The Future of Work

The impact of AI on job quantity & job quality

Dr Lisa Wilson, Senior Economist, NERI

FIRST EUROPEAN ROUND TABLE

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ARTIFICIAL INTELLIGENCE (AI) AND EMPLOYMENT – THE IRISH EXPERIENCE

Overview

- Many reports highlight risk of job loss, job creation and increasingly job change.

- Debate largely focused on providing an indication of future impact, based on old (untimely) data.

- Need to examine not just the impact of AI for job quantity, but also job quality.

Frey & Osborne (2013): Occupation-Level Analysis
- Predicted 47% of U.S. jobs at risk of automation.
- Focused on occupations and the technological feasibility of automating entire jobs.
- Laid the groundwork for a task-based approach but centred on whole jobs.

Autor, Levy, & Murnane (2003): Task-Based Approach
Jobs are made up of tasks, not just roles.
- Classified tasks into:
  - Routine tasks: Automatable, repetitive, rule-based.
  - Non-routine tasks: Require problem-solving, creativity, and social skills.
- Technological change impacts tasks differently - automation targets routine tasks, while non-routine tasks are complemented by AI.

Felten & Pizzinelli: Task-Level Analysis
- Refined Frey & Osborne by focusing on specific tasks within jobs.
- Emphasises exposure and human-machine complementarity: AI augments tasks rather than replaces entire jobs.
- Showed redistribution of tasks, not full job elimination.
- Considered social, economic, and policy factors that influence automation.

Impact of AI for labour market: We don't know!

"Point-in-time" Assessments
Most predictions are snapshots, based on current data and assumptions about technological capabilities and economic structures.
Forecasts on job displacement vary significantly across reports.

•Data Limitations
•Available data can't capture all aspects of AI's future impact - especially its indirect effects on employment and job creation.
•AI adoption is uneven across industries and regions, making it hard to generalise.
•Timely/Longitudinal data on AI's effects on jobs and work conditions is scarce.
•Few studies capture how AI is being implemented in worker's current job.

•Rapid Evolution of Technology
•AI is advancing at a pace that outstrips our ability to measure its effects.
•Uncertain how long it will take for certain technologies (like fully autonomous vehicles) to be widely adopted.

•No Clear Timeframe
•Difficult to pin down when exactly AI's full impact will unfold—next 5, 10, or 20 years?
•The pace of technological integration varies across sectors and economies.

2017

WILL ROBOTS TAKE MY JOB? ARTIFICIAL INTELLIGENCE AND UNEMPLOYMENT

By Jose Ferreira / 12 Min read

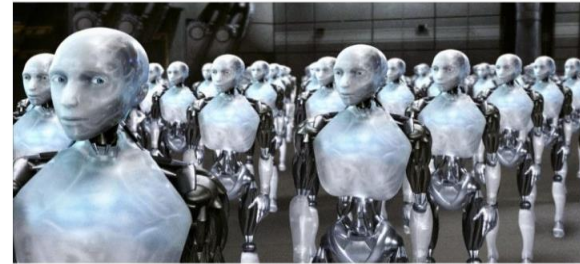Will robots take your job? Humans ignore the coming AI revolution at their peril.

Artificial intelligence aims to replace the human mind, not simply make industry more efficient.

Feb. 7, 2018 / 2:44 PM GMT / Updated Feb. 7, 2018 / 2:44 PM GMT

These are the 20 jobs most likely to be taken over by robots

Is yours one of them?

May 30th 2015, 10:00 PM   41,658 Views   82 Comments

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MACHINES ARE ONLY getting

Robot automation will 'take 800 million jobs by 2030' - report

29 November 2017   f   Share

Richer countries will see more automation since they have the cash to invest in technology

GETTY IMAGES

Robots will take our jobs. We'd better plan now, before it's too late
Larry Elliott

The opening of the Amazon Go store in Seattle brings us one step closer to the end of work as we know it

Will robots bring about the end of work?

Automation looks set to replace many jobs in the next few decades. What work will be left for humans to do?

2024

How GenAI will impact the labor market

GenAI will reshape job roles, enhance productivity and usher in new opportunities, turning fears of redundancy into prospects of growth.

by Gregory Daco
EY-Parthenon Chief Economist,
Strategy and Transactions, Ernst
& Young LLP

AI

Articles | 📅 21 March 2024 | 🕐 12 min read

Inga Fechner
Senior Economist, Germany, Global Trade

Charlotte de Montpellier
Senior Economist, France and Switzerland

AI will fundamentally transform the job market but the risk of mass unemployment is low

AI has the potential to radically transform the labour market, impacting workers of all skill levels in a wide variety of companies and sectors. Some jobs will inevitably become obsolete. Yet we don't expect AI to lead to mass unemployment

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MIT Technology Review

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People are worried that AI will take everyone's jobs. We've been here before.

In a 1938 article, MIT's president argued that technical progress didn't mean fewer jobs. He's still right.
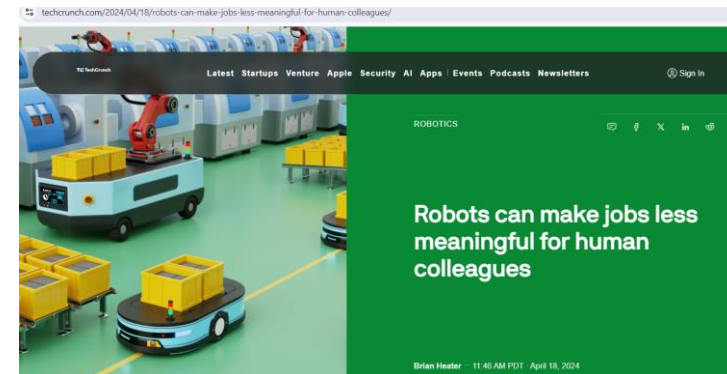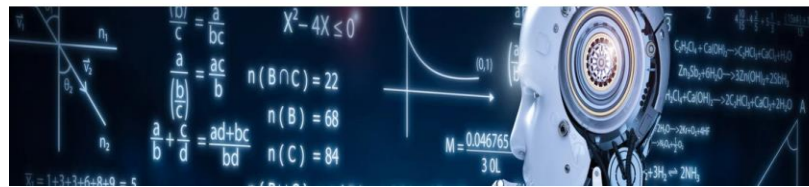
By David Rotman

January 27, 2024

Credit: X-poser/Adobe Stock

imf.org/en/Blogs/Articles/2024/01/14/ai-will-transform-the-global-economy-lets-make-sure-it-benefits-humanity

WORLD ECONOMIC FORUM

Artificial intelligence

AI Will Transform the Global Economy. Let's Make Sure It Benefits Humanity.

ENGLISH ⌄

AI will affect almost 40 percent of jobs around the world, replacing some and complementing others. We need a careful balance of policies to tap its potential

FOURTH INDUSTRIAL REVOLUTION

Why AI will not lead to a world without work

Aug 15, 2024

techcrunch.com/2024/04/18/robots-can-make-jobs-less-meaningful-for-human-colleagues/

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ROBOTICS

Robots can make jobs less meaningful for human colleagues

Brian Heater | 11:46 AM PDT · April 18, 2024

AI & the Irish labour market

- DoF & DETE Reports (2024):

- Focus: Recent reports estimate Irish occupations' relative exposure to AI and assess whether AI will have a complementary (positive) or substitution (negative) effect on employment.

- Task-Level Impact: AI can fully automate some tasks, while in other cases, it can assist workers, augmenting human capabilities and productivity.

- Categories of Occupations (Based on AI Exposure and Complementarity):
  - High Exposure, High Complementarity
  - High Exposure, Low Complementarity
  - Low Exposure, High Complementarity
  - Low Exposure, Low Complementarity

  Occupations with high exposure but high complementarity to AI have the most potential to benefit from AI.

  Conversely, those with high exposure but low complementarity are most at risk of technological displacement.

AI & the Irish labour market

63% of Irish jobs are exposed to AI, higher than the average for advanced economies (60%):

33% of high-exposure jobs are in areas where AI complements labour

30% of high-exposure jobs face the risk of AI substitution.

Demographic Insights:

Gender Impact: 76% of females work in highly exposed roles vs. 51% of males, with more women in roles most at risk of disruption.

Broad occupational impact: Managers and professionals are highly exposed but generally benefit from AI complementarity. Admin & Secretarial occupations and Sales and customer service occupations – high exposed, low complementarity.

Sectoral Variation: Most exposed: Financial and Insurance, Information and Communication sectors.

Least exposed: Agriculture, Forestry, and Fishing.

Regional and Age Differences: Urban workers are more exposed to AI than rural workers.

Younger workers are more exposed than older workers, with the latter less likely to engage in lifelong learning.

Job Quality in Ireland

- Existing Gaps in Understanding Job Quality:
- Even without AI, we don't take seriously the issue of job quality at a policy level.
- The **multifaceted nature of job quality** (e.g., security, skills, conditions, progression) means we need more detailed, occupation-specific research.
- The UCD Working in Ireland Survey (WIIS), 2021
- A nationally representative sample of 2,076 people of working age in paid employment across the country.
- Survey conducted between May and August 2021.
- Data weighted for age, gender, region and economic sector to agree with the then most recent population estimates as derived from the Labour Force Survey (Q1 2021).

Measuring Job Quality

Measures of earnings and job satisfaction (JS) widely used by economists as proxy or surrogate indicators of JQ

Limited and problematic. JS - shaped by adaptive preferences, personal expectations, societal norms and points of reference

A bad job may be willingly accepted by its incumbents, and they may even report high levels of job satisfaction and they may even be more likely to report being satisfied if alternative is even worse again.
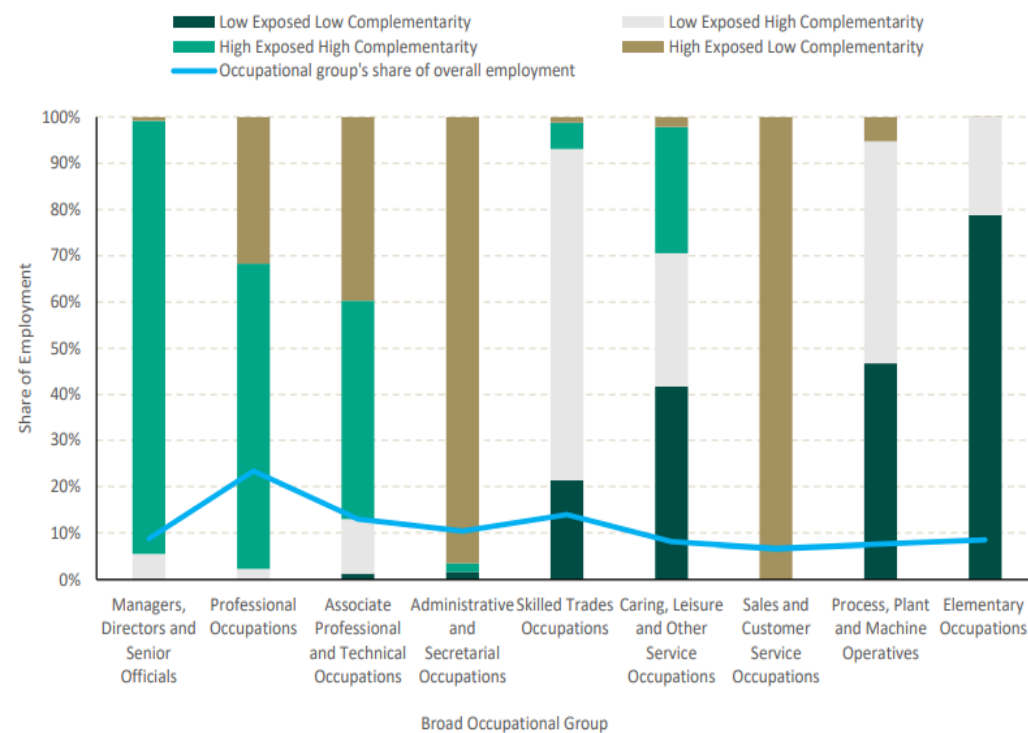
Tells us little of objective features and quality of jobs and renders comparisons across occupations, companies, sectors, and countries, as well as over time particularly difficult and problematic

Table 7: Dashboard summary of job quality scores by sub-dimension based on exposure to particular demands (D) and the availability (R).

Job Dimension	Sub-dimensions	%		%
Earnings & pecuniary benfits	Low earnings (D)	24.3	Poor additional renumeration benefits (D)	24.6
Security & prospects	Insecure work (D)	22.2	Anxious about future prospects (D)	18.8
Work-life balance	Long working hours (D)	14.9	Long working weeks (D)	7.7
	Lacks work life flexibility (D)	9.8	Experiences work into life spillage/conflict (D)	10.5
Work organisation	Has autonomy over work/work tasks (R)	86.9	High support from line manager/ organisation (R)	69.7
	Support from trade union (R)	44.9	Highly intensive work effort (D)	9.3
Skills & training	Substantial on-/off-the job training (R)	14.3	High skill utilisation and development (R)	67.6

	Occupation	Managerial, Professional & Associate Professional	Administrative and secretarial	Skilled trades	Caring, leisure and other service	Sales and customer service	Process, plant and machine operatives	Elementary
Earnings & Renumeration	Below €20000	12.7	12.7	29.5	56.2	53.6	25	61.7
	Low additional renumeration benefits	14	9.2	52.1	40.9	32	40.1	45.5
Security & Prospects	Insecure work	16.6	10.4	32.9	33.6	28.7	34.8	33.8
	Anxious about future prospects	17.2	14.3	18.4	24.7	23.1	16.2	23.5
Work-Life Balance	Long working hours	16.3	5.9	22.5	8.2	4.2	19.6	8.1
	Long working weeks	3.8	1.5	19.7	12.7	2.8	20.1	7.4
	Lacks work life flexibility	8.2	7.4	5.2	23.6	12.6	14.1	14.2
	Experiences work into life spillage/ conflict	12.3	9.2	12.2	10.8	7.9	6.9	5.8
Work organisation	Work organisation	91.1	93.2	84.2	77.2	83.9	79.6	76.8
	Highly intensive work effort	11.7	7.9	4.6	11.8	6.3	5.4	8.8
	High support from management/ organisation	71	73.4	73.1	60.2	67.2	69.6	60.5
	Trade union representation	49.2	54.9	36.6	45.8	31.6	39.1	31.3
Skills and Training	High skill utilisation and development	66	64.8	79.7	83.1	63.4	75	61.4
	Substantial on-or-off job training	17.2	13.6	14.6	13.5	10.1	10	7.8

Figure 4: AI exposure and complementarity across broad occupational groups

DoF & DETE (2024) https://www.gov.ie/pdf/?file=https://assets.gov.ie/295622/15f016e5-357a-485e-b4c0-4cf94e9c96cc.pdf#page=nullE
https://www.gov.ie/pdf/?file=https://assets.gov.ie/295622/15f016e5-357a-485e-b4c0-4cf94e9c96cc.pdf#page=null

We need 'more work about work'

Existing research often overlooks how AI will affect key aspects of job quality, such as:
• Earnings & Renumeration
• Job security & Prospects
• Work Life Balance
• Work organisation
• Skills and training

•There is a lack of comprehensive data on how AI interacts with these factors.

• Need more focused research on job quality in the context of AI.
•This includes exploring the broader implications of AI adoption on worker health & well-being.