

# **THE IMPACT OF ARTIFICIAL INTELLIGENCE (AI) ON THE LABOUR MARKETS**

## **Implications for skills**

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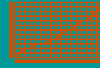
# WORLD

Concentration of wealth



Fragmented globalisation & Trade tensions

Slowing economic growth



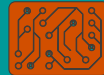
Several regional wars

Growing services economy



Population growth & Migration

Rising network economy



Environmental challenges & sustainability

# ECONOMY

# GLOBAL MEGATRENDS

# PEOPLE & SOCIETY

Engineering advances



An ageing world

Greater interconnectedness



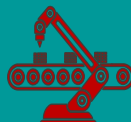
Individualisation & empowerment

Biotech revolution



Focus on health & longevity

Diffusing AI & Automation



Urbanisation

# TECHNOLOGY/ SCIENCE

# Digitalisation and automation before AI

- **Over half-century of digitalisation** since 1970s, leading to the gradual automation of **routine manual** and **routine cognitive** tasks
- Often in **manufacturing jobs** in factories, **administrative jobs** in offices, mostly affecting **medium-skilled workers** with upper secondary education
- **Dramatic growth in high-skilled jobs** for the application of new technologies: e.g. data processing, digital services, robotics, STEM, management
- **Rising demand for low-skilled personal services jobs**, increasing the number of low-paid positions

→ **Shrinking ‘Middle’**: increasing **job polarisation** and **income inequality**

# What distinguishes AI from other technologies?

## Key components of AI

- **Learning algorithms and models**
  - **The Big Data** for model training
  - **The computational power** to process data
- **AI is a diverse set of technologies:** not a single system
  - **AI extends automation to non-routine cognitive tasks** challenging traditional automation models
  - **Algorithms are non-rival:** reusable at scale, enabling winner-takes-all dynamics
  - **AI impacts are context-dependent,** shaped by institutional & regulatory frameworks
  - **AI is still at an early stage,** with long-term effects not yet fully observable
  - **AI may be a general-purpose technology,** comparable to computing, electrification and the steam engine

# Who are being affected most by AI

Highly skilled  
white-collar  
professions,  
typically requiring  
many years of  
tertiary education

## Most exposed occupations

- Engineering occupations
- IT technology/ software professionals
- Banking, insurance, auditors
- Physics/ mathematics/ data sciences
- Chief executives/ business professionals
- Life sciences (e.g. medicine, biology, zoology)
- Legal professions
- Social scientists / researchers
- Authors, writers, printing, translators
- Creative industry (e.g. graphic designers)
- Marketing, communication & public relations
- Clerical/ office/ secretarial workers
- Plant and system operators
- Transportation workers
- Customer services, wholesale/ retail workers

## Less exposed occupations

- Cooks
- Helpers/ cleaners
- Care workers
- Food/ beverage service workers
- Food preparation workers
- Agricultural, forestry and fishery workers
- Elementary occupations
- Trade workers
- Construction trades
- Labourers

# Observation 1: AI destroying entry-level jobs

- AI performs well **low-complexity tasks**, which are exactly what entry-level workers do
- **Generative AI excels** at reading, synthesising, searching, and content creation
- **Research, analysis, reporting** can now be handled by fewer staff using AI
  - ✓ Firms reduce hiring in junior roles (e.g. developers, paralegals, analysts)
  - ✓ Basic customer services are increasingly automated through AI chatbots
- **Traditional entry pathways are weakening**, limiting opportunities for graduates to build skills through junior positions

**Overall employment numbers have not been affected so far, but jury is still out!**

# Observation 2: AI augmenting workers' skills

- **AI extends human expertise** by augmenting cognitive capabilities (so-called 'cognitive extension')
- **Lower-skilled and novice workers benefit most** from AI tools, with the largest quality gains
- **AI narrows performance gaps**, enabling less-skilled workers to work faster and at higher quality
  - ✓ Average writers could produce text 40% faster and at better quality with Generative AI
  - ✓ Novice and low-skilled workers in customer service are 15% more productive
  - ✓ Programmers can develop software 56% faster with GitHub Copilot

**AI can lift vocational/ medium-skilled jobs** by complementing human expertise in higher-value roles, and drive the **democratisation of expertise**

# AI's impact on the working conditions

- **AI tools increase workplace monitoring and surveillance** (datafication of workplace)
- **Algorithmic management expands beyond platforms into traditional workplaces** (platformisation of work)
- **Job quality effects are mixed**, affecting intensity, autonomy, skill use, performance monitoring, collaboration, career prospects
- **Impact differs by skill level**: productivity gains for high-skilled workers, work intensification and reduced autonomy for low-skilled workers
- **AI often raises work intensity** by shifting human tasks toward greater cognitive and emotional demands

# Between Empowerment and Surveillance

AI systems can empower or overwhelm workers depending on how they are used

**Support** decision-making with real-time insights

Reduce **uncertainty** with better workload forecasting

Higher satisfaction for workers who **experience** AI as a supportive tool

**Performance Tool**

*Enables better task tracking, feedback, and productivity analysis*



**Control Mechanism**

*Used for surveillance, behaviour monitoring, and performance ranking*

Limit freedom through **rigid** task allocation and tracking

Increases performance **pressure** and sense of constant monitoring

Lower satisfaction where AI is perceived as **punitive** or opaque

Effects are not fixed, but constantly negotiated in the context of organisational factors and management choices

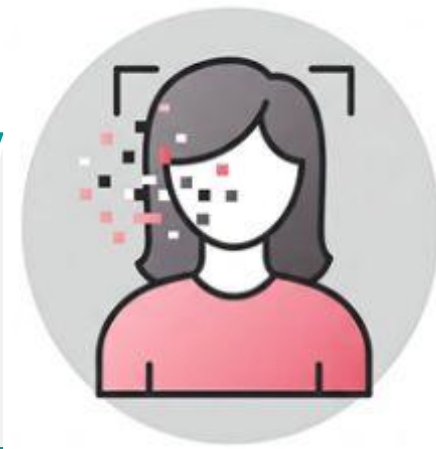
# AI for inclusive employment

- **AI developers lack diversity** in terms of gender, race, socio-economic background, country
- **Training data often reflect historical biases**, risking discrimination in recruitment, performance management, promotion, and dismissal
- **AI benefits are unevenly distributed** by age, gender, education, and occupation: young, highly educated men gain most, particularly in higher-income roles
- **Risks concentrate on older and low-educated workers** with limited digital skills: women, persons with disabilities, and marginalised populations face higher vulnerability

## An emerging 'AI divide' similar to digital divide?

- ✓ AI can break barriers and empower persons with disabilities
- ✓ AI translators can enhance accessibility for migrants
- ✓ AI-enhanced recruitment can find unconventional talent through skill-based profiling

# Vicious cycle of digital & AI gender inequality



- **Women remain underrepresented in STEM education** (around one-third of enrolments)
- **ICT and STEM employment is male-dominated** across the world
- **Women are scarce in the AI workforce**, especially in senior roles
- **Women report more critical or cautious attitudes toward AI**
- **Women use AI tools less frequently than men**, even within the same occupations
- **Women are overrepresented in office and administrative roles** with higher automation risk

## Gender bias in algorithmic systems

- ✓ Recruitment tools favouring male candidates
- ✓ Education tools advising humanities courses to girls
- ✓ Digital healthcare misdiagnosing women
- ✓ Financial tools favouring male entrepreneurs to funding

# Risk of 'AI divide' in developing countries

## EXAMPLES OF DISADVANTAGES

- ✓ Poor digital infrastructure and energy sources
- ✓ High costs of broadband connectivity and software
- ✓ Low diffusion of digital technology in workplaces
- ✓ Low foundational digital skills base
- ✓ High share of elementary occupations
- ✓ Low share of high-skilled occupations
- ✓ Low number of AI talent, and emigration thereof
- ✓ Limited level of AI investments/ AI research/ AI patents
- ✓ Limited institutional and regulatory frameworks, not ready to address AI-related risks
- ✓ Linguistic and cultural barriers and bias of AI models

Developing countries enter the AI era with some disadvantages, reinforced by the global digital divide

- **Advanced economies are better positioned to benefit from AI** due to stronger, mature digital infrastructure and higher digital skills
- **As AI's impact on jobs depends on occupational structures**, developing countries have smaller number of high-skilled jobs
- **AI can provide extra support to development goals** in areas such as agriculture, education, health, and infrastructure
- **Workers from developing countries** contribute to the AI production chain, but often under precarious working conditions

# AI as job connector: AI-powered job-matching platforms

- AI improves job matching by using more nuanced parameters beyond key words
- **Generative AI simplifies information search and processing for both jobseekers and employers**
- GenAI creates written materials (job ads, resumes, cover letters, and interview questions)
- **Algorithms support hiring workflows, including CV screening, ranking, and scheduling**
- AI-driven career guidance offers personalised recommendations to jobseekers
- **Public Employment Services increasingly rely on algorithms in delivering their services**

**Enabled by expanding online data, by using:**

- ✓ Online job vacancies and CVs (43%)
- ✓ Social media profiles and interactions (38%)
- ✓ Online behaviour and feedback data (13%)
- ✓ Other digital data sources such as geolocation, image, voice, etc. (6%)

**Limited impact evaluation so far**

# AI as a job connector:

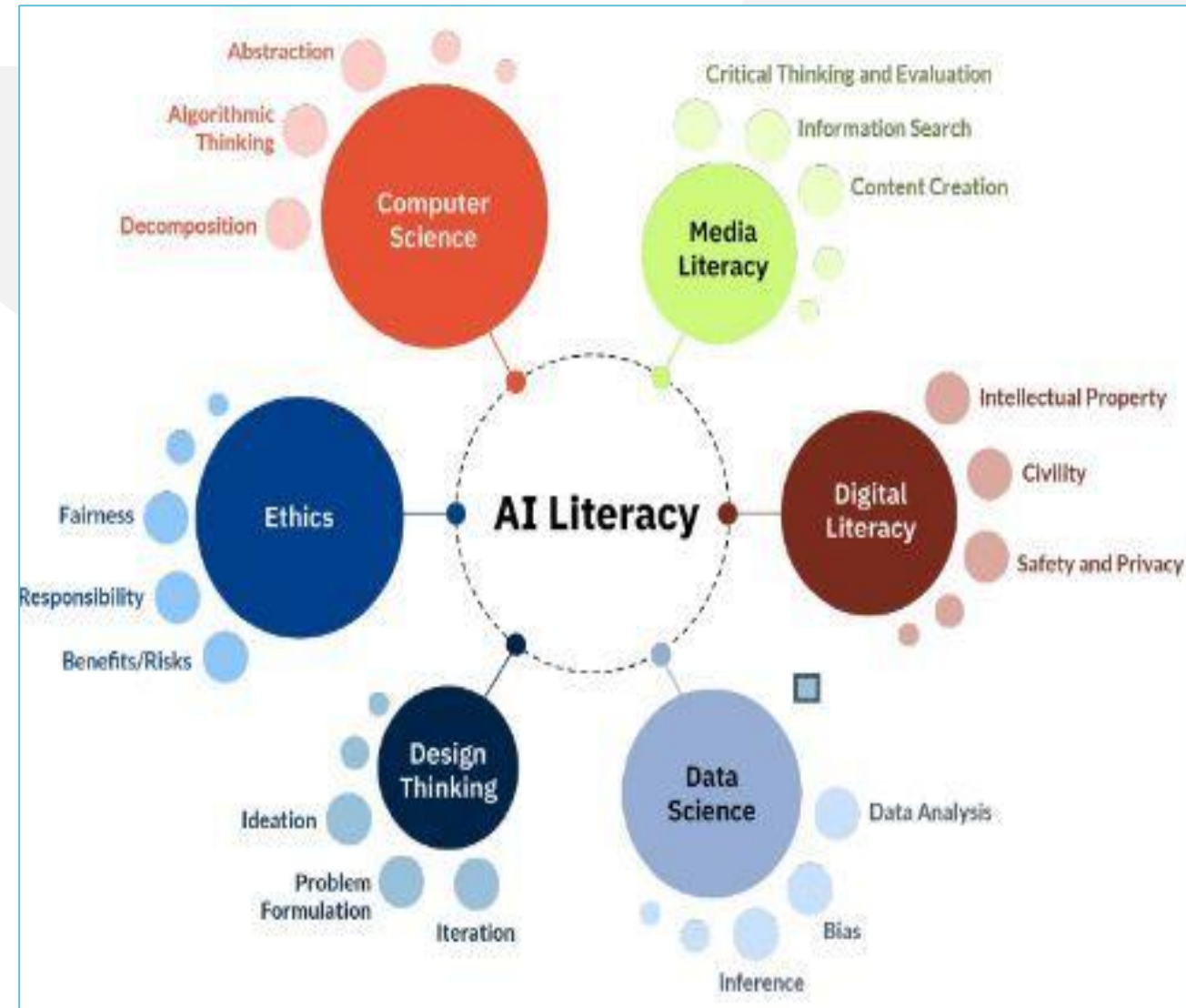
Enabling large-scale job matching that was previously impossible

| AI use cases  | Example platforms   |
|---|---|
| AI analyses job descriptions and candidate profiles to match job seekers with suitable positions          | <a href="https://business.linkedin.com/talent-solutions">https://business.linkedin.com/talent-solutions</a><br>Workday, <a href="https://www.workday.com">https://www.workday.com</a>   |
| AI filters applications based on skills, experience, and job requirements, reducing recruiter workload.   | HireVue, <a href="https://www.hirevue.com">https://www.hirevue.com</a> . Eightfold, <a href="https://eightfold.ai">https://eightfold.ai</a> . Mantrika, <a href="https://mantrika.ai">https://mantrika.ai</a> . Fountain, <a href="https://www.fountain.com">https://www.fountain.com</a> |
| AI generates optimised job descriptions, ensuring they are inclusive and appealing to diverse candidates. | Textio, <a href="https://textio.com">https://textio.com</a> . SeekOut, <a href="https://seekout.com">https://seekout.com</a> . TurboHire, <a href="https://turbohire.co">https://turbohire.co</a>   |
| AI parses and extracts key information from resumes to speed up the recruitment process                   | Resumeworded, <a href="https://resumeworded.com/">https://resumeworded.com/</a><br>Eightfold, <a href="https://eightfold.ai">https://eightfold.ai</a>   |
| AI-powered systems conduct pre-recorded or live phone interviews, assessing voice patterns and responses  | MyInterview, <a href="https://www.myinterview.com/">https://www.myinterview.com/</a><br>Vervoe, <a href="https://vervoe.com">https://vervoe.com</a>   |
| Chatbots interact with candidates, reply to queries, schedule interviews                                  | Paradox Olivia, <a href="https://www.paradox.ai">https://www.paradox.ai</a><br>Manatal, <a href="https://manatal.com">https://manatal.com</a>   |
| AI analyses video interviews, assessing candidate's facial expressions, tone, speech patterns             | HireVue AI Video, <a href="https://www.hirevue.com/">https://www.hirevue.com/</a><br>VidCruiter   |
| AI assists to determine competitive salaries and benefits based on the market and candidate background    | Payscale, <a href="https://www.payscale.com/">https://www.payscale.com/</a>   |
| AI detects bias in job descriptions and recruitment for diversity   | Pymetrics, <a href="https://www.pymetrics.ai/">https://www.pymetrics.ai/</a>  |

# AI Literacy as a foundational skills


**‘New driving licence’:** Ability to understand, use, monitor, and critically reflect on AI applications

- **Technical skills:** basic knowledge of how AI systems operate, including familiarity with machine learning, algorithms, and data-driven technologies.
- **Analytical & data literacy:** ability to analyse, interpret and evaluate data & AI outputs in real-world settings
- **Ethics & fairness:** recognising its potential risks on data privacy, algorithmic bias, transparency, fairness, accountability



# (Uncertain) future of work





# Shift from learning 'specific skills' to developing stronger 'capability' and 'human agency'

Critical thinking

Analytical skills

Curiosity / Empathy

Socio-emotional skills

Learning-to-learn

Adaptability / Flexibility / Resilience

**'Knowledge becomes cheap, but wisdom is scarce'**

# Further reading

- [ETF \(2026\), \*The AI Impact on Labour Markets: What we know so far\*, The impact of AI on labour markets | ETF](#)
- [Observatory on AI and Work in the Digital Economy | International Labour Organization](#)
- [The OECD Artificial Intelligence Policy Observatory - OECD.AI and AI Index - OECD.AI](#)
- [AI World or https://aiworld.eu](#)
- [AI Watch](#)
- [AI Index | Stanford HAI](#)