



Algorithmic organisation, direction, and control: how new tools of management affect occupational health

Cesira Urzi Brancati and Maurizio Curtarelli

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and their impact on workers”

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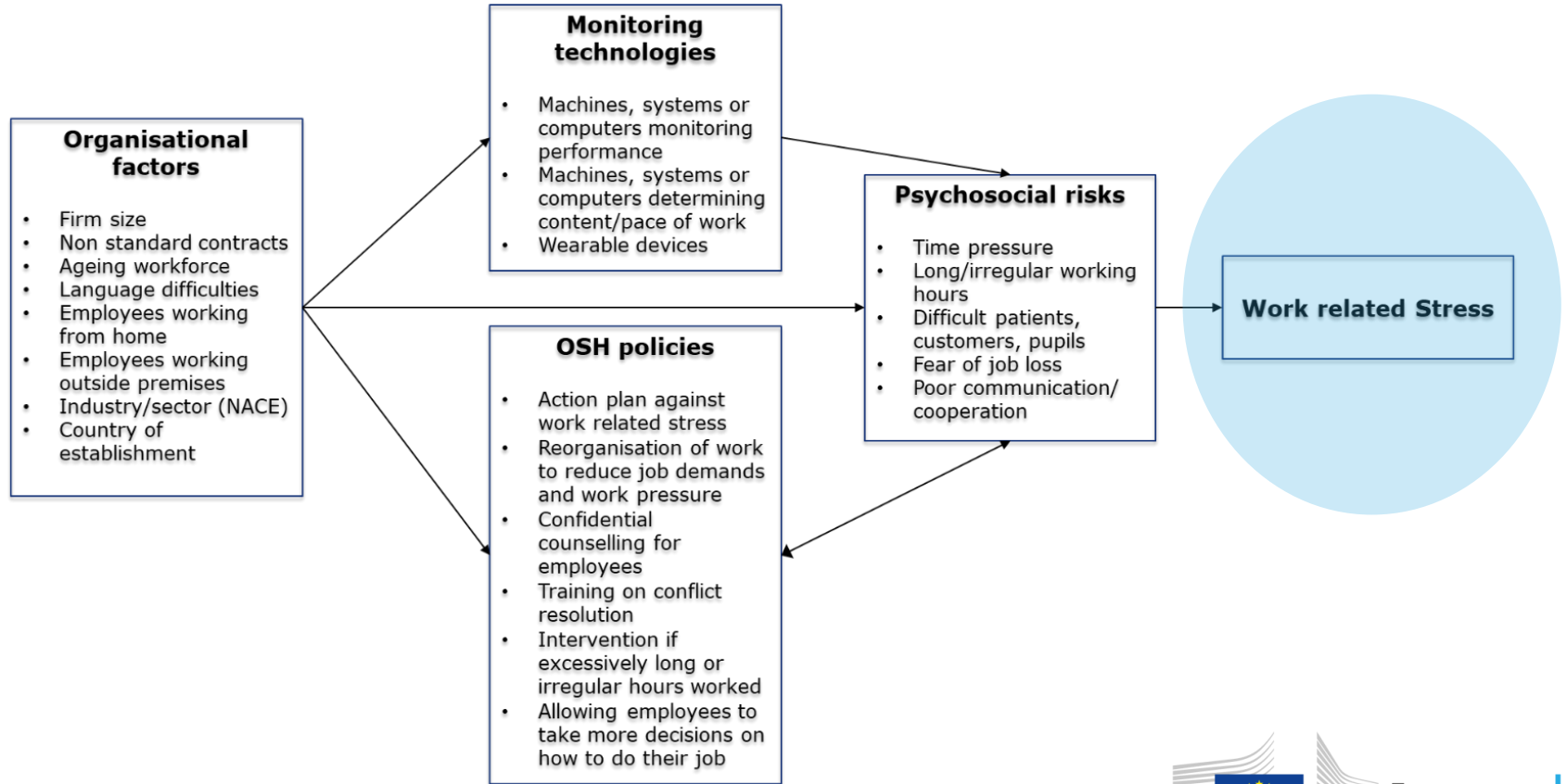
Collaboration between EU-OSHA and JRC

- This study is part of our line of research on the digital revolution and its impact of working conditions, work organisation, job quality
- Employers increasingly using digital systems and technologies to
 - optimise resource allocation
 - improve work processes and procedures
 - support decision-making
 - increase labour productivity
- Technological advances (+ knowledge based economy) have been accompanied by an increased prevalence of psychosocial risks
- Impact of digitalisation on working conditions
 - How do new forms of management enabled by AI and digital technologies (algorithmic management?) affect occupational health and safety?

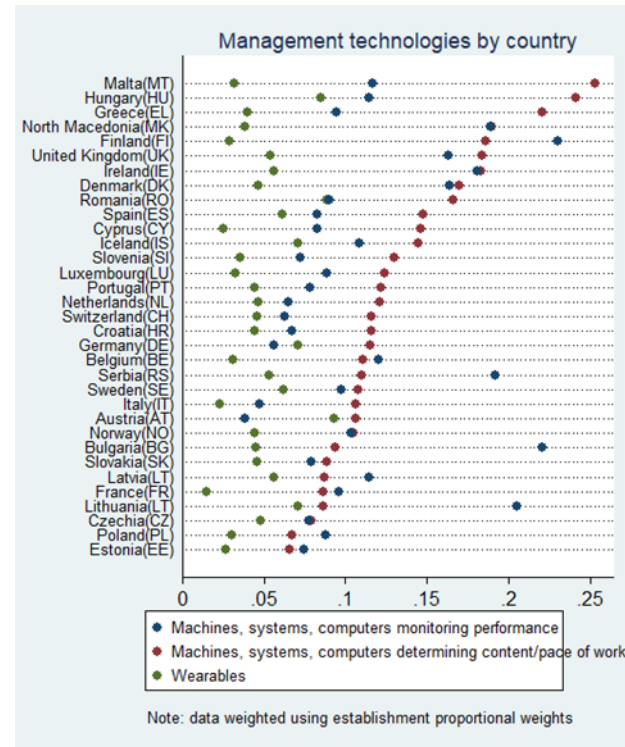
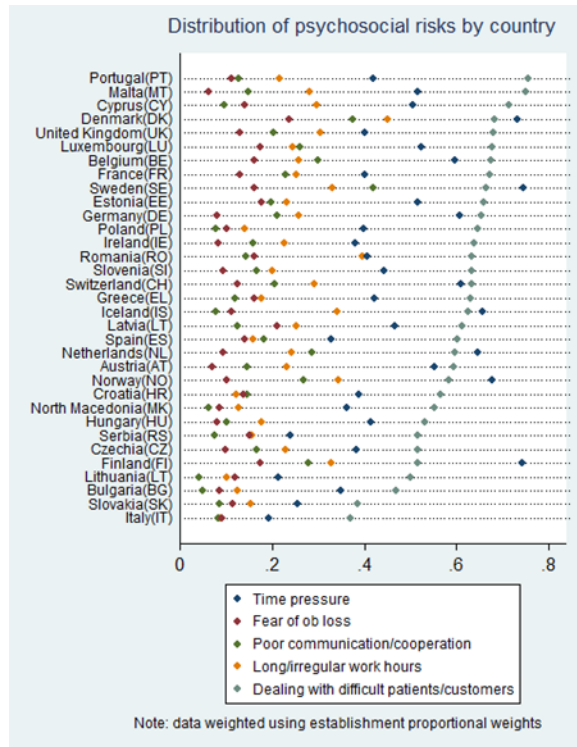
What is our study about?

- Hypothesis tested: the use of selected technologies is associated with increased psychosocial risks
 - by boosting job demands and
 - decreasing workers' autonomy;
- however, we posit that OSH preventive policies in the workplace can mitigate such increased risks
- Original contribution: the analysis is empirical and based on a large representative dataset
 - In addition, many studies are US based and refer to a very specific economic sector

Conceptual Approach



Management technologies/risks by country



Incidence of psychosocial risks by management technology

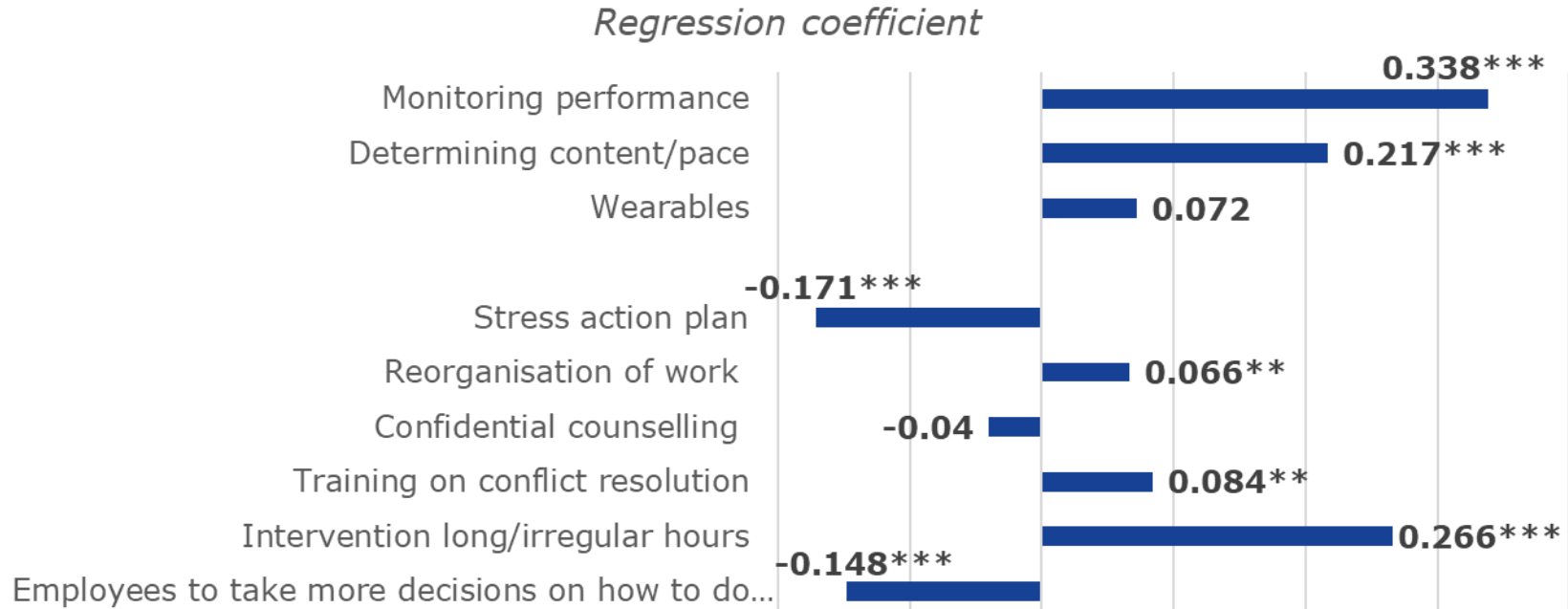
Cumulative PR indicator	Machines, systems, or computers monitoring workers' performance		Machines, systems, or computers determining pace/content of work		Wearables	
	Not present	Present	Not present	Present	Not present	Present
	1.54	2.00	1.54	1.86	1.56	1.92
% of establishments reporting a psychosocial risk						
Time pressure	43.95%	55.08%	43.61%	54.65%	44.46%	55.62%
Fear of job loss	10.62%	18.95%	10.69%	16.10%	11.28%	13.52%
Poor cooperation/communication	17.47%	27.07%	17.38%	25.19%	18.07%	23.85%
Working long/irregular hours	22.29%	30.93%	22.22%	29.10%	22.62%	32.75%
Difficult clients	60.06%	68.72%	60.73%	62.22%	60.59%	67.16%

Incidence of psychosocial risks by OSH preventive measures and policies

% of establishments reporting psychosocial risk

	PR cumulative indicator	Time pressure	Fear of job loss	Poor communication/ cooperation	Long/irregular working hours	Difficult customers, clients etc.
No plan	1.87	54.48%	14.20%	27.37%	27.82%	64.18%
Action plan to prevent stress	1.93	53.83%	15.92%	26.03%	30.90%	67.04%
No reorganisation	1.44	39.34%	11.05%	16.72%	20.81%	56.89%
Reorganisation of work to reduce job pressure	1.76	52.31%	11.83%	20.36%	26.03%	66.15%
No counselling	1.43	40.21%	10.32%	16.31%	20.64%	55.68%
Counselling	1.79	51.55%	12.86%	21.05%	26.60%	68.12%
No conflict resolution	1.45	42.61%	10.16%	16.76%	21.09%	55.07%
Conflict resolution training	1.82	49.54%	13.56%	21.23%	26.88%	71.50%
No intervention	1.41	39.60%	10.93%	16.41%	16.84%	58.12%
Intervention long working hours	1.95	56.98%	12.42%	22.48%	37.21%	66.87%
Not allowing employees	1.46	40.88%	12.03%	19.16%	20.70%	54.12%
Allowing employees to take more decisions	1.63	46.69%	11.09%	17.91%	24.21%	63.88%

Summary of results from econometric analysis



Summary of results (Cont'd)

- Management technologies are associated with an increase in psychosocial risks
 - The relationship is stronger/larger for technologies monitoring performance
 - Weaker for wearables
- The presence of an action plan to prevent work-related stress is associated with a decrease in psychosocial risks
- ... but we found no evidence of a mitigating effect – in other words, psychosocial risks are higher in establishments with management technologies regardless of an action plan to prevent stress

Some tentative conclusions

- Empirical findings along the same lines as qualitative studies
 - management technologies are associated with higher psychosocial risks
- OSH preventive measures such as having an action plan to reduce stress are probably too generic to deal with risks related to digitisation
- We need more granular data!

Thank you!

cesira.URZI-BRANCATI@ec.europa.eu