Managing an ageing workforce and challenges in occupational safety and health

the Cypriot experience

Healthy Workplaces

REPUBLIC OF SLOVENIA
MINISTRY OF LABOUR, FAMILY
SOCIAL AFFAIRS AND EQUAL OPPORTUNITIES

"Ageing Workers in the Digital Age"

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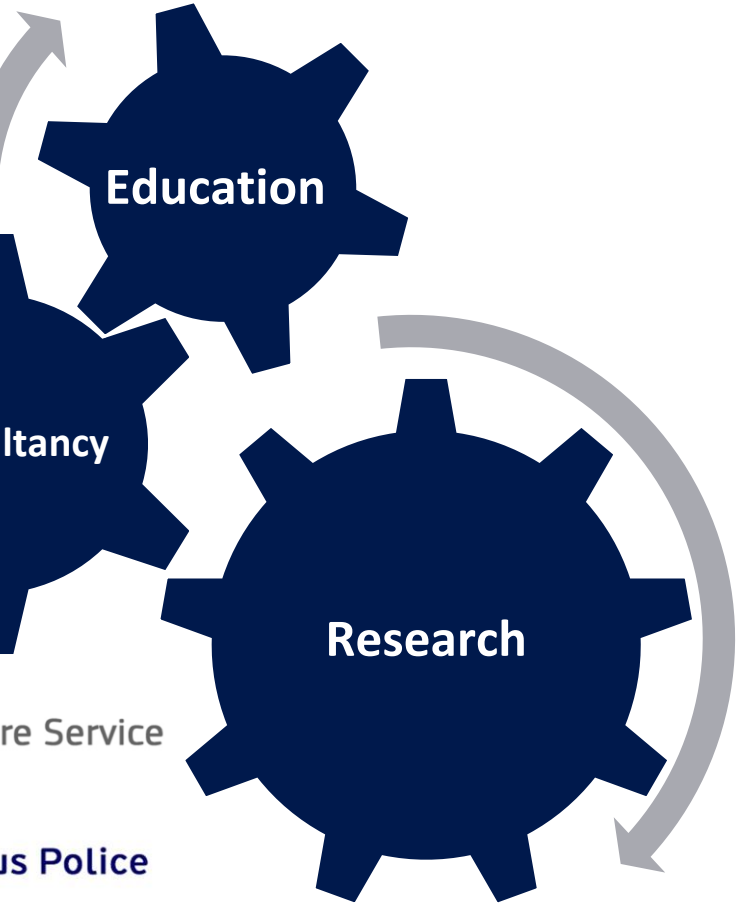
Areas of focus

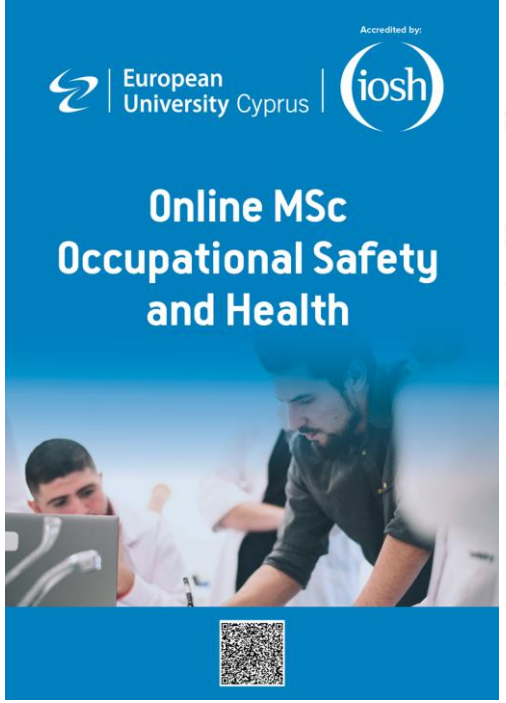
- Safety
- Security
- Civil Protection
- Climate Change
- Disaster Resilience
- Critical Infrastructure Protection



Department of Labour Inspection

Cyprus Fire Service

Cyprus Police



COLOSH
INTERNATIONAL COLLABORATIVE LEARNING IN OSH

LeverAge

PDEX Professional Dialogue Exercise

HOPE

2015 EU-CIRCLE

2021 Tele-WOSH

2023 fireurisk

2025 DARE RESIST SIMMER

cost

pop-art

PRESERVE

ResAlliance

AQ-SERVE

2019 RESPOND-A

2022

2024

SEMEDFIRE

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How old are you?

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Ageing & OSH challenges

Initiative:
EU-OSHA campaign
Healthy Campaign 2016-2017
'Healthy workplaces for all ages'

There is no 'typical' older person; some 80 year–old have physical and mental capacities similar to many 20 year-old (WHO, 2016)

Ageing is a complex and continuous process rather than state. It is a multi-dimensional process of

- ✓ biological,
- ✓ psychological and
- ✓ social changes.

*A person who is 57 years old according to his or her **chronological age**, may feel like a 50 year old (**psychological age**), be fit like a 45 year old (**functional age**) and behave like a 40 year old (**social age**).*

Older worker: 50 years old +

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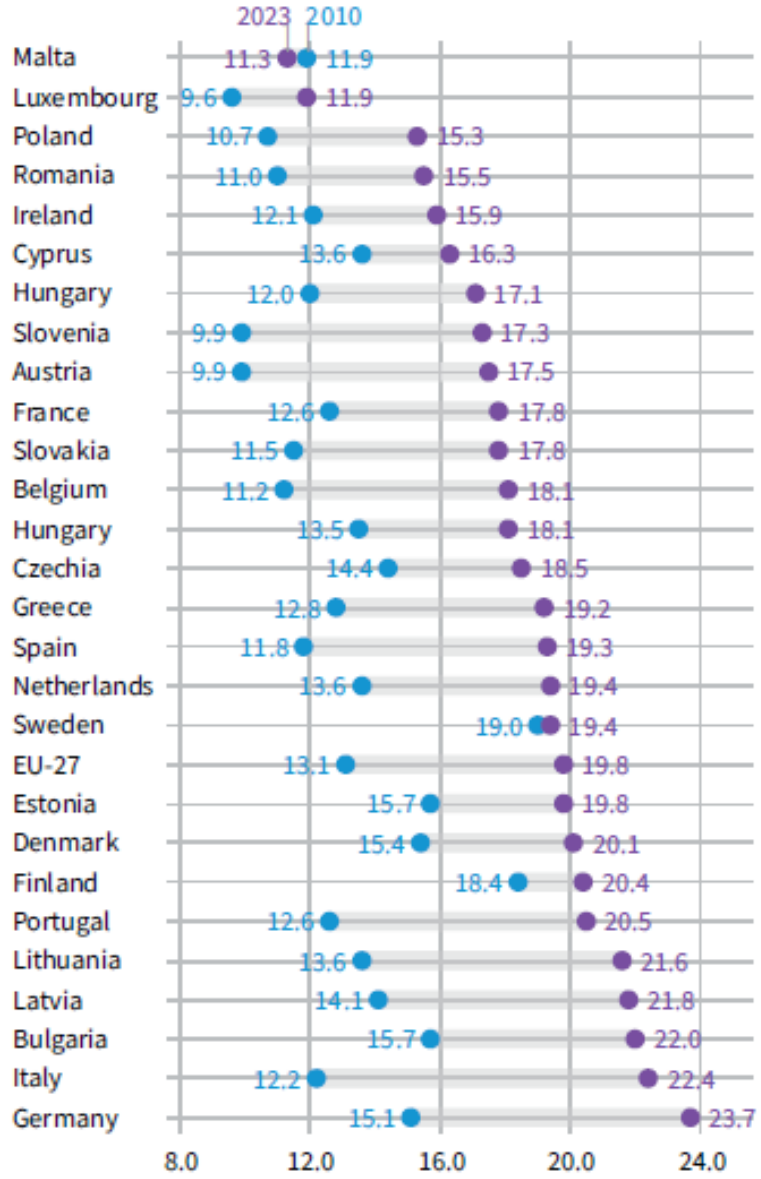
Introduction & Facts – Ageing Workforce

Figure 1: Employment by age group, EU-27, 2010–2023 (millions)

Source: *Eurostat and EU-LFS*

Figure 2: Proportion of workers aged 55–64, EU Member States, 2010 and 2023 (% of total employment)

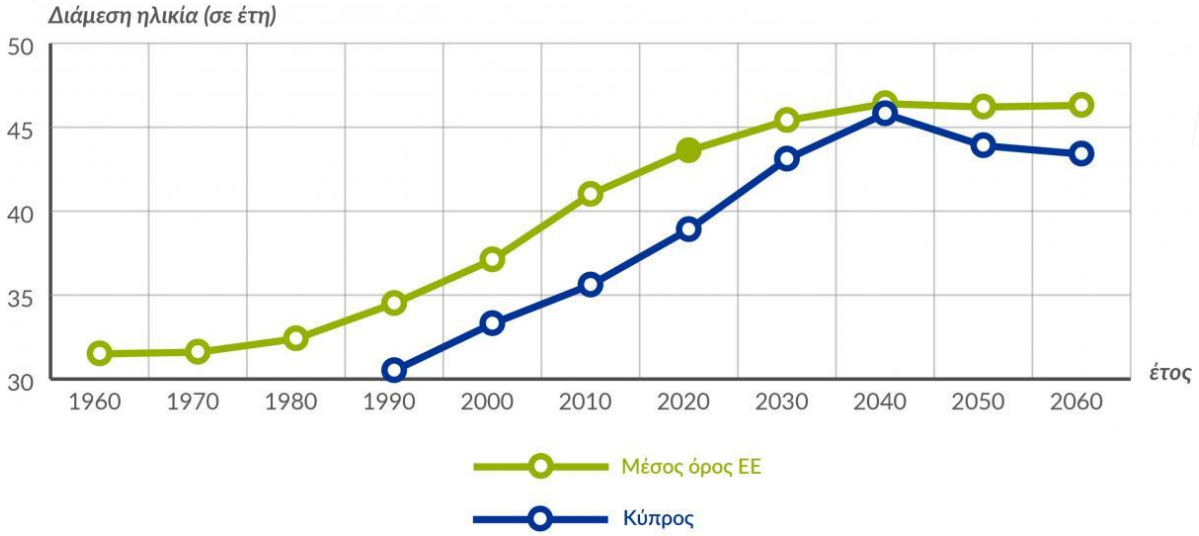


Source: *Own calculations based on Eurostat and EU-LFS*

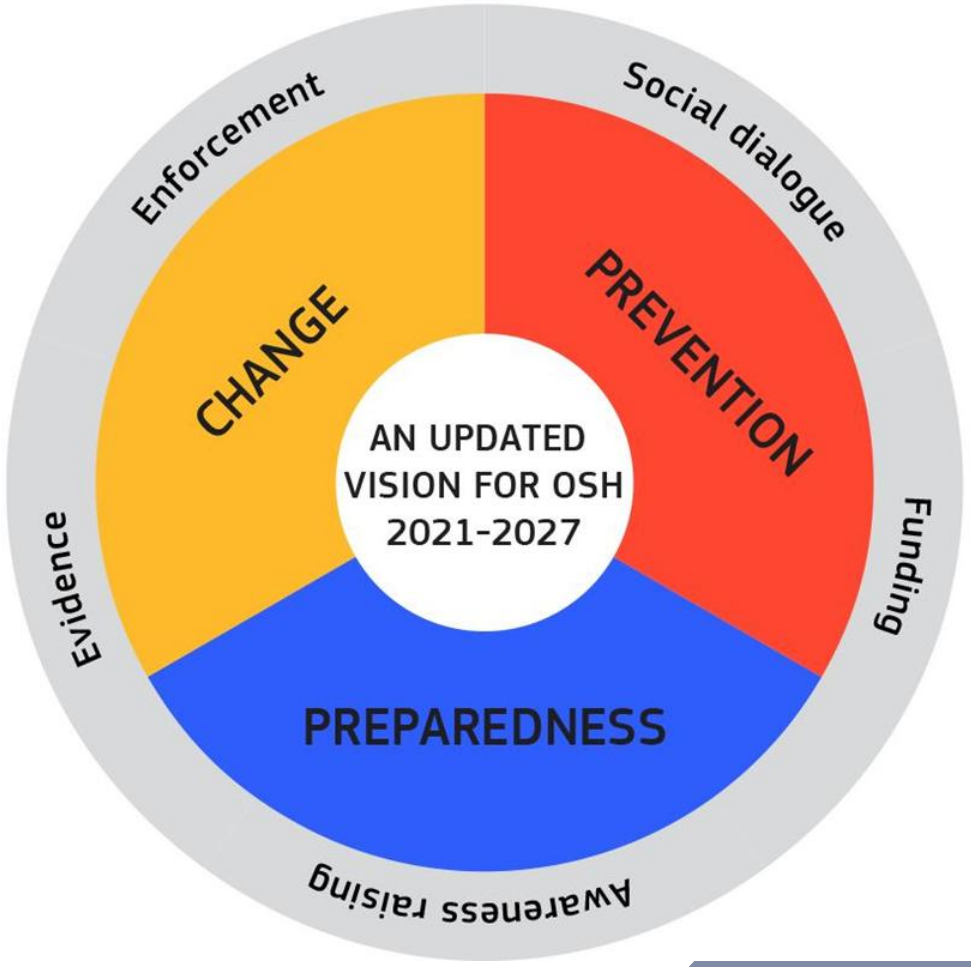
Ageing of the population (EU- CY)

- In the last decades, humanity experiences an increasing demographic change.
- Ageing of the population is directly connected with ageing of the workforce.

Median age: EU average between 1960 and 2060



EU Strategic Framework on Health and Safety at Work 2021-2027



Europe must ADAPT

- Workplace technological transformation through ICT & Ambient Intelligence (AmI)
- Global workforce is ageing, increasing the urgency for OSH systems that accommodate age-related needs and ensure long-term work sustainability

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Methodology

The 718 employees that answered the questionnaire were similarly distributed between both genders (48,7% men, 51,3% women) with mean age of 35-39 years old (minimum: 15-19, maximum: 65+).

PILOT STUDY

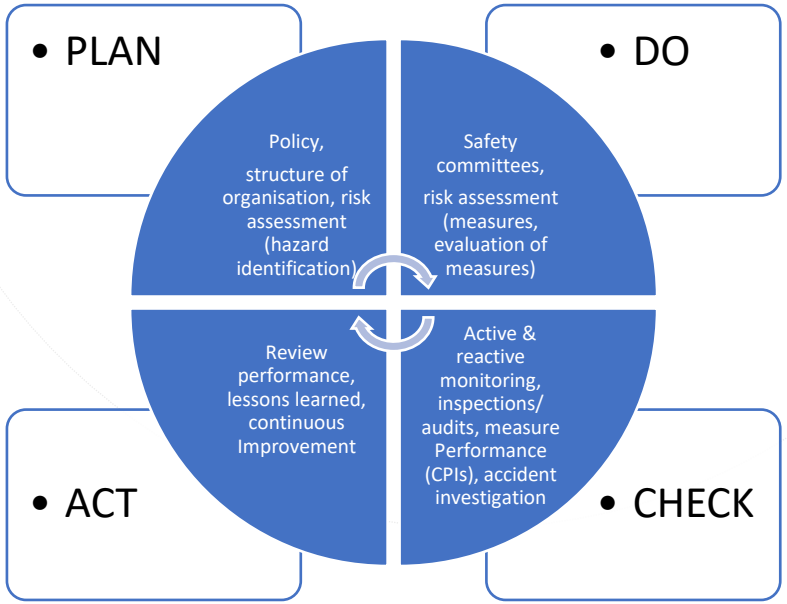
QUESTIONNAIRE

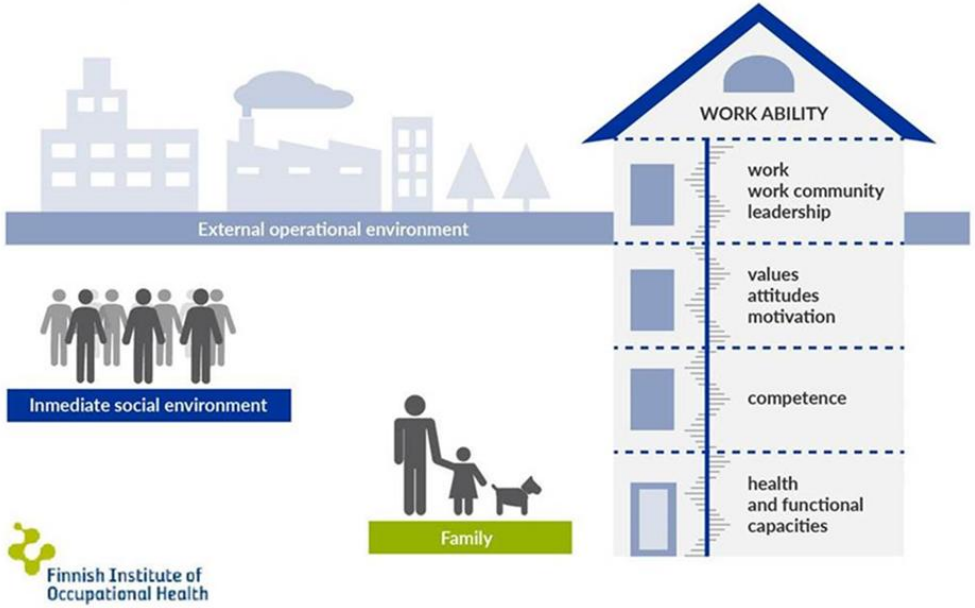
INTERVIEWS

WIP TOOL

OHSAMS

NATIONAL AGEING POLICY





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Work Individual Performance (WIP) tool

- To identify the work performance based on individual characteristics, working environment and working conditions
- Suggestion of measures/ recommendations
- Can be used by anyone:
- employers,
- workers,
- H&S experts,
- HR managers

Work Individual Performance (WIP) tool

Questions	Answers		Score
1. What is you gender?	1	Male	91
2. How old are you?	5	35-39	86
3. What is your position in your company/ organisation?	2	Head of Department	86
4. How many years of experience do you have?	2	5-10 years	85
5. Where are you in your current career cycle?	3	Stability (establishment, innovation)	88
6. Do you feel that your working environment is safe?	4	Undecided	80
7. Are you positively discussing your work with other people than your colleagues?	1	Yes	86
8. Do your working hours match your family or social obligations?	1	Strongly Agree	88
9. For you to arrange for one or two hours of leave during your work for personal or family matters is:	1	Very easy	87
10. How would you rate your health status?	1	Very good	91
11. Do you have sleep-related problems?	1	Yes	81
12. Do you feel that your work affects your health?	2	Agree	80
13. Over the last year, have you had an accident?	1	Yes	79
14. Are you exposed at work to:			
a) no recognition from your colleagues or manager	0	No	88
b) age discrimination	1	Yes	80
c) role conflicts	1	Yes	83
d) bad ergonomic conditions and workplace design	1	Yes	84
e) manual handling	1	Yes	84
15. How would you rate your ability to work (mentally and physically)?	1	1	58

Score	1585
Score Group	2

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Work Individual Performance (WIP) tool

Comments:

If you are not feeling safe at work and you think you are exposed to hazards, report it to the Safety Officer/ Safety Committee/ Safety Representatives of your company/ organisation in order to take preventive measures.
If you have sleep-related issues that affects your ability/ performance at work please look for an expert assistant.
If you feel that your work might affect your health, you should first define in which way; physiologically or psychologically. You may consult the risk assessment (if any) of your job position or contact a health and safety expert along with your employer.
If you had an accident and this is affecting your ability to work then you could discuss it with the Safety Officer/ Safety Committee/ Safety Representatives of your company/ organisation in order to find ways to adapt your workplace or your tasks to your new condition (e.g. ergonomic workplace, flexible working hours etc). For employers, it is recommended to have a 'return to work policy'. By the existence of such a policy, organisations could quickly resolve the issues arising from an accident or a disease and give the chance to the worker to recover as quickly as possible while their production could not be affected.
If you have Musculoskeletal Disorders (MSDs) due to your work or you think that is difficult to work under bad ergonomic conditions, then report it to the Safety Officer/ Safety Committee/ Safety Representatives of your company/ organisation. Along with your employer, measures could be found to minimise risk.
If you have a physical demanding job, dealing with manual handling, then check the risk assessment (if any) of your job position or contact a Health and Safety expert along with your employer to find appropriate ergonomic methods to follow.
Group 2: Worker's performance has to be improved.
An effort should be made to increase worker's performance. Workers should first identify the factors that might weaken their performance. Employers should promote active and healthy ageing for all ages though policies, practices and programmes.
Furthermore, for average workers below 50 years old, there should be a special focus on: health status, sleep quality, enhancing experience level, accident/ disease recovery (if needed). In organisational level, measures could be training to avoid hazards and feel safe, learn how to manage angry clients. Also, the provision of equipment to lift load (if needed),

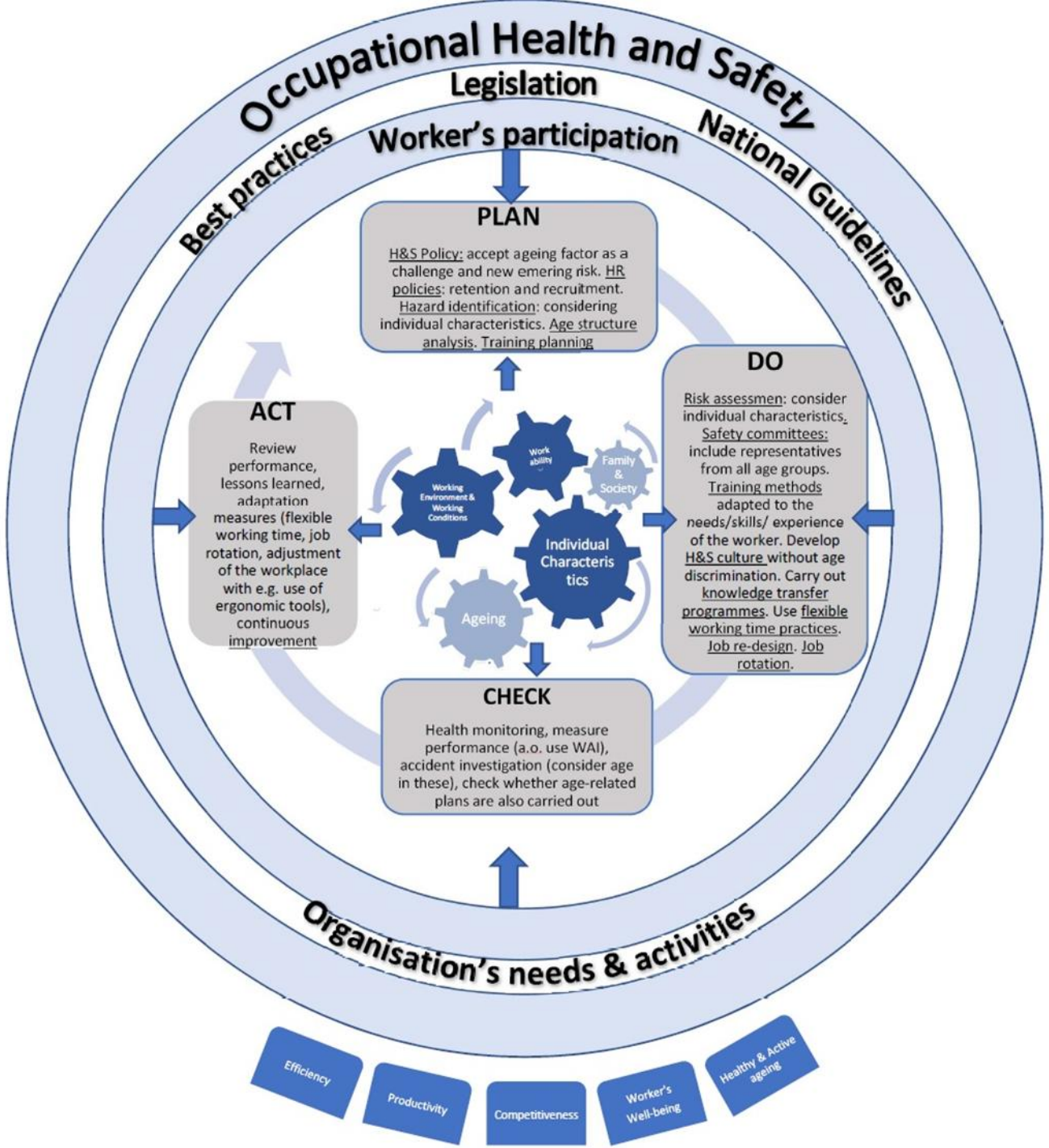
Work Individual Performance (WIP) tool

Group	Score	Comments
1	1513 - 1574	**Worker's performance should be restored immediately.** Workers in this group, are probably being affected by physiological and psychological factors that decrease their performance. They will also probably be facing bad working conditions and working environment. Good habits (sleep and rest, exercise, diet etc), social activities are measures that can be taken by the worker. On organisation level, a more personal based risk assessment which might promote measures such as job rotation, change in tasks, free work shifts should be examined. Furthermore, for average workers below 50 years old, there should be a special focus on: health status, sleep quality, enhancing experience level, accident/ disease recovery (if needed). In organisational level, measures could be training to avoid hazards and feel safe, learn how to manage angry clients. Also, the provision of equipment to lift load (if needed), flexibility in working hours, avoid age discrimination and conflicts at work. For average workers above 50 years old, there should be a focus especially on health status and sleep quality. On organisational level, there should be a provision of training to avoid hazard and feel safe, flexibility in working hours and adjustments to a more ergonomic workplace.
2	1575 - 1605	**Worker's performance has to be improved.** An effort should be made to increase worker's performance. Workers should first identify the factors that might weaken their performance. Employers should promote active and healthy ageing for all ages though policies, practices and programmes. Furthermore, for average workers below 50 years old, there should be a special focus on: health status, sleep quality, enhancing experience level, accident/ disease recovery (if needed). In organisational level, measures could be training to avoid hazards and feel safe, learn how to manage angry clients. Also, the provision of equipment to lift load (if needed), flexibility in working hours, avoid age discrimination and conflicts at work. For average workers above 50 years old, there should be a focus especially on health status and sleep quality. On organisational level, there should be a provision of training to avoid hazard and feel safe, flexibility in working hours and adjustments to a more ergonomic workplace.
3	1606 - 1638-	**The performance of the worker can be further improved.** The result indicates that there are already some measures in place. However, worker's performance has the possibility to be enhanced. This could be gained by good cooperation between management and workers. Employers could further support the workers to strengthen their performance by implementing policies and preventive measures.
4	1639 - 1691	**The performance of the worker should be maintained at this level.** It seems that preventive measures are in place. Employers and workers should cooperate to maintain this level of performance. Workers should continue to avoid factors that might weaken their performance at work. Continual improvement and identification of new emerging risks should be incorporated to the overall management of the organisation.

OHSAMS

- **Blue gears:** WIP tool, could be used as a supporting tool to this holistic approach
- **PDCA:** integrated approach of OHS management and age management
- **Circles**: they are holding the system
- **Arrows:** connecting elements

The model can be seen as a sustainable work system while it meets EU-OSHA criteria: bio-compatibility (individual characteristics of workers. Ergo-compatibility (development of policies, strategies) and socio-compatibility (work-life balance).



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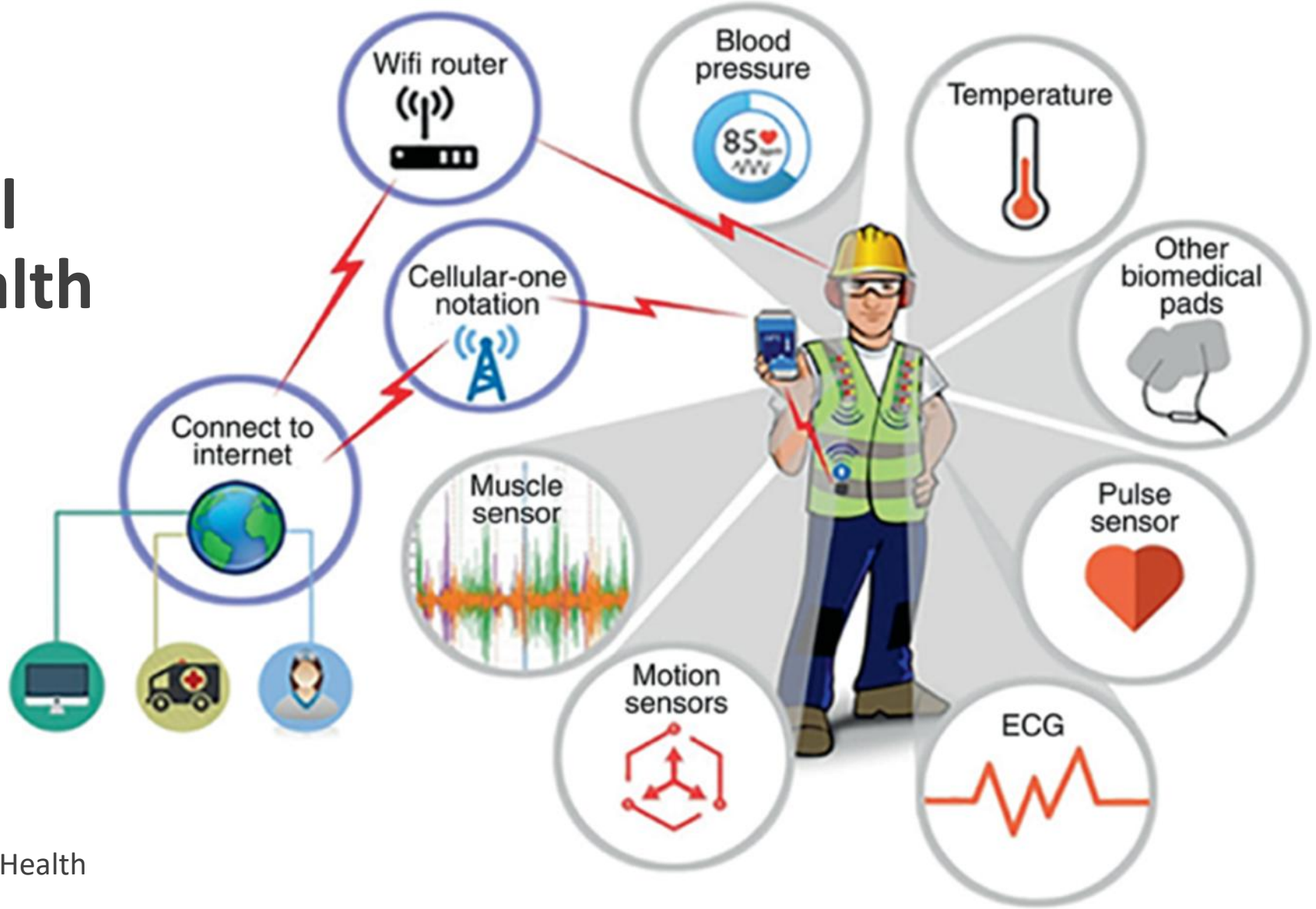
Ambient Intelligence for Occupational Safety & Health in an Ageing Workforce



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AmI & Occupational Hazards

🌡️ Environmental Hazards

- Monitoring of air quality, noise, temperature, and humidity
- Heat stress monitoring with physiological sensors

😫 Psychosocial Hazards (Stress & Fatigue)

- Stress regulation
- Predictive modeling for early stress/fatigue detection
- Mental fatigue mitigation using neural networks & behavior tracking

📌 Insight

AmI empowers proactive, real-time, and personalized safety management — addressing both **traditional risks** (falls, toxins) and **modern stressors** (mental fatigue, heat, stress)

User Perceptions of AmI Applications – Key Insights

Benefits

- **Positive user reception** across various contexts (offices, industrial sites)
- **Enhanced safety & awareness** e.g., PPE compliance, hazard alerts, health check motivation
- **Improved productivity & well-being** via stress/fatigue monitoring, adapted environments
- **Effective feedback systems** intuitive interfaces like traffic light indicators and real-time alerts
- **Strong interest & willingness to adopt** particularly for emotion-aware and intelligent support platforms

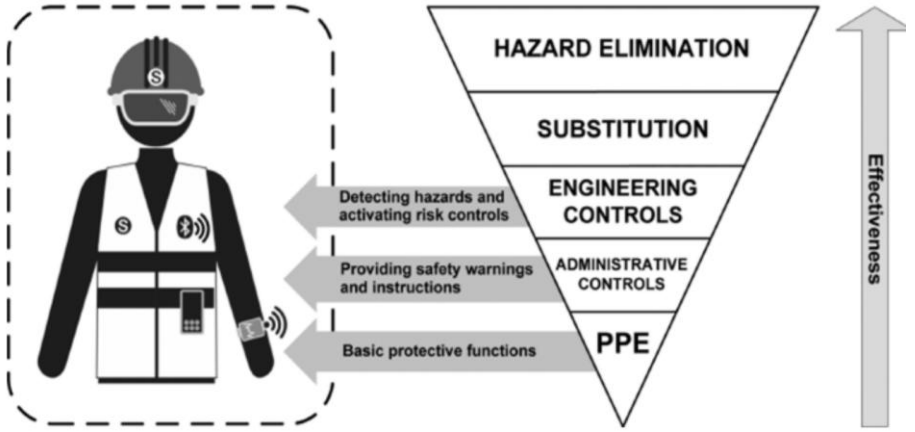

FIGURE: New functions of smart PPE systems in relation to the classical hierarchy of OSH risk controls (adapted from Podgorski D. [2017].

Ageing-Related Change	AmI Application / Use Case	Benefit to Older Workers
🔥 Reduced temperature regulation	Real-time **heat stress monitoring** (industrial sensors)	Prevents heat stroke; ensures safe conditions
🔊 Declining hearing	**Noise alert systems** (oil & gas environments)	Reduces auditory overload; improves compliance
👁️ Decreased vision	**Dynamic lighting & visual alerts**	Improves visibility; reduces fall risk
🧠 Slower info processing	**Context-aware alarm filtering**	Eases emergency decisions; lowers stress

Ageing-Related Change	AmI Application / Use Case	Benefit to Older Workers
☣️ Skin sensitivity	**Toxic gas exposure alerts** (mining)	Enables early evacuation; protects skin
📝 Memory decline	**Reminder systems** (e.g., PPE use)	Reinforces safe habits discreetly
🪑 Joint stiffness / poor posture	**Smart ergonomic chairs**	Prevents injuries; increases comfort
😩 Increased fatigue	**Biosensor-triggered break alerts**	Reduces burnout; prompts rest
⚖️ Reduced stress resilience	**Adaptive workload pacing**	Maintains energy and motivation
🌐 Multidimensional decline	**Holistic smart environments**	Boosts comfort, clarity, and overall safety

Conclusions

- Each generation has its own strengths and weaknesses.
- Individuals while getting older, indeed face new hazards. Age-related changes occur but their exposure is different between individuals.
- The performance of the worker cannot be seen and be measured only by his/ her age.

Conclusions

A more holistic approach in existing systems should be in place in order to face easily new challenges such as ageing

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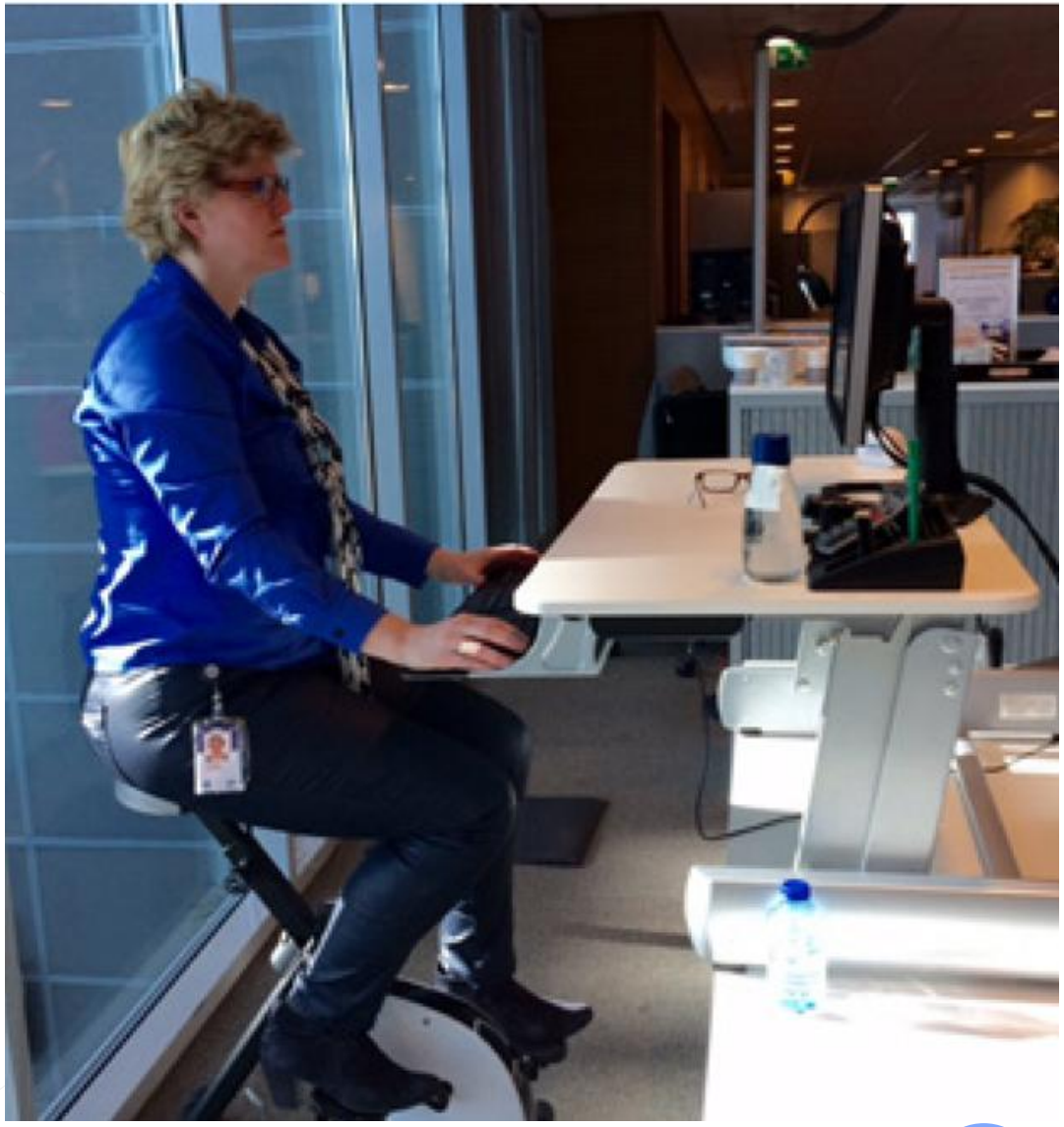
THANK YOU



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