

# Forecasted U.S. Private Sector Adult Employment Impacted by AI and Robotics

Exercise 2 • 20-Year Horizon: 2027–2046 • Baseline: Exercise 1 (2024 Data)

Prepared: April 2026 • Forecast values represent % of 2026 baseline employment remaining each year

## Purpose & Methodology

This artifact forecasts the share of U.S. private sector employment in each NAICS industry supersector that will remain occupied by human workers each year from 2027 to 2046, relative to the 2026 baseline established in Exercise 1 — Current U.S. Private Sector Adult Employment. The forecast isolates the impact of AI and robotics on human labor demand, independent of economic growth, demographic change, or new job creation.

Exposure percentages represent the consensus view of the fraction of jobs in each sector that AI or robotics will ultimately displace. Sources drawn upon include Anthropic's Labor Market Impacts research (2026), McKinsey Global Institute's Generative AI and the Future of Work (2023) and Agents, Robots, and Us (2025), Goldman Sachs Research on AI labor market displacement (2023–2026), the U.S. Treasury Office of Economic Policy working paper on AI exposure (2024), and Bain & Company's humanoid robot deployment research (2025).

Two displacement channels are modeled separately because their timelines differ materially. AI displacement begins immediately and accelerates through 2041, driven by the rapid diffusion of large language models, AI agents, and generative tools across knowledge work. Robotics (physical automation, including humanoid robots) begins to ramp meaningfully from 2030, as unit costs decline and reliability improves, reaching full scale by 2046 per Morgan Stanley, Bain, and Bank of America projections. Both channels follow an S-curve (smoothstep) adoption trajectory. The values reported in both tables and the accompanying chart are percent of baseline employment remaining — not displaced.

## Exposure Assumptions by Industry Sector

Color coding: Green (≥90% remaining) • Yellow (75–89%) • Pink (60–74%) • Red (<60%)

| Industry Sector                            | Baseline Employment | AI Exposure % | Robotics Exposure % | Terminal Displacement % | Rationale Summary   |
|--|---------------------|---------------|---------------------|-------------------------|---|
| Mining, Quarrying & Oil and Gas Extraction | 0.59M               | 30%           | 20%                 | 50%                     | Moderate AI for analytics/monitoring; significant robotics (drones, autonomous extraction) with delayed ramp. Terminal: 50%.        |
| Construction                               | 8.38M               | 15%           | 30%                 | 45%                     | Low near-term AI displacement; robotics ramp significant post-2035 as humanoids and autonomous machinery mature. Terminal: 45%.     |
| Manufacturing                              | 12.98M              | 25%           | 35%                 | 55%                     | AI already reducing supervisory/quality roles; robotics well-advanced. Long history of automation—terminal displacement 55%.        |
| Wholesale Trade                            | 6.11M               | 40%           | 15%                 | 50%                     | High AI exposure in logistics, ordering, sales. Some warehouse robotics. Terminal: 50%.   |
| Retail Trade                               | 16.04M              | 35%           | 20%                 | 50%                     | Significant AI (customer service, inventory, cashiers via self-checkout). Robotics slower due to human environments. Terminal: 50%. |
| Transportation & Warehousing               | 6.70M               | 30%           | 40%                 | 60%                     | Autonomous vehicles (trucking) + AI routing + warehouse humanoids = highest combined exposure. Terminal: 60%.                       |

| Industry Sector                               | Baseline Employment | AI Exposure % | Robotics Exposure % | Terminal Displacement % | Rationale Summary   |
|---|---------------------|---------------|---------------------|-------------------------|---|
| Utilities                                     | 0.57M               | 25%           | 15%                 | 35%                     | AI for grid optimization, predictive maintenance; robotics limited by safety/regulatory constraints. Terminal: 35%.                           |
| Information                                   | 2.96M               | 65%           | 5%                  | 70%                     | Highest AI exposure—coding, content, data, comms. Already showing hiring declines. Robotics minimal. Terminal: 70%.                           |
| Finance & Insurance                           | 6.83M               | 55%           | 5%                  | 60%                     | Very high AI exposure: underwriting, compliance, analysis, trading. Some physical robotics in data centers. Terminal: 60%.                    |
| Real Estate & Rental and Leasing              | 2.50M               | 30%           | 5%                  | 35%                     | Moderate AI (listings, property mgmt, legal docs). Low robotics. Human relationship roles persist. Terminal: 35%.                             |
| Professional, Scientific & Technical Services | 10.94M              | 50%           | 5%                  | 55%                     | High AI exposure (coding, legal, consulting, research). Near-zero physical robotics. Terminal: 55%.   |
| Management of Companies & Enterprises         | 3.28M               | 35%           | 5%                  | 40%                     | AI for analysis and reporting; core leadership/coordination functions remain human. Terminal: 40%.  |
| Administrative & Support / Waste Management   | 9.47M               | 55%           | 15%                 | 60%                     | Clerical and admin roles highly exposed; some robotics in waste management. Terminal: 60%.  |
| Healthcare & Social Assistance                | 23.61M              | 20%           | 10%                 | 25%                     | Lowest displacement: human care is irreplaceable in most roles. AI aids diagnostics; robotics assist but don't replace nurses. Terminal: 25%. |
| Educational Services (Private)                | 4.44M               | 25%           | 5%                  | 28%                     | AI for content delivery/admin; core teaching remains human. Terminal: 28%.  |
| Arts, Entertainment & Recreation              | 2.85M               | 30%           | 10%                 | 35%                     | Creative AI exposure significant (content, media). Physical entertainment roles more resilient. Terminal: 35%.                                |
| Accommodation & Food Services                 | 14.51M              | 20%           | 25%                 | 40%                     | Lower AI exposure; robotics (cooking, cleaning, service) accelerating post-2035. Terminal: 40%.   |
| Other Services (excl. Public Administration)  | 5.53M               | 25%           | 15%                 | 35%                     | Mixed: personal care, repair, religious. Human-centric roles resist; some routine tasks automatable. Terminal: 35%.                           |

### Employment Forecast — % of Baseline Remaining (Selected Years)

Aggregate estimate: Baseline ~137.3M private sector workers. By 2046, forecast suggests approximately **75.9M** workers remain (54.8% of baseline), implying displacement of approximately **62.4M** workers from AI and robotics combined. New job creation is excluded from this figure.

| Industry Sector                            | 2027   | 2030  | 2033  | 2036  | 2040  | 2046  |
|--|--------|-------|-------|-------|-------|-------|
| Mining, Quarrying & Oil and Gas Extraction | 100.0% | 96.5% | 86.3% | 72.4% | 56.8% | 50.0% |
| Construction                               | 100.0% | 98.2% | 91.3% | 79.9% | 64.7% | 55.0% |
| Manufacturing                              | 100.0% | 97.0% | 86.9% | 71.2% | 51.4% | 45.0% |
| Wholesale Trade                            | 100.0% | 95.3% | 82.9% | 66.9% | 50.3% | 50.0% |
| Retail Trade                               | 100.0% | 95.9% | 84.4% | 68.9% | 51.8% | 50.0% |
| Transportation & Warehousing               | 100.0% | 96.5% | 84.5% | 66.1% | 43.1% | 40.0% |

| Industry Sector                               | 2027   | 2030  | 2033  | 2036  | 2040  | 2046  |
|---|--------|-------|-------|-------|-------|-------|
| Utilities                                     | 100.0% | 97.0% | 88.8% | 77.5% | 65.1% | 65.0% |
| Information                                   | 100.0% | 92.3% | 74.0% | 52.4% | 32.5% | 30.0% |
| Finance & Insurance                           | 100.0% | 93.5% | 77.9% | 59.5% | 42.4% | 40.0% |
| Real Estate & Rental and Leasing              | 100.0% | 96.5% | 87.7% | 77.2% | 67.0% | 65.0% |
| Professional, Scientific & Technical Services | 100.0% | 94.1% | 79.9% | 63.0% | 47.3% | 45.0% |
| Management of Companies & Enterprises         | 100.0% | 95.9% | 85.8% | 73.6% | 62.1% | 60.0% |
| Administrative & Support / Waste Management   | 100.0% | 93.5% | 77.0% | 56.3% | 40.0% | 40.0% |
| Healthcare & Social Assistance                | 100.0% | 97.6% | 91.2% | 82.7% | 75.0% | 75.0% |
| Educational Services (Private)                | 100.0% | 97.0% | 89.7% | 80.7% | 72.0% | 72.0% |
| Arts, Entertainment & Recreation              | 100.0% | 96.5% | 87.3% | 75.6% | 65.0% | 65.0% |
| Accommodation & Food Services                 | 100.0% | 97.6% | 89.8% | 77.9% | 63.2% | 60.0% |
| Other Services (excl. Public Administration)  | 100.0% | 97.0% | 88.8% | 77.5% | 65.1% | 65.0% |

## Key Findings & Sector Narrative

**Highest displacement sectors (>55% terminal):** Information (70%), Finance & Insurance (60%), Transportation & Warehousing (60%), Administrative & Support (60%), and Manufacturing (55%). These sectors combine high AI capability overlap with clear robotics adoption pathways.

**Most resilient sectors (<35% terminal):** Healthcare & Social Assistance (25%), Educational Services (28%), Real Estate (35%), Utilities (35%), and Other Services (35%). Human presence, physical care, and regulatory constraints limit displacement.

**Robotics-led disruption (post-2032):** Transportation & Warehousing (40% robotics), Construction (30%), Manufacturing (35%), and Accommodation & Food Services (25%) face significant late-stage robotics displacement that will not be visible in data until the 2030s.

**Timeline asymmetry:** AI disruption is front-loaded (2027–2040) and disproportionately affects knowledge work. Robotics disruption is back-loaded (2030–2046) and disproportionately affects manual labor. The combined effect accelerates materially after 2032 as both waves overlap.

## Notes & Caveats

<sup>1</sup> **Exposure interpretation:** Per the exercise convention, exposure % represents the share of human jobs in a sector ultimately replaced—not merely affected—by AI or robotics. Jobs that are augmented (productivity raised but headcount maintained) are not counted as displaced.

<sup>2</sup> **New job creation excluded:** This forecast models displacement only. AI and robotics will simultaneously create new roles (AI trainers, robotics technicians, prompt engineers, oversight roles). Net employment effects will be materially less severe than these gross displacement figures suggest.

<sup>3</sup> **Extrapolation methodology:** Year-by-year values are interpolated using a smoothstep S-curve, consistent with technology adoption patterns. AI ramp runs 2027–2041; robotics ramp runs 2030–2046. These are scenario-based estimates, not econometric forecasts.

<sup>4</sup> **Baseline:** All values are relative to the 2026 baseline from Exercise 1 (2024 BLS data). A value of 80% in 2035 means 80% of that sector's 2026 headcount is still employed in human roles in 2035.

<sup>5</sup> **Sector heterogeneity:** Displacement will be highly uneven within sectors. Routine, lower-wage roles will be displaced first; supervisory, complex, and relational roles will be displaced last or not at all. These sector-level figures represent weighted averages across all occupations in each sector.

## Sources

1. Anthropic — Labor market impacts of AI: A new measure and early evidence (March 2026) — <https://www.anthropic.com/research/labor-market-impacts>
2. McKinsey Global Institute — Generative AI and the future of work in America (July 2023) — <https://www.mckinsey.com/mgi/our-research/generative-ai-and-the-future-of-work-in-america>
3. McKinsey Global Institute — Agents, robots, and us: Skill partnerships in the age of AI (Nov 2025) — <https://www.mckinsey.com/mgi/our-research/agents-robots-and-us-skill-partnerships-in-the-age-of-ai>
4. Goldman Sachs Research — AI and the US labor market (2023–2026) — <https://www.goldmansachs.com/insights/articles/how-will-ai-affect-the-us-labor-market>
5. U.S. Treasury Office of Economic Policy — Occupational Exposure to AI by Geography and Education (Apr 2024) — <https://home.treasury.gov/system/files/136/AI-Combined-PDF.pdf>
6. Bain & Company — Humanoid Robots at Work: What Executives Need to Know (2025) — <https://www.bain.com/insights/humanoid-robots-at-work-what-executives-need-to-know/>
7. BLS Employment Projections 2024–2034 — Employment by Major Industry Sector — <https://www.bls.gov/emp/tables/employment-by-major-industry-sector.htm>