



How Will the AI Revolution Impact Solonist Farmers' Livelihoods?

"An export-oriented agro-industry naturally drives transformation, including the adoption of AI."

The AI revolution is here. It will transform every industry, but will it be a blessing or a curse for farmers in developing economies? As we will see, what we do now will impact the answer to this question.

OpenAI publicly released ChatGPT on November 30, 2022, marking the beginning of a new chapter in human history—the era of Artificial Intelligence (AI). On January 31, 2025, OpenAI released its most advanced version yet, o3-mini-high, setting a new benchmark for deep research and knowledge synthesis.

But what does this mean for farmers and developing economies? Will AI impact them differently than previous technological revolutions? More importantly, how will it reshape agriculture, particularly for Solonist farmers who are already struggling to compete and survive?

What Makes AI Unique?

To understand AI's uniqueness, we must first define it. According to IBM, "Artificial intelligence (AI) is a technology that enables computers and machines to simulate human learning, comprehension, problem-solving, decision-making, creativity, and autonomy."

Historian and philosopher Yuval Noah Harari highlights AI's unprecedented nature:

"It's the first technology in history which is not a tool in our hands: it is an independent agent. It can make decisions by itself. It can invent new ideas by itself. It can learn and change by itself... We are facing something that we had never encountered before in history." [Source](#)

Unlike past innovations—cars, electricity, or the internet—AI is not just another tool. It can analyze vast amounts of data, predict outcomes, and automate decisions, driving actions in ways that challenge human understanding. It is like having an unlimited number of workers joining your team, each capable of self-learning and improvement.

AI is not limited to one field. It can act as an expert, a decision-maker, an assistant, or a creator. With the right tools, it can even take over tasks like spraying and harvesting. The AI revolution has just begun, and while massive changes across the agricultural sector's value and supply chains will take years, there is not a moment to waste for those who wish to lead the industry in the second half of the 21st century and beyond. This requires action with a sense of urgency.

An Alien and an Agent

AI is not merely another technology—it is more like a non-organic alien, "thinking" and acting in ways we cannot fully anticipate or understand. Unlike "a tool", which we fully control, AI acts more as an agent, which acts according to the mission we provide it, but we don't know the path or process it chooses to achieve its mission. Ask an automotive engineer how a car works or gets from point A to B, and they will explain its precise, predictable functions and process. Ask an AI developer how their model generates its results and achieves its mission, and they can only describe the initial programming—the rest is a black box of self-learning and adaptation.

This unpredictability raises concerns, particularly about widening socioeconomic gaps between people and nations. Those who adapt will thrive, while those who ignore AI risk obsolescence.

AI's Broad Impact

Though still in its infancy, AI is already transforming economies and societies faster than any prior technology. The comparison is akin to early hominins discovering fire—those who harnessed it survived; those who didn't perished. AI will not leave much room for industries, professions, and economies that fail to integrate it.

Some industries have already adapted successfully. Financial services use AI-driven risk assessment and fraud detection. Healthcare has integrated AI-powered diagnostics and personalized medicine. E-commerce and logistics rely on AI for demand forecasting and customer service. The call center industry, once dominated by human operators, is rapidly being replaced by AI systems that work 24/7, speak multiple languages, and never get tired.

While AI is revolutionizing industries from finance to healthcare, its most profound impact may be on agriculture—an industry that has changed the least, mainly in developing economies, for centuries.

Will AI Help Smallholder Farmers Escape Poverty?

Every major technological breakthrough, such as tractors, advanced crop varieties, irrigation, and computing, was introduced with the hope of bridging the gap between smallholders and professional large-scale farmers. Yet history tells a different story. Instead of acting as an equalizer, each innovation has widened the gap.

Why does this happen? The answer lies in value chain accessibility and organizational structure. While professional large-scale farmers in developed countries operate within well-structured ecosystems that seamlessly absorb new technologies, smallholders often lack the necessary infrastructure, financial support, and market integration to do the same. As a result, every new technological wave further entrenches inequality, and the more advanced the technology, the faster the gap grows.

The AI revolution represents a pivotal moment, one that will reshape agriculture on an unprecedented scale. If past trends continue, smallholder farmers risk being left further behind at an accelerated pace. While there are opportunities for AI to empower smallholders, history suggests that without intentional intervention, the imbalance will only deepen.

So, what can be done to ensure smallholders are on the winning side of AI-driven transformation? This column explores solutions and strategic actions that must be taken to turn AI from a threat into an opportunity.

The Future of AI in Agriculture

Agriculture depends on land, water, energy, knowledge, technology, labor, management, and value and supply chains. AI is poised to revolutionize all of these.

Production: AI-driven breeding will create crops that grow faster, yield more, require fewer inputs, and are resilient to climate change. Livestock breeding will also benefit, improving efficiency and economic viability. AI will enable farmers to produce higher-quality food with fewer natural resources, benefiting both the environment and public health.

Workforce: Labor has been a longstanding challenge in farming, particularly for tasks like pruning, thinning, and harvesting. AI will enable robotic harvesters, intelligent farm management, and supply chain automation, optimizing the entire agricultural process. Imagine receiving a shipment order in the evening—an AI-activated harvesting system could autonomously pick ripe fruits at night, process them, and have them packaged and ready for transport by morning, reducing labor costs and increasing efficiency.

Much like how automation reshaped the U.S. automobile industry, AI is poised to disrupt agriculture in ways we can barely imagine today. If American factories couldn't withstand the wave of robotic manufacturing in the 1970s, how would smallholder farmers cope with AI-driven agricultural transformation?

From Traditional Farming to High-Tech Agro Business

For 12,000 years, agriculture depended on natural resources and manual labor. That is about to change. AI will make farming resemble high-tech manufacturing, where those unprepared will face dire consequences. Mechanization in the 20th century replaced 200 laborers with a single cotton picker. AI will bring similar changes, especially in labor-intensive sectors like fruit and vegetable harvesting.

Developing nations that rely on cheap labor will lose this advantage. The shift to automation will reshape global agricultural competitiveness.

The Need For Governance and Planning

AI may create opportunities for smallholder farmers through mobile tools for pest detection or precision farming. However, these tools alone cannot replace the need for governments to establish strong value and supply chains, regulatory frameworks, and organizational structures. Without these foundational elements, AI's impact on smallholder farmers will remain limited and highly dependent on national leadership.

How Do We Get Ready?

Getting ready doesn't mean directly working on AI; it is more like setting the stage for the agro-industry to absorb the expected technologies and changes. For this, we must set a challenging mission that will eventually be leveraged with the help of AI. For example, I am currently working with Dream Valley to help an African country undergo this transformation by setting the goal of increasing the national fresh produce exports to premium markets tenfold. It is obvious that farmers growing for premium markets according to the most stringent export standards are better positioned for the AI revolution than subsistence self-sufficient households or those growing for the local low-end markets. Contact me for more details if this interests you, and I will be happy to help.

If you want one thing that will change everything for your farmers and country and help get all much more ready for the AI revolution, the key to successfully integrating AI into agriculture is preparing the agro sector for export. Once the sector is positioned to meet premium market demands, AI will naturally be adopted. Simply teaching farmers about AI without building functioning value chains will not advance exports—it would be like believing that opening an umbrella will make it rain.

Go Global or Die Local

Reaching premium global export markets is as critical to developing economies as the U.S. mission to land on the moon. In 1962, President John F. Kennedy justified the moon mission's high cost, emphasizing its role in shaping national ambition and progress.

Paraphrasing Kennedy's historic "We Choose to Go to the Moon" speech, leaders in developing economies—where most of the workforce depends on agriculture—should adopt a similar mission mindset:

"We choose to reach premium global markets in this decade and do the other things, not because they are easy, but because they are hard; because that goal will serve to organize and measure the best of our energies and skills; because that challenge is one that we are willing to accept, one we are unwilling to postpone, and one we intend to win."

The challenge is immense, but so is the opportunity. The alternative—remaining in low-value agricultural economies—will only deepen poverty and make recovery harder. Go global or die local.

The Urgent Need for Action

The time to act is now. Governments, farmers, and industry leaders must step up, adapt, and invest in AI. That should not be by direct investment in AI, but by setting a challenging mission, such as becoming an export-oriented agro sector, knowing that AI will be integrated along the way, as sophisticated farmers and value chain partners will pull it to help them improve their growing businesses and the increasing demands of their clients. It is this or risk being left behind in the most transformative era of agriculture since the invention of irrigation.

Takeaway Messages:

- » **AI will revolutionize** agriculture: Readiness will determine winners and losers.
- » **Strengthening and integrating** agro value chains will drive success in developing nations.
- » **Shifting agriculture** from domestic to export-oriented is key to AI-driven prosperity.

==> Looking for an insightful speaker on poverty, agriculture, and community development? Invite me to share how innovative models like the Kibbutz can transform rural economies and create lasting prosperity for farmers and smallholders. Let's start the conversation!

==> Let me know how I can help you achieve your goals. Reach out on WhatsApp at +972-54-2523425.

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"Mental and Economic Freedom Are Interconnected."

See you soon,

Nimrod



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P.S.

If you missed it, here is a link to last week's blog, "[The Illusion of Healthy Good Life In The Village](#)".

P.P.S.

Here are ways we can work together to help your agro sector and rural communities step forward and shift from poverty into ongoing prosperity:

* **Nova Kibbutz and consultancy** on rural communities' models.

* **Local & National programs related to agro-produce export models** - [Dream Valley](#) global vertical value and supply chain business model and concept connects (a) input suppliers with farmers in developing economies and (b) those farmers with consumers in premium markets.

* **Crop protection:** [Biofeed](#), an eco-friendly zero-spray control technology and protocol.

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*This article addresses general phenomena. The mention of a country/continent is used for illustration purposes only.