

How organizational learning may determine AI's economic impact

New metric gauges how AI accelerates learning within companies, spreading knowledge and improving predictions.



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How to measure the economic impact of artificial intelligence?

Most attempts by economists to answer that tough question have focused on quantifying

potential productivity gains or growth driven by AI-enabled scientific discovery.

But those metrics may be overly narrow, according to a [working paper](#) by IESE's [Eduard Talamàs](#) and Martin Beraja of UC Berkeley Haas. Instead, the right lens may be how AI accelerates organizational learning, allowing firms to spread knowledge across the company more quickly and to make predictions on fundamentals earlier on.

Using the organizational learning metric, AI could as much as double U.S. economic output over the long run. And roughly three-quarters of the potential economic gains will come not from making firms more productive but from extending their lifespans. When organizational learning accelerates, companies can dedicate resources toward viable projects rather than pursuing enterprises that are likely to fail, extending their longevity.

This novel approach to measuring impact generates a very different picture of which industries and sectors stand to gain most from AI adoption, and which are unlikely to reap large benefits.

The dynamics of AI accelerated learning

Understanding the dynamic begins with the phenomenon, well-documented in economics, that mature companies are substantially more productive than average firms. That's because companies get better at what they do over time, learning how their operations run most efficiently, what their customers seek from them and what functions in their industry. Employees develop expertise, managers refine their practices and the organization accumulates a kind of institutional wisdom that makes it more productive.

In addition, weak players fall by the wayside. Those still going strong after decades are not a random sample but rather the survivors that had something that differentiated them.

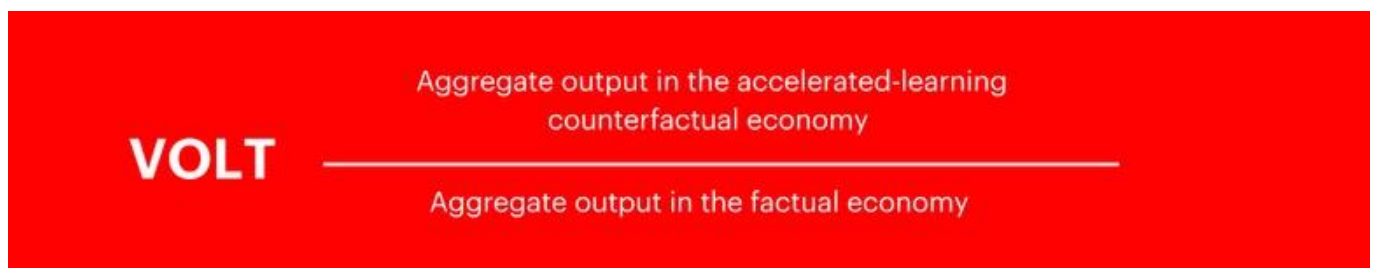
AI essentially accelerates this two-pronged process by enabling:

- **Faster, broader knowledge.** Large language models (LLMs) are primarily being used as learning tools; they can also assist in codifying and diffusing tacit knowledge in organizations. For example, AI systems can help companies aggregate, index and make information retrievable that is otherwise dispersed across different areas and people. This helps firms build organizational capital faster, reaching a mature, productive state sooner.
- **Earlier, better predictions.** AI prediction systems help forecast fundamentals like

future demand and costs, improving assessments of the viability of projects before they are launched. For example, AI prediction systems produce increasingly realistic simulations that firms are using to evaluate new ideas. Firms can concentrate on projects with a better chance of success and recognize ventures that are likely to fail before wasting time and resources on them.

Introducing the Value of Organizational Learning Technologies metric

To quantify the potential increase in economic output if firms could learn faster, Beraja and Talamàs have created the Value of Organizational Learning Technologies (VOLT), which can be measured using readily available data on firm size and lifespan. VOLT is expressed as a ratio of aggregate output in the potential accelerated-learning economy to that in the actual economy.

A diagram showing the VOLT formula. The word "VOLT" is on the left. To its right is a horizontal line. Above the line is the text "Aggregate output in the accelerated-learning counterfactual economy". Below the line is the text "Aggregate output in the factual economy".
$$\text{VOLT} = \frac{\text{Aggregate output in the accelerated-learning counterfactual economy}}{\text{Aggregate output in the factual economy}}$$

Using 2023 U.S. Census data on business establishments, the authors calculate that VOLT for the U.S. economy is approximately 2, meaning that AI-driven organizational learning technologies have the potential to double aggregate economic output in the long run.

The timeframe for the doubling is uncertain, since it hinges on how fast companies adopt AI across industries. But gains from organizational learning are substantial even if learning quickens at a modest pace. Accelerating just the first two years of learning raises output by approximately 9%; the first six years by nearly 24%.

A new map of AI-exposed industries

VOLT also redraws the map of which industries are most impacted by AI. Much has been written about which occupations are most susceptible to being replaced by AI. But those predictions have focused on the technical capacity of AI — if, say, it is readily able to do the

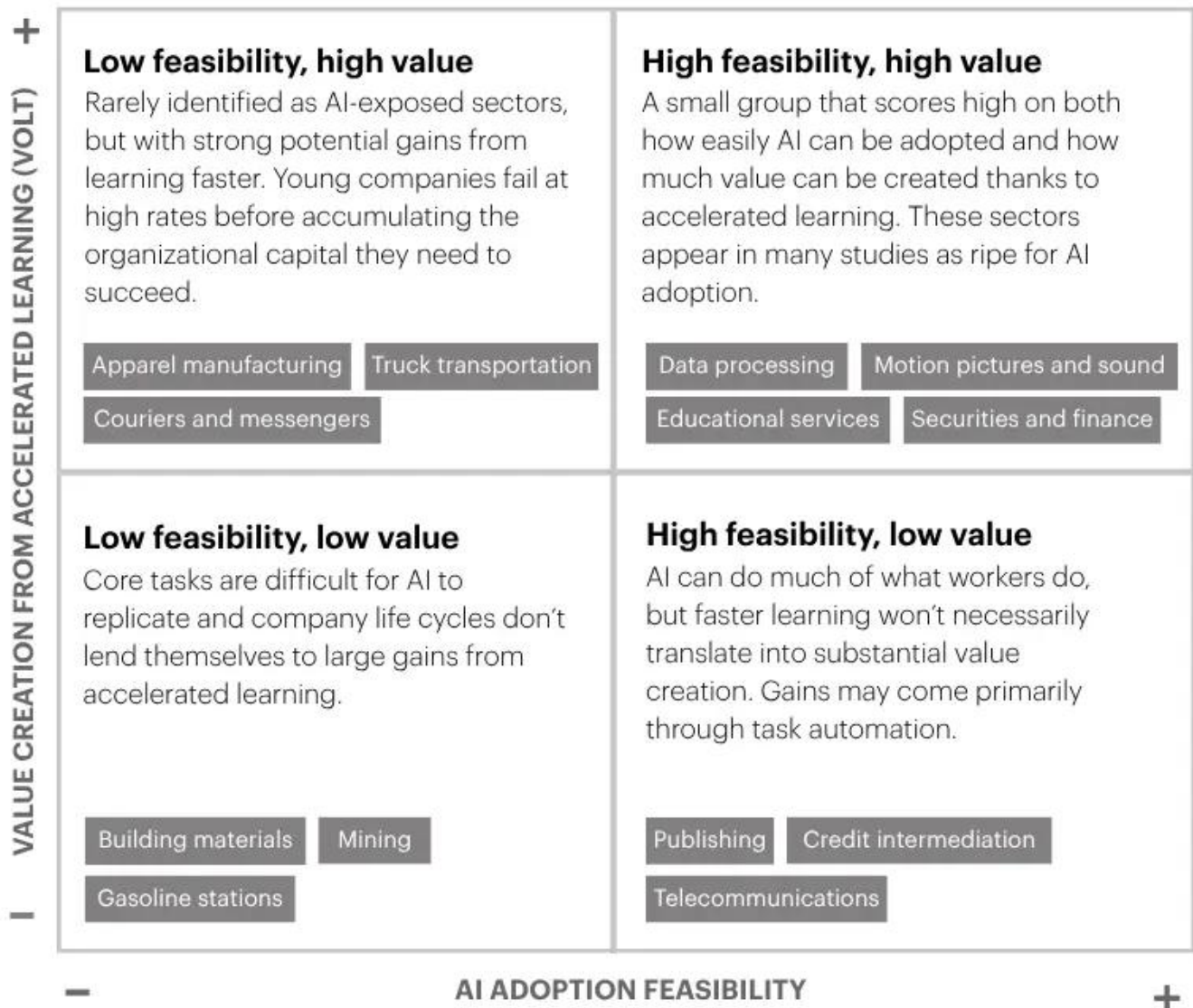
work of a junior lawyer or replace programmers — rather than on the value generated.

Beraja and Talamàs find that many industries where LLMs appear easy to adopt yield relatively modest value gains, while many low-exposure industries may experience large gains from faster learning. It turns out that what is easiest to automate with AI is not necessarily what is most valuable, and vice versa.

Drawing on U.S. Census data on firm size and exit rates by age within 80 industries, the paper plots the VOLT measure against standard scores of industry exposure to LLMs. Four categories emerge:

- **High AI feasibility and high value creation.** A small group of sectors scores high on both how easily AI can be adopted and how much value can be created thanks to accelerated learning. These sectors appear in many studies as ripe for AI adoption, and include data processing and hosting, motion pictures and sound, educational services, and securities and finance.
- **High AI feasibility but low value creation.** These are sectors in which AI can do much of what workers do, but where faster learning won't necessarily translate into substantial value creation. They include sectors such as publishing, credit intermediation and telecommunications. Here, the gains from AI may come primarily through task automation.
- **Low AI feasibility but high value creation.** These are sectors that are rarely identified in AI-exposed industry lists but that stand to experience some of the biggest potential gains from learning faster. They include couriers and messengers, apparel manufacturing and truck transportation. In these sectors, young companies fail at high rates before accumulating the organizational capital they need to succeed.
- **Low AI feasibility and low value creation.** In some sectors, core tasks are difficult for AI to replicate and company life cycles don't lend themselves to large gains from accelerated learning. Companies like that include building materials dealers, gasoline stations and mining.

Four categories of AI exposure vs potential value creation



VOLT is a radically different tool for measuring AI, but AI is a radically different technology. It complements other metrics, using data that is already compiled in many countries, and allowing economists to begin understanding the ways in which artificial intelligence will reshape the economy.

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[How to understand AI's potential impact on knowledge jobs](#)



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