OCCUPATIONAL SAFETY AND HEALTH INNOVATIONS AND PEROSH

Nancy, 29 March 2017

Innovation technologique changements organisationnels. Quels enjeux pour la prévention?

Dietmar Reinert, Chairman of PEROSH

PEROSH INTRODUCTION

Founded in 2003 in Rome the network has expanded over nearly 15 years now.

New agreement 2014 – 2018 concluded in May 2014 in Paris.

13 member institutions from 12 European countries = *large pool of European OSH experts > 2000*

Main objectives of the partnership:

- Strengthen cooperation on OSH research and accelerate the generation of knowledge in key areas of OSH *(8 joint research projects)*
- Disseminate new findings on OSH issues and act as an EU 'think tank'

Steering Committee

Chair: Dietmar Reinert
(DGUV-IFA, D)
Vice-chair: Paulien Bongers (TNO, NL)
Institutes' Directors General

Project Leaders and Project Members

PEROSH Manager International Affairs

Jan Michiel Meeuwsen

Executive Committee

Chair, vice-chair, scientific chair, manager international affairs

Scientific Steering Group

Chair: Mary Trainor (HSL,UK)
Institutes' Scientific Directors

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PARTNERSHIP FOR EUROPEAN RESEARCH IN OCCUPATIONAL SAFETY AND HEALTH

- Who we are…

= Executive Committee

= Coordinator

SC and SSG

Project leaders

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PARTNERSHIP FOR EUROPEAN RESEARCH IN OCCUPATIONAL SAFETY AND HEALTH

PEROSH JOINT RESEARCH PROJECTS- CLOSED

Survey development & cross culture methodolgy

Nanodustiness

Clearing house OSH evidence

Zero accident vision

Ageing workforce

Respiratory protective devices

NANoREG

Occupational respiratory diseases

Click on hyperlinks to access PEROSH website

PEROSH JOINT RESEARCH PROJECTS - ONGOING

- Comparative review physical working conditions in EU surveys
- Dose-Response Relationships
- UV indirect
- FUTURES
- Well being and work
- Procedures to measure physical activity and workload
- Nano Exposure & Contextual Information database (NECID)
- Ambient intelligence for OSH in smart factories

Click on hyperlinks to access PEROSH website

CLEARING HOUSE OSH EVIDENCE

Aim:

To promote the use of evidence through high quality systematic reviews. Done by collecting systematic reviews on occupational health topics and exchanging experiences on any aspect of systematic reviews.

Methods:

In order to assess the quality of the systematic reviews selected from literature searches, a grading system was developed. The OSH Evidence working group took standard checklists used in evidence based medicine and adapted them for usage for systematic reviews in OSH. The checklists used for OSH Evidence are: **R-AMSTAR** and **SIGN**

Results:

The OSH Evidence working group developed a **database** for easy access to systematic reviews on topics in occupational safety and health. The topics were defined as research questions (e.g. „Do occupational risks lead to the carpal tunnel syndrome?“) and the referring systematic reviews were searched and graded according to the quality assessment in the method paper.
Systematic reviews on 27 topics were collected and are presented in the database.

http://www.perosh.eu/research-projects/perosh-projects/occupational-safety-and-health-evidence-clearinghouse/database-of-osh-evidence-systematic-review-clearinghouse/

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CLEARING HOUSE OSH EVIDENCE

OSH EVIDENCE DATABASE of Systematic Reviews

Here you can find answers to your question by type of question (intervention, etiology etc), type of worker involved, type of intervention or exposure or type of outcome involved. By clicking on the number of reviews you get access to the full references and documentation.

	Question	Question Type	Type of workers	Intervention	Exposure	Prog.	Outcome	Reviews
2	What factors predict prognosis of sick leave in workers with musculoskeletal disorders?	Prognosis	Musculoskeletal Disorders			Any	Sick Leave	13 reviews
22	What are the effects of telework on employee's well-being and health?	Etiology	teleworkers		Telework related exposures		Any health problems	2 reviews
23	Do economic incentives prolong the working life of ageing workers?	Intervention	Ageing workers (55+)	Economic incentives			Early retirement	o review
24	Is ventilation effective in reducing nanoparticles?	Intervention	Workplaces with nanoparticles	Ventilation devices			Exposure to nanoparticles	O review
27	To what extent differs the risk of employed persons with a mainly sedentary gainful employment from a mainly non-sedentary gainful employment to suffer from low back pain?	Intervention	Working population with sedentary work	Mainly sedentary gainful employment			Low back pain	5 reviews

PROMOTION OF ZERO ACCIDENT VISION

Aim:

Identify success factors that contribute to accident prevention of ZAV committed companies – including good practices and success stories. Focus on ZAV commitment, Safety communication, Safety culture and Safety learning.

Mixed Methods:

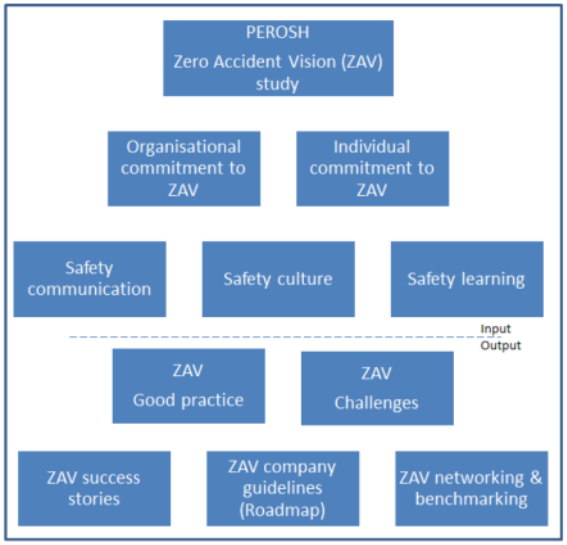
13 Manufacturing 7 Construction 7 Other 30% Managers / supervisors 66% Workers	HSE Team leader worker, etc	NL, FI, DK UK, PL, DE, BE

Results:

Managers answered more positive.

Details are at: http://www.perosh.eu/wp-content/uploads/2017/02/R11506-TNO-Report-DGUV-ZAV-project-617.0-FP-0352-Nov-2015.pdf

GOOD PRACTICES



Commitment:

- Integrate ZAV into the global (safety) policy and strategy
- Create synergies of ZAV with other zero commitments
- Make safety an explicit, positive part of company mission strategy & values
- Formulate and share a few guiding safety principles

Culture:

- Stimulate and empower people to take care of their own safety (responsibility)
- Empower 1st-line managers: visible leadership (examples), safety decisions
- Improve knowledge and skills → responsibility, empowerment
- Make sure people feel free to discuss safety, also with their superiors

NANO EXPOSURE & CONTEXTUAL INFORMATION DATABASE (NECID)

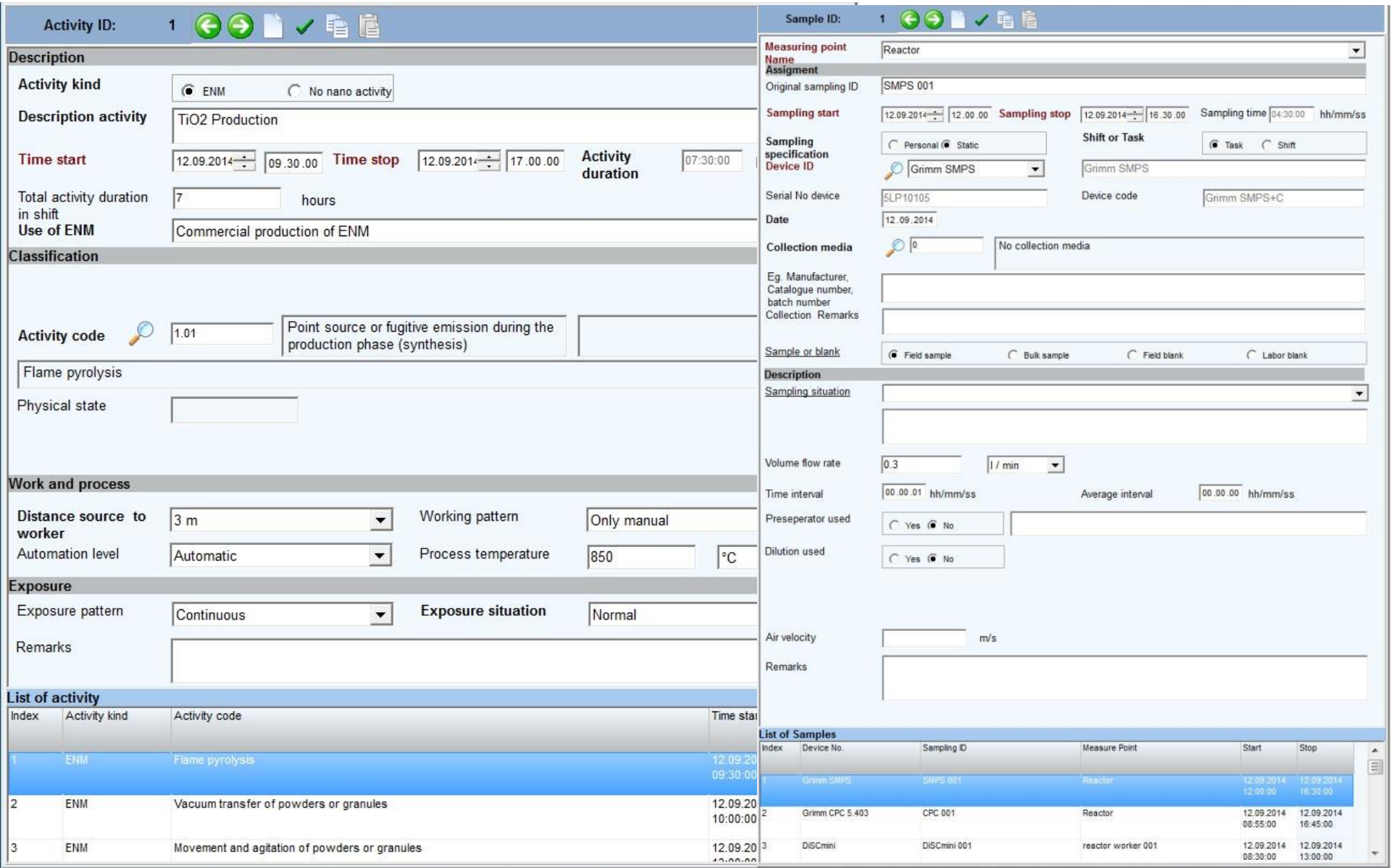
Aim: To establish a database on occupational exposure to manufactured nanoparticles. The goal of the development of an exposure database on nano-objects is to permit the systematic and uniform documentation of operating, exposure and measured data so that they are available for research, exposure modelling and exposure scenario building.

Methods:

A consensus on data collection, analyses, and interpretation was developed. The contents of the database is based on future modelling options, the consistency is checked. The structure of the database depends both on the conditions related to the intended use, e.g. modeling, and the structure of existing (exposure) databases e.g. the IFA –database (MEGA), the INRS database (COLCHIC), the TNO database (STEAMbase), the NIOSH exposure data base etc.

Results: The database provides a general overview of occupational exposure levels of nanomaterials in different exposure situations**,** and

- is a key tool for building exposure scenarios and future exposure modeling**.**
- provides an ideal source of information for risk management, and development of occupational exposure benchmark levels/limits
- contributes to an improved and harmonized quantification of exposures assessment and encourage new measurements.


Activity ID: 1
Description
Activity kind
ENM
No nano activity
Description activity
TiO2 Production
Time start
12.09.2014
09.30.00
Time stop
12.09.2014
17.00.00
Activity duration
07:30:00
Total activity duration in shift
7
hours
Use of ENM
Commercial production of ENM
Classification
Activity code
1.01
Point source or fugitive emission during the production phase (synthesis)
Flame pyrolysis
Physical state
Work and process
Distance source to worker
3 m
Working pattern
Only manual
Automation level
Automatic
Process temperature
850
°C
Exposure
Exposure pattern
Continuous
Exposure situation
Normal
Remarks
List of activity
Index
Activity kind
Activity code
Time sta
1
ENM
Flame pyrolysis
12.09.20 09:30:00
2
ENM
Vacuum transfer of powders or granules
12.09.20 10:00:00
3
ENM
Movement and agitation of powders or granules
12.09.20
Sample ID: 1
Measuring point Name
Reactor
Assigment
Original sampling ID
SMPS 001
Sampling start
12.09.2014
12.00.00
Sampling stop
12.09.2014
16.30.00
Sampling time
04:30:00
hh/mm/ss
Sampling specification
Personal
Static
Shift or Task
Task
Shift
Device ID
Grimm SMPS
Grimm SMPS
Serial No device
5LP10105
Device code
Grimm SMPS+C
Date
12.09.2014
Collection media
0
No collection media
Eg. Manufacturer, Catalogue number, batch number
Collection Remarks
Sample or blank
Field sample
Bulk sample
Field blank
Labor blank
Description
Sampling situation
Volume flow rate
0.3
l / min
Time interval
00.00.01
hh/mm/ss
Average interval
00.00.00
hh/mm/ss
Preseperator used
Yes
No
Dilution used
Yes
No
Air velocity
m/s
Remarks
List of Samples
Index
Device No.
Sampling ID
Measure Point
Start
Stop
1
Grimm SMPS
SMPS 001
Reactor
12.09.2014 12:00:00
12.09.2014 16:30:00
2
Grimm CPC 5.403
CPC 001
Reactor
12.09.2014 08:55:00
12.09.2014 16:45:00
3
DiSCmini
DiSCmini 001
reactor worker 001
12.09.2014 08:30:00
12.09.2014 13:00:00

WELLBEING AND WORK

Aim:

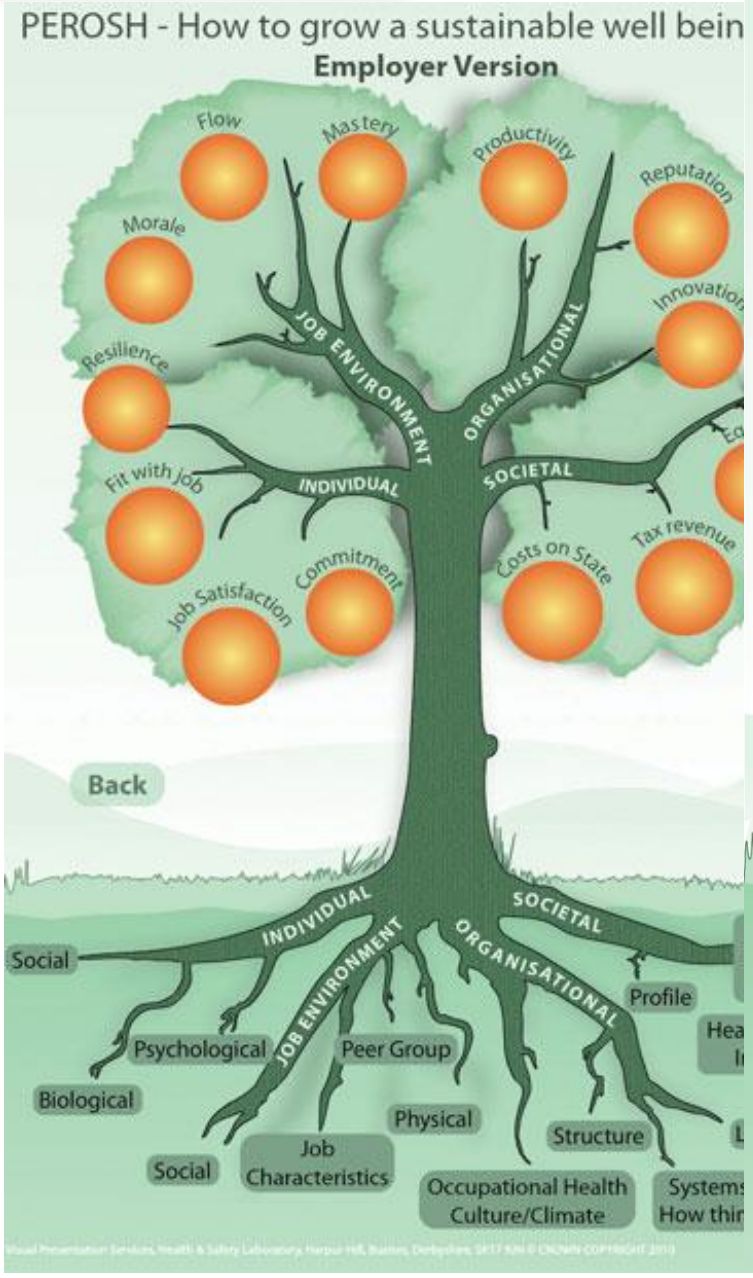
The project aims at developing a common understanding of wellbeing and the drivers for wellbeing research and interventions in the different countries, including the identification of similarities and differences between each country.

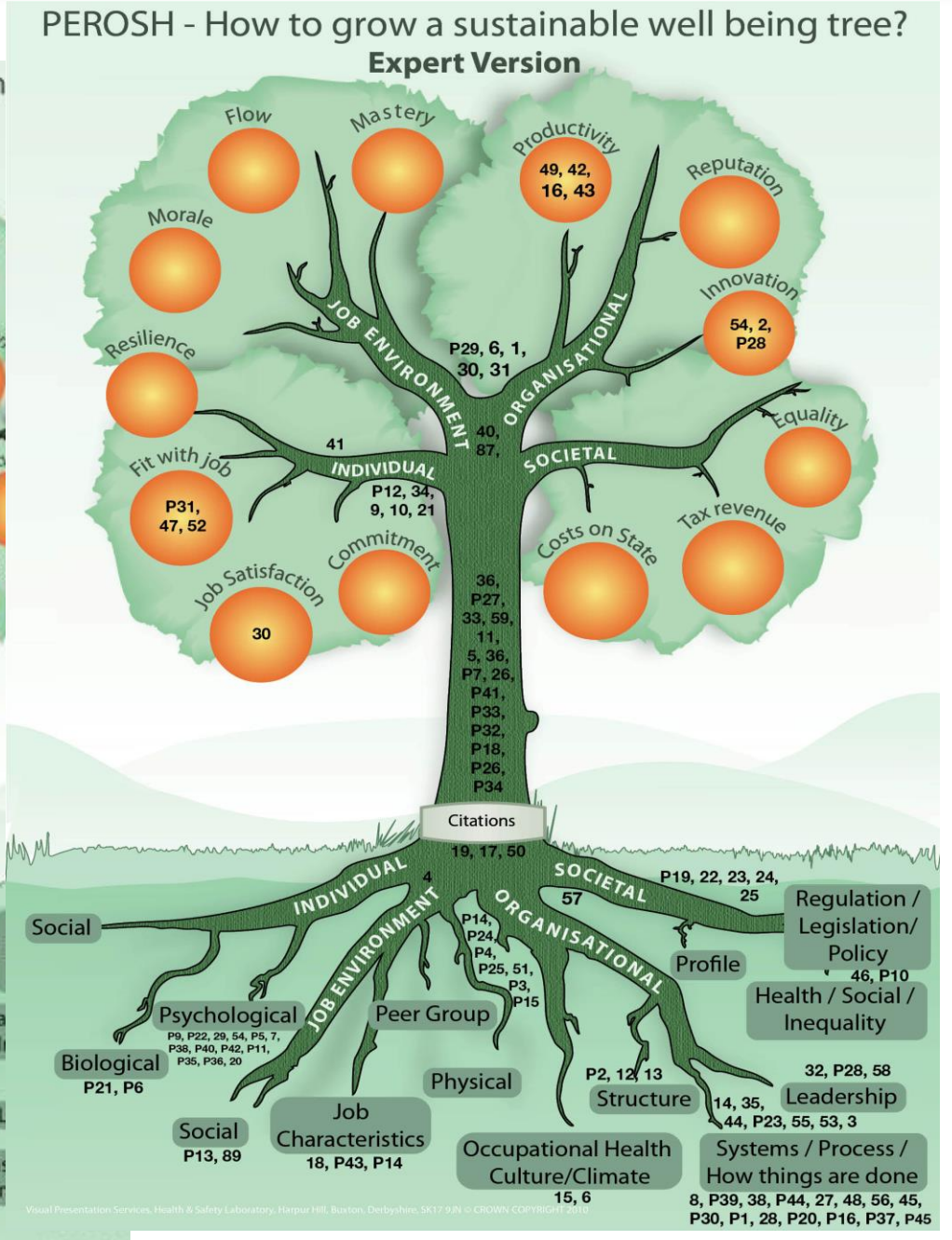
Methods:

In order to develop a consensus view between the PEROSH member institutes in relation to various aspects of well being at work, a Delphi exercise was carried out. An employer-focused ’model’ for understanding well being was developed in order to capture a shared understanding of what wellbeing means. Case studies have also been collated as a way of boosting the business case for wellbeing and the development of an international wellbeing indicator tool.

Results:

One solution might be to find more innovative ways of communicating to employers what wellbeing at work really encompasses, where they should target their efforts, and why it should matter to them. With this in mind, the 'Wellbeing Tree', an interactive tool that helps employers visualize the different factors that feed into workplace wellbeing.
Details are at: http://www.perosh.eu/research-projects/perosh-projects/well-being-and-work/


PEROSH - How to grow a sustainable well bein
Employer Version
Flow
Mastery
Productivity
Reputation
Morale
Innovation
Resilience
JOB ENVIRONMENT
ORGANISATIONAL
Fit with job
INDIVIDUAL
SOCIETAL
Commitment
Costs on State
Tax revenue
Job Satisfaction
Back
INDIVIDUAL
SOCIETAL
Social
JOB ENVIRONMENT
ORGANISATIONAL
Profile
Psychological
Peer Group
Biological
Physical
Structure
Social
Job Characteristics
Occupational Health Culture/Climate


PEROSH - How to grow a sustainable well being tree?
Expert Version
Flow
Mastery
Productivity
49, 42, 16, 43
Reputation
Morale
Innovation
54, 2, P28
Resilience
JOB ENVIRONMENT
ORGANISATIONAL
P29, 6, 1, 30, 31
Equality
Fit with job
41
INDIVIDUAL
40, 87,
SOCIETAL
P31, 47, 52
P12, 34, 9, 10, 21
Tax revenue
Commitment
Costs on State
Job Satisfaction
30
36, P27, 33, 59, 11, 5, 36, P7, 26, P41, P33, P32, P18, P26, P34
Citations
19, 17, 50
INDIVIDUAL
4
SOCIETAL
57
P19, 22, 23, 24, 25
Social
JOB ENVIRONMENT
ORGANISATIONAL
P14, P24, P4, P25, 51, P3, P15
Regulation / Legislation/ Policy
46, P10
Profile
Health / Social / Inequality
Psychological
P9, P22, 29, 54, P5, 7, P38, P40, P42, P11, P35, P36, 20
Peer Group
Biological
P21, P6
Physical
P2, 12, 13
Structure
32, P28, 58
Leadership
14, 35, 44, P23, 55, 53, 3
Social
P13, 89
Job Characteristics
18, P43, P14
Occupational Health Culture/Climate
15, 6
Systems / Process / How things are done
8, P39, 38, P44, 27, 48, 56, 45, P30, P1, 28, P20, P16, P37, P45

PHYSICAL ACTIVITY AND WORKLOAD

Aim:

There is a great need for technical measurement system capable of providing valid information of physical work place exposure or physical activity patterns which later can be applied in larger epidemiological studies.

Methods:

Different technical measurement systems are compared and they are classified. A consensus will be developed on the critical exposure variables and physical activity patterns that needs to be addressed in comprehensive measurement systems and different technical measurement devices and modelling approaches required for an optimal assessment of all relevant exposures or risk factors. Gaps in current technology are identified and the development and validation of identified technological measurement devices and coordinated activities between the research institutes are initiated.

Results:

Comparison or merging of data on validity of physical exposure measurements between the countries (multi-center studies and meta-analysis)

Grant applications for large multi-center studies examining the association between valid (measurement based) physical exposure assessment data and selected health- and work-related outcomes.

http://www.perosh.eu/research-projects/perosh-projects/perosh-recommendations-for-procedures-to-measure-occupational-physical-activity-and-workload/actual-activities-and-infos/

CATEGORISATION MEASUREMENT SYSTEMS

Cat 1	Small commercial systems, easy mounting at one body part (e. g. wrist, hip, ankle), very high wearing comfort.

Cat 2	Commercial functional wear, more complex, but still high wearing comfort

Cat 3	Scientific systems, multi-sensor systems covering all essential body parts

increasing effort, complexity

increasing accuracy

FUTURE OSH TRENDS & RESEARCH AREAS 1

The PEROSH group has identified ***7 key OSH challenges*** to work on (2012 publication):

1. **Sustainable employability** to prolong working life
2. **Disability prevention and reintegration**
3. **Psychosocial well-being** in a sustainable working organisation
4. **Multifactoral genesis of work-related musculoskeletal disorders** (MSDs)
5. **New technologies** as a field of action for OSH
6. Occupational **risks related to engineered nanomaterials**
7. **Safety culture** to prevent occupational accidents

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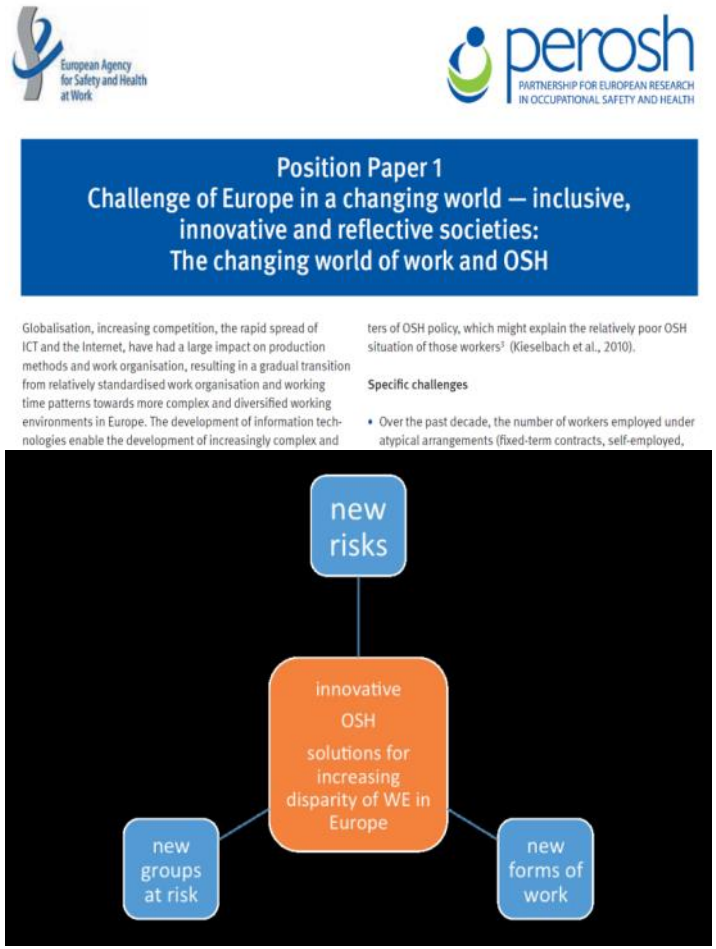
FUTURE OSH TRENDS & RESEARCH AREAS 2

3 position papers to issue future OSH research challenges into European research agenda and programmes (2014):

1. Challenge of Europe in a changing world – inclusive, innovative and reflective societies → **The changing world of OSH.**
2. Leadership in Enabling and Industrial Technologies →**Prevention through design.**
3. Health, Demographic Change and Wellbeing → **OSH in the context of demographic change**.



http://www.perosh.eu/perosh-and-eu-osha-position-papers-launched/

FUTURE OSH TRENDS & RESEARCH AREAS 3

➢ *'Futures' PEROSH collaboration project (2016):*

- **General objective:** provide a shared knowledge framework to define appropriate and reliable forecasting scenarios related to 4 priority areas
- **A forecasting exercise:** modified Delphi technique, based on a **two rounds survey of experts** selected by each participating institute **for each of the four macro-areas**
- **Number experts involved:** 126 across all institutes; Response rate 76,2% (n.96)

Questionnaires	Sent	Returned	%	number of priorities
Q1 - Demographic change - sustainable work for healthier and longer working lives	35	29	82,9	104
Q2 - Globalization and the changing world of work - OSH research contribution to sustainable and inclusive growth	26	20	76,9	72
Q3 - OSH research for safe new technologies as a prerequisite for sustainable growth	32	21	65,6	83
Q4 - Research into new or increasing occupational exposures to chemical and biological agents for the benefit of a smart and sustainable economy	33	26	78,8	101
	126	**96**	**76,2**	**360**

FUTURE OSH TRENDS & RESEARCH AREAS 3

➢ ***FINDINGS of PEROSH 'Futures' collaboration project***

Top ten research topics
Effects of working-time flexibilisation on health, wellbeing and productivity
Impact of prolonged precariousness on health of ageing workforce
Improve risk assessment for workers exposed to nanomaterials
Develop regulations, guidelines and good practices for safe nano handling
Investigate ways and tools to prevent disability and to facilitate RTW
OSH management in new forms of employment (crowdsourcing, zero hours contracts, internships)
Identify potential impacts of work organisation and job design of older workers´ H&S and ways in which these can support individual workers health
Develop standardised sampling and measurement methods for nanos
Understand H&S effects of precarious work and job insecurity
Define OELs for nanomaterials

http://www.perosh.eu/wp-content/uploads/2016/09/FACTSHEET_fin_layout-Rprior-_-4-pag_version2.pdf

SUSTAINABLE WORK IN HORIZON 2020

Together with the **Advocacy Platform for Sustainable Work as a Resource for Health, Innovation and growth in Horizon 2020** we proposed four major research topics:

- **Novel technologies** and sustainable work.
- Workplace **health strategies** for sustainable and inclusive growth.
- Sustainable work and the **increasing work force diversity**.
- **Integrated health and safety concepts** for **large infrastructure projects** and new working environments.

PEROSH SUPPORTS NEW RESEARCH

- PEROSH supported topics for new Working Program (2018-2020) HORIZON 2020 through 8 NCP's
- In general we asked for more attention to work and health in Societal Challenge (SC) 1 and 6
- More specific support under SC 1 was given to:
  - Endocrine disruptors (EDs)
  - Mental health in the workplace
  - The Human Exposome Project: PEROSH argued that in the scope of this topic also the impact of the working environment should be included
- More specific support under SC 6 was given to:
  - Migration, labour market diversity and sustainable work
  - Novel technology and sustainable work

MORE INFORMATION ABOUT PEROSH

- Have a look at what we do ☺
- Email: janmichiel.meeuwsen@perosh.eu

- PEROSH website & newsletter: http://www.perosh.eu
- Social media: Twitter **@Perosh_EU**, LinkedIn group **PEROSH**
- Research challenges publication & position papers:
- http://www.perosh.eu/wp-content/uploads/2013/05/Perosh-Research-Challenges_lowres.pdf
- http://www.perosh.eu/perosh-and-eu-osha-position-papers-launched/