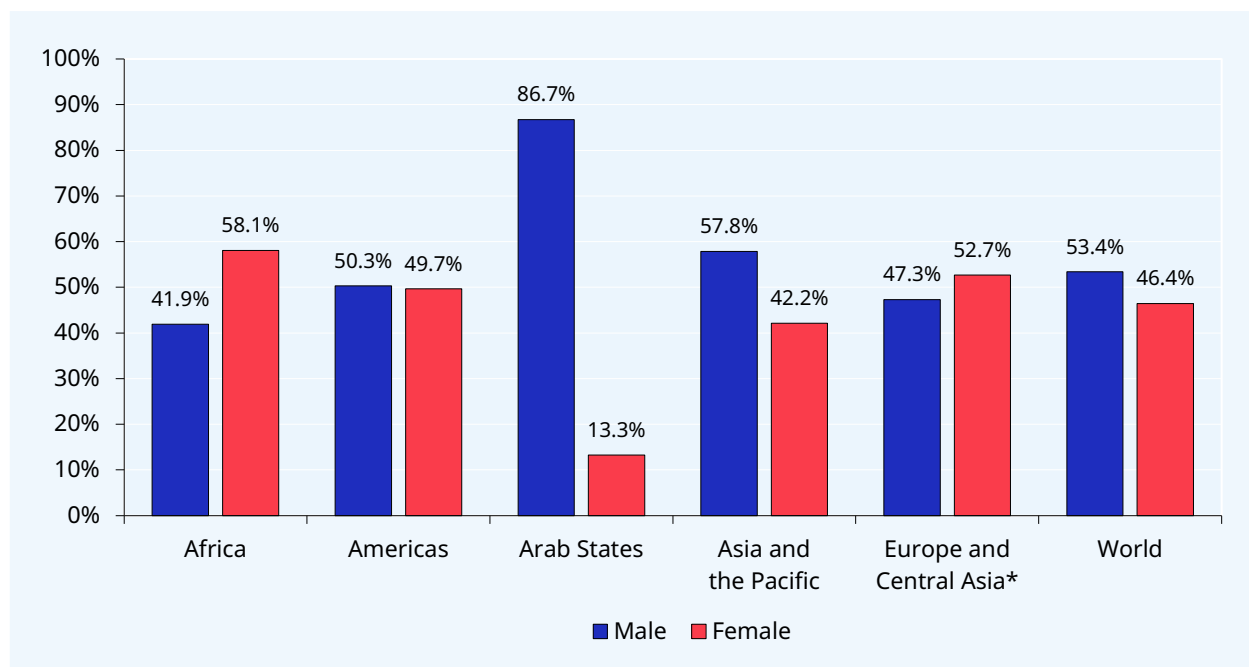
9. Demographically, the profile of the retail workforce carries OSH implications. The sector is a major employer of women and young workers. Women form a substantial share of employment in wholesale and retail trade across regions (figure 3) and are often concentrated in customer-facing roles,¹⁰ while young people frequently enter the labour market through retail jobs, including supermarket and delivery work.¹¹ At the other end of the spectrum, population ageing in a number of economies is increasing the number of economically active older workers.¹² In some contexts, retail enterprises tend to draw on older workers to meet their labour needs; this is the case in the United States, where Bureau of Labor Statistics data show that over 1.2 million older workers (aged 65 and over) were employed in retail trade in 2025.¹³

¹⁰ ILO, *Occupational Safety and Health and the Future of Work in Retail*.

¹¹ ILO, *The Future of Work in Retail: Digitalization as an Engine*.

¹² OECD, *OECD Employment Outlook 2025*, 2025.

¹³ US Bureau of Labor Statistics, "Employed people by detailed industry and age", CPS Table 18b, accessed 18 March 2026.

► **Figure 3. Share of wholesale and retail trade sector employment by gender and region, 2020**

* Less than 50 per cent of the population covered.

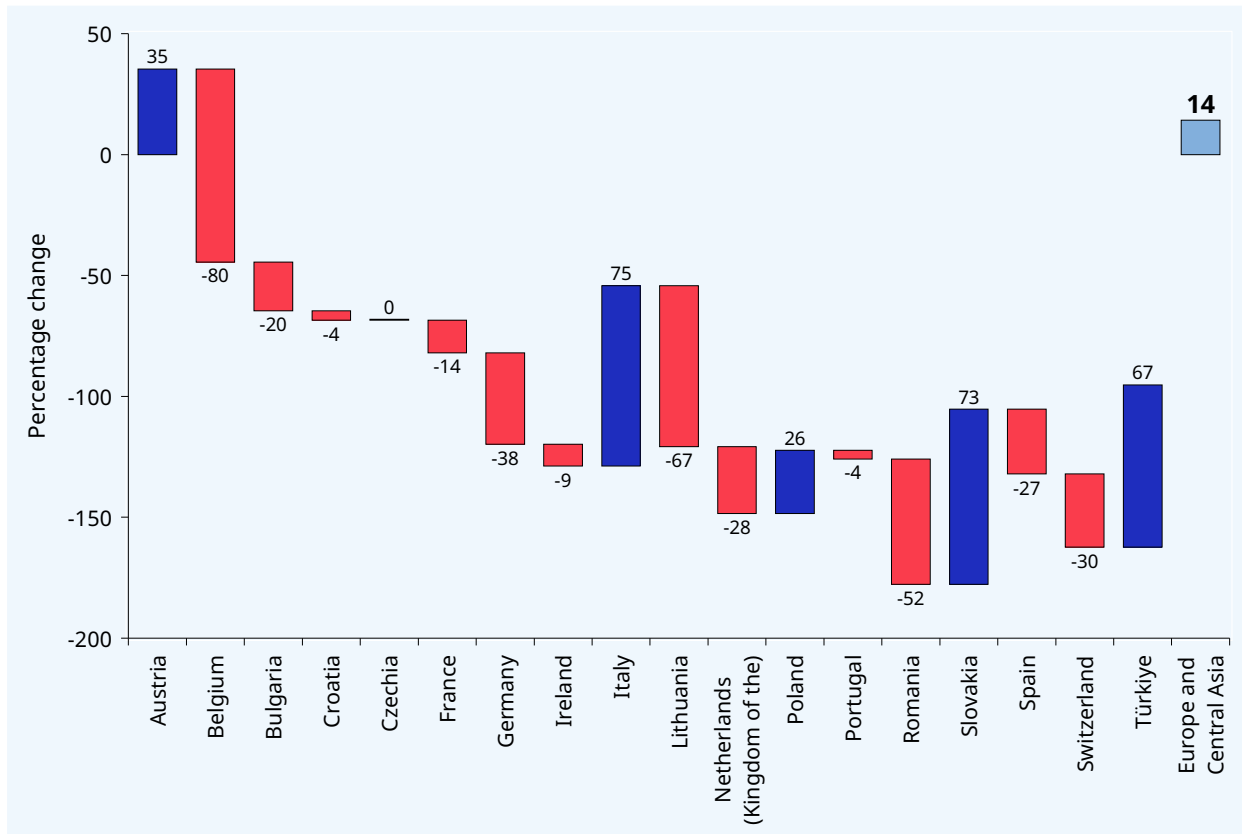
Source: ILO estimates; see <https://ilostat.ilo.org>.

► 2. OSH trends in retail

10. Despite employing a substantial proportion of workers worldwide, the retail sector remains under-researched with regard to OSH, with fragmented evidence, persistent knowledge gaps and limited sector-specific studies in many countries.¹⁴
11. Data availability remains uneven across regions and years. The ILO's data rely on standardized injury rates and, for regional trends, employment-weighted averages (see note below figure 4(a)). In Europe and Central Asia (see figure 4(a)), the employment-weighted fatal injury rate in countries with available data increased overall between 2019 and 2023, with some country-level variation (a substantial increase in Italy and Slovakia and a sizeable decline in Belgium and Lithuania). Outside Europe and Central Asia (see figure 4(b)), the limited available country data show divergent trajectories: Mauritius (Africa) records a marked rise in fatal injury rates, while Argentina and Colombia (Americas) show declines; Asia and the Pacific is mixed, with declines in Australia, Singapore and Thailand, but an increase in Japan.

¹⁴ Nektarios Karanikas, Laura Patricia Martinez-Buelvas and Adem Sav, "Supporting Sustainable Futures in Retail: An Exploratory Study on Worker Health, Safety and Wellbeing in Australia", *Sustainability* 15, No. 22 (2023): 16132; National Institute for Occupational Safety and Health (NIOSH), Centers for Disease Control and Prevention (CDC), *National Occupational Research Agenda for Wholesale and Retail Trade*, 2018.

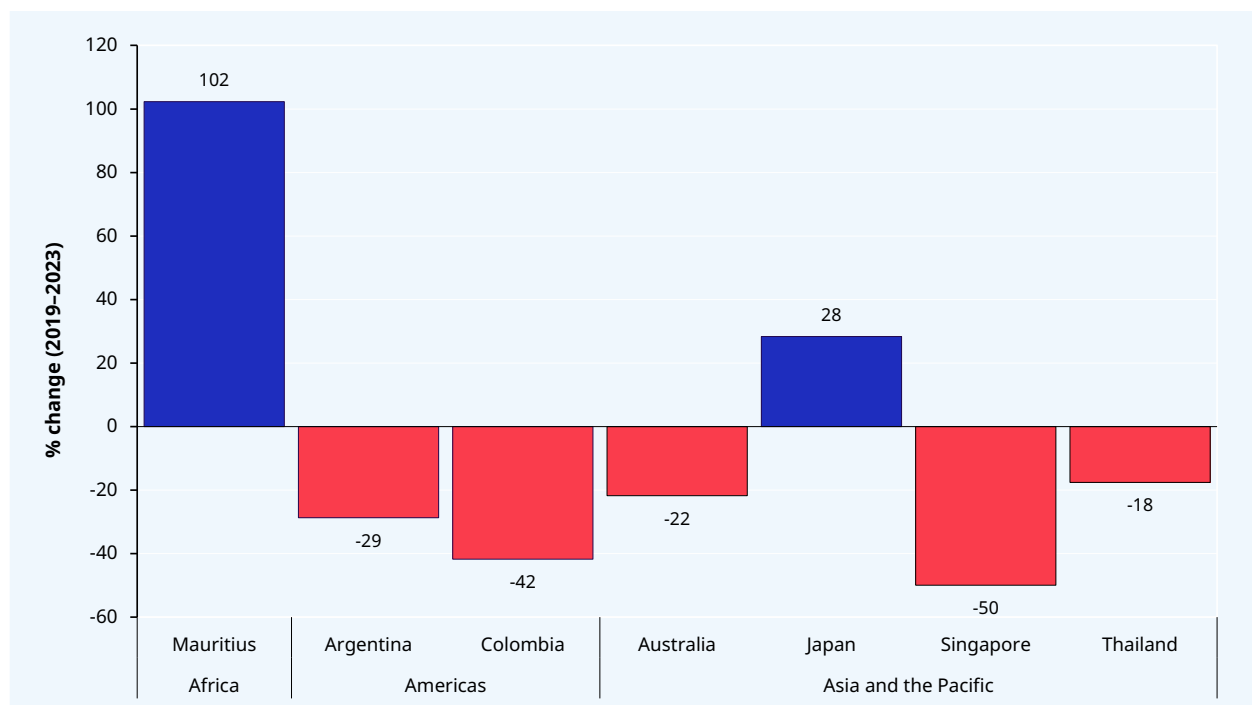
► **Figure 4(a). Europe and Central Asia, percentage change in fatal occupational injury rate (2019-23)**



Source: ILOSTAT database, accessed March 2026.

* For regional trend analysis, country-level injury rates are aggregated using employment-weighted averages. This approach ensures that each country contributes to the regional estimate in proportion to the size of its workforce in the wholesale and retail sector.

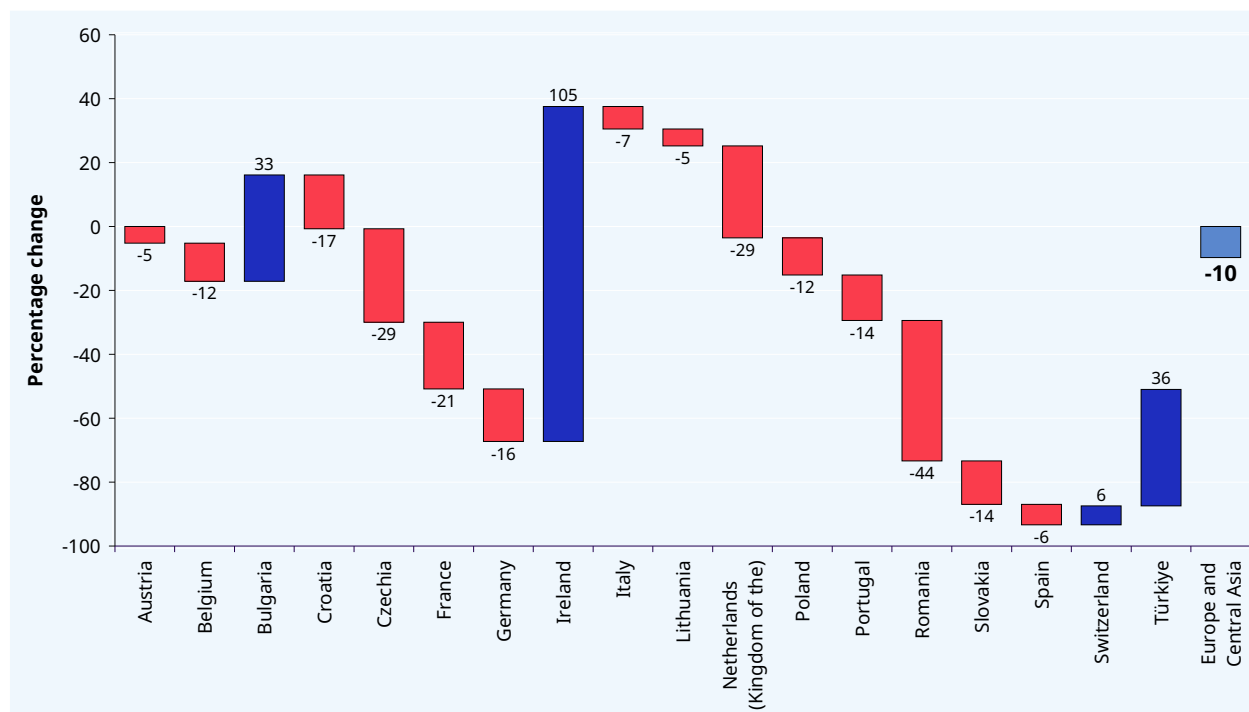
► Figure 4(b) Other countries, percentage change in fatal occupational injury rate (2019–23)



Source: ILOSTAT database, accessed March 2026.

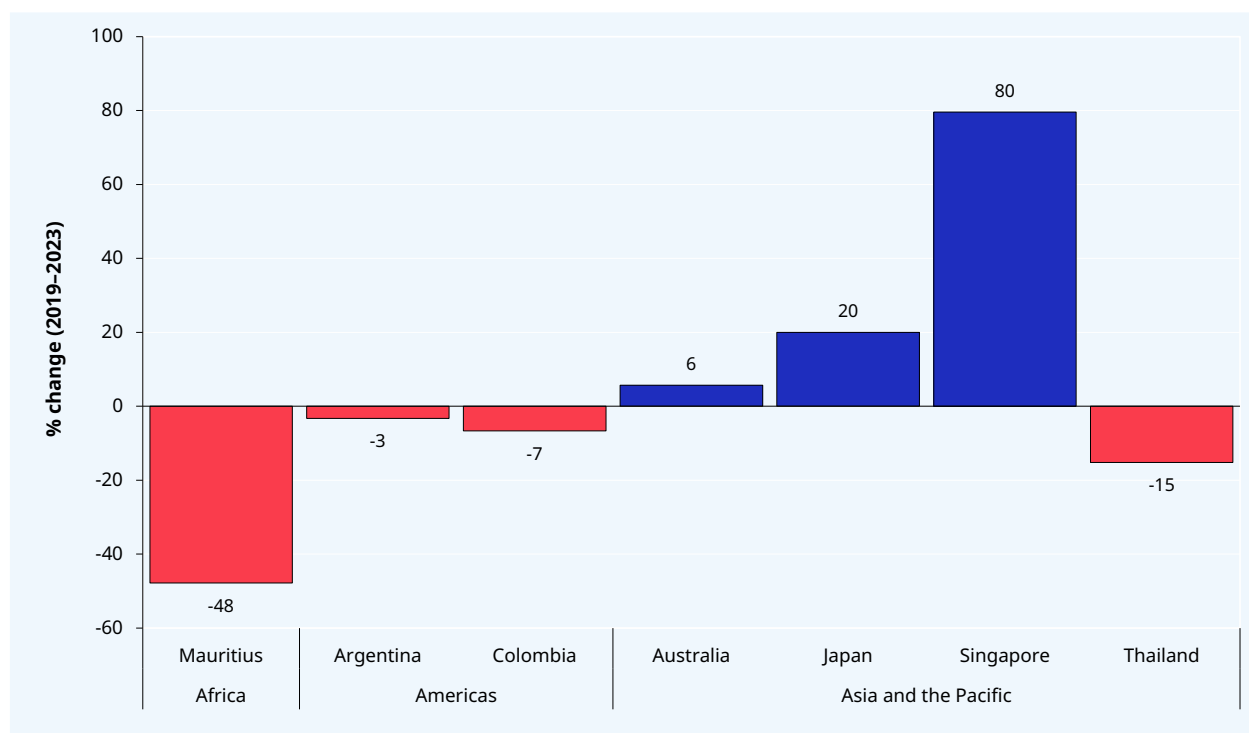
12. In Europe and Central Asia, the employment-weighted non-fatal injury rate declined by 10 per cent between 2019 and 2023, with reductions across most reporting countries but notable increases in a few (for example, Ireland). The ILO's available data show that countries in the Americas report lower non-fatal injury rates (in the thousands per 100,000), while in Asia and the Pacific increases are recorded for Australia, Japan and Singapore (figures 5(a) and (b)).

► **Figure 5(a). Europe and Central Asia, percentage change in non-fatal occupational injuries (2019-23)**



Source: ILOSTAT database, accessed March 2026.

► **Figure 5(b). Other countries, percentage change in non-fatal occupational injuries (2019-23)**

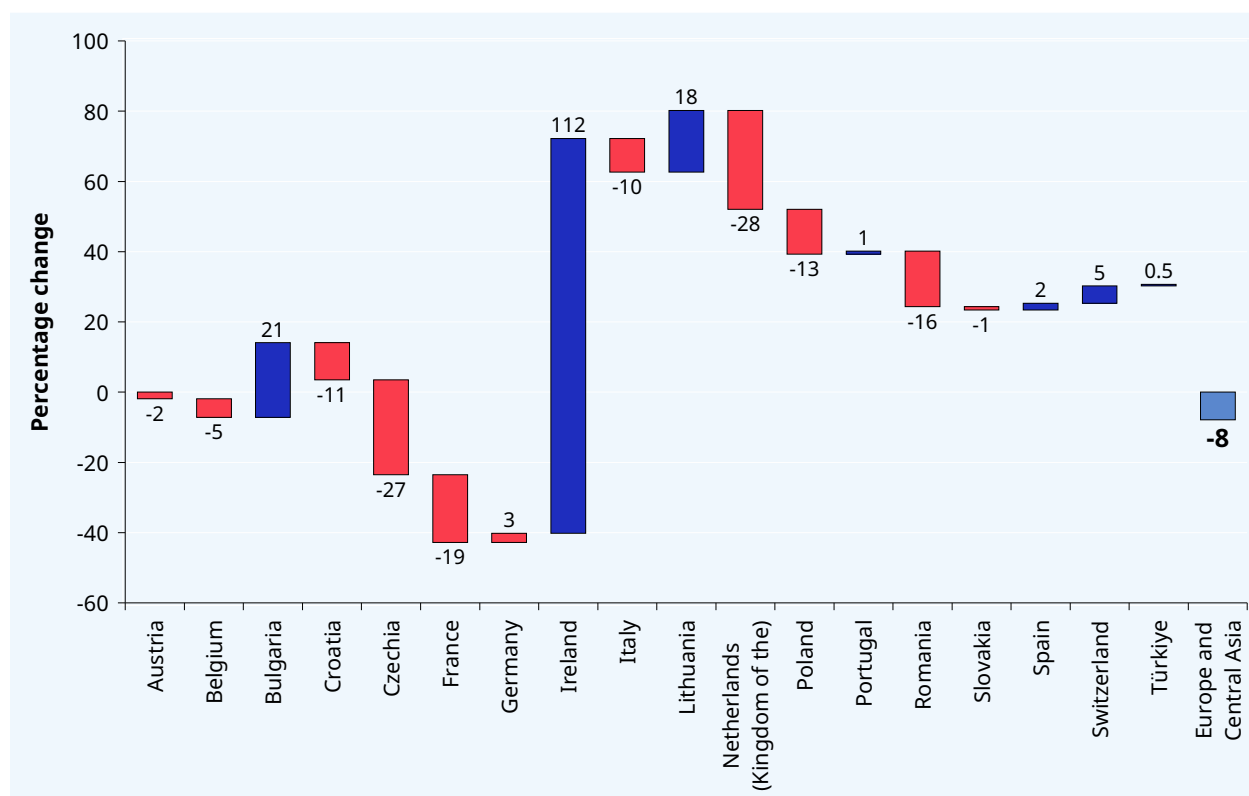


Source: ILOSTAT database, accessed March 2026.

13. For days lost due to cases of occupational injury with temporary incapacity for work, Europe and Central Asia again show moderate improvement overall (-8 per cent employment-weighted

decline, 2019–23), but with important exceptions, particularly large increases in Ireland and smaller increases in other countries, suggesting that severity, recovery periods and reporting of lost work time have not improved uniformly (figure 6).

► **Figure 6. Europe, percentage change in days lost due to cases of occupational injury with temporary incapacity for work (2019–23)**



Source: ILOSTAT database, accessed March 2026.

14. Although OSH risks are generally lower in retail than in many other industries, common hazards persist, notably due to repetitive tasks (stocking, moving and scanning items) and prolonged standing. By way of comparison, in Australia the fatality rate in retail trade was 0.1 per 100,000 workers (2021), compared with 1.8 per cent in manufacturing and 7.9 per cent in transport and warehousing.¹⁵ In Great Britain, the combined wholesale/retail sector recorded 11 worker fatalities (2025/26), far below higher hazard sectors such as construction (25) and agriculture (22).¹⁶ Exposure to OSH risks in retail is associated with musculoskeletal disorders (MSDs) (for example, back strain, tendonitis and carpal tunnel syndrome) and with slips, trips and falls. Retail workers also face exposure to biological hazards, including money handling and chemical exposure through receipts,¹⁷ and psychosocial hazards, including work-related stress and third-

¹⁵ Safe Work Australia, *Key Work Health and Safety Statistics Australia 2022*, 2023, 5.

¹⁶ United Kingdom of Great Britain and Northern Ireland, Health and Safety Executive (HSE): “[Work-related fatal injuries in Great Britain](#)”, graphic “Fatal injuries to workers by main industry, 2025/26”, 2026.

¹⁷ “[Receipt Paper May Expose Retail Workers to Hazardous Chemicals](#)”, *Safety+Health*, National Safety Council, 3 April 2023, accessed 24 March 2026.

party violence and harassment, concerns known in the sector even prior to the COVID-19 pandemic.¹⁸

15. These matters are gaining increased recognition as significant OSH concerns within the industry.¹⁹ For example, a study in the United States found that the wholesale and retail trade sector had a significantly higher incidence of work-related injuries and illnesses than its share of the workforce would suggest. In 2016, the sector reported more than 553,100 injuries and illnesses, along with 461 fatalities. The study estimated that the sector's burden of non-fatal occupational injuries was about 5 per cent higher than the average across private industry.²⁰ Wholesale recorded higher fatal injury levels than retail, with fatality rates decreasing in retail but increasing in wholesale. Transport incidents were a leading cause of fatality; in retail, workplace violence ranked first, followed by transport-related events (figure 7).

► **Figure 7. United States wholesale and retail fatalities by event or exposure (2006–2016)**



Source: Vern Putz Anderson et al., "Wholesale And Retail Trade Sector Occupational Fatal And Nonfatal Injuries And Illnesses From 2006 To 2016: Implications For Intervention".

¹⁸ Cammie Chaumont Menéndez et al., "Help for the Holidays: Preventing Fatigue, Violence, and Stress in Retail", *NIOSH Science Blog*, CDC, 1 December 2023.

¹⁹ ILO, *Occupational Safety and Health and the Future of Work in Retail*.

²⁰ Vern Putz Anderson et al., "Wholesale and Retail Trade Sector Occupational Fatal and Nonfatal Injuries and Illnesses from 2006 to 2016: Implications for Intervention", *American Journal of Industrial Medicine* 63, No. 2 (2020): 121–134.

16. Available country-level data from other regions and countries also offer an overview of safety and health trends in retail and wholesale; however, the lack of disaggregated data does not allow for a full picture of trends in specific subsectors of the industry (retail versus wholesale). In Chile, aggregated data show a decline in non-fatal accidents in 2020, followed by a partial rebound by 2022; fatality rates were low relative to high-risk sectors, but they increased in 2021.²¹ Between 2013 and 2021 in the Philippines, the non-fatal occupational injury rate in wholesale and retail trade remained higher than the fatal injury rate. After a rise in 2017, fatal and non-fatal injury rates, as well as average workdays lost in cases of temporary incapacity, declined in subsequent survey years.²²

2.1. Profile of the retail workforce and OSH considerations

17. The retail workforce spans a wide range of shop-based, logistics, delivery and support roles. As digitalization and omnichannel models expand, both in customer-facing services and in back-end systems that organize work, OSH hazards and risks arise across an increasingly diverse set of work settings, including shops, fulfilment centres, delivery routes, pick-up points and, in some cases, home-based online work.
18. The demographic diversity of the retail workforce also shapes OSH needs across core tasks (in-store service, stocking, fulfilment and delivery). For many women, working-time arrangements – especially irregular or split shifts – can be a driver of fatigue and psychosocial strain, while digital scheduling tools may support greater predictability and shift swapping where appropriate safeguards are in place.²³ Young workers often enter retail as a first job, so effective OSH induction and supervision are particularly important; globally, the ILO estimates that young workers “suffer up to a 40 per cent higher rate of non-fatal occupational injuries than adult workers older than 25”.²⁴ As populations age in some economies, a growing share of older workers in retail and related logistics reinforces the importance of age-responsive work design, ensuring that digitalization supports safe work without creating new barriers.²⁵
19. Organizational changes in the sector are also reshaping OSH risks and their management. The coexistence of shop-based, e-commerce and hybrid retail models has created different risk profiles across the sector and is changing how prevention is organized.²⁶
20. Retail work also includes office-based (non-sales) staff in headquarters or back-office functions (for example, merchandising, procurement, pricing and marketing), whose work is increasingly shaped by digital systems. In these roles, OSH issues may relate to screen-based work (ergonomic risks), cognitive load and psychosocial hazards, as well as data and privacy concerns associated with new technologies.

²¹ Chile, Superintendencia de Seguridad Social (SUSESO), *Informe anual de seguridad y salud en el trabajo 2022* (Santiago, SUSESO, 2023).

²² Philippines Statistics Authority, “Frequency Rates of Cases of Occupational Injuries With Workdays Lost in Establishments Employing 20 or More Workers by Industry Group and Incapacity for Work, Philippines: 2013–2021”, accessed 16 July 2026.

²³ ILO, *Occupational Safety and Health and the Future of Work in Retail*.

²⁴ ILO, “Young Workers”, accessed 15 January 2026.

²⁵ Ewa Soja and Piotr Soja, “Fostering ICT Use by Older Workers: Lessons from Perceptions of Barriers to Enterprise System Adoption”, *Journal of Enterprise Information Management* 33, No. 2 (2020): 407–434.

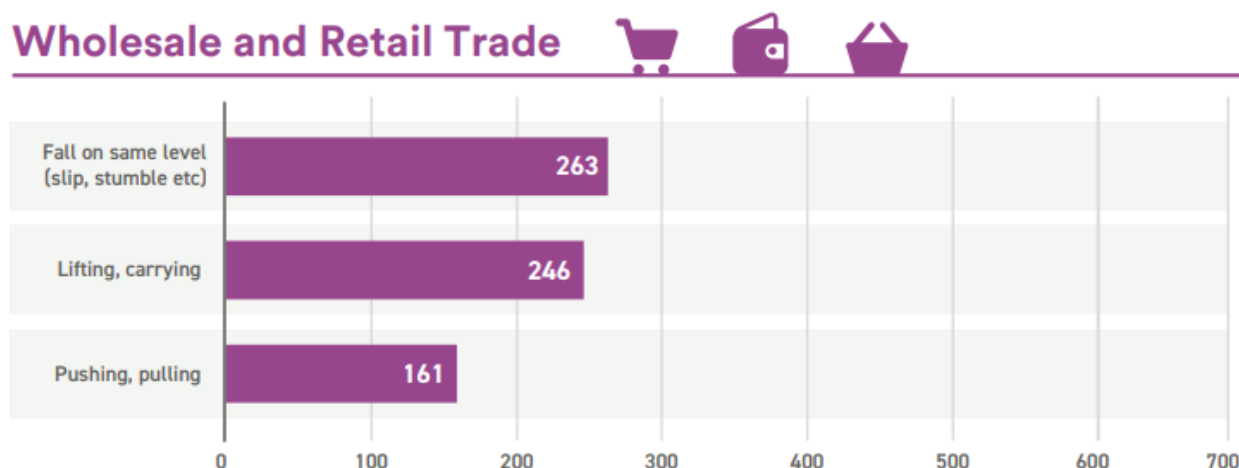
²⁶ ILO, *The Future of Work in Retail: Digitalization as an Engine*.

2.2. OSH hazards by retail segment and work setting

Bricks-and-mortar retail (in shops)

21. Traditional retail jobs include sales and cashier roles, shelf stocking and supervision, alongside office-based (non-sales) staff. In bricks-and-mortar settings, common OSH hazards include repetitive tasks, manual handling and prolonged standing, which are associated with work-related MSDs (for example, back strain, tendonitis and carpal tunnel syndrome) and often involve repetitive movements, awkward/static postures and heavy lifting without mechanical assistance.²⁷ Falls on the same level, lifting injuries and pushing/pulling injuries are the leading causes of non-fatal accidents in many countries (see the example of Ireland in figure 8).

► **Figure 8. Ireland: Top three reported non-fatal triggers in European Union wholesale and retail trade, 2023**



Source: Ireland, Health and Safety Authority, *Annual Review of Workplace Injuries, Illnesses, and Fatalities, 2022–2023*, 2024.

22. Retail workers also face significant psychosocial hazards, as well as violence and harassment. A 2025 survey of over 11,000 retail workers in Australia reported high levels of psychosocial strain, with many reporting burnout and low well-being, linked to understaffing, work overload and customer abuse.²⁸

Warehouses, fulfilment centres and dedicated online order picking sites (micro-fulfilment sites)

23. Workers in warehouses, fulfilment centres and dedicated online order picking sites – serving bricks-and-mortar and online commerce operations only, or a combination of the two – retrieve, pack and dispatch goods, and may face fast-paced manual handling, vehicle/equipment hazards (for example, forklifts) and congestion in inventory aisles. Slip, trip and fall accidents may occur in congested storage rooms or when using ladders.²⁹ Workers may also be exposed to chemical

²⁷ European Agency for Safety and Health at Work (EU-OSHA), “The Future of the (E-)Retail Sector from an Occupational Safety and Health Point of View”, 2018

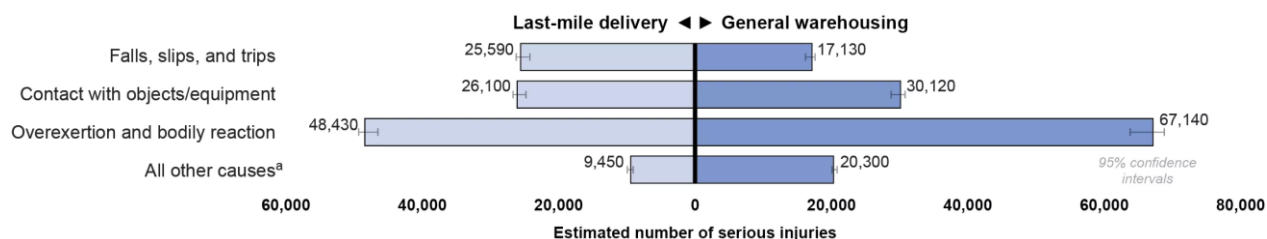
²⁸ Carlo Caponecchia and Sharron O’Neill, *Next Steps for Managing Psychosocial Risks in Retail: Final Report for SDA*, Report prepared for the Shop, Distributive and Allied Employees’ Association (SDA), 2025.

²⁹ ILO, *Occupational Safety and Health and the Future of Work in Retail*.

hazards during unpacking, including residues from pesticides, disinfectants or other substances on packaging and in containers.

24. Recent data from the United States illustrate the risks: warehouse workers now experience one of the highest serious injury rates of any industry, nearly 4 in 100 full-time workers in 2022, and this rate climbed about 20 per cent from 2018 to 2022 (figure 9).³⁰

► **Figure 9. United States – Estimated serious injuries and illnesses by cause, 2021 and 2022**



Source: US GAO analysis of Bureau of Labor Statistics data. GAO-24-106413.

25. Warehousing jobs can also involve environmental hazards – where fulfilment centres lack adequate climate control, resulting in exposure to extreme heat in summer or cold in winter. Incidents of heat-related illness and even fainting among workers have been reported in warehouses without adequate cooling.³¹

Last-mile delivery

26. As online shopping expands, delivery workers have become central to retail distribution and face road traffic, manual handling and environmental hazards. Transport incidents remain a leading cause of fatal injuries, while frequent lifting, carrying and stair climbing contribute to MSDs (notably back and shoulder injuries); some countries also report rising serious injuries, with last-mile delivery injury rates comparable to warehouse work.³² In Latin America, recent research from Brazil documented a high prevalence of occupational accidents among delivery workers, suggesting safety and health deficits in the sector.³³

Hybrid models: Click-and-collect retail

27. Click-and-collect services, which allow customers to order online and pick up purchases in shops or at pick-up points, constitute a hybrid retail work environment combining elements of shop, warehouse and delivery operations. Workers in these systems handle dual roles: picking and packing online orders inside shops, then managing customer handovers at collection points. This model introduces a mix of physical, ergonomic and psychosocial hazards. Picking activities require repetitive walking, bending, lifting and reaching – as for warehouse tasks – and may increase MSDs if work organization and ergonomic design are inadequate.³⁴

³⁰ US Government Accountability Office (GAO), “As Online Shopping Increases, So Do Concerns About Delivery and Warehouse Workers’ Safety”, *GAO WatchBlog*, 9 October 2024.

³¹ US GAO, “As Online Shopping Increases So Do Concerns About Delivery and Warehouse Workers’ Safety”.

³² US GAO, “As Online Shopping Increases So Do Concerns About Delivery and Warehouse Workers’ Safety”.

³³ Janaína Santos de Siqueira et al., “Delivery workers’ subordinate work in delivery platform companies and street accidents: magnitude and associated factors”, *Cadernos de Saude Publica* 41, No. 3 (2025).

³⁴ ILO, *Occupational Safety and Health and the Future of Work in Retail*.

28. Pick-up locations and in-store collecting areas may expose workers and customers to traffic and weather-related hazards. Furthermore, even with reduced face-to-face interaction, workers continue to engage with customers when handling goods, and these interactions may lead to psychosocial hazards, including stress and occasional verbal conflict, especially during busy times. With click-and-collect services on the rise, incorporating these hybrid tasks into existing enterprise OSH management systems and involving workers in designing their workflows could be key prevention measures.³⁵

2.3. OSH patterns and measures to address hazards in retail

29. Hazard exposures in retail are heterogeneous and evolving. A cashier's main risks may differ significantly from those of a warehouse or delivery worker, which means that prevention measures need to address both long-standing occupational hazards and emerging psychosocial and technology-related risks.
30. Demographic shifts in the retail workforce shape OSH priorities. The significant representation of women in retail highlights the need for ergonomics that fit diverse bodies (not "average male" design), attention to harassment and working-time pressures and, more broadly, a gender lens across OSH systems so that prevention and services are gender-responsive for all hazards, grounded in participation and equal access.³⁶ There is also increasing awareness of how age impacts safety and health at work. As digital tools become more embedded in retail work, OSH approaches may need to account for age-related differences in digital familiarity, including potential risks of technostress, techno-strain and techno-insecurity.³⁷ Additionally, in some countries, retail jobs employ many migrant workers or other vulnerable groups, who may face language barriers or are hesitant to report hazards.³⁸
31. The retail sector has long relied on diverse work arrangements – from permanent jobs to part-time, casual and temporary work, as well as outsourced and franchised operations – and competitive pressures have reinforced this trend, including more flexible scheduling in some contexts. While these arrangements can help match staffing to demand and support flexibility for some workers, unpredictable hours or weak protections can undermine work-life balance and affect OSH management.³⁹
32. Workers employed in retail on a part-time basis, or through agencies, as well as temporary workers, may be less familiar with safety and health procedures and less empowered to report hazards.⁴⁰ Irregular schedules and involuntary part-time hours can lead to fatigue, work-life conflict and stress, affecting both physical safety (for example, accidents linked to exhaustion) and mental health.⁴¹

³⁵ ILO, *Occupational Safety and Health and the Future of Work in Retail*.

³⁶ ILO, *10 Keys for Gender Sensitive OSH Practice: Guidelines for Gender Mainstreaming in Occupational Safety and Health*, 2013; ILO, "Gender and Occupational Safety and Health", accessed 15 January 2026.

³⁷ Ewa Soja and Piotr Soja.

³⁸ ILO, *The Future of Work in Retail: Digitalization as an Engine*, 54; ILO, *Promoting Fair Migration: General Survey concerning the Migrant Workers Instruments*, ILC.105/III/1B, 2016.

³⁹ ILO, *The Future of Work in Retail: Digitalization as an Engine*.

⁴⁰ Lauren M. Menger-Ogle et al., "A Staffing Perspective on Barriers to and Facilitators of Temporary Worker Occupational Safety and Health", *American Journal of Industrial Medicine* 66, No. 9 (2023): 736–749.

⁴¹ Adekemi O. Suleiman et al., "Worker Perspectives on the Impact of Non-Standard Workdays on Worker Health and Family Well-Being: A Qualitative Study", *BMC Public Health* 21, No. 1 (2021): 2230.

33. At the same time, technology and new business practices raise additional considerations beyond employment status, including the capacity of enterprises of different sizes to comply with OSH requirements, persistent digital divides that determine access to safer technologies, the uneven integration of OSH into business strategies across the sector, and the role of discrimination in shaping exposure and risk perception.
34. Table 1 summarizes the main hazards and prevention measures in the retail sector, which will be discussed and elaborated on in the different sections of the report.

► **Table 1. Main OSH hazards, potential risks and OSH measures in retail**

Hazard type	Potential risks and examples	Preventive OSH measures
Physical and ergonomic	Repetitive tasks (such as scanning and stocking) can lead to MSDs. Prolonged standing for cashiers/sales staff; manual handling and ladder use can lead to strains, sprains, hernias and slips/trips/falls from spills or clutter. ¹	Ergonomic training; safe lifting; job rotation; mechanical aids (hand carts, trolleys), anti-fatigue mats; prompt spill clean-up and good housekeeping; safe ladder protocols; staffing aligned to workload. ¹
Chemical and biological	Exposure to chemicals, cleaning agents, solvents and pesticides; handling treated packaging; receipt paper, hazardous products (paints, medicines); and biological exposures from spoiled goods/waste can lead to dermatitis/respiratory irritation, and public-facing roles carry infectious-disease risks. ²	Substitution with less hazardous products; adequate ventilation; personal protective equipment (PPE) (gloves, masks/respirators as needed); safe storage/labelling; hygiene and sanitation protocols, including after handling receipts; infectious-disease plans (barriers, masks, ventilation, occupancy limits), vaccination encouragement. ²
Psychosocial (including organizational)	High emotional demands in customer service; peaks (weekends/holidays) can lead to workload stress from low job control/automated scheduling; irregular/unsocial hours, short-notice changes; job insecurity in short-term/part-time roles. ³	Workload planning and peak-period staffing; consultation and advance notice of shifts; collective bargaining, workplace cooperation; training on stress and conflict management; supportive supervision; fair and predictable contracts. ³
Violence and harassment	Higher exposure to violence and harassment increases the risk of long-term psychological harm ⁴ as a result of verbal abuse, threats and physical assault from customers/third parties.	Zero-tolerance policies and procedures; staff training (de-escalation, incident response); adequate staffing/lone-working controls; shop design/security (lighting, alarms, closed-circuit television (CCTV)); confidential reporting, referral and victim support. ⁴
Environmental and climate-related	Heat stress (outdoor work/non-air-conditioned warehouses); cold stress (refrigerated areas/winter work); air pollution (outdoor workers); extreme	Heat/cold stress plans (rest, hydration, shade/cooling, protective clothing); climate control where feasible; rescheduling during extreme weather events; early-

Hazard type	Potential risks and examples	Preventive OSH measures
	weather events (storms/floods) that disrupt safe work. ⁵	warning systems and contingency plans. ⁵
Sources:¹ ILO, <i>Occupational Safety and Health and the Future of Work in Retail</i>. ² ILO, <i>Occupational Safety and Health and the Future of Work in Retail</i>. ³ EU-OSHA, “Psychosocial Risks and Mental Health at Work”, 2022; ILO, the Occupational Safety and Health Convention, 1981 (No. 155). ⁴ ILO, the Violence and Harassment Convention (No. 190) and Recommendation (No. 206), 2019. ⁵ US Government Accountability Office (GAO), “As Online Shopping Increases, So Do Concerns About Delivery and Warehouse Workers’ Safety”, <i>GAO WatchBlog</i>, 9 October 2024; ILO, <i>Working on a Warmer Planet: The Impact of Heat Stress on Labour Productivity and Decent Work</i>, 2019.		

► 3. Digital transformation and its OSH implications in retail

- 35. Digital transformation in retail extends beyond e-commerce interfaces to include back-office and operational systems (for example, inventory and workforce management, marketing and loyalty programmes), with OSH implications across a wider range of occupations, including office-based and support roles.
- 36. Many retailers are now leveraging a range of digital applications, including artificial intelligence (AI) to manage inventory and tailor marketing, robotics for tasks such as warehouse picking and in-store cleaning, and smart wearables for navigation and safety support in warehouses. Some enterprises also use “algorithmic management” tools – data-driven systems that help allocate and monitor work (for example, scheduling and performance metrics) – as one element within this broader digital transformation. ⁴² Generative AI and agentic applications are increasingly used for customer interaction, task allocation and performance assessment.

3.1. Potential hazards and benefits of technologies

- 37. These innovations may improve efficiency (for example, an AI-based batch order picking system was reported to reduce travel time by 22.8 per cent in a warehouse case study) ⁴³ and reduce exposure to specific occupational hazards (for example, a systematic review reported that wearable sensors were used for posture correction and fatigue monitoring, with an accuracy of around 95 per cent). ⁴⁴ More broadly, emerging technologies can reduce exposure to physically demanding and dangerous tasks and can also enable more flexible ways of organizing work, potentially supporting safer practices and improved work–life balance. ⁴⁵
- 38. Digitalization also introduces specific OSH hazards, including psychosocial and organizational risks, discussed further below. In addition, the interaction between workers and advanced machines can lead to safety issues, such as collisions in human–robot collaboration, or ergonomic problems associated with poorly designed wearable devices. ⁴⁶

⁴² ILO, *Revolutionizing Health and Safety: The Role of AI and Digitalization at Work*, 2025.

⁴³ Fakhreddin Fakhrai Rad et al., “[Adoption Of AI-Based Order Picking In Warehouse: Benefits, Challenges, And Critical Success Factors](#)”, *Review of Managerial Science* 19 (2025): 3495–3540.

⁴⁴ Morteza Jalali Alenjareghi et al., “[Wearable Sensors in Industry 4.0: Preventing Work-related Musculoskeletal Disorders](#)”, *Sensors International* 7 (2025): 100343.

⁴⁵ ILO, *Occupational Safety and Health and the Future of Work in Retail*.

⁴⁶ ILO, *Revolutionizing Health and Safety*.

39. The effects of these technologies depend on how they are deployed, the regulatory and governance frameworks developed, and their integration into OSH management systems, including through worker consultation and participation.
40. Table 2 provides a concise OSH-oriented overview of technologies used across retail settings, identifying potential OSH hazards and OSH benefits where technologies are designed and deployed to support prevention.⁴⁷

► **Table 2. Technology in retail: Potential OSH hazards and potential OSH benefits**

Technology and typical retail use	Potential OSH hazards	Potential OSH benefits
Automated conveyors and sorting systems	Physical: rapid, repetitive reaching and handling; caught in or struck by hazards from moving conveyor belts. Organizational: risks linked to increased reliance on system maintenance, which may expose enterprises and workers to operational disruptions and OSH risks when systems malfunction or fail.	Can reduce manual handling to reduce musculoskeletal hazards, when well designed; supports safer material flow by separating pedestrian routes from loads; can manage workloads and minimize fatigue by automating repetitive tasks.
Robotics (e.g., robotic arms, autonomous mobile robots)	Physical: risks arising from human-robot interaction, including collisions and unintended movements. Ergonomic: awkward or constrained working postures when working in proximity to robotic systems. Psychosocial: work-related stress, anxiety and perceptions of job insecurity associated with task automation.	Can reduce heavy lifting and long walking distances, limit bending or lifting and reduce exposure to hazardous environments; can increase task precision, enabling operations in extreme temperatures.
Handheld scanners and wearables	Ergonomic: repetitive wrist/thumb motions. Psychosocial: stress and fatigue from constant monitoring. Environmental: distraction causing slips/falls. Privacy and data security: concerns about data collection and surveillance.	Can support safer work by improving task guidance, locating products faster and reducing paperwork; some wearables can help detect heat strain or hazardous postures and trigger early intervention when used with clear safeguards.

⁴⁷ US GAO, *Workplace Safety and Health: OSHA Should Take Steps to Better Identify and Address Ergonomic Hazards at Warehouses and Delivery Companies*, 2024.

Technology and typical retail use	Potential OSH hazards	Potential OSH benefits
AI-enabled workforce management and monitoring (including predictive, generative and agentic AI)	Psychosocial: mental overload and shifting responsibility for mistakes to workers when following AI instructions; fatigue linked to constant surveillance and intensified work. Organizational: opacity and diffused accountability in automated scheduling/task allocation; reduced worker autonomy; pace intensification and penalization of breaks; unrealistic performance pressure. Privacy and data protection: constant surveillance (data collection/monitoring). Physical: errors from algorithmic scheduling leading to fatigue.	When used transparently and with worker participation, it can optimize scheduling practices; fairer workload distribution and earlier identification of operational inefficiencies, OSH hazards and unsafe patterns, contributing to accident prevention.
Route planning and delivery management tools (e.g., navigation, dispatch optimization and emerging drone use)	Psychosocial: algorithm-driven time pressure and deadline demand. Behavioural/environmental: unsafe driving behaviours that can encourage speeding; exposure to extreme heat during outdoor driving/delivery.	Can support safer delivery by avoiding high-risk routes and enabling weather-informed planning and rest breaks; can improve emergency response and lone-worker safety when designed for prevention.
Exoskeletons and ergonomic assist devices (lifting support)	Ergonomic: poor fit of equipment/PPE/exoskeletons causing discomfort, restricted movement and pressure points. Physical: new strain points on hips/shoulders; long-term physiological impacts if overused.	Can reduce back strain for some manual-handling tasks and support ageing or injured workers when properly fitted, training is provided and used as part of a broader ergonomics programme.
Sensors/cameras for hazard detection (e.g., blocked aisles, unsafe lifting near-miss analytics)	Psychosocial: stress linked to digital surveillance, monitoring-related fatigue, and concerns over privacy and data protection. Physical: errors due to distraction from false alarms distract from tasks. Organizational: overreliance on AI without human oversight.	Can support early hazard detection and corrective action (e.g., blocked exits, spills); alert workers in real time and improve learning from near misses when paired with worker consultation and supervisory inspection.

Technology and typical retail use	Potential OSH hazards	Potential OSH benefits
Customer-facing apps (e.g., click-and-collect interfaces, customer tracking/ratings)	Psychosocial: harassment and abuse via digital channels (e.g., messages/reviews); ratings pressure and stress linked to real-time tracking and performance scoring. Behavioural/environmental: multitasking demands and distraction (e.g., interacting with apps/devices while driving or serving customers). Privacy and data protection: concerns about tracking, data collection and the secondary use of worker data.	Can improve communication and provide safety through Global Positioning System (GPS) monitoring in high-risk areas; can facilitate reporting of violence and harassment, and support incident documentation where trusted channels exist.
Enterprise digital transformation systems/enterprise resource planning/inventory/loyalty programmes/marketing)	Organizational: potential work intensification associated with real-time sales/inventory signals. Ergonomic/physical: increase repetitive scanning, reaching and handling, raising MSD exposure. Psychosocial: intensification of stress and discouragement of breaks if targets are rigid.	Improved staffing and workload forecasting; better traceability and faster corrective action (for example, chemical/product safety controls).

Source: Adapted from US GAO, *Workplace Safety and Health*.

3.2. Psychosocial hazards and work–life balance under digital retail models

41. Digitalization is reshaping the tasks of retail work, as well as its pace, intensity and organization. AI-based scheduling practices and digital surveillance can significantly affect job quality and workers' well-being and are becoming increasingly relevant in the retail sector as digital tools are gradually embedded in daily operations.⁴⁸ These shifts bring productivity gains and new opportunities to the sector, but they can also amplify psychosocial hazards. Job insecurity linked to automation and AI-enabled restructuring is also widely recognized as a psychosocial hazard, with evidence associating automation risk and job insecurity with adverse health and well-being outcomes.⁴⁹ The ILO Global Strategy on Occupational Safety and Health and its Plan of Action (2024–2030) highlights stress, harassment and mental health as growing OSH challenges.⁵⁰ As new technologies reshape work, psychosocial health needs to be explicitly integrated into OSH management systems.

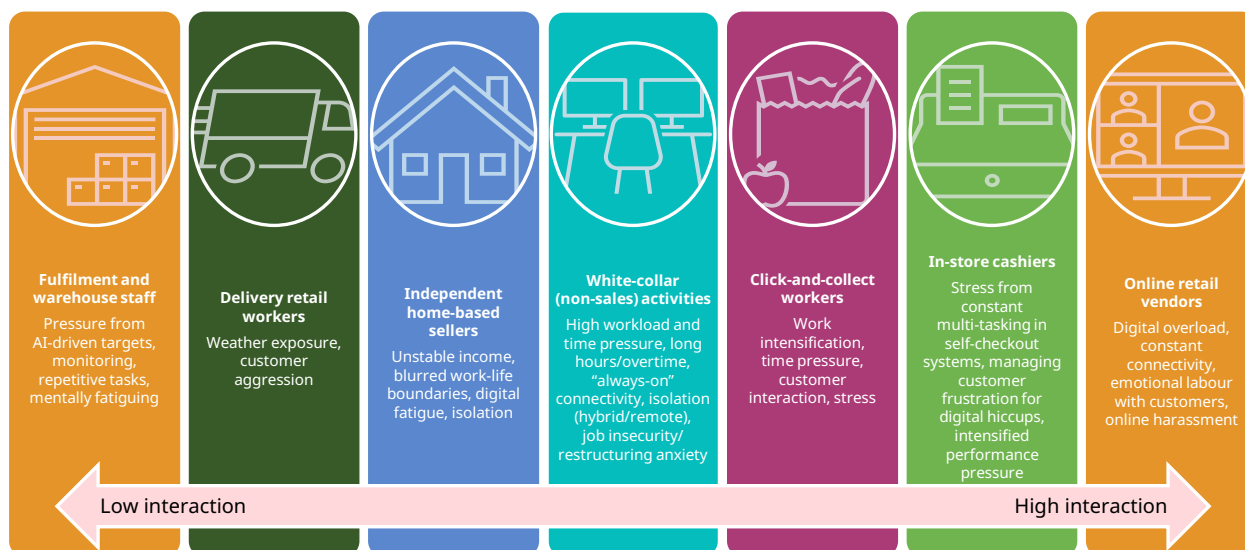
⁴⁸ Harvard Kennedy School, The Shift Project, "[About Us](#)", accessed 15 January 2026.

⁴⁹ "[Fear Of Job Loss To Automation May Harm Worker Health: Study](#)", *Safety+Health*, National Safety Council, 11 April 2018.

⁵⁰ ILO, *Global Strategy on Occupational Safety and Health 2024–30 and Plan of Action for its Implementation*, GB.349/INS/8, 2023.

42. Customer-facing retail work can involve sustained emotional stress, compounded by a high level of human interaction, which may be intensified by digital performance management and real-time customer feedback. These dynamics can increase psychosocial strain, particularly during peak periods and when staffing is tight (figure 10).

► **Figure 10. Psychosocial hazards by retail occupation and level of human interaction**



Source: Author's visualization.

43. Retail workers, including those engaged in last-mile delivery and warehousing activities, tend to report heightened work-related stress and anxiety linked to meeting AI-based performance targets. Online vendors working from home may face isolation, with potential adverse implications for mental health and well-being, including psychosocial strain and other stress-related health outcomes.⁵¹ These developments align with data from the United States on service-sector jobs, where greater supervision and unpredictable schedules contribute to increased stress among certain service workers.⁵² According to the 2021 World Health Organization (WHO)/ILO joint estimates of the work-related burden of disease and injury, long working hours and psychosocial strain are major global occupational hazards that contribute to the burden of work-related disease, underscoring the need to integrate psychosocial risks into risk assessment and prevention.⁵³
44. Work-life balance can be affected by digitalization in retail in both positive and negative ways. Algorithm-based scheduling and workforce-management tools can, when used transparently, with worker participation and appropriate safeguards, support more flexible rosters and worker-initiated shift changes, but "just-in-time" scheduling with limited notice can reduce predictability and strain family life, particularly for workers with care responsibilities. Furthermore, in the absence of adequate and effectively enforced protection measures, as well as integrated and coherent care policies and systems, this flexibility may translate into long or irregular working

⁵¹ Emilia F. Vignola et al., "Workers' Health under Algorithmic Management: Emerging Findings and Urgent Research Questions", *International Journal of Environmental Research and Public Health* 20, No. 2 (2023): 1239.

⁵² Harvard Kennedy School.

⁵³ ILO, *Revolutionizing Health and Safety*.

hours, with implications for their well-being.⁵⁴ In response, measures are emerging in some contexts to promote greater predictability of working time and protect workers from constant digital availability.⁵⁵ However, a systemic transformation may be needed across childcare services, industrial relations settings and employer practices to provide retail workers with the support and services they need to meet their care needs.⁵⁶

45. Click-and-collect activities combining in-store service with online order processing, or shops dedicated to e-commerce fulfilment, may expose workers to increased work intensity and competing performance demands. Home-based online vendors and remote retail workers may experience blurred boundaries between work and private life, with risks of overwork and psychosocial strain. Remote-work arrangements can also expose workers to risks arising from the home environment (for example, domestic violence), which, while outside traditional OSH frameworks, may nonetheless affect workers' well-being. ILO guidance on telework highlights the importance of addressing psychosocial risks, digital inclusion and adequate support mechanisms for workers outside conventional workplaces.⁵⁷

3.3. Applying digital technologies to risk management in retail

46. The OSH implications of new technologies are best managed as part of overall OSH management systems rather than as a stand-alone issue.⁵⁸ Across retail settings, digital tools may either mitigate or exacerbate occupational risks, depending on how they are designed, introduced and overseen.⁵⁹ This calls for applying the hierarchy of controls to technology-related hazards, alongside task-level hazard identification, appropriate maintenance and effective human oversight. Table 3 summarizes how digitalization and AI can be integrated into OSH risk management in retail.

► **Table 3. Integrating new technologies into risk management for improved OSH in retail**

Occupational group	Main OSH hazards	How new technologies can improve risk management	Potential concerns/safeguards
Shop salespersons and cashiers	Prolonged standing, repetitive scanning, customer aggression and exposure to infectious agents/pathogens	• Wearable ergonomic sensors to detect strain and prompt microbreaks • AI-enabled scheduling to distribute workloads fairly • Contactless payment/self-checkout	Risk of excessive surveillance; need to balance monitoring with privacy, worker protection and worker trust

⁵⁴ Ignacio Gonzalez Vasquez et al., *Digitalisation and Workers Wellbeing: The Impact of Digital Technologies on Work-related Psychosocial Risks* (European Commission, 2024).

⁵⁵ Tina Weber and Oscar Vargas Llave, *Right to Disconnect: Exploring Company Practices*, (Eurofound, 2021), 9.

⁵⁶ Natasha Cortis et al., *Challenges of Work, Family and Care for Australia's Retail, Online Retail, Warehousing and Fast-food Workers*, (Social Policy Research Centre, UNSW Sydney, 2021).

⁵⁷ ILO, *Practical Guide on Teleworking during the COVID-19 Pandemic and Beyond: A Practical Guide*, 2020.

⁵⁸ ILO, *Revolutionizing Health and Safety*.

⁵⁹ ILO, *Revolutionizing Health and Safety*.

Occupational group	Main OSH hazards	How new technologies can improve risk management	Potential concerns/safeguards
		- to reduce biological exposure • CCTV with AI analytics for violence prevention	
Shelf fillers and stock clerks	Heavy lifting, slips/trips, fast restocking under time pressure	• Exoskeletons or smart lifting devices to reduce strain • Mobile apps for safe inventory management • Sensors in trolleys to prevent overloading	Exoskeleton discomfort if poorly designed; need for training in safe tech use
Warehouse and fulfilment workers	Human-robot interaction hazards, repetitive strain and work intensification from algorithm-based pick rates	• Collaborative robots for heavy tasks • Wearables tracking posture and fatigue • Digital analysis of near-miss reports to identify recurring hazards and target preventive measures (e.g., unsafe routes, congested zones, high-risk tasks)	Excessive algorithm-based monitoring; need to ensure worker autonomy and rest periods Physical safety concerns associated with unintended contact/collisions, pinch/crush points; need for application-specific risk assessment and clearly defined/demarcated collaborative space *
Delivery workers in retail distribution networks	Road-traffic accidents, heat/cold stress, pressure from delivery deadlines, violence/theft	• GPS routing systems optimized for safety, not just speed • Mobile apps with weather/traffic hazard alerts • Wearables for vital signs and fatigue monitoring • Panic buttons for violence incidents	Risk of work intensification; data privacy concerns
Online vendors/home-based sellers	Ergonomic strain from poor home set-ups, blurred work-life boundaries, isolation and fire safety risks in storage areas	• Digital OSH self-assessment tools for home workspaces • Virtual OSH training modules • Apps for scheduling and break reminders	Limited enforcement in online or home-based settings; requires support and awareness-raising
Office-based (white-collar) retail workers	Prolonged sitting and intensive screen/keyboard work; high workload/time	Digital ergonomics tools, e-learning and remote-work guidance can	Risk of work intensification and “always-on” expectations through

Occupational group	Main OSH hazards	How new technologies can improve risk management	Potential concerns/safeguards
	pressure, constant connectivity; information intensity	support ergonomics and early prevention. Collaboration/planning tools can improve workload visibility and coordination	metrics, alerts and monitoring; data privacy concerns require data protection and transparency processes

* Patricia Helen Rosen et al., *Advanced Robotics, Artificial Intelligence and the Automation of Tasks: Definitions, Uses, Policies and Strategies and Occupational Safety and Health – Report* (EU-OSHA, 2022).

Source: Adapted from ILO, *Revolutionizing Health and Safety*, with additional sector-specific examples (author's compilation).

3.4. Addressing OSH training and skills gaps, and access to digital OSH tools

47. Digital transformation in retail is associated with evolving skills requirements, including digital competencies relevant to OSH. Evidence from the United States suggests that a significant share of retail workers have limited (23 per cent) or no (14 per cent) digital skills, which may constrain their effective use of digital OSH tools and systems.⁶⁰ Similar challenges are observed in Europe, where the sector faces growing skills shortages and gaps in upskilling related to the digital and green transitions, especially among small and medium-sized enterprises (SMEs) and in customer-facing roles.⁶¹ As a result, many workers may struggle to use digital safety systems and online OSH applications effectively.
48. Digitalization is changing OSH skills needs in retail, requiring workers and managers to use new tools safely (for example, handheld devices and wearables) and understand associated rights and responsibilities. In response, many large retailers are updating OSH training to include digital literacy and safe human–technology interaction, using more interactive digital learning methods.⁶² In some contexts, large retail enterprises have introduced AI-enabled OSH training tools (including interactive warehouse safety programmes); in one reported case, completion rose by 90 per cent and accident claims fell by 25 per cent within a year.⁶³
49. Another issue stems from ensuring that access to advanced OSH technologies is even across the retail industry. Large enterprises can more easily invest in innovations such as sensors, wearables or virtual reality training, while many smaller retailers may face financial and knowledge barriers that delay implementation. Without guidance or resources, smaller enterprises may delay adopting new safety technologies, deepening a divide between enterprises that can integrate advanced safety technology and those left behind. Gaps in digital access may limit the ability of workers in resource-constrained retail settings to benefit from OSH improvements enabled by digital tools. This may require supporting, particularly smaller enterprises, with the equipment

⁶⁰ Amanda Bergson-Shilcock, “Retail Workers Need Investment in Their Digital Skills” (National Skills Coalition, 2020).

⁶¹ OECD, *Addressing Labour and Skills Shortages in Europe's Retail Sector* (Summary, Paris, 2024).

⁶² “How Immersive Tech is Redefining Safety Training at Work”, *IOSH Magazine*, 15 August 2025.

⁶³ DTIQ, “Implementing AI-Powered Solutions for Enhanced Retail Safety: A Comprehensive Guide”, accessed 29 October 2025.

and skills to use digital tools safely and effectively, so that OSH gains are not limited to large or better-resourced enterprises.⁶⁴

3.5. Regulatory frameworks and compliance issues on OSH and digitalization

50. Digitalization in retail requires legal and policy frameworks to remain fit for purpose, so that OSH governance can adapt through appropriate regulation, accountability, training, inspection and support measures that reflect differences in enterprise size, institutional capacity and digital infrastructure.
51. This also calls for integrating new technologies and business models into existing risk-based prevention systems, supported by effective regulation, training, inspection and practical guidance for employers in the retail sector.⁶⁵
52. The rapid pace of digitalization in retail is creating new OSH governance and compliance challenges. Many core OSH frameworks remain relevant – principle-based duties on prevention, worker consultation and training can cover many hazards linked to AI monitoring, wearables and analytics – but guidance and enforcement are uneven across jurisdictions and, in some cases, lack clear expectations specific to digital applications. While regional AI initiatives are expanding beyond Europe, they often focus more on broad ethical considerations than on OSH-specific safeguards, adding to uncertainty about how to deploy new tools in line with OSH principles.⁶⁶
53. Recent ILO research highlights that technology does not in itself ensure safer workplaces; its potential benefits depend on how it is introduced, governed and used in practice, including workers' and managers' capacity to apply it safely and responsibly.⁶⁷ Skills development and access to information about technology are therefore integral to the effective introduction of digital technologies, including AI-based monitoring systems, wearable devices and robotics, enabling workers to interpret data, identify hazards and respond appropriately. At the same time, the use of AI and wearable technologies raises issues of data protection and informed consent, which require clear governance arrangements at both enterprise and regulatory levels.⁶⁸
54. At national and regional levels, regulatory approaches are increasingly addressing the effects of algorithmic management, AI and digital surveillance in the world of work. Data protection frameworks, such as the European Union's General Data Protection Regulation, place limits on the collection and use of workers' personal data, thereby reinforcing privacy and confidentiality safeguards. More recently, the European Union's Artificial Intelligence Act (Regulation (EU) 2024/1689) classifies certain employment-related AI systems as high risk and introduces requirements relating to human oversight, risk management and transparency, to be implemented in phases by August 2027.⁶⁹ Beyond algorithmic management regulation, some jurisdictions have adopted fair scheduling legislation that mandates predictable hours, shift

⁶⁴ OECD, *The Digital Transformation of SMEs*, OECD Studies on SMEs and Entrepreneurship, 2021.

⁶⁵ ILO, *Revolutionizing Health and Safety*.

⁶⁶ ILO, *Revolutionizing Health and Safety*.

⁶⁷ ILO, *Revolutionizing Health and Safety*.

⁶⁸ ILO, *Revolutionizing Health and Safety*.

⁶⁹ European Union, [Regulation \(EU\) 2024/1689 of the European Parliament and of the Council of 13 June 2024 laying down harmonised rules on artificial intelligence](#), OJ L 2024/1689, 12 July 2024.

notice periods or limits on last-minute changes, and policy reforms intended to protect worker stability and reduce irregular scheduling.⁷⁰

55. Some countries are beginning to use AI in their labour inspection and compliance monitoring efforts. Data analytics are increasingly used to identify sectors with elevated OSH risks and to detect recurring patterns of non-compliance. At the same time, such tools require appropriate oversight to ensure transparency, accountability and respect for workers' rights, and to strengthen the capacity of labour inspectors. Regional cooperation mechanisms, including the European Union Senior Labour Inspectors' Committee (SLIC), support cross-border collaboration and information-sharing to strengthen labour inspection practices, including in large retail enterprises.⁷¹

► 4. Strengthening OSH through social dialogue

56. Social dialogue is a key component of OSH governance in the retail sector. While laws and policies establish the general framework, collective bargaining can further specify standards and procedures,⁷² and workplace cooperation mechanisms, including OSH committees, can help identify risks, raise concerns, resolve problems and adapt preventive measures to sector-specific needs and changes (table 4).

► **Table 4. Applications of OSH-related standards and provisions through social dialogue and workplace cooperation, including through OSH committees**

Category	Type of provision/ mechanism	Retail-relevant application (including through OSH committees)
Promotional and participatory OSH standards	Worker participation and joint OSH committees	Establishment of joint safety committees, including shop-floor representatives; monitoring of customer aggression, ergonomic strain and warehouse hazards; review of digital monitoring tools.
	OSH management systems	Integration of OSH into shop and warehouse management, including digital-risk assessments (e.g., self-checkout ergonomics, wearable safety devices).
	Ergonomics and well-being	Ergonomic workstation design for cashiers: prevention of repetitive strain, fatigue and standing-related disorders;
	OSH training and information-sharing	Paid time for OSH representatives and retail workers to receive training (manual handling, customer violence prevention, digital tool use)
	Monitoring and inspection	Joint inspections of shops and warehouses; reporting of near misses, ergonomic risks and data-related stress factors.

⁷⁰ United States (Seattle), "[Secure Scheduling Ordinance](#)", requiring 14-day advanced scheduling for retail and food employers. See Seattle Municipal Code §14.22.020.

⁷¹ European Commission, *EU Strategic Framework on Health and Safety at Work 2021–2027: Occupational Safety and Health in a Changing World of Work*, 2021.

⁷² ILO, *Social Dialogue Report 2022: Collective Bargaining for an Inclusive, Sustainable and Resilient Recovery*, 2022, 83.

Category	Type of provision/ mechanism	Retail-relevant application (including through OSH committees)
Protective OSH standards	Workplace environment controls	Ensuring safe shop layouts, clean aisles, adequate lighting and temperature, and safe warehouse access and ventilation.
	Emergency preparedness	Fire evacuation drills and crowd management plans in shopping centres; updated training for e-commerce warehouses.
	PPE and equipment standards	Employer obligation to provide protective equipment (gloves, masks, anti-slip footwear) and digital tools (scanners, tablets) that meet OSH norms.
	Violence and harassment prevention	Recognition of third-party violence as an OSH issue; staff training on de-escalation and secure closing procedures.
	Digital-era OSH provisions	Clauses requiring consultation before introducing algorithmic management, AI monitoring or new robotics systems, and fair scheduling clauses.

Adapted from ILO, *Social Dialogue Report 2022*, 82–85.

57. Enterprise-level safety and health committees are essential for promoting dialogue, compliance and a culture of prevention.⁷³ This can be particularly important in the retail sector, ensuring that worker representatives participate in identifying ergonomic, psychosocial and environmental risks. In certain enterprise models, including worker cooperatives and other social and solidarity economy entities, worker participation is embedded in governance structures, providing channels for consultation on OSH matters at the enterprise level.
58. Social dialogue has proven particularly vital in retail, a sector marked by diverse business models, sizes of enterprises and rapid technological change. During the COVID-19 pandemic, social partners worldwide negotiated emergency safety protocols and guidelines (for example, Sweden),⁷⁴ secured PPE through tripartite accords (for example, Italy), physical barriers at cash registers (for example, Norway and Chile), paid sick leave, and enhanced hygiene standards for frontline shop and warehouse workers.⁷⁵ In Australia and the United States, enterprise-level agreements introduced new sick-leave entitlements for retail workers during the pandemic.⁷⁶
59. Social dialogue can also serve as a bridge between OSH and skills development, ensuring that prevention measures are supported by training and capacity-building. It can secure joint training funds and ensure that workers gain competencies to handle new technologies safely. Through collective bargaining and institutions such as South Africa's Sector Education and Training Authorities (SETAs), employers, unions and the Government jointly designed training programmes that enhanced workers' competencies in safe work practices, including for warehouse workers.⁷⁷

⁷³ ILO, *Social Dialogue Report 2022*, 83.

⁷⁴ ILO, *COVID-19 and Food Retail*, ILO Sectoral Brief, June 2020.

⁷⁵ ILO, *World Employment and Social Outlook 2023: The Value of Essential Work*, 2023, 73.

⁷⁶ ILO, *Social Dialogue Report 2022*, 153.

⁷⁷ ILO, *World Employment and Social Outlook 2023*, 170.

4.1. The role of social dialogue in shaping the use of technologies and addressing emerging OSH risks in retail

60. Social dialogue is increasingly important in shaping how digital tools are introduced in retail. Without clear governance, AI-based monitoring and workforce-management systems may intensify work rather than improve OSH outcomes; when introduced with worker participation, such systems can also support better work organization, reduced overload and improved ergonomics. Several countries and enterprises are therefore developing “responsible AI at work” frameworks and agreements that emphasize worker participation and health protection in technology deployment. Examples include a 2022 retail digitalization agreement between a global fashion company and the national service trade union in Germany,⁷⁸ and an agreement between the general trade union in the United Kingdom and a luxury fashion retailer that allows unions to conduct health and safety assessments and identify cases in which automated decisions may raise health and safety concerns.⁷⁹
61. Social partners have also used negotiation to shape how digital tools are introduced. In Germany, the mentioned agreement established a joint digitalization committee and required prior consultation and human oversight before deploying new AI tools. In Belgium, the June 2024 Memorandum for a sustainable and competitive retail sector highlights the role of social dialogue in addressing e-commerce and changes in work organization, emphasizing a balance between flexibility and workers’ well-being.⁸⁰ In Italy, trade unions representing commerce and logistics workers reached an agreement with a subsidiary of a brewing multinational to limit digital monitoring of delivery workers in its retail distribution network to safety and productivity purposes.⁸¹
62. Technological change is broadening the role of social dialogue mechanisms in relation to the broader effects of digitalization, including algorithmic management.⁸² As an example, the 2024 renewal of the Inditex–UNI global framework agreement includes “fair digital transformation” language, affirming workers’ consultation rights on the use and implementation of new digital tools – including in franchised operations – as part of the company’s due diligence commitments and in line with national law and social dialogue traditions.⁸³
63. Workplace cooperation tools are increasingly discussed as a means of supporting safety and productivity in retail as digital tools reshape work organization. In this context, it is often emphasized that such initiatives should respect collective bargaining processes and should not undermine the role of trade unions. Discussion also points to a mix of approaches, including capacity-building for social partners, sectoral tripartite engagement on OSH risks associated with digitalization, and voluntary processes to develop agreements that support transparency and consultation in the deployment of new technologies.⁸⁴

⁷⁸ ILO, *Revolutionizing Health and Safety*, 47.

⁷⁹ ILO, *Revolutionizing Health and Safety*, 47.

⁸⁰ Conseil Central de l’Économie (CCE), *Vers un secteur de la distribution compétitif et durable – Focus sur l’e-commerce*, Mémorandum, CCE 2024-1750, 2024.

⁸¹ Simona Brunnerová et al., *Collective Bargaining Practices on AI and Algorithmic Management in European Services Sectors* (Friedrich-Ebert-Stiftung, Competence Centre on the Future of Work, 2024).

⁸² ILO, *The Future of Work in Retail: Digitalization as an Engine*.

⁸³ Inditex, “Inditex and UNI Global Union Renew their Global Agreement”, 2024.

⁸⁴ ILO, *Revolutionizing Health and Safety*.

► 5. International labour standards and OSH in retail

64. International labour standards on OSH provide a fundamental framework for governments, employers and workers to promote a safe and healthy working environment. The ILO currently maintains more than 40 OSH standards, including around 20 up-to-date Conventions and Protocols that address both sector-specific and cross-cutting risks.⁸⁵
65. Beyond the fundamental Conventions mentioned in previous sections (Nos 155 and 187), several other instruments can be relevant to the retail sector. Table 5 provides a non-exhaustive overview of labour standards relevant to, or specifically applicable to, the retail sector. Other fundamental Conventions, notably those on equality and non-discrimination, also reinforce OSH outcomes, even if not explicitly listed in the table.

► **Table 5. ILO OSH instruments relevant or specifically applicable to the retail sector**

Category	Instrument	Relevance to the retail sector
Fundamental OSH Conventions		
Core OSH frameworks	The Occupational Safety and Health Convention, 1981 (No. 155)	It can support retail sector stakeholders in developing sector-wide OSH policies.
	The Promotional Framework for Occupational Safety and Health Convention, 2006 (No. 187)	Since MSMEs play a crucial role in the retail sector in both developed and developing countries, it is worth pointing out that Article 4(3)(h) of Convention No. 187 stipulates that the national OSH system must include “support mechanisms for a progressive improvement of occupational safety and health conditions in micro-enterprises, in small and medium-sized enterprises and in the informal economy”.
Other non-sector-specific OSH Conventions, Protocols and Recommendations		
Core OSH frameworks	The Protocol of 2002 to the Occupational Safety and Health Convention, 1981	It can help constituents strengthen systematic procedures for recording and reporting occupational accidents and occupational diseases in retail workplaces.
		It can address common occupational risks in the retail sector, including slips and trips, manual-handling injuries and psychosocial risks, as well as commuting accidents, which are a significant concern for retail workers with irregular working hours or multiple work locations.
		It can enable retail enterprises to monitor incidents more comprehensively and use this information to improve workplace layout and organization, strengthen training and enhance emergency preparedness and response.
Institutional support systems	The Occupational Health Services Convention	These two instruments can support the establishment of preventive occupational health services in retail

⁸⁵ ILO, *World Employment and Social Outlook 2023*, 144–145.

Category	Instrument	Relevance to the retail sector
	(No. 161) and Recommendation (No. 171), 1985	enterprises, ensuring that work is adapted to workers' physical and mental capacities. In line with the Recommendation, occupational health services should "advise on the possible impact on the workers' health of the use of technologies" (Paragraph 8(c)) in the retail sector. It can guide the management of health impacts of such technologies and digital monitoring in retail settings, as well as safeguard retail workers' privacy and data protection in health surveillance systems.
Common workplace hazards	The Working Environment (Air Pollution, Noise and Vibration) Convention (No. 148) and Recommendation (No. 156), 1977 The Protection of Workers' Health Recommendation, 1953 (No. 97)	The environmental hazards addressed by the Convention may affect workers' health beyond industrial settings. In the retail sector, workers can be exposed to hazardous substances, including chemicals from receipt paper or cleaning products, and dust, as well as noise from equipment, background music or crowded environments. The instruments are particularly relevant for indoor retail, warehouses and delivery operations that are exposed to fumes, cleaning chemicals and mechanical noise. The inclusion of measures to protect self-employed persons in Recommendation No. 156 could benefit these workers, who are prevalent in the retail sector. It can also help retailers implement ventilation improvements, noise-control measures and safe equipment practices, while ensuring that staff receive training on environmental hazards.
Emerging and biological hazards	The Biological Hazards in the Working Environment Convention (No. 192) and Recommendation (No. 209), 2025	These instruments are highly relevant to retail and commerce, where workers may be exposed to biological hazards through customer interaction, food handling, waste and sanitation activities, and poorly ventilated indoor spaces. They can help strengthen risk assessment, training, hygiene standards and emergency preparedness in retail environments.
Core OSH frameworks	The Occupational Safety and Health Recommendation, 1981 (No. 164)	As the Recommendation states that "Provision should be made for such measures as may be necessary and practicable to give self-employed persons protection analogous to that provided for in the Convention and in this Recommendation" (Article 1(2)), such an instrument can be helpful to extend the scope of safety and health measures to retail settings characterized by self-employment.
Core OSH frameworks	The Promotional Framework for Occupational Safety and Health Recommendation, 2006 (No. 197)	Promotes awareness, capacity-building and guidance materials for small and informal retailers.

Category	Instrument	Relevance to the retail sector
Instruments with relevance to OSH		
Compliance and enforcement frameworks	The Labour Inspection Convention, 1947 (No. 81), and Protocol of 1995	The Convention requires a labour inspection system covering commercial workplaces (including retail) to enforce legal provisions on working conditions and worker protection, to provide technical advice to employers and workers, and to report regulatory gaps to authorities.
Violence and harassment	The Violence and Harassment Convention (No. 190) and Recommendation (No. 206), 2019	These instruments are highly relevant to retail work, which is characterized by constant interaction with the public and a high incidence of verbal abuse, threats and physical assault. They provide a normative basis for preventing and addressing third-party violence, protecting frontline shop, delivery and customer service workers, and promoting safe digital and physical environments. Their emphasis on psychosocial risk assessment, training and worker participation also supports integration of preventive measures into enterprise OSH systems.
Sector-specific Conventions and Recommendations		
Established workplace hazards – sector-specific	The Hygiene (Commerce and Offices) Convention (No. 120) and Recommendation (No. 120), 1964	In the retail sector, the instruments' provisions remain relevant for both indoor and outdoor workplaces. They guide employers in maintaining safe and hygienic environments in shops, supermarkets, warehouses, and offices, and are equally applicable to informal settings, such as markets and kiosks. They can ensure that retail workplaces remain clean, ventilated and, in this way, adaptable to evolving OSH challenges, such as heat stress, extreme weather events and infectious risks.
Working time	The Hours of Work (Commerce and Offices) Convention, 1930 (No. 30)	Applies to commercial/trading establishments (core retail/commerce) and sets a baseline limit of 8 hours/day and 48 hours/week. It also supports implementation by posting working-time schedules and rest periods, recording additional hours and consulting with employers' and workers' organizations on regulations and exceptions, all of which are directly relevant to retail issues such as variable scheduling, overtime, fatigue and work-life balance.
	The Weekly Rest (Commerce and Offices) Convention (No. 106) and Recommendation (No. 103), 1957	These instruments are particularly relevant in retail contexts characterized by on-demand delivery systems and peak trading periods. Given the prevalence of irregular working time and extended shifts in the sector, the principles of regularity and continuity can support more sustainable work organization. These standards could be particularly useful in crisis situations, such as the COVID-19 pandemic, when

Category	Instrument	Relevance to the retail sector
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pressures to extend working hours highlighted the importance of safeguarding minimum rest periods.

Source: ILO NORMLEX and ILO, *Occupational Safety and Health and the Future of Work in Retail*.

66. Although non-binding, the *Guidelines on occupational safety and health management systems, ILO-OSH 2001*, are a useful reference for enterprise OSH management systems in the retail sector. Applied to new technologies, they point to clear policies, defined responsibilities with worker participation, systematic risk assessment, monitoring and continuous improvement, supported by appropriate information and training during deployment.⁸⁶

► 6. Integrating equality and non-discrimination considerations in OSH systems in retail

6.1. OSH, gender and non-discrimination considerations in retail

67. Given the demographic composition of the retail workforce, integrating equality and non-discrimination into OSH management systems is essential. This includes applying a prevention-first, gender-responsive lens that recognizes that apparently “neutral” risks can affect workers differently by sex and gender, while also addressing specific gender-related risks where they arise. It should also take into account intersectional factors such as age, disability, HIV status, ethnicity, migration and family status, and ensure that measures are tailored across retail settings⁸⁷ (table 6).

⁸⁶ ILO, *Revolutionizing Health and Safety*, 55.

⁸⁷ ILO, *Revolutionizing Health and Safety*.

► **Table 6. Gender, non-discrimination and reasonable adjustments in OSH risk management in retail (some indicative and non-exhaustive examples)**

Retail occupation/setting	Gender-related dimensions of OSH	Other grounds of discrimination shaping OSH vulnerability	Priority OSH and adjustment measures (examples)
Cashiers/sales staff	Customer aggression and work intensity can affect all workers; gender-based violence and harassment may be more frequent in customer-facing roles. Standing work and workstation design may have different ergonomic impacts by sex/gender, and pregnancy/reproductive health (including menstruation and menopause) considerations may arise. Night/late shifts can also affect any worker with care responsibilities.	Young/migrant workers with limited training; disability access barriers to counters; harassment risk linked to ethnicity.	Ergonomics: adjustable counters/workstations, anti-fatigue mats or sit-stand options, ergonomic scanners; equipment fit for different body sizes, including pregnancy needs. Work organization and safe scheduling: task rotation and microbreaks; staffing aligned to peaks and schedules with advance notice; basic night-work safety (lighting, buddy system/transport) where relevant. Violence and harassment: de-escalation training; clear confidential reporting with non-retaliation; procedures addressing discriminatory harassment (for example sex/gender, ethnicity/migration). Inclusive training and supervision: strong induction and supervision for new/young workers; plain-language, pictorial and multilingual OSH information. Reasonable accommodation and maternity protection: individualized adjustments for workers with disabilities; pregnancy-related task adaptation/reassignment, rest provisions and confidential handling of requests, paid parental leave.
Shelf fillers/back-of-shop workers	Tools, equipment, and PPE designed around an “average male” body size/strength can disadvantage some workers (often women) through poorer fit and higher strain. Task allocation and manual-handling expectations may also have different impacts by sex/gender, including for pregnant workers.	Young/migrant workers are overrepresented; language barriers in training, but also older workers in some retail workplaces	Manual-handling risk controls: mechanical aids (trolleys, lift assists), load limits, team-lifting rules, safe storage and ladder safety; design tasks to reduce upper-limb/lower-back strain. Fit-for-purpose tools and PPE: ensure correct sizing and suitability for women and men; avoid “one-size” tools; procurement standards that cover diverse users. Inclusive training: hands-on demonstrations plus pictograms/ multilingual materials for migrant

Retail occupation/setting	Gender-related dimensions of OSH	Other grounds of discrimination shaping OSH vulnerability	Priority OSH and adjustment measures (examples)
Warehouses/fulfilment workers	Work pacing and performance targets can affect all workers; gender-related differences may arise where PPE/exoskeletons fit poorly or where tasks are allocated along gendered lines. Pregnancy-related heat/fatigue sensitivity may be relevant in some roles.	Young/migrant workers with limited induction; workers with disabilities or chronic health conditions requiring adaptation of pace or equipment use.	workers/limited language proficiency; strengthened induction/supervision for young/new and agency/temporary workers. Age-responsive measures: for older workers, reduce heavy lifting exposure, increase rotation and recovery breaks, and adjust pace expectations. Disability inclusion: reasonable adjustments (adjustable work heights, assistive tools, modified tasks). Pregnancy/return-to-work: flexible scheduling or temporary rotation during pregnancy and postpartum/return-to-work; breastfeeding, childcare, early reporting without stigma or retaliation. Participatory ergonomics: consult workers (including women, young/migrant workers and workers with disabilities) on layout, picking heights, manual handling and workflow to reduce MSDs and awkward postures. Work pace and fatigue: safe pick-rate/target setting, limits on excessive overtime, and fatigue management (breaks, maximum shift length, recovery time). Wearables/PPE/ exoskeletons: fit and suitability checks for diverse body sizes and health conditions; provide alternatives where unsuitable. Algorithmic management safeguards: transparency on targets/scores, worker representation/input, human review of adverse decisions, non-punitive reporting, and monitoring for indirect discrimination (for example, pregnancy, disability, age, migration). Inclusive OSH induction: consistent induction for new/young and migrant workers, with multilingual/visual training and signage.

Retail occupation/setting	Gender-related dimensions of OSH	Other grounds of discrimination shaping OSH vulnerability	Priority OSH and adjustment measures (examples)
Last-mile delivery workers	Road-traffic exposure, long hours and night work can affect all delivery workers; gender-based harassment and violence risks may differ by context and worker profile. PPE fit and pregnancy-related heat/fatigue sensitivity may also be relevant where applicable.	Young migrants; limited rest and protection for workers with health conditions.	Reasonable accommodation and supervision: clear OSH procedures for adjustments for workers with disabilities or chronic health conditions (pace/targets, assistive tech, phased return, reassignment) and supervisor training on inclusive risk assessment, early intervention and non-retaliation. Road safety and working time: safe routing; targets/speed policies that do not incentivize risk-taking; enforce working-time/rest limits and fatigue controls (night-driving limits, recovery time). Heat and severe weather: hydration and rest/cooling points; workload adjustment and stop-work triggers; weather-appropriate PPE that fits diverse body types. Violence and harassment: protocols for late-night deliveries and safer drop-off options; confidential reporting and follow-up; address gender-based and racist/xenophobic abuse. Inclusive onboarding and communication: strengthened onboarding for new/young and migrant workers; multilingual/visual instructions; clear incident-reporting channels. Health conditions, disability and data safeguards: reasonable adjustments (schedules, routes/load limits, assistive equipment); transparent monitoring with consultation and non-retaliation for OSH concerns.
Home-based online vendors	Home-based work can involve blurred work-life boundaries and irregular hours for all workers; impacts may be uneven where care responsibilities fall disproportionately on women and where work is isolated from collective support.	Disability and care responsibilities; fatigue from irregular hours.	Ergonomics and safe set-up: simple self-assessment checklists, guidance on workstation set-up, screen breaks and safe manual handling of parcels/stock. Working time and psychosocial risk: working-time boundaries, disconnection practices and measures to reduce isolation (peer support, regular check-ins, access to support services).

Retail occupation/setting	Gender-related dimensions of OSH	Other grounds of discrimination shaping OSH vulnerability	Priority OSH and adjustment measures (examples)
			Care responsibilities and gender impacts: flexible scheduling guidance to avoid excessive hours and blurred boundaries, which can be particularly acute in home-based online work and for workers with care responsibilities. Accessibility and disability inclusion: accessible digital tools and training; reasonable accommodations (flexible hours, adjusted workload, assistive technologies). Digital skills and inclusion: support to access online training/reporting tools, including for workers with limited digital skills. Basic safety at home: fire/electrical safety awareness (safe wiring, safe charging/storage, safe use of cooking/heating equipment).

Source: Adapted from ILO, *Occupational Safety and Health and the Future of Work in Retail*; ILO, *Promoting Diversity and Inclusion through Workplace Adjustments: A Practical Guide*, 2016; and relevant ILO standards (on violence and harassment, maternity protection, night work, HIV), author's analysis.

68. Women often work in customer-facing roles involving prolonged standing, repetitive tasks and manual handling, which are associated with MSDs, venous health impacts (including varicose veins) and fatigue. Where retail involves night and shift work, this can add further health burdens and, where mitigation is limited, may be linked to reproductive health impacts for women, including menstrual disorders and increased pregnancy-related risks.⁸⁸ Ergonomic design gaps (for example, counter heights, scanners and lifting aids based on “average male” dimensions) can further increase the risk of injury if not adjusted.⁸⁹ Such gendered patterns mean that women and men experience OSH risks differently within the same retail sector chain.
69. The intersection of gender and employment status may create situations of heightened risk,⁹⁰ where part-time or temporary work coincides with uneven training or protections, and access to prevention can be less consistent.⁹¹ Women working night shifts may face higher risks of violence and work–family conflict.⁹² Standing for long periods, night work, heavy manual handling and exposure to extreme temperatures may be particularly hazardous for pregnant and nursing workers in retail and logistics. In line with ILO standards, OSH assessments would benefit from a gender equality lens, including considerations around maternity protection (for example, task adjustments, rest and seating, limits on heavy lifting and, where needed, protection from night work or extreme heat/cold), breastfeeding support (safe lactation spaces and breaks) and access to affordable childcare.
70. Workers with disabilities face distinct OSH challenges in retail. Inaccessible shop layouts, narrow aisles, poorly designed workstations and inadequate assistive devices can increase the likelihood of accidents and work-related ill health (including MSDs) and can also limit participation in safety training.⁹³ It is important that reasonable adjustments, such as modified workstations, assistive technologies, adjusted schedules and the reallocation of non-essential tasks, are considered in retail work environments to enable people with disabilities to perform their roles safely and effectively.⁹⁴ Enterprise-level OSH committees can support the inclusion of workers with disabilities by ensuring their participation in risk assessments and emergency planning, and by promoting reasonable workplace adjustments, accessibility measures and evacuation procedures that protect workers on an equal basis.⁹⁵
71. Workers living with HIV may face specific OSH risks, including fatigue and increased vulnerability to illness, while fear of stigma may discourage hazard reporting or access to health services. Inclusive OSH systems place emphasis on confidentiality, non-discrimination, adapted work arrangements and awareness-raising, in line with the HIV and AIDS Recommendation, 2010 (No. 200). Integrating OSH and HIV responses in retail workplaces can support prevention, access to care and worker well-being, while also contributing to enterprise resilience.⁹⁶ This may require

⁸⁸ Marta Szkiela et al., “Night Shift Work – A Risk Factor for Breast Cancer”, *International Journal of Environmental Research and Public Health* 17, No. 2 (2020): 659.

⁸⁹ ILO, *Revolutionizing Health and Safety*.

⁹⁰ ILO, *Women and Men in the Informal Economy: A Statistical Picture*, Third edition, 2018.

⁹¹ ILO, *Occupational Safety and Health and the Future of Work in Retail*.

⁹² “Curbing Workplace Violence in Late-Night Marts: New Guidelines from NIOSH”, *Safety+Health*, National Safety Council, 18 April 2023.

⁹³ ILO, *Safe and Healthy Working Environments for All: Realizing the Fundamental Right to a Safe and Healthy Working Environment Worldwide*, ILO Introductory Report, 23rd World Congress on Safety and Health at Work, 27–30 November 2023, Sydney, Australia, 2023.

⁹⁴ ILO, *Promoting Diversity and Inclusion through Workplace Adjustments*, 2016.

⁹⁵ ILO, *Managing Disability In The Workplace*, ILO code of practice, 2002.

⁹⁶ ILO, *HIV and AIDS: Guidelines for the Retail Sector*, 2015.

a balanced focus on prevention and protection, including workplace-based awareness-raising, access to voluntary counselling and testing, and the safeguarding of medical confidentiality.⁹⁷

72. Population ageing in some economies is also bringing greater attention to age-related non-discrimination in retail, including ensuring that older workers have equal access to recruitment, training and progression, and that OSH prevention addresses age-related physical and psychosocial risks without stigmatization. An example is the Inditex–European Works Council agreement (end-2025), which commits to an age-neutral approach and mentoring, and includes measures to prevent potential risks associated with ageing, adapt jobs and working hours where necessary, and support training and requalification.⁹⁸

6.2. Technology and non-discrimination, including gender equality: Selected OSH considerations

73. Digitalization has significant implications for non-discrimination and gender equality in retail. AI-supported scheduling may reduce bias in task allocation and overtime and enable more predictable rosters for workers with care responsibilities; wearables and sensors can detect heat stress or hazardous postures; and digital reporting tools can facilitate anonymous harassment reporting. Digital tools can also support the inclusion of persons with disabilities by broadening access to recruitment and enabling participation in a wider range of tasks through assistive and accessible technologies.⁹⁹ At the same time, automated decision-making may intensify work pace or discourage breaks, biased data can reproduce gendered or racial inequalities in rostering and performance scoring, and monitoring may raise privacy concerns, including for pregnant workers and workers with disabilities. PPE and devices, including exoskeletons, also need to fit different body types.¹⁰⁰
74. Women tend to be disproportionately represented in online customer service roles, where they may face ergonomic risks, digital work-related fatigue and exposure to online harassment. In addition, concerns have been raised that, in the absence of adequate transparency and safeguards, algorithmic management systems may reproduce or exacerbate existing inequalities in performance assessment, task allocation and income security, particularly for workers and groups already experiencing labour market discrimination.¹⁰¹

► 7. Preventing violence and harassment in retail settings

75. Under Convention No. 190, these terms refer to “a range of unacceptable behaviours and practices, or threats thereof, whether a single occurrence or repeated, that aim at, result in, or are likely to result in physical, psychological, sexual or economic harm, and includes gender-based violence and harassment”. In the retail sector, violence and harassment may take various forms, including verbal abuse, bullying, intimidation, sexual harassment and physical violence, and may

⁹⁷ ILO, “Integrating HIV and AIDS into OSH to Create Non-Discriminatory Workplaces”, 23 October 2020.

⁹⁸ UNI Europa: “Older People in the Workplace: European Works Council and Inditex Group Sign Landmark Agreement”, 26 January 2026.

⁹⁹ ILO, *Revolutionizing Health and Safety*.

¹⁰⁰ ILO, *Revolutionizing Health and Safety*.

¹⁰¹ Imran Kadolkar, Sven Kepes and Mahesh Subamony, “Algorithmic Management in the Gig Economy: A Systematic Review and Research Integration”, *Journal of Organizational Behavior* 47, No. 7 (2024): 1057–1080.

occur in the workplace, during work-related travel or commuting, or in interactions with customers and suppliers.¹⁰² These behaviours pose serious OSH hazards, contributing to stress, anxiety, injury, reduced well-being and diminished capacity to work.

76. Violence and harassment are influenced by overlapping factors – including sex, gender, age and occupation type – that can shape patterns of exposure and impact, supporting the need for context-responsive prevention and response measures. Studies show that women are most exposed to verbal and physical abuse, especially in customer-facing roles, including in shops and supermarkets.¹⁰³ Risks are heightened for workers who work late shifts, work alone, or handle cash and complaints.
77. Third-party violence (for example, verbal abuse or aggression from customers) remains a well-documented issue in retail. For example, the 2024 survey of retail workers in the United Kingdom conducted by the Union of Shop, Distributive and Allied Workers (USDAW) reports widespread abuse, threats and incidents of violence.¹⁰⁴ SDA research in Australia similarly documents high levels of customer abuse and physical violence, alongside abuse linked to protected discrimination (for example, sexist, racist or disability-related harassment).¹⁰⁵ Their psychosocial impact ranges from anxiety and stress to post-traumatic stress disorder. Domestic violence may also affect the world of work and may need to be considered within OSH risk assessments and workplace measures, including in retail roles performed from home as well as in-person work.

7.1. The role of technology in exacerbating or mitigating violence and harassment risks in retail

78. In retail, technology can both support the prevention of violence and harassment and create new forms of exposure. Surveillance systems, panic buttons and data analytics may help identify high-risk situations and locations, while digital technologies may also contribute to verbal abuse, cyberbullying and additional psychosocial risks.¹⁰⁶
79. While teleworkers and online customer service agents may face lower risks of physical aggression, violence and harassment can occur in digital spaces, including through cyberbullying and aggressive communications via messaging platforms or social media. Such behaviours may contribute to work-related stress, anxiety and longer-term psychosocial risks, particularly in isolated or highly monitored work settings.¹⁰⁷ Workers in e-commerce customer service and delivery may face heightened exposure: customer service workers are subject to abusive or threatening digital communications, while delivery workers may encounter verbal harassment, robbery or physical assault in public spaces. Digital reporting channels can facilitate confidential reporting but may require robust follow-up procedures and safeguards against retaliation to be effective. An overview of the potential risks and positive impacts of using technology in the context of violence and harassment is provided in table 7.

¹⁰² ILO, *Occupational Safety and Health and the Future of Work in Retail*.

¹⁰³ ILO, *Occupational Safety and Health and the Future of Work in Retail*.

¹⁰⁴ USDAW, *Campaign to End Violence and Abuse Against Retail Workers: Survey Results 2024*, 2024.

¹⁰⁵ SDA, “SDA Research – Customer Abuse and Violence 2025 Reports”, 2025.

¹⁰⁶ Sara Riso, *Workplace Bullying, Harassment and Cyberbullying: Are Regulations and Policies Fit for Purpose?* (Eurofound, 2024).

¹⁰⁷ ILO, *Revolutionizing Health and Safety*.

► **Table 7. The dual role of technology in preventing or exacerbating violence and harassment in retail**

Technological application	Positive OSH impacts	Potential risks or negative impacts
CCTV and intelligent surveillance systems	Strengthen security and deterrence against theft and aggressive behaviour in retail settings, and support incident reporting, investigation and the protection of workers.	May lead to excessive surveillance, creating stress, privacy violations and mistrust among workers.
AI-based customer service chatbots	Reduce direct customer confrontation to limit verbal abuse of retail staff.	May lead to work intensification for the staff, reduced opportunities for peer support, and increased risks of isolation.
Panic alarms and mobile safety apps	Allow workers to alert supervisors or authorities instantly during harassment or assault incidents (especially for delivery workers and lone staff).	May be ineffective without timely response mechanisms; workers might feel unsafe if not paired with strong security protocols.
Wearable devices (e.g., GPS trackers, body cams)	Improve emergency response and traceability during delivery or night shifts; can record evidence in cases of assault.	Excessive monitoring may cause anxiety or loss of autonomy, particularly if data use is unclear or unregulated.
AI-driven scheduling and workforce-management tools	Can optimize staffing to avoid lone working, reducing exposure to violence in isolated settings.	In the absence of adequate safeguards, such practices may result in understaffing, reduced predictability of working time, and increased psychosocial stress, thereby indirectly heightening occupational risks.
Digital reporting platforms	Facilitates confidential reporting of violence and harassment and supports timely escalation to management or competent authorities.	In the absence of clear follow-up procedures and worker confidence in reporting mechanisms, such tools may contribute to underreporting and concerns about retaliation.
Social media and e-commerce communication channels	Improve customer engagement while allowing workers to manage disputes online rather than in person.	It can expose workers to online abuse or cyberbullying, especially women and minority groups working in customer-facing digital roles.

Sources (non-exhaustive): ILO, *Revolutionizing Health and Safety*; ILO, *Occupational Safety and Health and the Future of Work in Retail*.

7.2. Preventing violence and harassment in retail settings: Strategies, legislation and workplace protocols

80. Addressing violence and harassment in retail calls for an integrated approach combining OSH measures with broader legal protections.¹⁰⁸ Recent legislative initiatives focusing on the retail sector – for example, in Sweden and Scotland¹⁰⁹ – have helped reinforce prevention and response in customer-facing settings, alongside workplace actions such as risk assessments, confidential reporting and complaints channels, trained response capacity, investigation and redress.¹¹⁰
81. At the enterprise level, this approach may include the adoption of clear zero-tolerance policies and codes of conduct developed through consultation with workers and their representatives. It also involves integrating the prevention of violence and harassment at work into OSH management systems, including through risk assessments that account for customer interactions and lone work, and ensuring that grievance and complaint procedures are confidential, accessible and protected against retaliation (box 1).¹¹¹

► Box 1. Checklist for employers in the retail sector: Preventing and addressing violence and harassment at work

1. Adopt and communicate a clear enterprise-level statement of zero tolerance towards violence and harassment at work, endorsed by senior management.
2. Develop a policy defining unacceptable conduct, clarifying rights and responsibilities, setting out complaints procedures, and using gender-responsive and inclusive language.
3. Ensure the policy is communicated to all workers, including contractors, and provide regular training on respectful behaviour, de-escalation techniques and reporting procedures.
4. Identify and assess risks of violence and harassment, including those linked to customer interactions, cash handling, night work and lone work, through worker consultation and review of incident data. Integrate physical, organizational and psychosocial risk factors into OSH risk assessments and implement appropriate preventive and control measures.
5. Establish confidential and accessible reporting channels, ensure protection against retaliation for complainants and witnesses, respond promptly and impartially to all reports, and require an independent investigation for serious allegations.
6. Facilitate access to counselling, medical care and referral services, and provide leave or alternative work arrangements where necessary.
7. Collect and analyse data on incidents, evaluate the effectiveness of prevention measures, and regularly review policies and procedures in consultation with workers and/or OSH committees.
8. Promote ongoing dialogue, participation by workers or their representatives, and visible management commitment to safe, inclusive and violence- and harassment-free retail workplaces.

Source: ILO, *Violence and Harassment at Work: A Practical Guide for Employers*, 2022.

¹⁰⁸ ILO, *Preventing and Addressing Violence and Harassment in the World of Work through Occupational Safety and Health Measures*, 2024.

¹⁰⁹ Government of Sweden, “Act (2021:34) on Prohibition of Access to Shops, Bathing Facilities and Libraries” [translation], 2021; Scottish Government, “Protection of Workers (Retail and Age-restricted Goods and Services) (Scotland) Act 2021”, 2021.

¹¹⁰ ILO, *Preventing and Addressing Violence and Harassment in the World of Work through Occupational Safety and Health Measures*.

¹¹¹ ILO, *Violence and Harassment at Work: A Practical Guide for Employers*, 2022.

82. Furthermore, a comprehensive OSH management systems approach to violence and harassment in a specific retail workplace should consider various levels of interventions, such as primary, secondary and tertiary prevention measures ¹¹² (table 8).

► **Table 8. Levels of prevention at the workplace and examples of measures to prevent violence and harassment in the retail sector**

Level of prevention	Objective	Examples of measures adapted to retail
Primary prevention ("organizational level" prevention, preventing harmful effects or emerging phenomena).	Prevent violent or harassing behaviours before they occur by addressing root causes and risk factors in work organization, environment and culture.	Safer premises: safer layouts, adequate lighting, clear exits/signage. Workplace policy: zero tolerance violence and harassment policies, developed in consultation with workers and integrated into OSH systems. Staffing/working time: reduce lone work (especially at night/high-risk periods) and ensure safe late-shift transport and reasonable workloads. Digital tools: CCTV/alarms/security tools used transparently and proportionately for prevention and response. Risk targeting: analytics/AI risk mapping to identify high-risk times/locations and feed into OSH risk assessments. Training: supervisors and workers are trained in respectful communication, diversity and de-escalation.
Secondary prevention (reversing harmful effects, so reducing ill health)	Identify, address and mitigate the impact of violence or harassment once an incident or threat arises.	Early warning and reporting: early-warning systems and clear incident-reporting protocols. Immediate support: access to safe spaces/retreat options after customer aggression. Trained focal points: designated, trained staff responsible for prevention/response (especially in larger workplaces). Digital alerts: panic buttons/apps used transparently and proportionately to trigger a timely security response.

¹¹² ILO, *Preventing and Addressing Violence and Harassment in the World of Work through Occupational Safety and Health Measures*.

Level of prevention	Objective	Examples of measures adapted to retail
Tertiary prevention (rehabilitation and remedy, designed to reduce the negative impacts)	Restore the health and well-being of affected workers; prevent recurrence and mitigate adverse consequences by providing access to remedies and support.	Post-incident review: prompt post-incident risk assessment to update procedures and prevention measures. Support and reintegration: confidential counselling/ psychosocial support, plus return-to-work arrangements with adapted duties where needed. Protection and follow-up: protection against retaliation; record, investigate and document incidents to drive continuous improvement. Documentation and prevention: analyse anonymized incident data (including digital/AI tools where appropriate) to identify systemic risks, in consultation with OSH committees. Remedy and review: facilitate access to compensation/insurance or other remedies and periodically review policies with employers' and workers' organizations.

Source: adapted from ILO, *Preventing and Addressing Violence and Harassment in the World of Work through Occupational Safety and Health Measures*, 2024.

83. Previous ILO research has highlighted that the retail sector has implemented various measures and developed guidance or concluded tripartite or bipartite agreements designed to prevent instances of violence and harassment (box 2).

► **Box 2. Addressing violence and harassment in the context of a safe working environment: Examples**

Global Framework Agreement (Carrefour–UNI Global Union, renewed until 2029)

- Reinforces the commitment to implement the principles of Convention No. 190.
- Establishes joint monitoring mechanisms and promotes training and awareness to prevent harassment in retail workplaces.

Finland

- The Finnish Commerce Federation and Service Union United (PAM) issued joint guidelines to prevent and address harassment in the commercial sector.
- The guidance emphasizes workplace procedures, training and shared responsibilities to support prevention and early response.

European Works Council initiative (Inditex EWC–Inditex Group, 2024)

- Joint statement against violence and harassment, highlighting the role of European Works Councils in prevention and follow-up across multinational operations.

Australia

- In an industry-first initiative, retail and fast-food employers, peak groups, shopping centres, regulators, the Government and unions issued a joint statement and launched a campaign to combat customer abuse in shops.

Belgium

- Social partners in the Belgian retail sector committed to undertake a positive awareness-raising campaign directed at customers, as well as to organize a “Managing aggression in shops” training course through the joint sectoral training fund. *

Peru

- In 2022, a collective agreement between the Tottus Peru Hypermarket Workers Union (SINATHIT) and Tottus supermarkets addressed improved OSH conditions and created a committee dedicated to preventing sexual harassment.

* Commerce Training, “Gestion de l’agressivité”.

Source: ILO, *Occupational Safety and Health and the Future of Work in Retail*, 13–14; Finnish Commerce Federation website, accessed 25 March 2026; IR Share, “Joint Statement Of The European Works Council And The Inditex Group Against Violence Against Women And Harassment In The Workplace”, 2024; Inside Retail, “SDA, NRA, SCCA Launch Campaign Urging No One Deserves a Serve” 2023.

► 8. OSH realities in informal retail work

- 84.** Informal retail – including street and market vending, home-based online selling and small kiosks – accounts for a substantial share of retail activity in many economies, yet workers often operate outside standard labour and OSH protections. The ILO has underlined that informality is associated with higher hazard exposure and weaker prevention, stemming from limited resources, reduced access to training and PPE, and the absence of formal OSH management structures.¹¹³ In practice, common retail hazards (manual handling, slips and trips, violence and harassment, heat/cold stress and road-traffic exposure for itinerant sellers) can be compounded by poor lighting, insecure storage and fragmented oversight, while limited water and sanitation can further aggravate heat strain and hygiene-related health risks.¹¹⁴
- 85.** Street vendors often work outdoors and in public spaces, facing environmental and traffic-related hazards (extreme temperatures, air pollution and severe weather), as well as fire and electrical risks linked to informal set-ups, and limited access to water and sanitation. Home-based online vendors may face ergonomic hazards and blurred work–life boundaries that contribute to psychosocial strain and may, in some cases, intersect with domestic violence. Informal retail workers may also face third-party violence and harassment (for example, theft, extortion and

¹¹³ ILO, *Occupational Safety and Health and the Future Of Work in Retail*.

¹¹⁴ Valentina Forastieri, “Occupational Safety And Health (OSH) In The Informal Economy”, in *Salud – Trabajo – Ambiente, Noticias Centroamericanas*, Vol. 11, September 2014.

customer aggression) – including by public officials – with disproportionate impacts on women and migrant workers.¹¹⁵

86. Digital registration systems, electronic payment platforms and automation of labour inspection processes are increasingly used to strengthen outreach to informal enterprises, with the potential to expand regulatory coverage and support improved OSH compliance.¹¹⁶ In some regions, including parts of Asia, digital payment solutions and mobile-based registration systems have supported expanded access to employment injury and accident-related protection for own-account workers and small retailers.¹¹⁷
87. For online vendors, OSH challenges often stem from home-based work arrangements, including ergonomic hazards from prolonged screen work, repetitive tasks, inadequate workstations, and fire or electrical risks in poorly equipped spaces. These settings often lack structured prevention measures and inspections, leaving individuals to manage risks with limited knowledge or resources, while the informal nature of the work can heighten psychosocial strain associated with income insecurity, long hours and isolation.¹¹⁸
88. Informal retail workers often fall outside enterprise-level OSH arrangements, such as joint OSH committees or internal monitoring mechanisms, while regulation of public spaces at the municipal level rarely incorporates OSH considerations.¹¹⁹ Many small informal enterprises also face capacity constraints in implementing comprehensive OSH management systems or accessing specialized expertise.¹²⁰ In contexts where informal retail workers, including street vendors, operate outside the effective reach of labour inspection and formal OSH systems, collective organization through cooperatives or associations can provide voice and representation and serve as an intermediary platform for extending OSH promotion, training and access to services.
89. The adoption of digital technologies in retail is uneven: large enterprises in higher-income contexts are more rapidly deploying monitoring, wearable and digital training tools, while smaller retailers and informal operators in developing economies face constraints related to infrastructure, connectivity and investment capacity.¹²¹
90. To ensure that OSH reaches workers and enterprises in the informal economy, an inclusive legal framework, anchored in Convention No. 187 and the Transition from the Informal to the Formal Economy Recommendation, 2015 (No. 204), would be necessary.¹²² A central priority would be promoting strategies that support the transition of informal workers and economic units towards formalization. This implies practical measures that lower barriers to compliance (for example, simplified procedures, information and support) and strengthen outreach and labour inspection coverage, including cooperation with local authorities and representative organizations where relevant.¹²³

¹¹⁵ ILO, *Occupational Safety and Health and the Future of Work in Retail*.

¹¹⁶ ILO, *Innovative Approaches to Addressing Informality and Promoting the Transition to Formality for Decent Work*, ILC.113/VI, 2025.

¹¹⁷ ILO, "ILO Report Highlights Digitalization Advances in Employment Injury Insurance Administration in Asia", 29 October 2024.

¹¹⁸ ILO, *World Employment and Social Outlook 2021: The Role of Digital Labour Platforms in Transforming the World of Work*, 2021, 171.

¹¹⁹ ILO, *Occupational Safety and Health and the Future of Work in Retail*.

¹²⁰ ILO, *Improving Safety and Health in Micro-, Small and Medium-Sized Enterprises: An Overview of Initiatives and Delivery Mechanisms*, 2020, 9.

¹²¹ ILO, *The Future of Work in Retail: Digitalization as an Engine*.

¹²² ILO, *Innovative Approaches to Addressing Informality and Promoting the Transition to Formality for Decent Work*.

¹²³ Forastieri.

► 9. MSMEs and retail: Specific OSH challenges and needs

91. MSMEs may face distinct OSH constraints, including limited financial and human resources, scarce in-house expertise, high staff turnover, low OSH awareness, lack of systematic OSH management and non-compliance with OSH standards.¹²⁴
92. Research on MSMEs in European retail has highlighted limited awareness and implementation of OSH measures, with fewer comprehensive OSH management systems and, in some cases, higher rates of work-related accidents and ill health than in larger enterprises. In these settings, hazards are often treated as “part of the job”, with reliance on informal coping rather than structured prevention; high turnover further weakens continuity of training and supervision, and refresher training after entry into employment is often limited, particularly in small enterprises.¹²⁵
93. Despite these challenges, a range of targeted initiatives have emerged to strengthen OSH knowledge and promote a preventive safety culture in small retail workplaces. In several countries, social partners have collaborated to develop sector-specific resources and online tools aimed at building preventive capacity (box 3).

► Box 3. “Safe in the shop” (Säker i butik): Joint action for safer small shops in Sweden

Frontline workers in small retail outlets (for example, convenience stores, kiosks and tobacconists) face elevated risks of robbery, assault, shoplifting and verbal abuse. Sweden’s “Safe in the shop” (Säker i butik) e-learning programme (launched in 2003) was developed jointly by the police, crime prevention authorities and retail social partners, and provides practical training on crime prevention, conflict management and emergency response. Open to all enterprises, it has been particularly useful for MSMEs with limited training capacity, and has also strengthened cooperation among employers, workers and law enforcement, serving as a replicable approach for small retail settings.

Source: ILO, *Occupational Safety and Health and the Future of Work in Retail*.

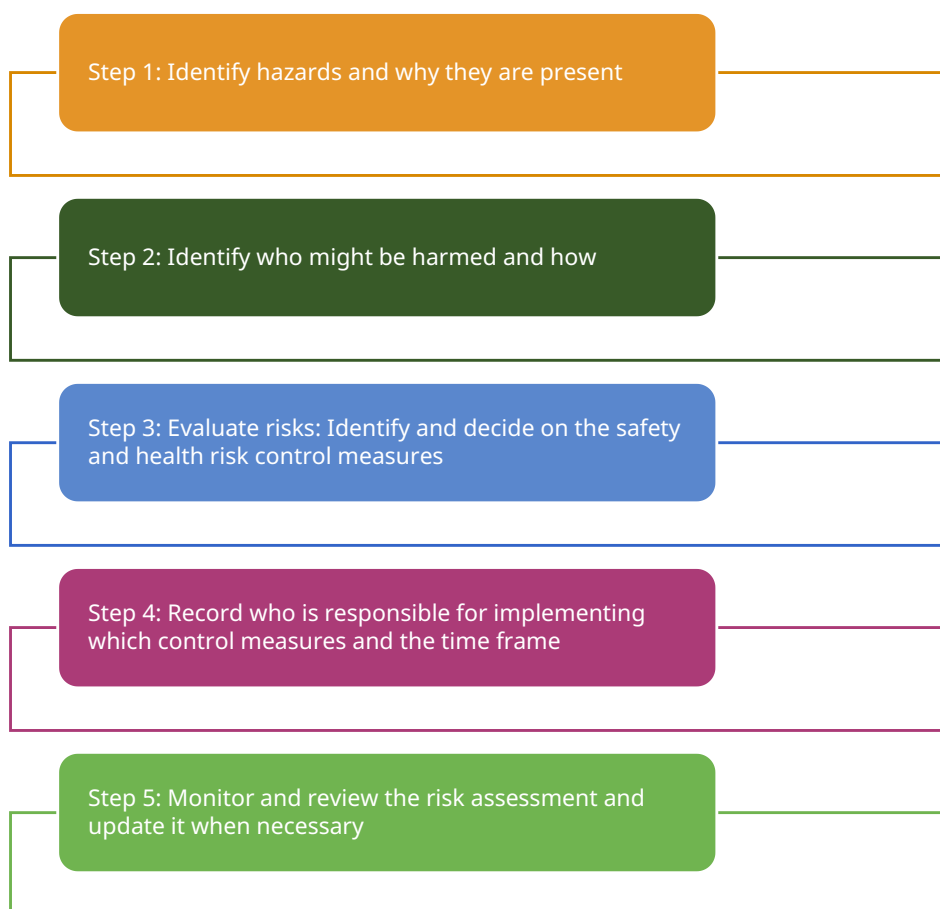
94. A tailored approach for small retailers entails building an enterprise OSH culture through simple measures such as the “five-step” risk assessment (figure 11) and the progressive application of the hierarchy of controls (elimination, substitution, engineering controls, administrative controls and PPE) (see table 9 for additional measures). Joint action by employers and workers in identifying hazards, implementing controls and maintaining good housekeeping has proven the most effective means of achieving continuous improvement. Sector associations, franchisors and lead enterprises can provide shared OSH services, templates and mentoring.¹²⁶ In some retail contexts, cooperatives and other social and solidarity economy entities may also operate as MSMEs or as networks of smaller retailers, and can provide organizational channels through which information, training and advisory support on OSH are accessed.

¹²⁴ ILO, *Improving Safety and Health in Micro-, Small and Medium-Sized Enterprises*.

¹²⁵ David Walters et al., *Safety and Health in Micro and Small Enterprises in the EU: The View from the Workplace*, European Risk Observatory Report, 2018.

¹²⁶ ILO, *Improving Occupational Safety and Health in Small and Medium-sized Enterprises, Participant Handbook*, 2021.

► Figure 11. Five steps of MSME risk assessment



Source: ILO, *Improving Occupational Safety and Health in Small and Medium-sized Enterprises: Participant Handbook*, 28.

95. In some instances, digitalization has helped address OSH issues in MSMEs.¹²⁷ However, digital tools should be fit for purpose and adapted to the capacity of MSMEs, including simple applications for hazard reporting and low-cost sensors (for example, for temperature or CO₂ alarms), and be accompanied by technical assistance, which can materially improve prevention in MSMEs.

► Table 9. MSMEs in retail: Common OSH risks and practical support measures

Retail MSME context	Common OSH risks	Control and support measures (based on hierarchy of controls and participatory principles)
Small shops and convenience stores	Manual handling, slips/trips, lone working, exposure to customers.	Elimination: Remove unnecessary manual lifts by reconfiguring stock locations (placing heavy items at waist height, reducing backroom transfers). Substitution: Replace heavy packaging/units with smaller pack sizes or supplier-pre-sorted cartons where feasible. Engineering controls: Anti-slip flooring/mats, improved lighting, guarded cutting tools; mechanical

¹²⁷ ILO, *Revolutionizing Health and Safety*.

Retail MSME context	Common OSH risks	Control and support measures (based on hierarchy of controls and participatory principles)
Pharmacies and other specialized retail establishments	Chemical exposure from cleaning products and solvents; risks of violence and robbery at work; and ergonomic risks linked to repetitive work.	aids (simple trolleys, wheeled dollies); height-adjustable checkout/work surfaces. Administrative controls: Task rotation, microbreaks and staffing aligned with peak periods; simple safe work procedures/checklists (housekeeping, spill response); lone-working arrangements and emergency contacts; de-escalation procedures for difficult customers. PPE: Slip-resistant footwear; cut-resistant gloves where relevant; weather-appropriate PPE for outdoor tasks. Elimination: Remove routine decanting/mixing by using pre-diluted, ready-to-use products where feasible. Substitution: Use less hazardous (low-VOC (volatile organic compound), non-sensitizing) products; switch from aerosols to wipes/foams to reduce inhalation exposure. Engineering controls: Local ventilation where vapours/dust may arise; secure/ventilated chemical storage; spill containment (drip trays); physical security design features (screens/barriers, secure cash storage) where needed. Administrative controls: Chemical management system: inventory, labelling, access to safety data sheets as supporting information, and clear handling/spill procedures; training on safe handling and refresher briefings; incident reporting; robbery/violence response protocols. PPE: Appropriate gloves/eye protection; masks/respirators only when justified by the substance and exposure.
Small-scale e-commerce warehousing facilities	Manual-handling and repetitive-lifting risks; hazards from cluttered aisles; high work intensity; work-related fatigue.	Elimination: Remove unnecessary carries by shortening pick paths and eliminating double-handling points. Substitution: Replace manual lifts with pre-packed supplier units or lighter containers; use mechanical handling instead of carrying. Engineering controls: Adjustable packing tables, lift assists, conveyors where feasible and well-maintained trolleys; clear aisle marking, racking stability, guard rails at edges/steps. Administrative controls: Work-rest schedules (microbreaks), job rotation and safe pick-rate policies; if using digital systems, work-pacing rules and workload monitoring as an administrative tool (not engineering); induction for new/temporary workers; supervision during peak periods.

Retail MSME context	Common OSH risks	Control and support measures (based on hierarchy of controls and participatory principles)
Click-and-collect and pick-up delivery	Traffic interface, heat/cold stress, slips on wet surfaces, night work.	PPE: Safety footwear: gloves suited to the handling tasks; high-visibility PPE. Elimination: Avoid worker–vehicle mixing by removing pedestrian tasks from vehicle lanes where possible. Substitution: Replace open-air loading with covered, segregated collection points where feasible. Engineering controls: Physical separation (barriers/bollards), non-slip surfacing, adequate lighting, safe traffic flow design. Administrative controls: Heat/cold procedures (work-rest, hydration, shift adjustments); night-work arrangements; lone-working controls; route planning used to reduce exposure time (administrative planning function). PPE: Reflective/high-visibility PPE; weather PPE; slip-resistant footwear.
Home-based or online vendors	Ergonomic strain, poor posture, isolation, work-life imbalance.	Elimination: Remove high-risk storage/charging practices (e.g., no indoor storage of flammables, avoid unsafe charging set-ups). Substitution: Replace improvised workstations with basic adjustable equipment (chair/desk risers; external keyboard/mouse). Engineering controls: Ergonomic set-up aids (monitor risers, lighting); safe electrical set-up (surge protection, cable management). Administrative controls: Work-rest scheduling; workload limits; guidance on safe storage/packing and fire prevention. PPE: Task-specific PPE only (e.g., gloves for cutting/packing) where relevant.
Digitalized MSMEs using AI tools	Automated performance management pressure, privacy risks, digital fatigue.	Elimination: Avoid deploying surveillance features that are not necessary for safety/operations. Substitution: Use less intrusive approaches (e.g., aggregate workload indicators instead of individual real-time tracking). Engineering controls: For digital systems, “engineering” mainly refers to system design that technically limits harmful exposures (e.g., hard caps on maximum shift length in scheduling software; enforced break-lockout functions). Administrative controls: Clear rules for use of algorithmic management tools: transparency, consultation, review before deployment, escalation routes; Design dashboards to include workload warnings.

Retail MSME context**Common OSH risks****Control and support measures (based on hierarchy of controls and participatory principles)**

PPE: Not typically central for digital hazards, but it remains relevant for the underlying physical tasks.

Sources: Adapted from ILO, *Improving Occupational Safety and Health in Small and Medium-sized Enterprises: Participant Handbook*; ILO, *Improving Safety and Health in Micro-, Small and Medium-sized Enterprises: An Overview of Initiatives and Delivery Mechanisms*, 2020; ILO, *Work Improvement in Small Enterprises (WISE) + Action Manual*, 2009.

96. Financial incentives can support OSH improvements in MSMEs, particularly where resource constraints limit investment in safer equipment or practices. Instruments such as reduced insurance premiums, grants or subsidized loans may encourage the adoption of preventive measures (box 4). Their effectiveness is influenced by simple administrative procedures and clear economic incentives; however, sustained improvements are more likely where financial support is combined with advisory services or technical assistance, rather than relying on short-term compliance.¹²⁸

► **Box 4. Italy's INAIL incentive scheme to promote OSH improvements in small enterprises**

Italy's National Institute for Insurance against Accidents at Work (INAIL) runs an OSH incentive programme for MSMEs, providing annual funding to support prevention investments (for example, safer machinery, ergonomics, work-process redesign and fire/chemical safety). Grants cover a substantial share of eligible costs, prioritizing projects that demonstrably reduce high-risk exposures and are supported by simplified procedures and guidance to help enterprises identify effective interventions. Evaluations indicate that the incentives have encouraged many MSMEs to strengthen OSH practices, resulting in fewer injuries and greater prevention awareness.

Source: adapted from ILO, *Improving Safety and Health in Micro-, Small and Medium-sized Enterprises*, Example 24, 105.

► 10. OSH implications of extreme weather events and changing weather patterns in the retail sector

97. Extreme weather events and changing weather patterns are increasingly recognized as a significant driver of OSH risks. ILO analysis identifies key climate-related OSH hazards, including heat stress, ultraviolet radiation, extreme weather, air pollution, vector-borne diseases and exposure to agrochemicals.¹²⁹ Retail workers experience these risks differently depending on their workplace setting and occupation.
98. Outdoor and informal retail workers, such as street sellers and those in open-air markets, are particularly vulnerable; they often lack basic protections like shelter, ventilation and social safety nets, which makes them more susceptible to the effects of climate-related hazards. A recent review of 48 studies from Asia and Africa, conducted from 2015 to 2024, has highlighted the health impacts of air pollution and extreme temperatures on street vendors, including respiratory illnesses and heat stress. Gender-specific vulnerabilities compound such impacts due to

¹²⁸ ILO, *Improving Safety and Health in Micro-, Small and Medium-sized Enterprises*.

¹²⁹ ILO, *Ensuring Safety and Health at Work in a Changing Climate*, 2024.

inadequate access to sanitation facilities.¹³⁰ Street vendors are particularly exposed to extreme weather events, with implications for their safety and well-being, as recent studies analysing the impact of floods on informal retailers in South Asia have shown.¹³¹

99. Indoor retail and warehouse workers are also exposed to heat stress, especially during heatwaves when ventilation and cooling systems are inadequate. Many storage facilities and fulfilment centres lack proper climate control, resulting in extremely hot conditions in summer and uncomfortably cold environments in winter. Chemical exposure also remains a concern, as higher temperatures may increase the volatility of pesticides, disinfectants, and other hygiene and pest-control substances and, where ventilation is inadequate, can increase indoor pollutant concentrations and/or exposure time, thereby increasing health risks for retail workers.¹³²
100. Air pollution and extreme weather events are interlinked and can compound occupational health risks, particularly in urban areas where outdoor workers are exposed for long periods. Heat, wildfire smoke and pollution episodes may increase respiratory and cardiovascular strain and can reduce safe work capacity. In some contexts, such as Myanmar, informal street vendors operating in polluted, flood-prone urban areas may have limited ability to relocate due to competition for vending spaces and the risk of income loss, resulting in continued exposure to hazardous environmental conditions in their work.¹³³ Delivery and warehouse workers are also exposed to poor air quality and exhaust emissions, with heatwaves potentially intensifying indoor pollution and increasing the risk of work-related respiratory health effects.¹³⁴ In many cases, combined heat and solar ultraviolet exposure is a growing concern for outdoor workers, given its links to long-term health effects, including non-melanoma skin cancer.¹³⁵ The ILO code of practice on ambient factors in the workplace (2001) can help the sector by providing guidance on preventing adverse health effects arising from exposure to heat and solar radiation.¹³⁶

10.1. Measures and strategies to protect retail workers, including through digital tools and early-warning systems

101. Addressing OSH hazards related to extreme weather events and changing weather patterns requires incorporating them into routine OSH management systems and, where appropriate, into gender-responsive risk assessment and prevention processes. Measures may include adapting the work environment and work organization – in line with the hierarchy of controls – for example, by improving ventilation or cooling, providing shade where feasible, adjusting working time and rest breaks during periods of extreme heat, using appropriate PPE where exposure cannot otherwise be reduced, and providing OSH information, instruction and training so workers can

¹³⁰ Maasago Mercy Sepadi, “Impact of Climate Change on Informal Street Vendors: A Systematic Review to Help South Africa and Other Nations (2015–2024)”, *Atmosphere* 16, No. 2 (2025): 179.

¹³¹ Md. Abdul Kaium and Kazi Sharmin Pamela, “The Impacts of Urban Flooding on Street Vendors’ Business in Dhaka City”, *Journal of Urban Management* 10, No. 3 (2021): 127–141.

¹³² ILO, *Occupational Safety and Health and the Future of Work in Retail*.

¹³³ Thant Ko Ko et al., “Informal Workplaces and their Comparative Effects on the Health of Street Vendors and Home-based Garment Workers in Yangon, Myanmar: A Qualitative Study”, *BMC Public Health* 20, article No. 524 (2020), 1–14.

¹³⁴ Paul A. Schulte et al., “Advancing the Framework for Considering the Effects of Climate Change on Worker Safety and Health”, *Journal of Occupational and Environmental Hygiene* 13, No. 11 (2016): 847–865; and Beth Gutelius and Nik Theodore, *The Future of Warehouse Work: Technological Change in the U.S. Logistics Industry* (Berkeley: University of California Labor Center, 2019), 28.

¹³⁵ WHO, *The Effect of Occupational Exposure to Solar Ultraviolet Radiation on Malignant Skin Melanoma and Non-Melanoma Skin Cancer: A Systematic Review and Meta-analysis from the WHO/ILO Joint Estimates of the Work-related Burden of Disease and Injury*, 2021.

¹³⁶ ILO, *Occupational Safety and Health and the Future of Work in Retail*.

recognize and respond to heat-related risks.¹³⁷ In this context, consideration may also be given to situations in which work may need to be suspended or interrupted due to extreme weather events and changing weather patterns that pose an imminent and serious risk to workers' safety and health.¹³⁸

102. Digital tools can complement these approaches by, for example, supporting anticipation and prevention using heat-index and air-quality alerts to inform operational decisions;¹³⁹ using sensor-based monitoring of workplace conditions;¹⁴⁰ and, in delivery work, using telematics-enabled planning and reporting channels to support timely responses when conditions become unsafe.¹⁴¹ These measures may be complemented by occupational health surveillance systems to monitor exposure and detect early signs of weather-related health effects among workers.
103. International labour standards can also guide measures to be implemented in this regard. Broadly, Recommendations Nos 97 and 164 include preventive measures for maintaining suitable atmospheric conditions, such as temperature, humidity and airflow. Convention and Recommendation No. 120 call for maintaining suitable workplace temperatures and avoiding routine exposure to extreme heat or cold, with competent authorities setting acceptable standards. They also highlight protecting outdoor sales workers (for example, shade or warming facilities) and, where temperatures are very high or low, adjusting working time (additional breaks/reduced shifts) and using physical protections to limit exposure.¹⁴²
104. Innovative social finance mechanisms, including parametric insurance, are increasingly used to address climate-related occupational risks and may be relevant for the retail sector. Parametric products provide rapid payouts triggered by predefined environmental thresholds (for example, temperature or air quality), supporting timely income protection for affected workers and enterprises. In Pacific Small Island Developing States, pilot initiatives are building capacity to deploy such schemes as part of broader climate and disaster preparedness.¹⁴³ The parametric heat insurance programme in India, in partnership with the Self-Employed Women's Association (SEWA), is another example.¹⁴⁴ These approaches can support enterprise preparedness and business continuity, strengthening resilience to extreme weather risks, particularly for MSMEs.

► 11. Concluding observations

105. The retail sector remains one of the most accessible entry points to employment worldwide, engaging millions of workers across diverse business models, from large supermarket chains and logistics/fulfilment operations to small shops, e-commerce activities and informal markets. Transformations driven by digitalization, extreme weather events and changing weather

¹³⁷ ILO, *Ensuring Safety and Health at Work in a Changing Climate*.

¹³⁸ ILO, *Conclusions of the Meeting of Experts on Occupational Safety and Health in Extreme Weather Events and Changing Weather Patterns*, MEEWE/2026, to be published in 2026.

¹³⁹ CDC/NIOSH, "Heat Safety Tool (OSHA–NIOSH)", Heat Stress, 3 March 2026.

¹⁴⁰ Monica Andriescu et al., *Smart Digital Monitoring Systems For Occupational Safety And Health: Uses and Challenges*, (EU-OSHA, 2022).

¹⁴¹ Together for Safer Roads (TSR), *Optimizing Fleets with Telematics: A Guide For Today's Fleet Managers*, 2025.

¹⁴² ILO, *Occupational Safety and Health and the Future of Work in Retail*.

¹⁴³ ILO, "ILO and UNCDF Collaborate to Grow Parametric Insurance in the Pacific", 22 June 2023.

¹⁴⁴ Kathy Baughman McLeod and Laurie Goering, "As Extreme Heat Threats Grow, Can Heat Insurance Offer Protection?", *Journal of City Climate Policy and Economy* 3, No. 2/3 (2025): 215–222.

patterns, and demographic shifts are reshaping work organization and have significant implications for OSH.

- 106.** The workforce includes full-time and part-time workers, temporary workers, contractors, own-account workers and, in many contexts, a growing share of franchised operations. This diversity, uneven capacity across enterprise sizes and variations in operating models (including franchising) mean OSH prevention and compliance can look very different. These constraints, compounded by a lack of disaggregated data by occupation and sector-specific injury types, may make compliance more difficult in practice.
- 107.** Labour inspection systems can face difficulties reaching non-traditional and dispersed workplaces, prompting greater use of digital reporting channels and targeted inspections at delivery or fulfilment hubs. Social dialogue remains central to translating OSH rules into practice, including through collective bargaining and workplace cooperation mechanisms, and across levels – from global framework agreements to sectoral arrangements and enterprise-level agreements.
- 108.** Emerging technologies, including AI-enabled systems, wearable monitoring and algorithmic management, can support prevention (for example, hazard detection, improved planning and training), yet may also introduce psychosocial, ergonomic, privacy and accountability concerns if poorly governed.
- 109.** Social dialogue remains a key channel for shaping how retail manages emerging OSH issues. Practices in the sector, including collective bargaining at multiple levels – from global framework agreements to sectoral and enterprise agreements – alongside workplace mechanisms such as workplace cooperation, have proved useful tools to address OSH in retail. Moving forward, effective social dialogue can help support more consistent prevention practices and clarify how OSH responsibilities are implemented across entities and retail operations.
- 110.** International labour standards provide the overarching framework for guiding national, sectoral and enterprise-level action to address emerging OSH risks and promote a safe and healthy working environment. Implementing the principles of these instruments through effective labour inspection and compliance systems, as well as all forms of social dialogue, will ensure that every retail worker, whether in a shop, warehouse, street stall or online, enjoys the fundamental right to a safe and healthy working environment.