Please do extensive and deep research into the effects of technological change on civilization. We often hear that AI replacing many current human jobs is just a "normal" part of history, and that new jobs will be created and productivity will increase and generally we'll all be better off. Examples are given such as the change from a farming technology based on manual power where most people were needed to work on farms to produce enough food. But technological changes created a reality where our food is produced by a very tiny % of the population.

JD, here is a deliberately long-form dive that moves from deep history to the edge of today's AI transition. I keep each main topic numbered and underlined, per your style request, and finish with time-framed outlooks, conventional-wisdom versus 42-takes, and prompts for further thought.

- 1. Technological change as a recurrent civilizational force
- Farming, weaving, steam, electricity, computers—every great wave rewired what people did all day and how surplus was shared. In 1800 roughly 80 % of U.S. workers were farm laborers; by 1900 that fell below 40 %; by 2000 it was under 2 % (Employment in Agriculture Our World in Data). Each drop coincided with parallel surges in manufacturing, services, and eventually digital work. Two durable patterns appear:
  A. Lagged but real productivity gains. Output per worker jumps once complementary infrastructure (roads, power grids, broadband) and institutions catch up.
  B. Social friction before gains arrive. From the Luddite frame-breakers of 1811 to the "rust belt" layoffs of the 1980s, the pain precedes the payoff.
- 2. Why AI differs in speed and scope

The IMF estimates that up to 40 % of all global jobs will be directly affected, rising to 60 % in advanced economies, with a tilt toward higher-skilled cognitive roles (<u>AI Will</u> <u>Transform the Global Economy. Let's Make Sure It Benefits ..., A 43-page IMF report on AI warns of 'profound concerns' about massive labor disruptions and inequality. We asked GPT-4 to summarize it.). GPT-class tools expose at least 80 % of the U.S. workforce to task-level automation of 10 % or more (<u>80% of U.S. workforce will be affected by GPTs, Penn research finds</u>). Unlike past machinery that displaced muscles, AI reaches judgment, pattern-recognition and even creativity. That compresses adoption cycles from decades (railroads) or years (smart-phones) down to months.</u>

3. Productivity versus employment: the live debate

McKinsey projects 0.1–0.6 percentage-points of extra annual labor-productivity growth through 2040 if generative AI is diffused and workers are reallocated successfully (<u>Economic potential of generative AI - McKinsey & Company</u>). Conventional wisdom says new tasks absorb freed labor; skeptics note two brakes:

A. Capital concentration—firms that own models may capture rents without rehiring.B. Skill mismatch—jobs created (prompt engineer, AI ethicist) may be too few or require rare capabilities.

- 4. Middle-class erosion or revival?
  - MIT economist David Autor argues that, used well, AI can "re-professionalize" mid-skill work—nursing, law clerking, teaching—by embedding expert systems that let competent workers take on decisions once reserved for elite specialists (<u>Applying AI to Rebuild</u> <u>Middle Class Jobs | NBER</u>). His thesis flips the usual automation story: the danger is not job loss per se but who controls the augmented expertise.
- 5. Sector snapshots: likely first movers

A. Customer service and clerical support—high exposure, rapid tool rollout (voice agents, chat triage).

B. Programming—large-language-model copilots raise output yet lower junior-dev demand; senior design skills gain.

C. Education—adaptive tutors threaten the old lecture model but open niches for "learning concierge" roles JD already envisions for PSA.

D. Healthcare diagnostics—radiology and pathology see accuracy boosts; human oversight persists but staffing mixes shift.

6. Cultural and institutional consequences

A. Work identity: For two centuries labor has been a primary source of meaning; partial displacement forces new narratives of value (volunteerism, caregiving, creative pursuits).B. Geography: Cloud-delivered cognitive services break the link between high wages and dense cities, potentially revitalizing smaller regions—Las Cruces included.

C. Governance: Tax bases tied to payroll shrink; experiments with data dividends, robot taxes, or sovereign AI funds surface globally.

7. Historical policy lessons

Pros:

A. Safety nets (Social Security, GI Bill) smoothed earlier transitions.

B. Antitrust (railroads, telecom) prevented single-firm strangleholds. Cons:

a. Retraining often arrived too late or missed displaced cohorts.

b. Creative-destruction upside skewed toward capital owners without progressive tax reform.

8. Time-framed outlooks

• Next 6 months: Enterprises race to bolt LLM APIs onto existing software; "centaurs" (human+AI) quietly raise throughput 10-20 %. Job postings for prompt and safety engineers spike.

• By 2029: Middle-skilled augmentation either scales (Autor scenario) or stalls if licensing and liability fears lock AI tools behind expert guilds. Income-support pilots (UBI variants, wage insurance) expand in at least five OECD nations.

• By 2045: Two plausible equilibria—(1) Abundance-with-agency: humans increasingly choose purpose beyond wage labor, enabled by high productivity and broad ownership stakes; (2) Neo-feudal stacks: a thin layer of AI asset holders, a service precariat, and mass consumption propped up by transfers.

9. Conventional wisdom versus 42's take

CW: "Tech shocks always end up raising living standards; AI will follow the tractor's path."

42: The analogy underestimates pace, cognition reach, and platform winner-take-all dynamics. Absent deliberate design—worker co-ownership of models, robust portability

of data, and lifelong learning ecosystems—the default outcome is wider inequality, not a barn-dance of new jobs.

10. Questions and options for PSA and civil society

A. Should nonprofits like PSA pilot "community LLMs" trained on local health-andeducation corpora to keep value in the region?

B. Could job-transition hubs bundle retraining with micro-equity stakes in AI-augmented ventures?

C. How might K-12 districts leverage generative tutors without deepening digital divides?

11. *Lines of further inquiry* 

• Compare Illich's *Deschooling Society* with AI self-directed learning to imagine postinstitutional education models.

• Draw on McLuhan's notion of media as "extensions of man" to reframe AI as an extension of collective cognition rather than a competitor.

• Explore Buddhist non-attachment as a psychological buffer for identity loss when traditional roles evaporate.

12. Reading and listening path

– IMF "AI and the Global Economy" (2024) for macro labor scenarios.

– MIT-Stanford "Generative AI and the Labor Market" symposium videos (2025) for balanced expert debate.

- Autor, "How AI Could Rebuild the Middle Class" (2024) for the complementary route.

– Brynjolfsson & Mitchell, "The Turing Trap" (2023) for warnings on automation over augmentation.

Feel free to steer any strand deeper—policy levers, PSA-specific pilots, or ethical–religious framing—and we'll keep building the mosaic.