

Digital Technologies, Generative AI and Worker Well-being in Europe

Evidence from the European Working Conditions Surveys, 2015 and 2024

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6 October 2026



THE PREMISE

Working life is the main channel through which digitalisation reaches general well-being.

For most adults, the workplace is where these technologies are met.
Whatever they do to the daily texture of work is likely to carry through to quality of life.

So the question is not only whether AI takes jobs: it is also what using it does to the jobs that people keep.

The expected direction is not obvious

AUGMENTATION

Tools absorb the drudgery

- Routine work taken over
- Discretion widens
- Pressure eases

Use should track better conditions

INTENSIFICATION

The same tools raise the pace

- Work speeds up
- Availability extends
- Rest boundary erodes

Use should track a deterioration

Eurofound's research suggests both forces operate; the balance depends on how the technology is embedded in work organisation.

European Working Conditions Survey, 2015 and 2024

80,494

workers pooled across two waves, 35 countries

2

exposures: intensive device use, and generative AI in 2024

WHO-5

well-being, plus health, strain and working-condition items

Specification. Weighted OLS, standard errors clustered by country, fixed effects for country, two-digit sector and two-digit occupation, controls for sex, age band and education.

Built in steps. Rather than one preferred model, the specification is assembled block by block, so it is visible which one absorbs an association.

Reading the estimates. Each coefficient is the gap between users and comparable non-users: in WHO-5 points (0 to 100) for well-being, and in standard deviations of the outcome for all other measures.

HOW FAR DIGITAL WORK HAS SPREAD

From a minority experience to half the workforce

Work with devices all or almost all of the time

29.7% → 49.2%

2015 to 2024

Never work with devices

37.0% → 26.0%

a fall of eleven points

By 2024 the digital infrastructure that generative AI presupposes was already in place for most European workers. Around 12% report using generative AI in work in 2024 (EWCS); in 2025 they were 15.5% (Eurostat ICT survey), and in 2026 they rose to 25% (ECFIN BCS).

EWCS 2015 and 2024, weighted

UNEVEN ARRIVAL

Growth in intensive digital work, 2015 to 2024

FASTEST



SLOWEST



The digital transformation of work is not arriving everywhere at the same rate.

Change in the share of workers in intensive digital work, percentage points

FINDING 1

Device use and well-being: a precise null

Specification	2015	2024
Unconditional	0.372	0.366
+ country	0.490	0.590
+ demographics	0.117	0.489
+ sector	0.013	0.324
+ occupation	-0.740	0.252

Nothing to absorb

The association is already absent unconditionally. This is neither confounding nor over-control.

The 2024 interval runs from -0.87 to +1.38 points, ruling out associations above roughly **0.07 SD** either way.

Across 80,000 workers and two waves nine years apart, that bounded null is itself informative, given how widely digitalisation is assumed to impact mental health.

Gap in WHO-5 points (0 to 100) between intensive device users and other workers. Controls added cumulatively. No estimate is statistically significant.

FINDING 2

Generative AI behaves the other way round

Specification	Generative AI use
Unconditional	-0.660
+ country	-0.020
+ demographics	-0.902*
+ sector	-0.886*
+ occupation	-1.169**

Suppression rather than confounding

The coefficient **grows** as controls are added: null at first, significant once occupational advantage is netted out.

AI users sit in advantaged positions, and that advantage masks the association.

Compared with similar workers in the same detailed occupation, they report lower well-being.

Gap in WHO-5 points (0 to 100) between generative AI users and non-users, EWCS 2024. Grey figures are not significant. * $p < 0.05$, ** $p < 0.01$.

The five WHO-5 items, for both technologies

WHO-5 item	Intensive device use	Generative AI use
Cheerful	0.036	-0.033
Calm and relaxed	0.011	-0.092**
Active and vigorous	0.007	-0.079**
Rested	-0.014	-0.049
Engaged	0.077**	-0.039

Mirror images

Device use: nothing on any item except a positive association with engagement.

Generative AI: lower scores on calm and on active, which points to agitation and depletion and not to low mood.

Gap between users and non-users in points on each item (scale 0 to 5, higher is better). EWCS 2024, both technologies in the same model. Grey figures are not significant. ** p<0.01.

FINDING 3

Strain is real, and it has weakened

Intensive device use	2015	2024
More stress	0.200***	0.172***
More headaches, eyestrain	0.187***	0.108***
More anxiety	0.103***	0.088**
More difficulty sleeping	0.075**	0.048**
More working while sick	0.110***	n.s.
More emotional exhaustion	n.a.	0.117***
More physical exhaustion	n.s.	n.s.
Higher engagement	n.s.	0.067**

Every strain association observed in both waves is smaller in 2024

An engagement premium appears where there was none.

Two readings the data cannot separate: either the exposed group has broadened or changed composition, or the practice has matured.

The WHO index does not move, but **work specific strain** does.

Gap between intensive users and comparable workers, in standard deviations of each outcome. n.a.: not asked in 2015. ** p<0.01, *** p<0.001.

Cognitive and emotional load up, physical load down

Generative AI use, 2024	Gap, in SD
More stress	0.085+
More headaches, eyestrain	0.096**
More anxiety	0.088***
More difficulty sleeping	n.s.
More working while sick	0.141***
More emotional exhaustion	0.082**
More physical exhaustion	-0.069+
Higher engagement	n.s.

The burden shifts

Physical exhaustion is the only health outcome moving in a favourable direction.

Unlike general digital work, AI carries **no engagement premium**.

Stress and physical exhaustion are significant at 10% only.

Gap between AI users and comparable non-users, in standard deviations of each outcome. + p<0.10, ** p<0.01, *** p<0.001.

Device use: richer work, and more intense work

MORE INTENSITY

Works in free time to meet demands	0.120***
Works to tight deadlines	0.255***
Under 11 hours between working days	0.046
Works at very high speed	0.174***
Lacks enough time to do the job	0.041

RICHER TASK CONTENT

Can change methods of work	0.162***
Can change order of tasks	0.232***
Carries out complex tasks	0.235***
Can change speed of work	0.161***
Learning new things	0.194***

Intensive device users report more discretion, complexity and learning, together with tighter deadlines and higher speed. The associations with short rest and with lacking time are **not significant**.

Gap between intensive device users and comparable workers, in standard deviations of each outcome, signed to the direction named. EWCS 2024. Grey figures are not significant. *** $p < 0.001$.

Both accounts are true, of the same workers

MORE INTENSITY

Works in free time to meet demands	0.302***
Works to tight deadlines	0.226***
Under 11 hours between working days	0.195***
Works at very high speed	0.145***
Lacks enough time to do the job	0.099**

RICHER TASK CONTENT

Can change methods of work	0.234***
Can change order of tasks	0.226***
Carries out complex tasks	0.198***
Can change speed of work	0.142***
Learning new things	0.121***

Eurofound's **autonomy paradox**: discretion becomes a liability when it comes with heavy workload and constant availability. The time saved is absorbed back into output, not returned to the worker.

Gap between generative AI users and comparable non-users, in standard deviations of each outcome, signed to the direction named. ** p<0.01, *** p<0.001.

WHO CARRIES IT

The well-being penalty is concentrated among women

Women

−2.127***

WHO-5 points, significant

Men

−0.373

not distinguishable from zero

Interaction

−1.968*

significant at 5%

This meets a documented asymmetry in uptake: women are **less likely to adopt** these tools, and among those who do, report lower well-being than comparable men in the same detailed occupation and sector.

Sex, age band and occupation were all tested. Only sex shows a significant difference; occupation could not be estimated reliably. * $p < 0.05$, *** $p < 0.001$.

HOW MUCH WOULD IT TAKE TO OVERTURN THIS?

Sensitivity to unobserved confounding

Specification	Est.	t	Robustness value
Well-being, all	-1.169	-3.34	0.017
Well-being, women	-2.127	-3.96	0.029
Well-being, men	-0.373	-0.79	0.006
More working while sick	0.141	8.08	0.043
Works in free time	0.302	19.06	0.096
Works to tight deadlines	0.226	13.27	0.068
Under 11 hours rest	0.195	11.27	0.058
Can change methods	0.234	11.86	0.061

The diagnostic behaves sensibly

Robustness values track the strength of each association, and the case with nothing to explain returns essentially zero.

The working conditions results are the hardest to overturn, with free time work at **0.096**.

These thresholds are modest. I claim the estimates are **secure against measurable confounding**.

Cinelli and Hazlett (2020). The robustness value is the share of residual variation an omitted variable would need to explain in both exposure and outcome. Same models and estimates as on the earlier slides. Standard errors are not clustered here, as the method requires.

Three things to take away

- 1** **Aggregate well-being indices might not be the best instrument**
Digital work carries strain and engagement in roughly offsetting measure, and the composite records neither.
- 2** **Strain from digital work has weakened as it spread**
Every strain association is smaller in 2024 than in 2015, which complicates the assumption of the effects of wider digitalisation.
- 3** **Generative AI does not yet follow that path**
Its risk lies less in what it does to the content of jobs than in the pace at which those jobs are then expected to be done.

Cross-sectional data, a piloted AI measure, and one comparable digital item across waves.

Thank you!

DATA

European Working Conditions
Survey, 2015 and 2024 waves

BUILDS ON

Eurofound 2019, 2020, 2023 ·
Brynjolfsson, Li and Raymond 2025 ·
Henseke 2026

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