

Innovation Insights Quarterly

3Q | July 2026
Perspective from Franklin Equity



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Innovation can often add value by making existing technologies simpler, smarter or more accessible. From plant-inspired technology to gene therapies that point the way to longer lives to artificial intelligence (AI)-powered World Cup analytics, this quarter's selections spark the imagination. While these breakthroughs span the economy, each introduces fresh ideas to existing industries, often cross-pollinating techniques across disciplines for interesting and unexpected results.

Artificial Plants Offer New Solution to Address Climate Change

Researchers at Osaka Metropolitan University have created an artificial photosynthesis system that mimics the way that plants use sunlight to convert water and carbon dioxide into clean, useable fuel. This simplified system uses a solid electrolyte—a material that conducts charged particles—to automatically adjust energy flow as sunlight changes, offering a potential new path to low-cost clean energy.¹

Why it matters: Global carbon dioxide emissions reached roughly 42 billion metric tons of in 2025.² This technology is exciting because it both consumes carbon dioxide and produces renewable fuel. However, researchers are targeting a 10% energy conversion rate to attain commercial viability, a rate significantly higher than today's levels.³

Gene Therapy May Make Eye Cells Young Again

Researchers have begun the first human clinical trials of a new gene therapy that aims to rejuvenate aging cells, potentially allowing them to function like younger cells while preserving their identity. This trial targets glaucoma, an eye disease that can cause blindness, with a modified virus that activates three genes in certain eye cells.⁴

Why it matters: The World Health Organization projects that the global population over age 60 will nearly double by 2050, which would drastically increase the number of age-related illnesses. If cellular reprogramming proves successful, it could open a new approach to treating age-linked diseases by restoring cell function rather than merely slowing decline.⁵

New 3D-Printing Manufacturing Method Takes Cues From Origami

Researchers at Oak Ridge National Laboratory have developed a manufacturing process that combines 3D-printing with origami folding. Instead of printing large three-dimensional objects directly, manufacturers print flat composite structures with built-in fold lines that are later folded into complex components. The mostly automated process reduces manufacturing time and eliminates the need for expensive molds.⁶

Why it matters: This production method reduces manufacturing time by up to 95%, which translates into potential cost savings of up to 90% while also simplifying transportation. Faster and more flexible production could accelerate innovation across aerospace, automotive and industrial manufacturing to unlock new design possibilities.⁷

New Brain-Protecting Peptide Targets Parkinson's

Researchers at Brazil's Federal University of São Paulo identified a naturally occurring peptide, a small protein-like molecule that helps regulate processes in the body, that reduces brain inflammation and protects dopamine-producing neurons in Parkinson's disease models. Instead of replacing dopamine, the norm in existing therapies, this treatment targets neuroinflammation, which contributes to disease progression.⁸

Why it matters: Approximately 1.1 million people actively suffer from Parkinson's in the United States. Current Parkinson's treatments try to manage symptoms without slowing or preventing progression of the disease. This therapy could represent an important step toward stopping disease progression, compared to treatments that temporarily improve quality of life.⁹

Metacrystal Panels May Improve Future wireless Networks

Researchers at Aalto University have developed 3D-printed “metacrystals” that act as mirrors for radio waves—redirecting wireless signals around corners, barriers and any obstacle without requiring electronics, a power supply or active tuning. These panels are carefully engineered to improve signals in parking garages, warehouses and office buildings where wireless signals are often blocked by walls, equipment, and other blockades.¹⁰

Why this matters: Even though 80% of wireless data traffic happens indoors, less than 2% of commercial buildings have made efforts to better their cellular connection. These metacrystal panels could lower deployment costs by reducing the need for expensive antennas, wiring and other networking equipment while expanding wireless coverage to increase connectivity across the globe.¹¹

AI Joins the Sidelines of the FIFA World Cup

FIFA and tech companies introduced Football AI Pro, a generative AI platform that tracks hundreds of millions of soccer data point to generate tactical insights and interactive visualizations for coaches, including player speed, passing accuracy and defensive positioning. This platform was available to all 48 teams competing in the 2026 FIFA World Cup.¹²

Why it matters: The sports analytics market, driven by AI, is projected to grow to US\$8.4 billion by 2030, according to one source. During the World Cup, coaches used Football AI Pro to simulate how opponents would likely react in certain game scenarios, allowing teams to prepare tailored tactics. Beyond coaching, similar technologies are being adopted for injury prevention, officiating and fan engagement, highlighting how AI is expanding into new industries and transforming the world.¹³

AI Transforming Football

Enhances football with real-time player tracking, match insights, and immersive fan experiences.



For illustrative purposes only.

ENDNOTES

1. Source: "Toward Battery-Free Artificial Photosynthesis: Stable Fuel Production at Lower Cost." Osaka Metropolitan University. June 10, 2026.
2. Source: Global Carbon Project. Key Messages from the Global Carbon Budget 2025. November 13, 2025. Accessed July 21, 2026. <https://globalcarbonbudget.org>.
3. Source: "Battery-Free Artificial Photosynthesis Keeps Solar Fuel Production Stable Under Shifting Sunlight." Tech Xplore. June 13, 2026.
4. Source: "World-First: Therapy to Make Cells Young Again Trialled in a Person." Nature. June 9, 2026.
5. Source: "Ageing and Health." World Health Organization. October 1, 2025.
6. Source: "Origami 3D Printing Method Eliminates Costly Molds." Oak Ridge National Laboratory. June 17, 2026.
7. Source: "Origami 3D Printing Method Eliminates Costly Molds." Interesting Engineering. June 18, 2026.
8. Source: "Scientists Discover Brain-Protecting Peptide That Could Change Parkinson's Treatment." SciTechDaily. June 16, 2026.
9. Source: "Statistics." Parkinson's Foundation. July 2026.
10. Source: "Forget Signal Dead Zones: These 3D-Printed Panels Could Supercharge 6G." SciTechDaily. June 30, 2026.
11. Source: "Capitalizing on the Indoor Coverage Opportunity." Real Wireless. November 29, 2016.
12. Source: "Football AI Pro." FIFA. July 2026.
13. Source: "AI in Professional Sports: The 2026 Landscape." LSC Research. 2026.

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