

The introduction of [legalized cannabis](#) to the American economy happened quickly, and everyone involved has had to overcome numerous challenges to make it work. This includes growers, manufacturers, retailers, legislators, regulators, and consumers.

Profitability and viability are far from a given for cannabis industry actors, despite the immense popularity of the products they've chosen to grow, create, or market. Somehow, they must do an end-run around the inefficiencies created by the disunity of state-based legalization, which creates a "system" that is really nothing more than a string of disconnected microsystems.

But there are advantages to entering a business climate where much is uncertain, and seemingly everything is up for grabs. Because established businesses are reluctant to get involved, it leaves room for smaller companies and start-ups run by innovators with new and original ideas. Among the many benefits of such a situation is the impetus it can provide for technological innovation: develop a technology that gives you the edge over your competitors, or that solves one or more of the problems caused by the fractured and piecemeal nature of legalization, and you can gain an impressive market share quickly.

Entrepreneurs who enter the cannabis industry are incredibly fortunate to arrive at a time when technology is multiplying, diversifying, and revolutionizing everything. In more established industries, there is a great fear of automation, artificial intelligence, robotics, digitalization, and other cutting-edge developments. It is believed (quite correctly in many cases) that technological advance will lead to significant job loss, with entire categories of employment being automated out of existence. On the management side, existing business owners must alter ways of doing business that may have been successful for decades, and they may have to make significant new investments to avoid being rendered obsolete.

But the cannabis industry is the very opposite of hidebound. Not only are there no barriers to prevent cannabis industry participants from adapting, but they have a tremendous incentive to seek out and implement new technologies, and to support them with research dollars whenever possible.

Still new, still learning and always innovating, cannabis cultivators, manufacturers and retailers are lean and mean and ready to adjust on the fly. Tech will allow them to soar in the coming years, and they are standing ready with wings outstretched.

## **Technology Provides Answers**

In the years ahead, cannabis producers must answer many essential questions. They include:

- How can cannabis be cultivated to produce maximum output with a minimum input of energy and other resources?
- Can solar energy help producers and manufacturers cut costs and reduce their carbon footprints?
- How can cannabis products be transported and stored more efficiently, with less waste of time and space?

- How can automation and artificial intelligence best be implemented in cultivation, extraction, and manufacturing?
- What demands must software management systems be able to meet to improve business performance and make it easier to comply with regulations?
- How can the cannabis consumer experience be improved, concerning both access and convenience?
- What are the best marketing strategies for companies anxious to expand their customer bases?
- Can genetics continue to advance, thereby increasing the capacity of producers to create more perfectly customized user experiences?
- How can cannabis producers, manufacturers, and retailers make life easier for themselves and for regulators simultaneously?

For each question, the answers will inevitably involve technology. It might be fresh out of the box, or new and improved versions of the old. But technology will provide the winning edge, in software, hardware and all the permutations of both.

Because it is still in a position to be flexible and fluid, the sky is the limit for the cannabis industry. It will function as an open laboratory for people with original ideas, unique perspectives, and a desire to change the world. The benefits of this will be undeniable, and the industry will be in constant transformation as a result.

## Cannabis Technology in Action

Here are some recent technological developments, applications, and achievements that reveal how the cannabis industry is modernizing at lightning speed:

- **Rhythm Advanced Fertigation System.** Built specifically for cannabis cultivation, this [energy-efficient, scalable Fertigation System from Rhythm](#) controls nutrient dosing, temperature management, humidity levels, carbon dioxide fertilization, and lighting.
- **Grasspit Patient Management Platform.** Licensed medical cannabis patients in Arizona and California can upload their documents and state ID cards online to verify their identities. After eligibility is proven, they can then purchase all their medicinal products from [Grasspit](#) online via mobile app, for rapid home delivery.
- **Eaze Wellness Nationwide Delivery App.** Initially available for customers purchasing CBD products in California exclusively, Eaze (rechristened [Eaze Wellness](#)) has now taken their mobile app-based delivery service to 41 states plus the District of Columbia.
- **Green Vault Systems Precision Batcher.** This [automated handling system from Green Vault](#) can safely and gently sort and package cannabis flowers at a rate of more than 20 batches per minute, with no risk of damage to the product.
- **Superpower Cultivation Management System from RedPoint Solutions.** This amplified seed-to-sale tracking system has expanded to include detailed information about plant numbers, harvest weights, sales figures, humidity levels, temperature settings, and lighting cycles. [The Superpower system](#) can track data from multiple facilities in various locations simultaneously, making it ideal for companies with interstate ambitions.

- **Cannadescent's Solar-Powered Commercial-Scale Cultivation Facility.** Earlier this year, [Cannadescent completed the installation of a 282.6-megawatt solar panel array](#) at its indoor cultivation facility in Desert Hot Springs, California. This is the first commercial-scale operation in the country to make the full transition to solar, which is provided by panels installed on specially constructed carports.
- **BioTrack THC Online Registration System.** Currently running the program in North Dakota, this software system from [BioTrack THC](#) will allow consumers with prescriptions for medicinal cannabis products to register online, after which they will receive a digital version of their medical cannabis ID cards that can be downloaded to their mobile phones. These digital cards will be good at any dispensary in the state.
- **Seedo Automated Home Grow System.** [Seedo](#)'s self-contained growing system is fully automated for [home hydroponic cannabis production](#). The grow box will manage temperature and humidity, add carbon dioxide and other nutrients, and manage lighting to ensure plant health—with no supervision or further input required.

Up and down the production-and-consumption line, technology is making a significant impact on the cannabis industry. This trend won't end anytime soon if it ends at all.

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