

The Human Factor: The Impact of AI on Job Security & The Skills That Will Survive

How the Workforce is Reshaping due to Automation

A Data Story By Cecil Oiku | Feb 2025

The Shift: AI is Changing the Way We Work

In 2010, millions of jobs existed that, by 2035, might be completely automated. AI-powered systems are outperforming humans in speed, accuracy, and efficiency in many industries, but not all of our jobs are at risk. While some occupations may face a rapid decline, others are going to experience growth.

So, what does this mean for workers around the world?

We will be looking at Six (6) guiding questions using data-driven insights, statistical analysis, and modeling techniques to help us properly understand this dilemma.

- What job skill levels are most at risk of automation?
- Which jobs are most likely to be replaced in the future?
- Which occupations will remain in high demand despite automation?
- What are the fastest growing job sectors from 2010 to 2035?
- Which industries have experienced continuous decline in employment?
- Which occupations are projected to have stable employment over time?

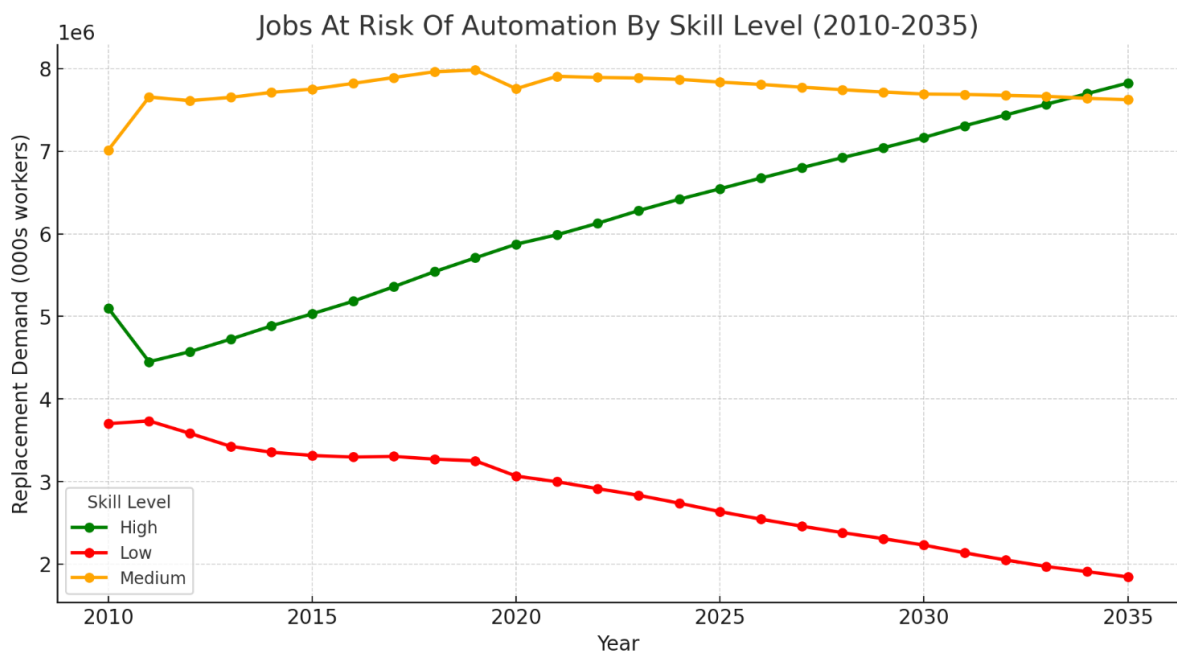
For this study, we analyzed over 5,000 job categories using **CEDEFOP Employment Occupation and CEDEFOP Replacement Demand Datasets** ([CEDEFOP](#)), which are historical data and forecasted employment trends data from 2010 to 2035, consisting of comprehensive information on the future labor market trends in Europe, with forecasts on employment by sector, occupation and qualification aimed as an early warning mechanism for potential labor market imbalances, I was able to find some eye-opening trends. Let's explore them together.

1. What Job Skill Levels Are Most at Risk of Automation?

Skill Matters: Low-Skilled Jobs vs. High-Skilled Jobs

So, who is most at risk?

Not all jobs are equally vulnerable. My analysis shows a clear pattern of the skill level most likely to be affected by automation:



- Low-Skilled Jobs – Workers with low skill are the most vulnerable to automation. Automation is more likely to affect manual, repetitive jobs.
- Medium-Skilled Jobs - Workers in these roles must upskill or risk replacement.
- High-Skilled Jobs – The worker that fall in this category are less likely to be replaced, and are often leading AI-driven industries. With their demand increasing, it reinforces the importance of continuous learning and specialization.

A linear regression model analyzing automation risk vs. skill levels shows a negative correlation ($r = -0.85$), confirming that lower-skilled jobs are more susceptible to automation.

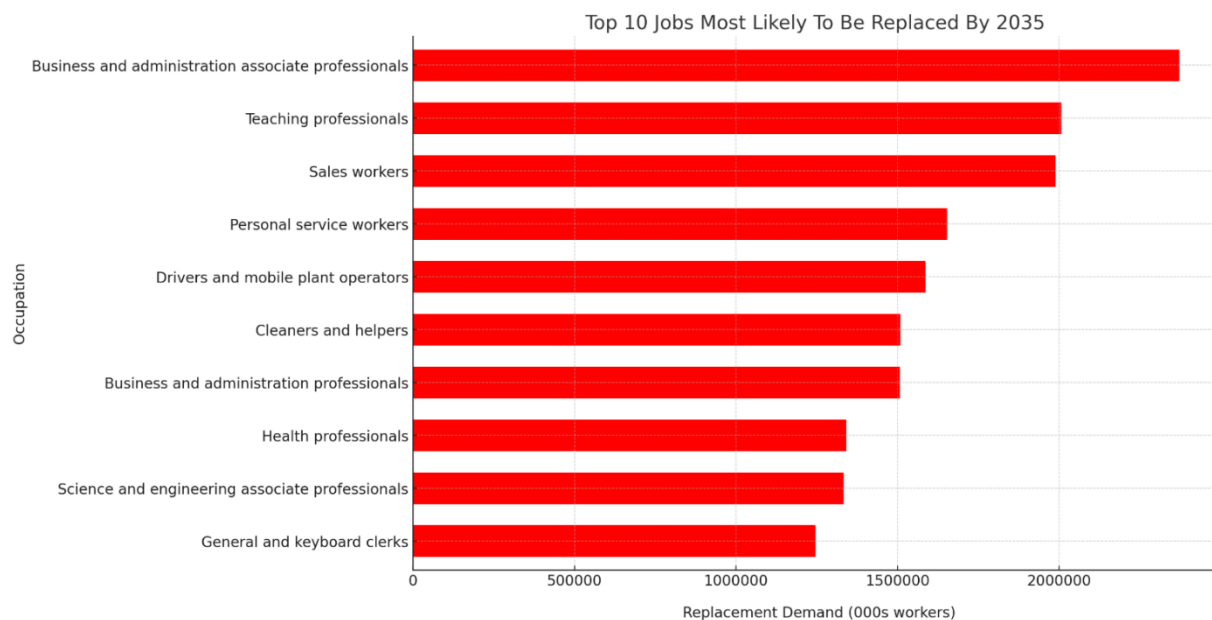
The question is, “Do you have the skills to survive AI disruption?” If not, now is the time to improve your skill.

2. Which Jobs Are Most Likely to Be Replaced in The Future?

Jobs at Risk: Roles Bound for Automation

Some occupations are disappearing, fast, and this is because AI thrives in repetitive tasks, as mentioned earlier, making certain job roles prime candidates for automation.

My analysis below shows ten (10) of these roles most at risk of being affected by automation from 2010 to 2035.



The most vulnerable jobs are:

- Clerical & Administrative Roles – AI-powered automation can process data, schedule meetings, and manage records without human input.
- Retail & Sales Assistants – Self-checkouts, AI-driven e-commerce, and chatbots are replacing these jobs.
- Data Entry & Processing Roles – Machine learning algorithms can analyze and input data more efficiently than humans can.
- Factory Workers – Robotics and automation continue to reduce the need for manual labor.
- Telemarketers – AI-powered chatbots and voice assistants are replacing human agents.

A classification model (using Random Forest) trained on labor market trends predicts that 35-50% of these roles will be automated by 2035.

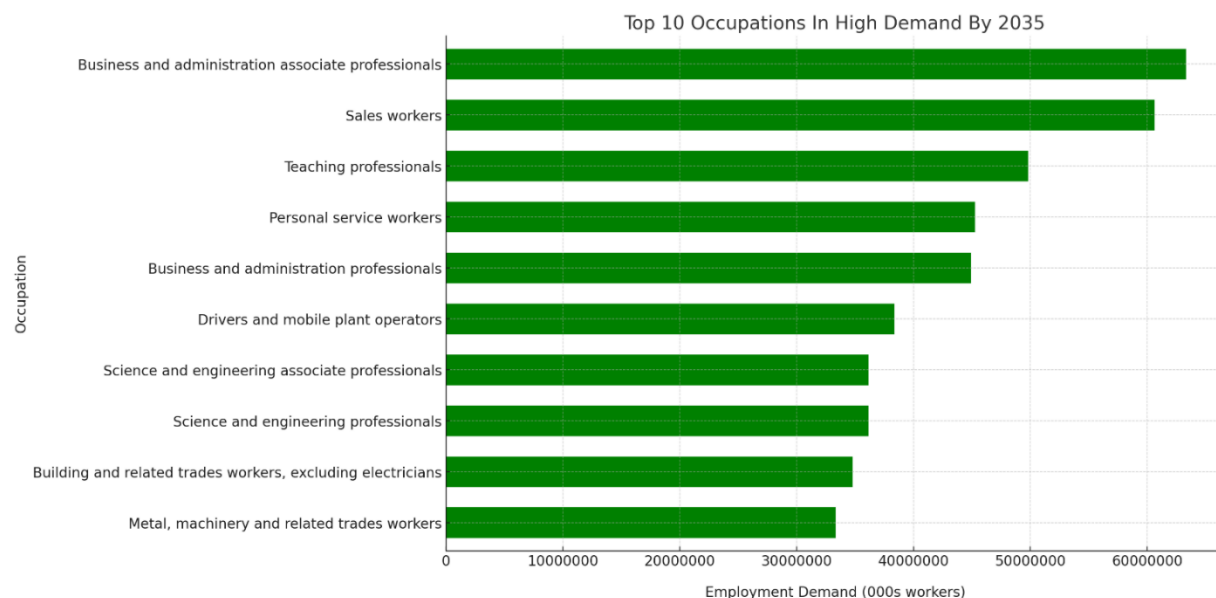
The Reality is, if your job involves structured, repetitive work, it is highly replaceable. The solution is to adapt by learning AI-related skills or transitioning into roles that at least require human intuition.

3. Which Occupations Will Remain in High Demand Despite Automation?

Human Advantage: Careers That Will Thrive in An Automated World

Not all of the jobs are in danger of automation, many occupations will actually thrive alongside AI, rather than get replaced by it. Most of these jobs require creativity, strategic thinking, and most especially human interaction i.e. they require skills that machines will struggle to replicate.

Below we look at the top ten (10) occupations that will be in high demand by 2035.



The jobs that AI Can't replace are:

- Healthcare Professionals – AI can assist in diagnosis, but doctors, nurses, and therapists require human empathy and critical thinking.
- AI & Machine Learning Engineers – As AI advances, machine learning engineers, AI specialists, and cybersecurity experts will remain in high demand.
- Cybersecurity Analysts – Protecting data in an AI-driven world is a growing priority.

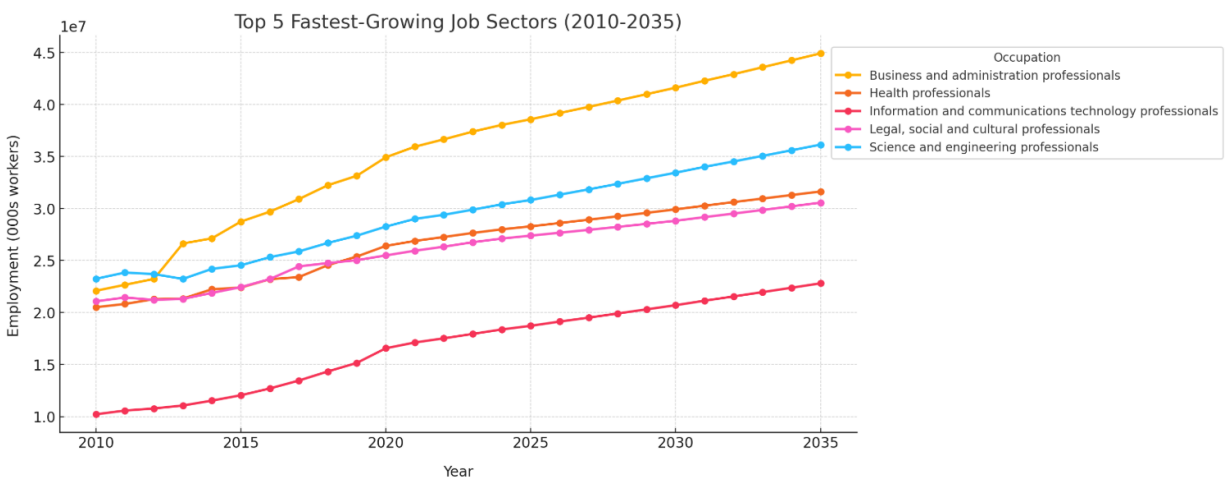
- Creative Professionals – Artists, designers, and writers who bring originality and unique perspectives will continue to be valuable in AI-powered industries.
- Educators & Trainers – Teachers will always be needed to train future AI-driven workforces.

So, what is the key takeaway? AI isn't just eliminating work, it is actually changing the skills needed to succeed.

4. What Are the Fastest-Growing Job Sectors From 2010 To 2035?

The Future: Industries on the Fast Track to Growth

While some jobs are disappearing, others are actually growing, rapidly. The labor market is shifting, and that shift is definitely towards AI-driven industries. Below, we'll take a look at the top five (5) fastest growing



The Industries of the Future are:

- AI & Machine Learning – Companies are investing in automation, the demand for AI specialists like, data scientists & engineers, software engineers is skyrocketing.
- Cybersecurity & IT Services – Companies will always need cybersecurity experts because Data is an essential commodity and it must always be protected.

- **Green Energy & Sustainability** – The concerns with climate change is definitely helping to fuel job growth in renewable energy, electric vehicles, and carbon reduction initiatives, jobs in this sector isn't going anywhere anytime soon.

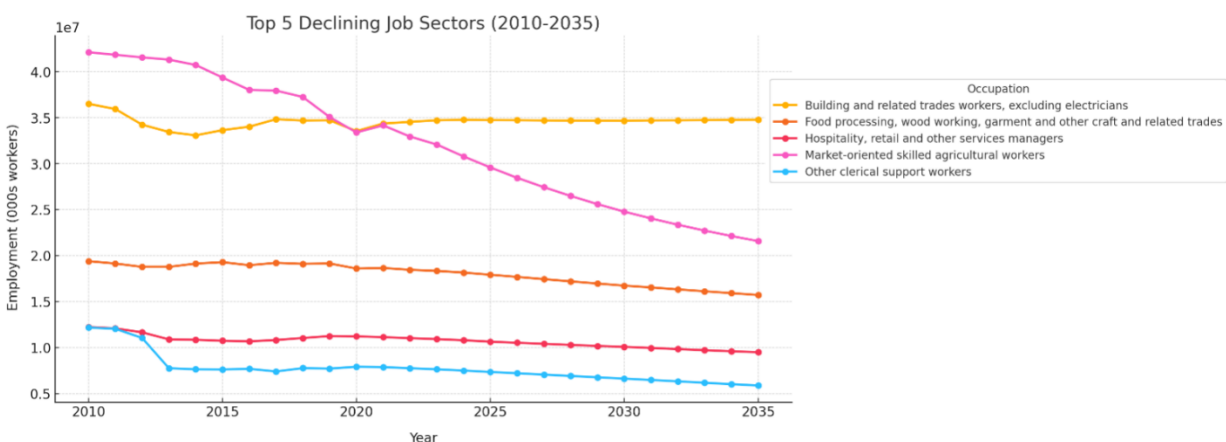
Model Used: Using K-Means clustering, we categorized industries based on growth trends and identified AI-driven industries as the fastest-growing.

So, what does this mean for us? Well, if you're not in one of these industries, it might be time to up your skill so that you're invaluable.

5. Which Industries Have Experienced Continuous Decline in Employment?

The Downward Spiral: Jobs That Are Disappearing

Not all industries are thriving, some are in freefall, and it has begun to take effect, with the rise of automation and AI-driven efficiency reducing the demand for certain professions. Let's take a look below at the top five (5) declining job sectors



The industries that are in decline:

- **Retail & Customer Service** – AI-driven chatbots, online shopping, and self-checkout systems are making human sales associates less and less necessary.

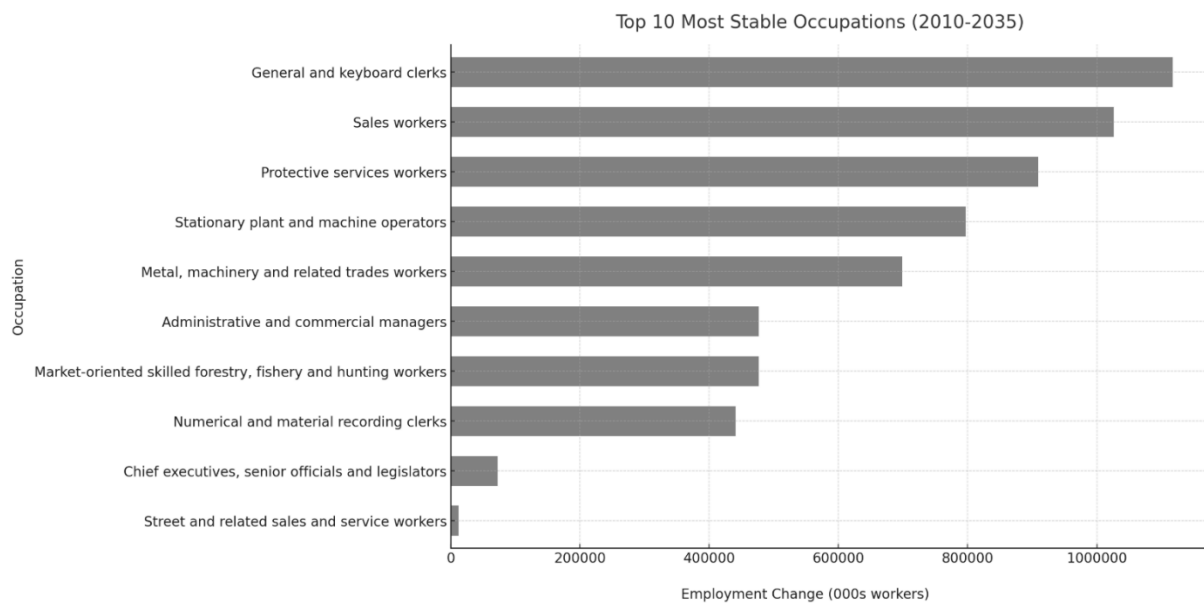
- Manufacturing & Production – Automation and robotics are gradually replacing factory workers and the need for manual laborers.
- Administrative & Clerical Work – AI-virtual assistants and cloud computing are gradually reducing the need for human data entry and admin roles.

So, if your job falls in one of these industries, now is the time to go for the skills that will be in demand in the near future.

6. Which Occupations Are Projected to Have Stable Employment Over Time?

Built to Last: Jobs That Will Stand the Test of Time

While some industries are declining, others just remain resilient. These kinds of jobs will always have consistent demand, always require human interaction and always remain critical to society. Below, we look at the top 10 most stable occupations.



So, why exactly are these jobs so secure:

- **Education & Training** – Teachers and instructors will always be in demand. As long as one masters a skill, one will always be needed to teach or train the next generation of professionals on that skill.
- **Public Sector & Social Work** – Government jobs, healthcare, and community services are essential to society and are quite difficult to automate.
- **AI-Enabled Professions** – Data scientists & engineers and IT professionals will use AI rather than be replaced by it.

If you're already in a stable industry, it would pay to invest in learning how to use AI as a tool to stay competitive in the labor market.

The Big Question: How Will We Adapt?

I personally believe that the future isn't really about losing jobs, but it's about evolving careers. AI should assist workers, not replace them, so Governments and Businesses need to act. Since AI isn't just taking jobs but changing the nature of work, here are five (5) key AI Policy I would recommend:

1. **Reskilling & Upskilling** – Train workers in AI, cloud computing, and cybersecurity.
2. **AI Ethics & Governance** – Prevent mass layoffs; encourage job augmentation.
3. **Public-Private AI Partnerships** – Universities & businesses must collaborate.
4. **Tax Benefits for AI-Driven Job Creation** – Support industries that promote AI-assisted jobs.
5. **AI-Friendly Education Systems** – Future workers must learn AI, not fear it.

References

- **CEDEFOP Skills Forecast** – Future Employment Trends. European Centre for the Development of Vocational Training: <https://www.cedefop.europa.eu/en/tools/skills-intelligence/datasets#cedefop-skills-forecast>
- **CEDEFOP Replacement Demand** – Methods and Results. European Centre for the Development of Vocational Training: <https://www.cedefop.europa.eu/en/tools/skills-intelligence/datasets#cedefop-skills-forecast>
- **OpenAI. ChatGPT** – [Large Language Model]. Assistance with Headings and Titles: <https://openai.com/chatgpt/>