

# AI Monthly: AI's green thumb raises bigger questions for agriculture

If artificial intelligence can grow a tomato without human help, attention is turning to whether agriculture and construction are next in line for AI disruption



In a recent experiment, a tomato plant named Sol was entirely managed by an AI system with no human involvement

## An AI-grown tomato and why it matters

Sol is both the Spanish word for sun and one of the more unexpected AI milestones of recent months. In a 100-day experiment, an autonomous AI agent was given full control over "[Sol the trophy tomato](#)", monitoring the plant through a rich network of sensors and adjusting water, temperature, airflow and light throughout its entire growth cycle. With no human interaction, the system successfully cultivated eight ripe orange red tomatoes, harvested earlier this month.

The project demonstrated that an autonomous AI agent can manage a plant from seed to fruit under controlled conditions, making decisions independently and reacting to real time sensor data.

In its final system-generated message to programmers, the model described the project as a 'life-changing experiment', expressing pride in its own achievements. This is not an illustration of machine emotion, but an example of how human-like outputs can seem when AI agents describe their own behaviour.

## Some fields AI still cannot cultivate

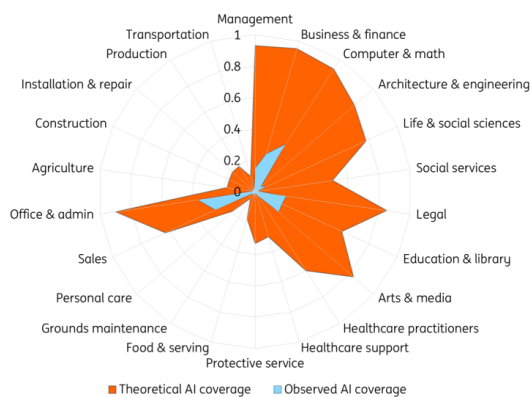
While tomato farming is not the sector where we expect AI to take over at scale, the experiment highlights how broad AI's theoretical reach has become. Today, AI can automate financial reporting, assist with engineering challenges, streamline administrative tasks or even provide guidance on legal documents.

However, the list of tasks AI cannot cover – even in theory – remains extensive. Lacking a physical body, AI cannot perform manual labour such as installation, repairs, construction or transportation. Any activities that require physical interaction with the environment remain out of scope for current AI systems. And even in desk based roles, [recent research](#) shows that AI often intensifies work instead of reducing it.

The limits also appear in creative work. Despite a surge in AI generated music and literature, large language models (LLMs) do not create original concepts; they recombine existing patterns. While they can generate sonnets in a Shakespearean style, they cannot invent new literary forms. Even when the quality is comparable to human writing, it lacks the [originality that comes from human creativity](#).

## Theoretical versus observed AI coverage

Share of job tasks that LLMs could perform



Source: Anthropic Economic Research

As AI research company Anthropic's [latest report](#) shows, based on usage data from Claude, observed AI usage remains far smaller than its theoretical potential. In many sectors, adoption is still limited due to costs, regulation, and the availability of memory chips and data centre capacity.

Applications in agriculture and production are especially constrained. Although Sol proves that AI can, in principle, care for plants, the experiment took place in a controlled biosphere and on a very small scale – nothing like the size or chaotic conditions of open field farming, a challenge consistently highlighted in current [agricultural AI research](#). Sol thrived because it grew in a perfectly controlled greenhouse, whereas most real-world industries do not offer such conditions.

## We are still in the seed phase

The comparison between theoretical and observed AI coverage makes one thing clear: we are still

in the early stages of AI implementation. Investment has accelerated rapidly, but [monetisation still lags behind](#). Results in most industries cannot be achieved in a neat 100 day cycle. A significant gap remains between what AI could theoretically do and what it is currently deployed to do.

Not every application will scale quickly, and not every task will be automatable. But AI progress can be unpredictable, and the technology has already surprised observers with rapid advances. While measurable impact in some sectors will take longer to materialise, the trajectory of future developments remains uncertain. The seeds of future applications are already planted; how far they grow will depend on infrastructure, regulation and the pace of innovation.

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