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Marijuana Business Daily®

Marijuana Business Factbook 2017

Exclusive Financial Data For Cannabusinesses & Major Investors

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Exclusive Financial Data
For Cannabusinesses
& Major Investors

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Table of Contents

Introduction

From the Editor

Welcome to the fifth edition of the Marijuana Business Factbook, produced by the research and editorial team at *Marijuana Business Daily*.

Inside this report, you'll find a host of business and financial information that can be used to start a cannabis business, grow or improve an existing one, land financing, make investments in cannabis companies, identify opportunities and understand the competitive situation as well as the industry at large.

There's a reason many professionals in the industry refer to this as the "Marijuana bible" – it's an invaluable resource for anyone involved in the business of cannabis ... or hoping to get involved.

Once again, we have expanded and strengthened the scope of our research and improved the quality of our data. That means all figures, charts, projections and analysis contained in these pages are new. We've also changed methodologies in some key areas to provide a more nuanced and accurate view of this industry.

Some of the enhanced information included in this edition:

- Further breakdowns of operational and financial information that reflect differing business models. Some examples include:
  - Data on companies operating in markets without statewide regulations versus their peers in regulated states.
  - Differences in metrics for infused product companies that also grow their own cannabis versus those that do not.
  - "Real World Examples" that dive a little deeper into a dataset by highlighting everything from a specific company's startup costs to actual sales for the top cannabis retailers in Washington state to the percentage of markets that allow wholesale cultivation.

- Enhanced third-party data on retail and wholesale cannabis pricing trends, which can be found at the end of chapters 3 and 4.
- New types of data, such as the soil medium growers use, the types of payments retailers accept and how much companies pay each month for banking services.
- Estimated job growth over the past year and going forward through 2021. We also revised our methodology for estimating the number of jobs in the industry based on new information, providing a more accurate view of employment.
- An overview of the potential market size 3-5 years down the road in states that legalized in 2016, including the recreational marijuana industries in California, Maine, Massachusetts and Nevada as well as the medical industries in Arkansas, Florida (which expanded its CBD-focused program by legalizing a broader, full-strength MMJ program), Louisiana (which paved the way for a regulated industry), North Dakota, Ohio and Pennsylvania. This information can be found at the end of Chapter 2.

And of course, we have included all the information readers have come to rely on, such as profitability and revenue metrics for businesses in each major sector of the industry, retail sales projections nationally and by state, economic impact estimates.

This year our data analyst Eli McVey spearheaded the Factbook. His experience working both within the industry and outside of it, notably at the prestigious research firm Nielsen, helped us take this report to the next level. The rest of the Marijuana Business Daily editorial team also contributed, including reporters John Schroyer, Bart Schaneman and Omar Sacirbey as well as our senior editors Roger Fillion and Kevin Huhn.

It's important to note that we are somewhat conservative with our estimates and projections, both for the existing industry and its potential growth going forward. We strive to provide realistic numbers, not make the industry appear bigger than it really is. We don't lobby, offer investments, provide consulting services or have any other reason to publish hype.

As a result, our estimates for national and state-level retail marijuana revenues are often lower than many other projections out there. We believe a conservative approach will help you make sound business decisions, and we have a solid track record with our estimates despite the huge amount of uncertainty and lack of reliable data in general. Most of the estimates we've made in the past turn out to be spot-on. If we need to revise numbers, it often involves revising them upward – not downward.

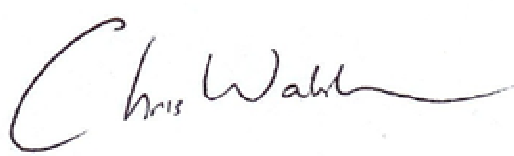
A couple of quick notes on using this Factbook:

- If you're interested in overarching national data, start with Chapter 1 for a look at retail sales estimates for the U.S. marijuana industry, economic impact projections, employment figures and a look at overarching financial data for the major niches.

- If you want an overview of each state's market – including estimated sales, approved medical conditions, whether home grows are allowed and stability/opportunity rankings – head to Chapter 2.
- If you're seeking financial and operational benchmark data such as startup costs, profitability metrics and average revenue for retailers, dive into Chapter 3.
- If you're looking for financial and operational benchmark data for cultivators, head to Chapter 4.
- If you are interested in financial and operational benchmark data for infused product companies, flip to Chapter 5.
- If you want an overview of financial and operational data for testing labs and ancillary companies, check out Chapter 6.
- If you're an investor in the industry or are seeking financing data, go to Chapter 7 for information on everything from how much companies are hoping to raise to sources of capital MJ businesses have used to launch and typical investor returns.
- For a rundown of our methodology, read the Appendix at the end of this report.

If you have any suggestions or want to provide feedback, please contact me at chrisw@mjbizdaily.com or reach out to our data analyst Eli McVey at elim@mjbizdaily.com.

Best of luck with your cannabusiness endeavors,



Chris Walsh
Editorial Director

Note: Want to publish or use our charts and numbers somewhere else? The charts and tables in our Executive Summary are yours to use with proper attribution, as long as you don't alter them in any way. However, the rest of the 200 charts and tables in this Factbook are for your personal use only and may not be reproduced. We take copyright seriously – after all, it is our livelihood. Thank you for understanding.

Overview & Key Takeaways

The number of technology companies serving the marijuana industry has grown substantially in recent years, providing insights into everything from retail sales to wholesale cannabis pricing and consumer purchasing patterns. Just a few short years ago, entrepreneurs, executives and investors had almost no hard information by which to make decisions and instead had to rely largely on gut feelings.

But there's still a substantial lack of even basic financial and operational information about the companies in this space and the industry at large.

There are several reasons for this:

- The federal government doesn't track the industry, so information on jobs, the number of companies in the space and taxes paid simply isn't available across the industry as a whole.
- Each state approaches its cannabis industry differently. A handful provide solid in-depth data, such as tax revenue generated from the industry, the names of all licensed companies and monthly or annual retail sales. But most states do not. Some don't even keep track of how many patients participate in their programs.
- The industry still doesn't have a solid presence on the public markets. Entrepreneurs can typically glean useful information by examining the filings and financial statements of publicly traded companies. However, the vast majority of cannabis companies are privately held, while most publicly traded marijuana firms are listed on the over-the-counter markets, where the reporting and disclosure requirements are light. While some insights can be gained from documents filed by publicly traded cannabis companies, these reports are generally unaudited and only represent a sliver of the marketplace.
- Tax returns for nonprofit organizations are in the public domain, and many medical dispensaries must operate in a not-for-profit manner. However, their status as such is not formally recognized by the IRS, and therefore their tax returns are not publicly available.

As a result, business owners and investors don't have the types of financial information, benchmark data and in-depth market insight necessary to help them make decisions, assess the competition, target investments and tackle new opportunities. This report helps to fill that void by providing exclusive data and insight into these areas, relying on information gleaned from our annual survey of cannabis professionals, our third-party data partners, our institutional knowledge and expertise, and interviews with marijuana executives and experts (refer to the methodology section of the Appendix for details).

The lion's share of financial and operational data in this report stems from our annual online survey of cannabis professionals. This year's Factbook includes the responses of more than 800 business owners, executives, entrepreneurs and investors. Their input helped give us a window into operational data for the main sectors of the industry: retail, cultivation, infused products, testing, ancillary technology/products and ancillary services. Additionally, survey responses are behind most of the data in an entire chapter on funding and investing.

We also utilize data-sharing partnerships with reputable firms in the industry, allowing us to provide an in-depth look at two major areas: point-of-sale transactions and wholesale cannabis pricing. *Marijuana Business Daily* would like to extend special gratitude to the following data partners for their contributions to this book:

- Headset, which provides business intelligence and analytics services for marijuana businesses.
- Cannabis Benchmarks, a division of New Leaf Data Services LLC, which tracks wholesale medical and recreational cannabis prices across the United States.

Data from these partners is featured in chapters 3 and 4, and more information on each of these companies can be found in the Appendix.

Additionally, *Marijuana Business Daily* would like to thank the following individuals and organizations for their support in spreading the word about this year's survey of cannabis professionals and providing valuable market expertise:

> Apeks Supercritical, Canna Advisors, Cannabis Business Alliance, Charles Bachtell of Cresco Labs, Custom Vault, DB3, Denver Relief Consulting, Dixie Brands, Green Rush Consulting, Guardian Data Systems, Headset, Kristi Knoblich of Kiva Confections, Noah Novello of LivWell, Medicine Man Technologies, MJardin, Quantum 9, Sapphire Risk Advisory Group, SIVA Enterprises.

5 Key Takeaways

This report is meant to serve as a detailed point of reference with specific data points and figures. However, there are larger trends and themes that emerge after sifting through the full data set of survey responses and performing the research for this book. Below is an overview of these key takeaways:

1 Businesses are increasingly concerned about the possibility of federal intervention

The commercial marijuana industry exists on a state-by-state basis, and all medical and recreational programs are technically in violation of federal drug laws. The U.S. Department of Justice issued some guidelines in recent years that helped the marijuana industry gain traction, but these are not legally binding and could theoretically be nullified at any time.

So it's easy to understand why cannabis businesses are worried about the future under a new administration. President Trump's pick to head the Department of Justice, Jeff Sessions, has made his disdain for marijuana abundantly clear. Furthermore, the Trump administration's first public comment on the nation's marijuana industry seemed to suggest greater enforcement of federal marijuana laws are forthcoming, though in what shape or form is anybody's guess.

In our 2016 survey of cannabis professionals, the threat of federal intervention ranked as the third-most prevalent challenge facing marijuana business owners. This year, it took the top spot – reflecting the cloud of uncertainty hovering over the marijuana industry. That uncertainty could affect everything from expansion plans to investments to overall growth in 2017 and beyond.

2 Investment deals are increasing in size, frequency and scope

Investors – especially those unfamiliar with the cannabis market – have traditionally been hesitant to invest in an industry the federal government still views as illegal. While this still holds true for major institutional investors, smaller firms and groups of wealthy individuals are becoming increasingly interested in the cannabis space. In 2016, for instance, the private equity firm Tuatara Capital raised $93 million for investments in cannabis businesses, a record for the marijuana industry.

Our survey found that investors who have already pumped money into the cannabis industry are planning on putting capital into nearly as many marijuana businesses in 2017 as they have in all previous years combined – a revealing statistic that shows just how optimistic investors are for the future of the marijuana industry.

3 Business conditions are worsening for growers

Though it's still early days for the cannabis industry overall, the wholesale cultivation segment has already become saturated in large, mature markets like Colorado and Washington state. More growers entered the industry upon recreational legalization, and existing MMJ cultivators greatly expanded their operations. Despite rising adult-use sales, the increase in production proved even greater than demand – sending wholesale cannabis prices plummeting. Some cultivators that shelled out for expensive indoor facilities are finding that costs of production now exceed the market price per pound of cannabis.

More than any other segment of the industry, wholesale cultivators that took our survey anticipate their financial conditions will worsen over the next 12 months. Investors appear to have taken notice as well, signaling their intentions to reign in investment activity within this segment of the industry.

4 Rec market continues surging

As the first state in the nation to legalize recreational marijuana, Colorado's adult-use market got off to an extremely strong start – routinely posting monthly sales gains in the double digits. Washington state's recreational market also boomed once it got over some initial hurdles after launching in 2014.

But many expected that, over time, sales would begin to slow, especially as more states legalized rec cannabis and the novelty wore off.

So far, however, sales have only continued to rise. In Washington state and Colorado, rec customers spent over $1.5 billion on marijuana in 2016, ballooning a combined 66% from the previous year. Rec sales tripled in Oregon from February to August 2016, though they were hurt by the implementation of strict new testing standards. The sales figures are especially striking because they come amid a time of historically low wholesale marijuana prices, implying that demand is even stronger than sales would suggest. Additionally, Oregon and Washington are neighbors, and the fact that both have functioning recreational marijuana industries hasn't led to any slowdown in sales in either market.

While it remains to be seen how rec markets in 2017 will ultimately fare, early figures out of Colorado and Washington state show sales are at levels way above this same time last year – illustrating the growth potential these relatively mature markets still possess.

5 It's taking companies longer to turn a profit

Just a couple of years ago, running a profitable marijuana company was simply a matter of getting the business off the ground and opening your doors. But the industry has evolved at a rapid pace, and a huge number of new businesses entering the cannabis space has raised the level of competition considerably. In major recreational markets like Seattle, Denver and Portland, consumers have access to numerous retail stores and an overwhelming amount of product options.

At the same time, startup costs are rising rapidly. It now can cost hundreds of thousands of dollars, or even millions, to launch a plant-touching company, while just a few years ago it cost half that or less in many markets.

Naturally, therefore, it's taking companies longer to climb into the black. In early 2016, nearly 70% of retailers, wholesale cultivators and infused product manufacturers said they had reached break-even or profitability within a year. In our 2017 survey, about 55% of these businesses said they reached the break-even point or hit profitability within a year.

Profitability is by no means unattainable for cannabis businesses; generally speaking, most of these companies are doing quite well. But market forces are unavoidable, and they'll continue forcing marijuana businesses to adapt and improve in order to succeed.

Who's Behind This Factbook?

Founded in early 2011, *Marijuana Business Daily®* focuses solely on cannabis businesses and the investors who back them.

If you are leading or financing a cannabis-related company, we help you prosper via trusted information services and exceptional events.

Our publications have the highest business readership in the industry. Our events are sellouts, time after time. We've been featured everywhere from *Harvard Business Review* to *Forbes*, *Fortune*, *Fast Company* and *Inc. Magazine*.

Do you need practical information, real-life data or industry connections to help your business grow? You'll find what you need in one of our publications, or at our national events.

We are here to help the multibillion-dollar cannabis industry prosper. Let us know how we can serve you.

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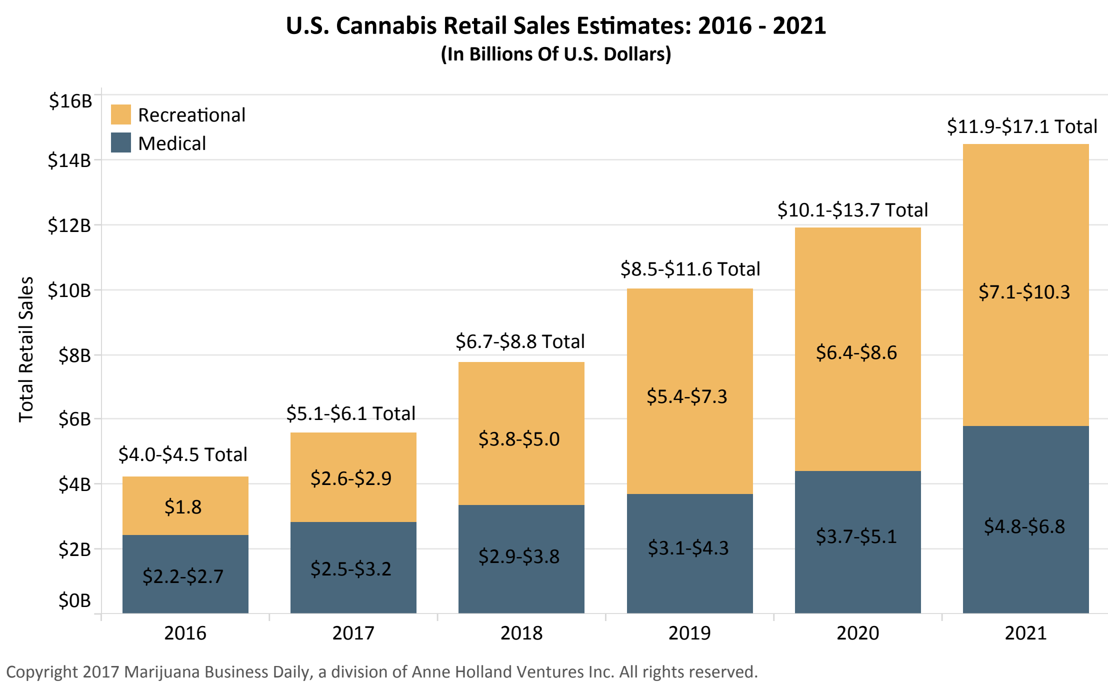
Executive Summary: 12 Key Charts

The marijuana floodgates are bursting wide open.

In 2017, we expect overall marijuana sales in the United States at the retail level to soar by roughly 30%, hitting $5.1 billion-$6.1 billion on the back of continued growth in existing recreational cannabis markets. In fact, rec sales are expected to surpass medical this year for the first time ever. Medical marijuana sales also are expected to buoy the industry, fueled in part by the expected launch of MMJ markets in Maryland and Hawaii. At the same time, fledging medical marijuana programs in states such as Illinois, Nevada and New York could post impressive growth this year.



The expected growth this year comes after a solid 2016, when recreational cannabis sales jumped by 80% to hit $1.8 billion. Colorado and Washington led the charge, while Oregon's adult-use market posted strong sales gains in its first full calendar year of operation. The industry also saw a spike in medical marijuana sales last year, as patient counts rose in new MMJ states and continued climbing in mature markets like Arizona and Michigan.

The 2017 Marijuana Business Factbook provides an in-depth look at the immense year-over-year growth the industry has experienced and offers exclusive projections on where it's headed. Be sure to check out Chapter 2 for an overview of every medical and rec state, including estimated sales, business stability and opportunity rankings, and how each market fits into the big picture.

Although this year is shaping up to be another one for the record books, the longer-term growth potential for the industry is even more promising.

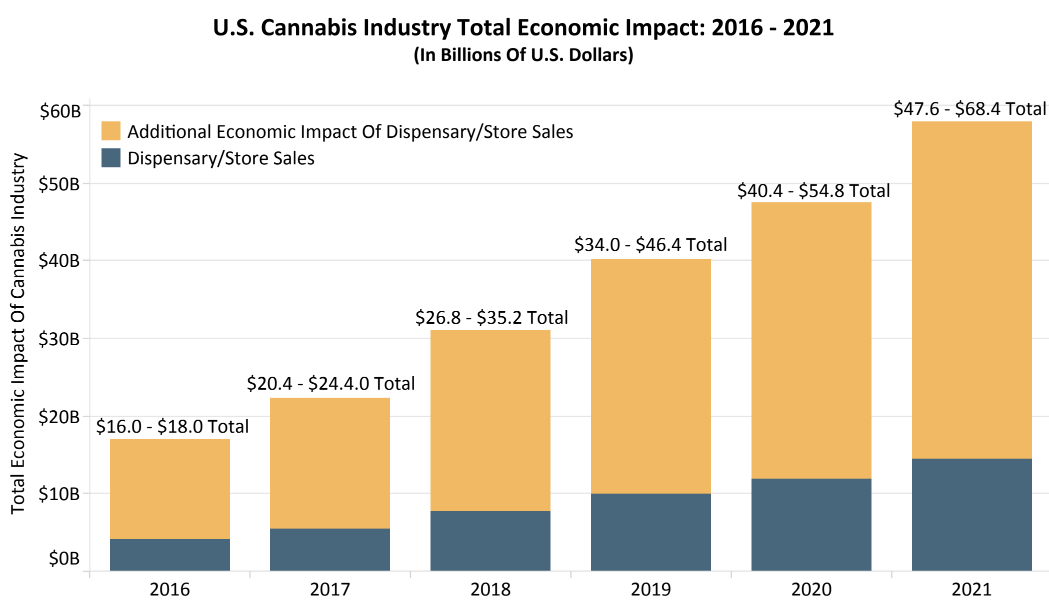
The majority of the 11 states that legalized medical or recreational marijuana in 2016 (or passed laws that will create state-regulated industries) are aiming to start sales in 2018, including the potentially massive adult-use markets in California and Massachuetts. Nevada, which will allow an early start to adult-use sales starting in July 2017, will also start hitting its stride on the rec front next year. Delays in program rollouts – a common occurrence in new markets – could push some of this growth into 2019, but sales should still increase sizably next year.

These new markets, as well as other states that legalize in the near future, will set the stage for impressive growth over the next five years. By 2021, we project that annual retail marijuana sales in the United States could top $17 billion, which would represent a 300% increase from 2016.

Of course, there's a big caveat: The election of Donald Trump as U.S. president has cast a cloud of uncertainty over the industry. Recent statements by some White House officials – including Attorney General Jeff Sessions – have marijuana business owners concerned. Though it remains unclear as to how the Trump adminsitration will ultimately approach the industry, increased enforcement of federal regulations could have a significant impact on future sales.

Note that our goal is to provide conservative, realistic financial forecasts that reflect the high degree of uncertainty in the industry. Total cannabis sales in any given calendar year are highly dependent upon progress made – or not made – in each individual state. California is the big wild card at present, as the lack of a statewide regulatory system makes it difficult to get a handle on the exact size of this enormous market. As more information comes to light over time, it could change our estimates for California and, therefore, the industry at large.

The increase in retail sales over the next five years will provide a substantial economic boost for the United States.



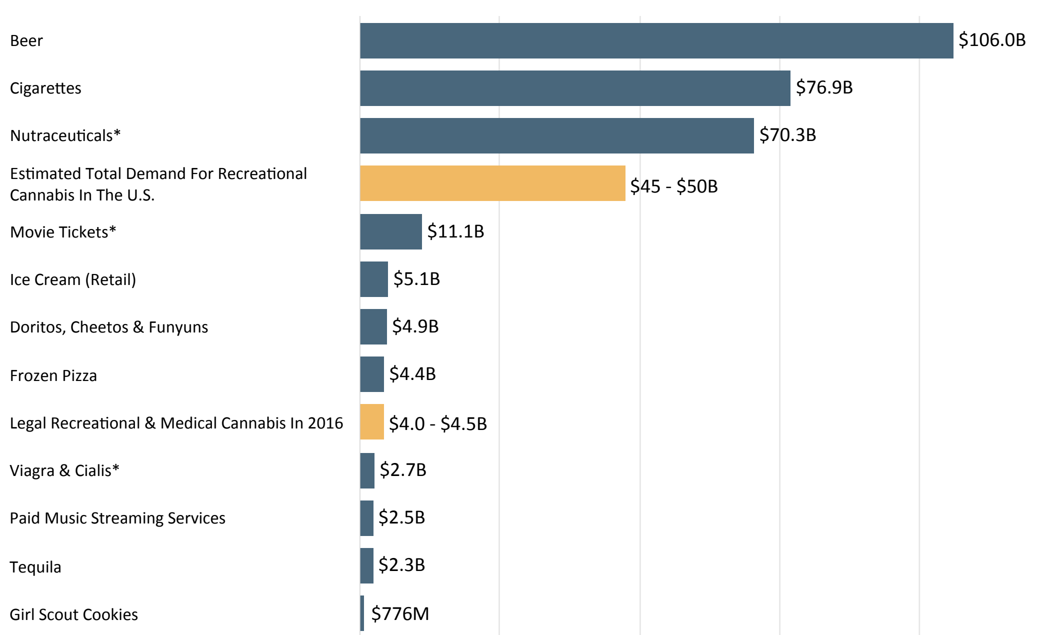
Our estimates for the industry's economic impact are based on retail marijuana sales and incorporate a multiplier of four. So for every $1 consumers/patients spend at dispensaries or rec stores, another $3 in economic benefits are created in cities, states and nationwide.

Based on this metric, the marijuana industry will create a $20 billion-$24 billion economic impact in 2017. By 2021, that could soar to $70 billion annually.

Some of the many examples of the industry's overall economic impact include:

- The launch of cultivation businesses, dispensaries/rec shops and infused product companies spurs real estate and construction activity. Many grows, for instance, now occupy warehouse space that was previously vacant, while a fair share of retailers took over and renovated dilapidated storefronts.
- Employees of cannabis companies spend their dollars on everything from housing and food to entertainment and travel, benefiting other businesses along the way.
- Marijuana businesses collectively pay hundreds of millions of dollars in state and local taxes, which are then used to fund projects and support government programs.
- Tourists visit rec states to purchase and consume cannabis, while marijuana business professionals travel for meetings, conferences and market research – infusing tourism dollars into a state.

Annual U.S. Cannabis Sales Vs. Other Industries & Goods



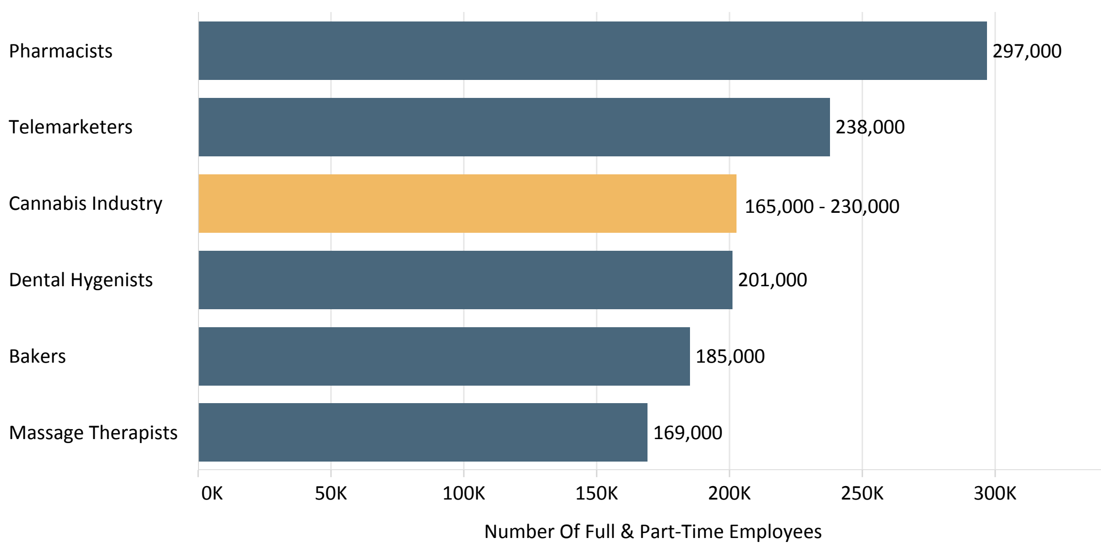
*Includes U.S. and Canada
Source: Brewers Association, IRI, Mordor Intelligence, MPAA, Statista, Eli Lilly and Company, Pfizer, RIAA, U.S. Distilled Spirits Council
Note: All data is for 2015 or 2016, most recent figures are reported in the chart.

How do marijuana sales stack up to comparable products and other consumer goods?

In 2016, sales of medical and recreational cannabis surpassed revenue generated from Viagra and Cialis – two of the leading erectile dysfunction drugs on the market – music streaming services and Girl Scout Cookies. This year, cannabis could eclipse the popular snack foods Doritos, Cheetos and Funyuns, as well as ice cream sales.

The estimated total demand for marijuana in the United States, including the black market, is around $45 billion to $50 billion, according to our estimates. If the federal government legalized marijuana nationwide, sales might start out at around that level but would likely quickly rise as cannabis gained mainstream acceptance and the market evolved. Eventually, marijuana could top cigarettes and possibly rival even beer in terms of overall sales.

Number Of Employees: Cannabis Industry Compared To Mainstream Professions



Source: U.S. Bureau Of Labor Statistics Employment Projections: 2014-2024

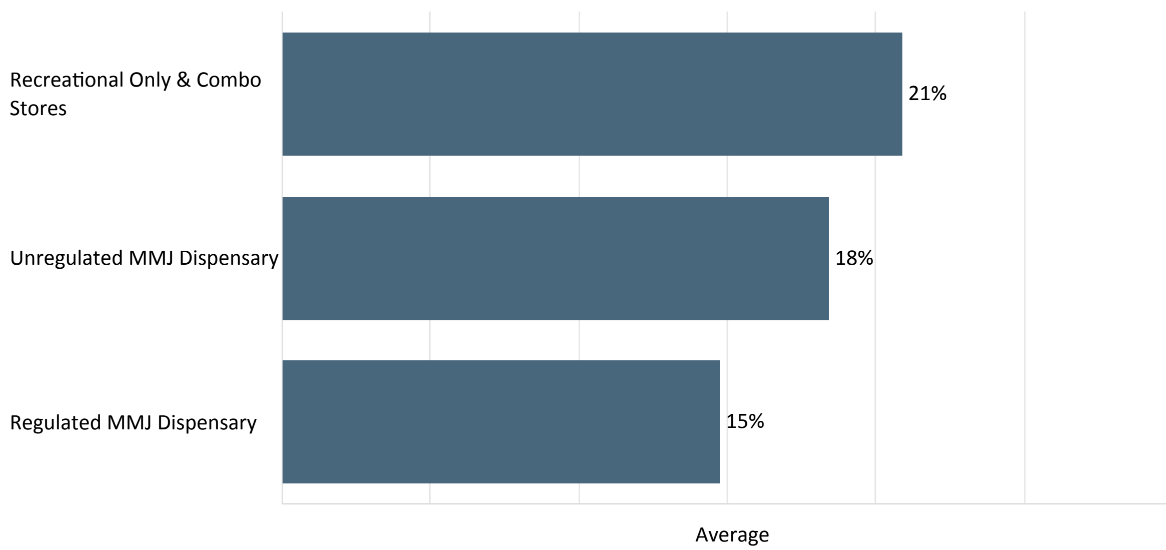
To get another idea of just how big the marijuana industry has become, look to employment numbers. The cannabis sector now employs between 165,000-230,000 full and part-time workers. This estimate includes plant-touching companies and ancillary companies that glean a sizable portion of their revenue from the marijuana industry (not including those that have extremely limited exposure to cannabis businesses). To put this in perspective, there are now more marijuana industry workers than there are bakers or massage therapists in the United States. Check out the 2017 Factbook for a look at employment growth from 2016 to 2017 as well as through 2021.

Data Snapshot By Sector

Here's a look at some key metrics for each major sector of the marijuana industry: retailers, wholesale cultivators, infused products companies, ancillary businesses and investing/funding.

Retail

Average Profit Margin For Dispensaries & Rec Stores By Store Type

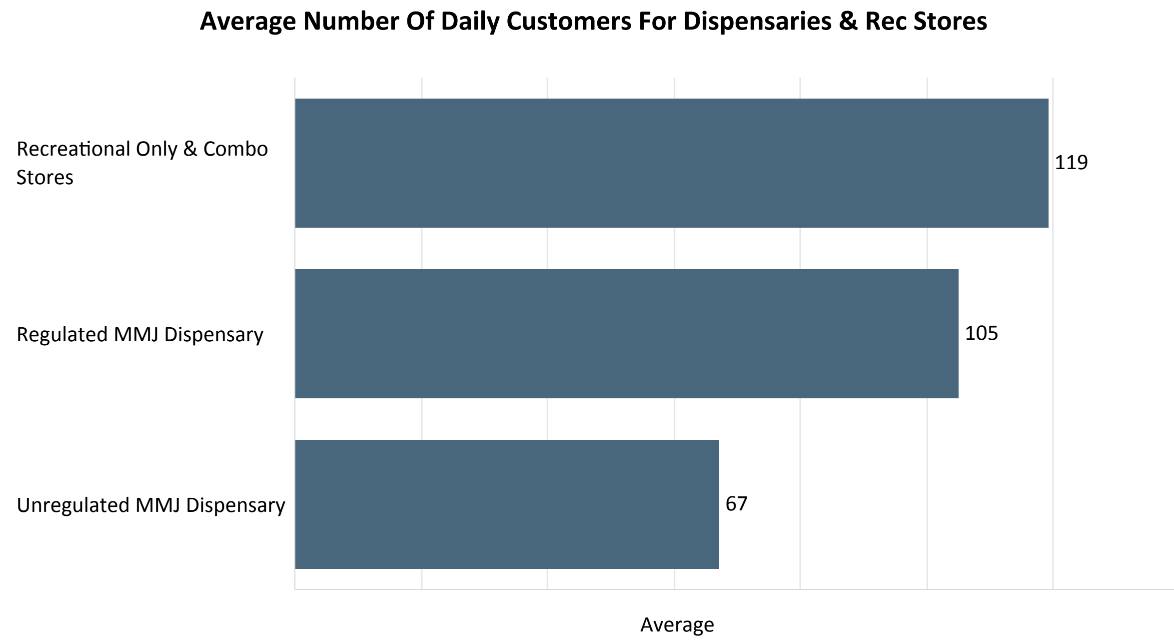


Note: Profits are calculated on an after-tax basis.

Medical marijuana dispensaries and recreational cannabis stores are fairly sound businesses from a financial perspective, with average profit margins coming in around 19%. But as with every metric in this industry, profit margins can vary widely based on the various business climates and regulatory structures of each state and municipality.

Rec shops and businesses that sell both adult-use and medical cannabis typically post the highest profit margins, driven by strong demand and falling wholesale cannabis prices.

Unregulated medical dispensaries report average profit margins of 18%, which is somewhat higher than their regulated peers. Considering that unregulated dispensaries don't face heavy ongoing costs tied to legal and regulatory compliance – or, in some cases, pay any taxes – this is not surprising. However, as you can read about in more detail in the full edition of the 2017 Factbook, a bigger portion of unregulated dispensaries are still trying to reach break-even than regulated MMJ storefronts.



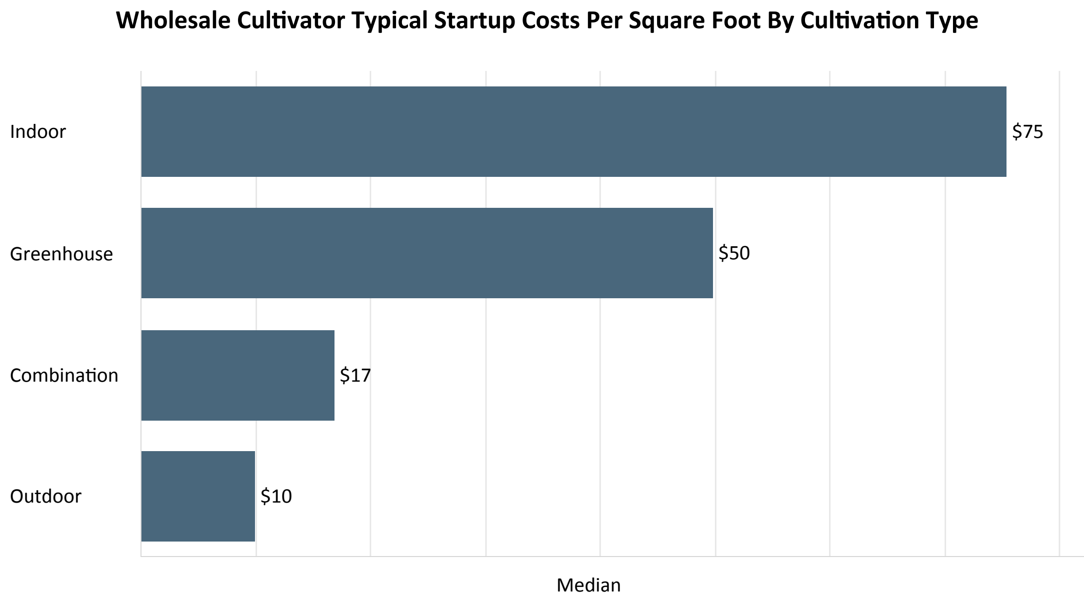
A benchmark figure in the retail side of the cannabis industry is the number of patients/customers served, which can help drive business decisions and provide insight into revenue and profitability.

For the first time this year, we separated unregulated dispensaries in markets without strong statewide oversight – namely California, Michigan and Montana, which are all implementing comprehensive regulations in the near future – to give a clearer picture of how key metrics differ within the retail sector. As you can see, unregulated medical marijuana dispensaries handle about half as many patients each day as regulated dispensaries, explaining why these businesses typically generate less revenue than dispensaries/rec stores in the regulated medical and recreational markets (see the full 2017 Factbook for a breakdown of sales by business type).

Rec stores and businesses that sell both adult-use cannabis and medical marijuana see about 119 customers each day, reflecting immense demand from both locals and tourists.

Cultivation

While not permitted in all states, wholesale cultivators represent the backbone for much of the marijuana industry. In recreational markets especially, surging consumer demand prompted many new entrepreneurs to enter this segment of the market, raising the level of competition while driving the price of wholesale cannabis to record-low levels. That's made it all the more important for growers to find efficient ways of producing high-quality cannabis on a consistent basis.



A cost-per-square-foot analysis highlights the difference in up-front expenditures between the different cultivation types. Each method has its benefits and drawbacks, and advances in cultivation technology continues to change the equation. Chapter 4 of the Factbook delves deeper into this area, examining the financial viability of a large upfront investment based on factors such as profit margins and operating costs by cultivation type.

Primary Growing Medium Used By Wholesale Cultivators

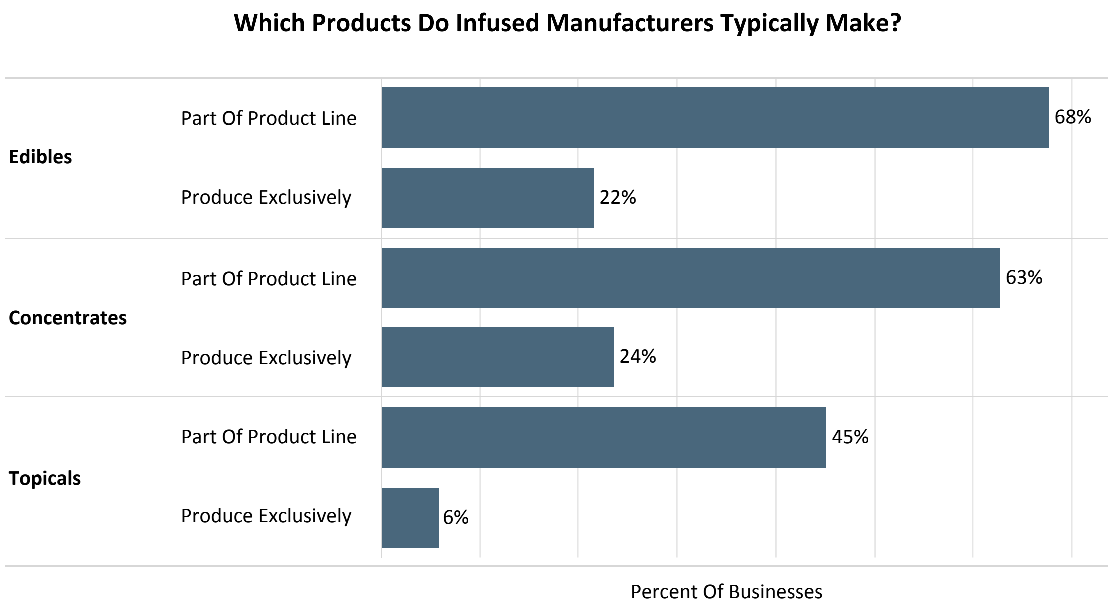
	Soil	Coco Coir	Other	Rockwool	Water	Perlite
Indoor	32%	30%	9%	16%	10%	3%
Greenhouse	50%	17%	33%	-	-	-
Combination	74%	7%	15%	2%	-	2%

As the industry matures, cultivators continue to refine their growing processes – with many incorporating the techniques and technologies found in more mainstream sectors of the agricultural industry into their operations.

Growing mediums are an important part of cultivators' ongoing efforts to scale their operations – increasing yields and boosting quality to remain viable in an increasingly competitive market.

This year, the Factbook provides some new cultivation-related metrics in Chapter 4, including the primary growing medium used by wholesale cultivators.

Infused Products/Concentrates Companies



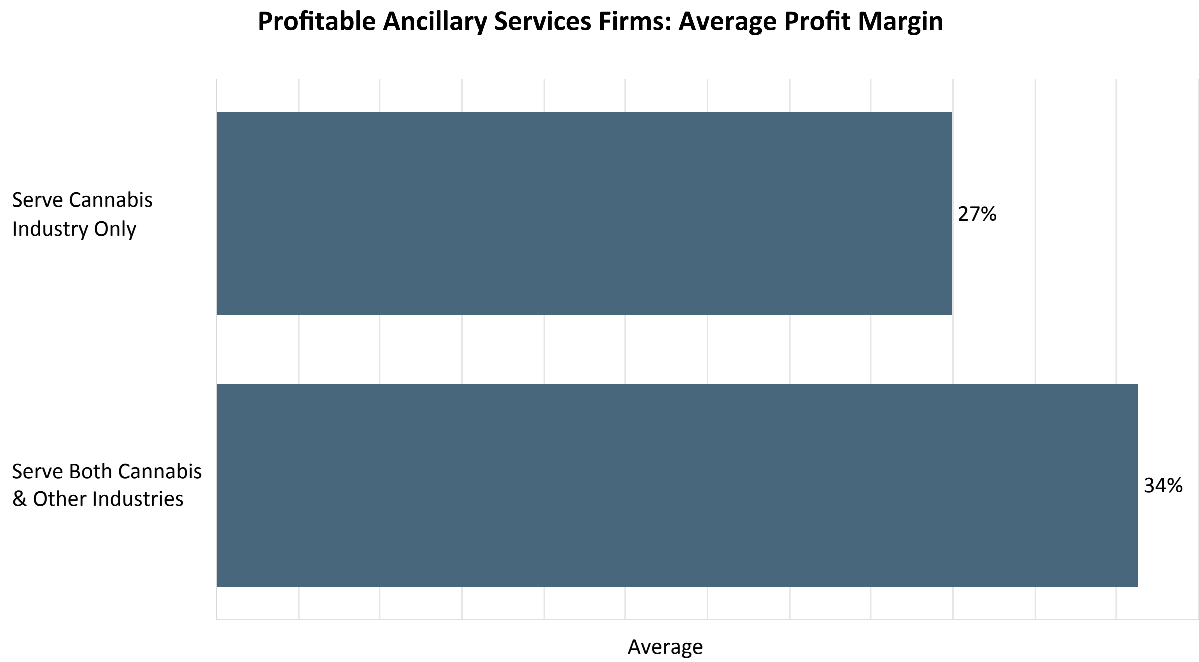
Note: Multiple-choice question; respondent total may be greater than 100%.

Infused products and edibles are the fastest growing category in the cannabis industry, proving extremely popular with recreational consumers and medical patients alike. While flower still accounts for the majority of retail sales, concentrates and edibles continue to eat into flower's share of the market with each passing year.

Manufacturers have taken notice and are extending product lines to occupy multiple segments of the infused products category. While this may maximize revenue in the short term, the industry grows more sophisticated by the day – and manufacturers that specialize on providing a top-quality product to a very narrow portion of the market may end up finding more success than those spread across multiple categories.

Chapter 5 provides further insight for this sector of the industry, including startup costs, number of products produced and more.

Ancillary Firms

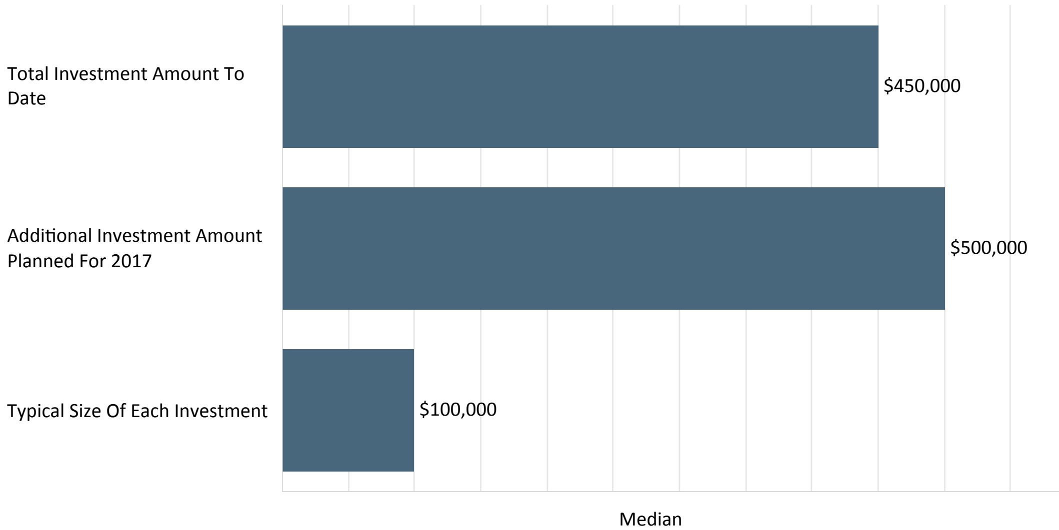


Though marijuana businesses face a number of challenges unique to the cannabis industry, they still require many of the same goods and services as companies in the mainstream economy. A huge number of ancillary companies – businesses that don't work with marijuana plants directly – have sprung up around the cannabis industry, offering traditional services such as accounting and marketing. Some cater to the cannabis industry exclusively, while others serve clients in multiple markets, including marijuana. In either case, ancillary services firms involved in the marijuana industry are generating excellent returns.

Ancillary businesses represent the largest and broadest segment of the marijuana industry, and Chapter 6 delves into much more detail regarding the financial realities and opportunities for a wide number of ancillary service types and product categories.

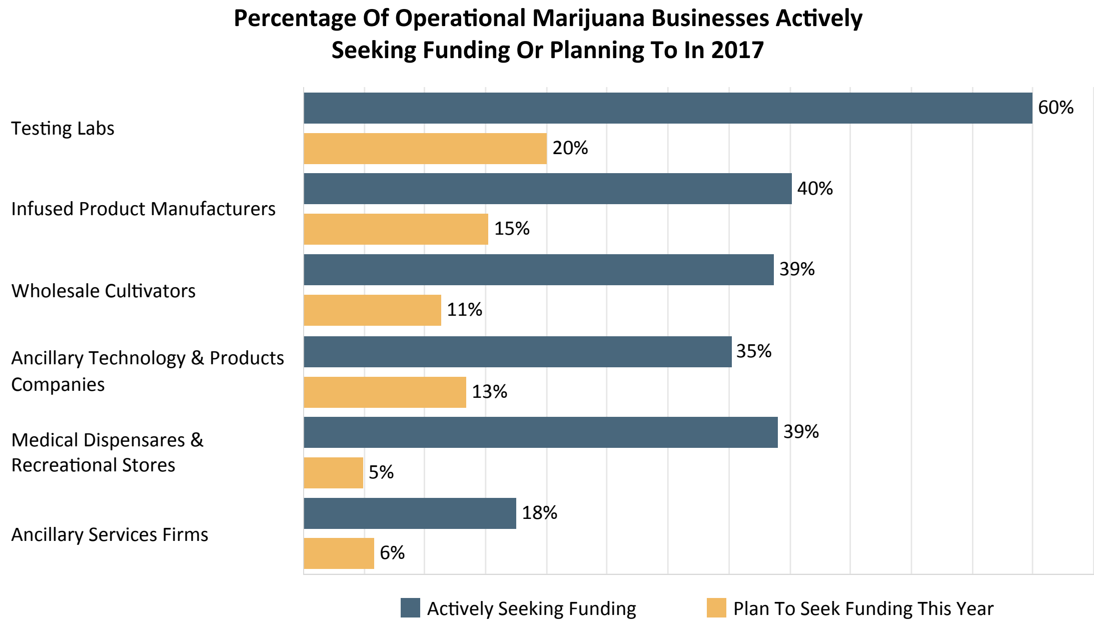
Investing & Funding

Cannabis Industry Investors: Typical Investment Amount To Date, Additional Investment Amount Planned For 2017 & Size Of Each Investment



The level of sophistication and involvement among investors in the marijuana industry varies quite widely, as some belong to cannabis-specific venture capital firms while others have taken a material interest in a friend or family member's cannabis business. For example, only a handful of investors in our survey indicated they intend to invest over $25 million in cannabis companies this year alone, whereas a large portion of respondents plan to invest less than $20,000.

But in general, more investors are pumping money into the cannabis industry than ever before, and they're also increasing the size of their capital placements. The average investor/investment firm involved in the marijuana industry has placed $450,000 in cannabis companies to date, with each investment coming in around $100,000. But investors are looking to place much bigger bets in 2017. According to our survey for the Factbook, investors plan to invest half a million dollars on average in marijuana businesses this year alone.



While an increasing number of investors are eyeing cannabis plays, it appears they have more opportunities than ever before as well. Fifty percent or more of testing labs, infused products companies, wholesale cultivators and ancillary technology/products companies are either actively seeking financing or are planning to in 2017. The funding needs in this industry are strong, as there's a huge influx of startups each year. At the same time, many existing companies are looking to expand locally and even across state border as the industry evolves, which often requires a cash infusion.

Each sector of the industry also faces different challenges and opportunities that then impact their funding needs. Wholesale cultivators in several markets, for instance, have been battered by decreasing prices, and additional funding may be necessary for many of these businesses to survive. Turning a profit comes down to a cultivator's ability to produce high-quality products with an extreme level of efficiency, but the costs of building a facility to meet these needs are substantial. Many growers also are switching to or incorporating greenhouses and therefore need a substantial investment at the outset.

The good news is that cannabis businesses will have more access to capital than in the past, assuming the Trump administration doesn't send a chill throughout the industry. There's no doubt that plenty of wealthy individuals and investment firms will throw "stupid money" at entrepreneurs to capitalize on the Green Rush. But investors in the marijuana space also are becoming increasingly discerning. Companies seeking money will still need solid business plans to land financing and avoid the pitfalls (detailed in Chapter 7) investors say can easily sink a potential deal.

CHAPTER

1

National Cannabis Industry Facts, Figures & Trends

The U.S. marijuana industry has become a juggernaut in recent years, and the trend accelerated in 2016.

In the November elections, four states legalized recreational marijuana and another four approved measures tied to medical cannabis. Additionally, Ohio and Pennsylvania legalized MMJ earlier in the year, while Louisiana passed a law to set up commercial cultivation and sales of medical cannabis.

These developments will lead to billions of dollars in additional annual retail cannabis sales down the road and spur the launch of tens of thousands of companies. In total, 30 states plus Washington DC have legalized MMJ, and eight states plus Washington DC have legalized recreational. Nearly 60% of the U.S. population now lives in states that have legalized some form of marijuana use and sales.

Mainstream companies like Scotts Miracle-Gro also made big plays in the cannabis industry, and celebrity-branded MJ product gained significant traction – developments that further propelled the industry toward legitimacy. The investment floodgates opened as well, with multimillion-dollar capital raises becoming common in an industry that once struggled mightily to attract financing.

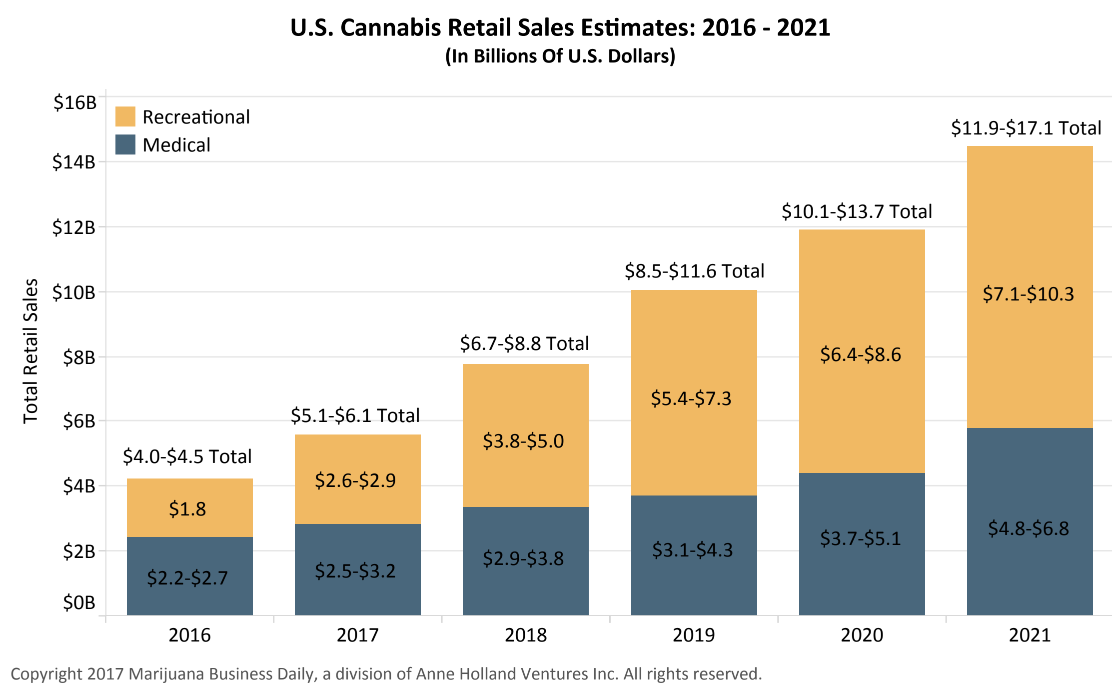
The momentum has carried over into 2017. West Virginia legalized medical cannabis just before deadline for this report, and the first marijuana-related business, Innovative Industrial Properties, began trading on the New York Stock Exchange this year.

But 2016 also produced a major wild card for the industry, as Donald Trump's upset victory in the presidential election is causing major consternation for many marijuana businesses concerned that the fragile legal protections they enjoyed under the Obama administration may be coming to an end.

From a sales perspective, the cannabis sector made huge gains as well.

One of the best ways to assess the pulse of the marijuana sector and make forward-looking business decisions is to look at retail sales trends, which offer a window into how the overall market is performing and where it's going. This is the main metric we use to chart the industry's performance, as retail sales of medical and recreational cannabis represent the end of the supply chain and therefore reflect how the rest of the sector is performing.

Chart 1.01: U.S. Cannabis Retail Sales Estimates: 2016 - 2021



After crunching the latest data and analyzing trends in each market, we revised our initial 2016 estimates upward slightly to reflect larger-than-anticipated growth. We now estimate that combined medical and recreational sales at the retail level totaled $4 billion-$4.5 billion in 2016, up from our original projection of $3.5 billion-$4.3 billion. Overall, sales grew by a third in 2016, with the industry generating roughly $1 billion in new revenues at the retail level based on the high-end projections for each year.

The recreational side of the industry came of age in 2016, with sales rising rapidly in Washington state, Colorado and Oregon – while Alaska's nascent industry launched at the end of the year. This growth underscores the long-term potential of adult-use cannabis in both existing and new markets, even as more states legalize. Medical marijuana sales continued to climb in most states as well, including mature ones that have been operating for years (such as Arizona, Maine and New Mexico). California's MMJ industry also appears to have expanded despite uncertainties over its move to create statewide regulations on medical cannabis companies and the threat of crackdowns in several cities.

As the industry grows, it becomes increasingly difficult to maintain historical growth on a percentage basis given that sales are starting each year at a much higher level. Still, explosive growth is expected in the years to come.

In 2017, sales are projected to climb 28%-35% to hit $5.1 billion-$6.1 billion. Much of this increase will be tied to further expansion in states that already have their industries up and running, though several new medical markets, including Hawaii and Maryland, are expected to start generating sales at some point in 2017. Nevada will also begin early recreational sales starting in July 2017, moving up the initial proposed start date by six months. Additionally, Florida – where full-strength MMJ sales to the entire patient population began in early 2017 – could become a much larger player this year. In general, though, the rec industry will be the main driver of growth this year, and adult-use sales will likely eclipse medical for the first time.

The industry will likely see an even bigger spike, at least dollar-wise, in 2018, when several states that legalized medical or recreational cannabis in 2016 are expected to come online. Among these states, the emerging rec markets in California, Nevada and Massachusetts in particular could add hundreds of millions (or even billions) of dollars in revenue to the industry in 2018. With this as the backdrop, sales are expected to surge as high as $8.8 billion in 2018, followed by another huge swell in 2019 as new rec and medical markets gain steam. States that legalized in 2016 are expected to eventually rack up annual sales of $7 billion-$8 billion, becoming the main drivers of growth in the coming years.

By 2021, sales could reach as high as $17 billion, which would represent a fourfold increase from 2016. Additional states that legalize in 2017, 2018 (an election year) and possibly 2019 will likely launch in 2020 and 2021, providing the industry with a sizable bump.

Note: The figures in this chart reflect estimated sales via storefront dispensaries and recreational stores in states where these businesses exist – even if they are unregulated or operate in violation of state law. We do not include delivery-only operations, sales by caregivers or black-market data. See our methodology in the Appendix for an overview on how we calculate sales estimates.

You'll also notice large ranges of projected sales in future years, which reflects the massive amount of uncertainty around the industry's future. Looking out a few months, let alone a few years, is an immensely difficult task, as the climate often changes quickly. So we provide ranges rather than try to pinpoint an exact number, as doing so offers a much clearer picture into the possibilities going forward.

Circumstances that could affect growth include:

Federal intervention: The cannabis industry faces an uncertain climate under President Trump, and it's unclear how his administration will approach marijuana. It's possible the federal government will attempt to crack down on the industry, or at least temper its growth. (For more information on what could happen to the marijuana industry under the new administration, see our special executive report – "Trump and the $5 Billion Marijuana Industry" – which is included for free with your purchase of the Factbook.)

The impact of recreational legalization and sales on the medical markets: In medical marijuana states that legalize recreational cannabis as well, the longer-term effects on the market are still largely unknown. It appears MMJ sales could plateau and even start to diminish when recreational marijuana is also available in a state.

Legalization: It's extremely difficult to predict which states will legalize in a given year. Often, a few states catch the industry by surprise and push through measures unexpectedly. If more or fewer states legalize than expected, sales estimates could change significantly.

Timeline in new markets: Legalizing medical or recreational cannabis production and sales in a state is just the first step, as program establishment, rule development and business licensing must follow before any sales ever commence. Some states have moved very quickly in the wake of legalization and see the opening of dispensaries/stores in a reasonable time frame, while other programs have taken many years to get off the ground. In many cases, significant revenue doesn't materialize for a while, but in the end, it varies greatly by state and is hard to predict.

Local, state regulations: States are always changing and tweaking their cannabis regulations, which affects sales over the long run. And the full potential of a new market often isn't known until long after legalization when state officials set regulations. Caps on the number of businesses and limited medical conditions lists can hamper growth, while more liberal rules can accelerate it.

To get an idea of how current and projected retail revenues fit in historically, here's a look at sales going back to 2011, when we first started tracking this data.

Chart 1.02: U.S. Cannabis Retail Sales Estimates: 2011 - 2021

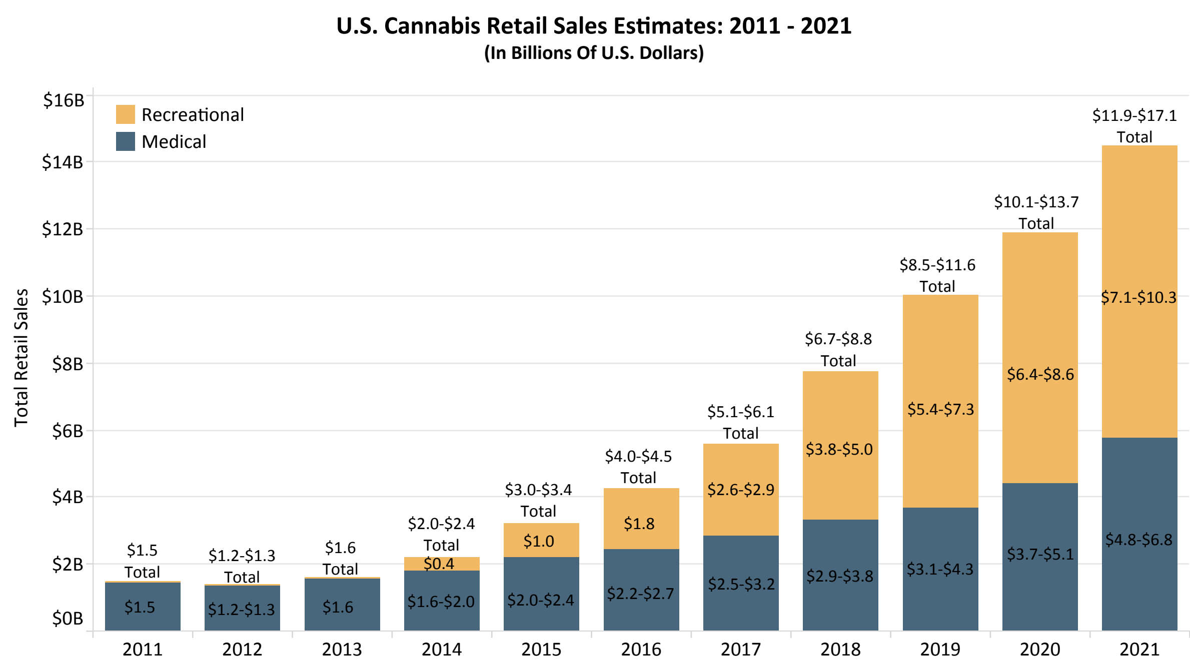
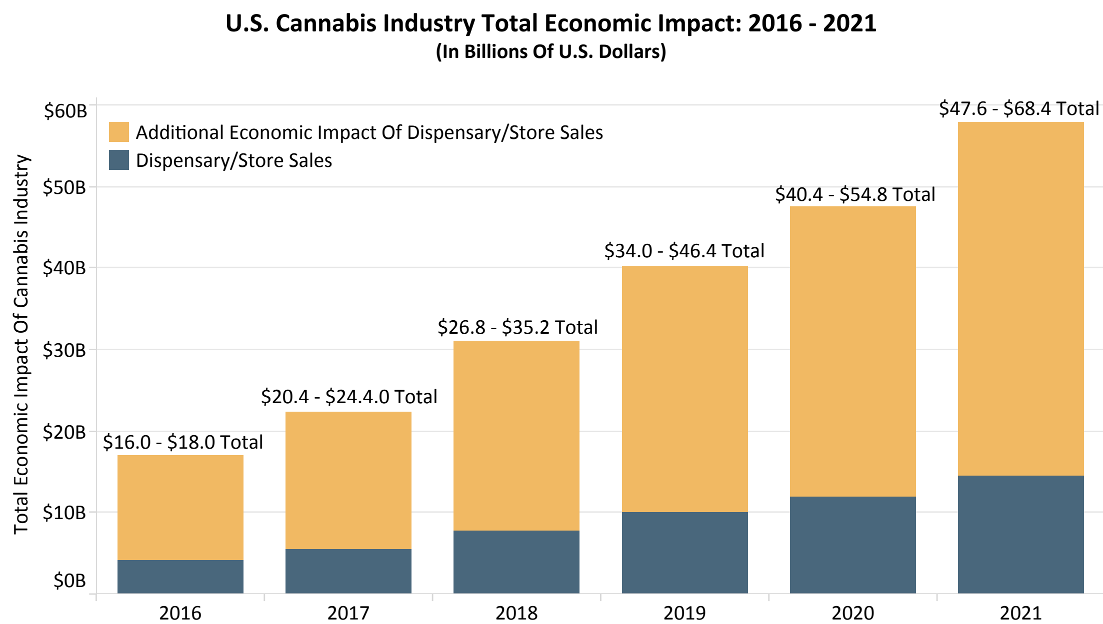


Chart 1.03: U.S. Cannabis Industry Total Economic Impact: 2016 - 2021



It's important to point out that the marijuana industry has a big and growing impact on the economy at large as the revenue generated ripples across a community, city and/or state – as well as across the nation. Some of the many examples of this include:

- The creation of cultivation sites, dispensaries/rec shops and infused product companies spurs real estate and construction activity. Many grows, for instance, now occupy warehouse space that was previously vacant, while a fair share of retailers took over and renovated dilapidated storefronts.
- Employees of cannabis companies spend their dollars on everything from housing and food to entertainment and travel, benefiting other businesses along the way.
- Marijuana businesses collectively pay hundreds of millions of dollars in state and local taxes, which are then used to fund projects and support government programs.
- Tourists visit rec states to purchase and consume cannabis, while marijuana business professionals travel for meetings, conferences and market research – infusing tourism dollars into a state.

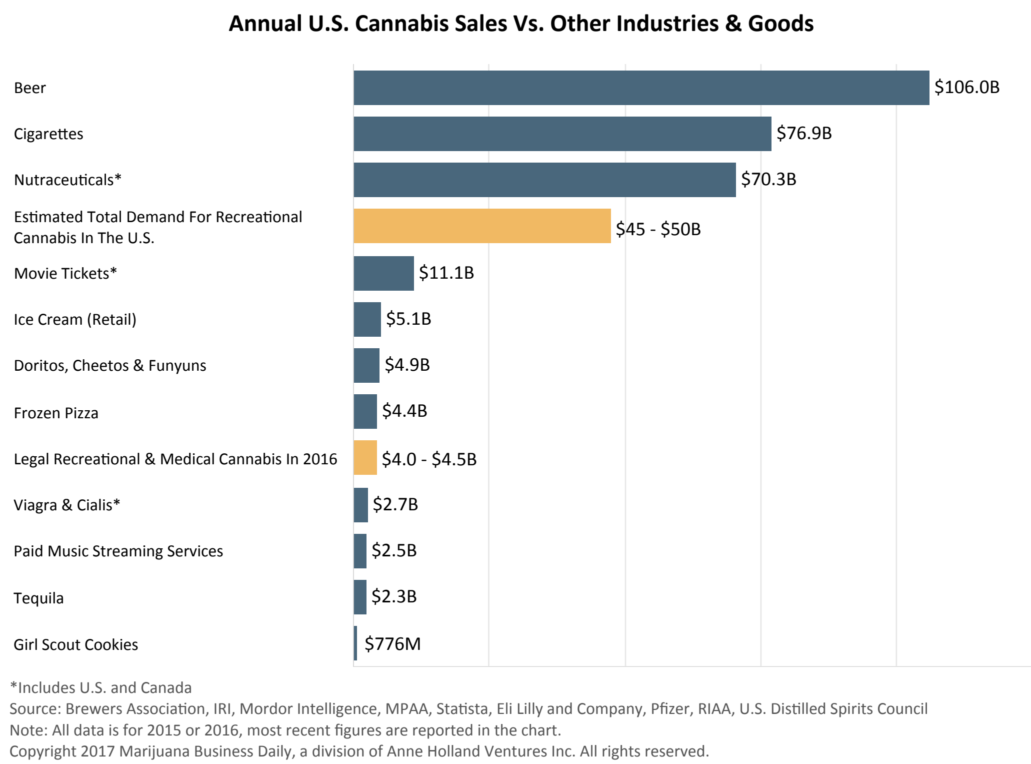
To understand an industry's economic impact, traditional macroeconomic multipliers can range anywhere from 10 to 20 times the original dollar spent. We have settled on a standard multiplier of four for the marijuana industry. In other words, for every $1 consumers/patients spend at dispensaries and rec stores, an additional $3 of economic value will be injected into the economy – much of it at the local level.

This is not the same metric as total revenues along the cannabis supply chain that can be used to approximate the “total size” of an industry – rather, the economic multiplier paints a picture of the impact the cannabis industry as a whole has on the broader economy.

Based on this metric, the marijuana industry will create a $20 billion-$24 billion economic impact in 2017 and possibly create nearly $70 billion in economic benefits in 2021.

This information is particularly valuable when trying to show the benefits of legalization, as it can help lawmakers, regulators and public officials understand the true reach of the cannabis business.

Chart 1.04: Annual U.S. Cannabis Sales Vs. Other Industries & Goods



Relative to comparable, more traditional goods like cigarettes and beer, sales of cannabis on an annual basis are quite small. But marijuana is still a very nascent industry, and the nearly $2 billion in recreational cannabis sales last year came almost entirely from three states (rec sales in Alaska didn’t begin until the fourth quarter).

Alcohol companies have already taken notice, worried that marijuana is encroaching on their position as the go-to inebriant for relaxation. Though they were largely unsuccessful, several industry groups made campaign contributions to anti-legalization ballot committees in the 2016 presidential election.

We estimate that the entire U.S. marijuana market, including illegal sales, equates to around $45 billion-$50 billion annually (up from our previous projection of $40 billion-$45 billion). If the federal government legalized cannabis and every state allowed sales, this is how much in sales the industry could generate once all markets were up and running. Sales would likely rise much higher than that over time as cannabis became more acceptable and the industry evolved

INTERNATIONAL MARKETS

The marijuana dominos are falling across the world as an increasing number of countries are legalizing cannabis possession and consumption to some degree (primarily for medical purposes). Some of these countries also are setting up industries to cultivate and distribute cannabis, creating global business opportunities.

The list is wide and diverse, including Australia, Bangladesh, Canada, Chile, Colombia, Israel, Italy, Jamaica, Mexico, Spain and Uruguay, to name a few.

Most laws create government-run industries, allow medical cannabis for research purposes only or limit cultivation to home growing. Well-regulated commercial systems – for medical or recreational cannabis – are rare. And the laws and business climate often are very different than in the United States.

In most European countries that have legalized MMJ, for instance, pharmacies are the only businesses that can sell medical cannabis.

The situation is improving, however, with major new countries set to roll out MMJ programs in the coming months and years. Some examples:

- Medical marijuana cultivation is expected to commence in Germany in 2019 now that the country has expanded its MMJ program. The country currently is importing MMJ but is seeking private companies to oversee growing operations. About 1,000 patients were registered with the program in early 2017, but the new law could raise that number into the tens of thousands.
- Australia is establishing a medical marijuana industry, though the rules are complex and stringent, which has led industry observers to believe that a limited number of big companies will come to dominate the business. Nevertheless, the Australian government would like to position itself as a global player, so U.S. cannabis companies likely will be able to develop opportunities Down Under if the regulatory restrictions aren't too strong of a deterrent.
- Israel, already a leading cannabis research power, could become a major player in the international marijuana business landscape after a government committee approved draft legislation allowing the export of medical marijuana. Though Israel's parliament may take months to approve such legislation, medical marijuana suppliers in the country stand to benefit from being able to export their products – which could have significant trickle-down effects on the businesses that have already started to make inroads abroad. The country also recently increased the number of MMJ business licenses available.

- Canada has positioned itself as the first G-7 nation to legalize recreational marijuana, introducing highly anticipated legislation in the House of Commons to legalize adult-use cannabis. A report put out by the accounting and consulting firm Deloitte estimates the base retail market could be worth $4.9 billion-$8.7 billion annually, growing to $12.7 billion-$22.6 billion with the inclusion of ancillary businesses as well as plant-touching companies. Though the legislation faces numerous hurdles and is likely to take months to pass, such a development will almost certainly trigger a Green Rush up north.

Chart 1.05: Estimated Number Of Cannabis Businesses In The U.S.: 2017

Estimated Number Of Cannabis Businesses In The U.S.: 2017

Medical Dispensaries/Recreational Stores	3,300 - 4,300
Wholesale Cultivators	2,500 - 3,500
Infused Product Manufacturers	1,600 - 2,000
Testing Labs	100 - 150
Ancillary Services, Technology & Products Companies	13,000 - 18,000

Plant-Touching Total: 7,500 - 10,000

Industry Total: 20,000 - 28,000

We've attempted to estimate the number of companies in the marijuana industry in previous editions of the Factbook, but this year we have a better picture of how many cannabis business exist. Part of this is because we conducted heavy research for our Marijuana Business License Directory, which lists every company permitted through state marijuana programs. Having said that, numbers are still exceedingly hard to come by in the absence of federal data and solid state information.

Based on our estimates, 20,000-28,000 companies in the United States focus entirely on the cannabis industry or derive a sizable portion of their revenue from it. Of these, roughly a third touch the plant: retailers, cultivation companies, infused product/concentrates businesses and testing labs. (Note: The estimates for ancillary companies include businesses that derive all or a notable portion of their revenue from the marijuana industry, not those that have only a very limited reach in cannabis). While consolidation is occurring in a handful of markets such as Colorado, the number of businesses nationwide is skyrocketing as new markets open and existing industries expand because of increased demand.

We changed up the methodology this year for calculating the number of companies, so comparisons to numbers in the 2016 Factbook are not possible. Regardless, it's clear the number of companies in general has grown in lockstep with the rise of new markets and of retail sales.

These numbers likely will continue to balloon for at least the next five years, though eventually they will stagnate or even decrease when the inevitable widespread consolidation takes hold.

Chart 1.06: Estimated Total Employment In The Cannabis Industry: 2017

Estimated Total Employment In The Cannabis Industry: 2017

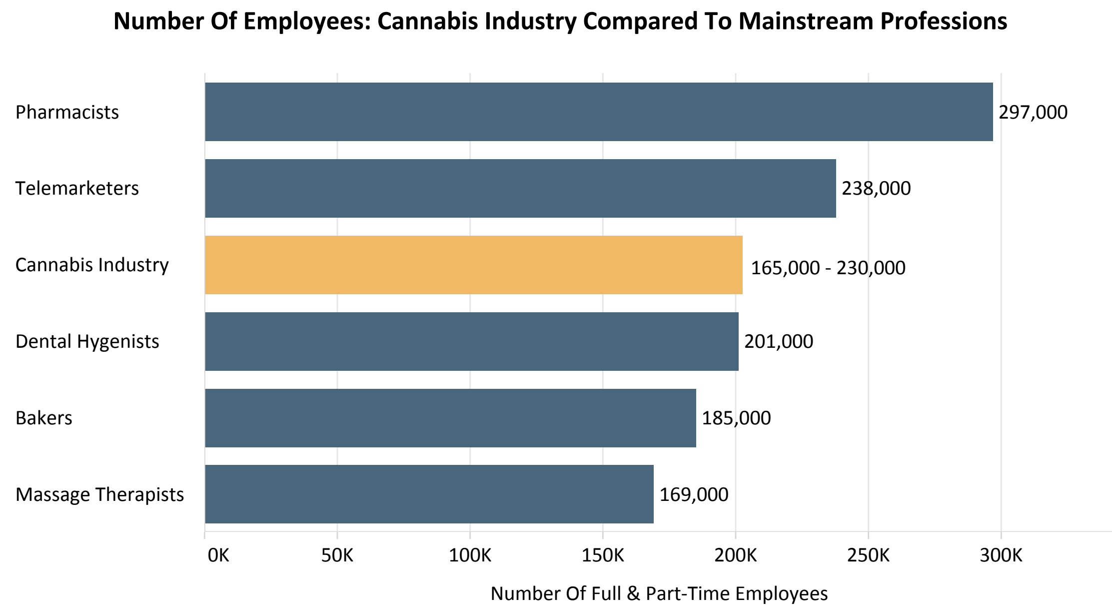
Medical Dispensaries/Recreational Stores	45,000 - 60,000
Wholesale Cultivators	25,000 - 35,000
Infused Product Manufacturers	10,000 - 15,000
Testing Labs	800 - 1,200
Ancillary Services, Technology & Products Companies	85,000 - 120,000

Plant-Touching Total: 80,000 - 110,000

Industry Total: 165,000 - 230,000

The marijuana industry has become a significant job creator, employing an estimated 165,000-230,000 full- and part-time workers as of early 2017. Note: As with the number of companies, our employment estimates include workers at ancillary companies that generate a sizable portion of revenue from the cannabis industry. These figures do not include employment totals at business that have a small presence in the space relative to other industries they serve.

Chart 1.07: Number Of Employees: Cannabis Industry Compared To Mainstream Professions

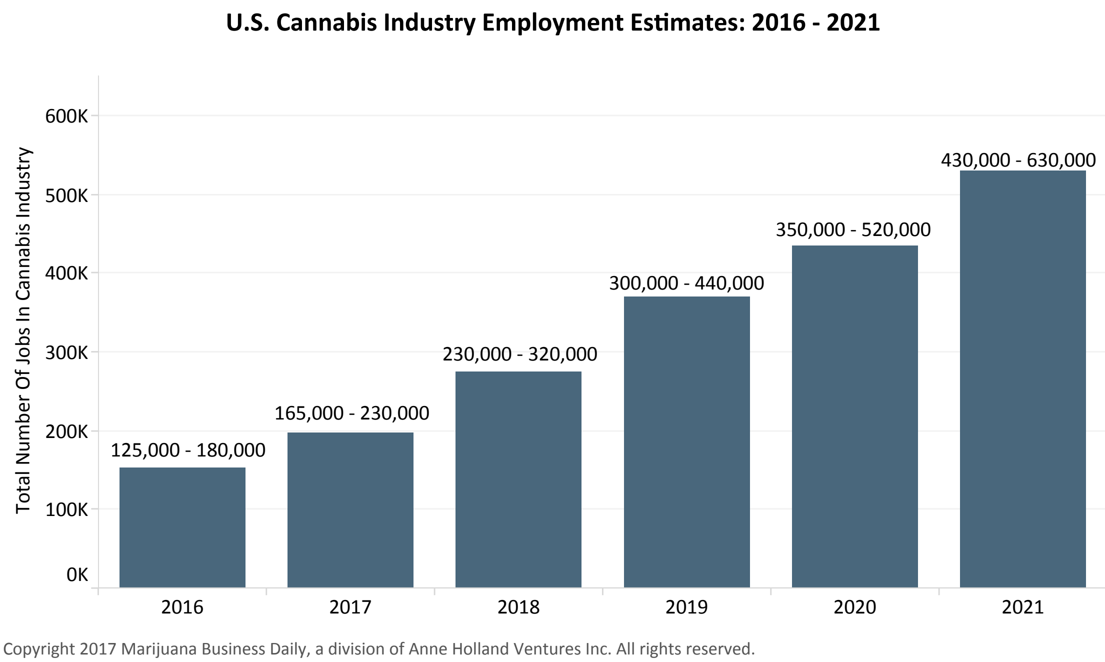


Source: U.S. Bureau Of Labor Statistics Employment Projections: 2014-2024

It's difficult to find an apples-to-apples comparison of the number of jobs versus other industries, as the cannabis sector includes a wide swath of company types. But to put this in perspective, the industry employs approximately the same number of people as there are bakers or dental hygienists in the country.

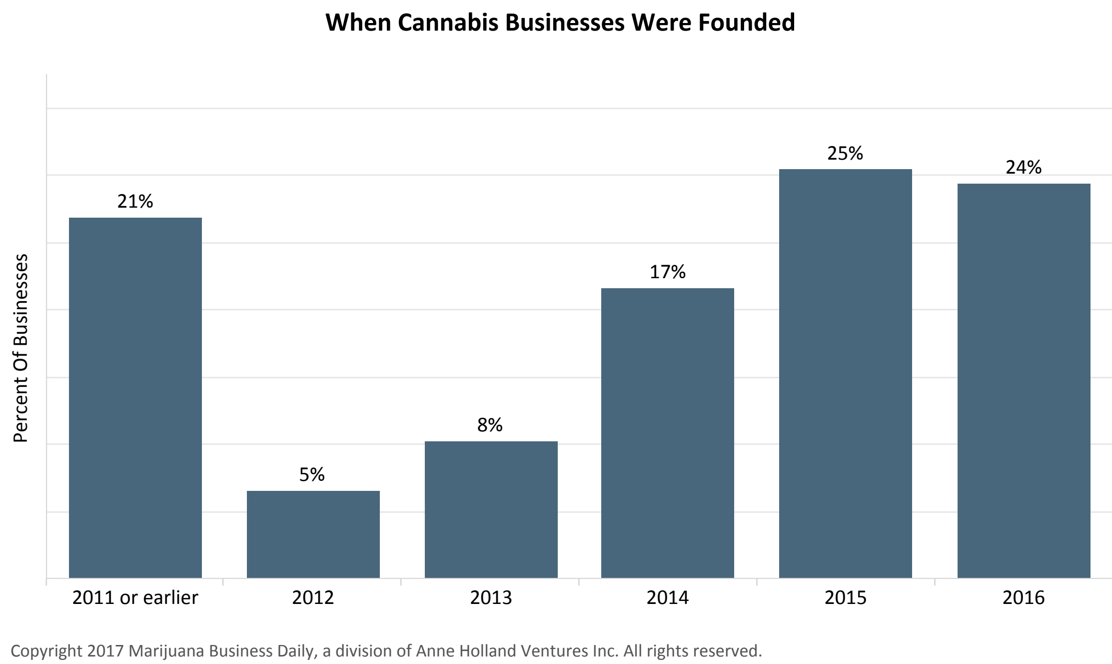
Here's a look at estimated job growth in the industry through 2021, based on the percentage increase in retail sales:

Chart 1.08: U.S. Cannabis Industry Employment Estimates: 2016 - 2021



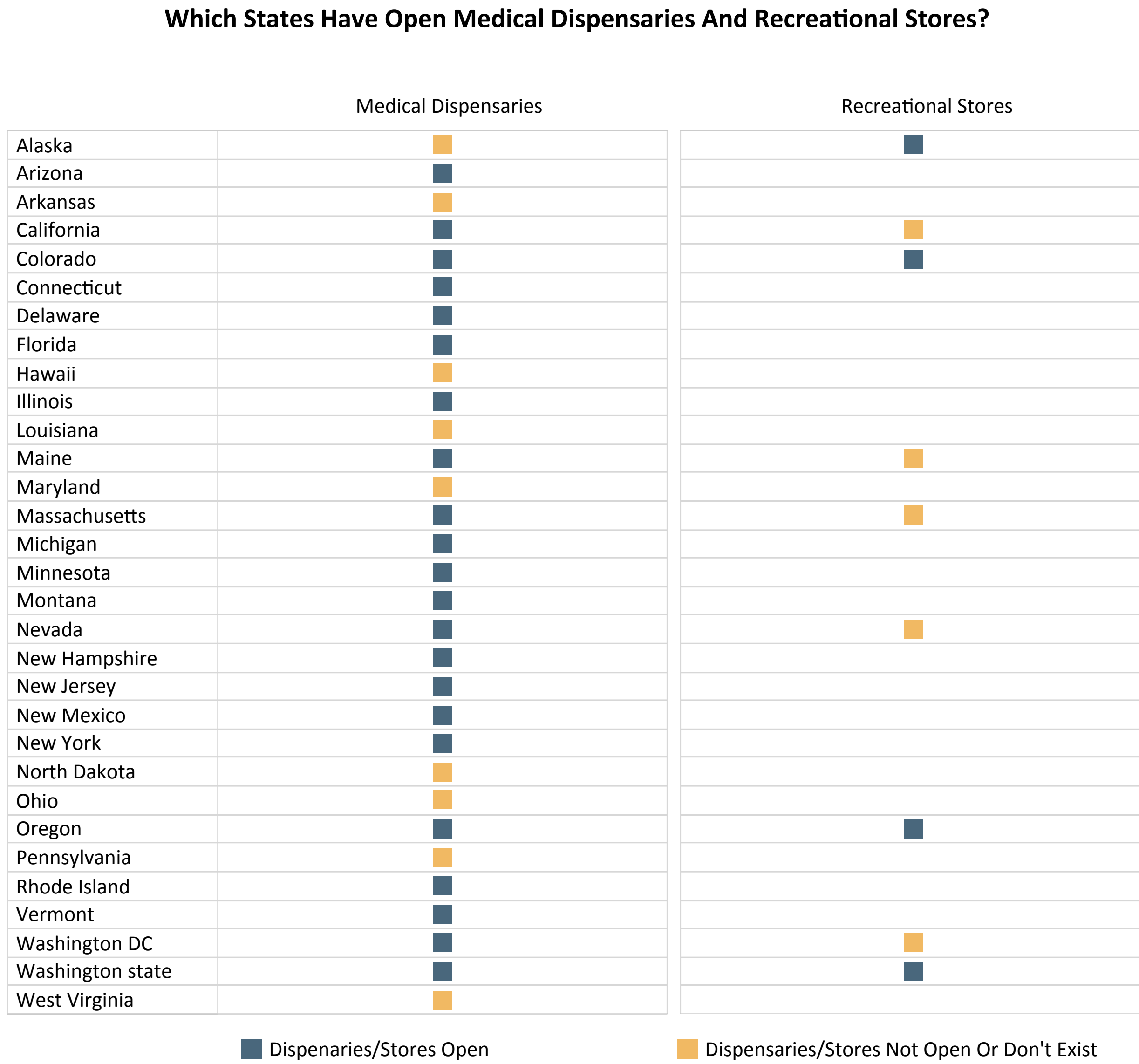
Note that we revised our 2016 employment estimates upward based on our new methodology. By 2021, the cannabis industry could employ roughly half a million people or more, putting it in the same ballpark as the number of postal service workers in the United States.

Chart 1.09: When Cannabis Businesses Were Founded



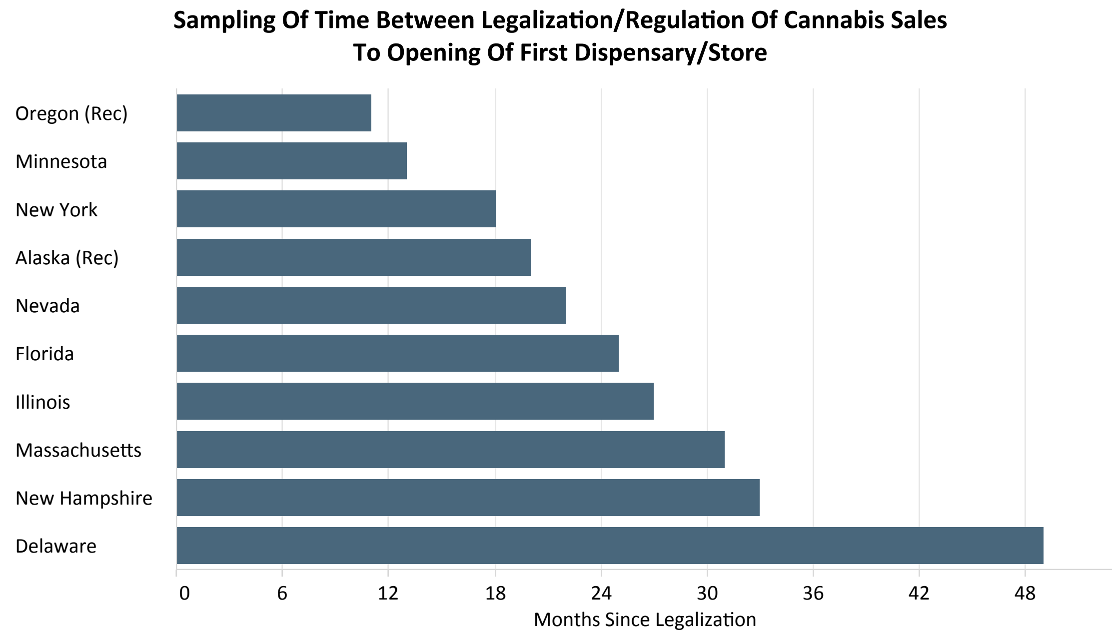
Over 65% of all cannabis companies in our survey were founded within the past three years – a figure that clearly reflects entrepreneurs' interest in cashing in on the growing adult-use market. Mature markets like Colorado and Washington state are reaching a point of saturation, and large, sophisticated operators are beginning to emerge that make it more difficult for new entrants to establish a foothold. But with nearly a dozen new markets – four of which are recreational – expected to come online by the end of 2018, startup activity is unlikely to subside anytime soon.

Chart 1.10: Which States Have Open Medical Dispensaries And Recreational Stores?



Following the 2016 election, nearly 60% of the U.S. population now lives in states that have legalized some form of marijuana use and sales. Though many new states passed legalization measures last year, the number of states with open medical dispensaries or recreational stores didn't change much in 2016. Rec stores opened in Alaska late last year and New Hampshire's first dispensaries got off the ground in April, but program rollouts in Hawaii and Maryland continue to drag on.

Chart 1.11: Sampling Of Time Between Legalization/Regulation Of Cannabis Sales To Opening Of First Dispensary/Store



For medical programs that came online since 2015, the average amount of time that elapsed between the legalization/regulation of MMJ sales and the opening of the first dispensaries was 28 months. New Hampshire – the most recent state to launch its MMJ program in 2016 – took nearly three years to do so.

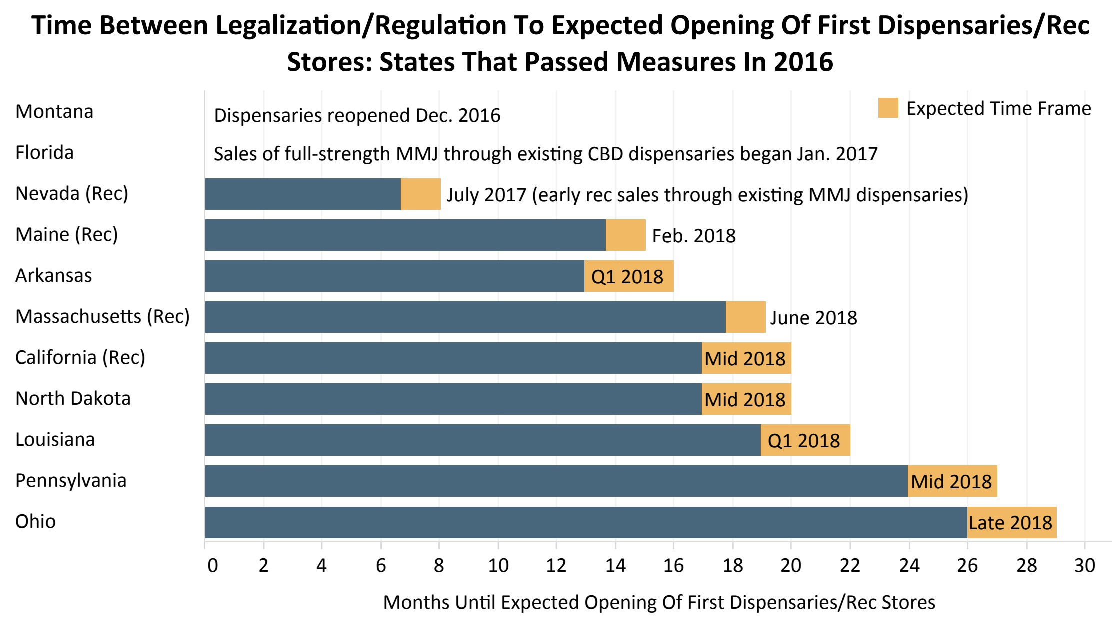
Florida passed a law in June 2014 that allowed a limited group of patients to access marijuana that's high in CBD and low in THC, one of the only states with such strict limitations that allows licensed businesses to cultivate and sell CBD-based forms of marijuana. This law has since been expanded, now allowing all registered patients to access full-strength MMJ. Existing CBD dispensaries will be converted to the new program in early 2017.

State agencies are often building these complex and bureaucratic programs from the ground up – with very little in the way of relevant, previous experience to help guide the process. Combined with overwhelming interest on the part of entrepreneurs looking to enter the new industry, backlogs during the application and licensing phase are fairly routine.

Oregon had an established MMJ industry before the legalization of recreational marijuana, and early adult-use sales through existing dispensaries took place before the first rec-only retailers were licensed, which explains the relatively quick turnaround time.

Though MMJ was legal in Alaska before recreational legalization, licensed businesses were not permitted. Recreational sales began about a year and a half after the law passed, which is the expected time frame for most of the new adult-use markets set to get off the ground in 2018.

Chart 1.12: Time Between Legalization/Regulation To Expected Opening Of First Dispensaries/Rec Stores: States That Passed Measures In 2016



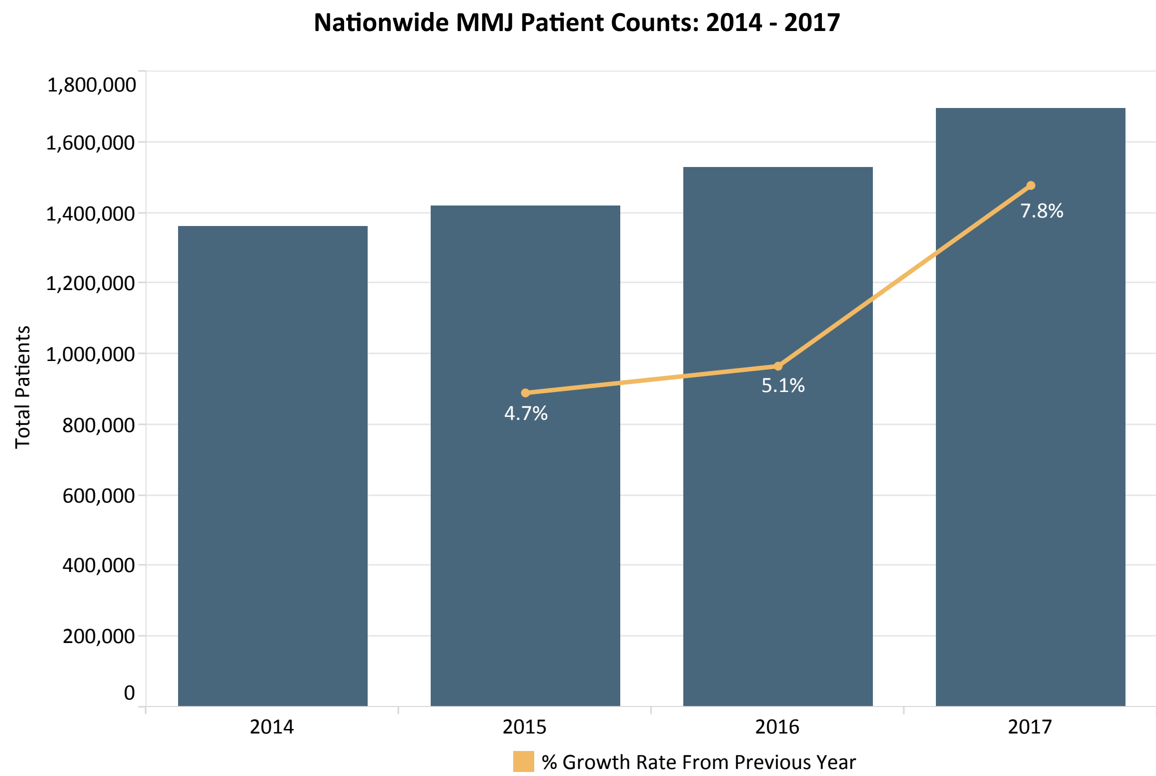
Source: Marijuana Business Daily

The marijuana industry is poised to grow by leaps and bounds in 2018, when at least eight of the 11 states that passed significant medical or recreational cannabis measures last year are expected to start sales.

In many of these states, lawmakers are still ironing out final details regarding the rules and regulations that will govern marijuana businesses in each new market. This, combined with the likelihood that delays will hinder program rollouts in at least a few of these states (Arkansas, North Dakota, Maine and Massachusetts have already pushed back deadlines to finalize program rules) makes these time frames very subject to change. Nevada's a state to keep an eye on, as regulators have approved a plan that will allow rec sales through existing MMJ dispensaries as early as this July.

It's also interesting to note that in the three states that passed medical marijuana legalization measures through the legislature in 2016 – Louisiana, Ohio and Pennsylvania – program launches are expected to take longer than in markets where legalization was approved directly by voters through ballot initiatives.

Chart 1.13: Nationwide MMJ Patient Count: 2014 - 2017



Note: Includes known number of registered patients and estimates for states whose registries are voluntary or nonexistent.

The number of medical cannabis patients in the United States has grown steadily over time, but now that many MMJ programs have expanded the list of qualifying conditions and allowed more licensed businesses to enter the market, patient counts have begun to swell. Some states – most notably the largest medical market in the country, California – have voluntary patient registries. So the exact number of patients is unknown. But it's possible to develop educated estimates for those states based on hard data from similar markets.

Combined, Arizona and Michigan added over 76,000 patients to their MMJ programs since early 2016, and the momentum seems likely to continue in 2017. New York and Illinois – two highly regulated programs launched in 2016 that both stumbled out of the gate – grew exponentially since last year.

However, patient counts in Oregon and Colorado have been on the decline since each state's adult-use programs got off the ground, and with recreational legalization set to roll out in four additional states by 2018, the growth in MMJ patients nationwide may begin to slow.

CBD-ONLY STATES

Aside from the 30 states where medical marijuana is legal, 16 states have "pseudo-medical marijuana" laws in place allowing limited use of cannabidiol (CBD) oils and/or other extracts. CBD is one of the dozens of active cannabinoids in the cannabis plant. Unlike the more familiar THC (tetrahydrocannabinol), CBD is not psychoactive – meaning it doesn't provide the traditional high associated with marijuana – but has proved particularly effective at treating seizures, especially in children.

"CBD-only" is a bit of a misnomer, though, because these concentrates still contain very low levels of THC. The key distinction in calling something "CBD-only" or even "high-CBD" is the ratio of CBD to THC. A strain or extract is generally considered high-CBD if the ratio of CBD to THC is 2:1 or higher.

However, states with ultra-restrictive laws that allow only concentrated forms of CBD are not considered "official" medical marijuana states for two key reasons:

- CBD is effective for just a handful of ailments, most notably seizures and other forms of intractable spasticity. So it's beneficial only for a minute portion of the patient community, whereas THC-heavy strains and products help with a wide range of illnesses. Because of the high operational costs associated with cannabis businesses, most companies simply can't turn a profit in markets with such small patient bases.
- These laws typically create very few (and, in most cases, zero) business opportunities.

CBD-Only States	
Alabama	North Carolina
Iowa	South Carolina
Kentucky	Tennessee
Mississippi	Utah
Missouri	Virginia
Georgia	Wisconsin
Texas	Oklahoma
Indiana	Wyoming

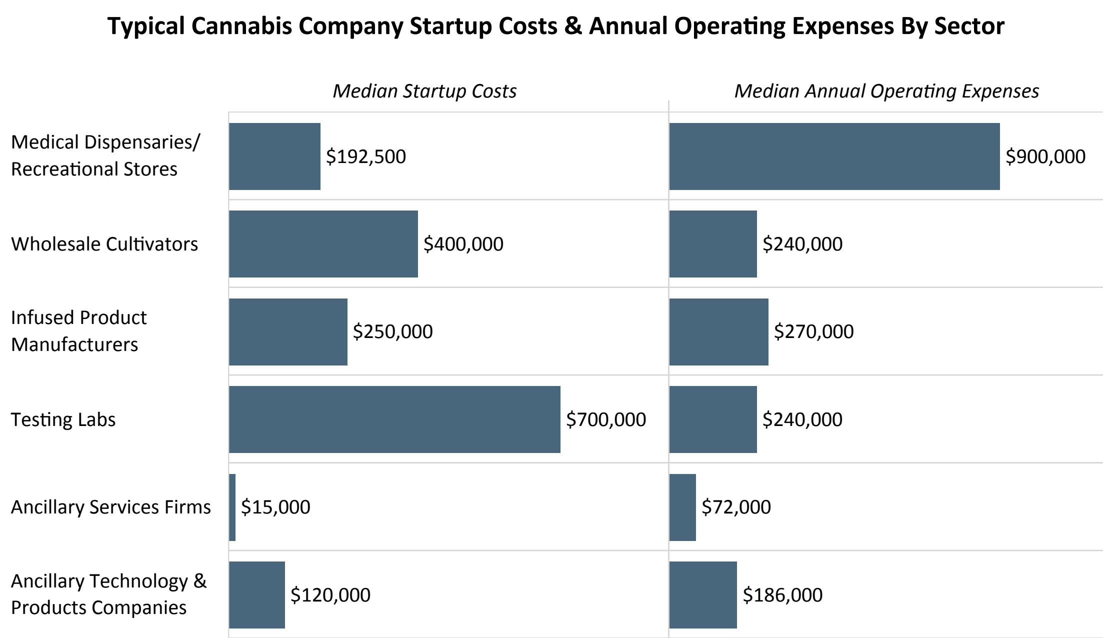
In most of these states, the law only allows the possession of CBD oils/extracts but doesn't permit cultivation and sales, leaving patients in the unenviable position of having to obtain these products elsewhere and then illegally cross state lines with them. This has naturally kept many would-be patients from attempting to obtain CBD oils and extracts. (Note: Florida is one of the rare exceptions, as it set up a regulated industry around CBD-based medicine. In 2017, however, it merged that program with its new full-strength MMJ law.)

Other states leave the fate of cultivating and/or supplying the oils and extracts in the hands of universities or private research firms, which has severely limited the interest in and ability to cultivate the plant and produce the extracts. Finally, laws that require physicians to "prescribe," rather than "recommend," CBD-derived medicines are viewed as completely ineffective and useless because it's illegal for physicians to prescribe a Schedule 1 substance – and therefore none are willing to risk their medical licenses, careers or even freedom to do so. Texas falls into this category.

These laws are usually mostly dead in the water and present virtually no business opportunities in these states. The main exception to this is Florida, where the law allows a handful of companies to cultivate marijuana plants, synthesize the CBD extracts on-site and then distribute the resulting medicine to patients. However, now that full-strength MMJ sales are underway in Florida, high-CBD products appeal to a much smaller portion of the patient base. Texas also is attempting to set up a regulated industry around its CBD program and in May awarded three business licenses. The only other CBD state with business opportunities is Missouri, where two producers have been licensed to grow and manufacture hemp-based CBD medicine.

CANNABIS INDUSTRY SECTORS: KEY METRICS

Chart 1.14: Typical Cannabis Company Startup Costs & Annual Operating Expenses By Sector

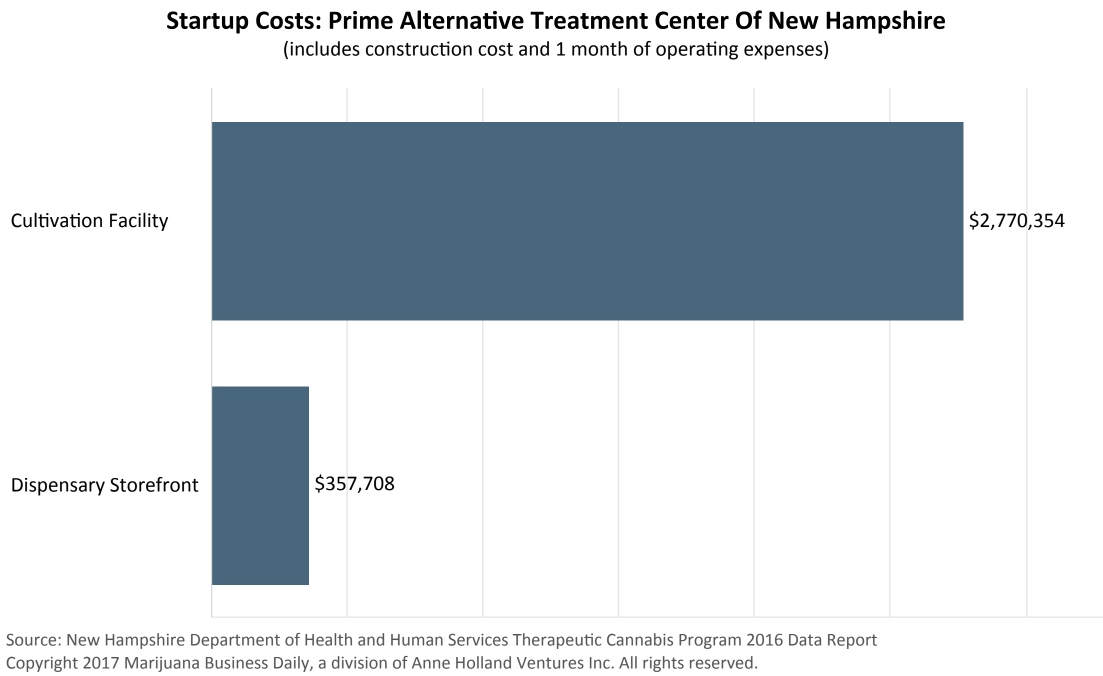


On the whole, median startup costs and operating expenses run higher for plant-touching businesses compared to ancillary companies – especially ancillary services firms. A lawyer or accountant can begin serving marijuana companies with relatively few startup costs, as there's no need to pay for a license or acquire expensive equipment.

But startup and operating costs vary significantly across plant-touching segments of the industry, and even again within segments – as the unique regulatory and business climate of each state has a major effect on cost structures. A recreational store in Washington state can get off the ground for much less money than a dispensary in a heavily regulated, medical-only state like New York, for example.

REAL WORLD EXAMPLE

Chart 1.15: Real World Example: Startup Costs: Prime Alternative Treatment Centers Of New Hampshire



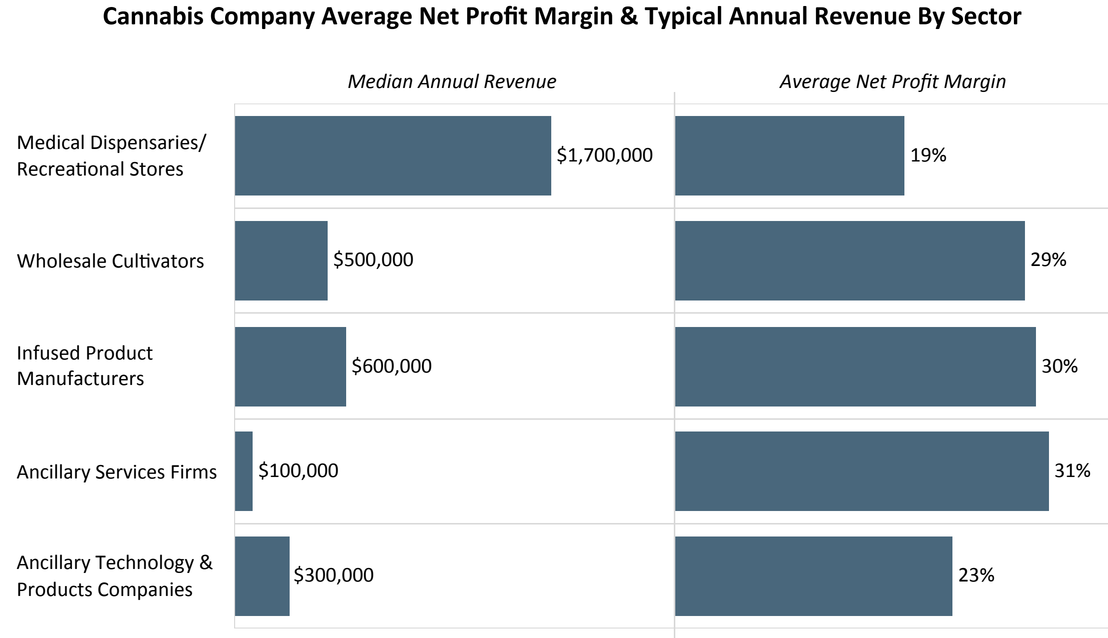
New Hampshire's medical marijuana market came online in April 2016, and by August of that year all four state-licensed dispensaries were open for business. Certain financial data regarding these dispensaries is made available through the state's annual MMJ program review, thus providing real world data.

In this chart, we look at startup costs for Prime Alternative Treatment Centers of New Hampshire's cultivation facility and dispensary. The startup cost figures for each facility are somewhat obscured by the inclusion of one month's worth of operating expenditures – a puzzling choice made by program regulators – though data garnered through our survey can help account for this.

Subtracting median monthly operating costs from the state-provided figures above – which amounts to $75,000 for dispensaries and $20,000 for cultivators – shows that startup costs are still quite a bit higher for Prime Alternative Treatment Centers Of New Hampshire relative to a typical retailer or wholesale cultivator. This makes sense considering the tightly regulated nature of New Hampshire's MMJ market.

According to the report, New Hampshire's four fledgling medical marijuana dispensaries racked up a combined $740,000 in sales during their first few months of operation last year, indicating that the companies have a long way to go before breaking even.

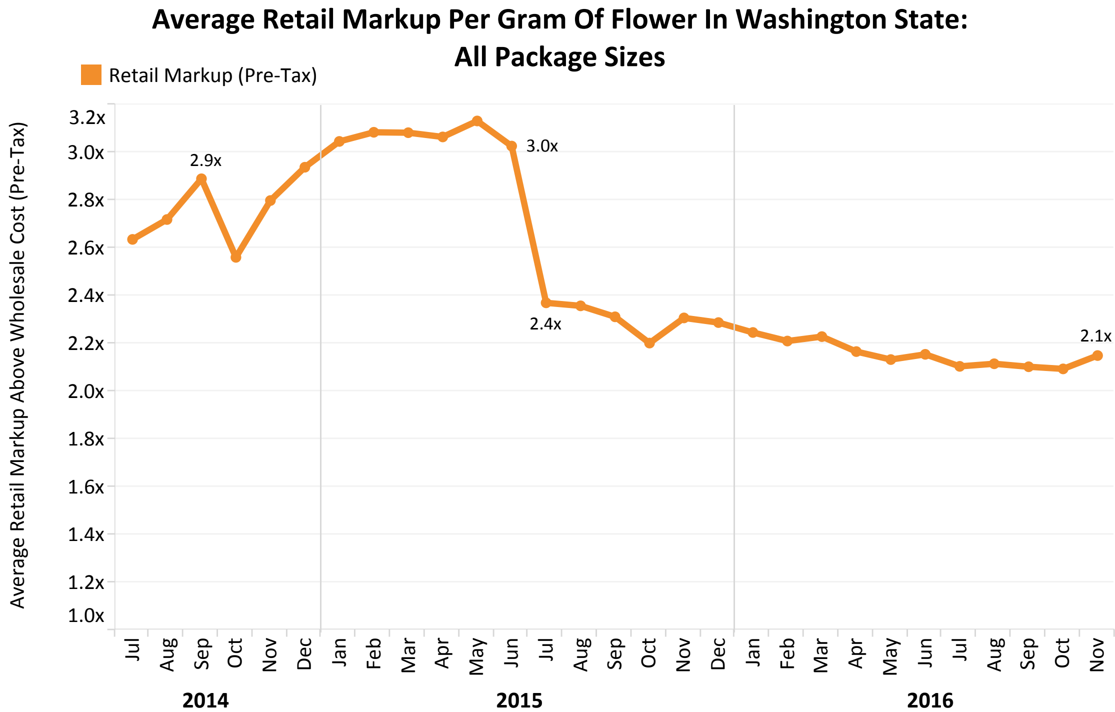
Chart 1.16: Cannabis Company Average Net Profit Margin & Typical Annual Revenue By Sector



Medical dispensaries and recreational stores tend to generate the most annual revenue across all segments of the industry. Profits, however, are the lowest of any industry sector – as Section 280E of the IRS tax code prevents these businesses from deducting normal operating expenses from taxable revenue (see Chart 3.25 for a more in-depth analysis of how 280E affects retailers). Other types of companies in the cannabis industry aren't affected by 280E to the same degree, or even at all. Important note: Net profit margins are calculated by aggregating ranges of responses, which limits the effect of extreme outliers and makes reporting average figures more useful.

REAL WORLD EXAMPLE

Chart 1.17: Real World Example: Average Retail Markup Per Gram Of Flower In Washington State: All Package Sizes



Source: Top Shelf Data

High tax burdens faced by marijuana retailers have already squeezed profit margins, and data from Washington state shows how the increasingly competitive business environment is placing further pressure on these companies – forcing retailers to accept lower markups in order to maintain their customer base.

A shift in taxation structures caused markups to decline substantially in the summer of 2015, but the gradual declines since are largely due to market forces. More people are within traveling distance to multiple stores now that most of the state's recreational retail licenses have been awarded, and retailers are wary of losing customers to another store with lower prices.

While there are stores that can command higher markups, especially those on the edge of areas where local municipalities have enacted bans or moratoriums, they are becoming increasingly rare.

Looking forward, this competitive retail environment – combined with increases in production volume on the part of growers – will likely continue to push retail markups down, but not as dramatically.

Chart 1.18: Average Number Of Full- And Part-Time Employees Per Cannabis Businesses By Sector

Average Number Of Full- And Part-Time Employees Per Cannabis Business By Sector

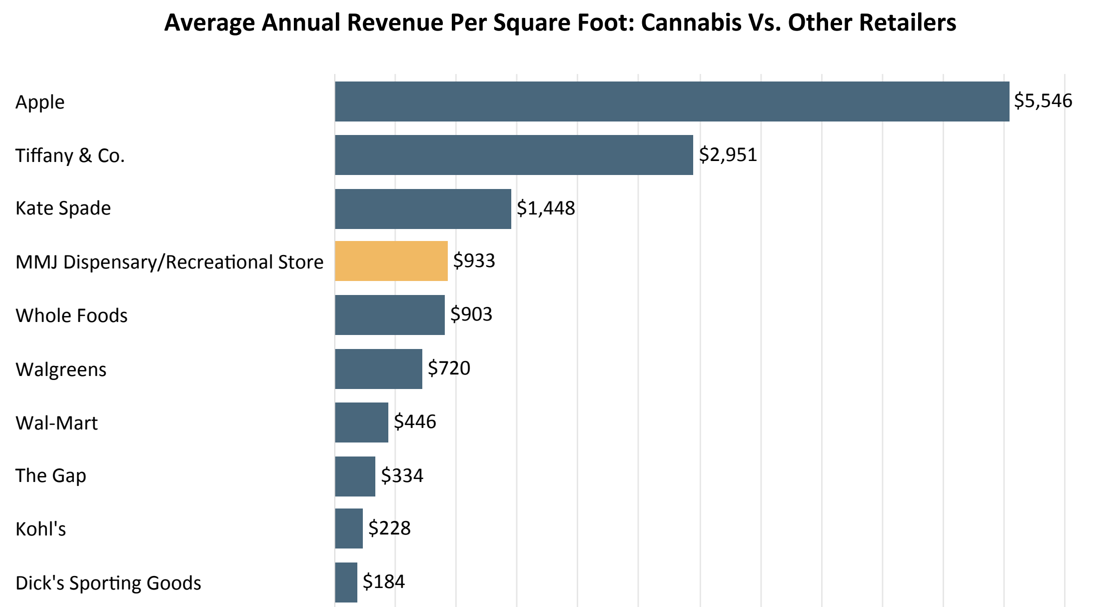
	Full-Time Employees	Part-Time Employees	Total Employees
Medical Dispensaries/Recreational Stores	10	4	14
Wholesale Cultivators	7	3	10
Infused Product Manufacturers	4	3	7
Testing Labs	5	3	8
Ancillary Services Firms	3	3	6
Ancillary Technology & Products Companies	4	3	7

Average Number Of Employees

As the cannabis industry matures and consolidates, companies that generate annual revenue in the seven figures and employ more than 100 people are becoming more common. The average number of employees at marijuana companies has been rising in recent years as companies get bigger. But at present, the marijuana industry is still largely comprised of small, family-run businesses – most only needing a handful of employees to maintain daily operations.

This makes hiring decisions all the more important for these companies, as the performance (or lack thereof) of a single employee will have an outsized impact on the business relative to a larger enterprise.

Chart 1.19: Average Annual Revenue Per Square Foot: Cannabis Vs. Other Retailers



Source: eMarketer, Statista, Forbes, The Motley Fool

Dispensaries and recreational marijuana stores excel when compared to other retailers in a key financial metric: revenue per square foot. Cannabis storefronts average $933 in revenue annually per square foot of space – slightly higher than a Whole Foods and over five times more than Dick's Sporting Goods.

The average Apple Store brings in over $5,500 in annual revenue per square foot, which reflects the high price of the tech giant's products and the relatively small size of the average store. On the other end of the spectrum, Kohl's department store takes up much more space, while its products vary greatly in price – leading to average revenue per square foot of $228.

In the cannabis industry, retailers can cram a lot of product into a relatively small amount of space, and the average price point is attractive. Still, revenue per square foot in the cannabis industry can vary greatly depending on several factors.

For example, dispensaries in regulated medical markets generate just over $1,800 in revenue per square foot of retail space, a much higher figure than their counterparts in the unregulated medical market that bring in roughly $425 annually per square foot of space.

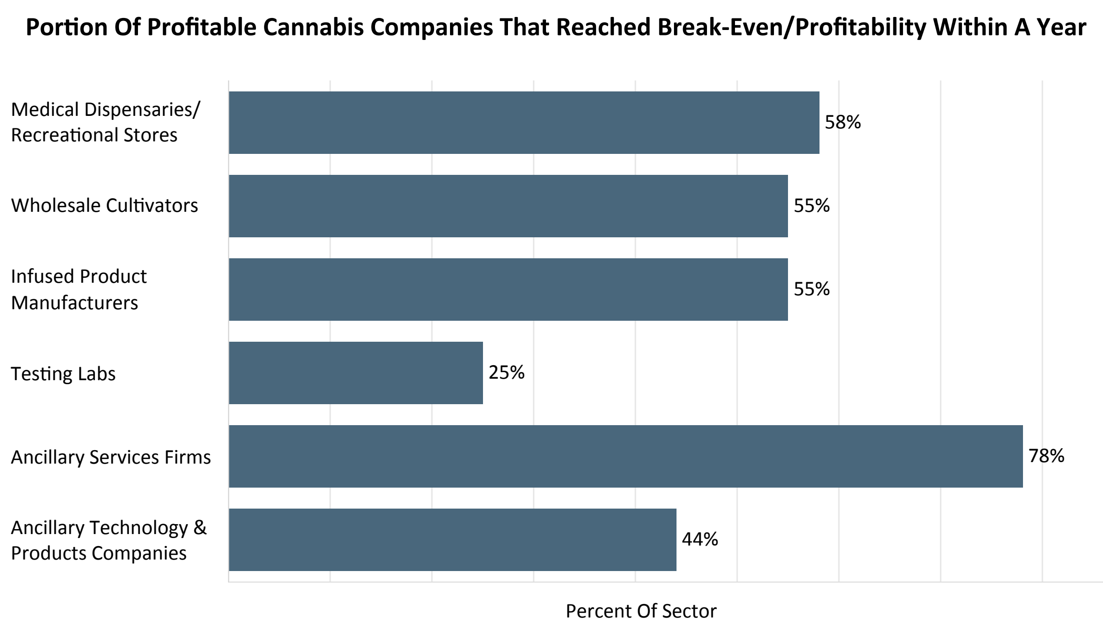
Chart 1.20: Length Of Time To Break-Even/Profitability: Cannabis Companies

Length Of Time To Break-Even/Profitability: Cannabis Companies

	Less than 6 months	6-12 Months	1-2 Years	2-3 Years	More than 3 years
Medical Dispensaries/Recreational Stores	34%	24%	20%	16%	7%
Wholesale Cultivators	16%	39%	33%	11%	2%
Infused Product Manufacturers	19%	36%	34%	9%	2%
Testing Labs	–	25%	25%	25%	25%
Ancillary Services Firms	46%	32%	15%	4%	3%
Ancillary Technology & Products Companies	25%	19%	33%	14%	10%

Percent Of Sector

Chart 1.21: Portion Of Profitable Cannabis Companies That Reached Break-Even/Profitability Within A Year



With the exception of testing labs, over half of businesses in each plant-touching segment of the industry are able to reach break-even or profitability within a year – an encouraging figure for entrepreneurs eyeing the cannabis industry for their next business opportunity.

But entrepreneurs would also do well to account for the growing level of competition and saturation in the industry. Currently, a very small minority of profitable cannabis companies take over three years to reach the break-even point, but this number is likely to grow as the industry matures and licensing costs increase.

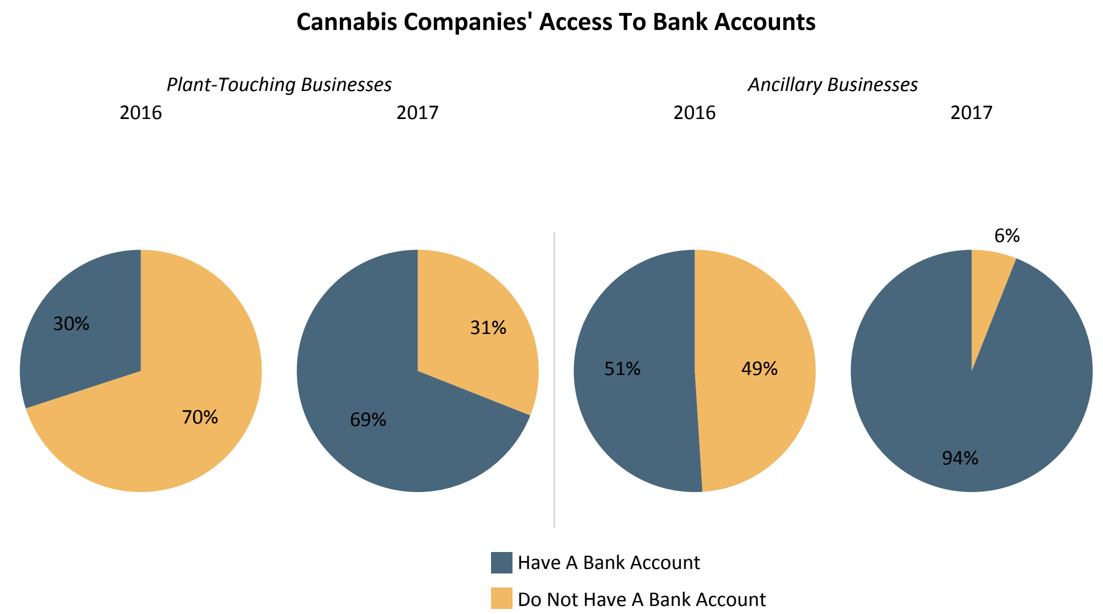
THE BANKING CHALLENGE

One of the biggest ongoing operational challenges in the marijuana industry is the extreme difficulties businesses face in obtaining and maintaining access to the banking system.

Although public acceptance of marijuana is growing, the drug remains illegal in the eyes of the federal government. For fear of violating federal banking guidelines, the vast majority of banks choose not to deal with businesses in the marijuana industry, even in some cases those that don't handle the plant directly.

But the number of banks and credit unions providing services to marijuana businesses has grown lately. This is likely tied to guidance the U.S. Treasury Department's Financial Crimes Enforcement Network issued in early 2014 that lays out steps financial institutions must follow to serve marijuana businesses in states that have legalized medical or recreational cannabis. While it's taken time for financial service providers to fully implement these guidelines, access to banking among marijuana businesses has improved significantly even within the last year.

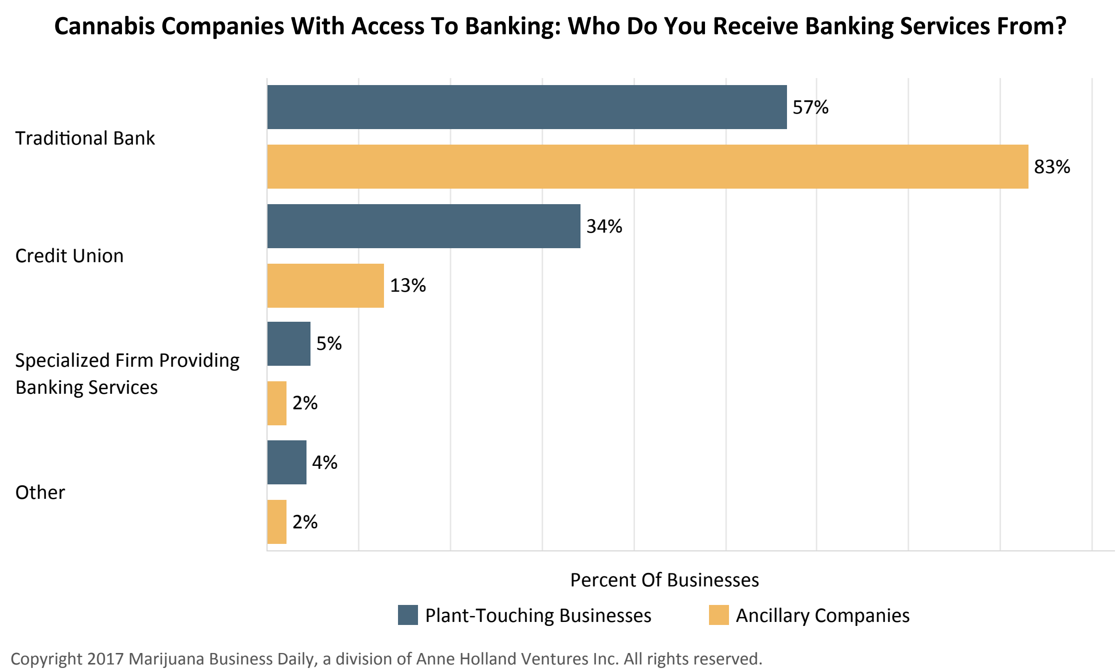
Chart 1.22: Cannabis Companies' Access To Bank Accounts



The percentage of plant-touching companies with bank accounts by the end of 2016 essentially flipped from where it was at in late 2015 – with nearly 70% of these businesses now utilizing some form of banking service. The situation for ancillary companies has improved greatly as well, as nearly every ancillary business in our survey indicated it had access to banking services.

However, these businesses generally still don't have and can't get merchant accounts to process payments, nor can they get financing for things like equipment and commercial real estate. These figures truly reflect just cannabis companies that have managed to get a basic business bank account.

Chart 1.23: Cannabis Companies With Access To Banking: Who Do You Receive Banking Services From?



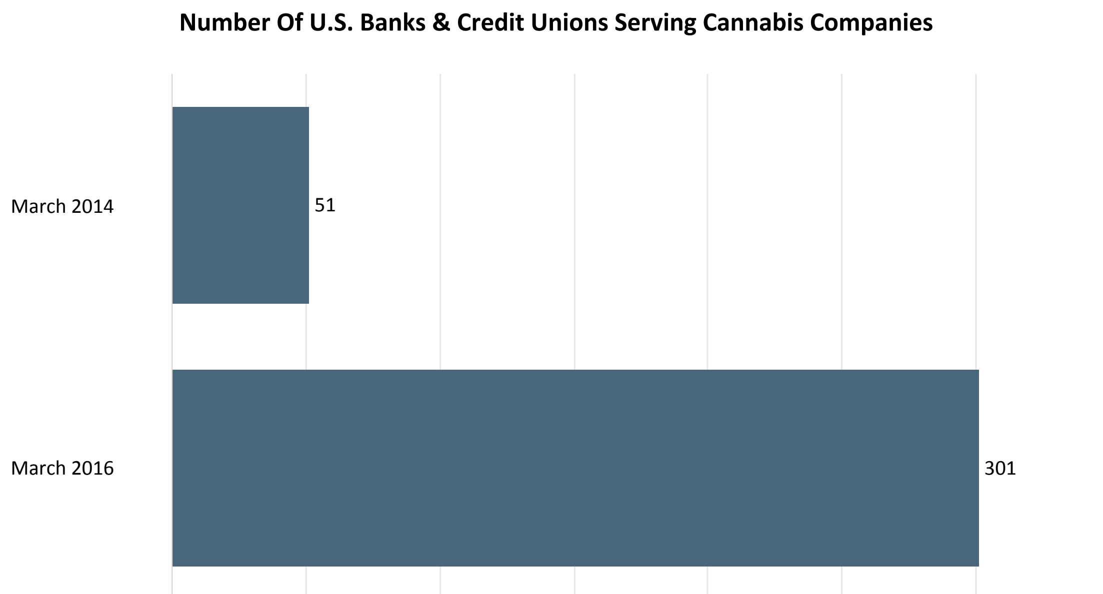
Most cannabis businesses gain access to banking services from traditional banks, though financial institutions may not be aware those companies are serving the industry. Some marijuana companies have employed subterfuge to get or maintain an account, providing a nondescript operating name to the bank or mischaracterizing the nature of the business in order to avoid any additional examination.

With their focus on serving local communities and providing services that mainstream banks may not, credit unions have been more public about their willingness to bank the cannabis industry than more traditional institutions.

Many businesses have sprung up recently that attempt to solve the banking problem, providing alternative solutions that allow companies to accept credit and debit purchases for small fees on every transaction. While this has proved more popular in unregulated medical markets like California, just a small portion of businesses are turning to these alternative service providers for their banking needs. Some companies that provide these services skirt the laws or help businesses mislead banks, so many cannabis businesses avoid them altogether.

REAL WORLD EXAMPLE

Chart 1.24: Real World Example: Number Of U.S. Banks & Credit Unions Serving Cannabis Companies

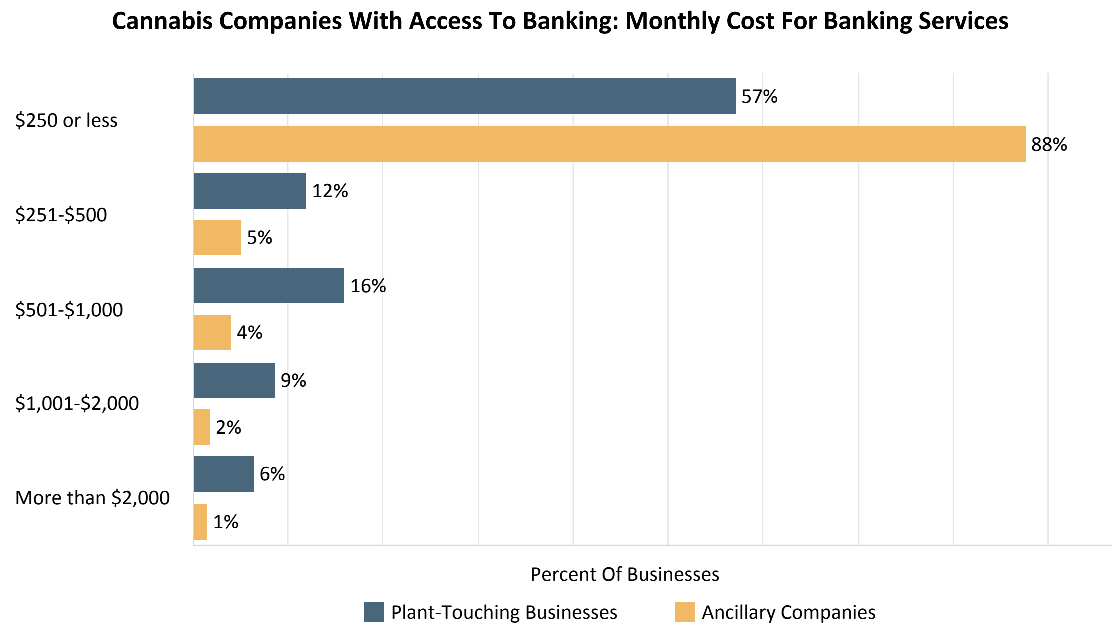


Source: U.S. Department of the Treasury, Associated Press

According to federal data obtained by the Associated Press, the number of banks and credit unions providing services to marijuana businesses grew dramatically over the 24-month period from March 2014 to March 2016, providing some much-needed relief to the cannabis industry.

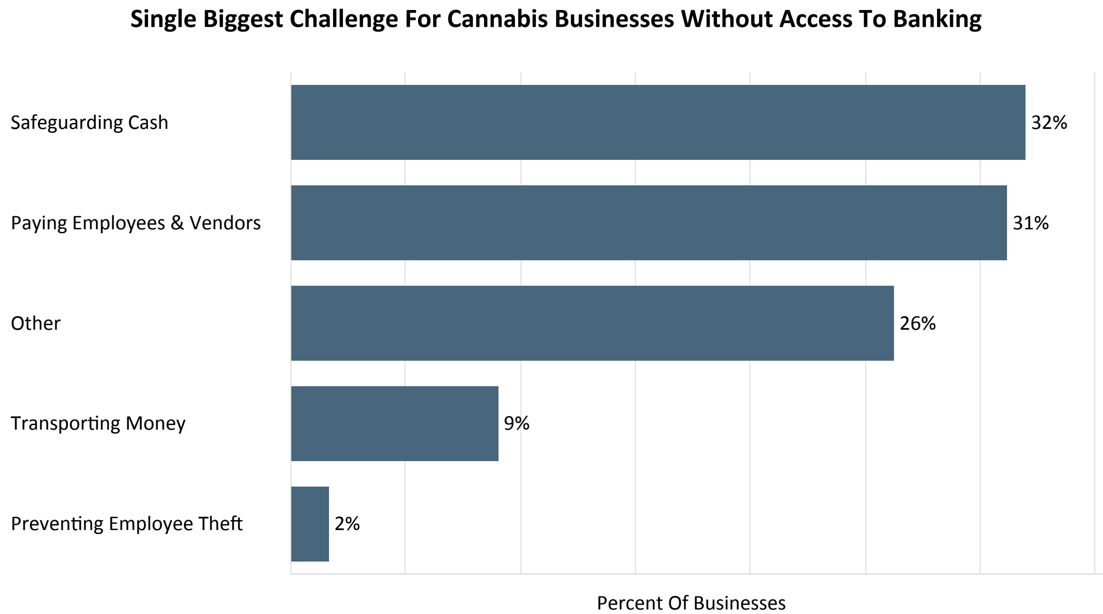
Though these latest figures show that a growing number of banks are becoming comfortable with the notion of providing services to marijuana businesses, just about all those banks that have marijuana-related clients prefer to keep mum publicly about their accounts, lest they invite unwanted scrutiny from federal regulators.

Chart 1.25: Cannabis Companies With Access To Banking: Monthly Cost For Banking Services



Financial institutions that knowingly provide banking services to cannabis businesses often charge a premium for their services. It makes sense, as these cannabis businesses present a unique challenge to banking service providers, requiring them to maintain compliance with a complex and strict set of federal guidelines. While some banks certainly can be accused of gouging their cannabis clients, others simply charge rates that reflect the challenges of servicing the marijuana industry. Many companies will happily pay the extra costs, as it frees them from the headaches that stem from being unbanked.

Chart 1.26: Single Biggest Challenge For Cannabis Businesses Without Access To Banking



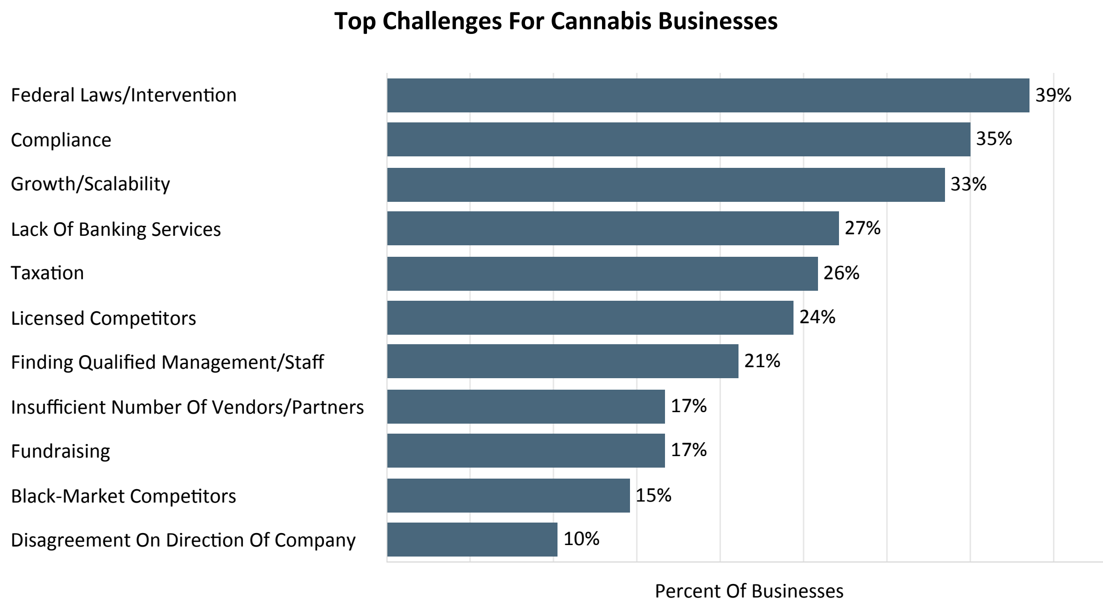
Safeguarding cash is the most oft-cited challenge among cannabis companies without access to banking. Most marijuana retailers remain cash-only businesses, and given how much revenue a high-traffic store can pull in on a daily basis, it's no surprise that finding a safe place to store cash weighs heavily on the minds of unbanked business owners.

Paying employees and vendors is also a major concern for businesses without access to banking. The number of transactions any business conducts with outside vendors is substantial, marijuana companies being no different. The hassle of conducting all these in cash is a major inconvenience for businesses, and all but the most well-organized of companies will struggle to maintain accurate records.

Within the sizable contingent of survey respondents without bank accounts that indicated "other" as their biggest challenge, a number suggested that paying taxes and maintaining credit are major obstacles posed by lack of access to banking services.

TOP CHALLENGES FOR CANNABIS BUSINESSES

Chart 1.27: Top Challenges For Cannabis Businesses



Note: Multiple-choice question; respondent total may be greater than 100%.

For the first time since 2014, the top challenge cannabis businesses report facing is federal regulations and the threat of intervention. In last year's survey, federal laws/intervention ranked as the third-most prevalent challenge faced by marijuana companies, behind compliance and lack of banking services.

This is directly attributable to the election of Donald Trump as president and his subsequent selection of Alabama Sen. Jeff Sessions as U.S. attorney. Sessions' hostility toward marijuana use is well-documented, and his position as the head of the U.S. Department of Justice has clearly caused concern among many in the industry.

Top Challenges For Cannabis Businesses: Ranking Of 2017 Responses Compared To 2016

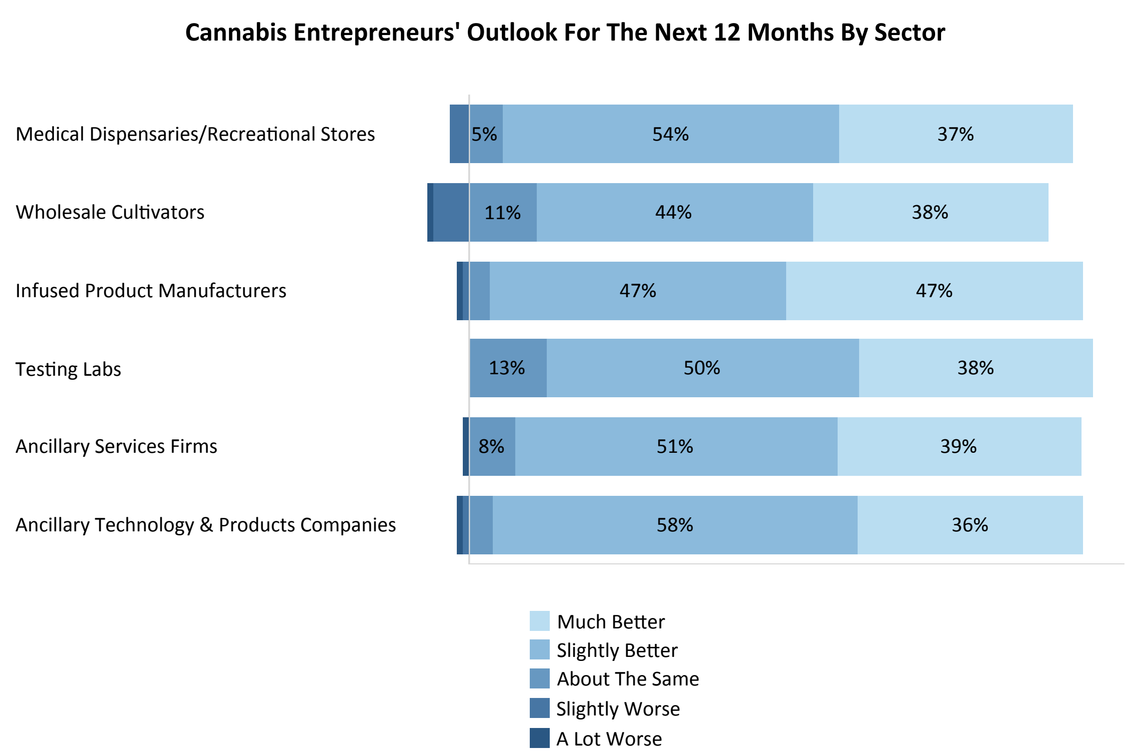
Top Challenge	2017 Rank	2016 Rank
Federal Laws/Intervention	1	3
Compliance	2	1
Growth/Scalability	3	4
Lack Of Banking Services	4	2
Taxation	5	5
Licensed Competitors	6	7
Finding Qualified Management/Staff	7	6
Insufficient Number Of Vendors/Partners	8	8
Fundraising	9	9
Black Market Competitors	10	10
Disagreement On Direction Of Company	11	11

Compliance with state and local regulatory requirements has been and continues to be a critical issue for cannabis businesses. With many new markets opting for more stringent regulatory requirements, this will likely remain top of mind for many marijuana business owners in the future.

As previously mentioned in this chapter, cannabis companies' access to banking services has markedly improved over the past year. Lack of banking services was cited by 27% of businesses as the top challenge facing their company in this year's survey – a significant difference from the 40% of businesses in last year's survey.

DOMESTIC CANNABIS INDUSTRY OUTLOOK

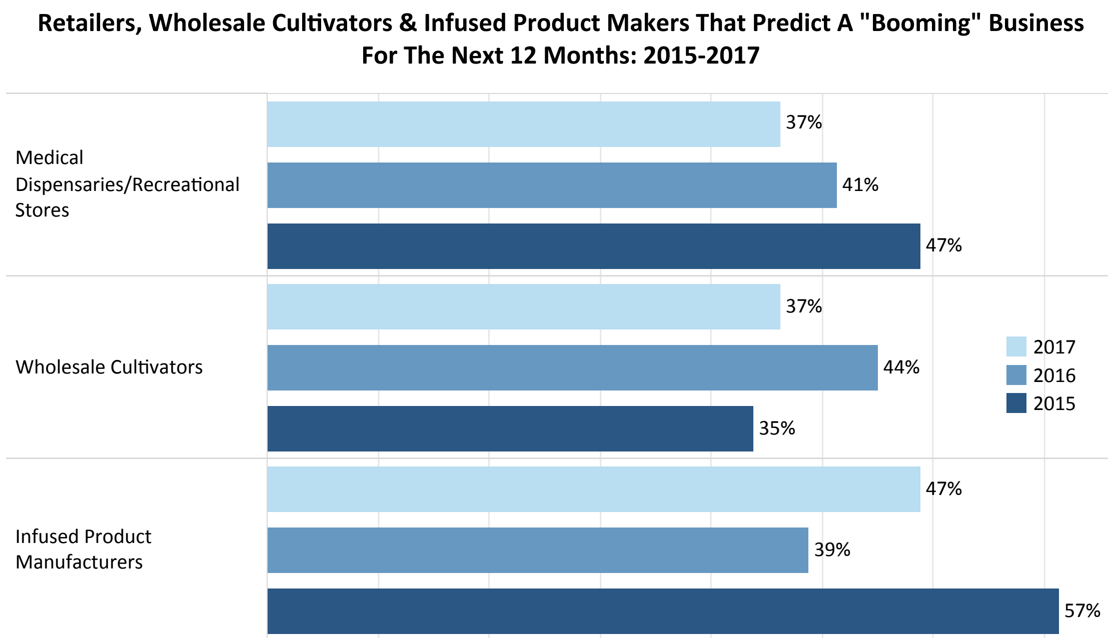
Chart 1.28: Cannabis Entrepreneurs' Outlook For The Next 12 Months By Sector



Cannabis businesses must overcome a number of hurdles in order to achieve financial viability, let alone turn a profit. But overall, their outlook for 2017 is overwhelmingly positive, with over 90% of respondents in the retail, infused products, ancillary services and ancillary products segments anticipating improved business prospects for the year ahead. These figures are very comparable to last year, though.

While wholesale cultivators remain largely upbeat, more of these companies expect worsening business conditions over the next 12 months – more than any other segment of the industry. Wholesale cultivators were also the only industry sector with noticeable year-over-year increases in the percentage of businesses expecting to do "slightly worse" or "a lot worse" in the next 12 months. Given the growing financial pressures faced by many cultivators in saturated markets like Washington state and Colorado, it's easy to understand why businesses are less than optimistic about the future.

Chart 1.29: Retailers, Wholesale Cultivators & Infused Product Makers That Predict A "Booming" Business For The Next 12 Months: 2015-2017



Infused product manufacturers are the only industry segment where the portion of companies predicting a "booming" business over the next year has increased – up eight percentage points from 2016. With lower wholesale cannabis prices and a larger retail footprint across most major recreational and medical markets, a higher degree of optimism among these businesses can be justified.

By comparison, retailers and wholesale cultivators are less enthusiastic about their prospects for the coming year. As the level of competition in the industry increases and the year-over-year growth in sales begins to level out, fewer businesses will experience the type of rapid growth that was so prevalent just a few years ago. Despite the industry's deceleration, the majority of companies hold positive outlooks for their business prospects in 2017.

CHAPTER

2

State-By-State: Legal Overview, Market Data and Outlook

Unlike most industries in the United States, the cannabis business varies significantly by state, county and even city. Each market has distinct and often widely varying laws and regulations that define the operational environment and associated business opportunities (or lack thereof).

For example:

- Most states' medical marijuana laws allow commercial production and sales via dispensaries and require these businesses to obtain licenses, though in some states the law is unclear or deems these businesses illegal.
- In many states, dispensaries are permitted to operate as for-profits, but in others they are mandated to operate on a not-for-profit basis.
- Home/personal cultivation is allowed in most medical and recreational cannabis markets, but some states ban it or have implemented strict limits that preclude a majority of patients/consumers.
- There has been a tendency in new recreational markets to limit the potential license applicant pool to pre-existing medical dispensary operators, at least on an interim/temporary basis.
- Some of the newer medical cannabis states completely ban sales of flower/dried herb, which still accounts for a majority of dispensary/store sales in markets where this product is permitted.

Aside from these disparate rules, there is also a large discrepancy in the degree to which each state provides data related to its medical and/or recreational markets. Some states provide robust data on patients, sales figures, product mix, tax revenue and other key data points on a regular basis, while others don't track or report any information at all. Without these key figures, it's incredibly difficult to judge the market size – and therefore business opportunities – in any given state.

That's where this chapter comes in. The following pages offer a concise state-by-state overview of the country's convoluted medical and recreational cannabis laws as well as exclusive market data, sales estimates and patient counts. This serves as a handy one-stop resource for information about each state and helps put some numbers around the size of the market and its overall potential. We also include an overview of the Canadian market, as there will likely be many opportunities for U.S. cannabis companies up north.

Exclusive: In each state profile, we've included a Business Stability Rank and a Business Opportunity Rank in 2017. These are exclusive rankings that sum up the overall business climate for cannabis companies and provide an idea of the expected level of volatility. The ratings take into account the status and limitations of the state's cannabis program, recent/expected developments that affect the industry, local support for and resistance to cannabis businesses and laws, and other factors.

New This Year:

- Additional details on whether there are limitations on permitted products/ consumption methods in each state.
- Updates to initial 2016 sales projections from last year's Factbook, reflecting official year-end data and new factors that influenced the figures.
- Projections and updated data for new states that came online in 2016, including Alaska's rec market and New Hampshire's MMJ industry.
- Key information for up-and-coming markets, including those that passed significant marijuana-related measures in 2016 (California, Maine, Massachusetts and Nevada on the rec side, and Arkansas, Florida, Louisiana, Montana, North Dakota, Ohio and Pennsylvania on the medical side). For new markets launching in 2018 or later, estimates are provided in the addendum that gives a snapshot of sales once each market reaches maturity.

Just before press time, West Virginia became the 30th state in the nation to legalize medical cannabis. However, many details of the new law remain unresolved, as lawmakers will work to establish industry regulations over the coming months. Therefore, an individual entry for the state has not been included in this chapter.

We strive to provide the most up-to-date information, so we incorporate current trends, major developments that have or could affect the industry and other factors. All information is as current as possible, but be aware that facts and figures change quickly in this industry. Additionally, there is a lag time between the research for this report and its publication. Most information in this chapter is current as of early February.

Important: Sales estimates are for dispensaries/stores only and do not include private transactions between caregivers and patients, wholesale transactions, black-market activity or delivery-only services.

More information on our methodology can be found in the appendix.

Note: This section highlights some markets where medical dispensaries currently exist, even if they operate in a gray area legally, aren't currently subject to statewide regulations or are outright banned. Dispensaries in these states – California, Michigan and Montana – are highly subject to the whims of local jurisprudence and law enforcement. All of these states are in the process of establishing statewide regulations and licensing.

Table 2.1 State-by-State Rankings for Business Stability and Business Opportunities in 2017

State-by-State Rankings for Business Stability and Business Opportunities in 2017

State	Stability	Opportunity	Estimated 2017 Marijuana Sales (This table includes states where marijuana sales are already underway or are expected to begin in 2017; totals include both rec and medical in states where applicable. Sales projections for medical or recreational markets where sales are expected to begin in 2018 or later can be found at the end of this chapter.)
Alaska	B	A	$25 million-$50 million
Arizona	B	C	$325 million-$375 million
Arkansas	C	A	None - sales are not expected to begin until early 2018
California	D	A+	$1.3 billion-$1.6 billion
Colorado	B	B-	$1.5 billion-$1.6 billion
Connecticut	A	C+	$30 million-$35 million
Delaware	B	C	$4 million-$6 million
Florida	C	B-	$20 million-$40 million
Hawaii	C+	B	$15 million-$30 million (in first full 12 months after dispensaries open)
Illinois	B	B	$75 million-$85 million
Louisiana	D	C	None - sales are not expected to begin until early 2018
Maine	B	A	$30 million-$40 million
Maryland	C	A	$20 million-$40 million (in first full 12 months after dispensaries open)
Massachusetts	C	A	$50 million-$75 million
Michigan	D	A	$100 million-$150 million
Minnesota	B	C	$10 million-$20 million
Montana	C	C+	$15 million-$25 million
Nevada	B	A	$120 million-$205 million
New Hampshire	B	C	$6 million-$12 million
New Jersey	B+	C	$20 million-$25 million
New Mexico	A	B	$55 million-$75 million
New York	B+	B	$20 million-$40 million
North Dakota	B	C	None - sales are not expected until mid-2018
Ohio	C	C	None - sales are not expected to begin until the second half of 2018
Oregon	B-	B	$510 million-$580 million
Pennsylvania	C	B+	None - sales are not expected to begin until mid-2018
Rhode Island	B	B	$25 million-$30 million
Vermont	B	C+	$5 million-$7 million
Washington DC	B+	C+	$8 million-$12 million
Washington state	B+	B	$1 billion-$1.1 billion

Table 2.2 Number Of Registered Patients And Operating Medical Marijuana Dispensaries By State

Number Of Registered Patients And Operating Medical Marijuana Dispensaries By State

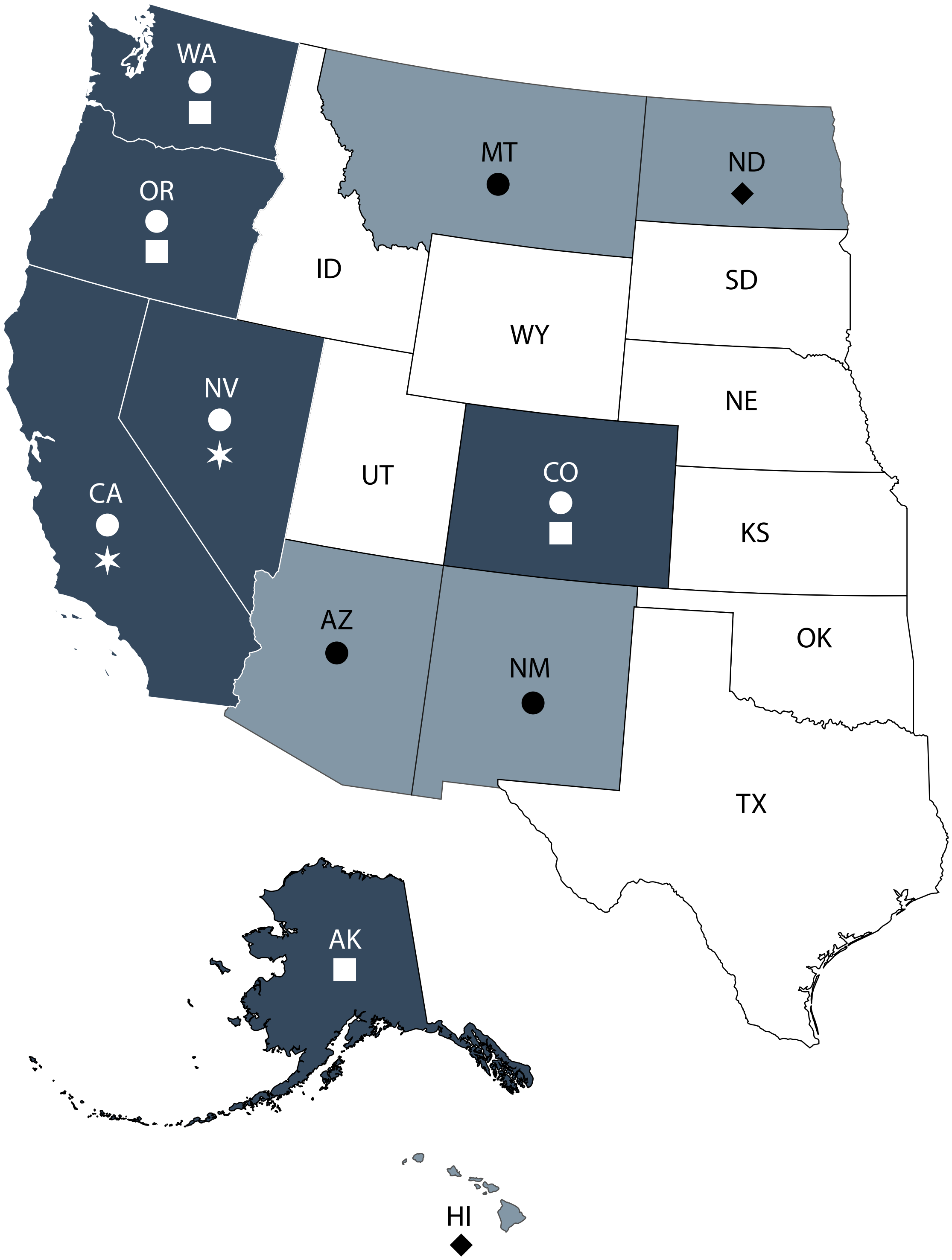
State	Number Of Registered Patients (includes estimates where patient registry information is not available)	Estimated Number Of Dispensaries Operating In Early 2017 (in states where sales are expected to occur in 2017)
Arizona	124,308	99
California	800,000-900,000	1,500-2,000
Colorado	94,577	524
Connecticut	17,513	9
Delaware	2,374	1
Florida	13,000	6
Hawaii	16,275	None - the first dispensaries are expected to open in the first half of 2017
Illinois	18,300	52
Maine	35,000-45,000	8
Maryland	None as of press time - the patient registry was just launching	None - the first dispensaries are expected to open in summer 2017
Massachusetts	34,816	10
Michigan	218,556	100-200
Minnesota	5,200	8
Montana	12,890	40-60
Nevada	26,500	55
New Hampshire	2,100	4
New Jersey	10,800	5
New Mexico	34,909	52
New York	17,000	19
Oregon	67,140	49
Rhode Island	16,418	3
Vermont	3,800	4
Washington DC	4,827	5
Washington state	18,904	No MMJ dispensaries technically operate anymore, but 180 retail marijuana stores have active medical endorsements

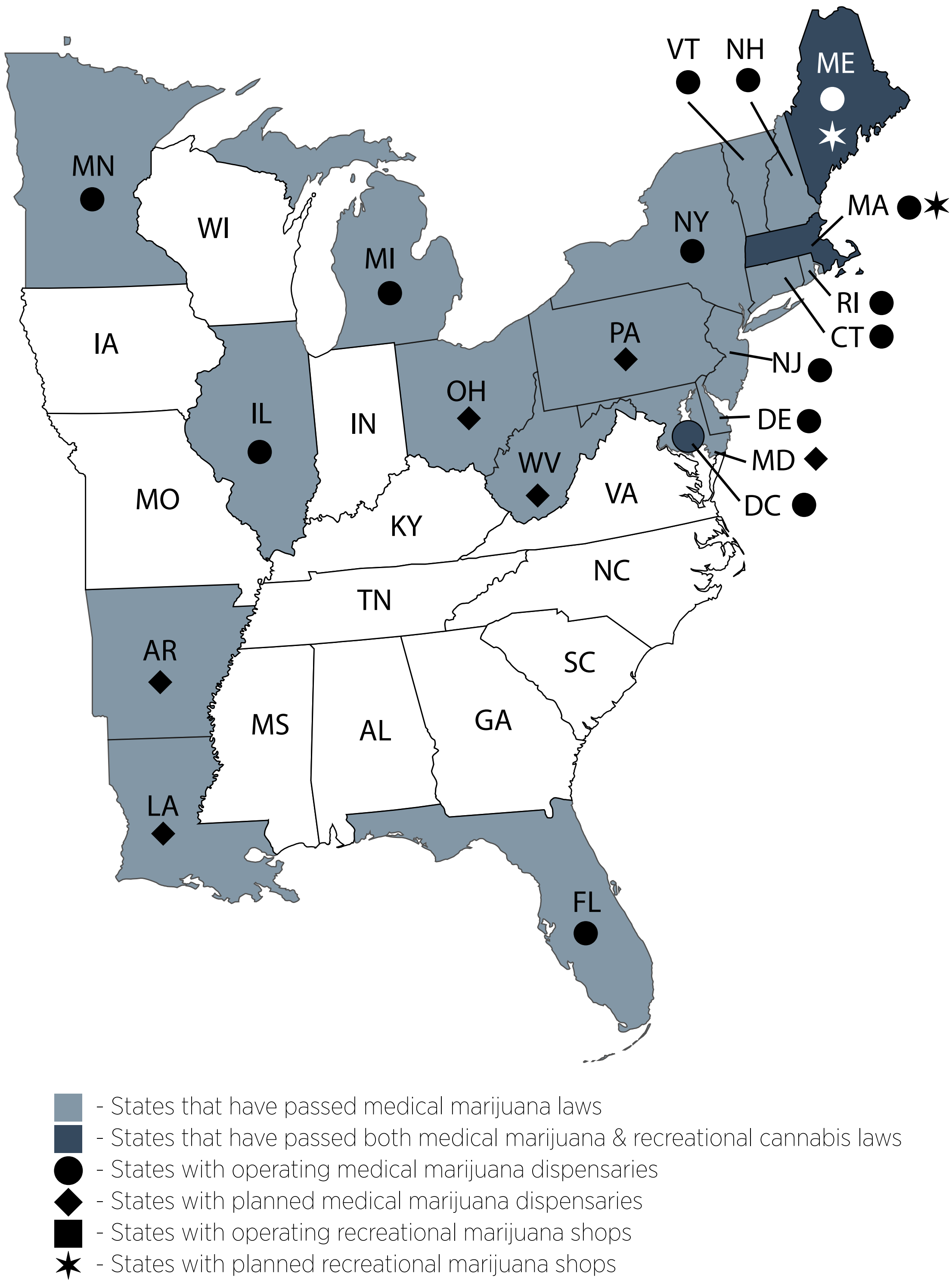
Table 2.3 Number Of In-State Customers And Operating Retail Stores By State in 2017

Number Of In-State Customers And Operating Retail Stores By State in 2017

State	Estimated Number Of In-State Customers	Estimated Number Of Recreational Stores Operating In Early 2017 (in states where sales are expected to occur in 2017)
Alaska	70,000 - 80,000	23
Colorado	550,000 - 610,000	481
Oregon	410,000 - 460,000	421
Washington state	725,000 - 800,000	486

Map 2.1: U.S. Marijuana Laws and Dispensary Numbers





Note: This map does not include states that have legalized only CBD-based oils.

Data is current as of 04/27/2017

ALASKA

MEDICAL MARIJUANA

Overview of Law

Main measure	Measure 8
Type of measure	Ballot initiative
Year passed	1998
Margin of victory	59% to 41%
Possession limit	1 ounce of usable marijuana
Patient registry	Mandatory - patients must have a written recommendation from a physician
Accepts patients registered with other states?	No
Home cultivation	Yes
Qualifying medical conditions	Cancer, glaucoma and HIV/AIDS, as well as conditions that produce - or whose treatment produces - cachexia/wasting syndrome, persistent muscle spasms, seizures, severe nausea or severe pain
MMJ business regulations	Stand-alone medical cannabis businesses are not allowed, as Alaska issues licenses only for its recreational program.
Number of registered patients	1,053 (down from 1,084 in early 2016)

ALASKA

RECREATIONAL

Overview of Law

Main measure	Measure 2
Type of measure	Ballot initiative
Year passed	2014
Margin of victory	53% to 47%
Possession limit	1 ounce of flower, 7 grams of concentrates or 5,600 milligrams of THC
Home cultivation	Yes
Restrictions on type of marijuana allowed to be sold?	Yes - manufacturers are not permitted to make anything that "closely resembles" familiar products or beverages, including candy
Business regulations	Heavy. Though the number of licenses is not restricted statewide, final rules adopted by the Marijuana Control Board are extensive. They address all aspects of operations at all levels of the supply chain, including everything from seed-to-sale tracking and transportation to labeling, record-keeping, testing and advertising.
Retail store structure	For-profit allowed
Sampling of state fees	
Application	All license types - $1,000 (new), $600 (renewal)
License	Retail Store - $5,000 Cultivation - $1,000 (limited cultivation facility), $5,000 (cultivation facility) Product Manufacturing - $1,000 (extract-only), $5,000 (product manufacturing) Testing - $1,000
State tax requirements	$50 excise tax per ounce sold from wholesale to retail
Number of retail stores allowed	No statewide limits, though local municipalities may impose them or institute bans
Number of retail stores and cultivators operating in early 2017	Retail Stores - 23 Cultivators - 44
Estimated number of in-state customers	70,000 - 80,000
Estimated 2017 recreational marijuana sales via retail stores	$25 million-$50 million (up from $1 million-$2 million in 2016)
What to watch in 2017	Recreational marijuana sales began in earnest in late 2016, and by all accounts demand has been brisk. Retailers have had trouble keeping product in stock, as the supply chain has yet to become fully operational. But the supply shortages are expected to ease as more cultivators and testing labs come online. Alaska has passed draft regulations that would allow for on-site consumption - the first law of its kind - but persistent delays on a final vote to adopt the rules have many wondering whether public use will actually come to fruition.

Marijuana Business Stability Rank for 2017: **B**	Alaska's recreational program has just gotten off the ground, and while no significant complications have arisen, there are issues that threaten the program's stability moving forward. An understaffed Alcohol & Marijuana Control Office – the agency in charge of issuing marijuana business licenses – has indicated significant delays may be in store for the large number of businesses still awaiting the licenses they've applied for. Additionally, a number of localities that overwhelmingly approved recreational legalization aren't physically connected to the mainland; therefore, any transport of product by plane or boat may face scrutiny by federal transportation agencies because marijuana is classified as a federally illegal drug.
Marijuana Business Opportunity Rank for 2017: **A**	As the newest recreational MJ market in the nation, the business opportunities are sizable – especially considering there are no caps on the number of business licenses the state will award. Also, Alaska didn't have an existing medical marijuana industry before the launch of its adult-use program so all businesses are starting from scratch. The overall opportunities are somewhat limited because Alaska is quite remote and has a small, highly dispersed population. Plus, the market could become saturated once the backlog of license applicants is processed and scores of new businesses open. That might take a while to play out, though, in a state where demand for recreational marijuana has been extremely high. The market also even appears to be attracting international cannabis enthusiasts. On-site consumption may provide a new revenue stream for existing retailers, though draft regulations have yet to be officially adopted.

ARIZONA

Overview of Law

Main measure	Proposition 203
Type of measure	Ballot initiative
Year passed	2010
Margin of victory	50.1% to 49.9% (it won by just 4,341 votes out of nearly 1.7 million cast)
Possession limit	2.5 ounces every 14-day period
Patient registry	Mandatory - patients must have a written recommendation from a physician
Accepts patients registered with other states?	No
Home cultivation	Yes, but only by patients (or their caregivers) who live more than 25 miles from a registered dispensary
Restrictions on type of marijuana allowed to be sold?	No
Qualifying medical conditions	ALS, agitation of Alzheimer's disease, cancer, Crohn's disease, glaucoma, hepatitis C, HIV/AIDS and other conditions or diseases - or whose treatments - produce cachexia/wasting syndrome, severe and chronic pain, severe nausea, seizures and severe or persistent muscle spasms
MMJ business regulations	Heavy. Applicants must go through an extensive application and licensing process, and businesses are subject to regulation of all aspects of operations. Stand-alone, wholesale cultivation operations are prohibited. Dispensaries must grow their own medical cannabis, though they are permitted to transfer excess marijuana to another licensed dispensary. Stand-alone, wholesale infused products manufacturing is also prohibited. The state limits the total number of licenses available, most of which have already been awarded. Officials periodically assess whether the license limit needs to be amended.
Dispensary structure	Not-for-profit only
Sampling of state dispensary fees	
Registration certificate	$5,000
License renewal	$1,000
Change location	$2,500
State tax requirements	5.6% state sales tax
Number of dispensaries allowed	130
Estimated number of dispensaries operating in early 2017	99
Number of registered patients	124,308 (up from 87,733 in early 2016)

Estimated 2017 MMJ sales via dispensaries	$325 million-$375 million (up from a revised $250 million-$300 million in 2016)
What to watch in 2017	Arizona's cannabis industry has displayed strong, continuous growth over time and now ranks as one of the largest MMJ markets in the nation. But It remains to be seen whether Arizona's MMJ industry will continue its torrid growth pace in 2017 or start to show some signs of a slowdown. After a measure to legalize recreational cannabis failed at the ballot box in 2016, advocates are preparing another adult-use ballot initiative for 2018. Those efforts will likely kick into high gear in the second half of 2017. The state awarded 31 new dispensary licenses in fall 2016, and many of those operations could go online in 2017. That will increase access for patients and likely help spur growth, but it will introduce new competitive pressures on existing businesses.
MMJ Business Stability Rank for 2017: **B**	Arizona's market is strong and growing, and the overall climate is strong. But some lawmakers and a portion of the general population remain hostile to the industry. Local officials have tried reining in marijuana businesses by levying steep fees or implementing onerous zoning restrictions, though for the most part these efforts have proved unsuccessful. Given this backdrop, there's always the possibility of volatility.
MMJ Business Opportunity Rank for 2017: **C**	The state has awarded all the licenses currently allowed by law. Businesses that won the additional 31 permits Arizona doled out in 2016 will have plenty of room to grow, but opportunities for other new plant-touching businesses have shriveled up. However, the rapidly growing patient base also gives ancillary companies more opportunities to scale their businesses.

ARKANSAS

Overview of Law

Main measure	Issue 6
Type of measure	Ballot initiative
Year passed	2016
Margin of victory	53% to 47%
Possession limit	Up to 2.5 ounces of usable cannabis
Patient registry	Mandatory - patients must apply with the state and get a written recommendation from a qualifying physician
Accepts patients registered with other states?	Yes
Home cultivation	No
Restrictions on type of marijuana allowed to be sold?	Proposed regulations would prohibit the production of certain edibles, including candies, cookies, brownies or other shapes that might appeal to minors.
Qualifying medical conditions	ALS, Alzheimer's disease, cachexia/wasting syndrome, cancer, chronic or debilitating disease, Crohn's disease, fibromyalgia, glaucoma, hepatitis C, HIV/AIDS, intractable pain, multiple sclerosis, peripheral neuropathy, PTSD, seizures, severe arthritis, severe nausea, severe and persistent muscle spasms, Tourette syndrome, ulcerative colitis or any other medical condition or its treatment approved by the state health department.
MMJ business regulations	Heavy, though subject to change. The Arkansas Medical Marijuana Commission has finalized rules regarding the cultivation and sale of medical cannabis, but they must be approved by state lawmakers before taking effect. The commission's recommendations include requirements regarding plant counts, lab testing, dosing standards, labeling, inventory and more. The proposed rules also include a provision that dispensaries must staff a "pharmacist director" who would be available by phone to the dispensary and patients during business hours. More detailed regulations from the Arkansas Department of Health are forthcoming, but initial developments suggest Arkansas' MMJ program will be heavily regulated.
Dispensary structure	For-profit
Sampling of state fees	
Application	Dispensaries - $7,500 Cultivators - $15,000
License	Stand-alone dispensaries - $2,500 (new); $10,000 (annual renewal) Dispensaries with cultivaton - $25,000 (new); $32,500 (annual renewal) Cultivators - $100,000
Working capital/ escrow/bond requirements	Cultivators - $1 million bond or assets worth $1 million and the ability to demonstrate $500,000 in cash liquidity
State tax requirements	4% tax on all medical marijuana transactions
Number of dispensaries and cultivators allowed	Dispensaries - 32 Cultivators - 5

Estimated number of dispensaries and cultivators operating in early 2017	None - the first dispensaries are not expected to open until 2018 at the earliest
Number of registered patients	None - state officials have indicated that MMJ cards will not be issued until cultivation begins, which is expected sometime in 2018
Estimated 2017 MMJ sales via dispensaries	None - sales are not expected to begin until early 2018
What to watch in 2017	The state will begin taking applications for dispensaries and cultivators on July 1. There will be a 90-day window for application acceptance, and state officials expect the first marijuana sales will begin in 2018. Patient access could be a concern, as Arkansas remains a conservative state and doctors may be reluctant to recommend MMJ.
MMJ Business Stability Rank for 2017: **C**	Arkansas' MMJ market may eventually develop into a stable industry, but final rules and regulations are not yet in place so there could be some fluctuations in the business climate. However, a few encouraging developments have come from the rule-making process, as lawmakers passed a bill to make it easier for doctors to recommend MMJ and the state Senate approved regulations that would allow patients to smoke traditional flower. The Arkansas Alcoholic Beverage Control Board also gave approval for licensed dispensaries to deliver MMJ to patients, another sign that the staunchly Republican state government may not end up actively working against the industry.
MMJ Business Opportunity Rank for 2017: **A**	With 32 dispensary and five cultivation licenses up for grabs, there are ample opportunities for plant-touching companies looking to enter Arkansas' MMJ market. The list of qualifying MMJ conditions is extensive and notably includes intractable pain, which should lead to strong program participation. But annual licensing fees are some of the highest in the nation, which will preclude some smaller players. Arkansas is the first Bible Belt state to legalize MMJ, so entrepreneurs must be well-capitalized and willing to take on significant risk to make a successful play in the industry.

CALIFORNIA

MEDICAL MARIJUANA

Overview of Law

Main measures	Proposition 215 (possession and use); Assembly Bills 243 & 266 and Senate Bill 643 (authority to license and regulate businesses)
Type of measures	Ballot initiative (Prop 215), legislative bills (AB 243, AB 266 and SB 643)
Years passed	1996 (Prop 215); 2015 (AB 243, AB 266 and SB 643)
Margin of victory	Prop 215: 56% to 44%; AB 243: 60 to 13 in the House, 30-8 in the Senate; AB 266: 59-14 in the House, 30-9 in the Senate; SB 643: 58-13 in the House, 30-9 in the Senate
Possession limit	8 ounces (qualified physician can recommend more if deemed necessary)
Patient registry	Voluntary - patients are required to obtain a recommendation from a qualifying physician to purchase and possess medical cannabis, but they are not required to register with the state (no change to this under the new regulatory framework)
Accepts patients registered with other states?	No
Home cultivation	Yes
Restrictions on type of marijuana allowed to be sold?	No
Qualifying medical conditions	AIDS, anorexia, arthritis, cachexia/wasting syndrome, cancer, chronic pain, glaucoma, migraines, persistent muscle spasms, seizures and severe nausea
MMJ business regulations	Regulation of California MMJ businesses has historically varied greatly by town/county because of a lack of statewide rules. However, three bills passed in 2015 establish a regulatory and licensing framework. California will create at least 17 distinct types of business licenses, and multiple state departments will be charged with regulatory oversight and rulemaking responsibilities. The full new framework won't be operational until 2018, and specific rules have not yet been developed. The final rules, however, will be detailed and extensive, addressing all aspects of operations at all levels of the supply chain.
Dispensary structure	Currently not-for-profit, but for-profit will be allowed under the new regulatory framework
Sampling of state fees	Fees for each of the 17 distinct license types have not yet been established by the primary rulemaking entities (Department of Consumer Affairs, Department of Food & Agriculture and Department of Public Health).
State tax requirements	7.5% state sales and use tax on all marijuana transactions
Number of dispensaries allowed	No statewide limits. Note: California's MMJ industry currently is unregulated at the state level, so it does not grant business licenses. In some cities, however, dispensaries and other MMJ businesses must get local licenses. And many towns and cities have enacted moratoriums, bans and caps. The situation will change in 2018, when California will implement new statewide regulations. It remains to be seen if there will be statewide caps or local limitations on the number of licenses.

Estimated number of dispensaries operating in early 2017	1,500-2,000 (versus a revised estimate of 1,200-1,800 in early 2016). Note: California currently doesn't track the number of operating dispensaries, so estimates vary widely.
Estimated number of patients	800,000-900,000 (up from an estimated 775,000-875,000 in early 2016). Note: Many patients do not have access to dispensaries because of local bans and therefore are likely to buy on the black market.
Estimated 2017 marijuana sales via dispensaries	$1.3 billion-$1.6 billion (up from a revised $1 billion-$1.3 billion in 2016)

CALIFORNIA

RECREATIONAL

Overview of Law

Main measure	Proposition 64
Type of measure	Prop 64: Ballot initiative
Year passed	2016
Margin of victory	57% to 43%
Possession limit	1 ounce of flower or 8 grams of concentrated cannabis
Home cultivation	Yes
Restrictions on type of marijuana allowed to be sold?	No
Business regulations	Heavy. The state's rec law builds on the package of MMJ industry regulation bills approved by the legislature in 2015, and it includes 19 different types of business licenses. It also requires companies to obtain both local and state business permits, for example, which creates additional hurdles for MJ businesses to comply with.
Retail store structure	For-profit allowed
Sampling of state fees	
Application	To be determined by licensing authorities
License	To be determined by licensing authorities
State tax requirements	15% excise tax on gross receipts of any retail sale, plus a $9.25 tax per pound of flower and $2.75 per pound of trim for cultivators, in addition to state sales and use taxes
Number of retail stores and cultivators allowed	No statewide limits
Number of retail stores and cultivators operating in early 2017	None - licensed recreational marijuana businesses will not open until 2018 at the earliest
Estimated number of in-state customers	3.9 million - 4.2 million
Estimated 2017 recreational marijuana sales via retail stores	Sales are not expected to begin until 2018 at the earliest
What to watch in 2017	California will be hammering out details of both its medical and recreational marijuana industry regulations, with both frameworks scheduled to go into effect in January 2018. Those regulations will be highly contentious, and many industry winners and losers could be decided depending on what types of regulations are adopted. The state's market also depends greatly on local industry rules, which have been in flux for years, including in Los Angeles, which is arguably the largest MJ market in the world. L.A., along with many other local governments, has yet to establish firm business regulations for companies to operate under. Those regulations, at both the state and local levels, will largely determine how viable many business models will be down the road.

Marijuana Business Stability Rank for 2017: D	With the transition to a regulated medical marijuana market and the start of recreational cannabis sales on the horizon, there will likely be plenty of turmoil for the foreseeable future. Many existing MMJ companies might not be able to qualify for licenses, and even those that do will face huge hurdles adapting to a regulated system. Businesses vying for recreational licenses also likely will see a volatile climate, and delays are possible.
Marijuana Business Opportunity Rank for 2017: A+	California is poised to reclaim its title as the marijuana capital of the world, which it lost when Colorado and Washington state legalized rec. The business opportunities are simply enormous on both the medical and recreational sides of the industry, as well as for both plant-touching and ancillary companies. California's status as a technology, innovation and finance hub will help the market grow quickly. Even though sales on the recreational side won't begin until 2018, scores of entrepreneurs and companies will start preparing to enter the market in 2017.

COLORADO

MEDICAL MARIJUANA

Overview of Law

Main measures	Amendment 20 (possession and use), House Bill 10-1284 (authority to license and regulate businesses)
Type of measures	Amendment 20: Ballot initiative; HB 10-1284: Legislative bill
Years passed	Amendment 20: 2000; HB 1284: 2010
Margins of victory	Amendment 20: 54% to 46%; HB 10-1284: 39-23 in the House, 26-9 in the Senate
Possession limit	2 ounces of usable marijuana
Patient registry	Mandatory - patients must get a written recommendation from a qualified physician, who must also be available for follow-up care
Accepts patients registered with other states?	No
Home cultivation	Yes
Restrictions on type of marijuana allowed to be sold?	No
Qualifying medical conditions	Cancer, glaucoma and HIV/AIDS, as well as conditions - or whose treatments - produce cachexia/wasting syndrome, persistent muscle spasms, seizures, severe nausea or severe pain
MMJ business regulations	Moderately heavy. Businesses must go through an extensive licensing and approval process, though the associated fees are some of the lowest in the country. Operational regulations are quite extensive and address all aspects of the supply chain, including cultivation, processing, seed-to-sale inventory tracking, plant counts, security, record-keeping and transport of cannabis.
Dispensary structure	For-profit allowed
Sampling of state fees	
Application	Dispensary - $6,000 to $14,000 depending on number of patients Cultivation - $1,000 Infused Products Maker - $1,000 Testing lab - $1,000
License	Dispensary - $3,000 to $8,000 depending on number of patients ($2,300 - $7,300 renewal) Cultivation - $1,500 ($1,800 renewal) Infused Products Maker - $1,500 ($1,800 renewal) Testing lab - $1,500 ($1,800 renewal)
Change of location	$500
State tax requirements	2.9% state sales tax on all marijuana transactions
Number of dispensaries and cultivators allowed	No statewide limits, though some towns and cities have enacted moratoriums or bans

Number of dispensaries and cultivation sites operating in early 2017	Dispensaries - 524 Cultivators - 782
Number of registered patients	94,577 (down from 107,534 in early 2016)
Estimated 2017 marijuana sales via dispensaries	$425 million-$450 million (versus $438 million in 2016)

COLORADO

RECREATIONAL

Overview of Law

Main measure	Amendment 64
Type of measure	Ballot initiative
Year passed	2012
Margin of victory	55% to 45%
Possession limit	Adults 21 and over can possess up to 1 ounce of marijuana
Home cultivation	Yes
Restrictions on type of marijuana allowed to be sold?	No
Business regulations	Heavy. Though the number of licenses is not restricted statewide, some cities have banned recreational marijuana businesses. The state has also changed or updated rules numerous times, specifically those related to infused products. Regulations address all aspects of operations at all levels of the supply chain. They include everything from seed-to-sale tracking, transportation and labeling to record-keeping, testing, packaging and advertising.
Retail store structure	For-profit allowed
Sampling of state fees	
Application	Retail Store - $2,500 (new), $250 (conversion from med to rec), $250 (current med adding rec) Cultivation - $2,500 Infused Product Manufacturing - $2,500 Testing lab - $500
License	Retail Store - $2,000 (new rec only), $2,000 (current med adding rec), $1,800 (renewal) Cultivation - $1,500 (new rec only), $1,500 (current med adding rec), $1,800 to $7,100 depending on plant count up to 13,800, then $800 additional per 3,600 additional plants Infused Product Manufacturing - $1,500 (both new and current med adding rec), $1,800 renewal Testing lab - $1,500 new, $1,800 renewal
State tax requirements	15% wholesale excise tax, 10% special sales tax, 2.9% state sales tax
Number of retail stores and cultivators allowed	No statewide limits, though local municipalities can and have implemented bans or moratoriums on some or all types of businesses
Number of retail stores and cultivators operating in early 2017	Retail Stores - 481 Cultivators - 662
Estimated number of in-state customers	550,000 - 610,000
Estimated 2017 recreational marijuana sales via retail stores	$1.1 billion-$1.2 billion (up from $875 million in 2016)
OVERALL 2017 MARIJUANA MARKET	$1.5 billion-$1.6 billion (up from $1.3 billion in 2016)

What to watch in 2017	Colorado is the de facto capital of the cannabis industry, and both its medical and recreational markets continue to grow. Adult-use sales got off to a strong start in the early months of 2017, so the rec market is still growing rapidly. But this marks the fourth year of recreational sales in the state, and the capacity for double-digit growth may soon be tested. As the rec markets in Alaska, Oregon and Washington state continue to mature - and a handful of other states prepare for the launch of adult-use sales - tourist purchases of cannabis in Colorado may begin to slow. On the medical side, patient counts have been declining the past few years, and revenues are tapering off. As the market begins to stabilize, look for more mergers/acquisitions and a higher degree of business sophistication among the state's more successful players. It's also possible medical marijuana revenues could stagnate or even dip slightly in 2017.
Marijuana Business Stability Rank for 2017: **B**	Despite being one of the most mature markets in the nation, Colorado's marijuana industry is still subject to major regulatory changes, particularly when it comes to infused products. Additionally, there have been several notable incidents involving pesticide use that have resulted in plant quarantines and product recalls, which could lead to more changes in the near future. As a leading recreational cannabis state, Colorado could find itself in the crosshairs if the Trump administration decides to crack down on the industry.
Marijuana Business Opportunity Rank for 2017: **B-**	With well over $1 billion in sales in 2016, Colorado's marijuana market is massive. But declining wholesale cannabis prices and caps or restrictions on the number of marijuana business licenses in the state's two largest cities - Denver and Colorado Springs - point to an industry nearing saturation. Yet opportunities still exist, particularly for existing businesses and ancillary firms. Colorado is a hub for cannabis businesses in general, so it remains an attractive market.

CONNECTICUT

Overview of Law

Main measure	House Bill 5389
Type of measure	Legislative bill
Year passed	2012
Margin of victory	96 to 51 in the House, 21-13 in the Senate
Possession limit	2.5 ounces per month
Patient registry	Mandatory - patients must have a written recommendation from a physician
Accepts patients registered with other states?	No
Home cultivation	No
Restrictions on type of marijuana allowed to be sold?	Yes - while most forms of the plant are allowed (flower, oils, tinctures, topicals, edibles, etc.), edibles are restricted to baked goods. Beverages and other "confectionaries" are prohibited.
Qualifying medical conditions	ALS, cachexia/wasting syndrome, cancer, cerebral palsy, complex regional pain syndrome, Crohn's disease, cystic fibrosis, epilepsy, glaucoma, HIV/AIDS, multiple sclerosis, Parkinson's disease, post-laminectomy syndrome with chronic radiculopathy, PTSD, severe psoriasis and psoriatic arthritis, spinal cord injury/damage, sickle cell disease, terminal illness requiring end-of-life care, ulcerative colitis and uncontrolled intractable seizure disorder
MMJ business regulations	Heavy. Producers and dispensaries are separately licensed and may not be integrated. The number of available licenses is capped low and tightly controlled. Licensing fees and bond/escrow requirements for producers are some of the highest in the country. Regulations on operations are detailed and extensive, covering everything from location and security to transportation and advertising. Only a licensed pharmacist can apply for a dispensary license, and only a pharmacist or individuals who have held a pharmacy technician registration within the previous five years may sell medical marijuana.
Dispensary structure	For-profit allowed
Sampling of state fees	
Application	Dispensary - $1,000 Producer - $25,000
License	Dispensary - $5,000 (new and renewal - dispensary licenses are valid for two years) Producer - $75,000 (new and renewal - producer licenses are valid for five years)
Change of location	Dispensary - $1,000 to apply, additional $1,500 if approved Producer - $3,500 to apply, additional $1,500 if approved
Working capital/ escrow/bond requirements	Producer only - $2 million bond/escrow for facility construction, another $1.5 million bond/escrow for facility operation
State tax requirements	6.35% state sales tax
Number of dispensaries and cultivators allowed	Dispensaries - 9 currently, but this periodically can be and has been adjusted by the state Producers/Cultivators - 10

Number of dispensaries and cultivators operating in early 2017	Dispensaries - 9 Producers/Cultivators - 4
Number of registered patients	17,513 (up from 8,201 in early 2016)
Estimated 2017 marijuana sales via dispensaries	$30 million-$35 million (up from an estimated $16 million-$20 million in 2016)
What to watch in 2017	Despite tight regulations and a low cap on the number of available licenses, Connecticut has shown a level of hospitality to marijuana businesses in the state not often seen – even going so far as to educate the public on the availability of medical marijuana. Driven in part by an expansion to the list of qualifying MMJ conditions, patient counts doubled over the course of 2016 - prompting the state to license three additional dispensaries that opened in the latter half of the year. Four more qualifying MMJ conditions are currently up for review, so 2017 could be another record year for Connecticut MMJ businesses.
MMJ Business Stability Rank for 2017: **A**	Connecticut's strict rules have remained relatively unchanged since they were first promulgated, reducing operational uncertainty. Though the addition of three new dispensaries in 2016 had the potential to increase competitive pressure in the state, it has actually increased patient access across the board – with existing dispensaries able to sustain and grow their patient base.
MMJ Business Opportunity Rank for 2017: **C+**	All of Connecticut's dispensary licenses have been awarded, and although six cultivation licenses remain, the state has shown no indication of allocating these anytime soon. But Connecticut's patient base grew substantially in 2016, which benefits existing business and provides more opportunities for ancillary companies. Connecticut law also allows officials to expand the MMJ program if demand warrants – which they've already done. So if patient counts continue rising at such a rapid pace, it's possible state officials will again award more licenses.

DELAWARE

Overview of Law

Main measure	Senate Bill 17
Type of measure	Legislative bill
Year passed	2011
Margin of victory	27 to 14 in the House, 17-4 in the Senate
Possession limit	6 ounces at a time, or purchase of 3 ounces every 14 days
Patient registry	Mandatory - patients must have a written recommendation from a physician
Accepts patients registered with other states?	No
Home cultivation	No
Restrictions on type of marijuana allowed to be sold?	Not for adult patients, but there are restrictions on oils sold to/used by minors
Qualifying medical conditions	Terminal illness, autism with self-injurious behavior, ALS, Alzheimer's disease, cancer, decompensated cirrhosis, HIV/AIDS, and the physical manifestations of PTSD, as well as conditions that cause intractable nausea, intractable seizures, severe pain or wasting syndrome, severe and persistent muscle spasms - including but not limited to multiple sclerosis - and chronic pain that hasn't responded to previously prescribed medication or surgical measures for more than three months.
MMJ business regulations	Very heavy. The state has a cap on the number of dispensaries allowed, and each must cultivate its own cannabis and test it as well. All pesticides are prohibited in cultivation, and the state has implemented strict limits on plant count and total usable cannabis dispensaries can have on hand at any given time. Other operational regulations cover everything from hiring and training to security, record-keeping and transportation.
Dispensary structure	Not-for-profit
Sampling of state dispensary fees	
Application	$5,000
License	$40,000 (license valid for two years)
State tax requirements	Less than 1% of gross receipts after first $1.2 million in revenues
Number of dispensaries allowed	3
Number of dispensaries operating in early 2017	1
Number of registered patients	2,374 (up from 776 in early 2016)
Estimated 2017 MMJ sales via dispensaries	$4 million-$6 million (up from a revised $1.5 million-$3 million in 2016)

What to watch in 2017	Delaware's growing patient base and rising MMJ demand prompted program officials to approve two new dispensaries in 2016 - both of which are expected to open in 2017 - bringing the total number of dispensaries in the state to three. The state is preparing to establish a third-party testing facility in 2017 and will also implement a new tracking system that allows patients to make purchases at any of the three dispensaries and increases inventory accountability. Both are significant changes with the potential to cause difficulties in the short term.
MMJ Business Stability Rank for 2017: **B**	The addition of two new dispensaries will no doubt create some uncertainty and necessitate an operational pivot on the part of the single licensed MMJ business currently operating, and implementing any changes to testing procedures has traditionally proved to be difficult. However, the overall climate is stable, and the fact that Delaware awarded two more licenses is a positive sign.
MMJ Business Opportunity Rank for 2017: **C**	Delaware is an extremely tiny market, so there aren't many ways for businesses to get involved. Still, the state's decision to award two additional MMJ licenses in 2016 creates at least some business opportunities for firms that provide products and services that dispensaries and grows need to start up and operate.

FLORIDA

Overview of Law

Main measure	Senate Bill 1030 (legalized CBD oil production, distribution and use); Amendment 2 (legalized a broader MMJ system)
Type of measure	Legislative bill, ballot initiative
Year passed	SB 1030: 2014; Amendment 2: 2016
Margin of victory	SB 1030: 111 to 7 in the House, 30-9 in the Senate; Amendment 2: 71% to 29%
Possession limit	Under the CBD law, patients can obtain up to a 45-day supply through their physician. Under the MMJ law, the state legislature or health department will determine possession limits.
Patient registry	Mandatory under both programs
Accepts patients registered with other states?	No under CBD program; rulemaking still ongoing for MMJ program
Home cultivation	No under both the CBD and MMJ programs
Restrictions on type of marijuana allowed to be sold?	Under the CBD law, only certain nonsmokable forms of low-THC cannabis are allowed, such as oils, tincture and capsules. In 2016, Florida started allowing existing CBD operators to sell full-strength THC products to terminally ill patients. And as of January 2017 - after voters passed Amendment 2 - anyone with a qualifying MMJ condition is permitted to purchase full-strength THC products, though smokable forms of flower are still prohibited. Under the latest proposed MMJ rules, smokable forms of marijuana would also be prohibited.
Qualifying medical conditions	The new MMJ law overrides the previous CBD law established by the legislature and expands the list of qualifying conditions, which now includes cancer, epilepsy, glaucoma, HIV/AIDS, PTSD, ALS, Crohn's disease, Parkinson's disease, multiple sclerosis, or other debilitating medical conditions of the same kind or class as or comparable to those enumerated, and for which a physician believes that the medical use of marijuana would likely outweigh the potential health risks for a patient.
MMJ business regulations	Under the CBD law, businesses laid out their own detailed set of operating procedures in their initial applications - covering aspects such as testing, transportation, security and more. Standard, statewide regulations do not exist, meaning each licensee operates under a different set of rules. However, companies can lose their licenses if they're found to be conducting business outside of the rules laid out in their application. For the MMJ program, exact regulations are very unclear. The Florida Department of Health will now attempt to produce rules and regulations governing the medical marijuana industry after lawmakers failed to in the last legislative session.
Dispensary structure	For-profit allowed under both programs
Sampling of state dispensary fees	(Note: Fees are still being ironed out for the MMJ program; all info below is for the CBD program)
Registration certificate	$60,063
License renewal	None
Change location	None

Working capital/ escrow/bond requirements	$5 million
State tax requirements	6% state sales tax on marijuana transactions
Number of dispensaries allowed	Under the CBD program, there is no cap on the number of dispensaries allowed throughout the state, though all must be operated by one of the seven licensed companies. These same seven companies are currently the only ones authorized to sell MMJ under the new program, as no updated rules or regulations have been finalized. Currently, there is no cap on the number of MMJ dispensaries allowed.
Estimated number of dispensaries operating in early 2017	6 under the CBD program, which will likely be grandfathered into the new MMJ system but have already begun selling full-strength MMJ to patients
Number of registered patients	Approximately 13,000
Estimated 2017 sales via dispensaries	$20 million-$40 million (up from $500,000 last year)
What to watch in 2017	The state will be establishing the framework for its new MMJ program in 2017, making decisions on everything from how many dispensaries will be permitted and whether smokable cannabis will be allowed to whether there will be residency requirements for businesses. There are differing views on how the industry should take shape, so the process could become heated - which might introduce delays into the program. The seven licensed CBD companies are fighting to keep total control of the new MMJ market, while others are pushing for the addition of new licenses. How regulators and lawmakers address this issue will determine the number and scope of new business opportunities.
MMJ Business Stability Rank for 2017: **C**	Florida's CBD industry is relatively stable, and the seven licensed companies continue to open up dispensaries. But it's unclear how the state will handle the transition to the new MMJ program, so there could be some changes for these businesses. It's also unclear what types of rules will be implemented on the MMJ industry, so entrepreneurs will be in limbo until the state wades through this controversial process.
MMJ Business Opportunity Rank for 2017: **B-**	The existing licensed companies under the CBD program are already serving the larger MMJ market with full-strength medical cannabis, which will give them immense opportunities to expand. There's a chance that they might be the only businesses allowed to participate in the broader MMJ program. On the other hand, the state could decide to allow more licensed companies. Until this is all hammered out, it's difficult to assess the level of opportunity. However, even if Florida keeps the number of licensed companies to seven, there will be plenty of room for those businesses to grow and ancillary companies to get involved, as the overall market could be enormous.

HAWAII

Overview of Law

Main measures	Senate Bill 862 (possession and use) and House Bill 321 (authority to license and regulate businesses)
Type of measures	Legislative bills
Years passed	SB 862: 2000 HB 321: 2015
Margin of victory	SB 862: 32 to 18 in the House, 13-12 in the Senate HB 321: 38 to 13 in the House, 24-0 in the Senate
Possession limit	4 ounces of usable marijuana
Patient registry	Mandatory - patients must have a written recommendation from a physician
Accepts patients registered with other states?	No
Home cultivation	Yes. Note: On Jan. 1, 2019, caregivers will be prohibited from growing marijuana for patients, with limited exceptions for minors, adults lacking legal capacity and patients on islands where there aren't any dispensaries. Caregivers will still be permitted to purchase cannabis from licensed dispensaries on behalf of patients after that date.
Restrictions on type of marijuana allowed to be sold?	Yes - edibles such as candies, baked goods and beverages are prohibited, but flower, lozenges, tinctures, oils, pills, lotions and so on are permitted
Qualifying medical conditions	Cancer, glaucoma, HIV/AIDS and PTSD, as well as conditions - or whose treatments - produce cachexia/wasting syndrome, severe and persistent muscle spasms, seizures/epilepsy, severe nausea and severe pain
MMJ business regulations	Heavy. The state has a cap on MMJ business licenses and the number of dispensaries each company can operate. Licensing fees are relatively high and include requirements for minimum working capital/funds in escrow, and dispensaries must grow their own cannabis. Initial dispensary rules cover all aspects of operations including hiring, security, seed-to-sale inventory tracking, record-keeping, transportation, advertising, cultivation, processing and lab testing. Businesses are also subject to inspections and are required to submit audited financial statements to the state each year.
Dispensary structure	For-profit permitted
Sampling of state dispensary fees	
Application	Dispensary - $5,000 Testing lab - $3,000
License	Dispensary - $75,000 (new); $50,000 (annual renewal) Testing lab - no additional cost, but must be renewed annually for $3,000
Working capital/ escrow/bond requirements	$1 million in working capital or escrow for each license, plus $100,000 for each retail dispensing location permitted under the license
State tax requirements	Hawaii's standard General Excise Tax of 4% will be applied to medical cannabis sales
Number of dispensaries allowed	16 - the state has awarded licenses to eight companies, each of which can open two dispensaries in addition to their cultivation sites

Number of dispensaries operating in early 2017	None - the first dispensaries are expected to open in the first half of 2017
Number of registered patients	16,275 (up from 13,150 from in early 2016)
Estimated 2017 MMJ sales via dispensaries	$15 million-$30 million (in first full 12 months after dispensaries open)
What to watch in 2017	Licenses were awarded to eight vertically integrated MMJ companies in April 2016, but slowdowns in the approval of cultivation operations mean dispensaries won't have any product to sell until late spring/early summer of 2017. The state's first and only testing lab is expected to open in early 2017, but any unexpected roadblocks could lead to even further delays.
MMJ Business Stability Rank for 2017: **C+**	Hawaii has been relatively proactive in passing legislation to resolve issues that may interfere with its MMJ industry, including a provision to the law that allows marijuana to be transferred between islands for testing purposes – indispensable for dispensaries on islands without a testing lab. Slowdowns in the licensing and regulatory processes have pushed back the start of sales, but the state appears ready to handle a full-blown commercial medical marijuana industry.
MMJ Business Opportunity Rank for 2017: **B**	All eight vertically integrated dispensary licenses have been awarded, but the state is still accepting applications for testing labs. Any new business opportunities beyond these will be limited to entrepreneurs who want to develop ancillary products and services. But sales expectations are high, and the significant population of caregivers on the island – who are currently allowed to grow MMJ for patients - will be phased out at the end of 2018, which should prove beneficial for dispensary operators seeking new patients.

ILLINOIS

Overview of Law

Main measure	House Bill 1
Type of measure	Legislative bill
Year passed	2013
Margin of victory	61 to 57 in the House, 35-21 in the Senate
Possession limit	2.5 ounces every 14 days
Patient registry	Mandatory - a recommendation from a physician is required, and patients are required to submit fingerprints and undergo a background check
Accepts patients registered with other states?	No
Home cultivation	No
Restrictions on type of marijuana allowed to be sold?	Generally no, though edibles or other infused products that require refrigeration or "hot-handling" are prohibited
Qualifying medical conditions	Agitation of Alzheimer's disease, ALS, Arnold-Chiari malformation, cachexia/wasting syndrome, cancer, causalgia, chronic inflammatory demyelinating polyneuropathy, Crohn's disease, CRPS (complex regional pain syndrome Type II), dystonia, fibrous dysplasia, glaucoma, hepatitis C, HIV/AIDS, hydrocephalus, hydromyelia, interstitial cystitis, lupus, multiple sclerosis, muscular dystrophy, myasthenia gravis, myoclonus, nail-patella syndrome, neurofibromatosis, Parkinson's disease, post-concussion syndrome, PTSD, reflex sympathetic dystrophy, rheumatoid arthritis, residual limb pain, seizures (including those characteristic of epilepsy), severe fibromyalgia, Sjogren's syndrome, spinal cord disease (including but not limited to arachnoiditis), spinal cord injury, Spinocerebellar ataxia, syringomyelia, Tarlov cysts, terminal illness, Tourette syndrome and traumatic brain injury
MMJ business regulations	Very heavy. Illinois is a complex market for businesses to navigate. The state has implemented caps on the number of dispensaries and cultivation sites allowed to operate, and licensing fees are pricey. Strict rules govern nearly all aspects of business operations, including location, security, inventory tracking and testing. Illinois' MMJ program is technically a pilot program, set to expire on July 1, 2020.
Dispensary structure	For-profit allowed
Sampling of state fees	
Application	Dispensaries - $5,000 Cultivators - $25,000
License	Dispensaries - $30,000 (new), $25,000 (renewal) Cultivators - $200,000 (new), $100,000 (renewal)
Escrow/bond requirements	Dispensaries - $50,000 Cultivators - $2,000,000 (can be reduced to $500,000 upon achievement of certain milestones)
State tax requirements	1% retailer's occupation tax on dispensary sales; 7% excise tax on cultivators
Number of dispensaries and cultivators allowed	Dispensaries - 60 Cultivators - 22

Number of dispensaries and cultivators operating in early 2017	Dispensaries - 52 Cultivators - 21
Number of registered patients	18,300 (up from 4,400 in January 2016)
Estimated 2017 MMJ sales via dispensaries	$75 million-$85 million (up from a revised $36.3 million in 2016)
What to watch in 2017	The size of the patient pool in Illinois tripled throughout the course of 2016, driven by a streamlined MMJ recommendation process and the addition of PTSD and terminal illness to the list of qualifying conditions. This growth trend is expected to continue in 2017, particularly if the state makes additional business-friendly changes and adds more medical conditions to the program.
MMJ Business Stability Rank for 2017: **B**	Illinois' MMJ program was originally set to expire in 2017. While it remains a pilot program, legislation was passed in 2016 that extends it until July 2020. The extension is necessary if any of the state's licensed MMJ businesses are to recoup their costs, which remain high because of some of the most expensive licensing fees in the nation. More qualifying conditions have been added to the program and patient counts are on the rise – both signs of a MMJ program that's found its footing.
MMJ Business Opportunity Rank for 2017: **B**	A handful of MMJ dispensary licenses – and one cultivation license – are still available, but high fees and a lack of licenses available in population-dense areas of the state make them less attractive to potential entrepreneurs. However, if the program continues its robust growth, these may quickly become more attractive business propositions. Additionally, the rapid increase in patient numbers could continue in 2017, providing more growth opportunities for existing companies.

LOUISIANA

Overview of Law

Main measure	SB 271 (replaced previous law passed in 2015 that proved unworkable)
Type of measure	Legislative bill
Year passed	2016
Margin of victory	62 to 31 in the House, 22-14 in the Senate
Possession limit	30-day supply
Patient registry	No - the current law does not establish a patient registry
Accepts patients registered with other states?	No
Home cultivation	No
Restrictions on type of marijuana allowed to be sold?	Regulations are still being finalized, but proposed rules would prohibit the sale of flower and restrict edibles to gelatin-based chewables
Qualifying medical conditions	Cancer, cachexia/wasting syndrome, Crohn's disease, epilepsy, HIV/AIDS, multiple sclerosis, muscular dystrophy, seizure disorders, spasticity and/or other such other diseases or conditions that may subsequently be identified as a debilitating medical condition
MMJ business regulations	Likely heavy. State agencies are still writing industry rules, and many specifics were unavailable as of press time. The Louisiana Board of Pharmacy will develop operational standards for the state's MMJ program and create a specialty license for a unique type of pharmacy to dispense medical marijuana. Pharmacies can be owned by an entrepreneur who isn't a licensed pharmacist, but a pharmacist must be employed to run the dispensary. For all intents and purposes, these are dispensaries - as they exist for the sole purpose of providing MMJ - but the program refers to these businesses as pharmacies and the extent to which the Board of Pharmacy is involved in the state's MMJ industry is notable.
Dispensary structure	For-profit allowed
Sampling of state fees	Louisiana State University and Southern University will enlist subcontractors to perform all cultivation and processing duties. The winning vendor to run Southern's cultivation site will need to invest roughly \$5 million-\$7 million in equipment and technology, while the winning contractor for LSU's grow site will be expected to foot the estimated \$10 million bill.
Application	Dispensaries - none
License	Dispensaries - \$150 (new); \$125 (renewal)
Escrow/bond requirements	Dispensaries - \$2 million in an escrow account
State tax requirements	No laws regarding the taxation of medical marijuana have yet been passed
Number of dispensaries and cultivators allowed	Dispensaries - 10 Cultivators - 1 (a joint operation between Louisiana State University and Southern University)
Number of dispensaries and cultivators operating in early 2017	None - sales are not expected to begin until early 2018
Number of registered patients	None - a patient registry has not been established

Estimated 2017 MMJ sales via dispensaries	None - sales are not expected to begin until 2018
What to watch in 2017	As Louisiana's MMJ law is currently written, no protections for patients or MMJ business owners or their employees are provided - meaning qualified patients or dispensary workers could technically be arrested for possessing or consuming marijuana in Louisiana. Many view this as a fundamental obstacle that needs to be overcome before the state can have a viable program, and a key bill has been put to lawmakers to provide necessary exemptions to persons lawfully in possession of medical marijuana or legally involved in the MMJ industry.
MMJ Business Stability Rank for 2017: **D**	The lack of legal protections and a strict qualifying condition list are huge hurdles, and final regulations on some aspects of the industry are still being fleshed out. Additionally, some observers are worried about a requirement that physicians create an individualized treatment plan documenting that other methods were considered or tried but lacked reasonable success before recommending MMJ. A bill that would add chronic or intractable pain to the conditions list is currently being debated, and while it could expand the potential patient pool, it does nothing to address the individual treatment plan requirement.
MMJ Business Opportunity Rank for 2017: **C**	Two subcontractors will run Louisiana State University and Southern University's cultivation sites, and 10 dispensary licenses will be made available to any entrepreneur, though a pharmacist must be employed to run the dispensary. However, the state's initial projection for only 1,440 patients should give potential business owners a great deal of pause, because - if true - it would leave extremely limited opportunites for plant-touching companies and essentially none for ancillary businesses. A ban on flower sales further exacerbates the problem, as this has dampened enrollment in states with similar prohibitions - like New York and Minnesota. Still, as in any new market there will be at least some opportunities for dispensaries and ancillary companies.

MAINE

MEDICAL MARIJUANA

Overview of Law

Main measures	Ballot Question 2 (cultivation and possession); Question 5 (nonprofit dispensaries and voluntary registry)
Type of measures	Ballot initiatives
Years passed	Question 2: 1999 Question 5: 2009
Margin of victory	Question 2: 61% to 39% Question 5: 59% to 41%
Possession limit	2.5 ounces every 15 days
Patient registry	Voluntary, but patients who do not register must still obtain a written recommendation from an in-state physician and otherwise abide by the program rules in order to be protected under the law
Accepts patients registered with other states?	Yes - patients registered in other states can buy from dispensaries for up to 30 days after entering the state if certain conditions are met
Home cultivation	Yes
Restrictions on type of marijuana allowed to be sold?	No
Qualifying medical conditions	Alzheimer's disease, ALS, cancer, Crohn's disease, glaucoma, hepatitis C, HIV/AIDS, intractable pain that has not responded to traditional treatments for six months or more, inflammatory bowel disease, nail-patella syndrome, PTSD, as well as any chronic or debilitating disease or medical condition - or whose treatment - produces cachexia/wasting syndrome, severe nausea, seizures or severe and persistent muscle spasms
MMJ business regulations	Heavy. The state strictly limits the number of permitted dispensaries to one in each of eight predefined geographic areas. Dispensaries must also obtain several other types of permits and licenses and cultivate their own cannabis. The state has implemented production caps as well. Regulations cover all conceivable aspects of operations, and dispensaries are subject to inspections by the state. Of note is Maine's large number of caregivers, many of whom make a living off growing a limited number of plants for patients.
Dispensary structure	Not-for-profit
Sampling of state dispensary fees	
Application	$15,000
License	$12,000
Change of location	$4,000
State tax requirements	5.5% state sales tax on all marijuana transactions at dispensaries and 8% for edibles
Number of dispensaries allowed	8

Number of dispensaries operating in early 2017	8
Estimated number of patients	35,000-45,000 (up from a revised 25,000-35,000 in early 2016)
Estimated 2017 MMJ sales via dispensaries	$30 million-$40 million (up from a revised $20 million-$30 million in 2016)

MAINE

RECREATIONAL

Overview of Law

Main measure	Question 1
Type of measure	Ballot initiative
Year passed	2016
Margin of victory	50.2% to 49.8%
Possession limit	2.5 ounces
Home cultivation	Yes
Restrictions on type of marijuana allowed to be sold?	No
Business regulations	Heavy, though lawmakers are still finalizing regulations. The ballot initiative passed by voters lays out a tightly regulated system of licensed marijuana retail stores, cultivation facilities, infused product manufacturers and testing labs. Initial rules govern all aspects of the production, testing, transportation and sale of marijuana products, with specific requirements regarding testing, labeling, packaging, advertising, inventory and more.
Retail store structure	For-profit allowed
Sampling of state fees	Final application and license fees have not been set, but the bill specifies ranges for each type of available business license
Application	Retail store: \$10-\$250 Cultivator: \$10-\$250 Infused product manufacturer: \$10-\$250 Testing lab: \$10-\$250 Marijuana social club: \$10-\$250
License	Retail store: \$250-\$2,500 Cultivator: \$10-\$100 per unit block Infused product manufacturer: \$10-\$1,000 Testing lab: \$500 Marijuana social club: \$250-\$2,500
State tax requirements	10% sales tax on retail marijuana at point of sale
Number of retail stores and cultivators allowed	No statewide limit on retailers, though local municipalities can enact limits or bans The state can limit the number of retail cultivators as it sees fit, but no limit has currently been set
Number of retail stores and cultivators operating in early 2017	None - the earliest licensed businesses can open is February 2018
Estimated number of in-state customers	140,000-150,000
Estimated 2017 recreational marijuana sales via retail stores	Sales are not expected to begin until February 2018

What to watch in 2017	After surviving a razor-thin vote margin and opposition-led recount efforts, Maine officially legalized recreational marijuana in early January. Maine's large caregiver population – who are allowed to grow MMJ for registered patients - grew by 42% in 2016, suggesting that many are hoping to gain experience before recreational cultivation permits become available. Existing MMJ businesses are also eager to cash in on adult-use sales, supporting draft legislation that would allow early sales of recreational cannabis through dispensaries while regulations are being drafted for the new market.
Marijuana Business Stability Rank for 2017: **B**	Maine's medical marijuana industry has been strong and exceedingly stable since it began in 2009, but the rollout of the state's recreational market has been bumpy. Recreational legalization passed with just 50.2% of the vote, and lawmakers passed subsequent legislation delaying the start of adult-use sales by three months - it's now expected to begin in February 2018. Rules governing the new industry are still being drafted, so the regulatory climate in which recreational business will operate next year remains to be seen.
Marijuana Business Opportunity Rank for 2017: **A**	Until now, opportunities for new businesses have been limited - all of Maine's MMJ licenses have been awarded - but the legalization of recreational marijuana opens the door for numerous business opportunities in the near future. With the exception of growers, the initial bill places no license caps on other MJ business sectors and has no residency requirements - giving potential entrepreneurs plenty of latitude to participate. Although sales are not expected to begin until the beginning of 2018 at the earliest, businesses will begin vying for licenses in 2017, so the opportunities are strong.

MARYLAND

Overview of Law

Main measure	Senate Bill 923 and House Bill 881 (the identical measures replace House Bill 1101, a 2013 law that proved unworkable)
Type of measures	Legislative bills
Year passed	2014 (both)
Margin of victory	SB 923: 127 to 9 in the House, 44-2 in the Senate HB 881: 125 to 11 in the House, 44-2 in the Senate
Possession limit	4.23 ounces (120 grams) of flower and/or 36 grams of THC in infused products every 30 days
Patient registry	Mandatory - written recommendation from a physician certified to recommend cannabis is required
Accepts patients registered with other states?	No
Home cultivation	No
Restrictions on type of marijuana allowed to be sold?	Yes - edibles are prohibited, though patients and/or caregivers may use extracts purchased from dispensaries to make their own edibles. Non-edible infused products (such as creams and patches) are permitted, as are tinctures, capsules and suppositories.
Qualifying medical conditions	Glaucoma, hospice patients or those receiving palliative care, PTSD and any other condition - or whose treatment - produces anorexia, cachexia/wasting syndrome, chronic pain, seizures, severe or persistent muscle spasms, severe nausea or severe pain
MMJ business regulations	Very heavy. The state has set caps on the number of dispensaries and growers allowed, and licensing costs are some of the highest in the nation. Regulations govern all aspects of grower, processor and dispensary operations, from location, transportation, testing and security to record-keeping and packaging.
Dispensary structure	For-profit allowed
Sampling of state fees	
Application	With the exception of testing labs, application fees are applied in two stages. Every applicant that applies for a business license is required to pay the Stage One application fee, while Stage Two application fees apply only to preapproved companies working through Stage Two processes, such as background checks and financial due diligence investigations. Dispensaries - $5,000 total (Stage One: $1,000; Stage Two: $4,000) Cultivators - $6,000 total (Stage One: $2,000; Stage Two: $4,000) Cultivator/Dispensary - $11,000 total (Stage One: $3,000; Stage Two: $8,000) Processor - $6,000 total (Stage One: $2,000; Stage Two: $4,000) Testing lab - $100
License	Dispensary - $40,000 each year (new licenses good for four years, renewals for two years) Cultivator - $125,000 (renewed annually) Cultivator/Dispensary - $165,000 (renewed annually) Processor - $40,000 each year (new licenses good for four years, renewals for two years) Testing lab - $100 (registration valid for two years)
Change in ownership or location	Dispensaries, Cultivators and Processors - $7,000
State tax requirements	Tax requirements had not yet been finalized as of early 2017 - the state was still studying the issue and was to make recommendations on the taxation of medical marijuana

Number of dispensaries and cultivators allowed	Dispensaries - 94 (stand-alone) Cultivators - 15 (cultivators may also operate a single dispensary, or operate as a stand-alone wholesaler)
Number of dispensaries and cultivators operating in early 2017	None - the first dispensaries are expected to open in summer 2017
Number of registered patients	None as of press time - the patient registry was just launching
Estimated 2017 MMJ sales via dispensaries	$20 million-$40 million (in first full 12 months after dispensaries open)
What to watch in 2017	After delays caused by a deluge of marijuana business license applications, regulators issued 15 cultivation and 15 processing licenses in August 2016 and 102 dispensary licenses in December 2016. Despite some of the highest business licensing fees in the nation, these entrepreneurs are eager to get involved in what looks to be one of the largest medical marijuana markets on the East Coast. MMJ sales are expected to begin sometime in summer 2017, but lawsuits alleging the state ignored racial diversity when evaluating license applicants threaten to cause further delays.
MMJ Business Stability Rank for 2017: **C**	Licensees in Maryland face a fairly cannabis-friendly legislature and population, although the failure of a bill designed to mandate racial diversity in the ownership of marijuana businesses threatens to further slow the program's rollout. A lack of available real estate, impatient investors and a possible shortage of testing labs add to the already high degree of uncertainty among business owners in the state. As with any new market, there is a high potential for delays and regulatory hiccups.
MMJ Business Opportunity Rank for 2017: **A**	With most program licenses awarded, there are far fewer plant-touching business opportunities now than in 2016. But these licensed companies will encounter solid opportunities to build the market from the ground up. And because of the large number of licenses awarded, ample opportunities will exist for ancillary businesses like security firms, accountants, consultants and lawyers. Maryland has the potential to be one of the biggest new medical marijuana markets in a long time, but so far the program rollout has been disappointing.

MASSACHUSETTS

MEDICAL MARIJUANA

Overview of Law

Main measure	Question 3
Type of measure	Ballot initiative
Year passed	2012
Margin of victory	63% to 37%
Possession limit	10 ounces every 60 days
Patient registry	Mandatory - electronic recommendation from a qualified physician or certified nurse practitioner is required
Accepts patients registered with other states?	No
Home cultivation	Yes, but limited to caregivers serving patients who have demonstrated financial hardship, who have a physical incapacity that prevents them from getting to a dispensary, or who live beyond a reasonable distance from an MMJ center
Restrictions on type of marijuana allowed to be sold?	No
Qualifying medical conditions	ALS, cancer, Crohn's disease, glaucoma, hepatitis C, HIV/AIDS, multiple sclerosis and Parkinson's disease. The presence of one or more of the following associated with the qualifying conditions or their treatment must also be present: cachexia/wasting syndrome, impaired strength or ability, intractable pain, nausea or weakness
MMJ business regulations	Heavy. Dispensary applicants must go through an extensive, expensive multiphase application process and meet a host of regulations covering everything from security and advertising to seed-to-sale tracking systems and testing. Dispensaries are required to cultivate most of the cannabis they sell – no separate, stand-alone grow operations are allowed – but they can buy limited amounts of marijuana from other dispensaries. Many towns also require that dispensaries wishing to operate within their borders sign "community host agreements" that require them to pay fees that often reach five or six digits.
Dispensary structure	Not-for-profit
Sampling of state fees	
Application	$31,500
License	$50,000 (new and renewal)
Working capital requirement	$500,000
State tax requirements	No MMJ-specific taxes defined
Number of dispensaries allowed	No limits (an initial cap of 35 expired)
Number of dispensaries operating in early 2017	10
Number of registered patients	34,816 (up from 19,000 in early 2016)
Estimated 2017 MMJ sales via dispensaries	$50 million-$75 million (up from a revised $25 million-$35 million in 2016)

MASSACHUSETTS

RECREATIONAL

Overview of Law

Main measure	Question 4
Type of measure	Ballot Initiative
Year passed	2016
Margin of victory	54% to 46%
Possession limit	Up to 10 ounces at home, up to 1 ounce in public.
Home cultivation	An individual can grow up to six plants, but not more than 12 plants per household
Restrictions on type of marijuana allowed to be sold?	None
Business regulations	Heavy. The number of licensed marijuana businesses is not limited, but municipalities would be allowed to ban them. There are no limits on what kind of marijuana can be sold, but all marijuana products must be in child-resistant packaging. The packaging must also state where and by whom the product was grown or made, and if it's an infused product, it must provide information about serving sizes. The law also mandates advertising restrictions, seed-to-sale tracking and anti-diversion mechanisms.
Retail store structure	For-profit allowed
Sampling of state fees	
Application	$3,000
License	$15,000 for cultivators, product manufacturers and product retailers; $10,000 for testing labs
State tax requirements	6.75% state tax and 3.25% excise tax
Number of retail stores and cultivators allowed	Unlimited. Experienced medical marijuana businesses will get priority for licenses
Number of retail stores and cultivators operating in early 2017	None - the first rec stores are not expected to open until 2018 at the earliest
Estimated number of in-state customers	700,000 - 770,000
Estimated 2017 recreational marijuana sales via retail stores	Sales are not expected to start until summer 2018 at the earliest
What to watch in 2017	Lawmakers have made significant changes to the adult-use ballot initiative passed by voters last November, much to the disappointment of the cannabis business community in Massachusetts. The program's start date has been pushed back to July 2018 from January 2018, and bills have been introduced that would place a two-year moratorium on the sale of infused products and increase the legal purchasing age from 21 to 25. Some legislators are also pushing for higher taxes on marijuana businesses. A large backlog of MMJ dispensaries with provisional licenses from the state are still left waiting to open, as requirements for local approval have allowed many towns to ward off unwanted MMJ outlets. It remains unclear how many of these dispensaries will open in 2017.

Marijuana Business Stability Rank for 2017: **C**	Fewer than a dozen medical marijuana dispensaries have opened throughout Massachusetts several years into the program, as licensing bottlenecks at the local level have left many businesses waiting to open their doors. Proposed changes to the recreational marijuana program are threatening to cause delays and place onerous restrictions on cannabis businesses, causing many to worry that the uncertainty could push away potential investors. In general, the climate is highly volatile at this time.
Marijuana Business Opportunity Rank for 2017: **A**	Existing medical marijuana dispensaries are operating under very favorable business conditions, serving a growing patient base with little competition. For the many MMJ businesses left wrestling with local government approval, the future is unclear. The state could see a wave of new dispensary openings in 2017, or the program could continue to stagnate. Conceivably, there could be many opportunities for entrepreneurs looking to enter Massachusetts' recreational market, though they may be diminished by proposed changes to the voter-approved law. Despite delays and potential setbacks - which are rather common in the rollout of a new market - the pent-up demand for recreational cannabis on the East Coast is huge, which is a major incentive for business owners to persevere through this initial period of uncertainty.

MICHIGAN

Overview of Law

Main measure	HB 4209: Authority to license and regulate businesses HB 4210: Amends previous MMJ law to allow for production of infused products and edibles HB 4827: Establishment of commercial monitoring system (These bills replace a previous ballot initiative - passed in 2008 - that allowed for the possession and use of medical marijuana)
Type of measure	Legislative bills
Year passed	2016
Margin of victory	HB 4209: 83 to 22 in the House, 25-12 in the Senate HB 4210: 93 to 12 in the House, 28-9 in the Senate HB 4827: 85 to 20 in the House, 27-10 in the Senate
Possession limit	2.5 ounces of usable marijuana
Patient registry	Mandatory - written recommendation from a qualifying physician required
Accepts patients registered with other states?	Yes
Home cultivation	Yes
Restrictions on type of marijuana allowed to be sold?	Generally no, though restrictions will be placed on edibles to prohibit shapes that would appeal to children
Qualifying medical conditions	ALS, Alzheimer's disease, cancer, Crohn's disease, glaucoma, HIV/AIDS, hepatitis C, nail patella, a chronic or debilitating disease or medical condition - or whose treatment - produces one or more of the following: cachexia/wasting syndrome, severe and chronic pain, severe nausea, seizures and severe and persistent muscle spasms
MMJ business regulations	Heavy. Three bills went into effect in December 2016 that establish a general licensing and regulatory framework for Michigan's MMJ industry, though certain details have yet to be finalized. All aspects of business operations will be governed, with an explicit provision that all licensees must adopt and use inventory controls capable of interfacing with the state's third-party seed-to-sale monitoring system. Rules will establish strict operating procedures regarding testing, quality-control standards, daily purchasing limits, transportation, zoning, marketing and advertising, record-keeping, insurance and more. Licensed cultivators and processors will also be required to have an active employee on staff with a minimum of two years of experience as a registered primary caregiver until Dec. 31, 2021. Municipalities can enact bans or limits on the number of marijuana facilities, and cannabis businesses will not be allowed to operate in localities that have not adopted an ordinance authorizing that type of facility.
Dispensary structure	For-profit allowed
Sampling of state fees	Licensees will be required to pay application fees and costs of an annual regulatory assessment to the state. Local municipalities may also establish an annual, nonrefundable fee of up to $5,000 to defray administrative costs. Fee structures for the five types of available MMJ business licenses (listed below) have not yet been finalized. • Grower • Processor • Provisioning center • Secure transporter • Safety compliance facility

State tax requirements	Dispensaries will pay 3% on gross retail receipts. The bill allows MMJ to be subject to sales tax, though rules have yet to be finalized
Number of dispensaries and cultivators allowed	No statewide limits, though local municipalities can choose to ban or limit the number of MMJ businesses
Number of dispensaries and cultivation sites operating in early 2017	No state-licensed MMJ businesses are operational yet, though an estimated 100-200 dispensaries were operating illegally early in 2017. The first regulated dispensaries are expected to open in 2018
Number of registered patients	218,556 (up from about 179,000 in early 2016)
Estimated 2017 MMJ sales via dispensaries	$100 million-$150 million (versus $140 million-$180 million in 2016) Note: It's extremely difficult to project revenues in 2017, as it's unclear how the state and cities will approach the multitude of unregulated, technically illegal dispensaries that exist. Detroit has been closing dozens of dispensaries that don't comply with new city laws, for instance. So sales could drop precipitously despite a further increase in patients.
What to watch in 2017	A five-member licensing board and separate marijuana advisory panel will be created in 2017 to oversee the implementation of more specific aspects of the new MMJ law – such as application fees and testing guidelines. Whether existing dispensaries - which have operated in a largely unregulated environment - can make the transition to the new program is unknown, but many might go out of business or be forced to shut down in 2017.
MMJ Business Stability Rank for 2017: **D**	It will likely be a tumultuous year for existing MMJ businesses as the state gears up for a regulated market. The playing field is about to change, and scores of dispensaries and grows could close. The new MMJ law requires all municipalities to adopt an ordinance authorizing marijuana businesses to operate locally, which has created licensing bottlenecks in states like Massachusetts that have implemented similar measures. More clarity around these rules will be provided as details are ironed out, and the establishment of statewide rules will reduce volatility in the future. But for 2017 there will be a high level of instability.
MMJ Business Opportunity Rank for 2017: **A**	With the second-largest medical marijuana patient base in the nation and no statewide caps on the number of MMJ licenses that can be awarded, Michigan will be brimming with opportunity for both plant-touching and ancillary companies. The application process will open on Dec. 15, 2017, though only in-state applicants will be considered for the first year. And while final details around license and application fees are still being worked out, they look to be quite low relative to other medical markets in the country.

MINNESOTA

Overview of Law

Main measure	Senate File 2470
Type of measure	Legislative bill
Year passed	2014
Margin of victory	89 to 40 in the House, 46-16 in the Senate
Possession limit	30-day supply (actual quantity determined by the recommending physician)
Patient registry	Mandatory - written recommendation from a qualifying health care practitioner is required
Accepts patients registered with other states?	No
Home cultivation	No
Restrictions on type of marijuana allowed to be sold?	Yes, medical cannabis will be provided to patients as a liquid, pill, topical or vaporized delivery method that does not require the use of dried leaves or plant form
Qualifying medical conditions	ALS, cancer (must be accompanied by cachexia/wasting syndrome, nausea, severe or chronic pain or severe vomiting), irritable bowel syndrome (including Crohn's disease), glaucoma, HIV/AIDS, intractable pain, seizures, severe and persistent muscle spasms, PTSD (effective Aug. 1, 2017), terminal illness (if life expectancy is less than a year and cachexia/wasting syndrome, nausea, severe or chronic pain or severe vomiting are present) and Tourette syndrome
MMJ business regulations	Very heavy. The state allows just two cultivators to produce all marijuana in the state, and only these companies can open dispensaries. The businesses - which each must open four dispensaries to serve patients - are subject to rules and regulations governing location, storage, tracking, record-keeping, advertising, distribution, hiring, testing and other areas. Dispensary employees that provide patients with MMJ must be licensed pharmacists.
Dispensary structure	For-profit allowed
Sampling of state fees	
Application	$20,000
License	$20,000
State tax requirements	Medical marijuana itself is not subject to sales tax, but any services rendered to recommend MMJ and/or devices required to administer medication are subject to applicable taxes
Number of dispensaries allowed	8
Number of dispensaries operating in early 2016	8
Number of registered patients	5,200 (up from 996 in early 2016)
Estimated 2017 marijuana sales via dispensaries	$10 million-$20 million (up from a revised $2 million-$6 million in 2016)

What to watch in 2017	Intractable pain was added to the list of qualifying MMJ conditions in August 2016, causing the number of medical marijuana patients to quadruple over the course of the year. The boost was sorely needed, as the state's only two licensed MMJ businesses had been losing millions. PTSD will be added to the list of qualifying conditions in August 2017, so look for Minnesota's program to continue growing throughout 2017.
MMJ Business Stability Rank for 2017: **B**	High prices and a ban on smokable forms of marijuana will continue to push a portion of patients toward the black market and/or illegal home cultivation, but the recent surge in patient counts appears to have brought the program's two licensed businesses back from the brink of unsustainability.
MMJ Business Opportunity Rank for 2017: **C**	With only two MMJ business licenses allowed – and both have been doled out - there are no business opportunities for new plant-touching companies in the state. But the two licensed companies could see solid growth in 2017. The recent growth in patients could create more opportunities for ancillary companies, but Minnesota's MMJ market remains one of the smallest in the nation.

MONTANA

Overview of Law

Main measure	Initiative 148 (legalized MMJ); Initiative 182 (legalized dispensaries and other MMJ businesses)
Type of measure	Ballot initiatives
Year passed	Initiative 148: 2004; Initiative 182: 2016
Margin of victory	Initiative 148: 62% to 38%; Initiative 182: 58%-42%
Possession limit	Up to an ounce of usable marijuana, but that doesn't include extracts, edibles or infused products made with extracts
Patient registry	Mandatory - a written recommendation from a physician is required
Accepts patients registered with other states?	No
Home cultivation	Yes
Restrictions on type of marijuana allowed to be sold?	No
Qualifying medical conditions	Cachexia/wasting syndrome, cancer, chronic/intractable spasticity or muscle spasms, Crohn's disease, epilepsy/seizures, glaucoma, HIV/AIDS, hospice patients, intractable nausea/vomiting, multiple sclerosis, painful neuropathy, PTSD and chronic pain
MMJ business regulations	To be determined by the legislature and state department of health and human services, but I-182 requires MMJ businesses to be licensed. The measure also requires state inspections of MMJ businesses, and it also allows for product testing, both for contaminants and potency. None of these regulations have yet to be established.
Dispensary structure	Both for-profit and nonprofit exist
Sampling of state fees	Still to be finalized by the state, but under I-182, license fees for MMJ providers may not exceed $1,000 for a caregiver or dispensary with 10 or fewer registered cardholders, or $5,000 for a caregiver or dispensary with more than 10 registered cardholders. Testing labs may not be charged more than $1,200 for a license. Marijuana Infused Products Provider licenses (available only for caregivers) are $50.
State tax requirements	To be determined by licensing authorities
Number of dispensaries allowed	To be determined by licensing authorities
Number of dispensaries operating in early 2017	40-60
Number of registered patients	12,890 (down from 13,200 in early 2016)
Estimated 2017 MMJ sales via dispensaries	$15 million-$25 million (up from a revised estimate of $5 million-$10 million in 2016)
What to watch in 2017	The state legislature will have broad powers to shape the MMJ industry, especially since I-182 is a statute instead of an amendment to the state constitution. That means lawmakers will decide what types of businesses may be licensed, how big the permitting fees will be for those businesses, whether product testing will be mandatory, if there will be a residency requirement to own an MMJ business, if dispensary chains will be allowed, if there will be any MMJ-related taxes and more.

MMJ Business Stability Rank for 2017: **C**	There remains a lot of uncertainty in Montana's MMJ market, because lawmakers have a lot of leeway in how they approach regulating the industry. It's still unclear what rules legislators ultimately will pass.
MMJ Business Opportunity Rank for 2017: **C+**	If the legislature enacts industry-friendly regulations, Montana could shape up to be a good-sized market with tens of thousands of registered patients, as it was before the 2011 crackdown. But if the legislature tries aggressively to restrict the industry's size, the future could be less promising for dispensaries and caregivers.

NEVADA

MEDICAL MARIJUANA

Overview of Law

Main measures	Question 9 (possession and use); Senate Bill 374 (authority to license and regulate businesses)
Type of measures	Ballot initiative (Question 9); Legislative bill (SB 374)
Years passed	Question 9: 2000; SB 374: 2013
Margin of victory	Question 9: 65% to 35%; SB 374: 32 to 18 in the Assembly, 13-12 in the Senate
Possession limit	2.5 ounces/12 plants every 14 days.
Patient registry	Mandatory - patients must get a written recommendation from a qualifying physician
Accepts patients registered with other states?	Yes, out-of-state patients with a valid registration card may both possess cannabis and purchase it from dispensaries
Restrictions on type of marijuana allowed to be sold?	No
Home cultivation	Yes, but only if patient lives more than 25 miles from a dispensary, cannot reasonably travel to a dispensary or is not able to find nearby dispensaries that have needed strains. Maximum of 12 plants allowed; no rules on plant maturity.
Qualifying medical conditions	AIDS, cancer, glaucoma, PTSD and conditions - or whose treatments - produce persistent muscle spasms (including multiple sclerosis), seizures, severe nausea or severe pain.
MMJ business regulations	Heavy. Rules are comprehensive, detailed and strict. The state caps the number of dispensaries allowed, and businesses must meet a host of requirements covering everything from security and testing to operational and logistical regulations. Officials are also developing additional rules for labeling, packaging, dosing, testing and other areas.
Dispensary structure	For-profit allowed
Sampling of state fees	
Application	All licenses - $5,000
License	Dispensary - $30,000 (new); $5,000 (renewal) Cultivation - $3,000 (new); $1,000 (renewal) Infused Products Manufacturing - $3,000 (new); $1,000 (renewal) Testing lab - $5,000 (new); $3,000 (renewal)
Capital requirements	Applicants for any license type must provide proof of at least $250,000 in liquid assets
State tax requirements	6.85% state sales tax and a special 2% excise tax on all wholesale and retail sales of MMJ and MMJ products
Number of dispensaries allowed	66
Number of dispensaries operating in early 2017	55
Number of registered patients	26,500 (up from 13,561 in early 2016)
Estimated 2017 MMJ sales via dispensaries	$45 million-$55 million (up from an estimated $25 million-$35 million in 2016)

NEVADA

RECREATIONAL

Overview of Law

Main measure	Question 2
Type of measure	Ballot Measure
Year passed	2016
Margin of victory	54% to 46%
Possession limit	Purchase, possession and consumption of 1 ounce or less of marijuana or one-eighth of an ounce or less of concentrated marijuana for individuals 21 and older
Home cultivation	Individuals may grow up to six marijuana plants for personal use. Cultivation must take place in an enclosed area with a lock
Restrictions on type of marijuana allowed to be sold?	None
Business regulations	Heavy. The Department of Taxation will regulate adult-use marijuana sales and has until January 2018 to write final regulations governing the new industry. Though subject to change, the initial voter-approved law clearly indicates that the cultivation, manufacturing, testing, transporting and selling of marijuana will be strictly controlled through state licensing and regulation. Specific requirements pertaining to record-keeping, packaging, labeling, security, inventory controls and zoning are also detailed in the bill. Marijuana business owners and board members will also be subject to background checks before a license is granted.
Retail store structure	For-profit allowed
Sampling of state fees	Final application and license fees have not been finalized, but proposed fees are listed below
Application	All applicants for a marijuana establishment license are required to pay a one-time application fee of $5,000
License	Retail marijuana store - $20,000 (new); $6,600 (renewal) Marijuana cultivation facility - $30,000 (new); $10,000 (renewal) Marijuana product manufacturing facility - $10,000 (new); $3,300 (renewal) Marijuana distributor - $15,000 (new); $5,000 (renewal) Marijuana testing facility - $15,000 (new); $5,000 (renewal)
State tax requirements	15% excise tax on wholesale marijuana, plus state taxes payable by the customer at point of sale
Number of retail stores allowed	Proposed legislation limits the number of retail stores allowed based on a county's population. Initial estimates suggest this will be approximately 130 statewide
Number of retail stores operating in early 2017	None – Though regulations were passed in May 2017 that will allow existing medical cannabis dispensaries to start selling recreational products as early as July 2017.
Estimated number of in-state customers	290,000-320,000
Estimated 2017 recreational marijuana sales via retail stores	$75 million-$150 million
OVERALL 2017 MARIJUANA MARKET	$120 million-$205 million

What to watch in 2017	Regulations governing Nevada's new recreational industry are being drafted, with final legislation coming by June 2017 at the earliest and January 2018 at the latest. Lawmakers will have significant say in the rec industry's regulatory framework, but Nevada is likely to become a major player on the international marijuana scene because of its large tourism draw. A proposal allowing the taxation department to issue temporary rec licenses to existing MMJ dispensaries was recently passed, meaning Nevada's adult-use industry could launch as soon as July 2017.
Marijuana Business Stability Rank for 2017: **B**	Some MMJ businesses in Nevada are struggling, as there is an abundance of dispensaries. But existing businesses will get first crack at rec permits, and the start of early rec sales through existing MMJ dispensaries could provide a significant lift to sales. Final regulations for the rec market are still being developed, but so far no proposals have caused businesses any major concerns. Still, delays in the rec program are possible, and there will likely be regulatory fluctuations.
Marijuana Business Opportunity Rank for 2017: **A**	Opportunities for new, plant-touching businesses in the recreational market are extremely limited, as the earliest someone not currently holding an MMJ license could begin operating will likely be three to four years. But existing MMJ business that obtain rec permits are primed to cash in on the state's massive tourism market, which is expected to account for the lion's share of sales. Ancillary businesses catering to marijuana tourists also present a lucrative opportunity, with services like cannabis-friendly vacation rentals and limo or bus services expected to be in high demand. Marijuana consumption lounges are under consideration in Nevada, which - if allowed - present even more opportunities to serve consumers who want to smoke cannabis but have no legal place to go.

NEW HAMPSHIRE

Overview of Law

Main measure	House Bill 573
Type of measure	Legislative bill
Year passed	2013
Margin of victory	284 to 66 in the House, 18-6 in the Senate
Possession limit	2 ounces every 10 days. Patients must register with a dispensary and may purchase MMJ only from a single dispensary at any given time
Patient registry	Mandatory - recommendation from qualified physician or registered nurse required
Accepts patients registered with other states?	No
Home cultivation	No
Restrictions on type of marijuana allowed to be sold?	No
Qualifying medical conditions	ALS, Alzheimer's disease, cancer, chronic pancreatitis, Crohn's disease, epilepsy, glaucoma, hepatitis C (if undergoing treatment), HIV/AIDS, lupus, multiple sclerosis, muscular dystrophy, Parkinson's disease, spinal cord injury or disease and traumatic brain injury. The presence of one or more of the following associated with the qualifying conditions or their treatment must also be present: anorexia from chemotherapy, cachexia/wasting syndrome, seizures, severe and persistent muscle spasms or severe pain
MMJ business regulations	Heavy. Dispensaries are subject to rules and regulations governing location, hours of operation, inventory tracking, record-keeping, sanitation, security, disposal of cannabis, hiring/training, packaging/labeling, signage/advertising, testing, etc. The state has also set a cap on the number of dispensaries, and they must grow their own cannabis (separate, stand-alone wholesale cultivation operations are not allowed).
Dispensary structure	Not-for-profit
Sampling of state fees	
Application	$3,000
License	$40,000-$80,000 (new and renewal, depending on geographic area)
Change of location	$15,000-$30,000 (depending on geographic area)
State tax requirements	None
Number of dispensaries allowed	4
Number of dispensaries operating in early 2017	4
Number of registered patients	2,100 (up from several hundred in early 2016)
Estimated 2017 MMJ sales via dispensaries	$6 million-$12 million (up from $2 million-$3 million in 2016)

What to watch in 2017	The market is poised to grow now that all four dispensaries - which collectively paid more than $10 million in startup and initial operating expenses - are officially up and running, and patient counts should rise as well. Legislation is also being considered that would allow medical marijuana patients and caregivers to grow cannabis under certain conditions, which - if passed - could provide competition to the state's already struggling dispensaries.
MMJ Business Stability Rank for 2017: **B**	Though dispensaries are currently struggling to break even, this is not uncommon for newly launched MMJ programs. Allowing patients to cultivate MMJ at home represents a threat to marijuana businesses, but another bill under consideration that would add severe pain and PTSD as qualifying MMJ conditions could provide a significant boost to the state's patient count. In general, though, the climate is fairly stable.
MMJ Business Opportunity Rank for 2017: **C**	All available licenses have been awarded, so companies that didn't win one will not have an opportunity to get involved in the plant-touching side of the industry. But the state's four dispensaries are expected to grow their revenues substantially in 2017, and there should be limited opportunities for ancillary companies to serve the market.

NEW JERSEY

Overview of Law

Main measure	Senate Bill 119
Type of measure	Legislative bill
Year passed	2010
Margin of victory	48 to 14 in the House, 25-13 in the Senate
Possession limit	2 ounces every 30 days, though a physician decides exactly how much each patient receives up to that maximum
Patient registry	Mandatory - patients must get a written recommendation from a doctor and must register with one dispensary at a time (and may not purchase from the others)
Accepts patients registered with other states?	No
Home cultivation	No
Restrictions on type of marijuana allowed to be sold?	Yes, oils/waxes are prohibited, as are edibles (except for patients who are minors). Only "dried herb, oral lozenges and topical formulations" are allowed. Additionally, products - including flower - are restricted to no more than 10% THC.
Qualifying medical conditions	ALS, Crohn's disease, inflammatory bowel disease, multiple sclerosis, muscular dystrophy, terminal cancer and terminal illnesses with a prognosis of less than 12 months of life, epilepsy, glaucoma, intractable spasticity and seizures if patient is resistant/intolerant to conventional treatment, HIV/AIDS and non-terminal cancer if cachexia/wasting syndrome, chronic pain, severe nausea or vomiting or severe pain are present
MMJ business regulations	Very heavy. Only six dispensaries are allowed initially under state law, and the health department will review the program every two years to determine whether more should be approved. Dispensaries undergo an intensive application and registration process and are subject to numerous regulations, including those covering record-keeping, cultivation limits, security and hours of operation. Dispensaries must grow their own cannabis - separate stand-alone wholesale cultivation operations are not allowed. The limits on allowable forms of marijuana are some of the most restrictive in the country, and the requirement that all products contain no more than 10% THC is considered overly restrictive and onerous.
Dispensary structure	First six must be not-for-profit; if more are approved they can be either not-for-profit or for-profit
Sampling of state fees:	
Application	$20,000
License	$20,000
Change of location	$10,000
State tax requirements	6.9% state sales tax on medical marijuana transactions
Number of dispensaries allowed	6
Number of dispensaries operating in early 2017	5
Number of registered patients	10,800 (up from 6,354 in early 2016)

Estimated 2017 marijuana sales via dispensaries	$20 million-$25 million (up from a revised estimate of $12 million-$16 million in 2016)
What to watch in 2017	New Jersey's medical marijuana program has been growing more rapidly than anticipated, as a series of small changes and the addition of three new dispensaries in late 2015 has given patient counts a shot in the arm. The state health department will consider adding more qualifying MMJ conditions in 2017, including chronic pain - which could provide another major boost to patient counts if accepted. New Jersey's MMJ prices, once among the highest in the nation, have dropped, another development with the potential to attract more patients to the program.
MMJ Business Stability Rank for 2017: **B+**	With patient counts increasing, MMJ prices on the decline and no major obstacles on the horizon, businesses appear primed for more growth in 2017. But challenges remain, as industry observers believe the program needs more licensed physicians willing to recommend marijuana, while restrictions on the types of MMJ products allowed to be sold may keep potential patients from leaving the black market.
MMJ Business Opportunity Rank for 2017: **C**	The recent growth in patient numbers is encouraging for existing businesses and could lead to more ancillary opportunities. But in general, there are only limited opportunities, especially since all six licenses have been awarded. There is potential for the state to add new licenses when the program is re-evaluated in 2018.

NEW MEXICO

Overview of Law

Main measure	Senate Bill 523
Type of measure	Legislative bill
Year passed	2007
Margin of victory	36 to 31 in the House, 32-3 in the Senate
Possession limit	8 ounces - or the equivalent in THC for infused products - every 90 days
Patient registry	Mandatory - patients must get a written recommendation from a health care professional licensed to prescribe drugs in the state
Accepts patients registered with other states?	No
Restrictions on type of marijuana allowed to be sold?	Generally no, though concentrates are restricted to a maximum THC content of 70%
Home cultivation	Yes
Qualifying medical conditions	ALS, anorexia/cachexia, arthritis, cancer, cervical dystonia, chronic pain, Crohn's disease, epilepsy, glaucoma, hepatitis C, HIV/AIDS, hospice patients, Huntington's disease, inclusion body myositis, multiple sclerosis, painful neuropathy, Parkinson's disease, PTSD, severe nausea, severe chronic pain, spinal cord damage with intractable spasticity and ulcerative colitis
MMJ business regulations	Heavy. The state limits the number of MMJ business licenses based on medical cannabis availability to the patient base, though there are no caps on the number of dispensaries each company may open. Businesses must go through a rigorous application and approval process and are subject to various rules and regulations, including strict plant limits, testing, security and record-keeping.
Dispensary structure	Not-for-profit
Sampling of state fees	
Application	Producer/Dispensary - $10,000 Manufacturer - $1,000 Testing lab - $2,200
License	Producer/Dispensary - $30,000 for first 150 plants; $10,000 for each additional 50 plants up to 450 total
State tax requirements	7%-9% gross receipts tax
Number of dispensaries and cultivators allowed	Dispensaries - No limit Cultivators - 35
Number of dispensaries and cultivators operating in early 2017	Dispensaries - 52 Cultivators - 35
Number of registered patients	34,909 (up from 19,629 in early 2016)
Estimated 2017 MMJ sales via dispensaries	$55 million-$75 million (up from a revised $45 million-$55 million in 2016)

What to watch in 2017	New Mexico's MMJ industry is on fire, even though it is a mature market and there's a lack of enthusiasm for medical cannabis among top state officials. The market will continue to grow in 2017, though possibly not at the levels seen in 2016. The New Mexico Medical Cannabis Advisory Board voted to recommend six additional ailments to the list of qualifying MMJ conditions and to increase the potency limit to allow more concentrated products into the market. These proposals were still pending as of early 2016, though a bill that would have added opioid use disorder as a qualifying MMJ condition was recently vetoed by Gov. Susana Martinez, suggesting they may face an uphill battle.
MMJ Business Stability Rank for 2017: A	Additional producer licenses were added to the program in 2015, with most of these new businesses opening in 2016. Patient counts have grown over the same period, however, so the increased production and competitive activity does not appear to have created any instability for the previously existing MMJ companies. Nothing on the horizon suggests any major shakeups will come to New Mexico's MMJ industry anytime soon.
MMJ Business Opportunity Rank for 2017: B	Pending proposals to expand New Mexico's MMJ program would largely affect existing businesses, leaving little opportunity for new entrepreneurs looking to enter the plant-touching side of the industry. The Department of Health has the authority to issue additional licenses, but with 12 new producers opening just last year, it seems unlikely the limit will be increased in the near future. However, the state's sizable patient population still presents many opportunities for ancillary businesses that target them and their needs.

NEW YORK

Overview of Law

Main measure	House Bill 6357
Type of measure	Legislative bill
Year passed	2014
Margin of victory	117 to 13 in the House, 49-10 in the Senate
Possession limit	30-day supply (actual quantity determined by the recommending physician)
Patient registry	Mandatory - recommendation from a physician or nurse practitioner who has registered with the state and completed the required training course
Accepts patients registered with other states?	No
Home cultivation	No
Restrictions on type of marijuana allowed to be sold?	Yes, New York has one of the most restrictive programs in terms of allowable product forms. Both flower and edibles are prohibited, leaving patients with liquids and oil for vaporization or administration via inhaler as well as capsules to take orally. Under the law, smoking is not permitted.
Qualifying medical conditions	Patients need to be diagnosed with a specific severe, debilitating or life-threatening condition that is accompanied by an associated or complicating condition. The conditions are ALS, cancer, HIV/AIDS, Parkinson's disease, multiple sclerosis, spinal cord injury with spasticity, epilepsy, inflammatory bowel disease, neuropathy, Huntington's disease as well as associated or complicating conditions cachexia/wasting syndrome, severe or chronic pain, severe nausea, seizures or severe or persistent muscle spasms
MMJ business regulations	Very heavy. The state allows just five licensed, vertically integrated businesses. The rules on these companies are onerous. In addition to some of the highest licensing fees in the country and a detailed application process, operational regulations established extensive rules for everything from testing, security to inventory tracking, record-keeping to packaging/labeling and advertising. New York also limits the types of strains that can be grown. Prices are not set by the businesses, but rather by the program commissioner. A registered pharmacist is required to be on the premises of dispensaries during all hours of operation.
Dispensary structure	For-profit allowed (with limitations - state approval of all pricing is required)
Sampling of state fees	
Application	Producer/Dispensary - $210,000 ($200,000 of which is refundable if entity not awarded a license, new and renewal)
License	Producer/Dispensary - $200,000 (submitted with application; check cashed if selected. New and renewal. Licenses are valid for two years.)
State tax requirements	7% excise tax for producers/dispensaries on the gross receipts from sales to patients
Number of dispensaries allowed	20 - the state allows five licensed companies, each of which must operate four dispensaries in addition to their cultivation site
Number of dispensaries and cultivators operating in early 2017	Dispensaries - 19 Cultivators - 5
Number of registered patients	17,000 (up from 805 in early 2016)

Estimated 2017 marijuana sales via dispensaries	$20 million-$40 million (up from a revised $5 million-$10 million in 2016)
What to watch in 2017	New York's MMJ program got off to an extremely slow start when dispensaries opened in January 2016, and some didn't serve a single patient. But program officials made business-friendly changes throughout the year - the most important was the addition of chronic pain as a qualifying MMJ condition – and patient counts appear to be building momentum. If these changes continue bringing more patients into the program, 2017 may be the year New York's MMJ businesses finally begin turning a profit. Officials are considering a proposal to grant as many as five additional MMJ business licenses, which would double the number of existing companies.
MMJ Business Stability Rank for 2017: **B+**	Expanding the list of qualifying MMJ conditions and allowing nurse practitioners to recommend medical cannabis has boosted patient counts in the state. Additionally, changes to permissible business practices – like allowing MMJ growers to sell their products at one another's dispensaries and the establishment of a home delivery program – has demonstrated a willingness by New York regulators to pump new life into the state's struggling medical marijuana industry.
MMJ Business Opportunity Rank for 2017: **B**	Hoping to increase access to MMJ, state health officials are working on a plan to allow up to five new medical marijuana businesses to enter the market over the next two years. This will create opportunities for new businesses, but the relatively small patient pool and enormous cost to enter the market limits the opportunity to all but the most sophisticated and well-capitalized of entrepreneurs. Additionally, existing licensed businesses worry that more competition will make the climate even tougher than it's been unless the patient count soars. The number of patients is indeed growing, however, which may shortly make business ventures on both the plant-touching and ancillary sides of New York's MMJ industry more practical.

NORTH DAKOTA

Overview of Law

Main measure	Measure 5
Type of measure	Ballot Measure
Year passed	2016
Margin of victory	64% to 36%
Possession limit	2,000 milligrams per month may be purchased, up to 3 ounces in possession at a time
Patient registry	Mandatory - patients and designated caregivers are required to apply for registry identification cards. The patient application requires documentation, a written recommendation from a doctor and an application fee
Accepts patients registered with other states?	No
Home cultivation	No
Restrictions on type of marijuana allowed to be sold?	Yes, whole plant (flower) is permitted, but doctors must specifically certify patients to use this form of cannabis. Also allowed are patches, tinctures, topical and capsules. Edibles and concentrates are not permitted.
Qualifying medical conditions	Any terminal illness, cancer, HIV/AIDS, hepatitis C, ALS, PTSD under certain circumstances, agitation of Alzheimer's disease, dementia, Crohn's disease, fibromyalgia, spinal stenosis, chronic back pain (including neuropathy or damage to the nervous tissues of the spinal cord with objective neurological indication of intractable spasticity), glaucoma, epilepsy, a medical condition that produces cachexia/wasting syndrome, severe and debilitating pain that hasn't responded to previously prescribed medication or surgical measures for more than three months or for which other treatment options produced serious side effects, intractable nausea, seizures, or severe and persistent muscle spasms
MMJ business regulations	Heavy. The state limits the total number of licenses available, though this can be periodically adjusted if necessary. The two licensed cultivators will be limited to 1,000 plants and 50 additional for research purposes, while cultivation and dispensary operations aren't allowed at the same location. Recently signed regulations govern all aspects of dispensary and cultivation business operations, including testing, security, packaging, labeling, record-keeping, pesticide use and training of staff members.
Dispensary structure	Not-for-profit
Sampling of state dispensary fees	
Application	Dispensaries and cultivators - $5,000
License	Dispensaries - $90,000 (renewed biannualy) Cultivators - $110,000 (renewed biannualy)
State tax requirements	5% sales tax for medical marijuana sales
Number of dispensaries and cultivators allowed	Dispensaries - 8 Cultivators - 2
Estimated number of dispensaries operating in early 2017	None - licensed MMJ businesses are not expected to open until mid-2018

Number of registered patients	None - patient enrollment is not expected to begin until cultivation starts at the end of 2017
Estimated 2017 MMJ sales via dispensaries	None - sales are not expected until mid-2018
What to watch in 2017	After a delay, North Dakota lawmakers laid out initial regulations for the new medical marijuana program in mid-April - though the state still needs to implement a seed-to-sale tracking system and iron out details around lab testing. Officials expect to issue cultivation and dispensary licenses by fall 2017, with MMJ sales coming in mid-2018.
MMJ Business Stability Rank for 2017: **B**	Aside from eliminating the home-growing provision from the initial measure - which should ultimately benefit MMJ dispensaries - North Dakota lawmakers approved much of what voters said yes to last November. With the basic framework in place, entrepreneurs can start planning to launch their businesses, though delays are always possible.
MMJ Business Opportunity Rank for 2017: **C**	North Dakota's medical marijuana market is expected to be one of the smallest in the nation, as the state has a small population. Officials have yet to begin accepting applications for the eight dispensary and two cultivation licenses available throughout the state, so opportunities still exist for entrepreneurs looking to enter the plant-touching side of North Dakota's MMJ industry. A small ancillary industry will crop up as well. But in general, the business opportunities will be fairly small compared to other states.

OHIO

Overview of Law

Main measure	House Bill 523
Type of measure	Legislative bill
Year passed	2016
Margin of victory	67 to 29 in the House, 18-15 in the Senate
Possession limit	90-day supply
Patient registry	Mandatory
Accepts patients registered with other states?	Possible, but still to be determined
Home cultivation	No
Restrictions on type of marijuana allowed to be sold?	No
Qualifying medical conditions	ALS, HIV/AIDS, Alzheimer's disease, cancer, chronic traumatic encephalopathy, Crohn's disease, epilepsy or other seizure disorders, fibromyalgia, glaucoma, hepatitis C, inflammatory bowel disease, multiple sclerosis, chronic or intractable pain, Parkinson's disease, PTSD, sickle cell anemia, spinal cord disease or injury, Tourette syndrome, traumatic brain injury and ulcerative colitis
MMJ business regulations	Likely heavy. Several state agencies are still writing industry rules, which are slated to be finalized by Sept. 8. Regulations for cultivators - which also spell out application and license fees for MMJ dispensaries, product processors and testing labs - have already been finalized. Among other requirements, growers must meet certain financial criteria, have local approval for their proposed site and submit security and quality assurance plans.
Dispensary structure	For-profit will likely be allowed
Sampling of state fees:	
Application	Dispensaries - $5,000 Processors - $10,000 Cultivators - $20,000 (Level 1 growers); $2,000 (Level 2 growers) Testing labs - To be determined
License	Dispensaries - $70,000 Processors - $100,000 Cultivators - $200,000 (Level 1 growers); $20,000 (Level 2 growers) Testing labs - $20,000
State tax requirements	To be determined by state agencies
Number of dispensaries and cultivators allowed	Dispensaries - 60 Cultivators - 12 Level 1 growers (25,000-75,000 square feet of canopy); 12 Level 2 growers (3,000-6,000 square feet of canopy)
Estimated number of dispensaries operating in early 2017	None - final rules governing dispensaries are not expected until September 2017
Number of registered patients	None - a patient registry has yet to be established in Ohio

Estimated 2017 MMJ sales via dispensaries	None - MMJ sales are not expected to begin until the second half of 2018
What to watch in 2017	The state is still crafting the majority of rules for all types of MMJ businesses, though regulations governing cultivators have been finalized and applications will be accepted starting in June. The number of dispensary licenses is currently capped at 60, but this number can be expanded - and that's a plus, considering many believe it's much too small to meet patient demand.
MMJ Business Stability Rank for 2017: **C**	Final regulations for most MMJ business types are still in draft form, so how they'll ultimately affect entrepreneurs looking to get into the market is still unclear. However, a survey at the end of 2016 found a majority of Ohio doctors aren't likely to recommend medical cannabis, so officials will need to engage with the state's medical community before the program launches in late 2018.
MMJ Business Opportunity Rank for 2017: **C**	Ohio's MMJ market could eventually become one of the largest in the nation once it matures, providing numerous opportunities for both plant-touching and ancillary businesses. But entrepreneurs looking to enter the plant-touching side of the industry will need to be well-capitalized, as Ohio boasts some of the highest marijuana business licensing fees in the nation. Most opportunities won't materialize until 2018, though many businesses will begin laying the groundwork in 2017.

OREGON

MEDICAL MARIJUANA

Overview of Law

Main measures	Ballot Measure 67 (possession and use), House Bill 3460 (authority to license and regulate businesses), House Bill 3400 (unified med and rec framework, established requirements for testing, packaging, labeling, etc.)
Type of measures	Measure 67: Ballot initiative HB 3460 and HB3 400: Legislative bills
Years passed	Measure 67: 1998 HB 3460: 2013 HB 3400: 2015
Margin of victory	Measure 67: 55% to 45% HB 3460: 31 to 27 in the House, 18-12 in the Senate HB 3400: 52 to 4 in the House, 24-4 in the Senate
Possession limit	Patients can possess up to 24 ounces of marijuana
Patient registry	Mandatory - patients must get a recommendation from their primary doctor
Accepts patients registered with other states?	No
Home cultivation	Yes
Restrictions on type of marijuana allowed to be sold?	No
Qualifying medical conditions	A degenerative or pervasive neurological condition, cancer, glaucoma, HIV/AIDS and PTSD, plus conditions - or whose treatments - produce cachexia/wasting syndrome, seizures, severe or persistent muscle spasms, severe nausea or severe pain
MMJ business regulations	Heavy. Growers, processors and dispensaries must apply for and obtain licenses and endorsements to operate and abide by a host of requirements, covering everything from location and residency to inventory, security and testing. New laws that took effect in 2016 place further restrictions on products sold in MMJ dispensaries, bringing regulations related to the use of pesticides, lab testing, packaging and labeling in line with those of the recreational market.
Dispensary structure	Not-for-profit
Sampling of state fees	
Application	Cultivator - No application fee Processor - $500 (new and renewal) Dispensary - $500 (new and renewal)
License	Cultivator - $200 per-patient fee, renewed annually Processor - $3,500 (new and renewal) Dispensary - $3,500 (new and renewal)
State tax requirements	None
Number of dispensaries allowed	No statewide limits

Estimated number of dispensaries operating in early 2017	49 (down from 400 in early 2016)
Number of registered patients	67,140 (down from 77,620 in early 2016)
Estimated 2017 marijuana sales via dispensaries	$60 million-$80 million (versus a revised $90 million-$110 million in 2016)

OREGON

RECREATIONAL

Overview of Law

Main measures	Measure 91 (authority to license and regulate businesses) and House Bill 3400 (unified med and rec framework, established requirements for testing, packaging, labeling, etc.)
Type of measures	Measure 91: Ballot initiative HB 3400: Legislative bill
Years passed	Measure 91: 2014 HB 3400: 2015
Margin of victory	Measure 91: 56% to 44% HB 3400: 52 to 4 in the House, 24-4 in the Senate
Possession limit	8 ounces of useable marijuana
Home cultivation?	Yes
Restrictions on type of marijuana allowed to be sold?	No
Business regulations	Heavy. Pre-existing medical dispensaries were permitted to begin limited sales of recreational cannabis through October 2016, while applications for new recreational shops were accepted starting in January 2016. Permanent rules now in effect for recreational sales are extensive, covering all aspects of operations for all licensees, from use of pesticides, extraction methods and transportation, to lab testing, hiring, security, record-keeping, packaging, labeling, zoning, insurance and advertising.
Retail store structure	For-profit allowed
Sampling of state fees	
Application	$250 (producer, processor, wholesaler, retailer and lab)
License	Producer - $3,750 (Tier I), $5,750 (Tier II) Processor - $4,750 Wholesaler - $4,750 Retailer - $4,750 Testing lab - $4,750
State tax requirements	17% state tax paid at point of retail sale
Number of retail stores and cultivators allowed	No statewide limits, though some towns and cities have enacted moratoriums or bans on any/all license types. Producers are additionally limited to allowable square footage (for indoor cultivation) and canopy size (for outdoor cultivation). The state will evaluate supply and demand on an annual basis and is permitted to amend rules and restrict producers as it deems necessary.
Number of retail stores and cultivators operating in early 2017	Retail Stores - 421 Cultivators - 498
Estimated number of in-state customers	410,000-460,000
Estimated 2017 recreational marijuana sales via retail stores	$450 million-$500 million (up from a revised $250 million-$270 million in 2016)
OVERALL 2017 MARIJUANA MARKET	$510 million-$580 million (up from a revised $340 million-$380 million in 2016)

What to watch in 2017	Big changes have come to Oregon's marijuana industry of late, most notably the separation of the state's medical and recreational programs at the end of the year. In the months since, a large number of patients have left the medical program and many dispensaries have converted over to serve the larger recreational market - so 2017 could be a pivotal year for Oregon's MMJ industry. With adult-use sales through licensed, recreational-only businesses in full swing, officials have begun issuing warnings to cannabis cultivators and retailers that are not keeping their seed-to-sale tracking records up to date, suggesting program regulators will be placing a greater emphasis on compliance moving forward.
Marijuana Business Stability Rank for 2017: **B-**	The number of medical marijuana patients and businesses has declined substantially since the two industries were officially separated at the beginning of 2017, so the future of the medical program remains unclear. Testing standards continue to be a major point of contention between program regulators and marijuana businesses, though sales have returned to normal levels after the issuance of revised rules. Furthermore, the state has indicated that inspections of cannabis cultivation sites will become more frequent now that additional facilities have been licensed. Oregon lawmakers are also considering putting the state's medical and adult-use marijuana programs under the oversight of one regulatory agency, and though many industry insiders would like to see such a change it, represents yet another source of uncertainty.
Marijuana Business Opportunity Rank for 2017: **B**	Demand for recreational marijuana has been extremely strong, but the number of businesses currently serving this market is large and growing - indicating a period of stiff competition is on the way for Oregon marijuana companies. However, delivery of recreational cannabis is now underway in the state, a novel development for the adult-use industry that could provide a boost in sales.

PENNSYLVANIA

Overview of Law

Main measure	Senate Bill 3
Type of measure	Legislative bill
Year passed	2016
Margin of victory	149 to 46 in the House, 42-7 in the Senate
Possession limit	30 day supply
Patient registry	Mandatory - recommendation from a physician who has registered with the state and completed the required training course
Accepts patients registered with other states?	No
Home cultivation	No
Restrictions on type of marijuana allowed to be sold?	Yes, both flower and edibles are prohibited. MMJ consumption is limited to pills, oils, gels, creams, ointments, tinctures, liquids and forms medically appropriate for vaporization
Qualifying medical conditions	ALS, autism, cancer, Crohn's Disease, epilepsy, glaucoma, HIV/AIDS, Huntington's disease, inflammatory bowel disease, intractable seizures, multiple sclerosis, neuropathies, Parkinson's disease, PTSD, severe chronic or intractable pain of neuropathic origin or severe chronic or intractable pain in which conventional therapeutic intervention and opiate therapy is contraindicated or ineffective, sickle cell anemia, spinal cord damage, terminal illness
MMJ business regulations	Very heavy. Rules governing MMJ businesses are extensive, detailing operational requirements for testing, packaging, labeling, advertising, zoning, transportation, security, record-keeping and more. All licensed businesses must implement an electronic inventory tracking system that's accessible to the state, and dispensaries are required to have a physician or a pharmacist on-site at all times. Restrictions on allowable forms of marijuana are some of the strictest in the nation.
Dispensary structure	For-profit allowed
Sampling of state fees	
Application	Dispensaries - $5,000 Growers/processors - $10,000
License	Dispensaries - $30,000 per location (new); $5,000 (renewal) Growers/processors - $200,000 (new); $10,000 (renewal)
Escrow/bond requirements	Dispensaries - $150,000 in liquid capital Cultivators - $2,000,000 in capital, $500,000 of which must be liquid
State tax requirements	Growers/processors will pay 5% on gross receipts from sales of MMJ to a dispensary
Number of dispensaries and cultivators allowed	Dispensaries - 150 (maximum of 50 license holders, each allowed to open 3 storefronts) Growers/processors - 25
Number of dispensaries and cultivators operating in early 2017	None - licensed businesses will not be operational until 2018
Number of registered patients	None - the state is currently working to develop the process to obtain a medical marijuana ID card

Estimated 2017 MMJ sales via dispensaries	None - sales are not expected to begin until mid-2018
What to watch in 2017	Given the state's large population and the extensive list of qualifying medical marijuana conditions, Pennsylvania is positioned to become one of the larger medical marijuana markets in the nation - drawing significant interest for a limited number of available MMJ licenses. The permitting process for new MMJ businesses will be rolled out in two phases, with Phase 1 making 27 dispensary licenses and 12 grower/processor licenses available. The Phase 1 application window for growers/processors ended in March, and the department is expecting to release dispensary applications sometime during the first quarter of 2017. No timeline has been released for Phase 2, though some industry experts believe it may be a ways off.
MMJ Business Stability Rank for 2017: **C**	Businesses will face several sources of uncertainty this year as the program prepares to get off the ground in 2018, as they will be heavily regulated and spread across six districts throughout the state based on patient access. This - combined with prohibitions on the sale of flower or edibles - makes their initial viability somewhat unclear. But the small number of available licenses should help the first plant-touching businesses weather any shortage of demand.
MMJ Business Opportunity Rank for 2017: **B+**	As a brand-new market, the early opportunities are solid, with 50 dispensary and grower/processor licenses available initially. There will be significant opportunities for ancillary firms - especially those that provide indoor growing equipment, and heating and cooling contractors - as all of Pennsylvania's medical marijuana must be grown indoors.

RHODE ISLAND

Overview of Law

Main measure	Senate Bill 710
Type of measure	Legislative bill
Year passed	2005 (Senate and House passed measure, governor vetoed it and then Senate and House overrode the veto in 2006)
Margin of victory	51 to 10 in the House, 33-1 in the Senate
Possession limit	2.5 ounces
Patient registry	Mandatory - patients must have a written recommendation from a physician licensed in Rhode Island, Massachusetts or Connecticut
Accepts patients registered with other states?	No
Home cultivation	Yes
Restrictions on type of marijuana allowed to be sold?	No
Qualifying medical conditions	Alzheimer's disease, cancer, glaucoma, hepatitis C and HIV/AIDS, as well as conditions - or whose treatments - produce cachexia/wasting syndrome, PTSD, seizures, severe and chronic pain, severe and persistent muscle spasms or severe nausea
MMJ business regulations	Moderate. The state's rules around its three fully vertically integrated dispensaries are far less extensive and detailed than in other MMJ programs. But emergency rules put in place to allow stand-alone cultivation operations are much more detailed, governing nearly all aspects of business operations, including location, security, inventory tracking and testing.
Dispensary structure	Not-for-profit
Sampling of state fees	
Application	Dispensaries - $250 Cultivators - $5,000
License	Dispensaries - $5,000 (valid for two years) Cultivators (annual license fee) Class A: $20,000 Class B: $35,000 Class C: $50,000 Class D: $80,000
State tax requirements	7% sales tax plus 4% dispensary surcharge on revenues
Number of dispensaries and cultivators allowed	3 dispensaries No limit on cultivation licenses, though the program reserves the right to limit licenses based on projected needs of the MMJ program
Number of dispensaries and cultivators operating in early 2017	Dispensaries - 3 Cultivators - None as of press time; the first licenses were awarded in January
Number of registered patients	16,418 (up from 12,815 in early 2016)

Estimated 2017 MMJ sales via dispensaries	$25 million-$30 million (up from a revised $18 million-$20 million in 2016)
What to watch in 2017	Strong public support for recreational marijuana was expected to push lawmakers to pass a legalization measure through the Rhode Island Legislature in 2016, but there was no vote. While the state remains a strong candidate for legalization, more immediate changes could be coming to the state's medical market. Eight years after its creation, a legislative committee tasked with overseeing Rhode Island's medical marijuana program met for the first time in March 2017, spurred into action by media reports raising concerns about the state's loose approach toward regulation. What, if any, actions the committee will take to rein in the industry remains to be seen.
MMJ Business Stability Rank for 2017: **B**	Driven by concerns that caregivers were producing excess cannabis that was making its way to the black market, regulators issued emergency rules that created licenses for a new type of stand-alone MMJ cultivator. These growers will replace patient caregivers as a key MMJ supply source for the state's three dispensaries, but whether they'll be able to prevent an MMJ shortage – and the ensuing price hike a shortage would bring – is unclear.
MMJ Business Opportunity Rank for 2017: **B**	The newly added cultivator licenses created opportunities for businesses to enter the more lucrative plant-touching side of Rhode Island's MMJ industry, though the state stopped taking new applications in April 2017. But provided the program is still in need of licensed cultivators to meet MMJ demand, it will reopen the application process in January 2018. There's limited opportunity for ancillary companies seeking to serve the state's small MMJ patient pool, but business prospects would dramatically improve should Rhode Island pass recreational marijuana legalization through the legislature.

VERMONT

Overview of Law

Main measures	Senate Bill 76, House Bill 645 (both established authority to license and regulate businesses)
Type of measures	Legislative bills
Year passed	2004
Margin of victory	82 to 59 in the House, 22-7 in the Senate
Possession limit	2 ounces every 30 days
Patient registry	Mandatory - patients must get a recommendation from a health care provider (such as a physician, physician's assistant, naturopathic physician or advanced practice registered nurse) licensed in Vermont, Massachusetts, New Hampshire or New York
Accepts patients registered with other states?	No
Restrictions on type of marijuana allowed to be sold?	No
Home cultivation	Yes
Qualifying medical conditions	Cancer, HIV/AIDS, glaucoma and multiple sclerosis (any of these must be accompanied by "severe, persistent and intractable symptoms"), as well as a disease, medical condition - or whose treatment - is chronic, debilitating and produces one or more of the following intractable symptoms: cachexia/wasting syndrome, chronic pain or nausea and seizures
MMJ business regulations	Heavy. Dispensaries must go through a competitive application process and are subject to regulations covering security, record-keeping, inventory, packaging and labeling, among other areas. The state also has a cap on the number of MMJ dispensaries, which must grow their own cannabis. Separate stand-alone wholesale cultivation operations are not allowed, though dispensaries can donate cannabis to each other for no fee.
Dispensary structure	Not-for-profit
Sampling of state fees	
Application	$2,500
License	$20,000 (new), $25,000 (annual renewal)
State tax requirements	None
Number of dispensaries allowed	4
Number of dispensaries operating in early 2017	4
Number of registered patients	3,800 (up from 2,600 in early 2016)
Estimated 2017 MMJ sales via dispensaries	$5 million-$7 million (up from $4 million-$4.5 million 2016)

What to watch in 2017	Vermont was widely expected to be one of the first states to legalize recreational cannabis in 2016 via its legislature, but the measure failed in the state House. Chances for legalization seem slimmer under newly inaugurated Republican Gov. Phil Scott, who has said he's "in no hurry to legalize marijuana." However, the addition of chronic pain to Vermont's list of conditions treatable with MMJ has been a boon for existing dispensaries, with patient counts up over 80% from mid-2015. Pending legislation to increase the possession limit to 3 ounces could boost sales even more.
MMJ Business Stability Rank for 2017: **B**	Vermont's small but solid MMJ industry isn't going anywhere anytime soon, and its patient count has been growing, giving more assurance to those already in business. If the state legalizes recreational marijuana this year, however, medical cannabis businesses could see some big changes.
MMJ Business Opportunity Rank for 2017: **C+**	There aren't many opportunities in the state's medical marijuana industry, but the addition of chronic pain to the list of qualifying MMJ conditions in June 2016 greatly increases opportunities for existing licensed companies and perhaps a few openings for ancillary firms. The possibility of recreational marijuana legalization is enough to put Vermont on the short list of states to watch in 2017.

WASHINGTON DC

MEDICAL MARIJUANA

Overview of Law

Main measure	Amendment Act B18-622 (Washington DC residents voted to legalize medical marijuana in 1998, but the law never took effect and local lawmakers eventually approved rewritten legislation)
Type of measure	Council bill
Year passed	2010
Margin of victory	13 to 0 in the Council of the District of Columbia (the law went into effect after the U.S. Congress declined to overrule the bill, and the mayor then signed it into law)
Possession limit	4 ounces per month (or equivalent amount in other forms)
Patient registry	Mandatory - patients must get a recommendation from a qualifying physician
Accepts patients registered with other states?	No
Home cultivation	Yes - although home cultivation had previously been banned for medical patients, that changed under the recreational marijuana legalization measure approved by voters in November 2014
Restrictions on type of marijuana allowed to be sold?	No
Qualifying medical conditions	There is no list of qualifying conditions. The qualifying patient's physician determines whether the patient needs medical marijuana.
MMJ business regulations	Heavy. Dispensaries and cultivation operations must undergo an intensive application and registration process and are subject to regulations covering everything from location and hours to signage and labeling. The law also includes caps on the number of dispensaries and grow sites as well as on plant counts.
Dispensary structure	For-profit allowed
Sampling of state fees	
Application	Cultivation Site and Dispensary - $5,000 (new), $3,000 (renewal)
License	Cultivator - $5,000 Dispensary - $10,000
Tax requirements	6% sales tax on marijuana transactions, 5.75% on accessories
Number of dispensaries and cultivators allowed	Dispensaries - 6 (the mayor has the discretion to increase this to eight) Cultivators - 10
Number of dispensaries and cultivators operating in early 2017	Dispensaries - 5 Cultivators - 8
Number of registered patients	4,827 (up from 3,577 in early 2016)
Estimated 2017 marijuana sales via dispensaries	$8 million-$12 million (up from estimated $6 million-$10 million in 2016)

WASHINGTON DC

RECREATIONAL

Overview of Law

Main measure	Initiative 71
Type of measure	Ballot initiative
Year passed	2014
Margin of victory	70% to 30%
Possession limit	2 ounces, 6 plants for an individual; 12 for a household
Home cultivation?	Yes
Business regulations	Sales and purchases are not permitted under the current law. Adults are allowed to grow and possess cannabis for personal use, and they may share with other adults (up to possession limits) for no compensation in return.
Estimated number of consumers in the district	70,000 - 80,000
What to watch in 2017	Big changes are underway for the medical marijuana market, but many have yet to take shape. Lawmakers are expected to license at least one more dispensary this year, and that process could provide rulemakers an opportunity to make changes in several areas, including fee structures and taxation. The city is also in the process of finalizing a number of other rules, including mandatory cannabis lab testing, reciprocity for MMJ patients from other regions, the expansion of cultivation facilities and a new inventory track-and-trace system for MMJ businesses.
Marijuana Business Stability Rank for 2017: **B+**	Patient counts in Washington DC are rising rapidly, ballooning 30% over the past year. The latest round of approved changes to the MMJ program are very business friendly and could push the numbers higher. One of these changes - an increase in purchase limits for patients - led to a significant spike in revenue for dispensaries shortly after it was implemented, but it's unclear if the trend will continue.
Marijuana Business Opportunity Rank for 2017: **C+**	With recreational cannabis limited to personal cultivation and consumption and the window of application for DC's sixth licensed MMJ facility closed, there is not an abundance of new opportunities at this time. But upcoming changes to the MMJ program should boost sales among existing MMJ businesses, and once reciprocity is implemented there's the potential for a boom in the capital's cannabis market, as roughly 20 million tourists visit DC every year.

WASHINGTON STATE MEDICAL MARIJUANA

Overview of Law

Main measure	Initiative 692 (possession and use) and Senate Bill 5052 (unified med and rec framework, established authority to license and regulate businesses)
Type of measure	I-692: Ballot initiative SB 5052: Legislative bill
Year passed	I-692: 1998 SB 5052: 2015
Margin of victory	I-692: 59% to 41% SB 5052: 60 to 36 in the House, 40-8 in the Senate
Possession limit	* Purchase from a licensed medical store: 3 ounces/21 grams of concentrate/48 ounces of infused product in solid form/216 ounces of infused product in liquid form * Grow in home or as a member of a cooperative: six plants for personal medical use and up to 8 ounces of usable marijuana produced from their plants * A health care practitioner may authorize a patient to possess up to 15 plants for personal medical use and 16 ounces of usable marijuana produced from their plants
Patient registry	Voluntary - though medical marijuana patients who choose not to join the authorization database will be subject to recreational possession limits and taxes.
Accepts patients from other states?	No, but under Washington's recreational cannabis law, visitors 21 and older may purchase recreational cannabis from any licensed store.
Home cultivation	Yes - patients entered into the voluntary database are permitted to grow for personal and medical use and to form collective gardens, with certain stipulations and conditions.
Restrictions on type of marijuana allowed to be sold?	No
Qualifying medical conditions	Intractable pain unrelieved by standard medical treatments, cancer, Crohn's disease, epilepsy/intractable spasticity/seizures, glaucoma, hepatitis C, HIV, multiple sclerosis, PTSD, diseases resulting in severe nausea/vomiting, and traumatic brain injury
MMJ business regulations	Heavy. Washington is the first state that has legalized medical and recreational cannabis to bring both markets under a single regulatory framework. All medical businesses are now required to be licensed under the rec program, and retailers that choose to sell to the medical market will be required to receive a "medical marijuana endorsement." Businesses that want to sell medical grade products, like higher-potency edibles, are subject to regulations that require extra testing, as well as different labels for these medical grade products. All businesses will be subject to extensive and strict rules covering all aspects of operations including, but not limited to, production controls, use of pesticides, transportation, extraction, packaging/labeling, lab testing, hiring, security, inventory controls and advertising.
Dispensary structure	Stand-alone medical dispensaries are no longer allowed under Washington's unified med and rec framework. Retail marijuana stores can sell to MMJ patients if they get a "medical endorsement," a process that requires dispensary employees to pass a Department of Health training course and to dedicate a portion of the store where medical cards can be issued to patients.
Sampling of state fees	
Application	Producer, Processor and Retailer - $266
License	Producer, Processor and Retailer - $1,062 (new and renewal)
State tax requirements	37% excise tax. Medical marijuana patients entered into the medical marijuana database and issued a recognition card are exempt from paying 9.6% sales tax

Number of dispensaries allowed	Up to 556 retail marijuana stores, per law
Number of dispensaries operating in early 2017	No MMJ dispensaries technically operate anymore, but 180 retail marijuana stores have active medical endorsements
Number of registered patients	18,904. (Note: This reflects the actual number of patients registered with the state's MMJ program. In previous editions of the Factbook - before Washington folded its MMJ program into its rec system - we attempted to estimate the total number of patients in the state, as the voluntary registry only reflected a fraction of people who bought MMJ. Now that MMJ falls under the rec program, using the official number of registered patients more accurately portrays the size of the demand for medical cannabis.)
Estimated 2017 marijuana sales via dispensaries	The state does not break down or track MMJ sales specifically - all sales are lumped under the rec program.

WASHINGTON STATE

RECREATIONAL

Overview of Law

Main measure	Initiative 502 (established authority to license and regulate businesses) and Senate Bill 5052 (unified med and rec framework)
Type of measure	I-502: Ballot initiative SB 5052: Legislative bill
Year passed	I-502: 2012 SB 5052: 2015
Margin of victory	I-502: 56% to 44% SB 5052: 60 to 36 in the House, 41-8 in the Senate
Possession limit	1 ounce/7 grams of concentrate/16 ounces of infused product in solid form/72 ounces of infused product in liquid form
Home cultivation?	No
Restrictions on type of marijuana allowed to be sold?	No
Business regulations	Heavy. All businesses are subject to extensive and strict rules covering all aspects of operations including, but not limited to, production controls, use of pesticides, transportation, extraction, packaging/labeling, lab testing, hiring, security, inventory controls and advertising. The state also has caps on the number of retail stores allowed and overall cultivation limits.
Retail store structure	For-profit allowed
Sampling of state fees	
Application	Producer, Processor and Retailer - $266
License	Producer, Processor and Retailer - $1,062 (new and renewal)
State tax requirements	37% excise tax, plus 9.6% sales tax payable by the customer at point of sale
Number of rec stores and cultivators allowed	Stores - 556 Cultivators - The number of licenses is not limited, but the maximum canopy space allowed under each license type is. At this time, no more applications for marijuana businesses are being accepted.
Number of stores and cultivators operating in early 2017	Stores - 486 Cultivators - 1,147
Estimated number of in-state customers	725,000 - 800,000
Estimated 2017 recreational marijuana sales via retail stores	$1 billion-$1.1 billion (up from $696 million in 2016)
What to watch in 2017	The unification of Washington's medical and recreational markets under one regulatory framework took place in July 2016, and it appears that both businesses and consumers are moving toward an industry that caters mostly to those who purchase cannabis recreationally - regardless of whether it's used for medical purposes or simply for fun. Increased costs and regulations are placed on businesses looking to serve MMJ patients, and a lack of incentives for patients to sign up for the medical program may render the medical market virtually obsolete.

Marijuana Business Stability Rank for 2017: **B+**	Hundreds of dispensaries were closed in July 2016 as the medical and recreational markets merged, which proved beneficial to existing retail stores because a large segment of the market was forced to find a new place to purchase marijuana. As one of only four states with an active recreational marijuana market, most of the uncertainty for business owners in Washington lies in how the Trump administration chooses to approach the industry.
Marijuana Business Opportunity Rank for 2017: **B**	With nearly $700 million in retail sales of marijuana in 2016, Washington's marijuana industry is continuing to grow. But as the state's industry matures, it moves closer and closer to saturation. Nearly 1,000 producers/processors are licensed throughout the state, producing stiff competition and pushing wholesale marijuana prices to near unsustainable levels. Retail licenses are still technically available, but local bans and ordinances have rendered them unobtainable. However, demand for marijuana does not appear to be diminishing, leaving opportunities for savvy business owners prepared to operate in a highly competitive environment.

CANADA

Overview of Law

Main measure	The Access to Cannabis for Medical Purposes Regulations (ACMPR) came into effect on Aug. 24, 2016, and replaced the Marihuana for Medical Purposes Regulations (MMPR), which went into effect on June 1, 2013
Year passed	The MMPR replaced the Marihuana Medical Access Regulations (MMAR), which was introduced in 2001
Possession limit	The lesser of 30 times the daily dose as defined by the patient's physician, or 150 grams
Patient registry	Mandatory - patients must register with a licensed producer and provide proof of a physician recommendation. The burden is on the producers to verify that a physician is currently licensed in the province in which they saw the patient, as well as to ensure the physician hasn't been sanctioned.
Home cultivation	Yes
Restrictions on type of marijuana allowed to be sold?	Some. Flower, oils, concentrates and infused products like edibles, suppositories, tinctures and topicals are allowed. But concentrates cannot be made using "any organic compound that is highly flammable, explosive or toxic, including petroleum naphtha and compressed liquid hydrocarbons such as butane, isobutane, propane and propylene."
Qualifying medical conditions	ADD/ADHD, Alzheimer's disease, anxiety, arthritis, auto accident(s), back and neck problems, brain injury, cancer, chronic nausea, chronic pain, colitis, Crohn's disease, depression, eating disorders, epilepsy, fibromyalgia, gastrointestinal disorders, hepatitis C, HIV/AIDS, irritable bowel syndrome, kidney failure/dialysis, migraines, multiple sclerosis, muscle spasms, muscular dystrophy, Parkinson's disease, PTSD, sleep disorders, spinal cord injury/disease and sexual dysfunction
MMJ business regulations	Heavy. Producers and cultivators are licensed with Health Canada and are subject to rules and regulations governing all aspects of operations, cultivation, transportation, security, record-keeping, reporting, packaging/labeling and shipping.
Dispensary structure	Storefront dispensaries are prohibited by the federal government. However, a handful of municipalities where federal police do not have authority, such as Vancouver, have established local licensing regimes for dispensaries or allowed dispensaries to exist without interference. Federally licensed producers are permitted to sell marijuana directly to registered patients by mail and can operate on a for-profit basis.
Tax requirements	None stated in the law, and medicine is generally exempt from sales tax in Canada, but the topic was still unsettled as of early 2016. Prime Minister Justin Trudeau promised to design a new system of marijuana sales and distribution that would include federal and provincial excise taxes, but it's unclear how far along that is.
Number of dispensaries and cultivators allowed	Dispensaries are illegal, and there are no caps on the number of producer/cultivator licenses
Number of operational dispensaries and cultivators in early 2017	Dispensaries - 150-200 (although dispensaries are illegal, they still exist in cities such as Vancouver and Toronto) Cultivators/Producers - 43 licenses have been granted through April 21, 2017
Number of registered patients	130,000 (up from 37,000 in early 2016)
Estimated 2017 marijuana sales via licensed producers and unlicensed dispensaries	$150 million-$200 million U.S. dollars (up from $75 million-$100 million in 2016)

What to watch in 2017	The government of Prime Minister Justin Trudeau in April introduced legislation to legalize recreational marijuana for Canadians 18 and older and has set July 1, 2018, as the target date for sales to begin. It is unclear how this will affect the medical marijuana program. But under the rec legalization plan, the federal government will regulate cultivation, and the companies that are currently licensed to produce medical marijuana will be the first to be allowed to cultivate recreational marijuana. Canada's provinces will have authority over distribution and how consumers can buy recreational marijuana, with some expected to move quickly and others cautiously. The federal and local governments will continue to hammer out regulations over the course of the year and into 2018.
Marijuana Business Stability Rank for 2017: **D**	Medical marijuana patient numbers have been relatively muted over the last few years but surged after Justin Trudeau was elected prime minister. The new ACMPR program has also allowed new products such as concentrates to be sold. Dispensaries remain federally illegal, but a handful of municipalities, such as Vancouver, have enacted local licensing regimes for dispensaries, which have proliferated in cities that don't have formal licensing for such outlets. In some of those cities, police have not cracked down on dispensaries, but in others, most notably Toronto, they have. Whether illegal or locally legal, the dispensaries have undercut licensed producer revenue. The advent of adult-use marijuana on July 1, 2018, and the preceding preparations are throwing additional uncertainty over the medical program.
Marijuana Business Opportunity Rank for 2017: **C**	Under the ACMPR, only federally licensed cultivators are allowed to grow medical marijuana. They also are the only businesses allowed to distribute medical marijuana, and they can do it only through the mail. The country's current crop of licensed companies has ample opportunity to grow in 2017, and new producers will likely come online as well. There may be opportunities for consumption device manufacturers and other businesses that target patients. While the ACMPR requires Canadian residency to obtain a medical marijuana license, non-Canadians have been able to get their feet in the Canadian market through licensing agreements and other types of partnerships. While the regulations have yet to be detailed, recreational legalization could change the landscape dramatically with new opportunities.

The Green Rush 2.0: Sales Estimates for New Markets

The 2016 elections will go down as one of the biggest moments in the history of the marijuana industry, as voters in eight states passed significant marijuana measures. Arkansas and North Dakota legalized medical marijuana; Florida, which previously had a CBD-focused law, approved a full-strength MMJ program; Montana, which legalized medical cannabis long ago but never established a framework for businesses, passed a measure to allow commercial cultivation and sales of MMJ, and California, Maine, Massachusetts and Nevada legalized recreational cannabis.

But 2016 was a historic year for other reasons, too. Ohio and Pennsylvania both legalized medical cannabis earlier in the year through their legislatures, and Louisiana passed a bill to allow commercial MMJ cultivation and sales.

Combined, these new markets will generate an estimated $7 billion-$8 billion in additional annual retail revenues within the next five or six years, ushering in immense business opportunities.

To get a better idea of the potential of these markets, here are our initial estimates for annual retail sales in each state 3-5 years after the first dispensaries or rec shops open (Note: It typically takes at least a few years after sales begin for a market to mature, and there are often delays at the start. So we look several years down the road to assess a market's midterm potential).

New Medical Markets:

Arkansas: $30 million-$60 million

Florida: $600 million-$800 million

Louisiana: $15 million-$30 million

Montana: $40 million-$60 million

North Dakota: $10 million-$20 million

Ohio: $200 million-$400 million

Pennsylvania: $100 million-$150 million

New Recreational Markets

California: $4.5 billion-$5 billion

Maine: $250 million-$350 million

Massachusetts: $650 million-$750 million

Nevada: $450 million-$550 million

CHAPTER

3

Medical Marijuana Dispensaries & Recreational Stores

Medical marijuana dispensaries and recreational stores – collectively referred to as retailers – represent the most dynamic segment of the cannabis industry. These businesses interact directly with patients, customers and numerous marijuana companies throughout the course of daily operations. These businesses are also at the end of the supply chain, so their financial performance is one of the more reliable indicators of demand, market size and future opportunities.

Because of the different rules and regulations that govern the industry at the state and local levels, business models and competitive environments can vary wildly from one market to another. Still, there are two main areas in which comparisons can be made: the market each store serves and the degree to which the business is vertically integrated.

With that in mind, this chapter makes three primary distinctions based on the market a retailer serves:

- **Unregulated medical market:** This refers to dispensaries operating in California, Michigan and Montana, which as of early 2017 don't have functioning, statewide regulatory systems. Dispensaries in these states operate under a patchwork of local rules or, in some cases, no regulations at all, meaning they might technically be illegal. Note: California, Michigan and Montana have approved medical cannabis regulations and are setting up their programs.
- **Regulated medical market:** This refers to dispensaries operating under clearly defined rules and regulations set at the state level. With the exception of California, Michigan and Montana, any dispensary serving the medical market in a state where MMJ is legal falls into this category.

- **Recreational only and combo stores:** This refers to retail stores that serve the recreational market either exclusively or in addition to the medical market. While retailers that serve only the recreational market do exist, most stores that sell to the rec customers also sell to MMJ patients, which is why they've been combined into one category.

Separating businesses in unregulated medical marijuana markets from those in regulated states is useful because they have vastly different financial fundamentals, even though they both technically serve medical patients. For example, steep licensing fees in the regulated medical market are rather common, while a dispensary in the unregulated medical market may not pay any license fees at all. Distinguishing between these two markets allows for a more accurate portrayal of each and the industry as a whole.

Rules and regulations that govern the operations of recreational stores – as well as their larger, more broad customer base - also create unique financial scenarios, so this type of store has been separated into its own category as well.

Three classifications are also made in this chapter based on each retailer's level of vertical integration:

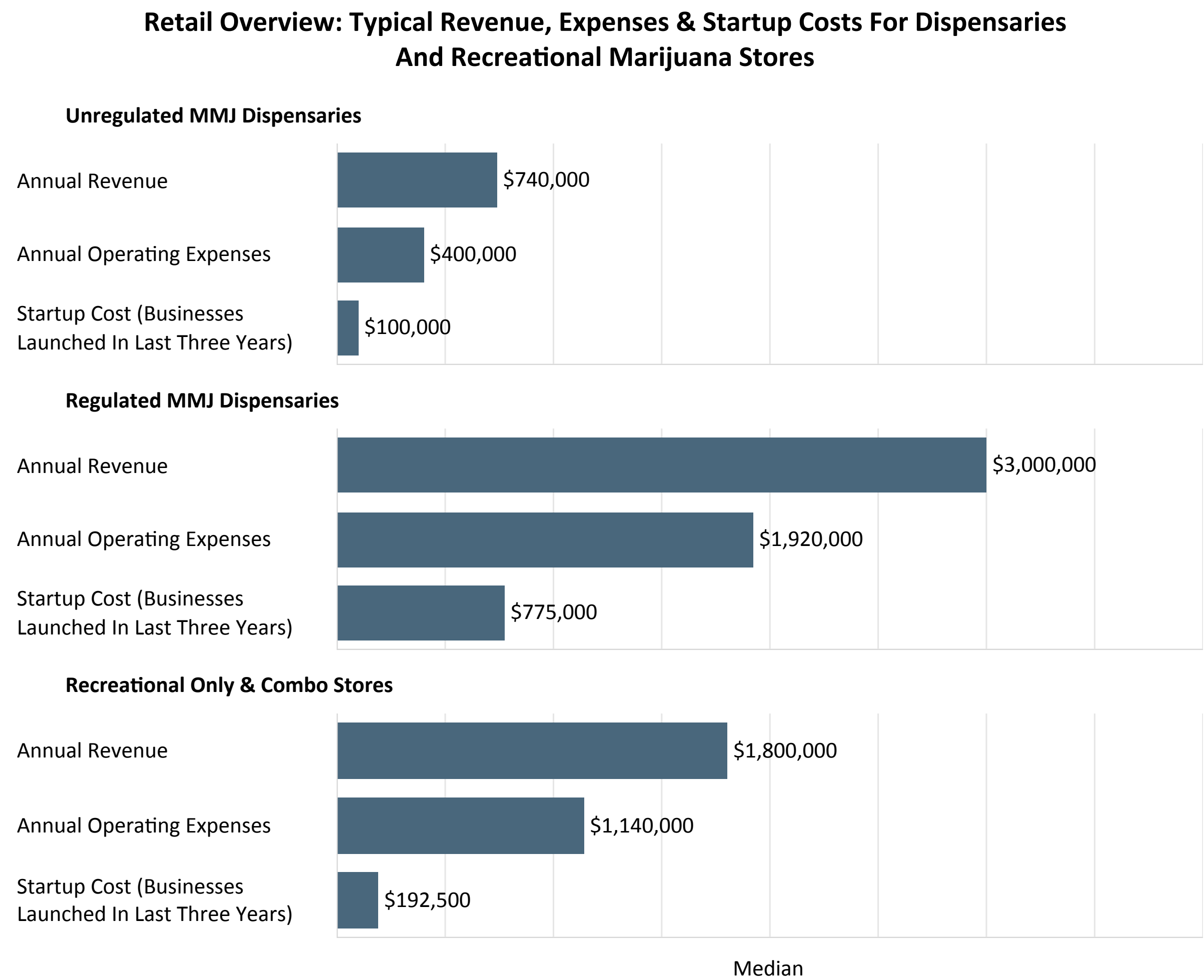
- **Grow in-house & produce infused products:** Retailers in this category cultivate some or all of the cannabis they sell and manufacture some or all of the infused products (edibles, concentrates, topicals, etc.) on their shelves.
- **Grow in-house:** Retailers in this category grow some or all of the cannabis they sell but do not produce infused products.
- **Stand-alone retailer:** Retailers in this category do not cultivate cannabis or manufacture infused products; rather, they purchase entirely from third parties.

These contrasting business structures create very distinct financial circumstances, as a dispensary that cultivates its own cannabis and produces infused products will have much different startup costs, operating expenses and profit margins than a retailer that stocks its shelves with products from a wholesaler. In certain regulated medical markets, the law dictates that each dispensary must be fully integrated. Thus, these types of businesses have been broken out in a manner that better reflects their financial realities.

The charts and analysis throughout this chapter will provide a glimpse into how the market each retailer serves and the company's unique business structure affect key financial metrics.

Here's a high-level look at some of the most important financial figures for cannabis retailers and how they differ by market served.

Chart 3.01: Retail Overview: Typical Revenue, Expenses & Startup Costs For Dispensaries And Recreational Marijuana Stores



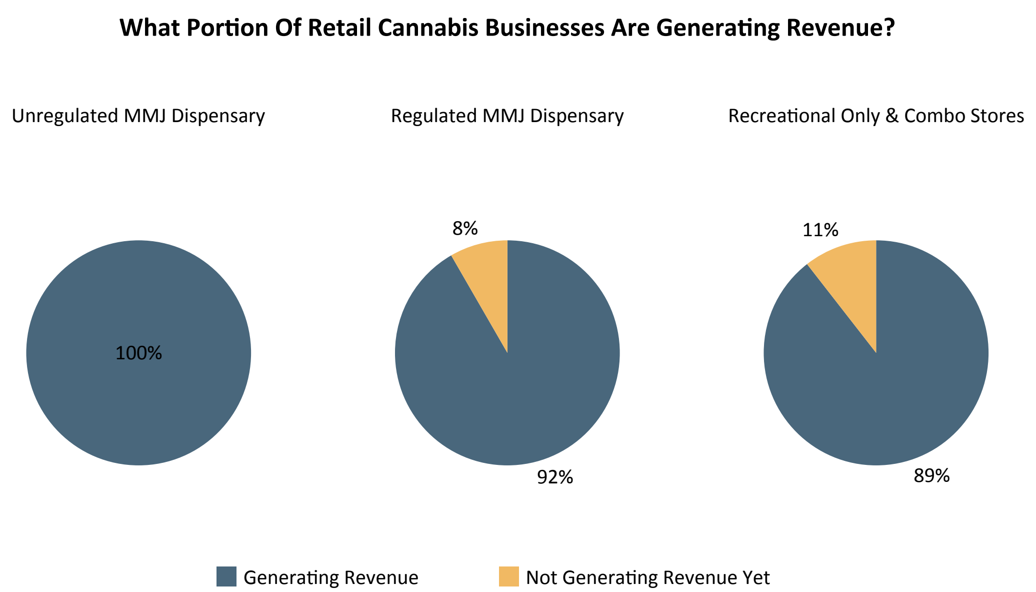
Although annual revenue, operating expenses and startup costs differ quite substantially based on the market each dispensary or rec store serves, the numbers reveal a profitable business proposition for all retailers. Dispensaries in the regulated medical market take in significantly more revenue than rec stores or unregulated dispensaries, but lofty startup costs and operating expenditures eat into profits. On the other end of the spectrum, dispensaries in the unregulated market can get off the ground and begin operating relatively cheaply, but the revenue potential isn't as high compared to regulated MMJ dispensaries or rec stores.

Average Dispensary & Rec Store Profit Margin:

Unregulated MMJ Dispensaries:	18%
Regulated MMJ Dispensaries:	15%
Recreational Only & Combo Stores:	21%
All Dispensaries/Rec Stores:	19%

Retailer Revenue Figures

Chart 3.02: What Portion Of Retail Cannabis Businesses Are Generating Revenue?



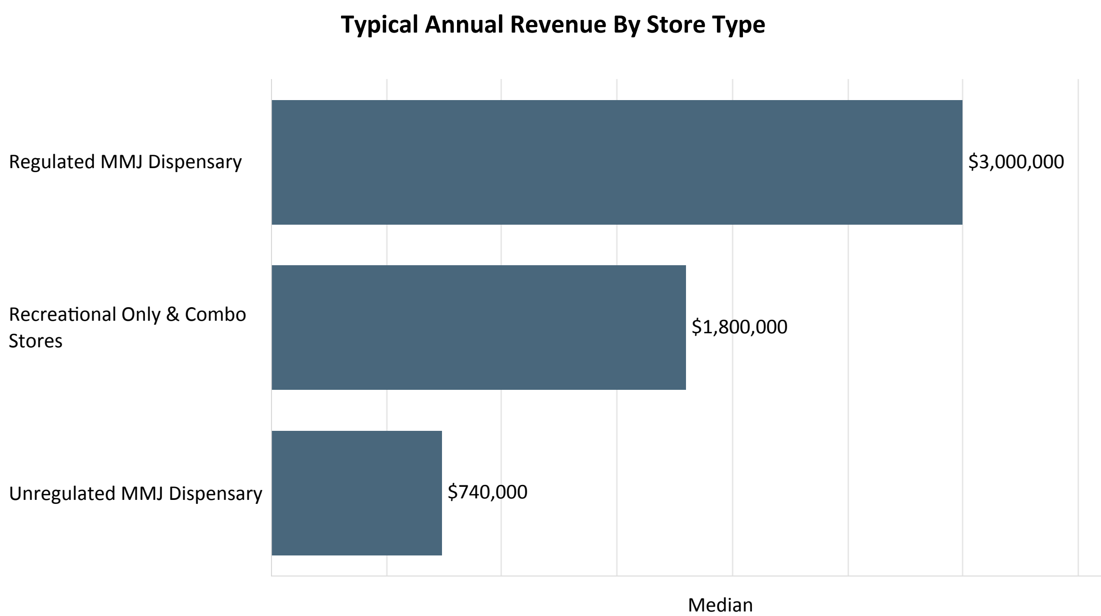
Establishing operations is no simple or quick feat for medical and recreational marijuana retailers.

Regulations governing businesses in the cannabis industry are often very extensive, covering everything from record-keeping, security, packaging, etc. In many cases, retailers are required to have detailed operating procedures in place before sales even begin, which can lead to delays between when retail businesses are launched and when they actually start serving patients/customers.

Also, delays on behalf of state medical and recreational programs are not uncommon, as hiccups in the application, licensing and rule promulgation process leave businesses waiting to open their doors.

Such is the case for the majority of established businesses that are not yet generating revenue, as they hail largely from states like Massachusetts and Alaska where program officials continue to work through large backlogs of applicants.

Chart 3.03: Typical Annual Revenue By Store Type

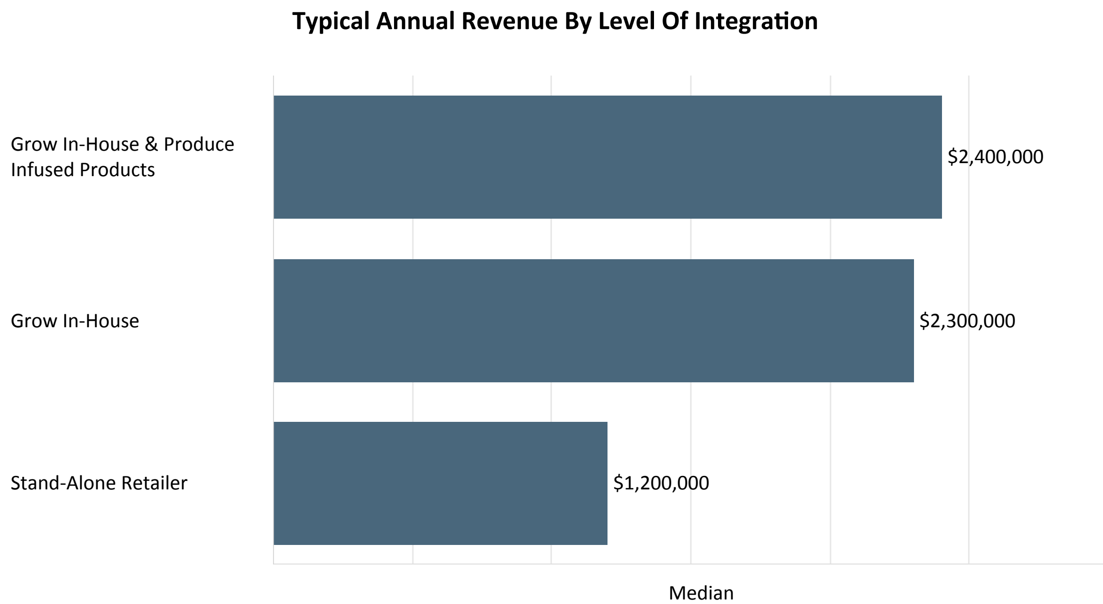


Dispensaries in regulated medical marijuana markets tend to generate the most revenue on a per-store basis, as these businesses often operate in markets with strict caps on the number of licenses available. In Arizona, for example, just 130 dispensaries are authorized to serve a large, growing base of patients (approximately 120,000 as of early 2017). Although recreational retailers have a much larger addressable market, the number of adult-use stores has been growing rapidly, leaving a smaller share for each individual business.

Medical is also a more mature segment of the marijuana market, meaning MMJ dispensaries have had a longer runway to grow their businesses. The first recreational shops in the United States opened in Colorado in 2014, while many dispensaries have existed much longer and therefore have had more time to bolster their revenues.

Note that the revenue figures for this chart – and all subsequent charts in this chapter pertaining to sales – are on a per-store basis. While most dispensary and rec store owners operate just a single location, larger players with multiple locations are becoming more prominent in the industry. Reporting revenue on a per-store basis helps account for this trend.

Chart 3.04: Typical Annual Revenue By Level Of Integration

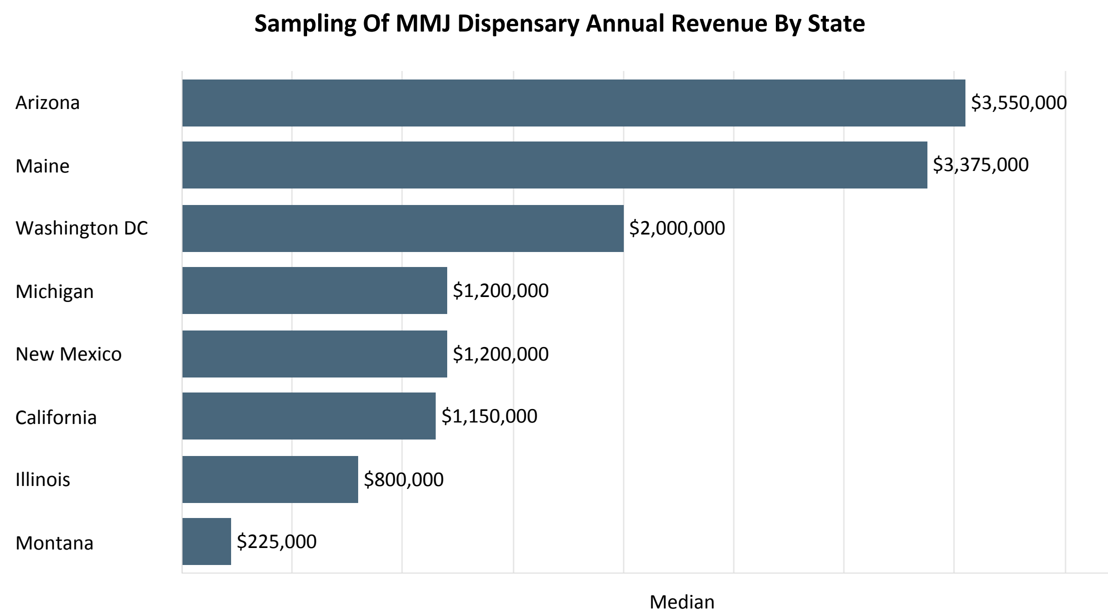


It's no coincidence the typical annual revenue for retailers that grow in-house and produce infused products is similar to that of dispensaries in the regulated medical market, as businesses in many medical states – such as New York and New Jersey - are required to be vertically integrated. With strict caps on the number of licenses in many medical states, vertically integrated businesses often generate more revenue because they control a larger share of the market.

Furthermore, vertically integrated retailers have control over their own supply chain, allowing them to leverage economies of scale to more efficiently grow their business.

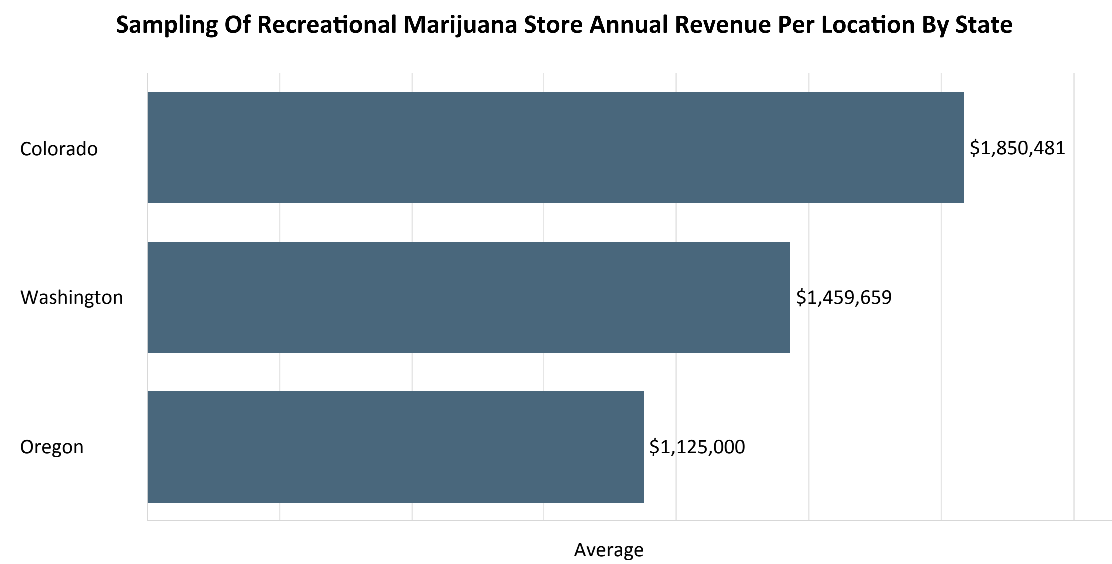
Stand-alone retailers generate less revenue than those with some cultivation or production capabilities, but startup and operating costs for these businesses are generally much less expensive because the companies don't have to build out grow rooms and infused products kitchens.

Chart 3.05: Sampling Of MMJ Dispensary Annual Revenue By State



Indeed, examining medical dispensary revenue by state shows that sales typically are higher on a per-store basis in markets where the number of allowed dispensaries is low relative to the addressable patient base. Washington DC and Maine, for instance, have strict limits on the number of available dispensary licenses, thus the higher revenue figures. But in California, where regulations are light or nonexistent, and New Mexico – a state without caps on the number of allowed dispensaries – the competitive environment has led to lower median per-store revenue.

Chart 3.06: Sampling Of Recreational Marijuana Store Annual Revenue Per Location By State



Note: Colorado and Washington revenue averages were calcuated using state-provided data regarding the number of retail stores and 2016 recreational marijuana sales. Oregon revenue averages were obtained through our survey.

With over $875 million in recreational cannabis sales in 2016, Colorado is the largest regulated adult-use marijuana market in the world. Washington state isn't too far behind, posting nearly $700 million in recreational sales. But because the two states have a very similar number of operational recreational marijuana stores, revenue on a per-store basis in Colorado was nearly 30% higher in 2016. Washington's rec industry got off to a much slower start than Colorado's, though it has been gaining ground rapidly over the past year. If that continues, the state could close the gap with Colorado in terms of per-store sales.

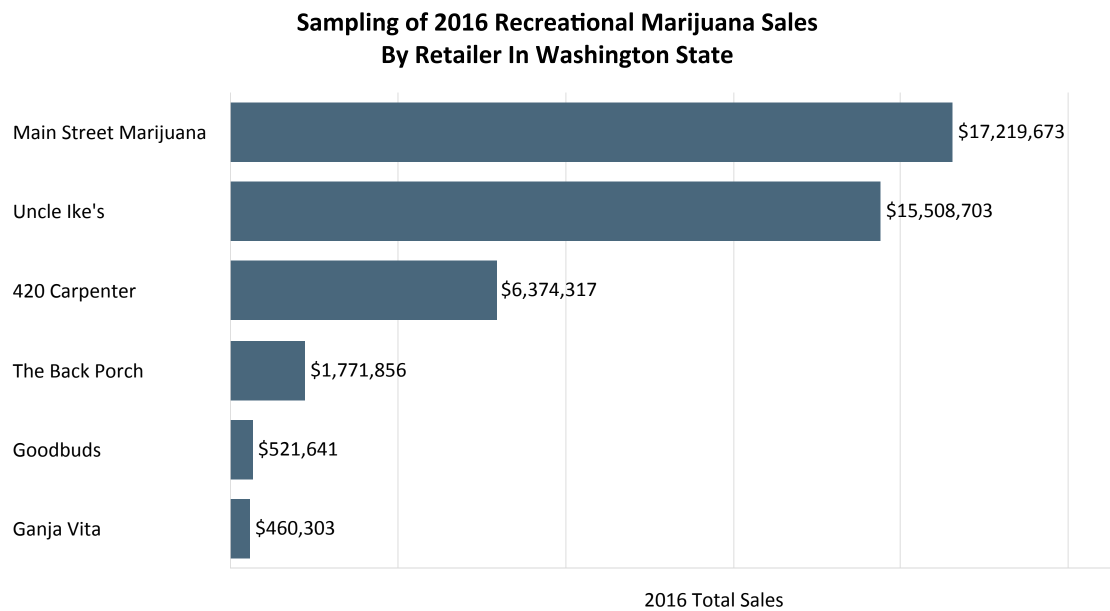
Oregon began early retail sales through existing medical dispensaries back in 2015, but full-fledged recreational stores did not start receiving licenses until October 2016. Unlike Washington, there are no statewide limits on the number of recreational stores allowed in Oregon, so revenue on a per-store basis could increase with brisk demand, or perhaps decline if the growth in retail stores outpaces the growth in sales. Oregon also has experienced supply issues, causing bottlenecks that have hampered rec stores and possibly artificially lowered sales volume.

Median Dispensary & Rec Store Annual Revenue: All Dispensaries/Rec Stores

$1,700,000

REAL WORLD EXAMPLE

Chart 3.07: Real World Example: Sampling Of 2016 Recreational Marijuana Sales By Retailer In Washington State



Source: 502data.com.

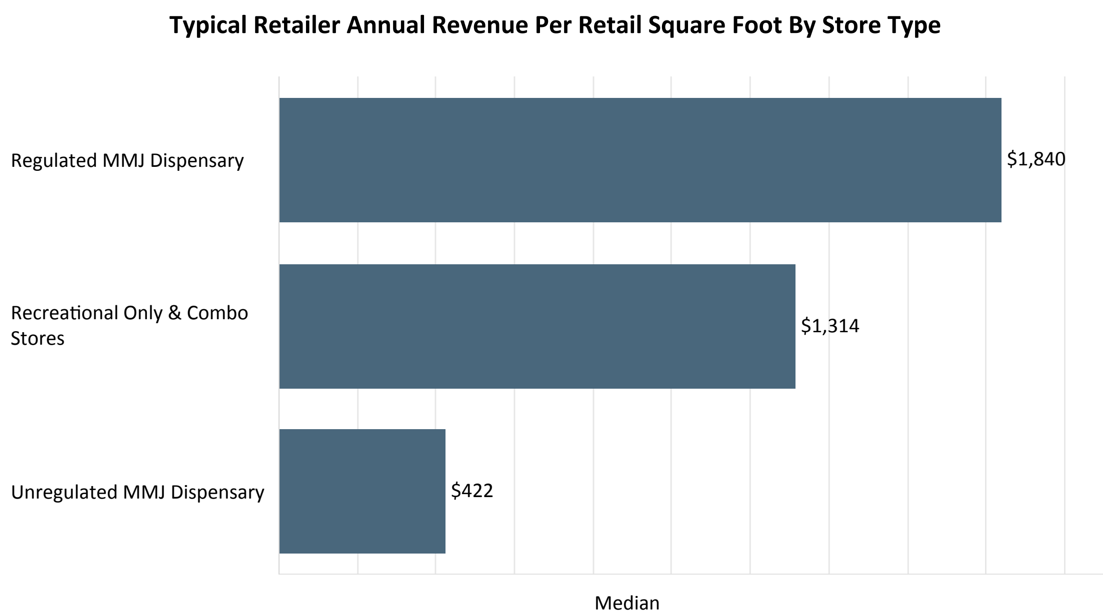
As in every retail industry, per-store sales can vary greatly across a given state or even city, with many factors – including location, how long the business has been operating and marketing/branding savviness – influencing revenues.

In Washington state, for instance, average sales of recreational marijuana per store are about $1.5 million, but some businesses are raking in significantly more than that, while others are generating significantly less. Main Street Marijuana in Vancouver and Uncle Ike's in Seattle were the two biggest retailers in terms of 2016 sales. Both are located in large, populous cities.

On the other end of the spectrum, Ganja Vita and Goodbuds both posted sales of around half a million, which is well below the state average. Each of these retailers operates in smaller towns where the market may not allow for the type of six-figure annual sales of retailers in larger cities like Seattle or Olympia.

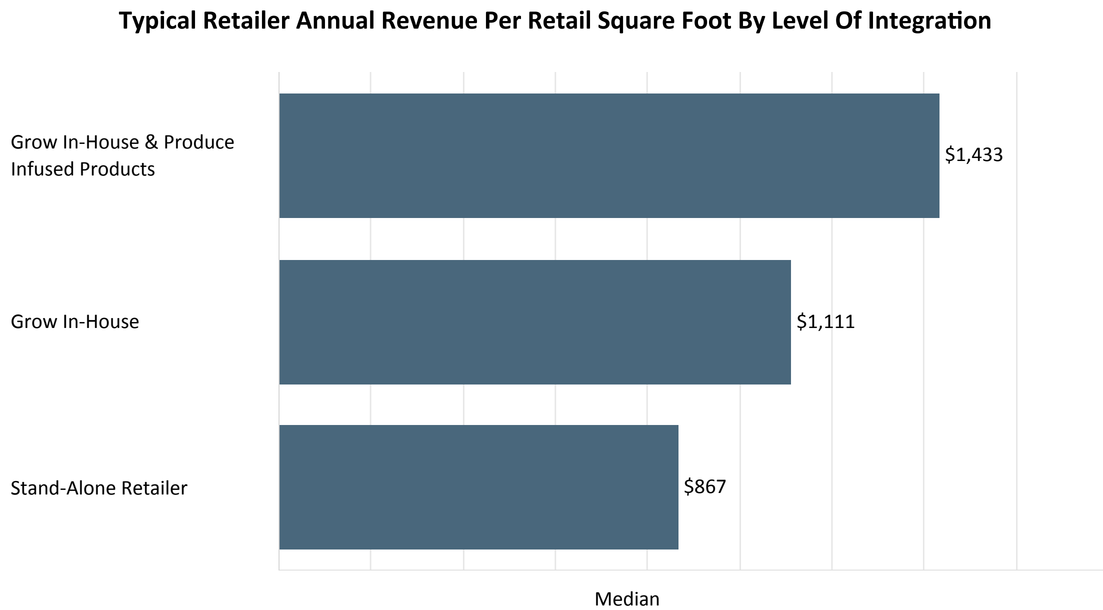
It's important to remember, however, that below-average revenue does not necessarily equate to below-average profit, given that costly expenditures such as rent or mortgage are much lower in less populated areas of the state.

Chart 3.08: Typical Retailer Annual Revenue Per Retail Square Foot By Store Type



Looking at revenue on a per-square-foot basis accounts for the varying degrees of size among retail outlets, and again we see dispensaries in the regulated medical marijuana market come out on top. Faced with more competition – and lower wholesale cannabis prices – businesses in the unregulated medical market and recreational market take in less revenue per square foot of retail space. The difference is most pronounced when comparing the regulated and unregulated markets, where revenue per square foot for retailers in regulated markets is more than four times that of dispensaries in California, Michigan and Montana.

Chart 3.09: Typical Retailer Annual Revenue Per Retail Square Foot By Level Of Integration



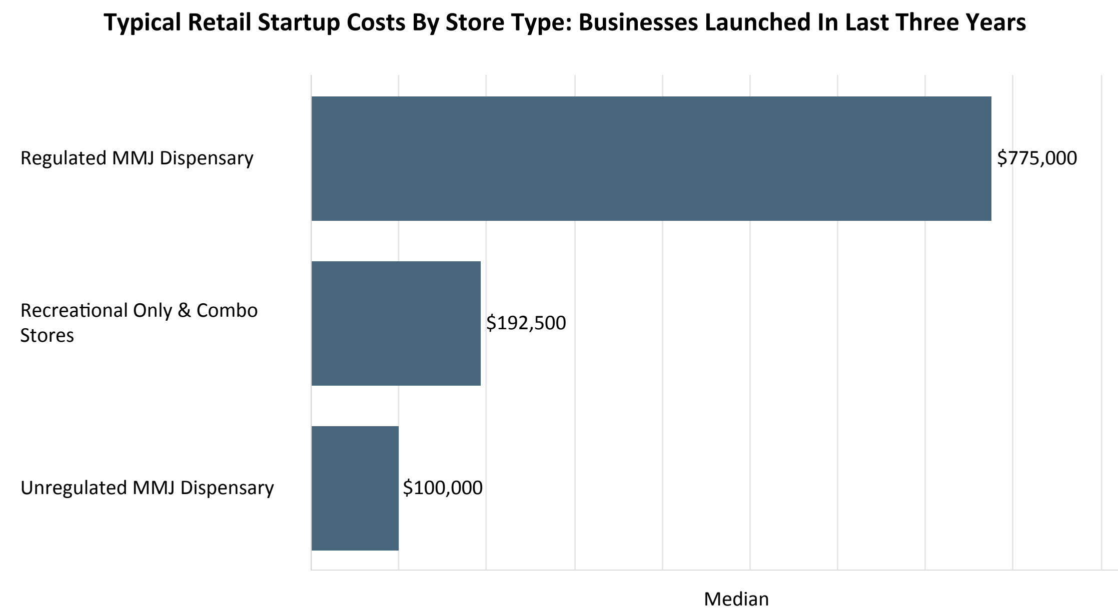
Retailers that both grow in-house and produce infused products have higher annual revenue per square foot than retailers that aren't fully vertically integrated. Cannabis dispensaries and rec shops that handle all aspects of the supply chain tend to be larger, more sophisticated players that bring production and processing in-house to achieve better economies of scale and tighter control over their supply chains.

Median Dispensary & Rec Store Annual Revenue Per Retail Square Foot: All Dispensaries/Rec Stores

$933

Retailer Startup Costs

Chart 3.10: Typical Retail Startup Costs By Store Type: Businesses Launched In Last Three Years



Dispensaries serving the regulated medical market are subject to more regulatory scrutiny, higher license fees and more burdensome security requirements than stores in the unregulated medical or recreational markets, thus the sharp difference in typical startup costs. Further driving costs for these dispensaries is the requirement by many medical-only states to be fully vertically integrated, necessitating additional expenditures to get cultivation and infused product manufacturing operations off the ground.

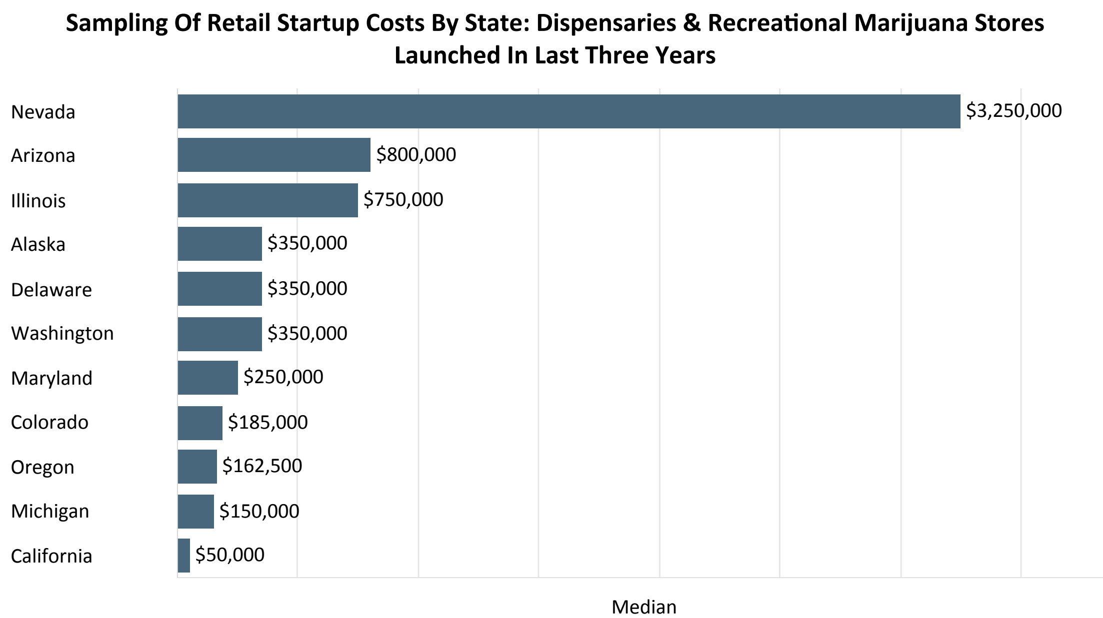
Even within markets, startup costs can differ greatly, as businesses that choose to incorporate cultivation and/or infused product manufacturing operations will require much more upfront capital than stand-alone retailers that purchase inventory from wholesalers. For example, one respondent in our survey that opened a fully integrated medical dispensary in 2015 spent approximately $6 million to launch the business, significantly higher than the $775,000 average.

Startup costs are reported only for businesses launched in the last three years because of how quickly the industry changes from year to year. Including startup data from just five years ago would not accurately reflect the current business and regulatory environment.

Prior to 2011, most retail businesses operated in unregulated or lightly regulated markets and operated in legal grey areas, so their startup costs were much lower than businesses entering today. The overall trend in both the medical and recreational sides of the industry now is heavier restrictions and regulations, which is why the startup cost data included here is limited to more recent years.

For instance, in 2014 startup costs for medical dispensaries – both regulated and unregulated – were approximately $200,000. But just one year later, they had ballooned to $350,000, the result of expensive medical markets like New York and Massachusetts coming online.

Chart 3.11: Sampling Of Retail Startup Costs By State: Dispensaries & Recreational Marijuana Stores Launched In Last Three Years



The unique regulatory environment of each state has a big impact on retailer startup costs, with dispensaries in regulated medical markets often facing higher financial barriers to entry than those in unregulated medical markets or recreational markets.

Indeed, the highest startup costs among retailers in the survey came from Nevada, Arizona and Illinois – where high licensing fees and strict regulations are the norm. Many dispensaries in California and Michigan operate – at least for now – in legally ambiguous markets, without the need to pay for an expensive license or to ensure their stores meet strict regulatory requirements.

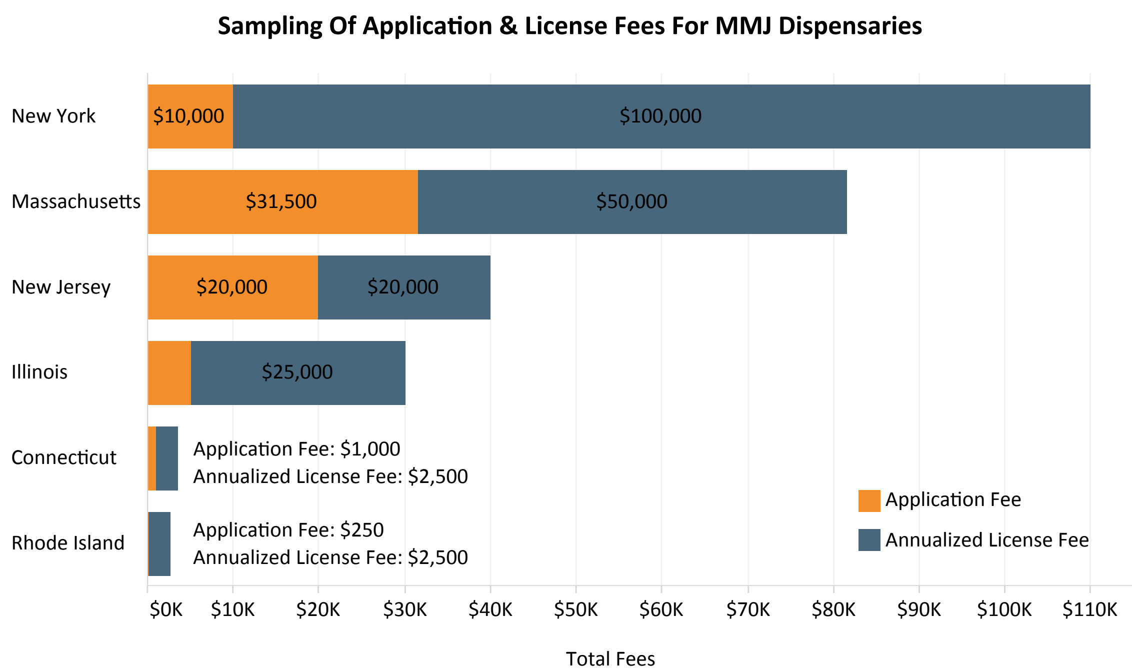
Relatively cheap application and licensing fees for retailers serving the recreational market factor into the lower startup costs, but also important to note is the fact many of these stores already existed as dispensaries before their transition into the rec market. In the early days of Colorado's recreational market, for example, all rec stores were required to have existed as a dispensary first. Because many of these stores were allowed to co-locate (serving both the medical and recreational markets from a single facility), substantial startup costs such as real estate were heavily mitigated compared to retailers starting from scratch.

Median Dispensary & Rec Store Startup Costs: All Dispensaries/Rec Stores

$192,500

REAL WORLD EXAMPLE

Chart 3.12: Real World Example – Sampling Of Application & Licensing Fees For MMJ Dispensaries

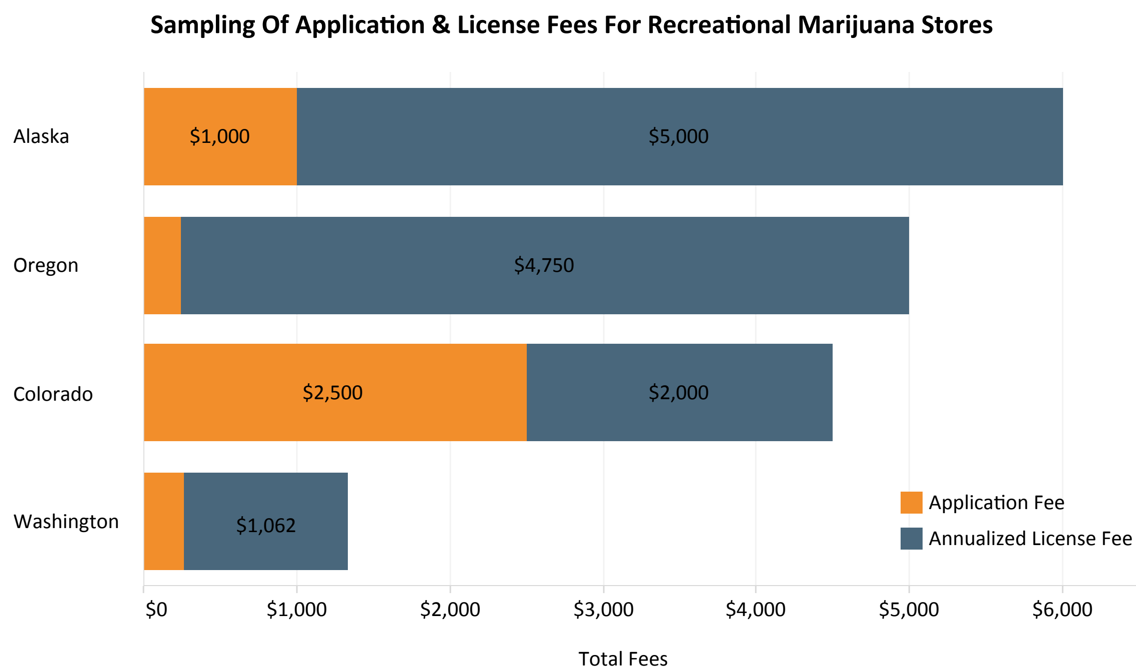


Note: Annualized license fees reflect the average yearly cost of a license, allowing for comparisons between states where licenses are valid for more than one year.

Application and license fees are a major driver of startup costs, and they tend to be higher in states that legalized recently and have large, population-dense cities. A prime example is New York, where retailers pay a $200,000 license fee every two years – by far the highest in the nation. Rhode Island, where medical marijuana has been legal since 2006, has some of the lowest retail license fees among regulated medical markets, though dispensaries do not have the potential to serve as large of a patient base. However, Rhode Island currently has more registered patients than New York, illustrating the potential risk faced by businesses entering a market where fees are steep and programs have yet to establish a firm footing.

REAL WORLD EXAMPLE

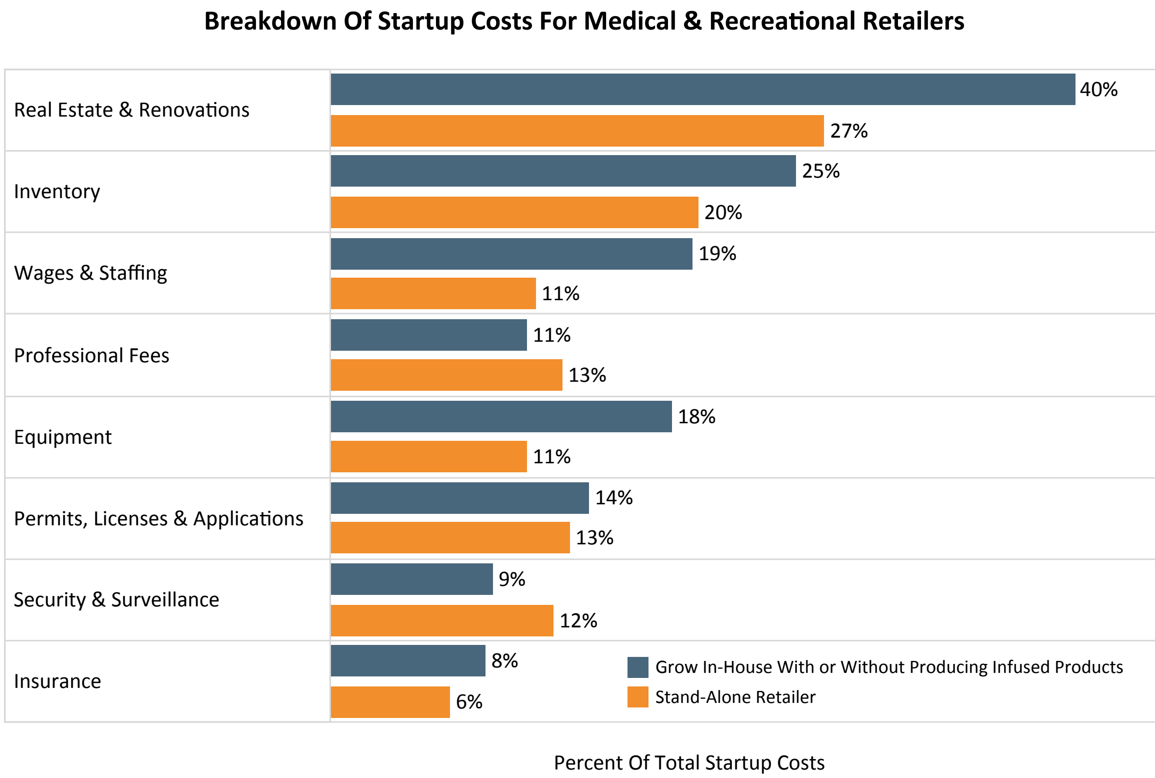
Chart 3.13: Real World Example – Sampling Of Application & License Fees For Recreational Marijuana Stores



Note: Annualized license fees reflect the average yearly cost of a license, allowing for comparisons between states where licenses are valid for more than one year.

Compared to the license and application fees dispensaries must pay in many states, recreational shops have to shell out a modest sum. High application fees can be used as a tool by program officials in medical markets, as they filter out all but the most serious applicants. Washington is the only market with adult-use marijuana where the number of available retail licenses is capped at the state level but the limit is set at a relatively high 556 - much larger than license caps in regulated medical markets. This eliminates the need to charge steep application fees that push away potential business owners, as the tax revenue generated by recreational stores – rather than high license fees – is used by state governments to offset the costs of running a marijuana program.

Chart 3.14: Breakdown Of Startup Costs For Medical & Recreational Retailers



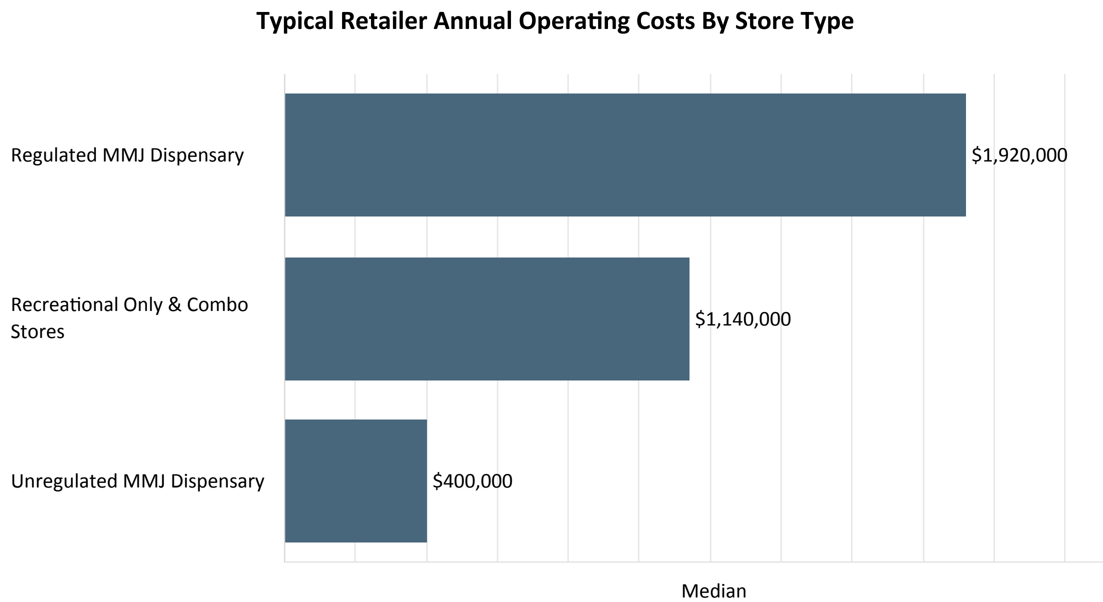
Note: Values reflect averges based on ranges and do not sum to 100%.

While licensing and application-related fees are big factors in determining how much a business has to spend to launch, real estate is often the largest overall startup expense for a cannabis retailer. Procuring commercial space that's properly zoned and then performing all necessary renovations to build or retrofit a retail space is pricey, especially for stores with a cultivation site or production facility.

Inventory costs also represent a large startup expense for all cannabis retailers. As with real estate costs, dispensaries and rec stores that have their own grow sites and/or production facilities often shell out the most to stock their shelves at first – as they have to sink lots of money into building out the cultivation and/or infused products sides of their businesses.

Retailer Operating Costs

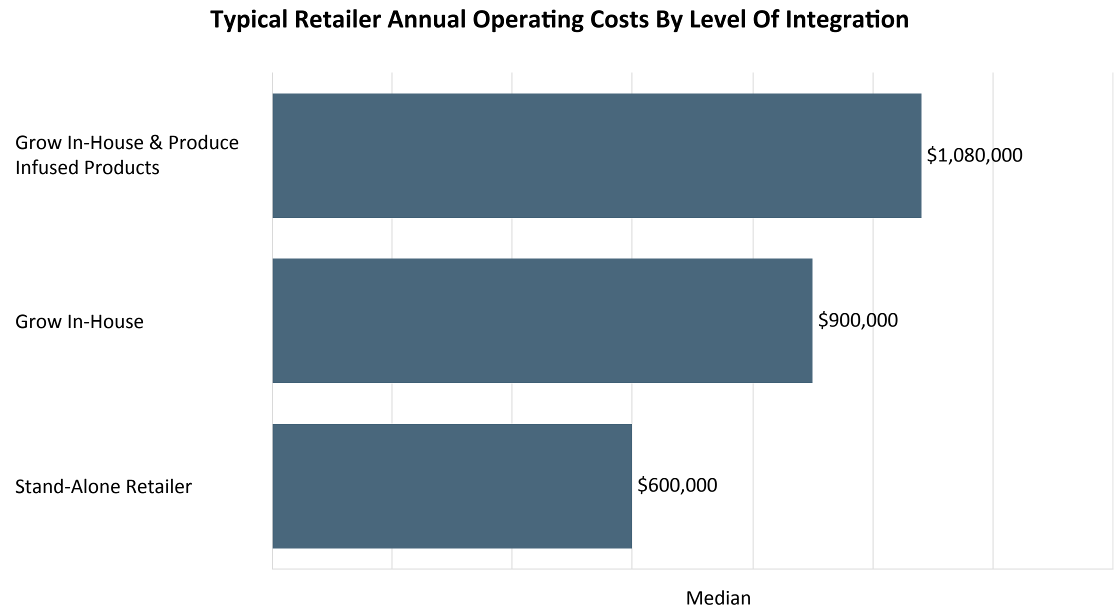
Chart 3.15: Typical Retailer Annual Operating Costs By Store Type



In addition to higher startup costs, dispensaries in the regulated medical marijuana market also face higher annual operating expenses than recreational stores or dispensaries in unregulated states. A host of factors play into this, including higher wholesale cannabis prices, more burdensome security requirements, higher interest payments on larger debt (often needed to cover startup costs for retailers operating in regulated markets), etc.

In states such as Connecticut and New York, dispensaries are required to have individuals on staff with some degree of pharmaceutical training, a major, ongoing cost that recreational stores or dispensaries in unregulated markets do not have to bear.

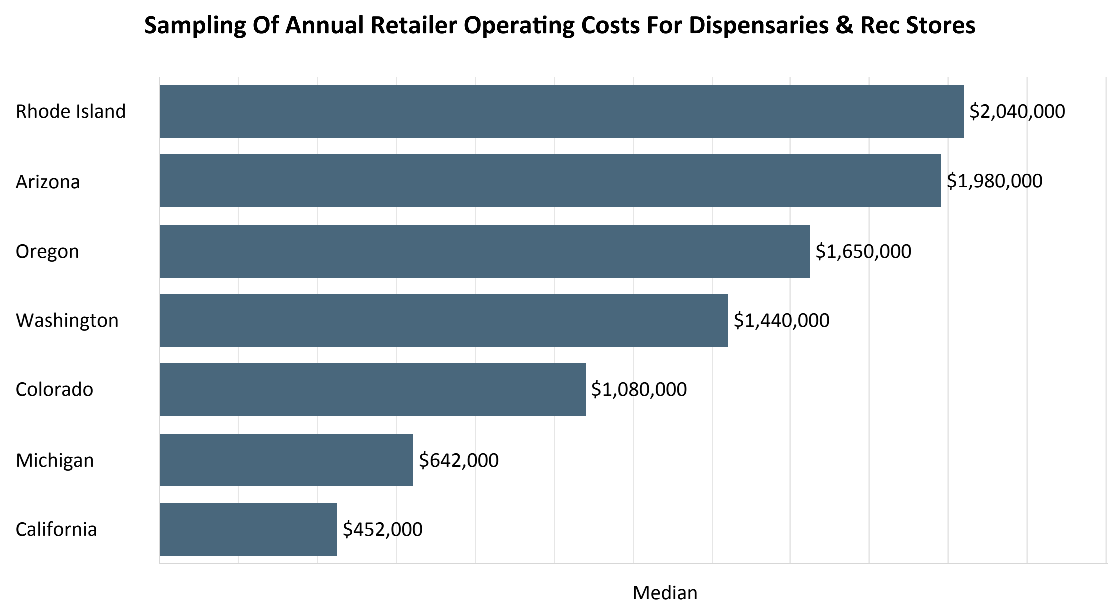
Chart 3.16: Typical Retailer Annual Operating Costs By Level Of Integration



As one would expect, the more vertically integrated a retailer is, the higher its annual operating costs. These facilities need extra space for cultivation and/or production operations, which are often managed by more highly skilled workers that demand greater wages. Utility costs to maintain appropriate temperature and humidity levels in large indoor grow spaces can turn into major expenditures as well – something stand-alone retailers do not have to contend with.

Here's a look at how operating costs can vary greatly among states:

Chart 3.17: Sampling Of Annual Retailer Operating Costs For Dispensaries & Rec Stores

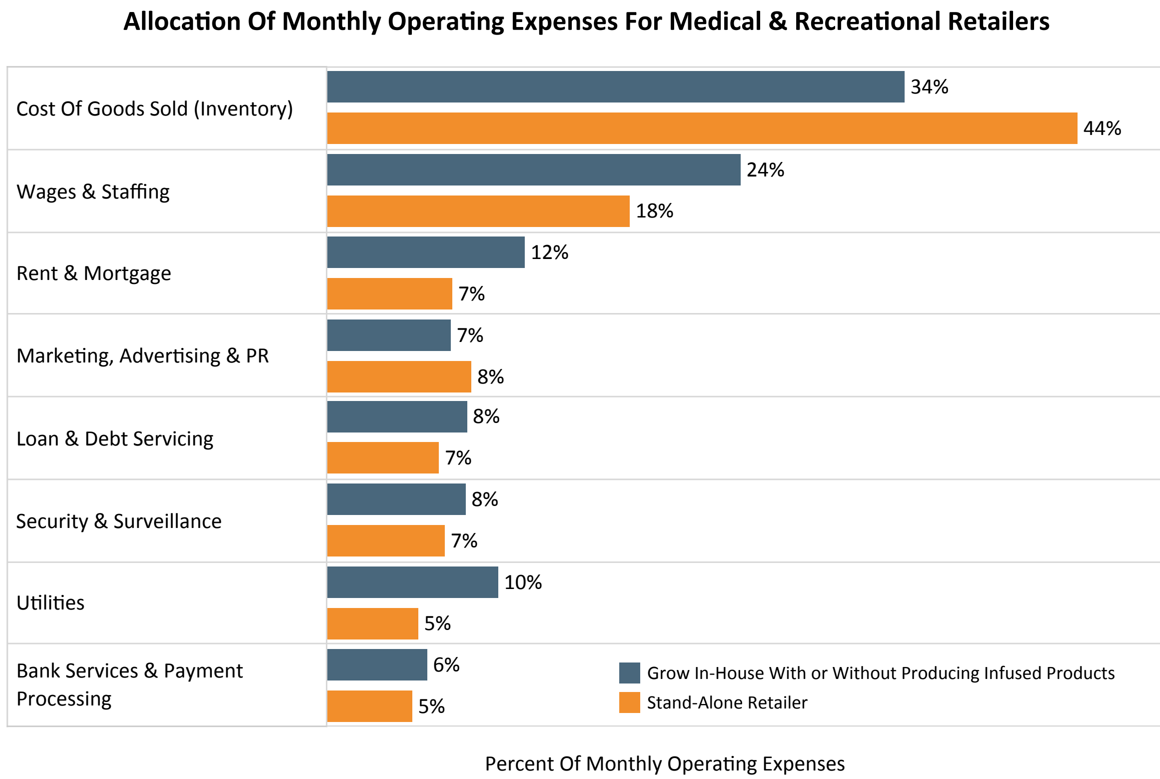


Operating costs can differ quite dramatically between states, as varying regulatory schemes will directly impact the costs of doing business. Unsurprisingly, operating costs for dispensaries in unregulated markets are lower than in all other states, as requirements for matters such as testing and security are relatively lax.

Median Dispensary & Rec Store Annual Operating Costs: All Dispensaries/Rec Stores

$900,000

Chart 3.18: Allocation Of Monthly Operating Expenses For Medical & Recreational Retailers

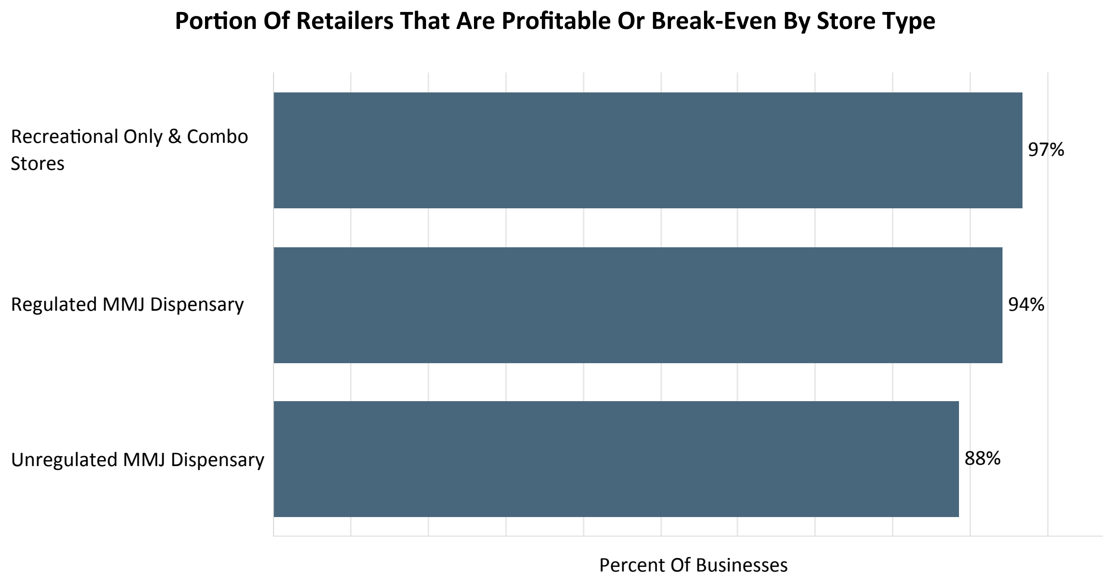


Note: Values reflect averges based on ranges and do not sum to 100%.

The fact that stand-alone retailers have a higher percentage of monthly expenses tied to inventory is not surprising. Without any additional cultivation or production operations, inventory represents a larger share of all monthly expenditures. Also, stand-alone retailers do not control production, meaning they'll pay higher prices to stock their shelves with flower, edibles and concentrates from outside wholesalers. But higher inventory costs are offset by lower utility bills and a leaner, lower-paid workforce.

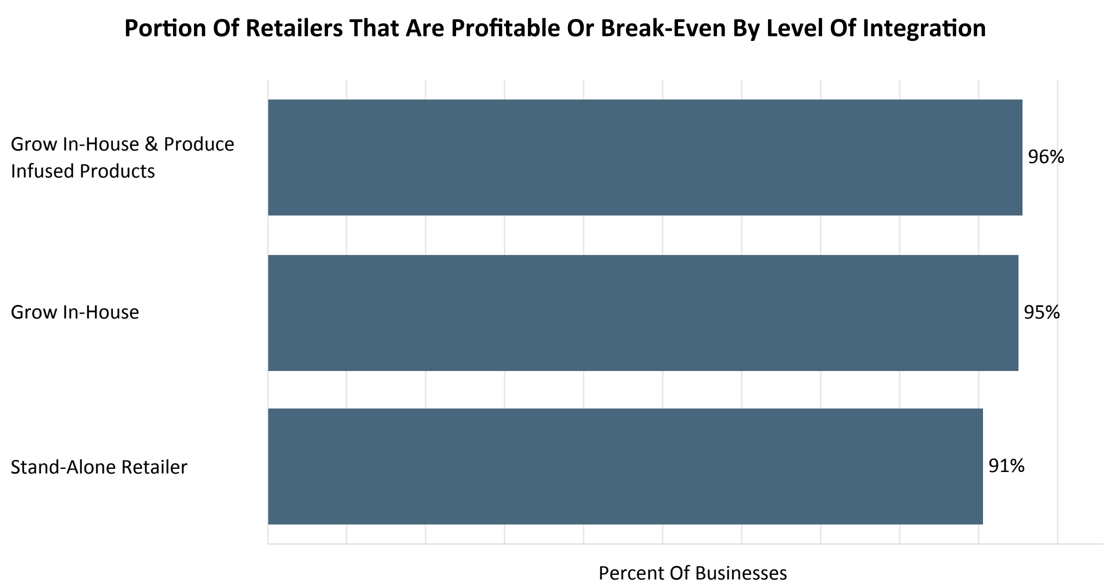
Retailer Profitability

Chart 3.19: Portion Of Retailers That Are Profitable Or Break-Even By Store Type



Note: Profits are calculated on an after-tax basis.

Chart 3.20: Portion Of Retailers That Are Profitable Or Break-Even By Level Of Integration



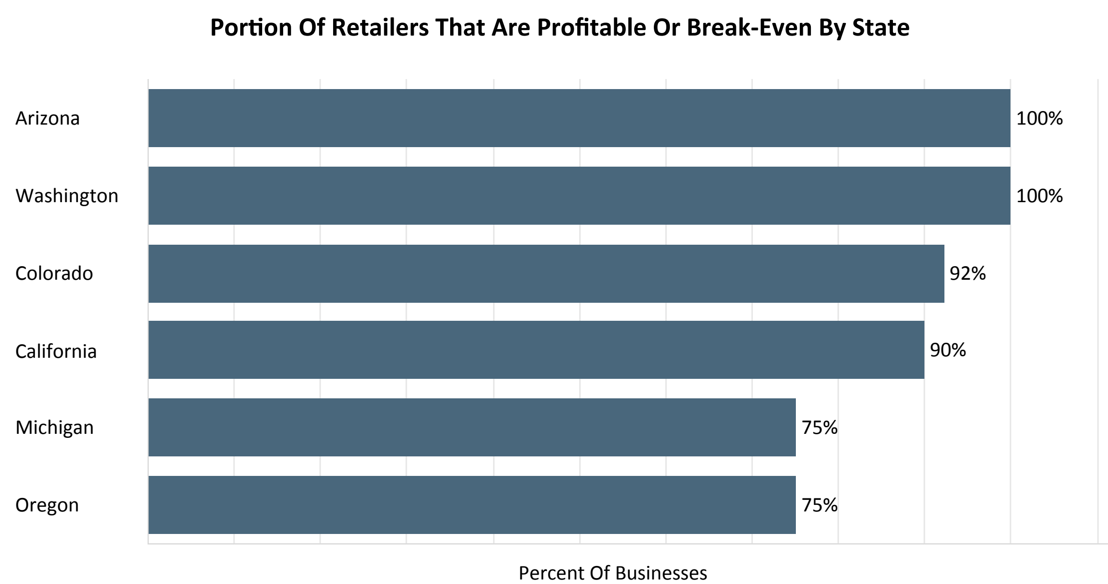
Note: Profits are calculated on an after-tax basis.

Nearly every rec retailer that responded to this year's survey is profitable or break-even, a pretty remarkable figure considering how much more competitive the retail environment has become in mature markets like Colorado and Washington state.

Equally as impressive is the percentage of dispensaries in the regulated medical market that are in the black, as various circumstances – such as overly restrictive qualifying conditions lists, low physician participation and limits on what products can be sold – can negatively impact the business environment in states with exceptionally strict rules and regulations. However, the number of dispensaries operating in states with these kinds of restraints, such as Minnesota and New York, is quite small, and these companies in particular are struggling to turn a profit.

Though a slightly smaller percentage of dispensaries in the unregulated medical market reach break-even or profitability, those that do tend to get there quicker than stores in the regulated medical market. As prior figures have shown, these unregulated dispensaries face smaller startup and operating costs, allowing them to recoup their initial investment in a shorter period of time.

Chart 3.21: Portion Of Retailers That Are Profitable Or Break-Even By State



Note: Profits are calculated on an after-tax basis.

The number of retail licenses in Arizona is capped at 130, a low number for a state with the third-largest MMJ patient pool in the nation. Thus, no retailers in our survey indicated they were losing money.

Though not to the same extent, the number of licenses in Washington state is also capped. The demand for recreational marijuana in the state has been surging, and as of July 1, 2016, all medical-only dispensaries were forced to transition to the rec market or shut down, spreading more customers and patients over a smaller number of retailers.

The recreational market in Colorado posted massive gains in 2016, but no statewide cap on the number of retail licenses fosters a more competitive environment, making it slightly more difficult for businesses to turn a profit. The unregulated markets of California and Michigan don't benefit from license caps seen in many other medical-only states, forcing competition similar to Colorado.

Oregon has also seen strong demand for recreational marijuana, but the state just went through a major regulatory change – medical and recreational markets are now governed by separate entities – and the transition has caused some problems (note: Oregon officials were considering putting the two industries under one agency as of press time for this report). New testing requirements have resulted in major supply shortages, leading to half-empty shelves and falling revenue for some stores. The situation is likely to be worked out, but retailers have suffered in the interim.

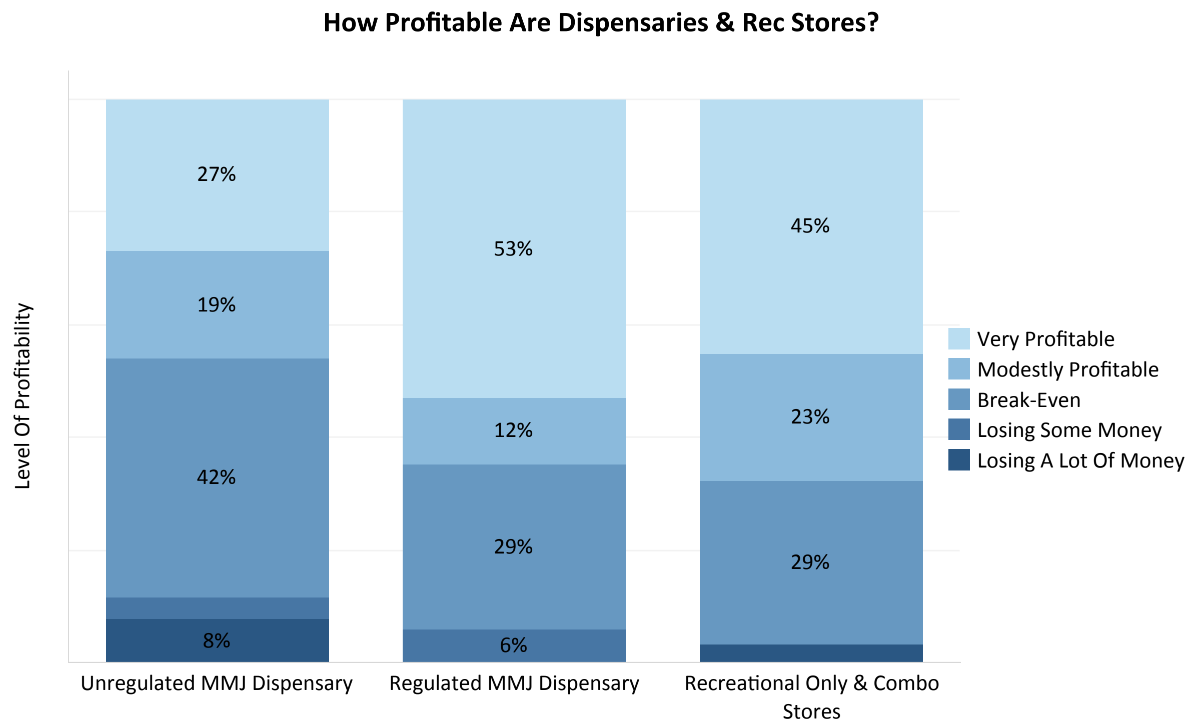
Portion Of Dispensaries & Rec Stores That Are Profitable Or Break-Even: All Dispensaries/Rec Stores

94%

Dispensary & Rec Store Average Length Of Time To Profitability Or Break-Even:

Unregulated MMJ Dispensaries:	Less than 6 months
Regulated MMJ Dispensaries:	1-2 years
Recreational Only & Combo Stores:	Less than 6 months
All Dispensaries/Rec Stores:	Less than 6 months

Chart 3.22: How Profitable Are Dispensaries & Rec Stores?

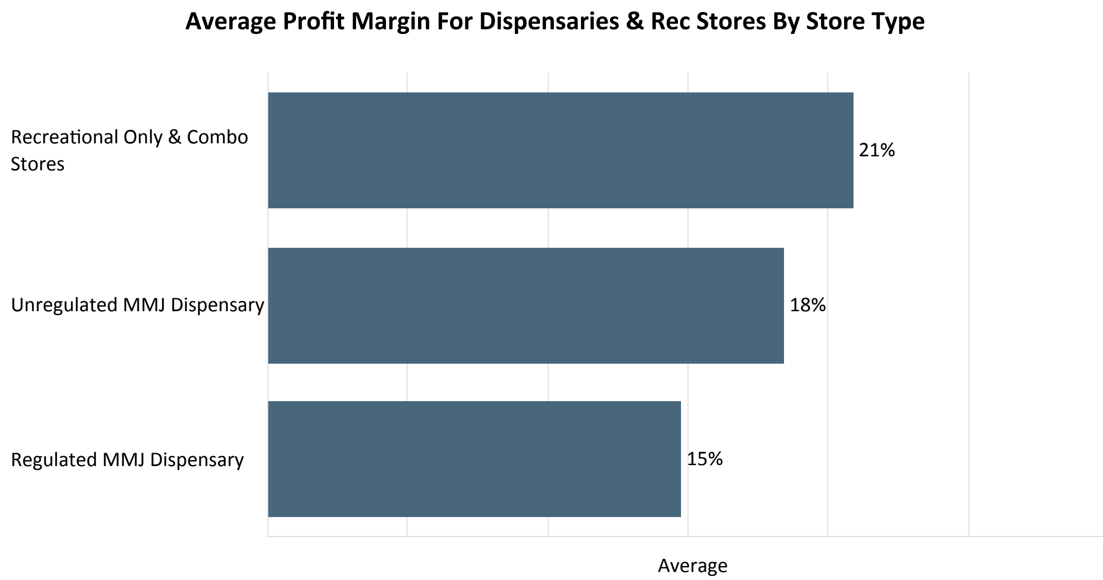


Note: "Losing A Lot Of Money" (expenses and taxes exceed revenue by more than 25%); "Losing Some Money" (expenses and taxes exceed revenue by up to 25%); "Moderately Profitable" (up to 25% of revenue left after expenses and taxes are paid); "Very Profitable" (more than 25% of all revenue left after expenses and taxes are paid).

Stores selling both medical and recreational cannabis show a higher degree of profitability than dispensaries, with nearly 70% indicating their business is very or moderately profitable.

Though not many dispensaries in the unregulated medical market are posting losses, nearly 50% are just breaking even. Despite lower costs and, in some cases, the lack of any tax requirements, it's surprising that more of these businesses are not turning a profit. But the unregulated nature of these markets has led to an abundance of dispensaries that are able to hastily open up and quickly establish operations. Without oversight, these stores can saturate large markets like Los Angeles, where governments do not have the resources to close each of them down. The number of stores in these unregulated markets is difficult to quantify, but the fact that they're significantly less profitable than stores in regulated markets is telling of how widespread they've become. Additionally, a fair share of unregulated dispensaries are run by people with limited past business experience (and in some cases none at all), so they're often less savvy than the professionals behind regulated MMJ retailers in the areas of running and growing a company.

Chart 3.23: Average Profit Margin For Dispensaries & Rec Stores By Store Type

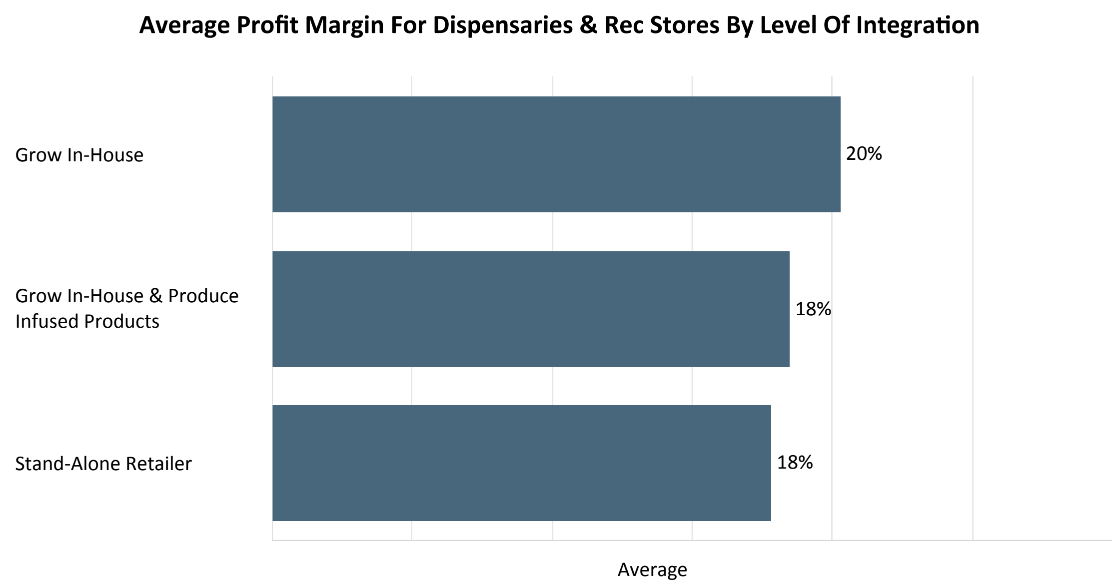


Note: Profits are calculated on an after-tax basis.

On the whole, dispensaries in the regulated medical market are doing quite well in terms of profitability, though this is directly affected by the regulatory environment in each state.

With higher licensing fees, startup costs and operating costs, it's no surprise that regulated MMJ dispensaries have lower profit margins than stores in the unregulated medical and recreational markets. Dispensaries in the regulated medical markets often also contend with low patient demand, as a state's qualifying MMJ condition list may limit the size of the patient pool. This can force stores to offer margin-eating discounts, as they need to find ways to get patients through their doors.

Chart 3.24: Average Profit Margin For Dispensaries & Rec Stores By Level Of Integration



Note: Profits are calculated on an after-tax basis.

There are substantial differences in startup and operating costs between stand-alone retailers and stores with cultivation sites and/or production facilities, but net profit margins are very similar. This is an encouraging figure for potential business owners looking to enter a market that don't possess extensive amounts of capital, as it remains possible to get a comparable return on investment without the need to establish a cultivation site or production facility.

Dispensary & Rec Store Average Profit Margin:
All Dispensaries/Rec Stores

19%

REAL WORLD EXAMPLE

Chart 3.25: Real World Example – The Impact Of 280E On A Retailer's Bottom Line

The Impact Of 280E On A Retailer's Bottom Line

While much has been made of the rapid growth of the marijuana industry throughout the country, cannabis business owners still face significant obstacles turning sales into profits. The most notable hurdle is 280E, which creates a high tax burden on marijuana companies, particularly retailers.

Under Section 280E of the federal tax code, the only tax deduction marijuana business owners are allowed to claim pertains to Cost of Goods Sold, or the direct expenses attributable to the production of products sold by a company. To illustrate how these tax considerations affect a business's bottom line, here's a look at a hypothetical income statement from a marijuana retailer compared to a traditional retailer.

Form 1125-A
(Rev. December 2012)
Department of Revenue

INCOME STATEMENT

OMB No. 1545-2225

	MARIJUANA RETAILER	TRADITIONAL RETAILER
1. Revenue	$1,000,000	$1,000,000
2. Cost of Goods Sold	$500,000	$500,000
a. Wholesale Cost	$400,000	$400,000
b. Delivery	$75,000	$75,000
c. Storage	$25,000	$25,000
3. Rent	$100,000	$100,000
4. Utilities	$100,000	$100,000
5. Insurance	$50,000	$50,000
6. Maintenance	$50,000	$50,000
Taxable Income	$500,000	$200,000
Tax Burden at 25% Rate	$125,000	$50,000
Income After Taxes & Expenses	$75,000	$150,000

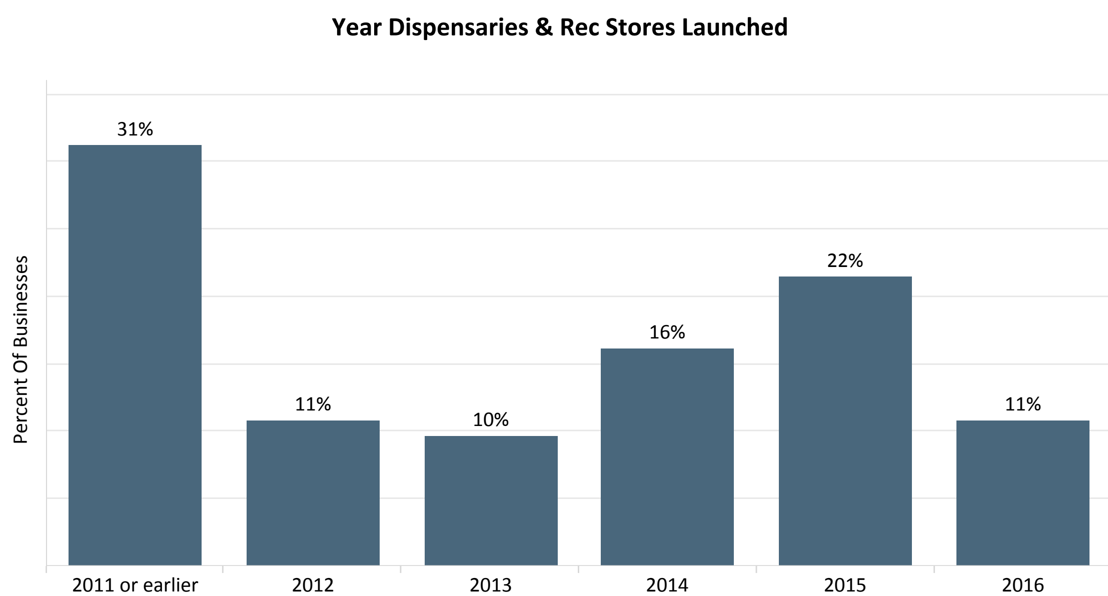
Marijuana retailers cannot deduct these business expenses, while traditional retailers can. So in this example, taxable income for cannabis dispensaries/rec stores is $500,000 – reflecting only cost of goods sold adjustments – while traditional retailers have taxable income of $200,000. As a result, cannabis retailers pay more in taxes.

A cannabis dispensary or rec shop ends up with about half the income of a traditional retailer despite having the same expenses and revenue.

A marijuana retailer and a traditional retailer are allowed to adjust their taxable income based on the cost of goods sold (essentially a tax deduction), but this is the only adjustment a marijuana retailer can make.

Retailer Operational Data

Chart 3.26: Year Dispensaries & Rec Stores Launched



More than 30% of retail businesses launched in 2011 or earlier, a testament to their ability to navigate the risk and uncertainty that plagued the industry in its early days. Startup activity was particularly strong in 2009, when the Department of Justice sent out a memo indicating the federal government would put a low priority on prosecuting people who buy and sell medical marijuana in states with MMJ laws. While not explicitly giving the go-ahead to medical cannabis operations, the government essentially said it would look the other way. The move created the first Green Rush, as scores of medical marijuana dispensaries opened in states that had previously legalized MMJ.

But the climate changed quickly, as district attorneys in some states – particularly California – cracked down on the industry. As a result, 2011 and 2012 were brutal years to be in the marijuana business. Hundreds of companies were forced to close, while hundreds more simply went out of business because of the volatility, uncertainty and risks involved. Startup activity ground to a halt, as few companies started up these two years.

Fortunately, the momentum started to swing the other way again in 2013, when the federal government issued new guidance that lowered the risks immensely for cannabis businesses – both medical and recreational – operating in states with strict regulations on the industry.

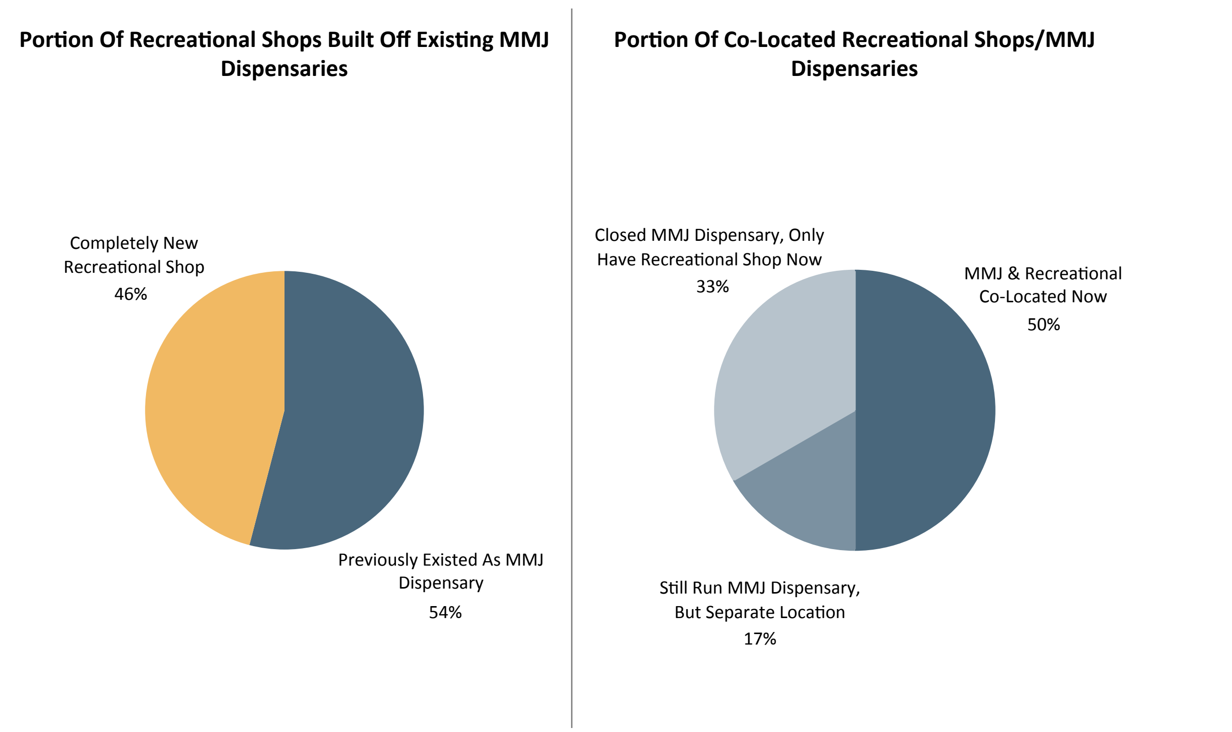
New retail businesses grew substantially in 2014 and 2015, as the lessened risk of federal intervention and the emergence of the nation's first recreational markets in Colorado and

Washington state drove entrepreneurs into the industry. Now, roughly half of all existing marijuana retailers launched in the past three years, and startup activity has proved much livelier on the recreational side of the industry. Compared to the unregulated and regulated medical markets, twice as many respondents in our survey who launched a retail business in the last three years did so in the recreational market.

Startup activity decreased in 2016 from the levels seen in each of the previous two years, as dispensaries in medical markets such as Nevada and Illinois and stores in Washington state's recreational market approach the cap on the number of allowed retail establishments. In Colorado, there are no statewide limits on the number of allowed recreational stores or dispensaries, but the market has become increasingly saturated, and entrenched, sophisticated players have made it difficult for new businesses to enter the industry and establish a foothold.

But there will likely be a surge in new retail businesses in the next few years as roughly a dozen medical and recreational marijuana markets come online. Voters legalized medical marijuana in the November 2016 elections in Arkansas, Florida and North Dakota (while also approving MMJ businesses in Montana) and recreational marijuana in California, Maine, Massachusetts and Nevada. These markets will take time to develop, but initial estimates put their sales potential between $7 billion and $8 billion annually several years after dispensaries and recreational stores get up and running. Entrepreneurs will undoubtedly flock to these new markets, as thousands of new retail opportunities will crop up.

Chart 3.27: Portion Of Recreational Shops Built Off Existing MMJ Dispensaries & Portion Of Co-Located Recreational Shops/MMJ Dispensaries



More than half of existing recreational stores were built off existing medical marijuana dispensaries, illustrative of how the adult-use programs in both Colorado and Oregon favor businesses already in the industry.

Initially, Colorado allowed only existing dispensaries to apply for recreational licenses, though that requirement has since expired. Similar measures were taken in Oregon, where dispensaries were allowed to engage in recreational sales over a year before the first licensed recreational stores were licensed. In Washington state, officials shuttered the pre-existing medical cannabis market (in which dispensaries operated in the absence of statewide regulations) and moved everything to the recreational program. Many dispensaries applied for and won rec licenses, but plenty of newbies to the industry were able to start adult-use stores as well. In Alaska, the nation's fourth operational rec industry (sales started in late 2016), all retailers are new, as MMJ dispensaries didn't previously exist.

The trend of recreational businesses stemming from existing medical dispensaries looks likely to continue to some degree, as Nevada and Maine – two states that legalized recreational marijuana in the 2016 election – are both considering plans that would allow existing dispensaries to begin early recreational sales.

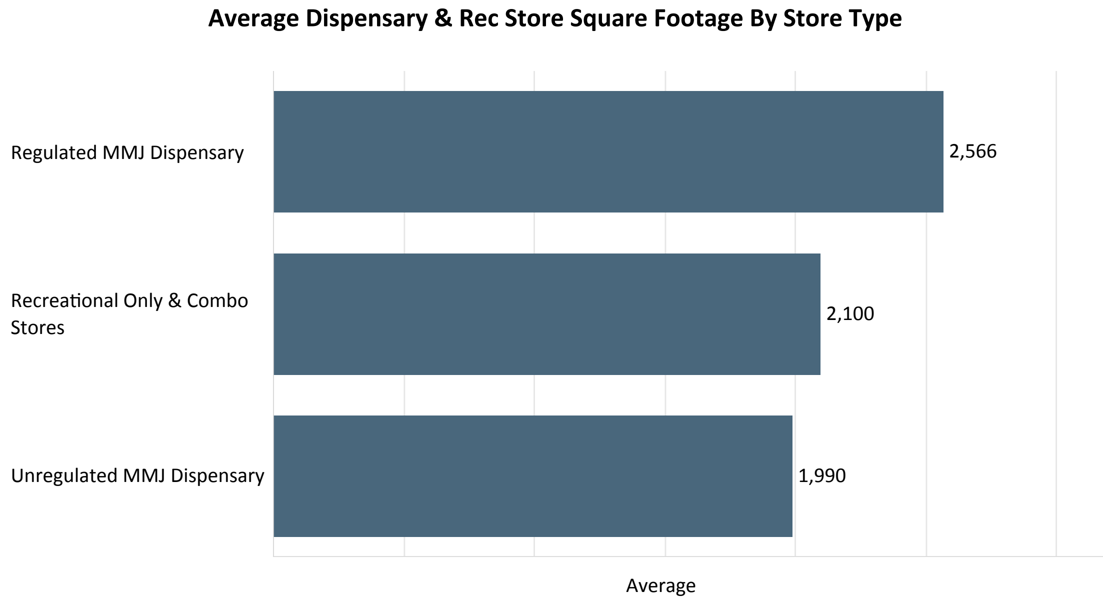
Massachusetts, another state that legalized adult-use marijuana in 2016, will give existing dispensaries first crack at recreational licenses and allow for co-location, very similar to how Colorado began recreational sales.

Most recreational shops built off existing medical dispensaries are co-located, meaning both medical and recreational marijuana are sold from the same physical retail space. But a third of survey respondents with previously existing MMJ dispensaries now sell only to the recreational market.

This likely stems from major changes in the way Washington state and Oregon are handling oversight of their medical and recreational markets. In Washington state, retailers that want to sell to the medical market are required to receive a "medical marijuana endorsement." Stand-alone MMJ dispensaries are no longer allowed.

As of Jan. 1, 2017, no co-located dispensaries and recreational stores are allowed in Oregon, as the two markets have been completely separated. Existing dispensaries that want to serve the recreational market need to receive a recreational license and operate from a separate retail location.

Chart 3.28: Average Dispensary & Rec Store Square Footage By Store Type

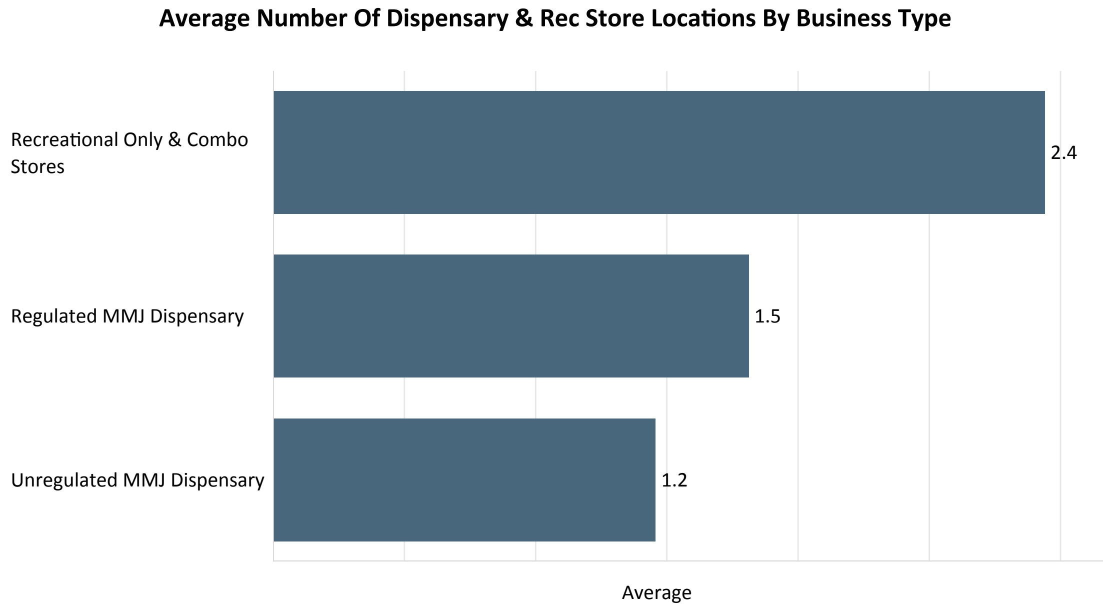


Dispensaries in the regulated medical market have, on average, more square feet of retail selling space than stores that sell to the medical and rec markets from the same location or dispensaries in the unregulated medical market. This indicates that in some markets where the patient base is large and commercial space is abundant and affordable, medical retailers can have larger spaces that are still profitable.

Stores selling to the recreational market – as well as dispensaries in unregulated markets – have relatively smaller retail spaces. Currently, most recreational stores are located around larger cities like Denver and Seattle, where limited and high-priced real estate constrains the financial viability of a larger retail outlet.

Furthermore, large recreational retailers in more mature markets are transitioning into chain stores, opening multiple locations throughout a city or state. Instead of operating just one or two large facilities, more often these retailers opt to open numerous, smaller facilities – in some cases 20 or more – driving down the size of an average recreational store.

Chart 3.29: Average Number Of Dispensary & Rec Store Locations By Business Type



Numerous retailers serving the rec market are expanding aggressively by opening multiple locations and pioneering the "chain" concept in cannabis, particularly in Colorado. Some marijuana companies in the state have a dozen or even two dozen locations.

As the recreational market matures and becomes more competitive, larger, more experienced and well-financed retailers can gain many advantages over their smaller competitors, particularly when it comes to opening new storefronts. As more local municipalities remove moratoriums or bans on recreational businesses, retailers that have been through the application process multiple times know how to put forth a competitive bid, squeezing out any potential newcomers to the market and gobbling up the weaker players.

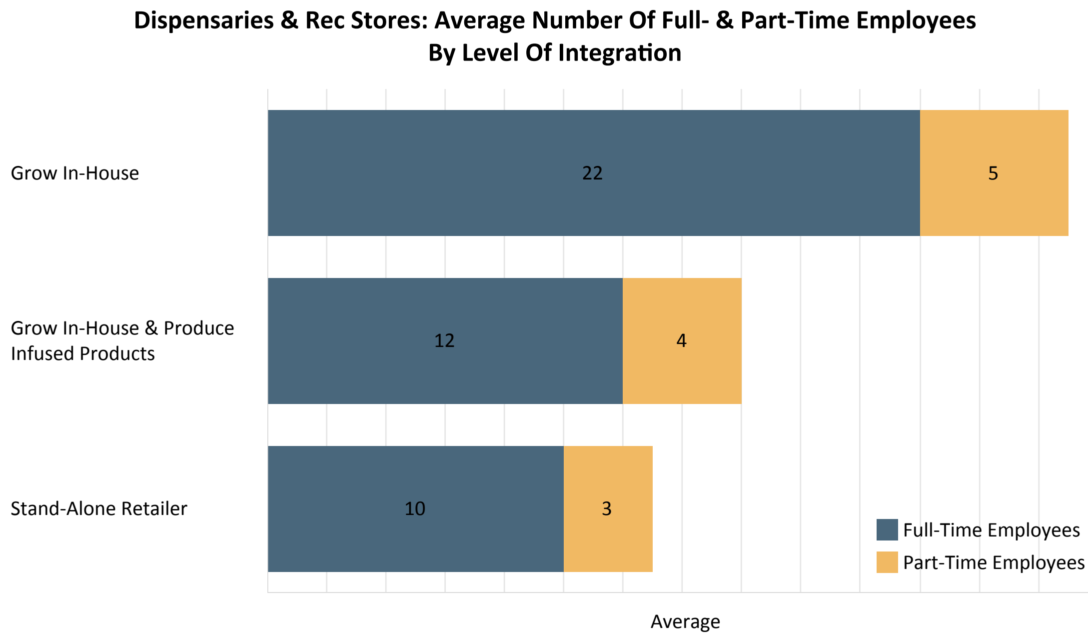
In some cities like Denver, officials have placed a moratorium on new recreational stores – meaning retailers can grow only by acquiring a license from a competitor.

On the medical side of the cannabis industry, there are regulated dispensaries with multiple locations (in New York just five companies operate 20 dispensaries), but high startup costs and hard caps on the number of licenses available throughout the state often prevent most retailers from opening more than a couple of storefronts.

Chart 3.30: Dispensaries & Rec Stores: Average Number Of Full- & Part-Time Employees By Store Type

Full-time employees constitute the majority of an individual dispensary or rec store's workforce, regardless of business type or level of integration. Retailers in the recreational market employ more individuals than those in the regulated and unregulated medical markets, likely stemming from the larger amount of foot traffic and – in most cases – the necessity to have someone on staff to handle the needs of medical patients as well as adult-use customers.

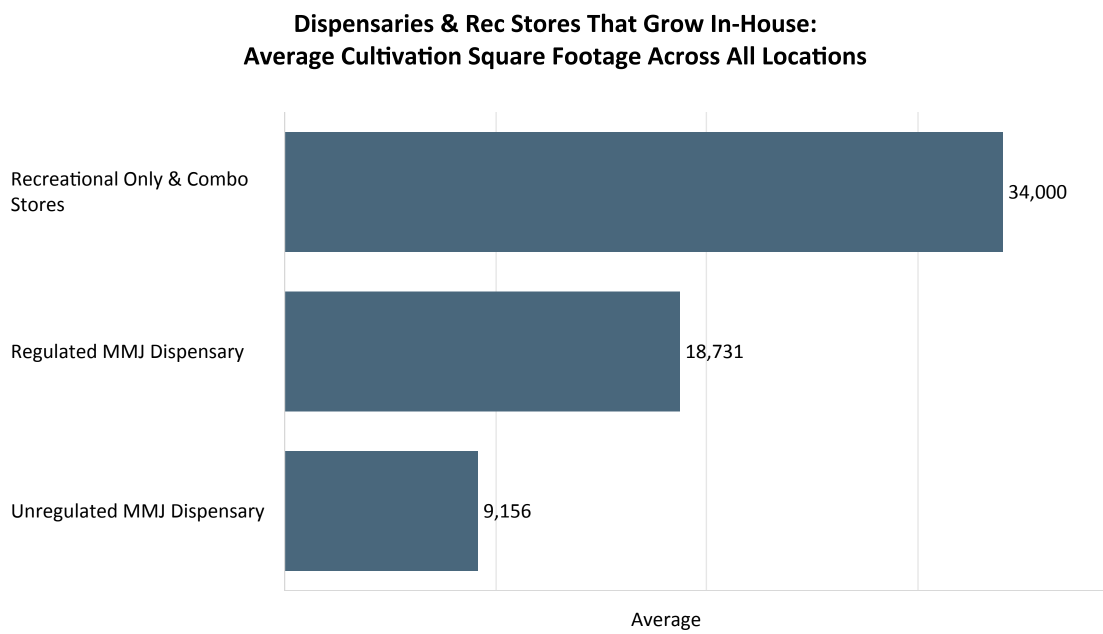
Chart 3.31: Dispensaries & Rec Stores: Average Number Of Full- & Part-Time Employees By Level Of Integration



As expected, retailers with some degree of vertical integration employ more workers than stand-alone retailers, as they're needed to carry out functions on the cultivation and production sides of the business.

The biggest portion of retailers that only grow in-house – as opposed to both growing and producing infused products – serve the recreational market, and the average size of a recreational cultivation facility is much larger than a grow operation that serves the regulated or unregulated medical market. So while it seems counterintuitive at first, this explains why a fully integrated retailer would employ fewer individuals than a retailer that only grows in-house.

Chart 3.32: Dispensaries & Rec Stores That Grow In-House: Average Cultivation Square Footage Across All Locations

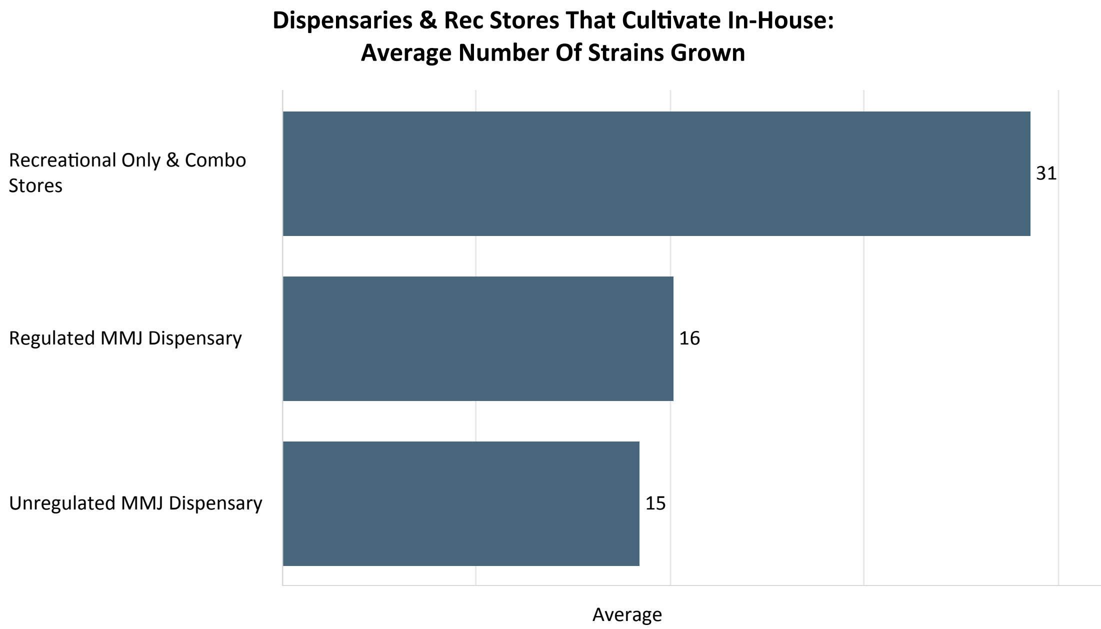


Retailers in the recreational market that cultivate some or all of their own cannabis have, on average, nearly twice the growing space of their peers in the regulated medical market.

It makes perfect sense: Sales of recreational marijuana in Colorado and Washington state have grown tremendously over the last two years, prompting businesses to scale up cultivation operations to meet demand. Additionally, companies in the rec market are trying to achieve economies of scale, so some dispensaries have created massive grow operations.

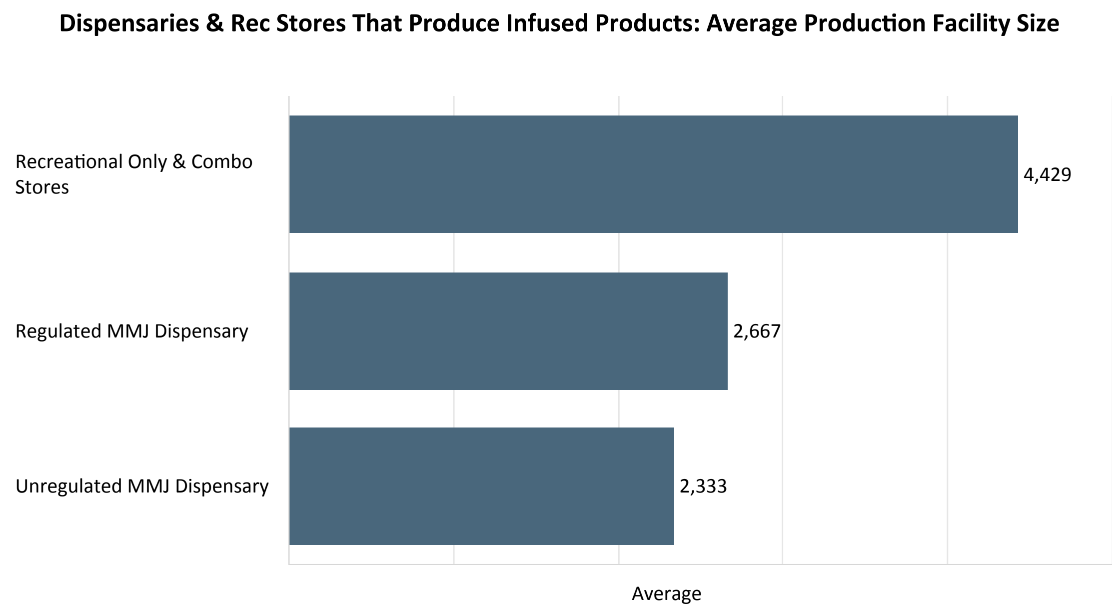
In the absence of major regulatory overhauls, established medical dispensaries in mature markets are not seeing the same type of huge increases in demand, discouraging businesses from constructing large cultivation facilities that could potentially go unused. In several medical marijuana states – such as Illinois and New York – some licensed medical cannabis companies are utilizing just a fraction of their total cultivation space.

Chart 3.33: Dispensaries & Rec Stores That Cultivate In-House: Average Number Of Strains Grown



Stores in the recreational market serve a larger, more diverse customer base, which has led adult-use retailers that cultivate their own cannabis to grow a much larger number of strains than dispensaries in the medical market. On the other end of the spectrum, medical dispensaries often pride themselves on how familiar they are with their patients' needs, taking extra time to understand how specific products or strains can provide relief. Many states have extremely limited medical conditions lists, reducing the need for a huge selection of strains. Growing a large number of strains for a patient base unlikely to try many new options simply out of curiosity is therefore likely not a good business practice for these dispensaries.

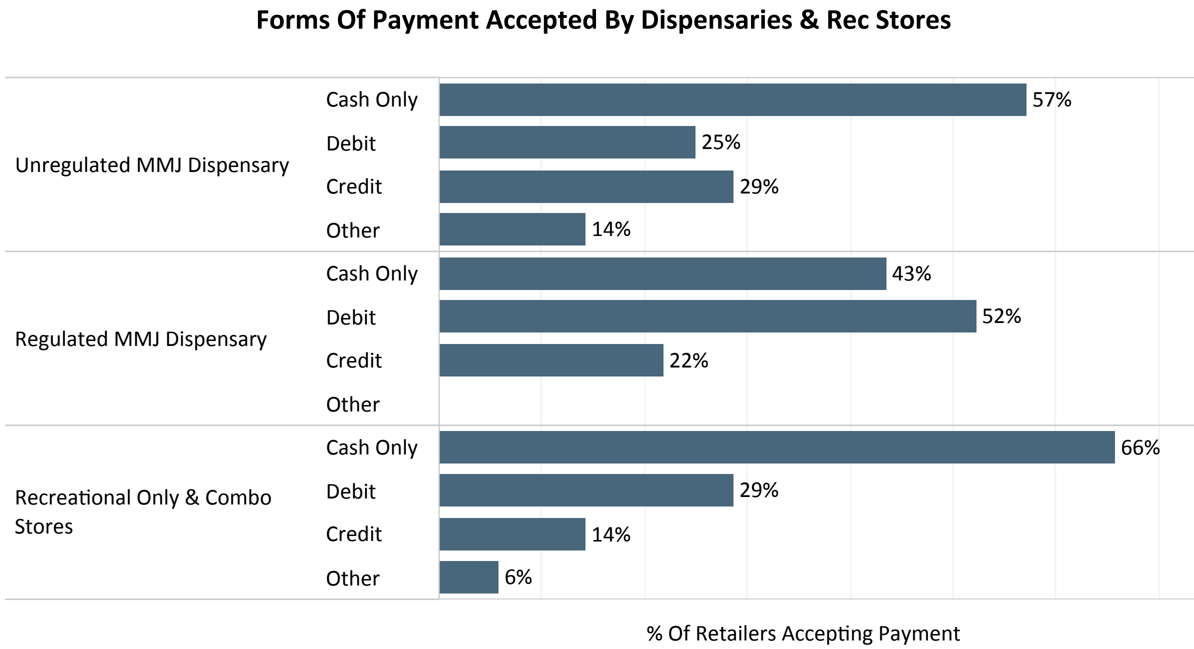
Chart 3.34: Dispensaries & Rec Stores That Produce Infused Products: Average Production Facility Size



In much the same way that strong demand for recreational marijuana spurred businesses to scale up cultivation operations, the size of infused product manufacturing facilities has also grown to keep pace with the market. Infused products serve an important role in the recreational market, appealing to a broad range of customers who may be put off by the idea of smoking marijuana. Though flower still accounts for the majority of retail sales, sales of edibles and infused products have been growing at a faster rate, steadily increasing their share of the market.

Infused products are still an essential component of the medical market – especially in states like Minnesota and New York, where smokable flower is prohibited – but demand is limited by patient counts, and retailers are not attempting to win over tourists or occasional consumers with enticing chocolates or candies.

Chart 3.35: Forms Of Payment Accepted By Dispensaries & Rec Stores



Forms Of Payment Accepted Across All Dispensaries & Rec Stores:

Cash Only:	57%
Debit:	34%
Credit:	21%
Other:	7%

Despite conventional wisdom, a fair share of retailers do in fact accept debit and credit cards – even with the banking and payment processing issues that have been a perpetual thorn in the side of the industry.

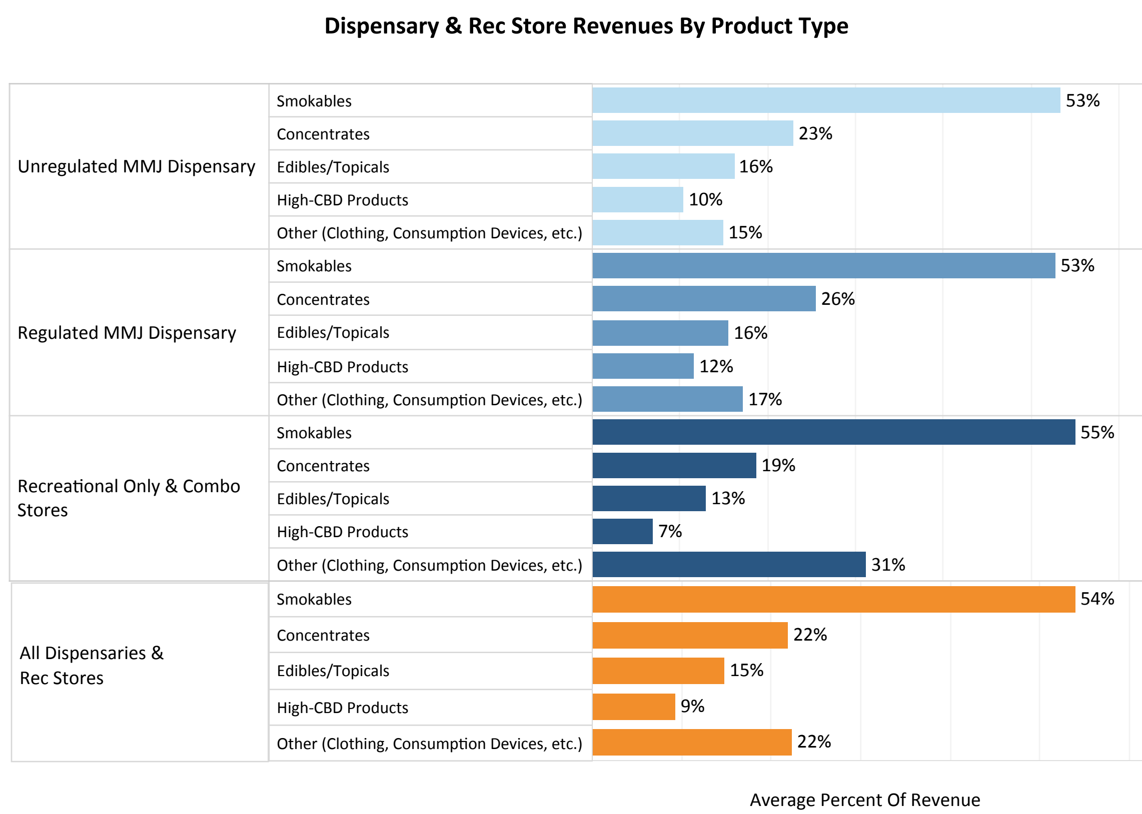
Many businesses have sprung up recently that attempt to solve these payment processing problems, providing alternative solutions that allow retailers to accept credit and debit purchases for small fees on every transaction. While some of these services are indeed legitimate, many are questionably legal and others definitely illegal.

Retailers may also mislead credit card processors and banks as to the nature of their businesses, so it's no surprise the unregulated market is willing to take more risks and provide credit card payment options.

Some retailers are also trying to find ways around the banks entirely, accepting digital currencies like Bitcoin that keep the customer anonymous but allow them to purchase products without using cash. This has proved more popular in unregulated medical markets like California, though it still remains a fringe method of payment.

Retail Product & Customer Data

Chart 3.36: Dispensary & Rec Store Revenues By Product Type



Note: Values reflect averges based on ranges and do not sum to 100%.

Concentrates and edibles are generally considered to be the high-growth product categories in the cannabis industry. Traditional flower still accounts for the majority of dispensary and recreational store sales and hovers around the 50%-55% mark, but that's down significantly from 70%-80% just a few years ago.

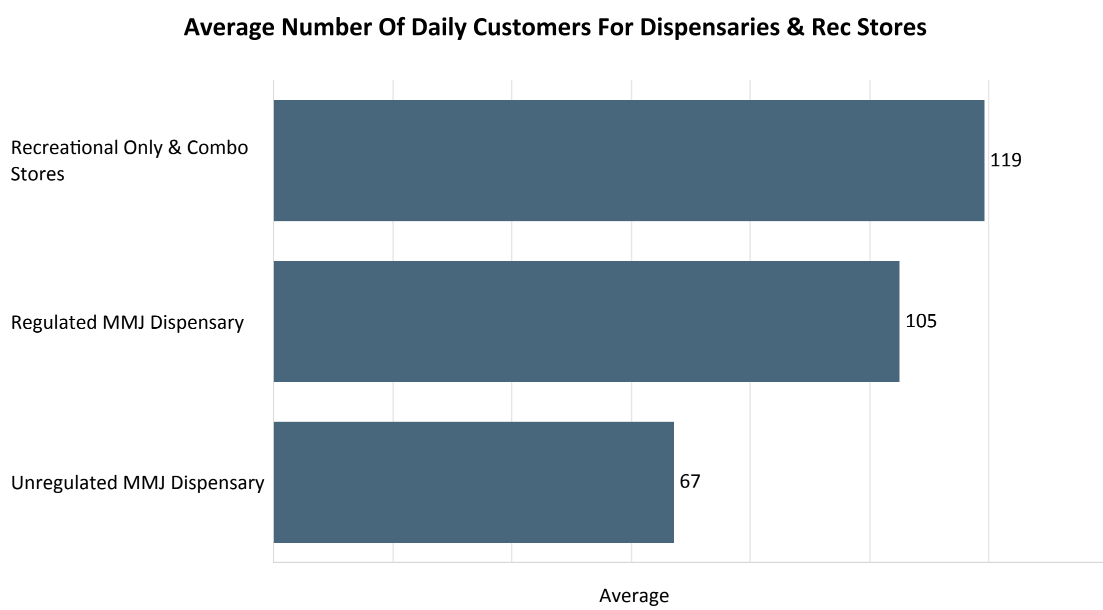
Broadly speaking, product sales in the recreational and medical markets break down very similarly, with flower as the dominant category, followed by concentrates and edibles/ topicals. Concentrates appear to have gained a bit more traction in the medical market, as patients treating severe and chronic conditions typically need larger, easily ingestible doses of THC to provide symptom relief.

Interestingly, sales of non-consumables – such as clothing and paraphernalia – are twice as high for rec stores compared to medical dispensaries (both regulated and unregulated). This is in part tied to a bigger focus by recreational retailers on branding and expansion. As these retailers become more sophisticated, they're able to better understand who their customers are and why they shop in their stores, offering a unique opportunity to sell branded merchandise that appeals to their customers, and particularly tourists.

On that note, rec stores also get a high percentage of their traffic from out-of-state visitors. These customers typically are in town for only a short period of time and are likely traveling without rolling papers, pipes and other consumption devices. They therefore are more likely to buy such accessories at a rec shop, versus patients purchasing frequently at their local dispensary.

Lastly, marijuana is still a novelty for tourists, so they're more likely to want to purchase branded clothing and other items to bring back home.

Chart 3.37: Average Number Of Daily Customers For Dispensaries & Rec Stores

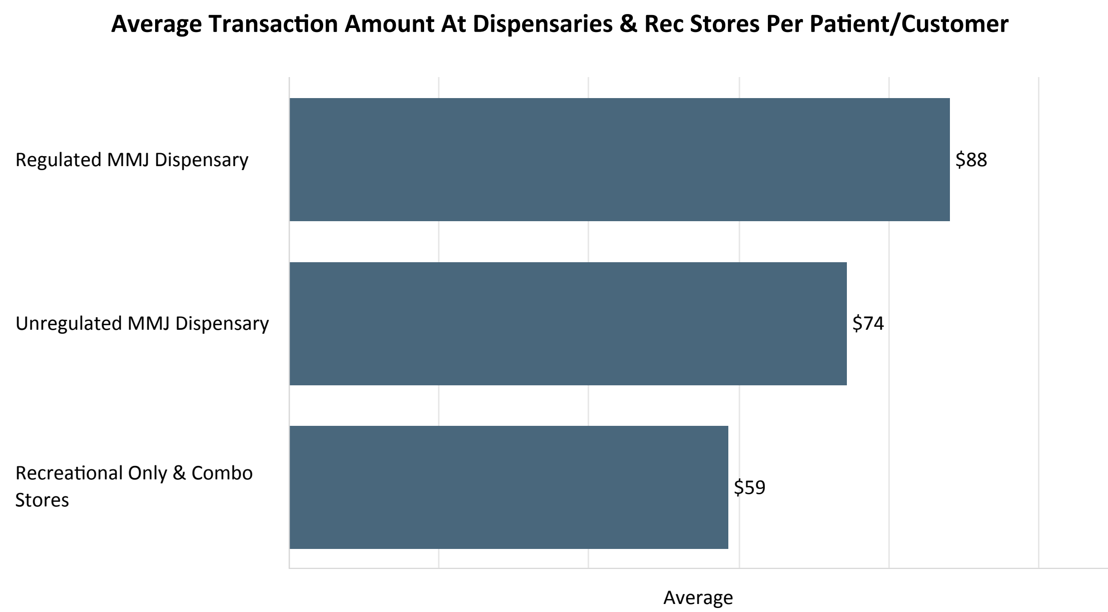


The larger addressable customer base for retailers in the recreational market leads to a higher number of customers in general. And while at first glance the difference in the number of average customers per day between recreational stores and medical dispensaries may not seem very large, it's fairly significant in the long run. The average rec store serves about 5,000 more customers per year than a dispensary in the regulated medical market, which could equate to roughly $300,000 in annual sales.

A lack of control over the number of dispensaries operating in California and Michigan creates a stiff competitive environment, dispersing a large customer base across many retailers, resulting in fewer customers for each retailer.

	Average Number of Monthly Customers	Average Number of Yearly Customers
Recreational Only & Combo Stores:	3,570	42,840
Regulated MMJ Dispensary:	3,150	37,800
Unregulated MMJ Dispensary:	2,010	24,120

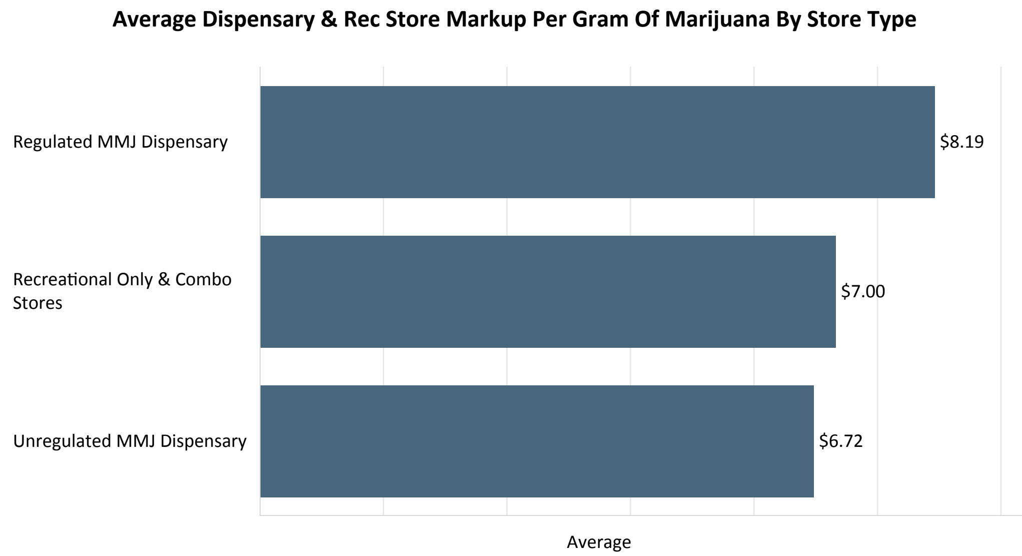
Chart 3.38: Average Transaction Amount At Dispensaries & Rec Stores Per Patient/Customer



Dispensaries in the regulated medical market are often forced to sell product at higher prices for myriad reasons, raising the average transaction amount per patient. Wholesale cannabis prices remain much higher in states that have legalized only medical marijuana, dispensaries have higher startup and operating costs to recoup, and patients – much as they would when visiting a traditional pharmacy - like to stock up on their medicine, purchasing large quantities in a single transaction.

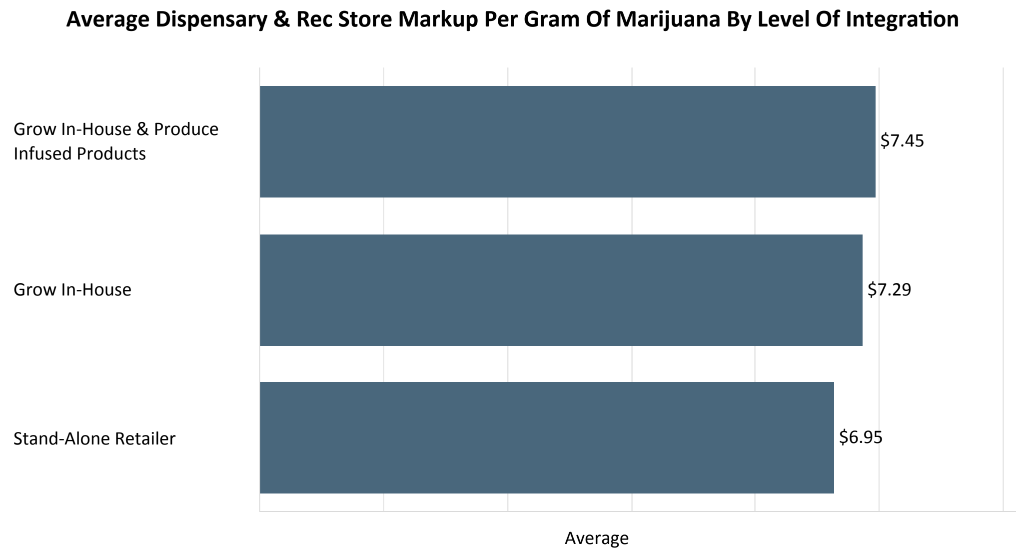
By contrast, several factors are at play in the recreational market that drive down average transaction amounts. Consumers can purchase product from many different retailers, often times several in close proximity to each other. This compels stores to compete on price, enabled by the plummeting price of wholesale cannabis in major rec markets like Colorado and Washington. These stores also attract tourists and new consumers, typically less frequent users that purchase relatively small amount of cannabis in a single transaction.

Chart 3.39: Average Dispensary & Rec Store Markup Per Gram of Marijuana By Store Type



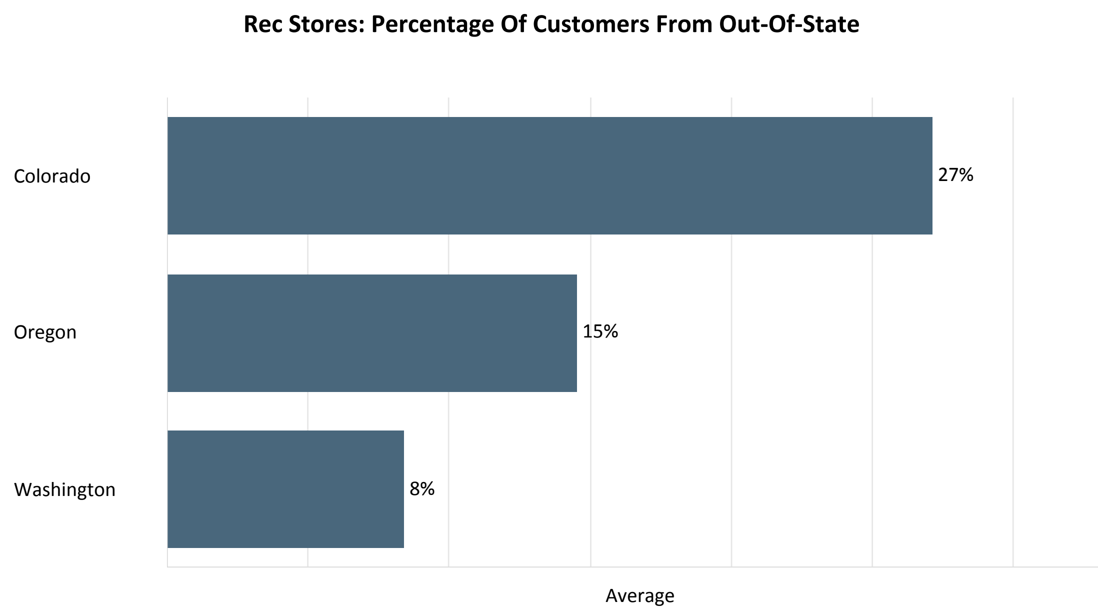
Regulated dispensaries are subject to a different set of market dynamics than rec stores or unregulated dispensaries, often facing less competition and higher costs of doing business. In the unregulated and recreational markets, where stores are increasingly forced to compete on price, charging steep markups without providing a premium product is not a viable business strategy. (Note: Our markup data reflects the difference between how much retailers are selling cannabis for and the price they paid wholesale or the cost to cultivate it.)

Chart 3.40: Average Dispensary & Rec Store Markup Per Gram of Marijuana By Level Of Integration



Though the markups are comparable in terms of absolute dollar amounts, margins will vary within markets based on retailers' costs to produce or procure their inventory. A vertically integrated retailer in the recreational market that has been through multiple harvest cycles will be able to minimize production costs, netting higher margins per gram than a stand-alone rec store purchasing inventory through a wholesale cultivator or producer.

Chart 3.41: Rec Stores: Percentage Of Customers From Out-Of-State



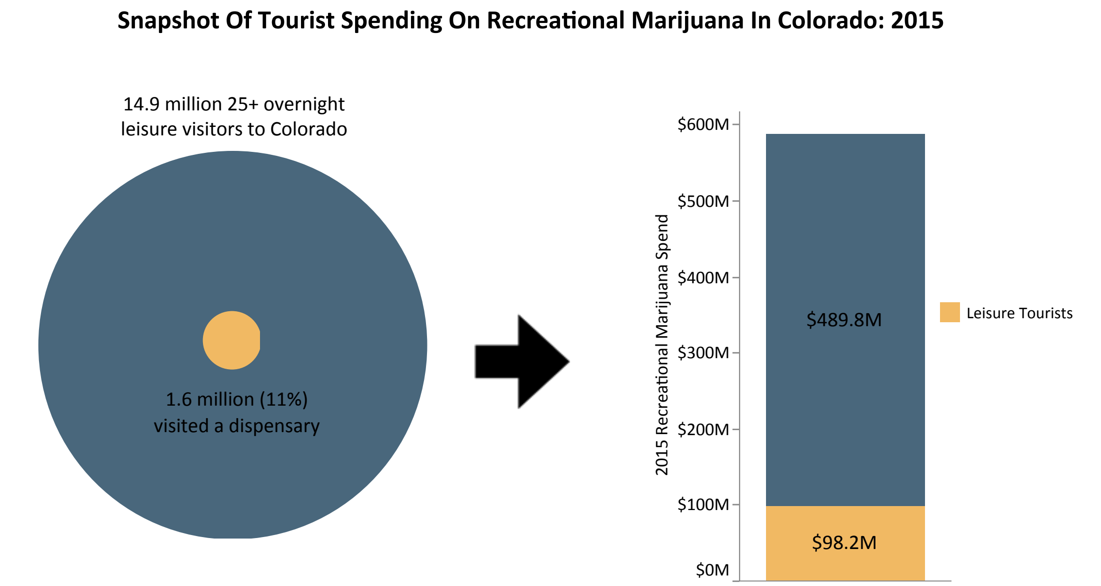
Though a handful of medical cannabis states – Nevada is the most notable example – allow MMJ patients from other markets to buy from dispensaries, the recreational market is where retailers really need to be aware of their out-of-state customers.

While some individuals plan trips specifically to buy from the legal market, most visitors who purchase marijuana in recreational states are not there solely to consume. Rather, they come for entirely different purpose – for, say, a business trip or to visit family – but make a purchase while visiting.

Rec stores in Alaska, Oregon and Washington still serve out-of-state customers, though not nearly as many as Colorado. Located on the West Coast, these states are typically less convenient for tourists whose visits are primarily motivated by access to legal marijuana.

REAL WORLD EXAMPLE

Chart 3.42: Real World Example – Snapshot Of Tourist Spending On Recreational Marijuana In Colorado: 2015



Source: Marijuana Business Daily, Longwoods International, Strategic Marketing & Research Insights (SMARI)

As the oldest recreational market in the nation, Colorado has firmly established itself as the destination for tourists looking to partake legally. It's also a top tourism draw in its own right, attracting significantly more visitors annually in general than the other states with operating rec industries (Alaska, Oregon and Washington state). Adult-use stores are not only prevalent in Colorado's largest cities, they are also common in the state's mountain resort towns, where visiting skiers and snowboarders can account for more than 90% of sales at many shops.

Market In Focus:

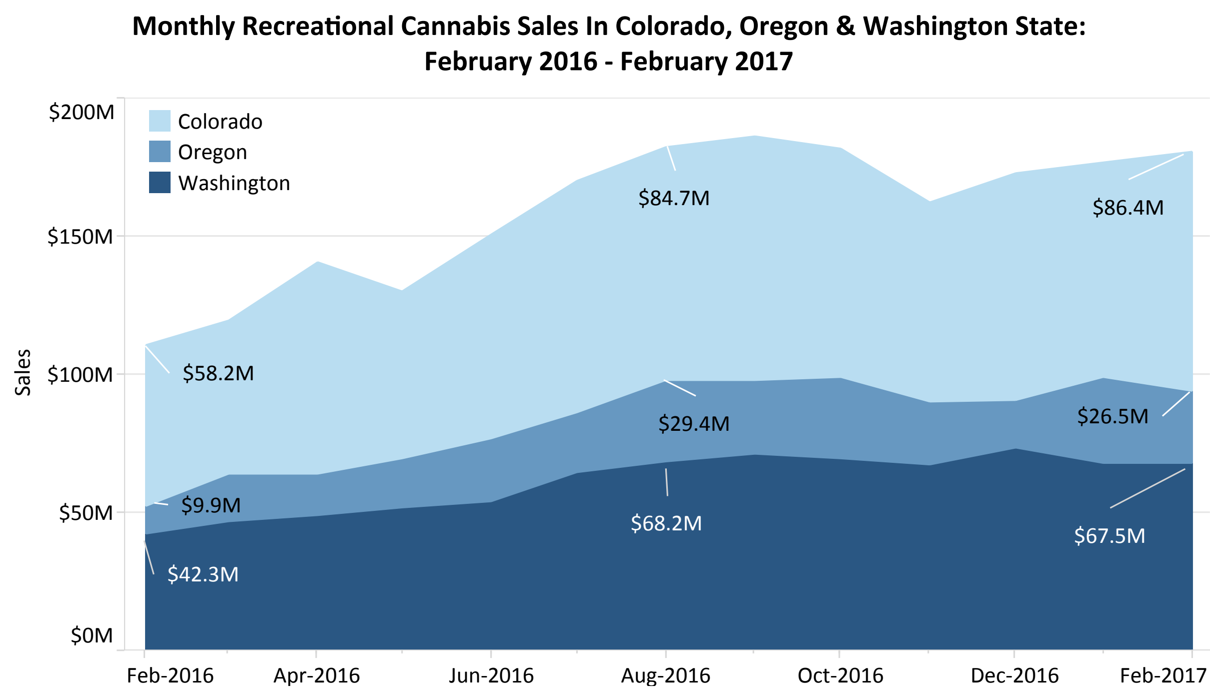
Recreational Cannabis Point-of-Sale Data

Point-of-sale data is a staple of nearly every consumer-facing industry in the traditional economy, as it provides an unbiased and comprehensive view of customer purchasing patterns. This information has finally made its way into the data-starved cannabis industry, giving retailers, manufacturers and regulators a reliable source of information they can use to conduct business planning and form policy decisions.

The following figures – provided by the cannabis data company Headset – is largely limited to licensed retailers in Colorado and Washington state, though high-level sales information for Oregon's recreational industry is also provided. More information will be coming out of Oregon soon now that data providers have gained a toehold in the recreational market – which is now entirely separate from the state's medical marijuana program.

Here's a look at that data.

Chart 3.43: Monthly Recreational Cannabis Sales In Colorado, Oregon & Washington State: February 2016 - February 2017



Source: Headset

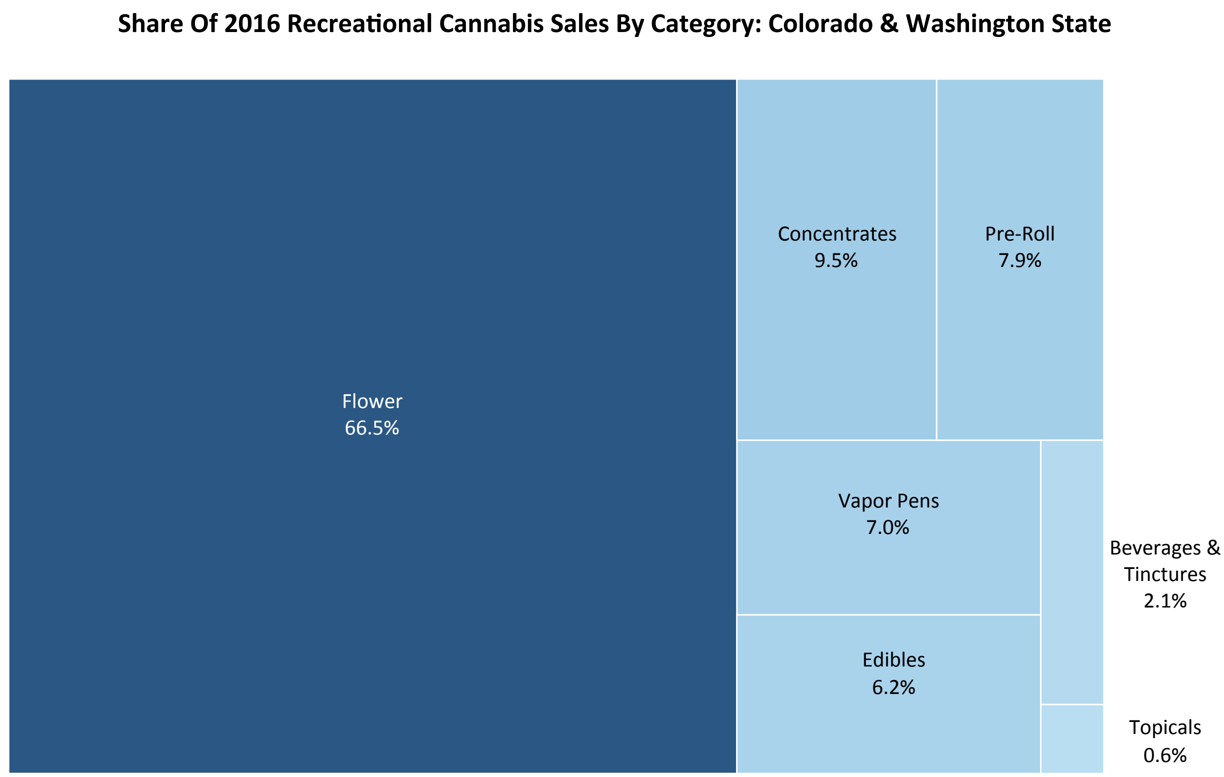
Sales of recreational marijuana in the nation's two largest and oldest adult-use markets – Colorado and Washington state – eclipsed $1.5 billion in 2016, and the growth has continued in 2017.

The first two months of 2017 rec sales in Colorado were massive, with February 2017 ranking as the second-highest monthly total for recreational marijuana sales in the program's history.

Washington's adult-use market has proved extremely strong as well, with sales in 2016 nearly doubling from a year earlier, increasing 95% to $696 million. The merger of the state's unregulated medical marijuana industry with its recreational cannabis program in July gave rec sales a sizable boost, spiking 18% from the previous month.

In Oregon, early sales of recreational marijuana through existing dispensaries began in the fall of 2015. The market got off to a very strong start in 2016 – as sales nearly tripled from February to August. But the implementation of strict testing standards in October 2016 and a shortage of operational testing labs severely crippled the state's supply of marijuana, hampering sales growth despite strong consumer demand.

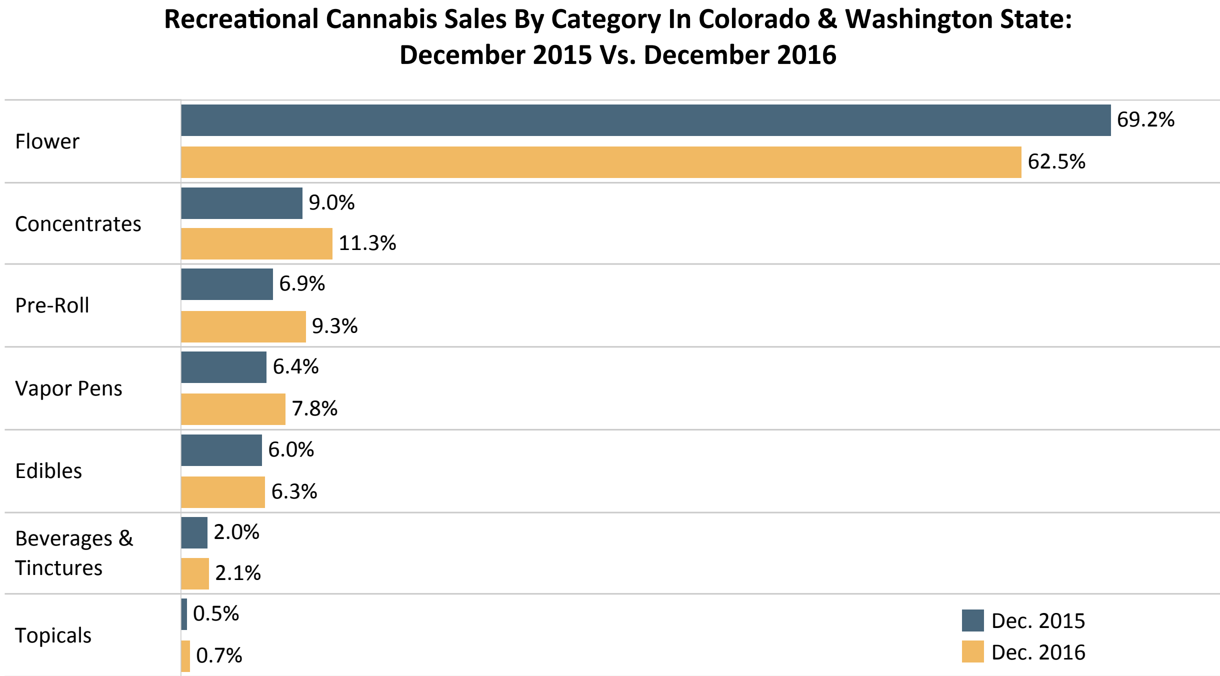
Chart 3.44: Share Of 2016 Recreational Cannabis Sales By Category: Colorado & Washington State



Source: Headset

Though concentrates and edibles have gained traction in recent years, flower remains the dominant product category by a wide margin. The increase in licensed growers and subsequent rise in production makes flower the most economical option for cannabis users, and it persists as the most widely recognized form of marijuana consumption. Going forward, flower will likely continue to be the main driver of sales, but expect edibles, vapor pens and concentrates to continue to gain market share.

Chart 3.45: Recreational Cannabis Sales By Category In Colorado & Washington State: December 2015 Vs. December 2016



Source: Headset

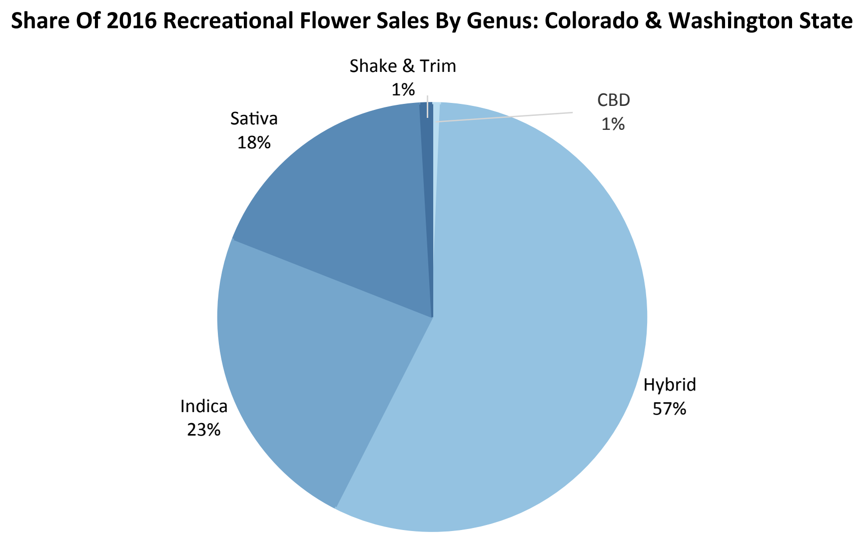
Though sales of flower have diminished over the past year, pre-rolled joints – which are often categorized as flower – picked up major steam in 2016. Retailers frequently run promotional deals using pre-rolls, packaging multiple joints together to sell at a discounted rate or offering a pre-roll for a penny on top of a larger purchase are an oft-used tactics to get customers in the door.

Concentrates are continuing to rise in popularity, a trend likely to persist for the foreseeable future as more consumers are exposed to this growing category. Surging sales have prompted many companies to add concentrates to their product lines, while the category is undergoing a great deal of innovation as new methods of extraction are able to produce cleaner, more potent forms of concentrates.

The discreet nature of vapor pens makes them a popular choice for those looking to consume marijuana in public without drawing any unwanted attention, and advances in battery technology have driven down costs and increased the quality of many vaporizer products. Vapor pens – both reusable and disposable – are becoming more widely available in retail outlets, which will likely drive further growth as more users adopt this form of consumption.

While edibles and beverages have broad appeal, they're especially enticing to out-of-state consumers looking to try marijuana but are turned off by the idea of smoking. While sales continue to climb, they appear to be reaching a ceiling in terms of their share of the overall cannabis market.

Chart 3.46: Share Of 2016 Recreational Flower Sales By Genus: Colorado & Washington State



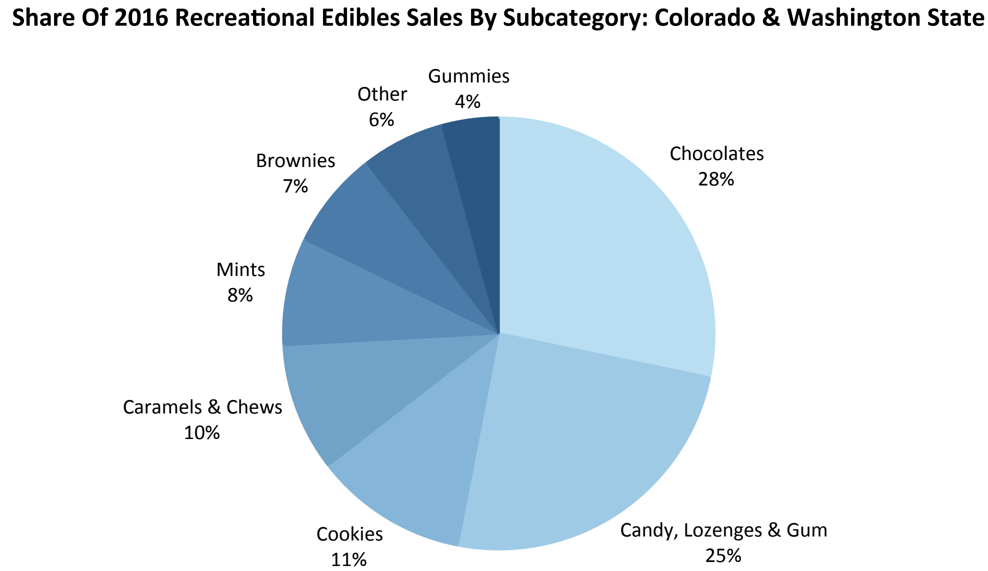
Source: Headset

Hybrid strains are typically the most prevalent type of flower on retailers' shelves, as these are generally more resilient strains relative to a pure indica or sativa – making them a safer option for growers that want to ensure their crop makes it to market.

Many consumers also favor hybrid strains, as they can provide an experience that balances the relaxing effects of an indica strain with the more energetic influences of a sativa.

High-CBD or CBD-only strains have found a niche in the medical market, providing pain relief without intoxication, but it's clear that recreational consumers are not looking to purchase flower solely for its medicinal purposes.

Chart 3.47: Share Of 2016 Recreational Edibles Sales By Subcategory: Colorado & Washington State

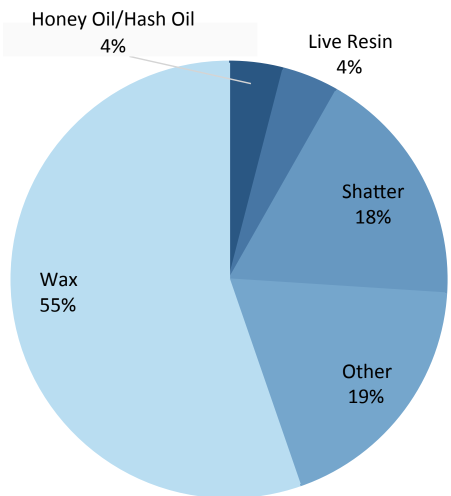


Source: Headset

While cannabis can be infused into almost any food, sweets and chocolates are the go-to form of edible for consumers. This is likely influenced by the product selection available to customers when they walk into a retail store, as infused product manufacturers are able to produce cookies, chocolates and other sweets that are cheap to make, taste good and have a long shelf life. Items that need special storage solutions – like an infused ice cream bar, for example – make it much harder for infused companies to get space on store shelves, as it presents an added cost to the retailer. Gaining shelf space is top of mind for infused product companies, making it unlikely they'll move away from these established forms of edibles anytime soon.

Chart 3.48: Share Of 2016 Recreational Concentrate Sales By Subcategory: Colorado & Washington State

Share Of 2016 Recreational Concentrate Sales By Subcategory: Colorado & Washington State



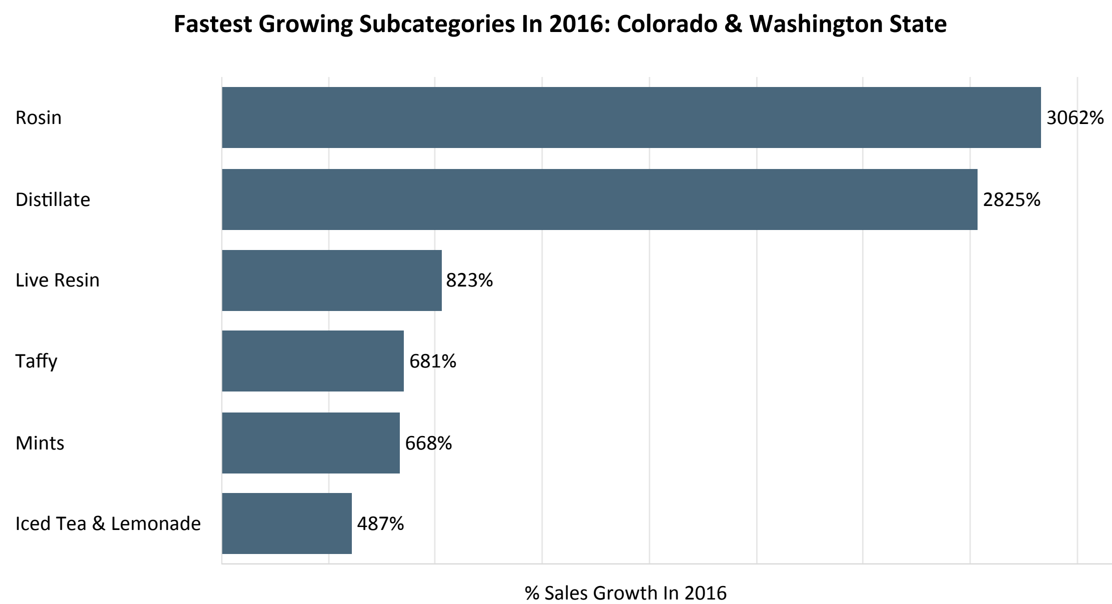
Subcategory	% Sales
Tanker / Applicator / Syringe	4.0%
Honeycomb / Crumble	2.7%
Rosin	2.5%
Distillate	2.0%
Kief	1.8%
Unspecified	1.8%
Hash	1.6%
RSO / WPE	1.2%
Bubble Hash	0.4%
HTE	0.4%
THC-A	0.4%

Source: Headset

Before recreational legalization, concentrates were largely unknown to consumers. But now that the industry is out in the open and regulated, businesses have been relatively free to experiment – using a variety of techniques to create a vast array of concentrated forms of marijuana. The category has proved extremely popular both in the medical and recreational markets, with a significant subset of recreational users attracted to these high-potency products.

Wax and shatter are the dominant subcategories, with the remaining 30% of the category divided among numerous forms of concentrates.

Chart 3.49: Fastest Growing Subcategories in 2016: Colorado & Washington State



Source: Headset

Given the rising popularity of concentrates, it's no surprise that the top three fastest-growing subcategories in 2016 fall under the concentrates umbrella.

Though taffy and mints are similar to the candies and sweets that dominate the edibles category, they're bringing something a bit new and different to the space that's obviously resonating with consumers.

It's important to note that these subcategories are still very small – this kind of explosive growth is just not possible for more established product groups – so similar sales increases on a percentage basis could be difficult to maintain in the coming years.

CHAPTER

4

Wholesale Cultivators

Though not permitted in all states, wholesale cultivators are the bedrock of much of the cannabis industry. This is especially true in recreational markets, where many wholesale growers are cultivating huge quantities of marijuana and therefore lowering prices across the board. While this segment of the industry is expected to consolidate – ultimately resembling the tobacco industry, where a small number of players dominate the market – the current business environment is very diffuse, with numerous small- to medium-sized businesses still prevalent in many states.

As is the norm in the cannabis industry, the rules and regulations governing wholesale cultivators vary drastically from state to state. For example, states such as New York and Arizona do not allow wholesale cultivation, requiring instead that all cannabis be grown through vertically integrated dispensaries (though in some of these markets, companies are permitted to sell excess marijuana they've produced to other businesses looking to supplement their own inventory). But similar to classifications made in the previous chapter, there are two main areas in which comparisons between these businesses can be made: the market each cultivator serves and the type of cultivation method used to produce cannabis.

Three primary distinctions are made in this chapter regarding the market a wholesale cultivator serves:

- **Unregulated medical market:** This refers to cultivators operating in markets which, as of early 2017, do not have functioning statewide regulatory systems, such as California, Michigan and Montana. Cultivators in these states operate under a patchwork of local rules or, in some cases, no regulations at all, meaning they might technically be illegal. Note: All three of these states are currently setting up comprehensive industry regulations.

- **Regulated medical market:** Any cultivator serving the medical market in a state where MMJ is legal, wholesale cultivation is allowed and businesses operate under clearly defined rules and regulations set at the state level falls into this category.
- **Recreational only and combo cultivators:** This refers to cultivators that serve the recreational market either exclusively or in addition to the medical market. While cultivators that serve only the recreational market do exist, most that sell to the rec market also sell to the medical market, which is why they've been combined into one category. Note: The graphs throughout this chapter will refer to this simply as the "recreational market" but will include cultivators in the recreational market that also serve the medical market.

These breakouts make for more useful comparisons between cultivators, as the varying regulatory requirements across markets can have a significant impact on the underlying financials of each business.

Four categorizations are also made in this chapter based on each cultivator's method of growing cannabis:

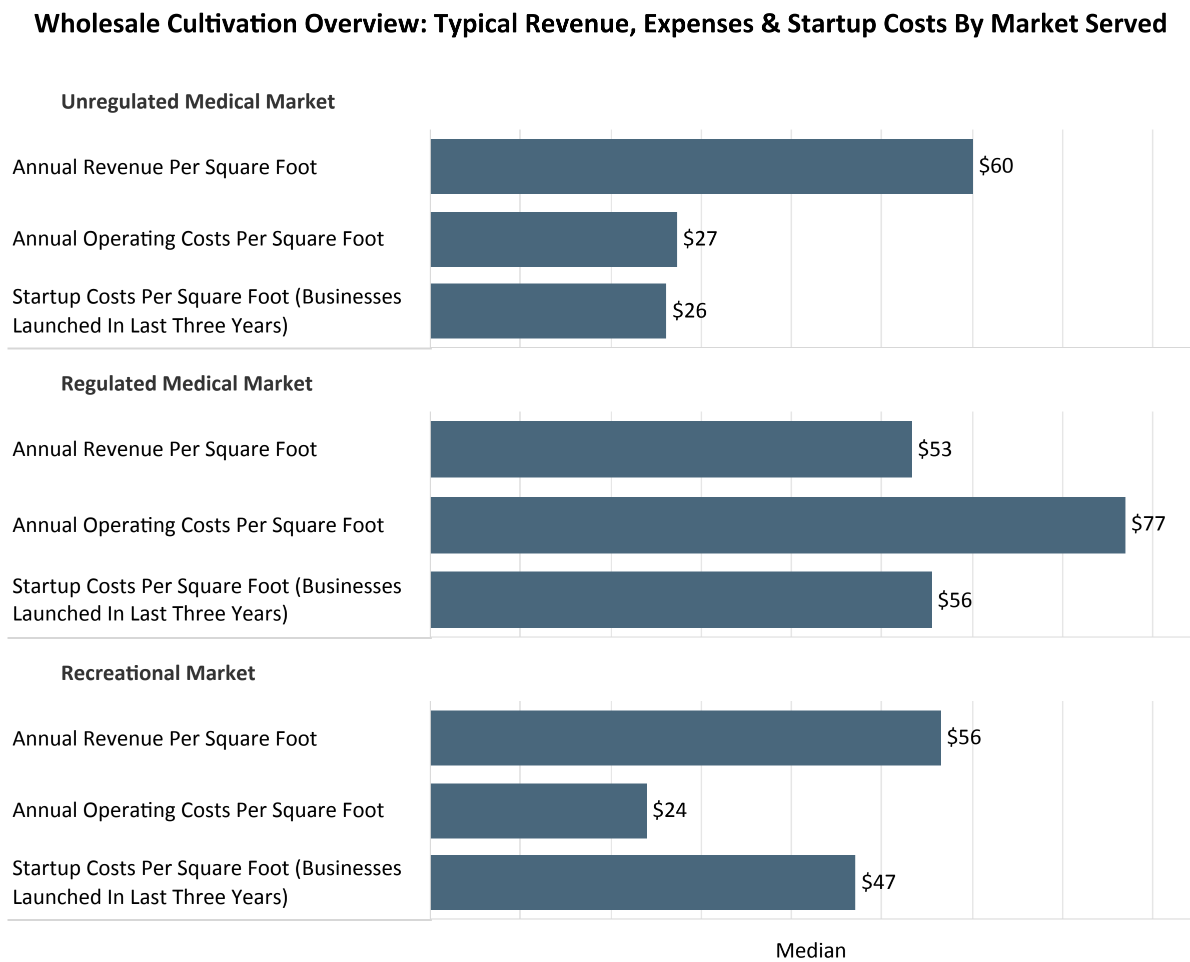
- Indoor
- Outdoor
- Greenhouse
- Combination of some or all of these methods

The manner in which a cultivator grows cannabis has even more of an influence on key financial metrics than the market it serves. For example, the capital-intensive equipment costs borne by indoor cultivators to create a hospitable growing environment results in a much different business model than that of an outdoor cultivator utilizing minimal agricultural technology.

Furthermore, the size of grow operations can vary drastically even within markets and cultivation methods. For that reason, many of the charts and analysis throughout this chapter will compare key financial metrics – such as annual revenue and operating costs — on a square-footage basis.

Here's a high-level look at some of the most important financial figures for wholesale cultivators and how they differ by cultivation method and market served.

Chart 4.01: Wholesale Cultivation Overview: Typical Revenue, Expenses & Startup Costs By Market Served



Cultivators serving the unregulated medical market generate a bit more revenue per square foot than their counterparts in the regulated medical and recreational markets, but the figure is comparable across markets. Costs for cultivators serving the medical market, however, are significant – with annual operating costs three times that of growers in the unregulated and recreational markets.

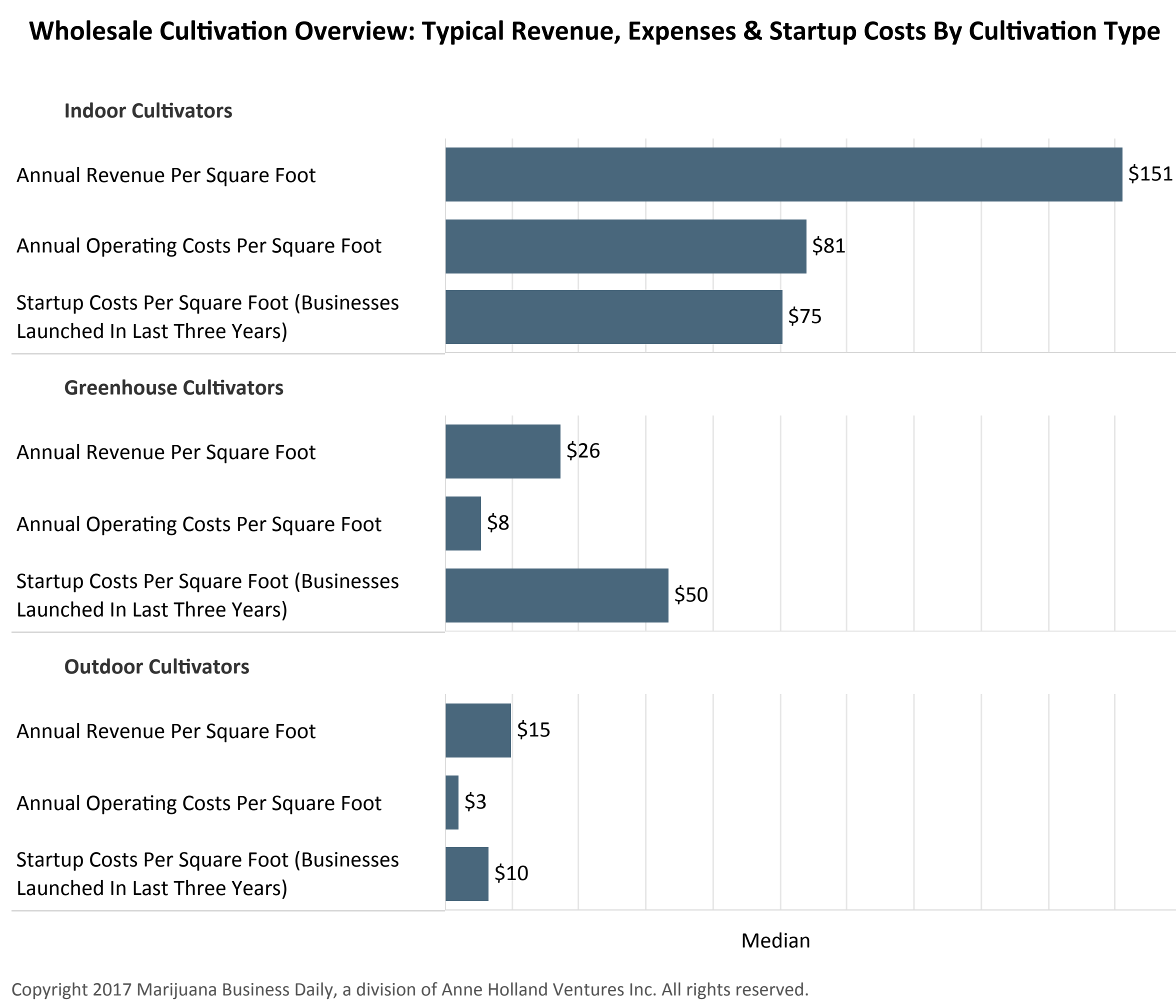
Strict regulatory requirements are driving costs higher for businesses in the regulated medical market, while revenue may be limited if a state has a restrictive list of conditions that would qualify a person for MMJ – resulting in a small number of patients and lackluster demand.

That's exactly what's happening in Illinois right now, as wholesale cultivators spent millions to get their operations off the ground but were met with a much smaller patient pool than many expected. A number of wholesale cultivators in Illinois took our survey, partially explaining why costs outweigh revenue for businesses serving this market.

Average Wholesale Cultivator Profit Margin By Market Served

Regulated MMJ Cultivators:	28%
Unregulated MMJ Cultivators:	36%
Recreational Only & Combo Cultivators:	21%

Chart 4.02: Wholesale Cultivation Overview: Typical Revenue, Expenses & Startup Costs By Cultivation Type



Viewed side-by-side, it's clear that indoor cultivators are operating in a completely different business environment than outdoor, greenhouse or combination growers. Startup and operating costs per square foot are significantly higher for indoor cultivators, but so too is revenue per square foot.

While some of this stems from requirements in certain medical-only states that all marijuana be grown indoors – the realities of doing business in a less competitive and more tightly regulated market can skew these figures – the comparisons remain consistent within markets.

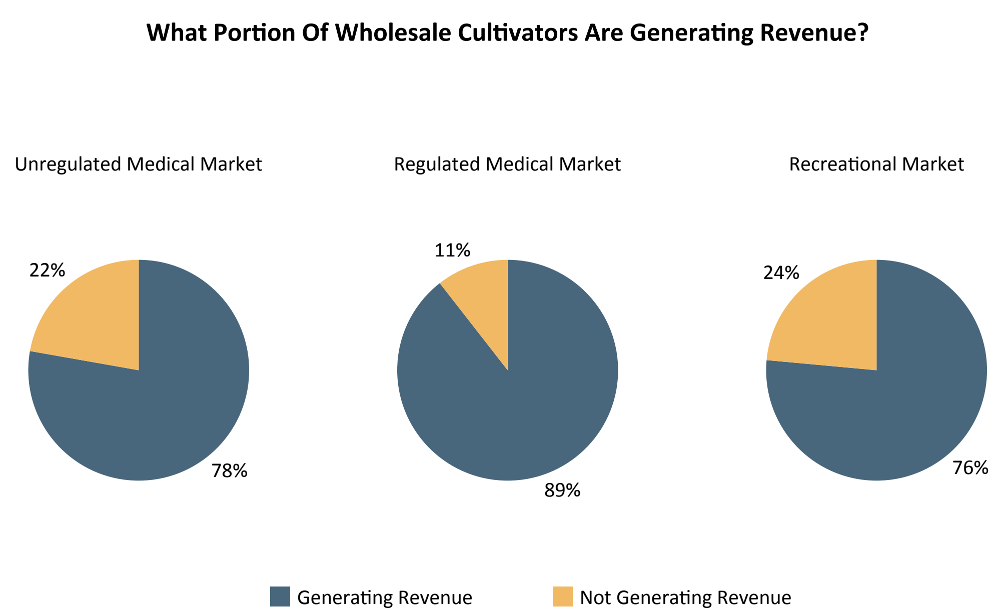
As this chapter will show, cultivators of all types are making money, but those that can afford to establish costly indoor operations tend to be rewarded in the long run.

Average Wholesale Cultivator Profit Margin By Cultivation Type

Indoor:	30%
Greenhouse:	40%
Outdoor:	32%
Combination:	24%

Wholesale Cultivator Revenue Figures

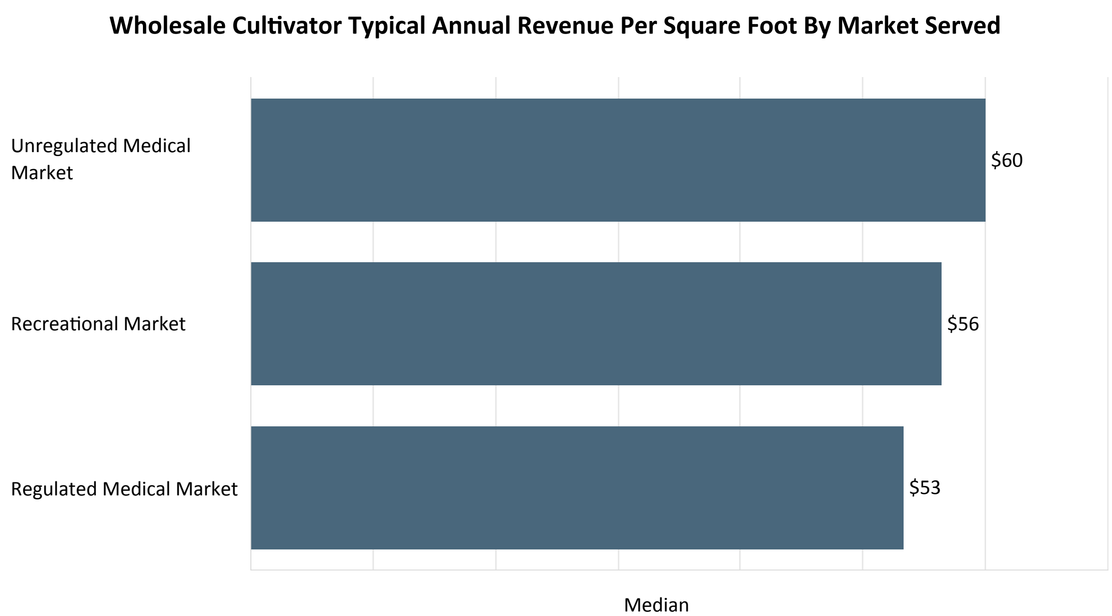
Chart 4.03: What Portion Of Wholesale Cultivators Are Generating Revenue?



The amount of preparation and organization required to bring a cultivation facility out of the planning phase and turn it into a functioning, revenue-generating business is substantial. Just raising capital presents numerous challenges, especially in newer markets that assess heavy license and application fees on growers. Entrepreneurs who make it past this initial hurdle still need to secure all necessary permits and licenses, hire skilled workers to operate the facility, acquire initial inventory and equipment, and so on – all before planting even begins. This all affects startup costs, which this report examines shortly, but it also means it takes a lot longer for cultivators to start recording revenue.

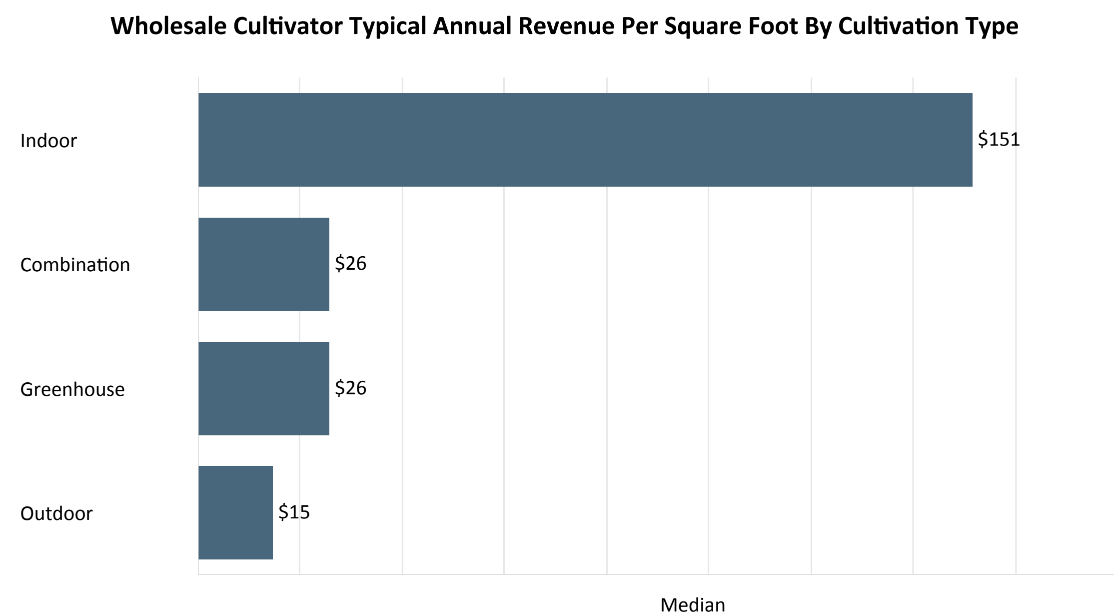
A higher percentage of cultivators in regulated medical markets are currently generating revenue, likely because of strict caps on the number of facilities allowed to operate in most medical-only states and the relative maturity of that side of the market (in other words, many MMJ cultivators have been operational for years). More opportunities are available to cultivators in unregulated medical and recreational markets while the adult-use industry is still in its infancy. Therefore, a higher percentage of these businesses are still jumping through the requisite hoops before they can start selling product.

Chart 4.04: Wholesale Cultivator Typical Annual Revenue Per Square Foot By Market Served



Across all markets, indoor cultivation was the most widely used method among growers who took our survey, which explains why revenue-per-square-foot figures break down so similarly. The largest disparity in revenue per square foot is between cultivators in the unregulated and regulated medical markets. This may be driven by lax – or even absent – regulations and cultivation caps in the unregulated market, resulting in higher plant counts and more revenue for these unrestrained grow operations.

Chart 4.05: Wholesale Cultivator Typical Annual Revenue Per Square Foot By Cultivation Type



With the ability to tightly regulate and control growing conditions, indoor cultivators can pack a large number of plants into a relatively small space – generating much more revenue per square foot than greenhouse or outdoor cultivators. These controlled growing environments also allow indoor cultivators to produce consistent, high-quality flower that commands a higher wholesale price compared to outdoor cultivators, whose plants are much more subject to adverse weather and inconsistent soil conditions.

Further driving the revenue disparity is the ability for indoor cultivators to harvest multiple times per year, compared to just one, large harvest for most outdoor cultivators.

The relatively low revenue per square foot generated by greenhouse cultivators is driven by a couple of factors: The average size of a greenhouse operation is more than double that of an indoor grow, and many greenhouses are not fully built out and therefore aren't operating at maximum capacity. Low operating costs and the potential to realize significant revenue have caused greenhouses to become increasingly popular in the last two years, but nearly 40% of survey respondents with greenhouse cultivations have yet to generate any revenue – much higher than the 22% average across all cultivation types – speaking to how many of these operations are just getting off the ground.

Median Annual Revenue Per Square Foot: All Wholesale Cultivators

$56

Median Wholesale Cultivator Annual Revenue By Market Served

Regulated MMJ Cultivators:	$850,000
Unregulated MMJ Cultivators:	$250,000
Recreational Only & Combo Cultivators:	$1,000,000

Median Wholesale Cultivator Annual Revenue By Cultivation Type

Indoor:	$1,000,000
Greenhouse:	$500,000
Outdoor:	$250,000
Combination:	$200,000

Median Annual Revenue: All Wholesale Cultivators

$500,000

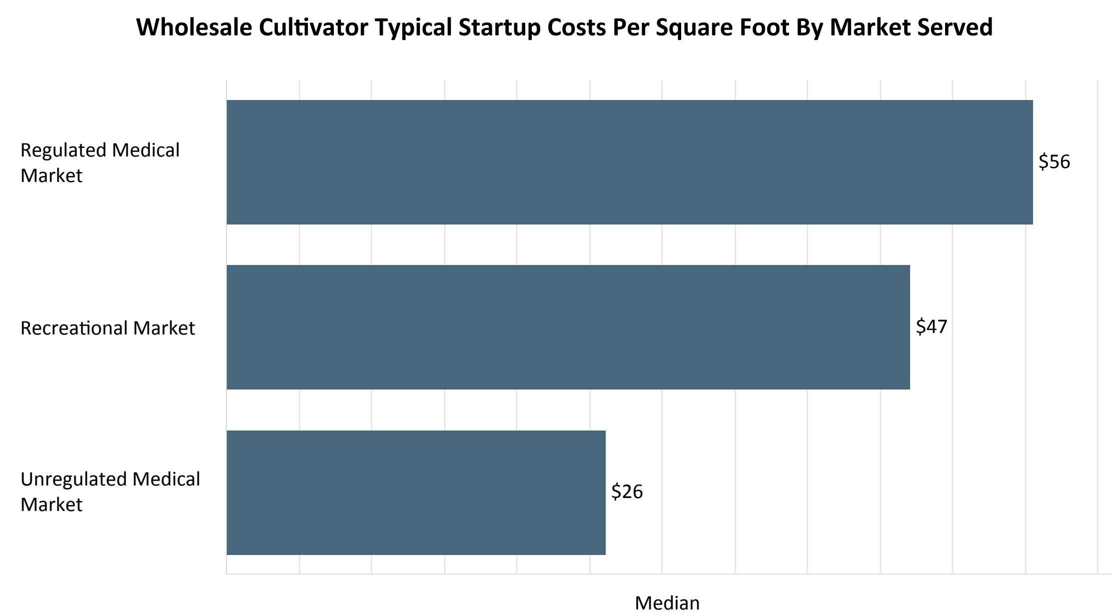
The recreational market is continuing to post massive year-over-year gains – collectively, rec sales in Washington state and Colorado grew by 66% in 2016 – and the number of large, commercial-scale cultivators serving these markets is growing along with it.

Despite the smaller size of many cultivation operations in regulated medical markets, a fair share benefit from limited competition and high wholesale cannabis prices. Cultivators in unregulated medical markets are not afforded such protections, nor are they able to scale to the same degree as those in the recreational market, and that influences their financial fundamentals.

Indoor cultivators are the dominant cultivation type across the industry and gain from the higher prices their product demands at retail. Outdoor cultivators typically don't generate the kind of revenue that indoor and greenhouse cultivators do, but low startup and operating costs – combined with the ability to quickly get off the ground and a preference among some consumers for "sun grown" marijuana— make these types of operations attractive to certain entrepreneurs.

Wholesale Cultivator Startup Costs

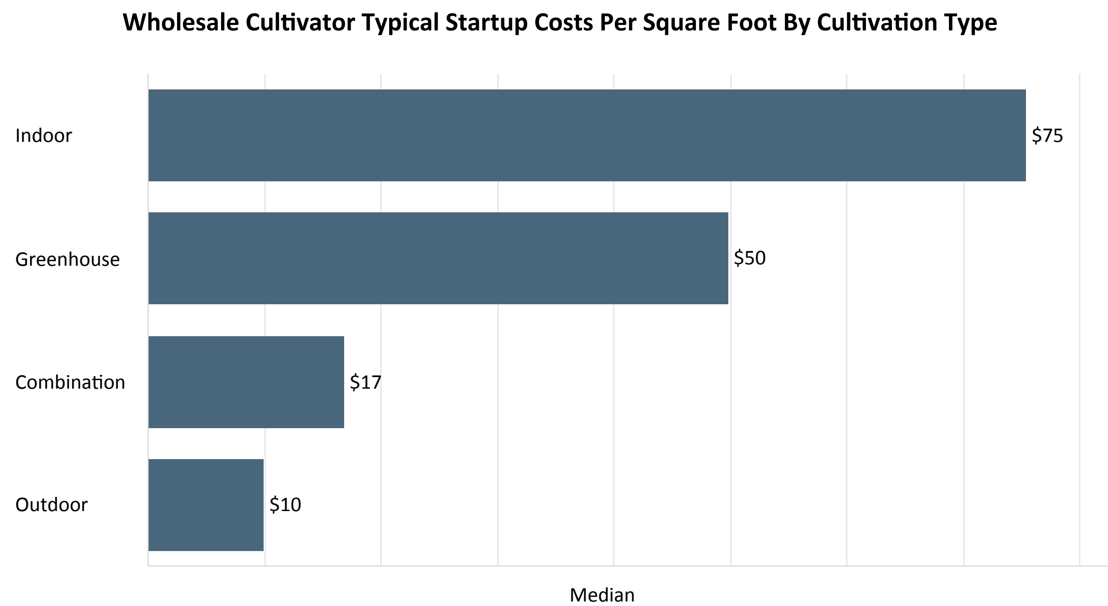
Chart 4.06: Wholesale Cultivator Typical Startup Costs Per Square Foot By Market Served



Startup expenses for cultivators in the regulated medical market are driven by steep license fees, stringent security requirements and the high costs of obtaining an appropriately outfitted facility. These expenditures have increased dramatically over the past few years, as states legalizing MMJ more recently are setting the financial bar high for cultivators. In some cases, application and license fees for MMJ grow operations run into the hundreds of thousands of dollars, meaning startup costs can easily reach the millions. All signs point to a continuation of this trend.

Though cultivators serving the recreational market typically don't face the same sky-high licensing fees, overall startup costs are similar, as these businesses are serving a much larger customer base and often need to realize economies of scale from the get-go to compete effectively. Because of a lack of governmental oversight, cultivators in the unregulated medical market often face no licensing fees at all and, consequently, are unburdened by the necessity to implement the same security measures as cultivators in the regulated medical and recreational markets.

Chart 4.07: Wholesale Cultivator Typical Startup Costs Per Square Foot By Cultivation Type



The large, upfront expenditures required of indoor cultivators before they can begin growing drives higher startup costs relative to all other cultivation types, especially outdoor. Construction of a new indoor facility can be especially costly, while an existing facility may require extensive renovations to accommodate a grow space or to meet necessary regulatory requirements. Additional expenditures required before operations can begin – such as lighting and temperature/humidity control systems – drive startup costs per square foot even higher. But entrepreneurs are willing to bear such costs, as properly run indoor facilities can produce high-quality flower multiple times a year.

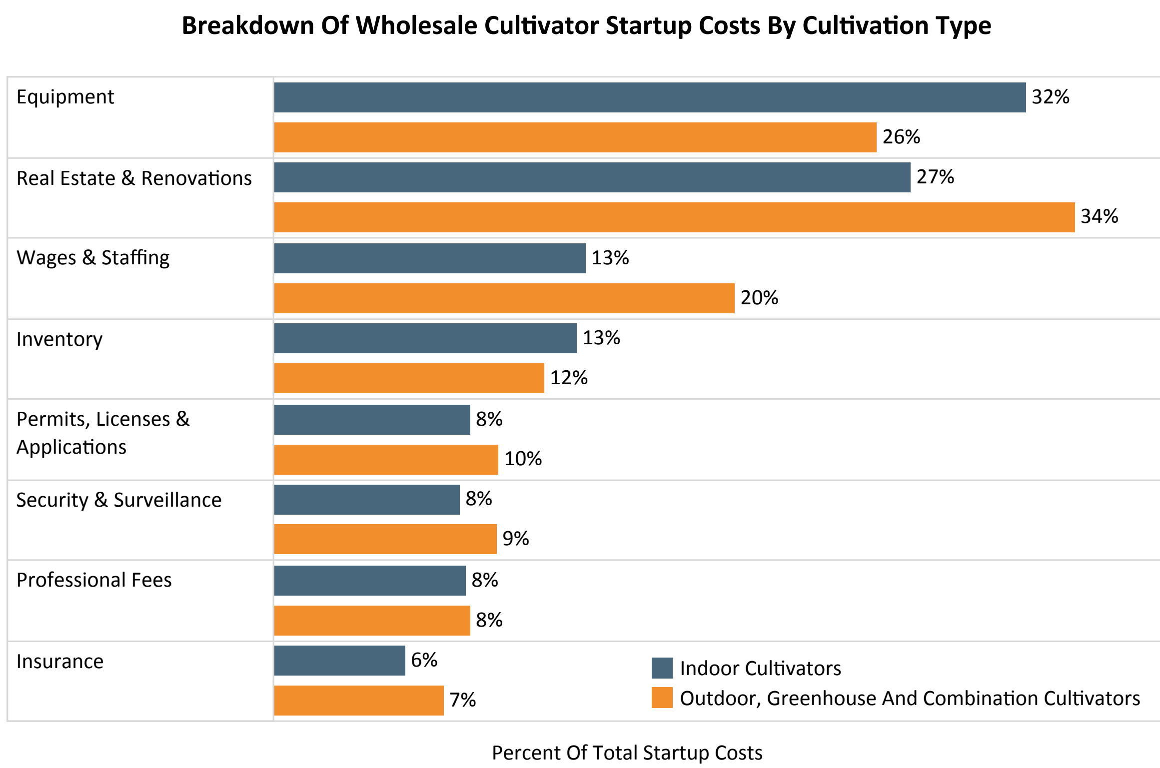
Though slightly less costly than an indoor grow, greenhouse cultivations require a considerable amount of capital to get off the ground – largely stemming from their expansive size and the fact that many facilities are newly constructed. But low operating costs and the ability to produce high-quality flower gives business owners the potential to quickly recoup their initial investment.

Outdoor cultivators have relatively little infrastructure needs compared to indoor and greenhouse growers and can begin operating with minimal upfront expenditures.

Median Startup Costs Per Square Foot: All Wholesale Cultivators

$42

Chart 4.08: Breakdown Of Wholesale Cultivator Startup Costs By Cultivation Type



Note: Values reflect averages based on ranges and do not sum to 100%.

Outfitting an indoor cultivation facility with the necessary equipment – like temperature and humidity control systems and artificial lighting sources - is an extremely costly endeavor required of nearly all indoor cultivators. Successful greenhouse operations will also require investment in climate control systems, but not to the same degree as indoor cultivators, because they're able to use the sun as a natural source of both light and heat.

No matter where cultivators choose to grow, securing and appropriately outfitting a grow space is another major startup cost. Indoor and greenhouse cultivators pay for both a physical grow space and any renovations needed to ensure the facility meets regulatory requirements, including everything from electrical systems to building permits and security alarms. Outdoor cultivators – whose operations tend to be larger and more expansive than indoor growers – are not immune to this kind of startup cost, as they need to obtain large plots of land suitable for growing marijuana.

Staffing requirements vary by cultivation types, but they constitute a larger percentage of startup costs for outdoor, combination and greenhouse cultivators – likely because of the relatively lower costs of equipment and real estate.

Professional fees account for similar portions of upfront costs for all cultivators, though not every business will shell out for these types of services. Though they can be expensive, lawyers, consultants and accountants provide expertise in specific facets of business operations, and more forward-thinking and sophisticated companies will factor the expense into the upfront cost of launching a business.

Median Wholesale Cultivator Startup Costs By Market Served

Regulated MMJ Cultivators:	$1,000,000
Unregulated MMJ Cultivators:	$225,000
Recreational Only & Combo Cultivators:	$500,000

Median Wholesale Cultivator Startup Costs By Cultivation Type

Indoor:	$350,000
Greenhouse:	$1,275,000
Outdoor:	$127,500
Combination:	$375,000

Median Wholesale Cultivator Startup Costs: All Wholesale Cultivators

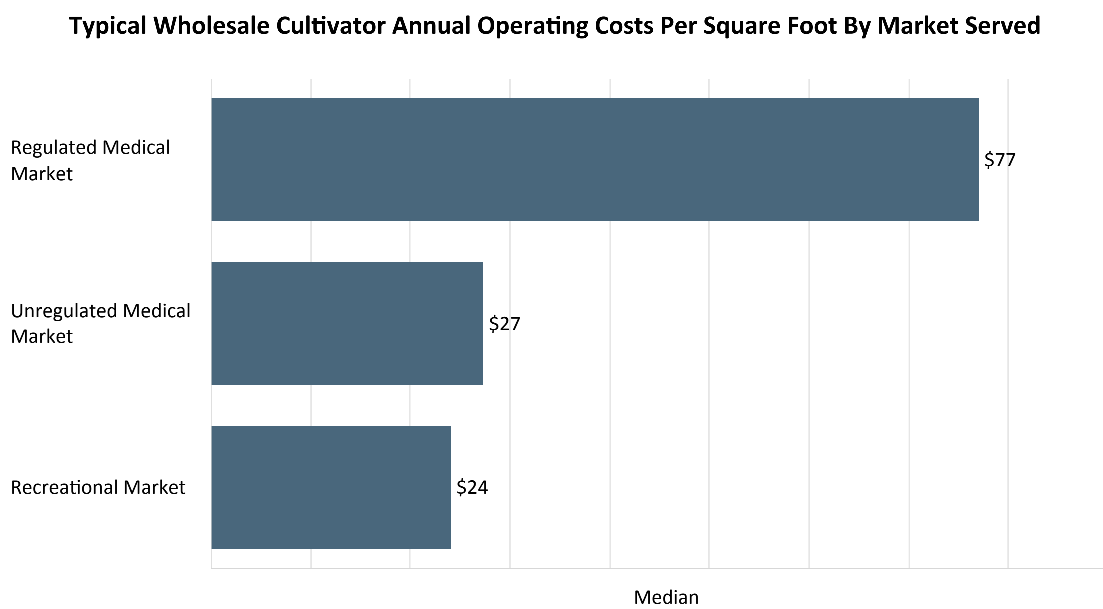
$400,000

Typically, the startup costs in regulated medical markets will run much higher than in unregulated medical or recreational markets, though this is dependent on the size and scale of each operation.

Considering greenhouse cultivations tend to be much larger in size than indoor cultivations – but still require a physical grow space and significant investments in equipment – median startup costs are much higher than all other types of cultivation. Many companies, however, are moving in this direction because greenhouses offer a solid mix between indoor and outdoor grows, help with energy conservation and can save costs in the long run. Outdoor operations, similar in size to most greenhouses, are comparatively cheap to get off the ground.

Wholesale Cultivator Operating Costs

Chart 4.09: Typical Wholesale Cultivator Annual Operating Costs Per Square Foot By Market Served

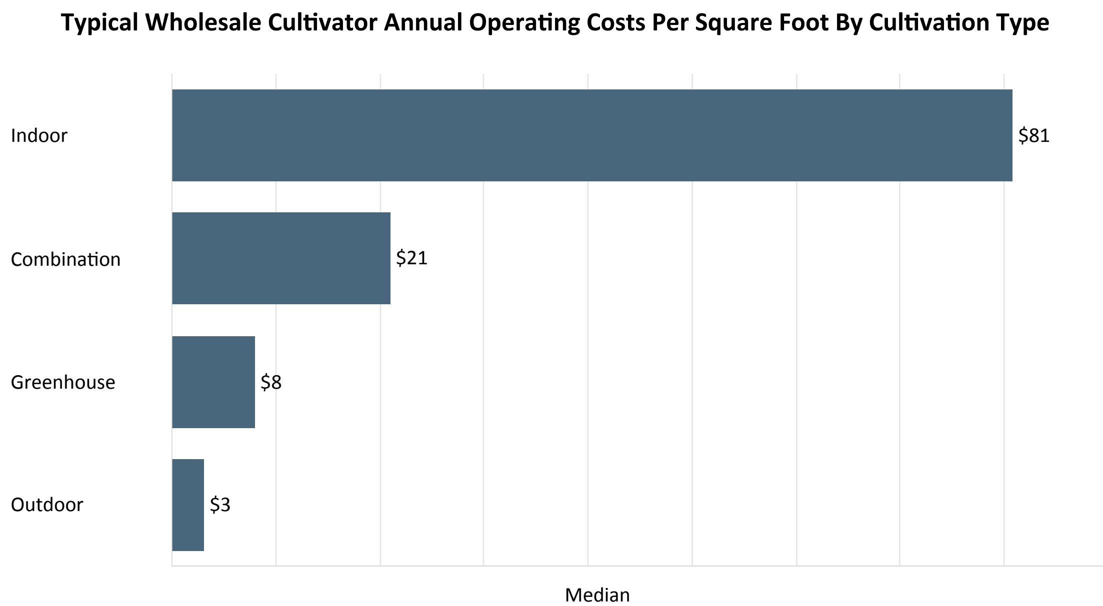


Cultivators in the regulated medical market pay significantly more in annual operating costs relative to growers in other markets – to an even larger degree than the disparity in startup costs. Though more cultivators in the regulated medical market grow indoor, cultivation methods break down relatively similarly across markets. So higher annual operating costs are driven largely by the additional regulatory requirements placed on growers in the regulated medical market.

Operating costs for cultivators in the unregulated and recreational markets are comparable to each other, though they may be driven by separate forces. Many recreational cultivators in Colorado were growing for the medical market before entering the rec side of the industry. With indoor cultivators able to harvest five times a year, some growers could have over 40 harvests under their belt. Undoubtedly, cultivators with this amount of experience will be able to minimize production costs by finding efficiencies in the growing process. Additionally, the rec market is moving quickly toward creating economies of scale to meet massive demand, thus lowering operating costs.

While portions of the unregulated market also have tremendous amounts of experience – cultivators in Northern California are widely considered some of the best in the world, having been around since the 1960s – the legally dubious nature of many of these grow sites forces them to operate covertly. That can negatively impact their productivity. So even without the licensing fees or costs of regulatory compliance, unregulated cultivators typically pay more in annual operating costs than cultivators in the recreational market.

Chart 4.10: Typical Wholesale Cultivator Annual Operating Costs Per Square Foot By Cultivation Type



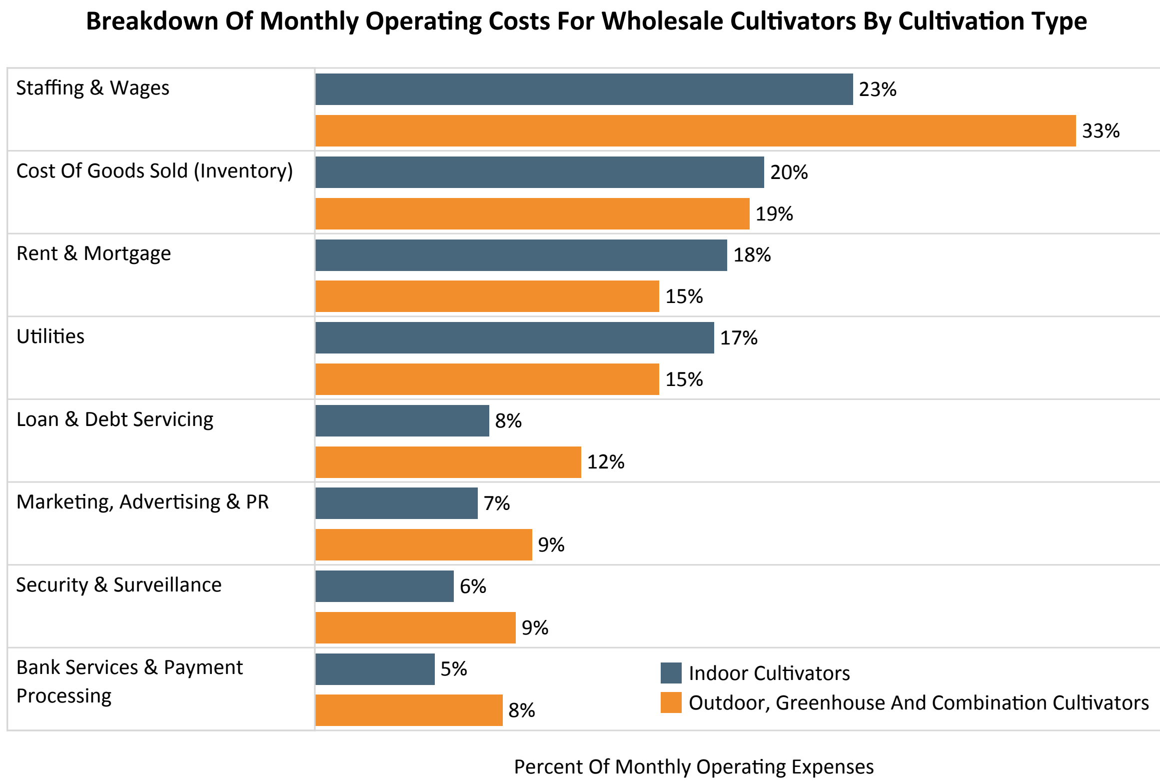
Because indoor cultivators need to artificially create hospitable growing environments – regulating temperature, humidity, lighting and more – the costs to maintain these conditions is much higher than outdoor and greenhouse growing operations. How well a greenhouse cultivation site can harness natural elements to maintain temperature control and lighting conditions varies from business to business depending on each facility's capabilities, but clearly most greenhouse operators are taking advantage of their resources.

The size of the typical outdoor cultivation site is very similar to that of a greenhouse, but it operates entirely in the natural environment – meaning it doesn't face the same ongoing costs that indoor and greenhouse cultivators rack up.

Median Annual Operating Costs Per Square Foot: All Wholesale Cultivators

$30

Chart 4.11: Breakdown Of Monthly Operating Costs For Wholesale Cultivators By Cultivation Type



Note: Values reflect averages based on ranges and do not sum to 100%.

Though not always the case, the more expansive size of greenhouse cultivations require more employees relative to those of indoor cultivations. Also, lower operating expenditures in general make the cost of staffing and wages loom larger in the budgets of outdoor and greenhouse cultivators.

While utility costs constitute a similar portion of monthly operating expenses across all cultivation types, this translates into much higher actual costs for indoor cultivators. Case in point: On the basis of square-footage, annual operating costs for indoor growers are eight times higher than greenhouses and 27 times higher than outdoor cultivators. Much of that disparity is tied to the extra money indoor growers must spend for utilities. An indoor cultivator with annual operating expenses of $300,000 that allocates 15% to utilities is spending much more than an outdoor cultivator with annual operating expenses of $66,000 allocating the same percentage to utilities.

The power required to heat, cool and properly light an indoor grow operation is substantial, though many ancillary firms have seen this as an opportunity: They're stepping in with more energy-efficient solutions aimed at growers. Energy costs for indoor cultivators have been declining and should continue to do so as more growers implement smarter, more efficient technologies.

Median Wholesale Cultivator Annual Operating Costs By Market Served

Regulated MMJ Cultivators:	$1,140,000
Unregulated MMJ Cultivators:	$180,000
Recreational Only & Combo Cultivators:	$360,000

Median Wholesale Cultivator Annual Operating Costs By Cultivation Type

Indoor:	$324,000
Greenhouse:	$360,000
Outdoor:	$66,000
Combination:	$180,000

Median Wholesale Cultivator Annual Operating Costs: All Wholesale Cultivators

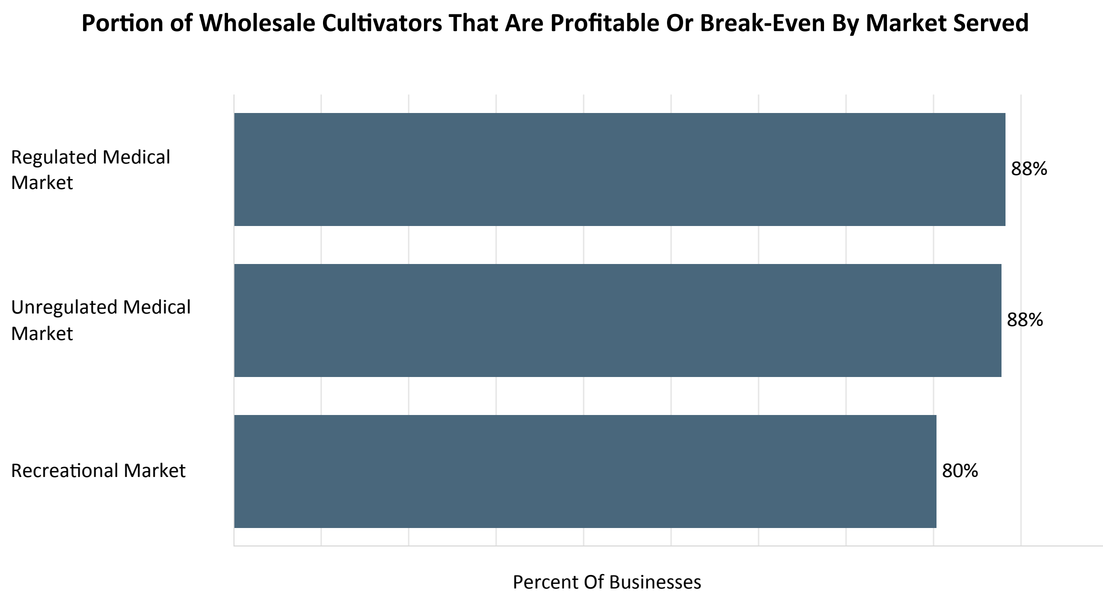
$240,000

Actual operating costs on a yearly basis vary greatly by size, market and cultivation type. But generally, cultivators in the regulated medical market – the majority of which operate more expensive indoor sites - face more regulatory scrutiny and government oversight than those in the unregulated medical or recreational markets, resulting in comparatively higher annual operating costs.

Without question, indoor cultivation operations are costlier to operate than greenhouses or outdoor sites. But they also tend to be much smaller, explaining why actual annual operating costs for indoor growers are on par with greenhouses.

Wholesale Cultivator Profitability

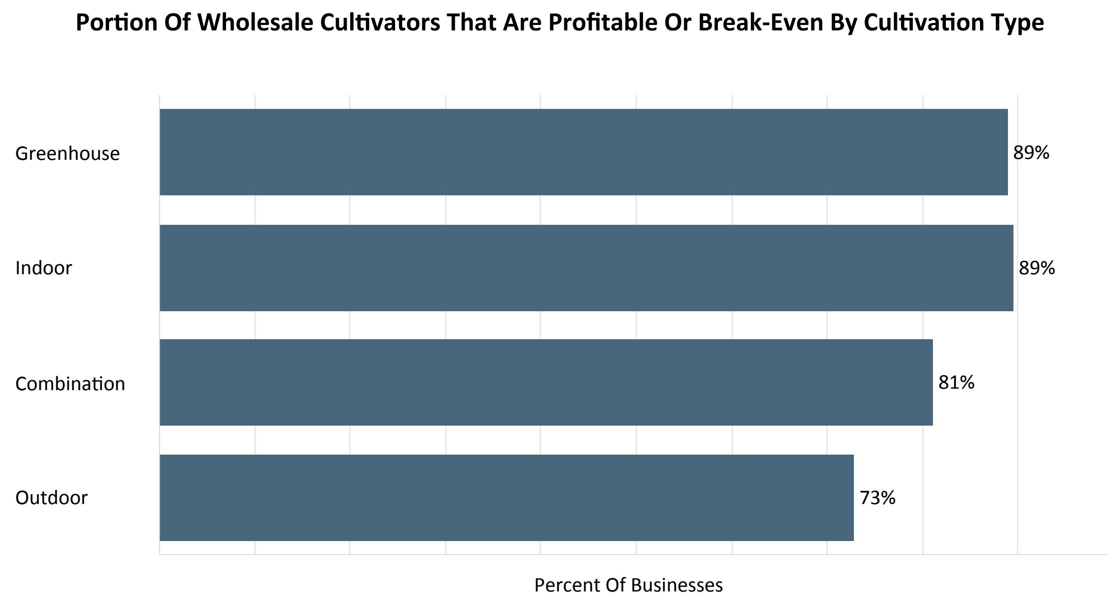
Chart 4.12: Portion Of Wholesale Cultivators That Are Profitable Or Break-Even By Market Served



Note: Profits are calculated on an after-tax basis.

Because of the comparable breakdowns in cultivation methods across markets, the portion of cultivators that are profitable or break-even is similar across the regulated, unregulated and recreational markets. While slightly fewer recreational cultivators have reached break-even, this is a relatively new side of the marijuana industry, and it will take time for new entrants to recoup their investment in a market that grows more competitive by the day. The fundamentals here are strong for the cultivation side of the industry in general, though this could change in the future if prices continue to drop in some markets that are maturing, as expected.

Chart 4.13: Portion Of Wholesale Cultivators That Are Profitable Or Break-Even By Cultivation Type



Note: Profits are calculated on an after-tax basis.

Despite vastly different pricing pressures, business models and operating procedures, a solid majority of growers across all cultivation methods are profitable or break-even. Outdoor cultivators have the lowest startup and operating costs by a wide margin, but for a variety of reasons, fewer can maintain a profitable business. Outdoor flower fetches a lower price in the wholesale market, as the larger, more dense and colorful buds seen with indoor- and greenhouse-grown flower has caused outdoor product to fall out of favor with many consumers. Outdoor cultivators are also subject to the whims of Mother Nature, and with most of these cultivators harvesting only once a year, just one bad season could be enough to plunge a business into the red.

Portion Of All Wholesale Cultivators That Are Profitable Or Break-Even

85%

The fact that 85% of all cultivators are profitable or break-even is pretty remarkable, especially considering how saturated this segment of the industry has become. While cultivators in regulated medical markets face higher barriers to entry, they operate in less competitive environments. Looking forward, expect a smaller percentage of cultivators in the recreational market to reach break-even, as a large and growing number of players – combined with falling wholesale marijuana prices – will force some growers to operate at a loss or cease operations all together.

Wholesale Cultivators Average Length Of Time To Profitability Or Break-Even By Market Served

Regulated MMJ Cultivators:	1-2 years
Unregulated MMJ Cultivators:	6-12 months
Recreational Only & Combo Cultivators:	6-12 months

Wholesale Cultivators Average Length Of Time To Profitability Or Break-Even By Cultivation Type

Indoor:	6-12 months
Greenhouse:	6-12 months
Outdoor:	1-2 years
Combination:	6-12 months

Average Length Of Time To Profitability Or Break-Even: All Wholesale Cultivators

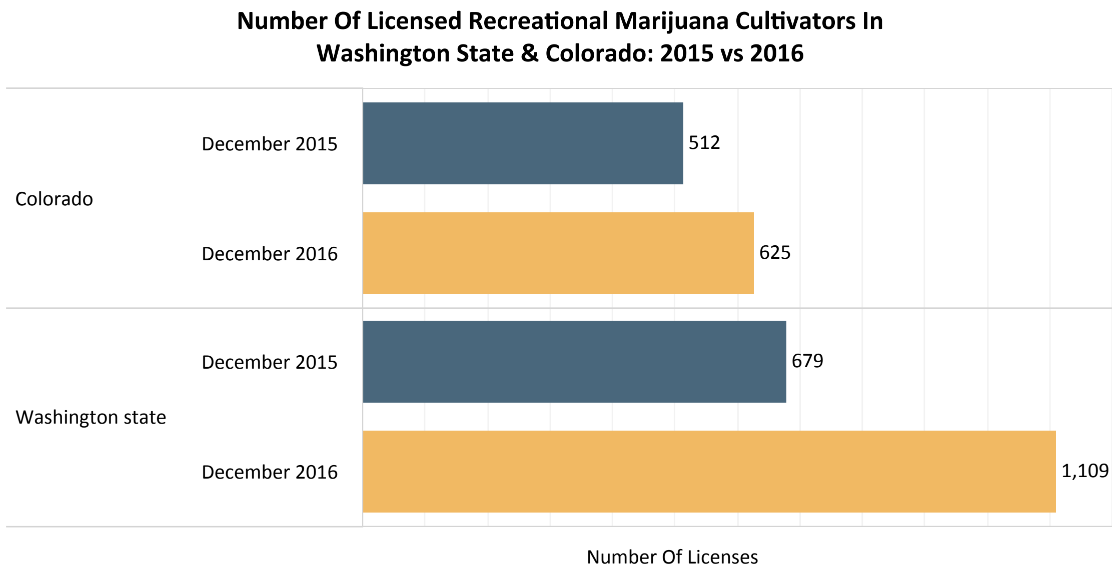
6-12 months

Despite the many challenges faced by growers, most are able to reach break-even in less than a year. Cultivators in the regulated medical market take a bit longer to get there, but they face significantly higher startup and operating costs relative to the unregulated medical and recreational markets. Even with their low startup costs, outdoor cultivators take longer to recoup their initial investment. Most are harvesting just once per year and receiving a relatively low price for their flower in the wholesale market.

However, moving forward, it will likely take longer for wholesale cultivators to reach break-even, especially for those in the regulated medical and recreational markets. The trend toward increased regulation in both markets will drive the cost and complexity of running a business even higher, while the extremely fragmented and saturated nature of the recreational market is turning marijuana into a commodity akin to traditional crops like corn or soybeans. This will continue putting downward pressure on wholesale cannabis prices and force any new market entrants to spend significantly should they wish to stand out in such a crowded space.

REAL WORLD EXAMPLE

Chart 4.14: Real World Example – Number Of Licensed Recreational Marijuana Cultivators In Washington State & Colorado: 2015 vs 2016

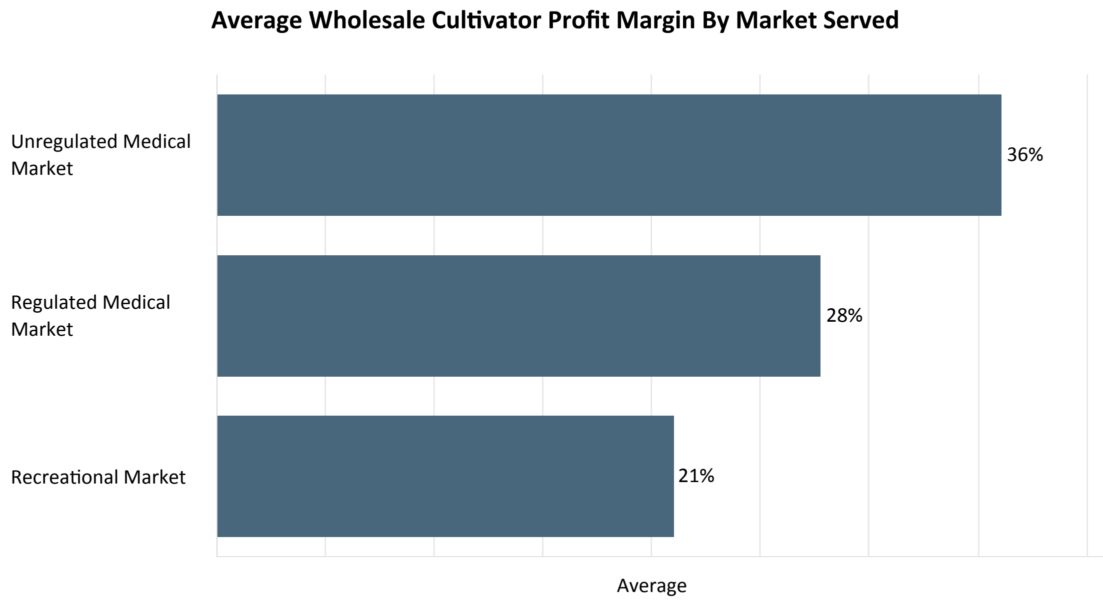


Source: Colorado Department of Revenue, Washington State Liquor and Cannabis Board.
Note: Washington state figures are based on the number of businesses with sales greater than zero for the calendar year and include dual-licensed producers and processors.

Sales of recreational marijuana in the nation's two largest and oldest adult-use markets – Colorado and Washington state – are continuing to grow at a tremendous rate, attracting a huge number of cultivators hoping to capitalize on the booming market. From December 2015 to December 2016, an additional 430 growers came online in Washington state, a 63% increase. With a 22% uptick in new cultivation businesses year over year, growth in Colorado was not as drastic but very robust nonetheless.

This has created an intensely competitive environment for all growers in these states, leaving little room for new cultivators to enter the market and serve a niche that's not already being met by an existing business. Such an abundance of production capacity has led to an oversupply of marijuana in both Washington and Colorado, causing wholesale prices to fall in each of these markets. This will certainly slow the growth of new businesses and – should current pricing trends persist – prompt some businesses to close their doors.

Chart 4.15: Average Wholesale Cultivator Profit Margin By Market Served

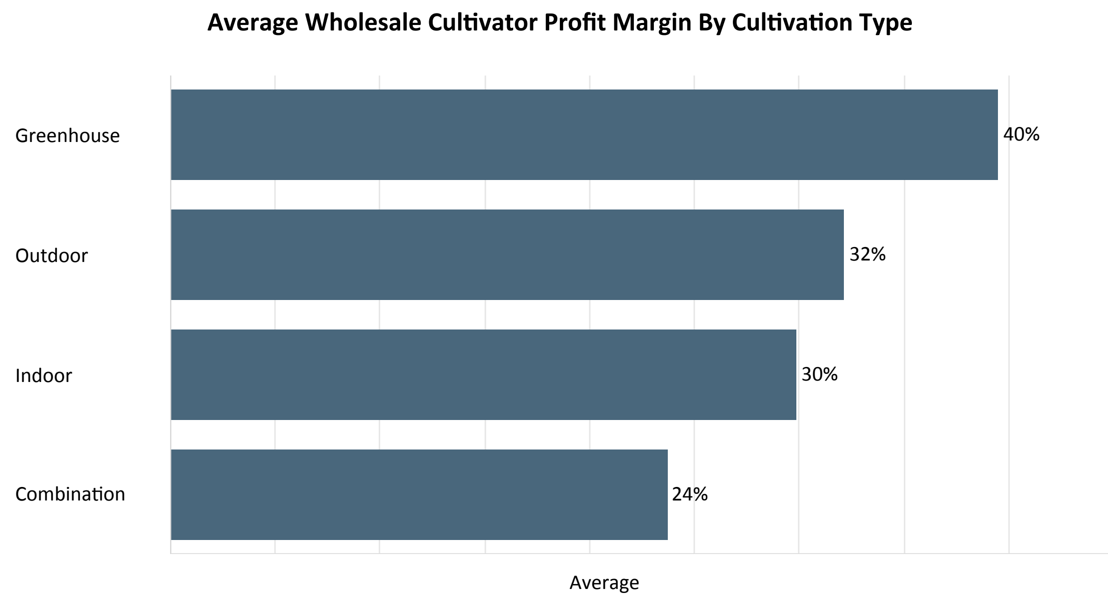


Note: Profits are calculated on an after-tax basis.

Though cultivators serving the recreational market don't face as high of startup or operating costs relative to growers in the regulated medical market, they're still required to pay annual licensing fees and maintain compliance with strict regulations related to security, inventory tracking, testing and other areas. Recreational growers also face extremely stiff competition from all sides of the market, from cash-strapped cultivators willing to unload product at rock-bottom prices, to growers producing connoisseur-grade flower that's in demand and commands a high price at retail.

Meanwhile, cultivators in the regulated medical market are often shielded from this degree of competition, allowing them to receive higher margins with relatively little risk of falling out of favor with retailers. Competition is still fierce in the unregulated medical market, though these cultivators have fewer costs to cover and are likely not paying taxes (and are therefore not battered by provision 280E of the federal tax code), leading to higher profits.

Chart 4.16: Average Wholesale Cultivator Profit Margin By Cultivation Type



Note: Profits are calculated on an after-tax basis.

Greenhouse cultivation is becoming more prevalent in the industry, and it's easy to see why. With the appropriate facility and technical know-how, these cultivators can produce flower on par with that of indoor growers, but at a lower cost. The sun serves as both a light and heat source, reducing utility expenditures relative to indoor operations.

Though a smaller percentage of outdoor cultivators are profitable, those that have reached this point are collecting higher margins than indoor and combination growers – driven by low costs of production.

Combination growers appear to be losing some efficiency through the use of multiple cultivation methods, as profit margins are lower for this group of growers than for any of its constituent cultivation methods. In some cases, growers have been adding greenhouses to the mix relatively recently, and they might not have fully recouped the heavy initial financial outlay required to build these structures.

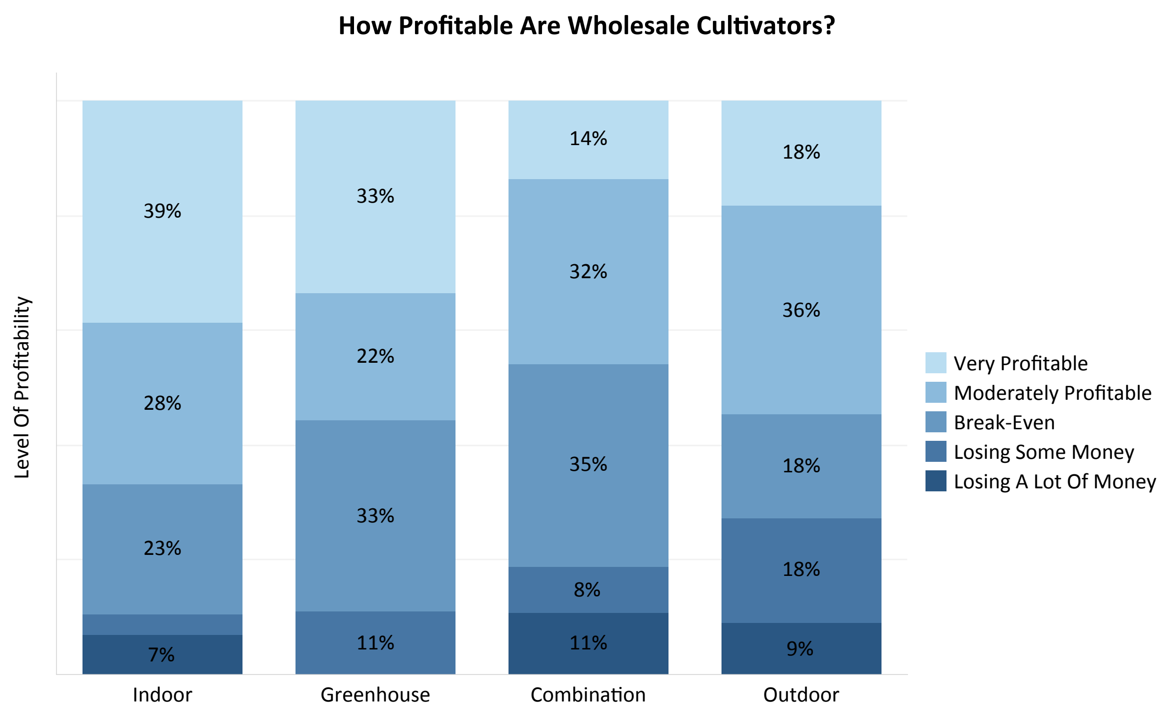
Average Profit Margin: All Wholesale Cultivators

29%

Indoor growers show a higher degree of profitability than all other cultivation methods, though greenhouse operations are a close second. With a large number of expansive greenhouse cultivation sites just getting off the ground in the past couple of years, more will likely reach break-even or profitability in 2017. The fact that no greenhouse cultivator in our survey indicated their business is “Losing A Lot Of Money” is an encouraging sign, given that at least some portion of growers in every other category is losing a lot of money.

On the whole, both outdoor and combination cultivators are profitable, but compared to indoor and greenhouse growers, significantly fewer indicated they were “Very Profitable.” This suggests a lower ceiling for the kind of margins cultivators utilizing these growing methods can expect to receive.

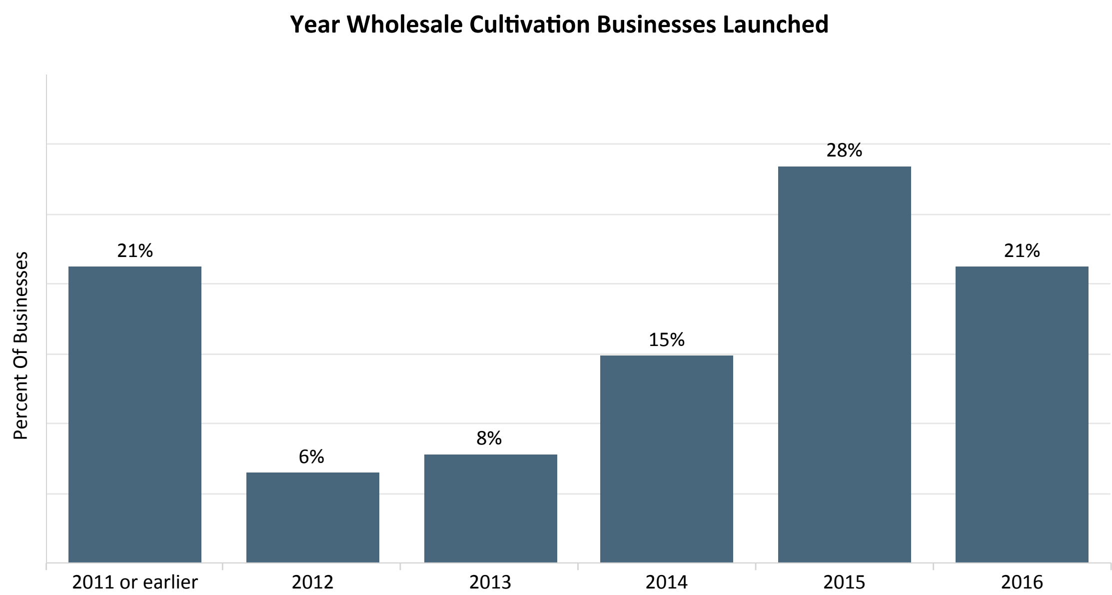
Chart 4.17: How Profitable Are Wholesale Cultivators?



Note: "Losing A Lot Of Money" (expenses and taxes exceed revenue by more than 25%); "Losing Some Money" (expenses and taxes exceed revenue by up to 25%); "Moderately Profitable" (up to 25% of revenue left after expenses and taxes are paid); "Very Profitable" (more than 25% of all revenue left after expenses and taxes are paid).

Wholesale Cultivator Operational Data

Chart 4.18: Year Wholesale Cultivation Businesses Launched



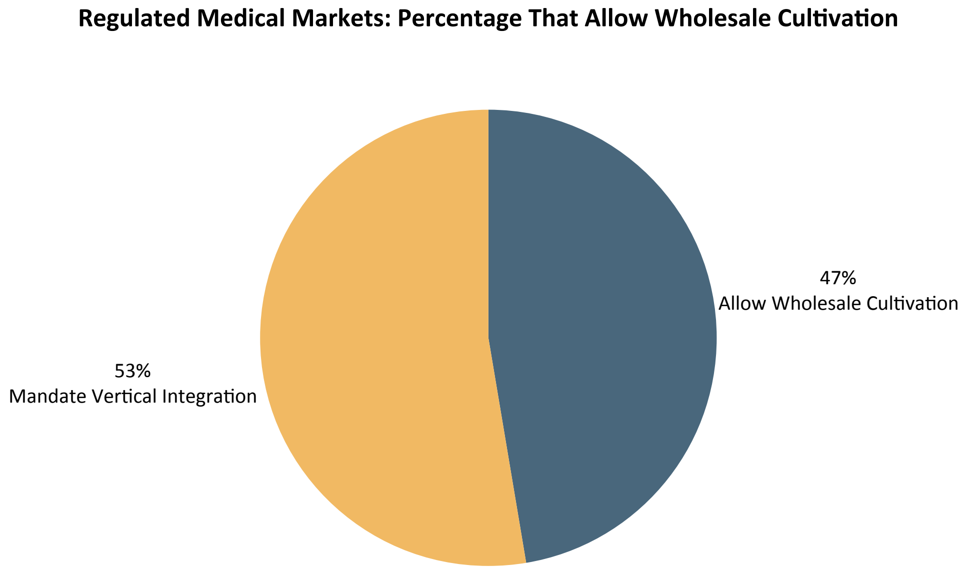
Half of cultivation businesses were launched in the last two years, an astonishing figure that illustrates how attractive this segment of the industry has become to entrepreneurs. Investors willing to finance plant-touching businesses have been favoring cultivation for a few reasons: These types of operations are relatively easy to scale, they're not as public-facing as a dispensary or rec store, and many entrepreneurs are enticed by the idea of entering such a fragmented sector of the industry.

Coinciding with the emergence of Colorado's recreational market, twice as many wholesale cultivation businesses were launched in 2014 compared to 2013. By 2015, Washington state's recreational industry was off the ground and Colorado lifted its "70/30 Rule," a provision that required dispensaries and rec stores to grow 70% of the marijuana sold in their stores. Both developments spurred startup activity, as more cultivation businesses launched in 2015 than in any other year. Washington is no longer accepting wholesale cultivation applications, and the relative maturity of Colorado's market has made it more difficult for new players to enter, thus the decrease in startup activity by 2016.

Though this segment of the industry has become quite saturated in states like Colorado and Washington – where the number of new grows coming online has slowed - emerging recreational markets in California, Maine, Massachusetts and Nevada and medical markets in states such as Arkansas, Ohio, Maryland and Pennsylvania will bring tremendous opportunities for cultivators seeking to launch a business in states where competition is not as fierce.

REAL WORLD EXAMPLE

Chart 4.19: Real World Example – Regulated Medical Markets: Percentage That Allow Wholesale Cultivation

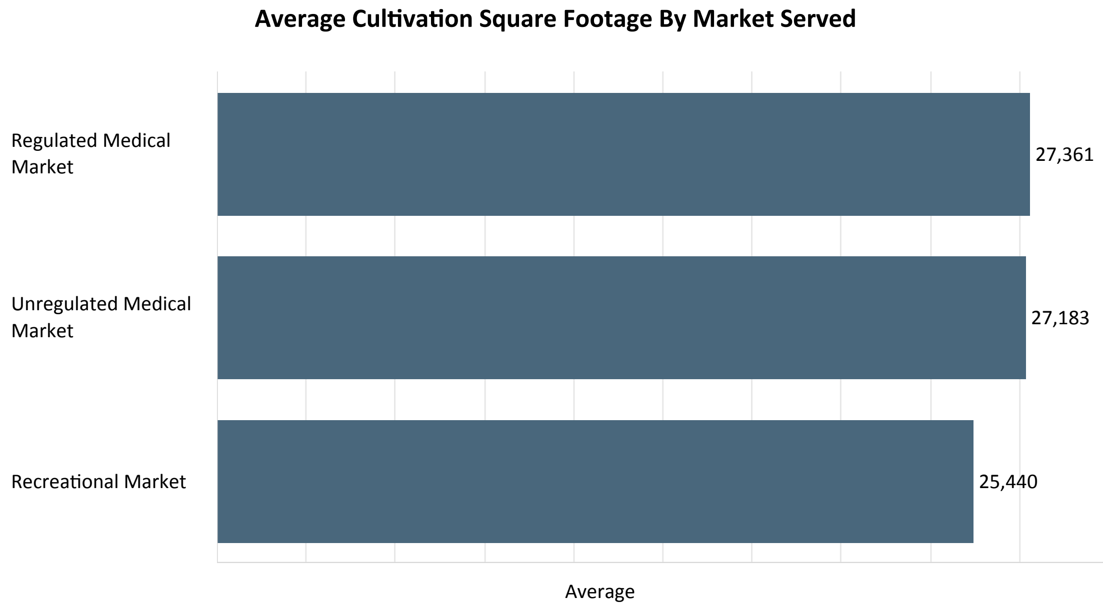


Wholesale cultivation businesses are allowed in all recreational markets, and they also operate in unregulated medical markets – even though their legality is often open to debate. In regulated medical markets, however, vertical integration is required by the majority of states. Vertical integration – though implemented differently state by state – essentially requires dispensaries to grow the marijuana to be sold in their stores, therefore eliminating the opportunity for stand-alone cultivation businesses to sell products to dispensaries.

Many states that mandate vertical integration are smaller markets located on the East Coast – like New York, New Jersey and New Hampshire – but Arizona, one of the largest medical markets in the nation, does not allow for wholesale cultivation, either.

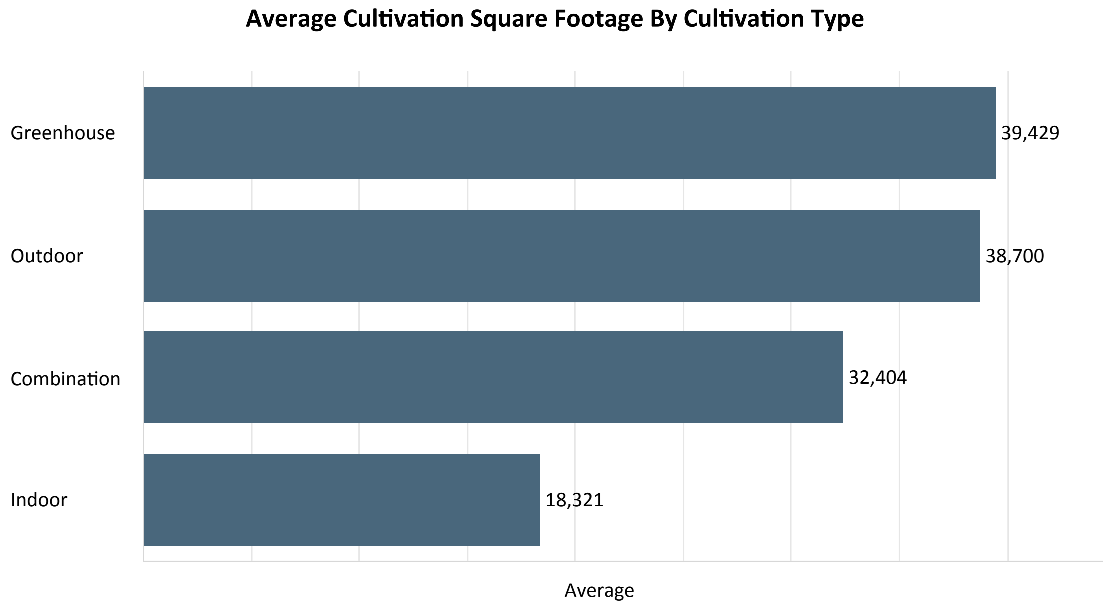
But the balance may be changing as new markets come online. Pennsylvania and Ohio, expected to be two of the biggest medical markets in the nation once they get off the ground, will license cultivators and dispensaries separately. Details are being finalized in Florida and Arkansas, but it's anticipated these markets will also eschew the vertical integration model and allow wholesale cultivators to exist separately from dispensaries.

Chart 4.20: Average Cultivation Square Footage By Market Served



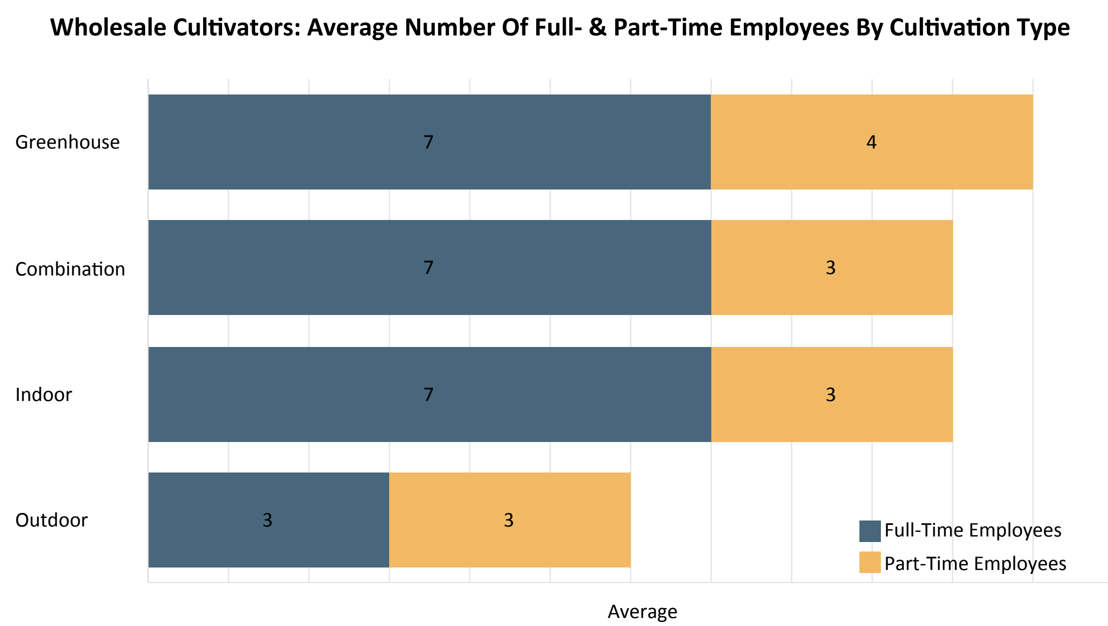
As previously mentioned, cultivation methods used by growers in the regulated, unregulated and medical markets break down in a similar fashion, explaining why grow sizes across markets bear such a resemblance to each other. But it's important to remember that these are averages, and facilities much larger in size are beginning to spring up. For example, over 15 respondents in our survey – concentrated primarily in Colorado, Washington state and California - indicated their business has over 100,000 square feet of cultivation space. Many more are in the planning stages and could be up and running in the near future. In the coming years, expect to see average cultivation square footage increase as more massive grows emerge and scaling becomes a critical factor for success, particularly in the rec market.

Chart 4.21: Average Cultivation Square Footage By Cultivation Type



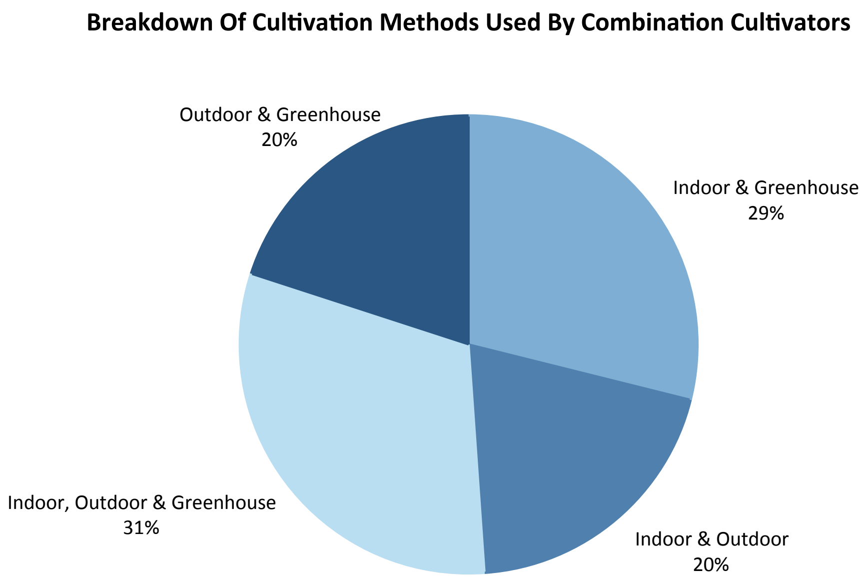
The wholesale cultivation segment of the industry is quickly becoming saturated, if it's not already, yet startup activity has not let up. New facilities continue to come online, and an increasing amount of well-capitalized businesses are opting to build large, sprawling greenhouse operations. Though the upfront costs of building a sophisticated greenhouse are substantial, the facilities are relatively cheap to operate and capable of producing flower comparable in quality to that grown indoors. Businesses that can front the initial cash are building these large greenhouses, hoping to separate themselves from the crowded cultivation space by leveraging means of production to produce low-price, high-quality cannabis.

Chart 4.22: Wholesale Cultivators: Average Number Of Full- & Part-Time Employees By Cultivation Type



Though the average greenhouse cultivation is twice the size of the average indoor grow, indoor cultivators employ about the same number of people. It makes sense, because the dense, technically complex indoor growing environment requires continuous monitoring and care. Part-time employees constitute a much larger percentage of an outdoor cultivator's workforce, given that much of their staffing needs to come during the fall harvest season.

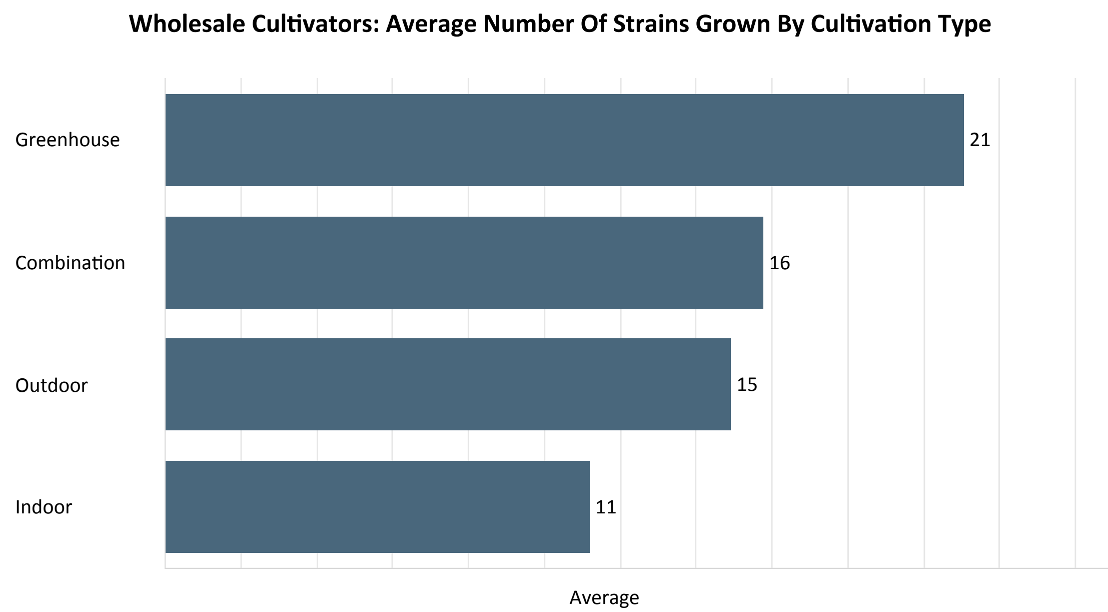
Chart 4.23: Breakdown Of Cultivation Methods Used By Combination Cultivators



There's no industry standard when it comes to the methods by which combination cultivators grow marijuana, though it appears a slight majority have spread their operations across all three types.

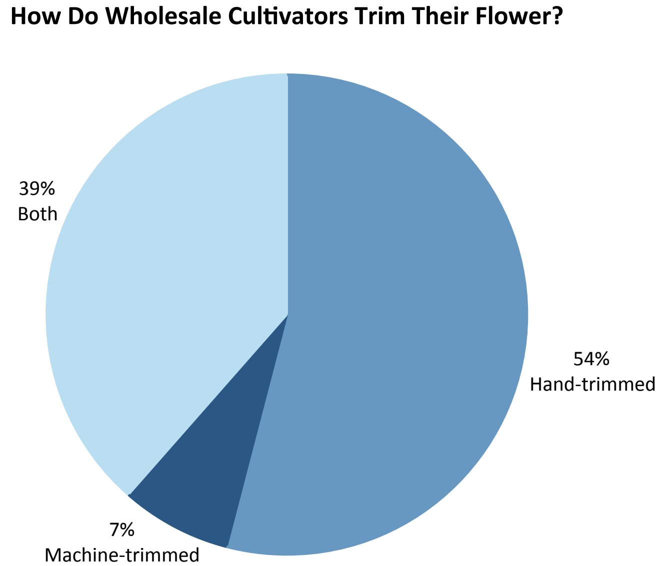
There are many possible reasons for a grower to utilize multiple cultivation methods, though oftentimes it's a matter of practicality. Cultivators that began growing marijuana outdoors, for example, have used initial profits to move production to an indoor or greenhouse facility, though high startup costs have prevented them from ceasing outdoor operations entirely. On average, 45% of a business' total production takes place outdoors when combination growers use this cultivation method.

Chart 4.24: Wholesale Cultivators: Average Number Of Strains Grown By Cultivation Type



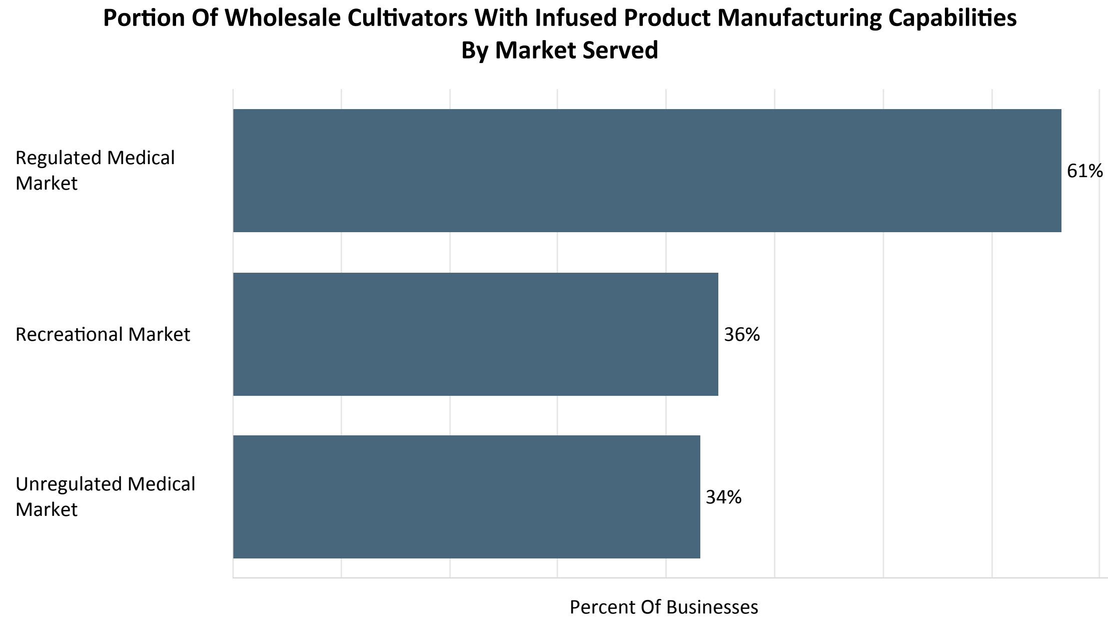
Greenhouse cultivators typically have much more physical space to grow marijuana, allowing operators to expand their product offerings with low opportunity costs – growing an additional strain may not force the removal of another strain. The same concept applies to outdoor growers, though natural soil and weather conditions may limit which types of strains these cultivators can successfully grow. Indoor growers appear to be specializing a bit more, likely focusing on strains they've successfully grown in the past or strains popular with patients or consumers in their state. With high startup and operating costs to cover, indoor cultivators face more risk by growing new or different strains that aren't guaranteed to find a customer base.

Chart 4.25: How Do Wholesale Cultivators Trim Their Flower?



Over 90% of cultivators trim at least some of their cannabis by hand, likely because quality machine trimmers can be a costly expenditure for small growers. While machine-trimming can move through large quantities of flower much faster than a human, it can be harsh on the actual buds of the flower, removing more than necessary and leaving buds with a uniform appearance. This is a less-desirable look on retail shelves, where high-end flower is expected to be well-manicured and showcase the unique traits of a particular strain. For this reason, machine-trimming makes more sense for large-scale cultivators, who often grow at least a few strains not intended for the high end of the market. And as the industry matures and cultivation operations become larger, automation will take hold, meaning machine-trimming will likely become more widely used in general.

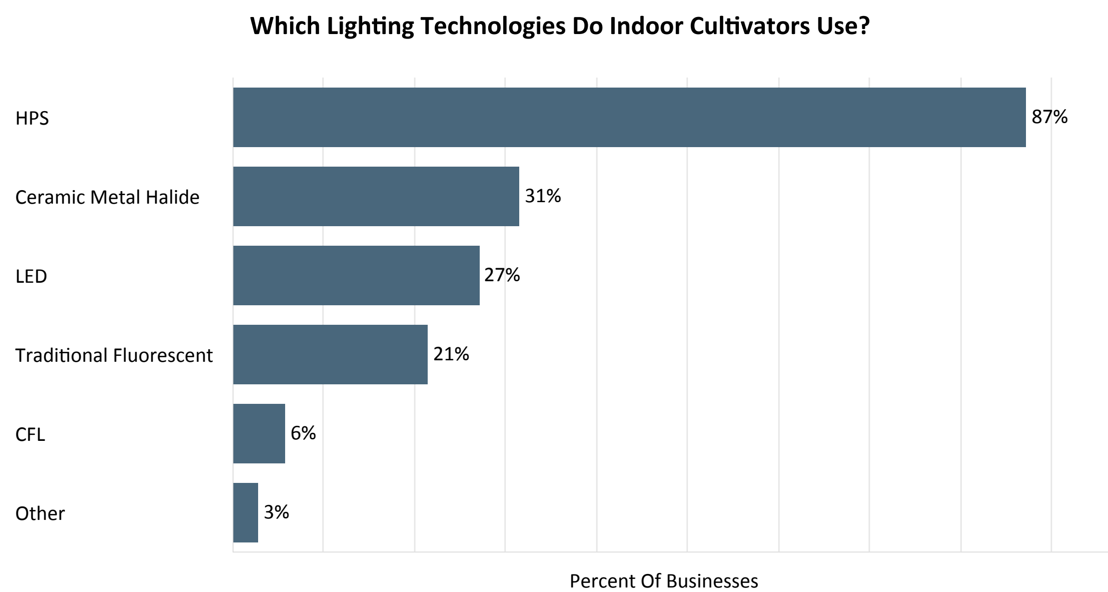
Chart 4.26: Portion Of Wholesale Cultivators With Infused Product Manufacturing Capabilities By Cultivation Type



In regulated medical markets where vertical integration is not mandated – like Illinois or Washington DC – it behooves cultivators to incorporate infused product manufacturing capabilities into their operations, as they are often the sole supplier of all cannabis products sold in dispensaries.

In the recreational and unregulated medical markets, about a third of cultivators also produce infused products. But the excessive number of cultivators in mature markets like Colorado and Washington state has led to an oversupply of wholesale marijuana, leaving many growers sitting on large stocks of unsold flower. This may lead more cultivators to add infused product manufacturing capabilities to their business in the future, because it provides another, potentially more profitable stream of revenue.

Chart 4.27: Which Lighting Technologies Do Indoor Cultivators Use?

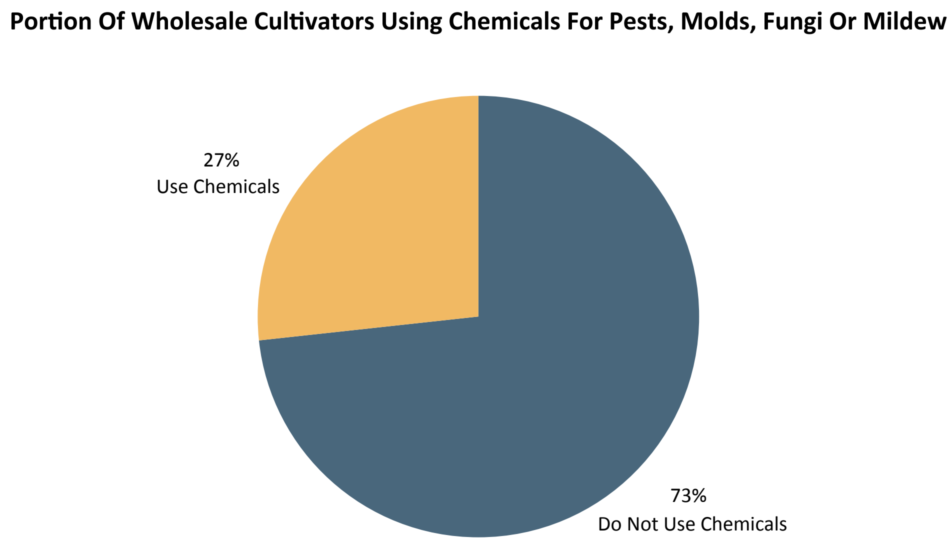


Note: Multiple-choice question; respondent total may be greater than 100%.

High Pressure Sodium (HPS) lighting has been and continues to be the dominant lighting technology used in the industry, although growers are clearly experimenting with other types of lighting. The energy efficiency of LED lighting has led many growers to try LED lights in a small portion of their cultivation areas. But it's still an emergent technology with high upfront costs and no tried-and-true method by which cultivators can easily implement the equipment into their grows.

But the wholesale cultivation market is becoming increasingly saturated, forcing businesses to compete on price. Cutting energy consumption is the first place many cultivators will turn to when looking for ways to reduce their cost of goods sold, so expect LED lighting to gain more traction in the coming years.

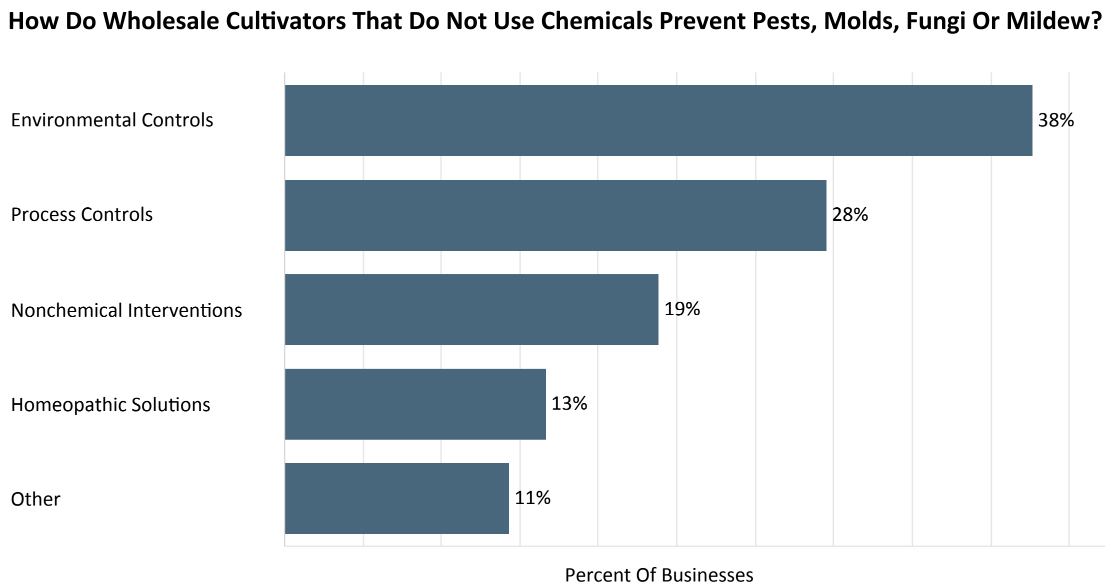
Chart 4.28: Portion Of Wholesale Cultivators Using Chemicals For Pests, Molds, Fungi Or Mildew



The use of chemicals to eliminate or prevent harmful pests, molds, fungi or mildew from damaging crops is a contentious issue across all agricultural industries, and marijuana is no different. Chemicals are often used after a harmful infestation has occurred and drastic measures are needed to save the plant. In such cases, nonchemical interventions will likely be ineffective, because they're typically used as a means of prevention rather than treatment. Therefore, experienced cultivators with well-established operating procedures and adequate growing facilities are less likely to resort to using chemicals.

However, while most growers claim that they don't use chemicals in the growing process, this often isn't the case. Testing requirements vary widely by state, and with no industry standard for what qualifies as "chemical-free" or "organic" cannabis, there's a lack of incentive for cultivators to abide by strict production standards that go unrecognized in the retail market. Some downright lie, while others mislead or are confused themselves about what classifies as organic. Most growers likely use at least small amounts of chemicals, but they are not forthcoming about it. If anything, this information shows how far the industry has to go in being transparent about how it is growing cannabis.

Chart 4.29: How Do Wholesale Cultivators That Do Not Use Chemicals Prevent Pests, Molds, Fungi or Mildew?



Note: Multiple-choice question; respondent total may be greater than 100%.

For growers that do not use chemicals, environmental controls is the most popular method to prevent pests, molds, fungi and mildew. Properly monitoring humidity or installing an air-filtration system – features already present in many grow operations – can prevent the types of conditions that allow mold, fungus and mildew to thrive.

Implementing strict procedures that ensure employees do not bring contaminants into a grow room is an example of process control, another widely used mechanism by which cultivators can prevent pests, molds, fungi or mildew without resorting to chemical use. Nonchemical interventions, like using odors or sticky tape with pheromones to attract pests, and homeopathic solutions – such as spraying plants with habanero oil to prevent mites – are examples of other, slightly less popular forms of chemical-free prevention.

Chart 4.30: Primary Growing Medium Used By Wholesale Cultivators

Primary Growing Medium Used By Wholesale Cultivators

	Soil	Coco Coir	Other	Rockwool	Water	Perlite
Indoor	32%	30%	9%	16%	10%	3%
Greenhouse	50%	17%	33%	-	-	-
Combination	74%	7%	15%	2%	-	2%

Across all cultivation types, soil has proved most popular among growers. Soil use is more prevalent among greenhouse and combination cultivators, while indoor growers are utilizing several different growing mediums. Given the high degree of control indoor cultivators have over the growing environment, it makes sense that some are experimenting with more specialized cultivation techniques.

NATIONAL WHOLESALE CANNABIS PRICING INSIGHTS

Though cannabis is not often considered an agricultural commodity in the same way as wheat or cotton, it very much is.

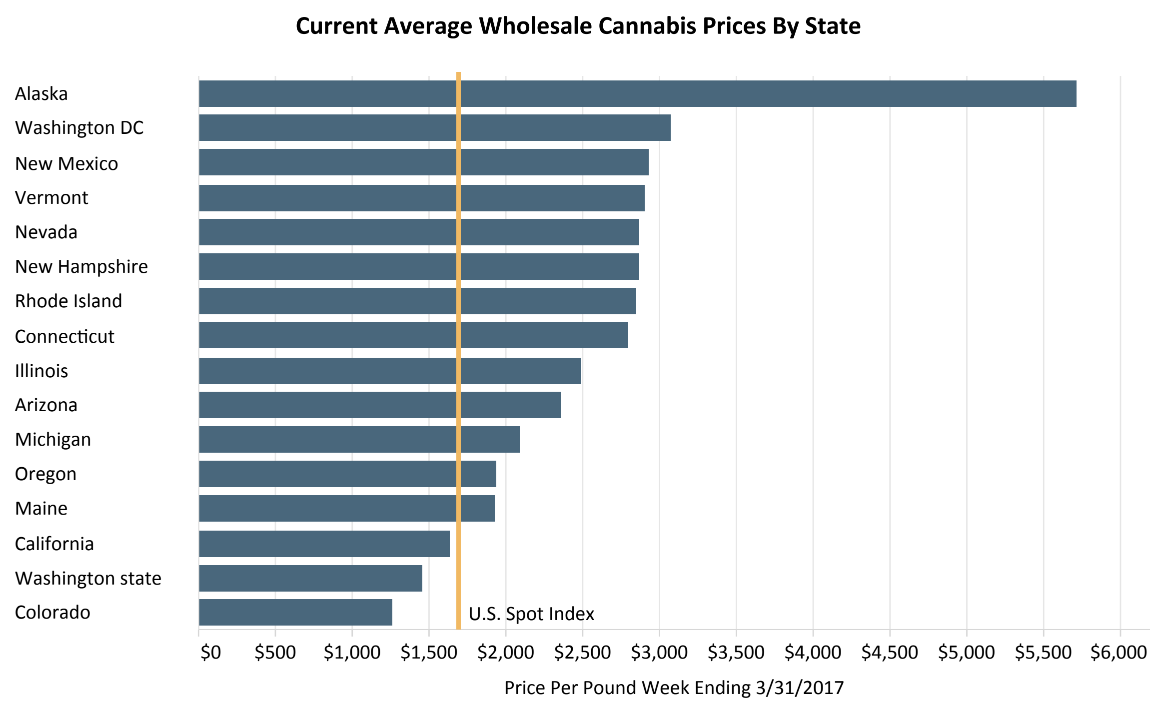
But you don't have to tell that to marijuana cultivators, as they're confronted with the economic realities of the rising commoditization of marijuana every day.

The wave of recreational and medical marijuana legalization that's swept across the United States in recent years has brought massive change to the cannabis industry, and wholesale cultivators have felt it more than most. The scale and level of sophistication by which marijuana can now be produced is unprecedented, and the fundamental law of supply and demand has had a marked effect on the price of wholesale cannabis. In mature markets – Colorado especially – growers need to possess a high level of organization and operational efficiency in order to turn a profit.

But it's not all doom and gloom, as the unique state-by-state nature of cannabis markets and growing mainstream acceptance of marijuana use means new opportunities will continue to arise for the foreseeable future.

The following information – provided by the data firm Cannabis Benchmarks – provides a look at cannabis wholesale price trends across the country. Unless otherwise noted, prices reflect settled transactions between legal market participants for both medical and recreational cannabis.

Chart 4.31: Current Average Wholesale Cannabis Prices By State



Note: Prices reflect weighted average of all cultivation types (indoor, outdoor, greenhouse), where applicable and legal.
Source: Cannabis Benchmarks®, a division of New Leaf Data Services, LLC

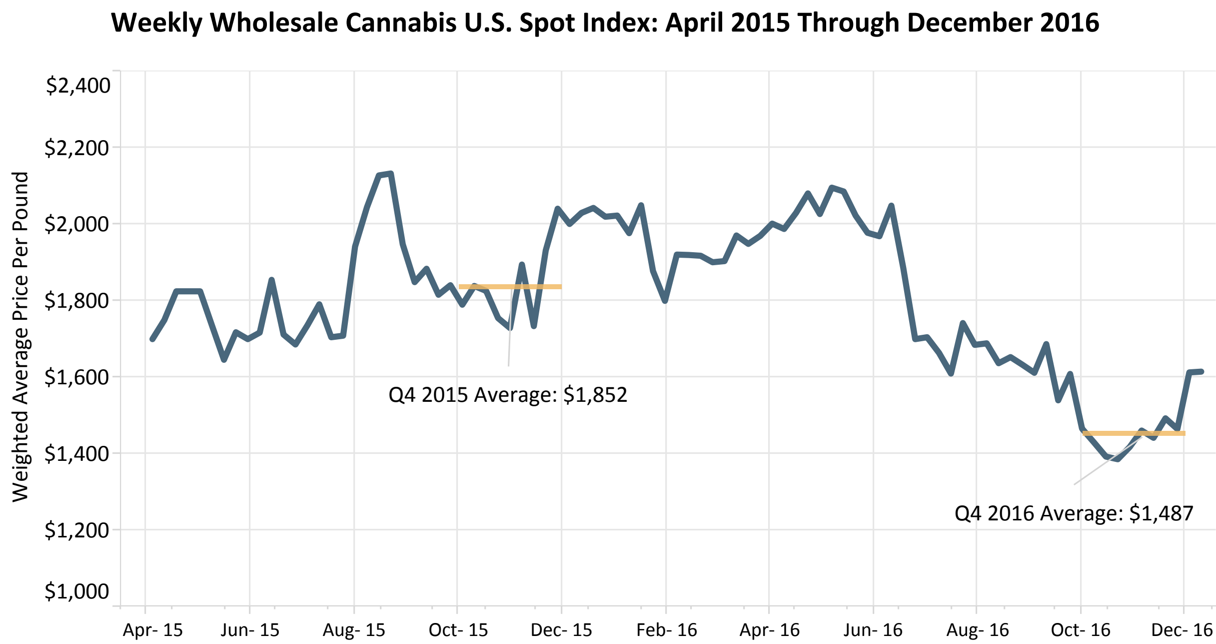
Based on a host of variables, wholesale cannabis prices can fluctuate quite significantly throughout the year. But this snapshot of the weighted average spot price per pound of marijuana for the last week in March 2017 illustrates how the unique business and regulatory conditions of each state impact the wholesale marijuana market.

In hopes of cashing in on the Green Rush brought on by adult-use legalization, a huge number of cultivators entered the market in Colorado and Washington state – driving production to record levels and placing immense downward pressure on prices.

Though California's medical marijuana market is largely unregulated, cannabis businesses have been operating in the state for many years. This level of competition has kept marijuana prices low, though this will almost certainly change once statewide regulatory reforms are rolled out in 2018. Up to this point, many businesses have been able to conduct operations without the need to pay for expensive licenses or to maintain compliance with strict and costly regulations.

Alaska's recreational program just got off the ground in late 2016, but licensing delays have caused significant supply shortages and some of the highest retail marijuana prices in the nation. The state did not have an MMJ industry before legalizing recreational cannabis, so growing pains were to be expected. More cultivators and testing labs are set to launch in the coming weeks and months, which will push prices back down to more reasonable levels.

Chart 4.32: Weekly Wholesale Cannabis U.S. Spot Index: April 2015 Through December 2016



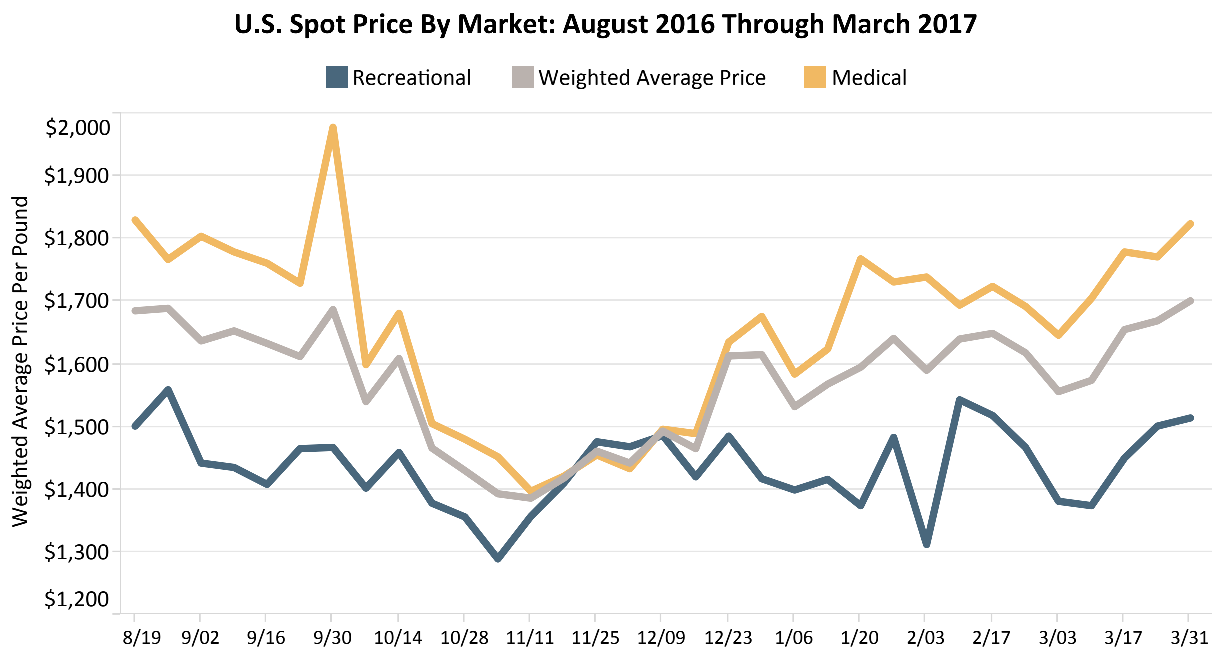
Before the establishment of large, commercial marijuana markets, cannabis was traditionally grown outdoors in the sun. And while outdoor cultivation is still a widely used method of growing, a huge amount of production has moved indoors or to greenhouses – where growers have more control over the environment and can harvest multiple times per year.

This has had a demonstrable effect on the wholesale market, where large outdoor harvests typically pushed prices down in late fall, rising again in the summer months when supplies began to run low.

The shifting production cycle and a proliferation of commercial-scale, sophisticated grow operations has resulted in a general downward trend in wholesale cannabis prices – without the characteristic peaks and valleys producers are used to.

In states with robust adult-use industries like Colorado and Washington, the market is oversaturated and ultracompetitive – which will continue to keep prices low and make it increasingly difficult for growers to run a profitable business.

Chart 4.33: U.S. Spot Price By Market: August 2016 Through March 2017

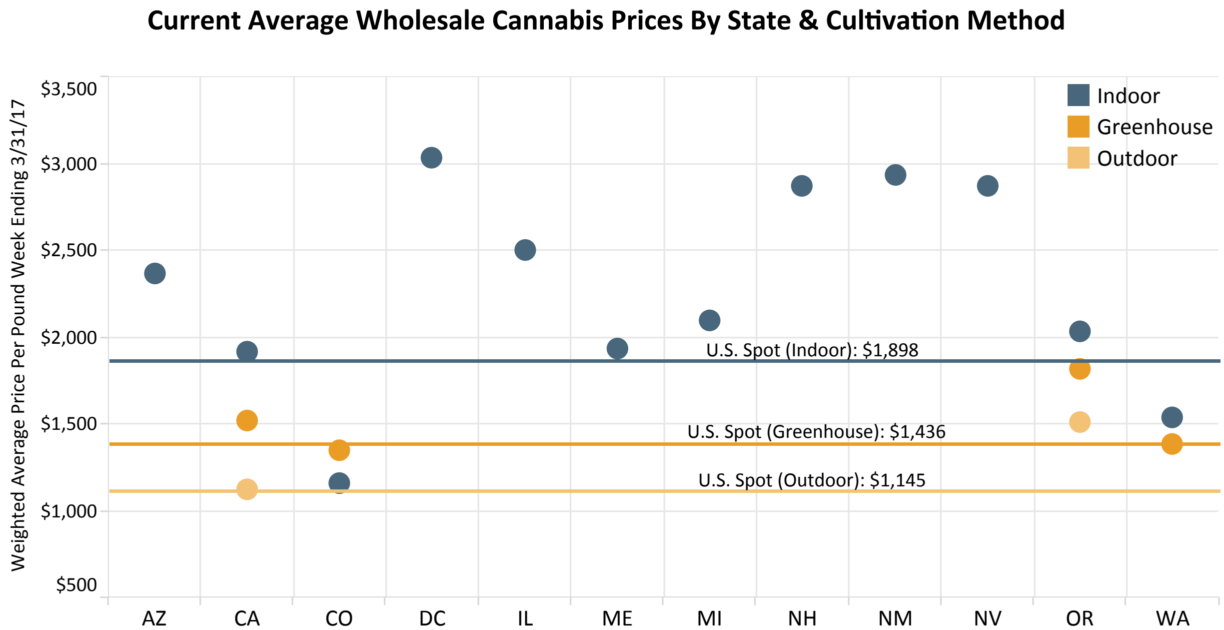


Note: Prices reflect weighted average of all cultivation types (indoor, outdoor, greenhouse), where applicable and legal.
Source: Cannabis Benchmarks®, a division of New Leaf Data Services, LLC

The level of production in Colorado, Oregon and Washington state's recreational markets has pushed prices below that of even the average across all medical markets. However, a particularly productive harvest in California – still a medical-only state – brought MMJ prices below the rec market late last year.

California's huge medical market is what's keeping the nationwide average price of MMJ so low, as smaller, more tightly regulated MMJ industries in states like Illinois or New Hampshire regularly see prices hit over $2,500 for a pound of marijuana. Though California does not have a mandatory patient registry, it's estimated that over 900,000 MMJ patients reside in the state, more than all other MMJ programs combined.

Chart 4.34.: Current Average Wholesale Cannabis Prices By State & Cultivation Method

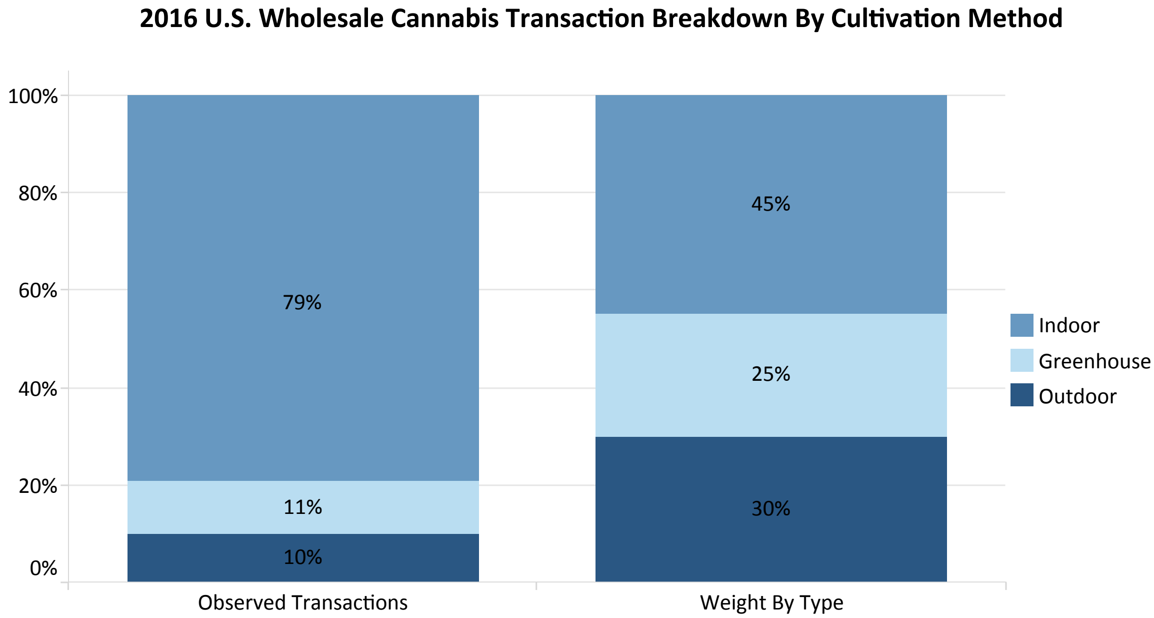


Note: Prices reflect weighted average of medical and recreational, applicable and legal.
Source: Cannabis Benchmarks®, a division of New Leaf Data Services, LLC

Indoor-grown cannabis typically fetches a higher price at retail, as cultivators are able to maintain complete control over growing conditions to produce high-quality, aesthetically pleasing flower on a consistent basis. And while this still holds true in most markets, greenhouses have reached a level of technological sophistication that allows for a similar degree of environmental control, but with a much larger production capacity.

For just that reason, leading cultivators in Colorado have begun moving production into greenhouses. And the increased quality of greenhouse-grown flower has resulted in higher average prices relative to that of indoor-grown flower – a trend that will likely extend to other adult-use markets in the future.

Chart 4.35: 2016 U.S. Wholesale Cannabis Transaction Breakdown By Cultivation Method

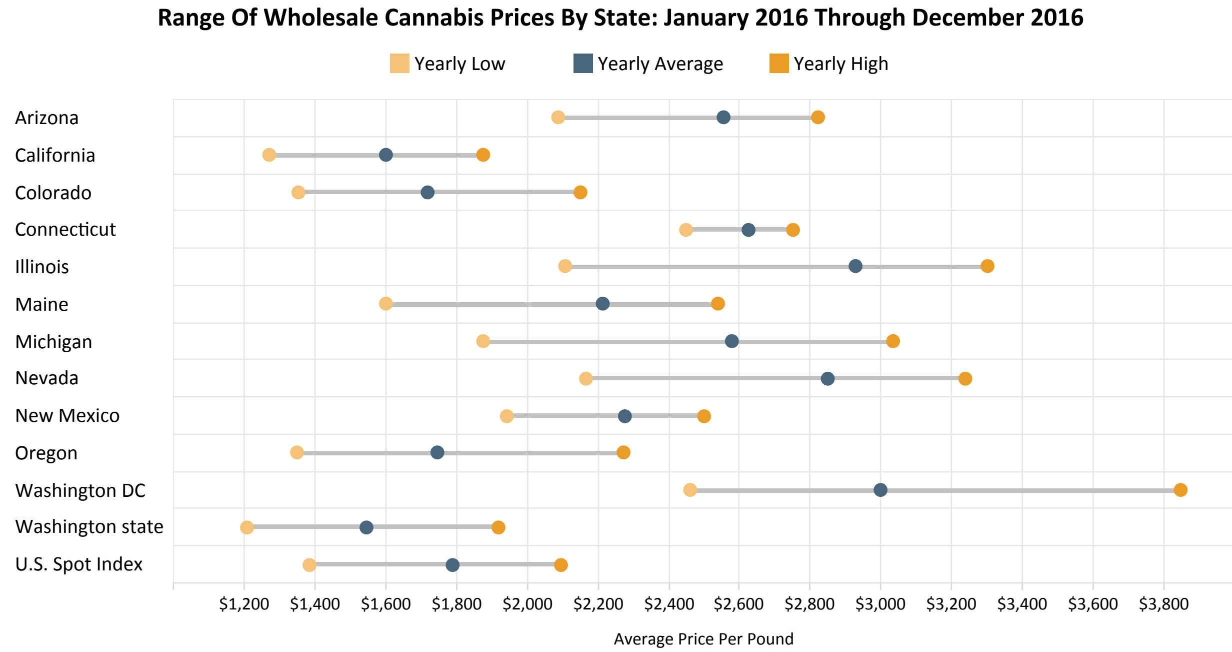


Note: Prices reflect weighted average of all cultivation types (indoor, outdoor, greenhouse), where applicable and legal.
Source: Cannabis Benchmarks®, a division of New Leaf Data Services, LLC

The amount of cannabis that can be produced at a single time in an indoor facility using artificial lamps is much smaller relative to greenhouse or outdoor operations with expansive grow spaces that can use the sun as a primary light source. This means that retailers buying indoor-grown marijuana are purchasing small quantities several times a year, as indoor growers are unable to produce on the same scale.

So while only 10% of wholesale transactions that took place in 2016 were for outdoor-grown flower, it accounted for 30% of all flower sold last year – meaning transactions involving outdoor-grown flower are generally for a higher quantity of product. The same dynamic is at play for product grown in greenhouses, though the smaller ratio of transactions to weight indicates purchase sizes are not quite as large.

Chart 4.36: Range Of Wholesale Cannabis Prices By State: January 2016 Through December 2016



Note: Prices reflect weighted average of medical and recreational, where applicable and legal.
Source: Cannabis Benchmarks®, a division of New Leaf Data Services, LLC

The chart above provides another clear illustration of just how much wholesale cannabis prices can vary – even within markets.

In Washington DC, regulators are considering a number of substantial changes to the MMJ program, including mandatory lab testing, allowing cultivation facilities to expand and implementing a new tracking system. While these may ultimately serve to benefit MMJ businesses, changes of any kind foster uncertainty, which has manifested in the most volatile medical cannabis prices in the nation.

Illinois' MMJ program was slow to get off the ground, and though patient counts are steadily increasing, cultivators are still trying to figure out how much production is necessary to meet demand.

Connecticut's MMJ program is very tightly controlled, and the state is still sitting on cultivation licenses it has yet to award. Patient counts doubled in the state over the course of 2016 as well, resulting in relatively higher – yet exceedingly stable – wholesale cannabis prices.

CHAPTER

5

Infused Product Manufacturers

Compared to retailers and wholesale cultivators, infused product manufacturers are arguably best positioned to capitalize on the wave of marijuana legalization that's swept across the United States in recent years. Infused companies have benefited from relatively reasonable tax liabilities, falling wholesale cannabis prices and a booming recreational market that's demonstrated a growing preference for edibles and concentrates.

But, like all companies in the marijuana industry, infused product manufacturers must overcome significant hurdles to launch and operate a profitable business. Producing consistent, quality products requires a high degree of technical skill, regulations are in a constant state of flux, and the competitive environment is growing more intense by the day.

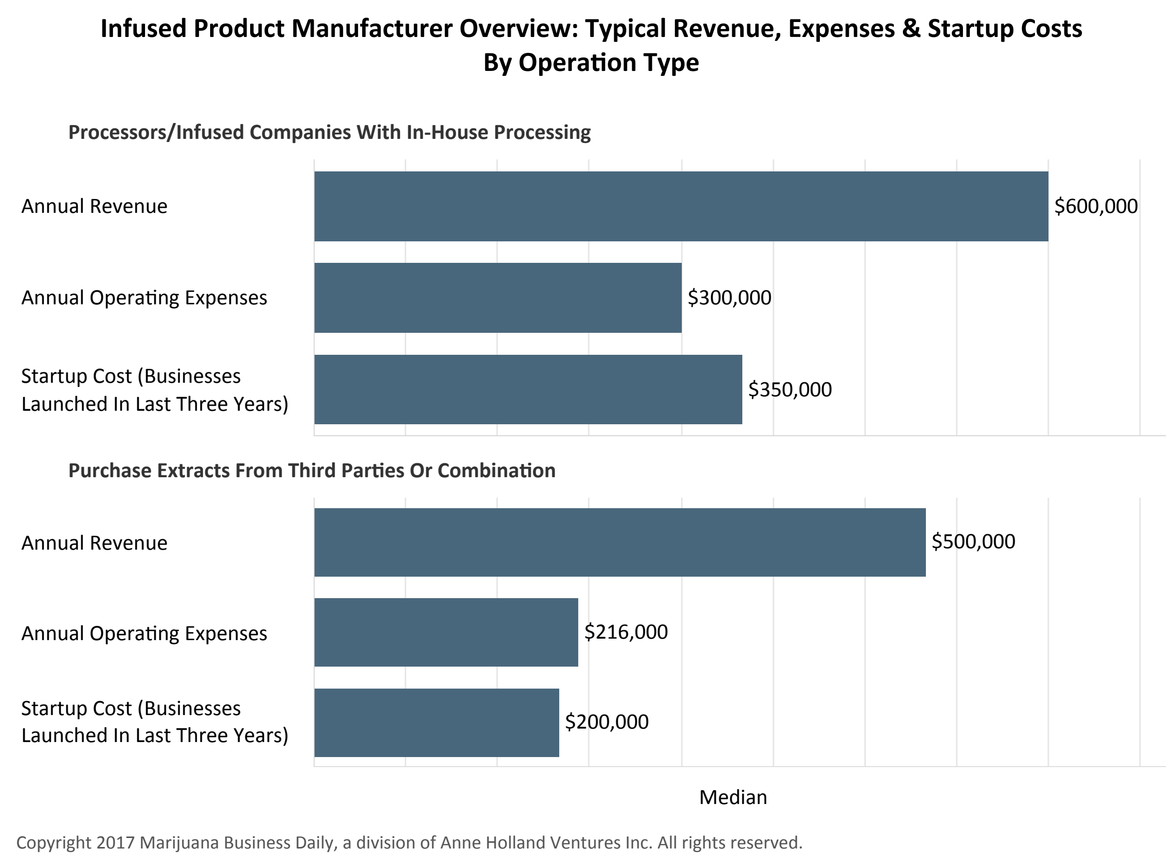
This section includes data for all infused products and concentrates companies as a whole, though a couple of meaningful distinctions are made throughout the chapter:

- **Processors/Infused Companies With In-House Processing:** This category is a combination of processors (businesses that only handle extraction) and infused companies that exclusively perform in-house processing for their own products. Extraction-only companies currently exist in just a few markets, so there isn't enough data to break them out into their own category. Despite some differences in required equipment and other areas, the nature of general operations at processors and edibles/topicals makers that perform all their own extractions are similar enough to aggregate for the purposes of calculating basic financial metrics.
- **Purchase Extracts From Third Parties Or Combination:** This category refers to infused product companies that exclusively buy concentrates from other companies or perform limited in-house processing.

Separating businesses into these categories allows for more useful comparisons, as the cost of starting and operating an infused product company that performs all extractions in-house can be significantly more than a company purchasing extracts wholesale.

The charts and analysis throughout this chapter will provide a glimpse into how these unique operating structures affect key financial metrics.

Chart 5.01: Infused Product Manufacturer Overview: Typical Revenue, Expenses & Startup Costs By Operation Type



Key financial metrics between processors/infused companies with in-house processing and infused businesses that purchase at least some extracts from third parties are not drastically different. However, companies with in-house processing pay nearly twice as much to get their business off the ground. More detail regarding startup costs will be provided throughout this chapter, but generally speaking, this largely is the result of additional equipment and real estate costs. As one would expect, annual operating expenses are also higher for companies with in-house processing, as they have larger ongoing costs in general (labor, utilities, etc.). But they also typically generate more revenue than infused companies that tap the wholesale market for extracts.

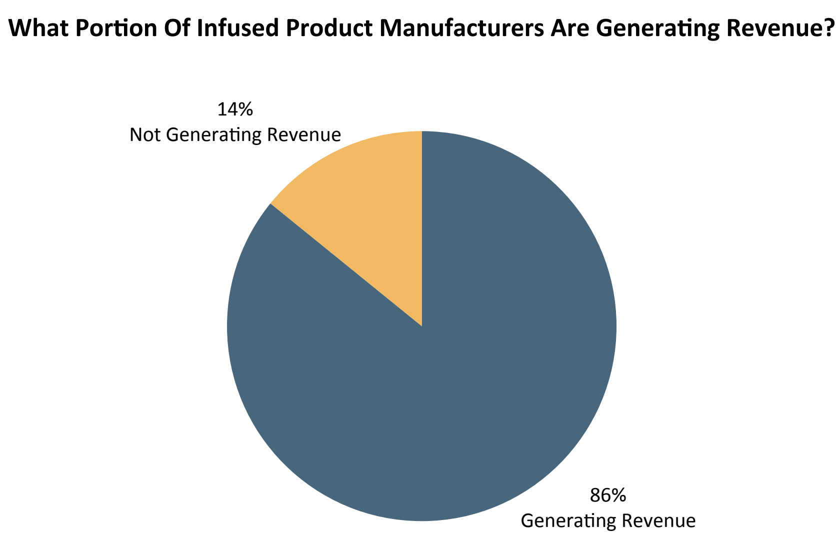
No matter how infused product companies choose to establish their operations, successful business owners have the potential to reap significant profit margins given the fundamentals of this sector of the industry and the increasing appetite among consumers for edibles and concentrates.

Average Infused Product Manufacturer Profit Margin:

Processors/Infused Companies With In-House Processing:	27%
Purchase Extracts From Third Parties Or Combination:	33%
All Infused Product Manufacturers:	30%

Infused Product Revenue Figures

Chart 5.02: What Portion Of Infused Product Manufacturers Are Generating Revenue?



Getting an infused product manufacturing business off the ground is much more challenging than it was five or six years ago, when the regulatory climate was relatively lax.

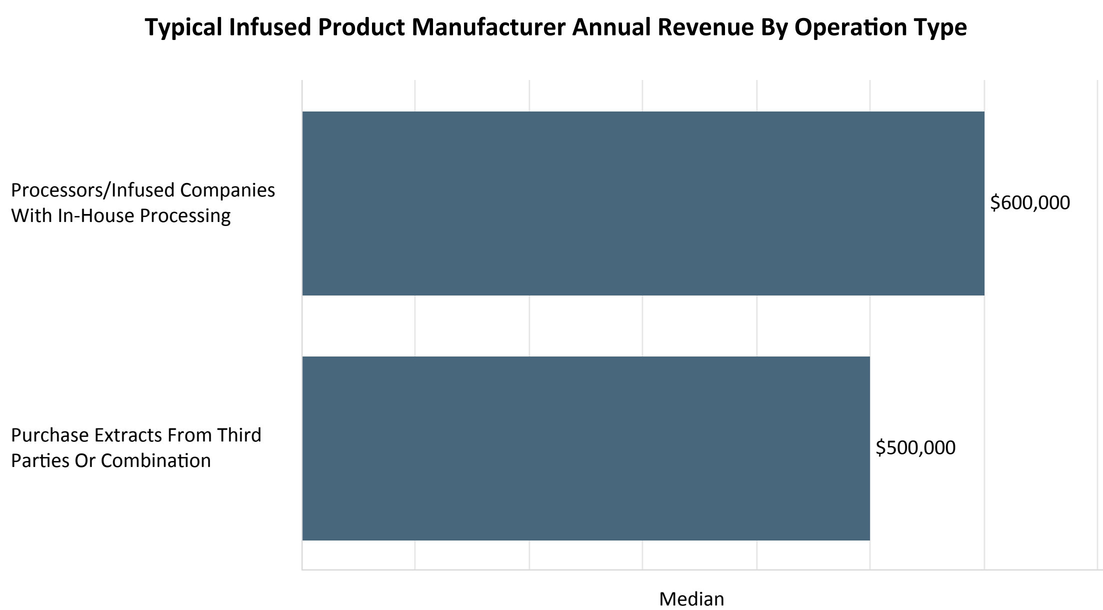
In an effort to keep infused products from being accidentally ingested by children or improperly consumed by a less-experienced user, lawmakers are continually adjusting regulations regarding the packaging and labeling of infused products. For example, a recent rule change in Colorado required infused product manufacturers to stamp every individual serving of a recreational edible to indicate that the product contains THC.

This required many existing infused companies to make substantial changes to standard operating procedures, and it introduced delays for companies looking to enter the market.

Factor in the trouble many plant-touching businesses have securing capital, and it's easy to understand why 14% of infused product manufacturers have not reached the point where they can begin selling products.

In more mature markets, where the regulatory landscape is relatively stable, the application and licensing process can be fairly quick, and investors may be more open to the idea of funding these types of businesses. But for newer markets – like those recently approved by voters in the 2016 presidential election – delays between the time an infused product company is launched and when they can begin selling are to be expected.

Chart 5.03: Typical Infused Product Manufacturer Annual Revenue By Operation Type



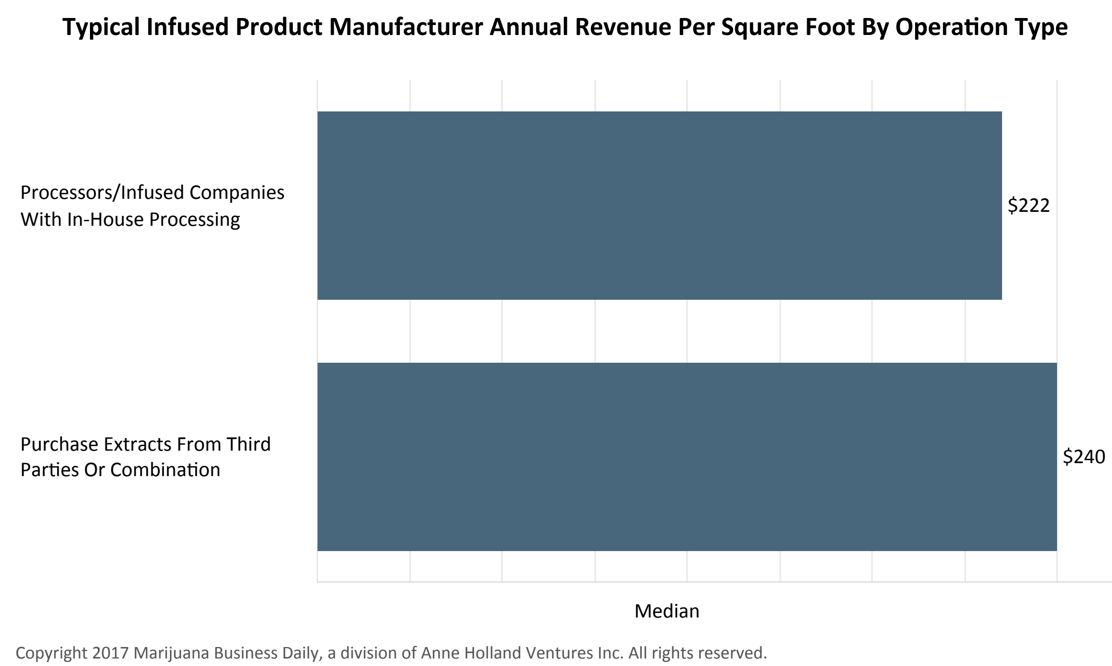
Processors and infused companies with in-house processing typically gross 20% more in annual revenue than infused companies that purchase concentrates wholesale or perform only some of their own processing. With higher startup and operating costs to cover, businesses with control over the means of production tend to generate more revenue in order to remain financially viable.

But the method by which marijuana is processed into a concentrate is complicated, the equipment is expensive and – without the proper facility and technical expertise – the process can be dangerous. Factor in the low price of wholesale marijuana, and it makes sense that many companies are choosing to let someone else handle the dirty work while they focus on other aspects of the product, like sourcing better ingredients for an infused chocolate or perfecting the fragrance of a topical. After all, many consumers are unconcerned with who manufactured the actual concentrate used to infuse an edible, as long as the end product provides a satisfactory experience. And on the whole, it appears that businesses purchasing extracts from third parties are not suffering for it in the retail market.

Median Annual Revenue: All Infused Product Manufacturers

$600,000

Chart 5.04: Typical Infused Product Manufacturer Annual Revenue Per Square Foot By Operation Type

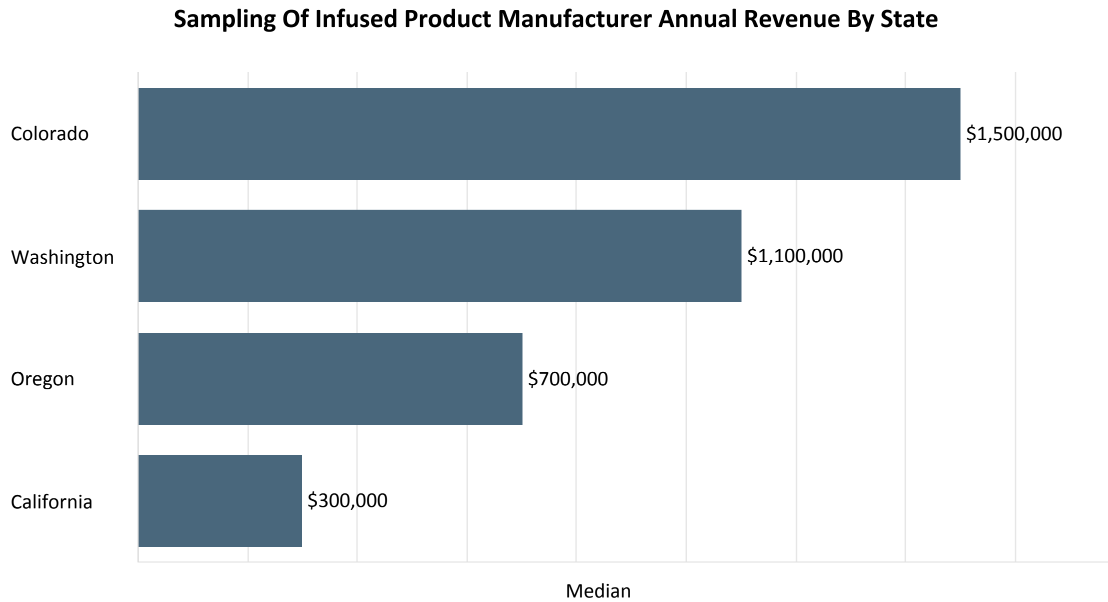


While processors and infused companies with in-house processing generate more in annual revenue than their peers who tap the wholesale market, the size of an average facility with in-house production is 50% larger than one without; thus the lower revenue-per-square-foot metric.

Median Annual Revenue Per Square Foot: All Infused Product Manufacturers

$222

Chart 5.05: Sampling Of Infused Product Manufacturer Annual Revenue By State



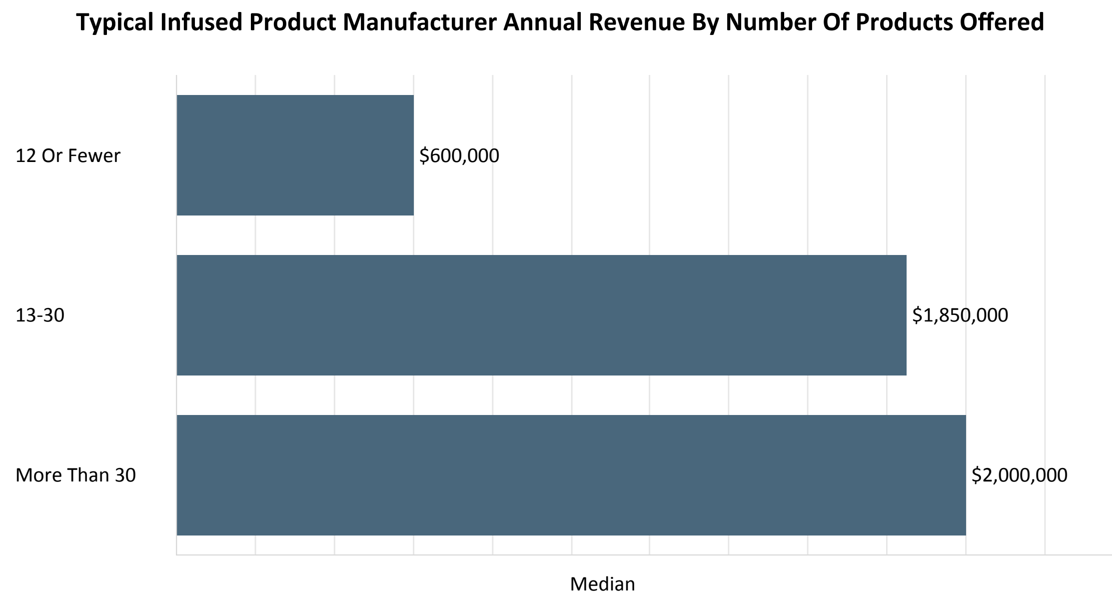
With over $1.3 billion in combined medical and recreational marijuana sales in 2016, Colorado is the largest and most mature market in the nation. As a result, infused product companies in the state are generating more revenue per year than their peers in all other major markets. Several of Colorado's most prominent infused product companies also have expanded into other states, giving them even more opportunities to increase revenues.

Washington's recreational market – which was recently combined with its medical market, as all medical sales now take place through a recreational store – is relatively smaller, with nearly $700 million in retail sales in 2016. All businesses in the state, including infused product companies, have been hurt by a state cap on the number of retail stores allowed. Bans or moratoriums on retail stores enacted by some local towns and municipalities have recently been lifted, allowing more retailers to open throughout the state, but a limited retail footprint has put a damper on the revenue potential for many plant-touching businesses in Washington.

In Oregon, infused products were only recently allowed for sale in the recreational market, so much of the revenue generated by edibles and topicals manufacturers came from sales to MMJ patients. As the recreational market matures, expect sales to increase for these businesses.

Most California businesses operate in somewhat of a legal gray area, including infused product companies. Revenue for these businesses is small compared to Colorado, Washington and Oregon, but there are likely many more companies competing in this space. As California implements new regulations for the medical market and creates the regulatory framework for its recreational industry, only licensed businesses will be allowed to operate. Eventually, these businesses will likely generate significantly more revenue than infused product companies in other states, as California's market will undoubtedly become the largest in the nation.

Chart 5.06: Typical Infused Product Manufacturer Annual Revenue By Number Of Products Offered



Note: Number includes distinct products, not just flavors/versions/colors, etc.

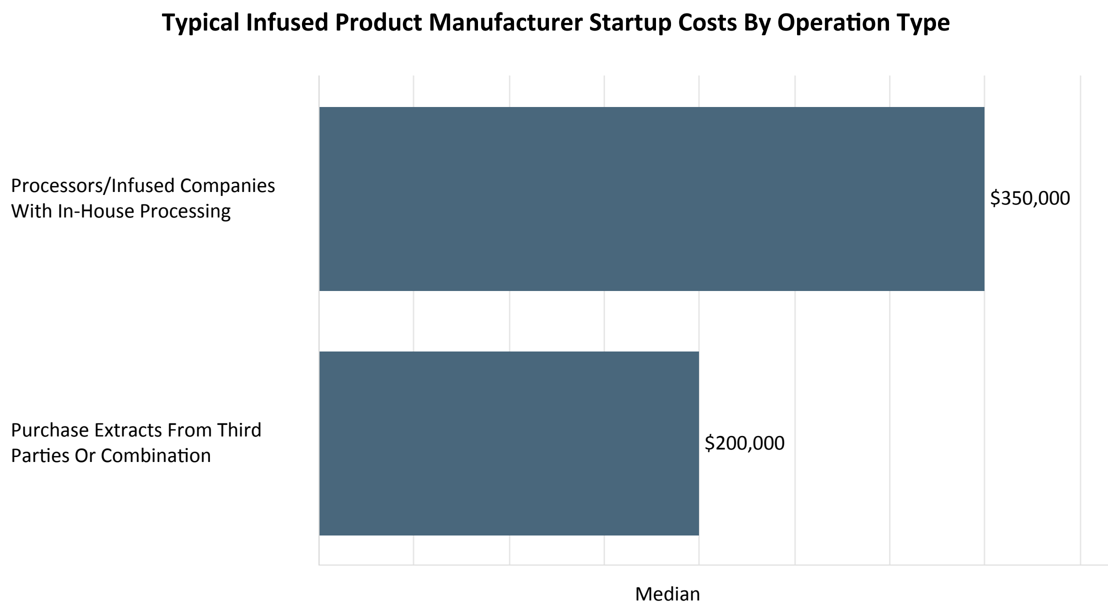
The majority of infused product companies produce fewer than 12 products, which is why median revenue for this group of businesses is so similar to that of infused product companies as a whole.

While companies that produce more than 30 products are generating more revenue than businesses with a smaller range of offerings, it's likely not because they're producing more products. Rather, successful businesses are expanding on their product lines as they grow, and the wider selection is a result of added revenue.

Lastly, the market in some states is maturing, and consumers/patients are increasingly demanding new types of products – leading to greater innovation and offerings.

Infused Product Manufacturer Startup Costs

Chart 5.07: Typical Infused Product Manufacturer Startup Costs By Operation Type



A typical processor/infused company that performs all its own extractions spends 75% more to launch compared to companies that purchase extracts from a third party. This is to be expected, as companies performing their own extractions will need to purchase the actual extraction equipment, hire technically proficient employees to operate the equipment, and acquire or outfit a facility that complies with all relevant state regulations.

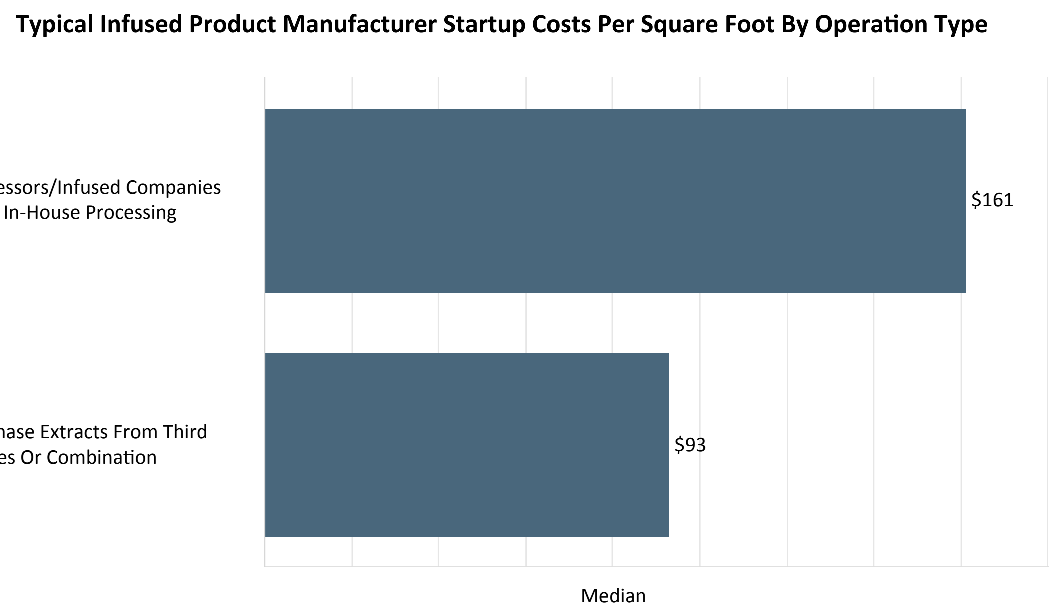
Though launching an infused company with in-house processing requires a larger upfront investment, these businesses typically generate 20% more in annual revenue compared to those that purchase extracts from a third party. So while it may take a couple of years to recoup initial startup costs, businesses with in-house processing have the potential to generate greater returns in the long run.

Important note: Startup costs are reported only for businesses launched in the last three years because of how quickly the industry changes from year to year. Including startup data from just five years ago would not accurately reflect the current business and regulatory environment.

Median Startup Costs: All Infused Product Manufacturers

$250,000

Chart 5.08: Typical Infused Product Manufacturer Startup Costs Per Square Foot By Operation Type

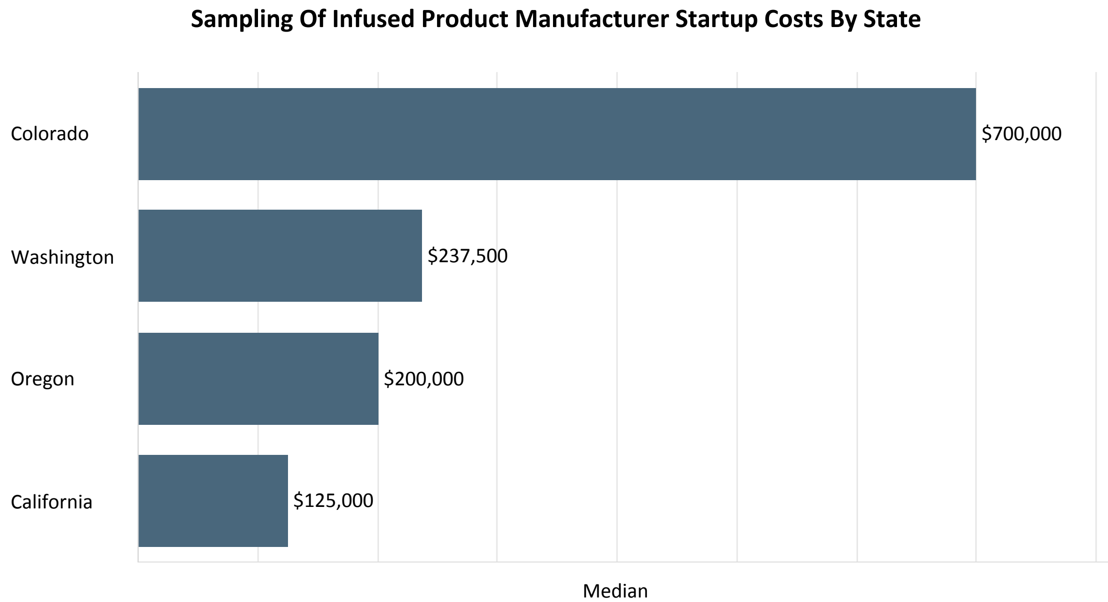


On a square-footage basis, processors and infused companies that perform all their own extractions pay about 75% more per square foot to get their business off the ground compared to companies that purchase extracts wholesale – the same ratio seen in the previous chart. This is driven primarily by the additional startup costs borne by these businesses.

Median Startup Costs Per Square Foot: All Infused Product Manufacturers

$100

Chart 5.09: Sampling Of Infused Product Manufacturer Startup Costs By State

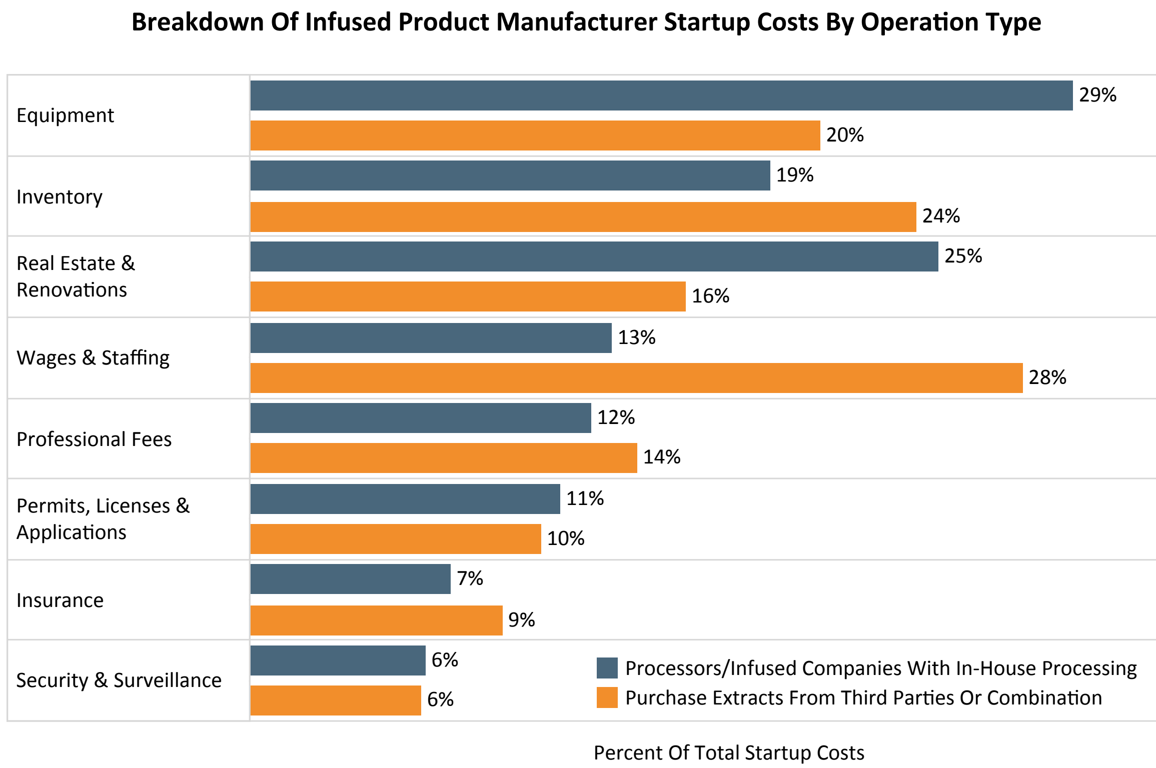


The cost of launching an infused product company can vary quite substantially from state to state, as the business and regulatory environments are unique to each market.

In the absence of a statewide regulatory system, businesses in California can launch relatively cheaply because they are not required to pay any state licensing fees or build out costly facilities that meet strict safety standards.

While the specific rules and regulations that govern infused product companies vary among Washington, Oregon and Colorado, business regulations generally are heavy in all three states. But in Colorado, the market has become so competitive that many businesses are forced to make significant upfront investments just to compete, as those that start small may never make it. The top brands in this space have quickly grown in sophistication, making it very difficult for new players to get shelf space. As Washington and Oregon's industries mature, expect to see startup costs rise there as well.

Chart 5.10: Breakdown Of Infused Product Manufacturer Startup Costs By Operation Type



Note: Values reflect averges based on ranges and do not sum to 100%.

As one would expect, equipment represents the most significant startup cost for processors and infused companies that perform their own extractions, as many of these machines are highly specialized and technically complex.

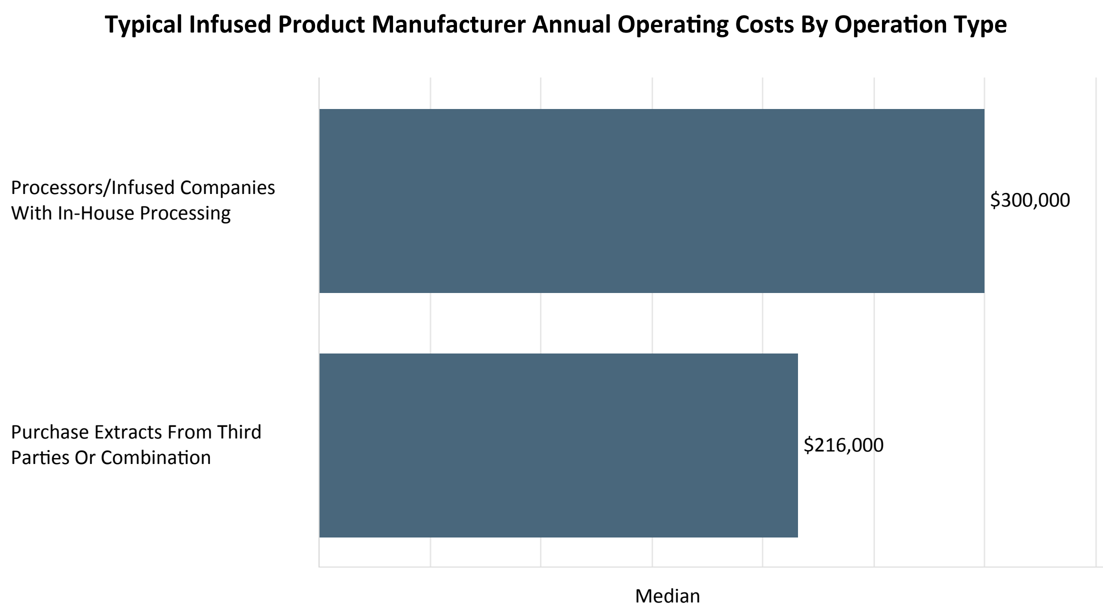
But edibles and topicals makers that purchase extracts wholesale also face significant equipment costs, as there is still a need for commercial manufacturing equipment to produce the final product. From custom molds and automated filling and assembly lines to full-blown commercial kitchens, these businesses all require large capital investments.

For businesses with in-house processing, higher costs for real estate and renovations are driven by the need to have a dedicated, sealed room with additional safety features to minimize potential destruction in the event of an explosion during the extraction process.

Businesses that purchase at least some of their extracts wholesale spend a lot more, percentage-wise, on wages and staffing in the startup phase than processors and infused companies that perform their own extractions. Staffing requirements are roughly similar between these two groups of businesses – both may need culinary staff with expertise in cannabis infusion, and businesses that perform some of their own extraction will still require a technically proficient employee to do so. But total startup costs in general are lower for companies that purchase extracts wholesale, meaning this expense takes up a larger share of the total from a percentage basis. Companies that buy wholesale likely spend less on a dollar basis than their peers that perform their own extractions.

Infused Product Manufacturer Operating Costs

Chart 5.11: Typical Infused Product Manufacturer Annual Operating Costs By Operation Type

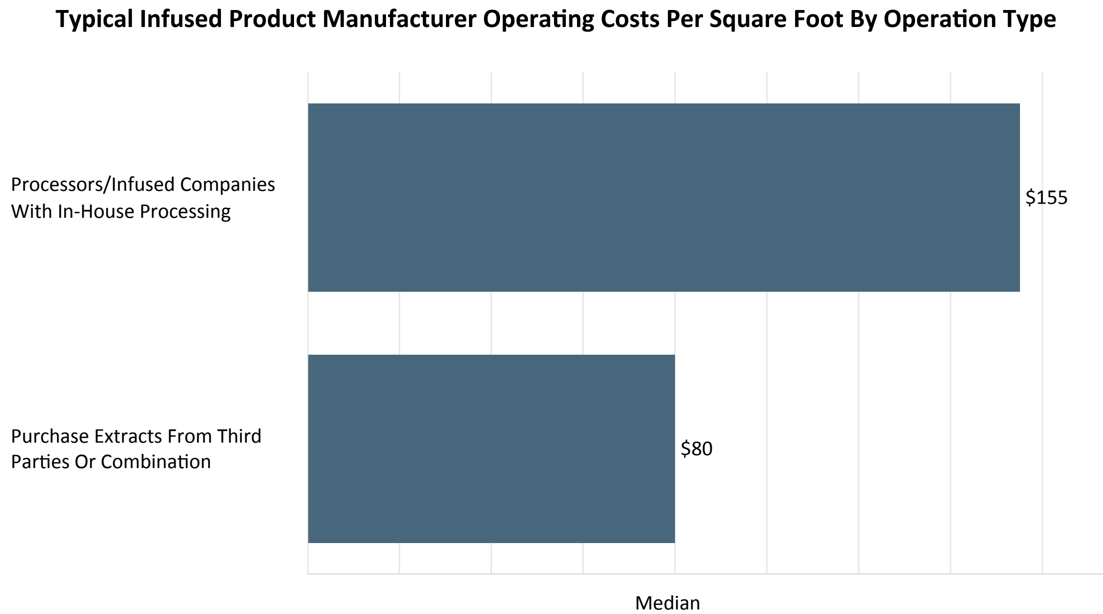


Considering the additional cost of extraction equipment, utilities, labor and the need to conduct operations in a facility that complies with state and local safety regulations, it's no surprise that processors with in-house processing capabilities spend about 40% more per year to operate their businesses.

Median Annual Operating Costs: All Infused Product Manufacturers

$270,000

Chart 5.12: Typical Infused Product Manufacturer Operating Costs Per Square Foot By Operation Type

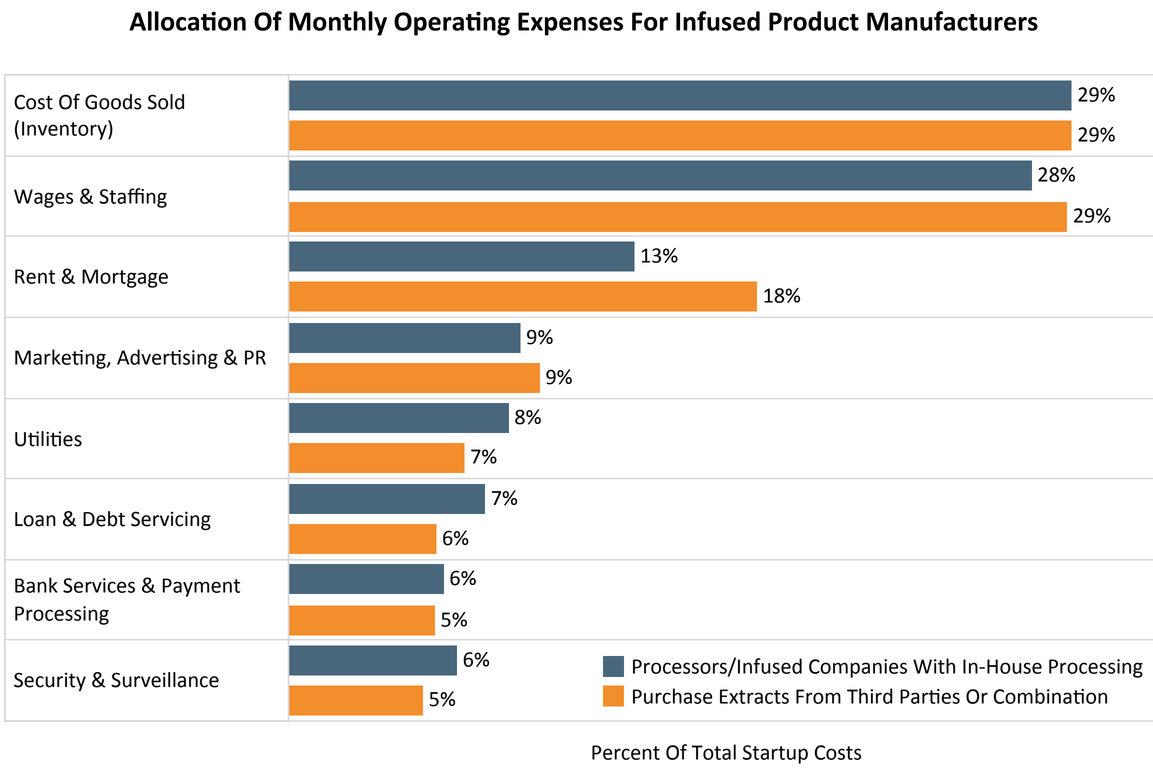


Though companies with in-house processing operate in much larger facilities than those that purchase extracts from a third party, typical operating expenses for these businesses are also higher, driving operating expenses per square foot above that of businesses that don't produce all extracts in-house.

Median Annual Operating Costs Per Square Foot: All Infused Product Manufacturers

$142

Chart 5.13: Allocation Of Monthly Operating Expenses For Infused Product Manufacturers



Note: Values reflect averges based on ranges and do not sum to 100%.

The cost of production, or costs of goods sold, accounts for nearly a third of monthly operating expenditures for both processors and infused companies with in-house processing and companies that purchase at least some of their extracts from a third party. Intuitively, one would think that businesses with in-house processing would recognize some cost savings because of their control over means of production, but with the historically low price of wholesale cannabis, this may not actually be the case.

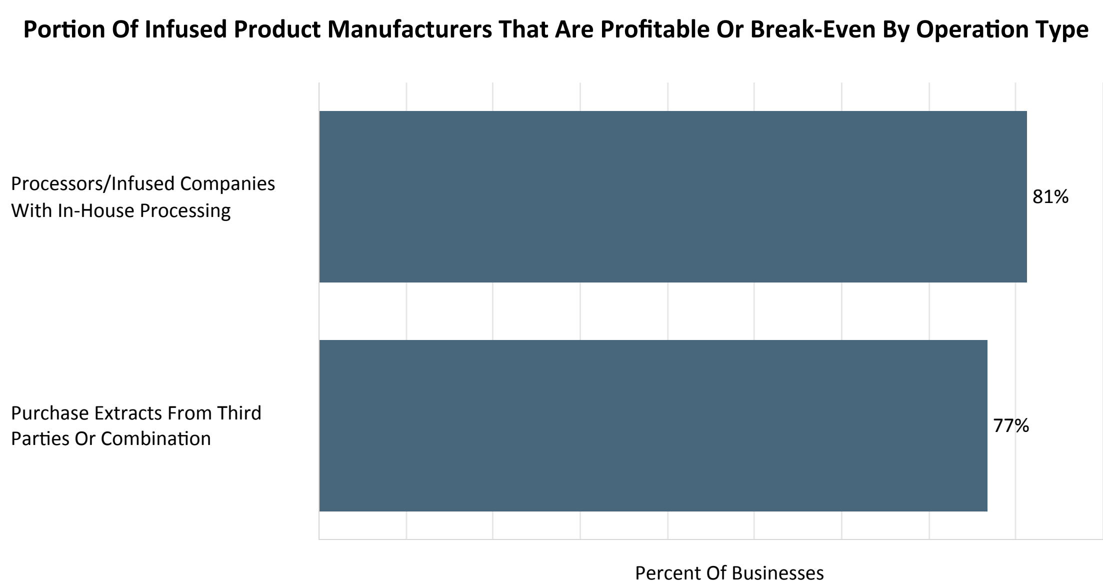
Lower cannabis prices should also result in lower extract prices, as the price of the primary ingredient has fallen – just as lower oil prices should result in cheaper plastics. But for businesses that produce extracts, cannabis is one of several expenditures that factor into the cost of production, as things like the cost of extraction equipment and the personnel required to operate it also need to be taken into account.

An infused company that purchases extracts wholesale is unconcerned about another business' cost of production, and it will expect lower extract prices based on the falling price of wholesale marijuana. And in mature markets like Washington state or Colorado, there will surely be another supplier willing to provide a more competitive price. This can lead to a price war among processors that just sell extracts on the wholesale market as well as reduced efficiency for an infused company using extracts produced in-house.

The cost of rent and mortgage accounts for a higher percentage of monthly operating expenses for businesses that purchase at least some of their extracts from a third party. But they have lower operating costs overall – meaning rent and mortgage are responsible for more a more significant portion of the monthly budget.

Infused Product Manufacturer Profitability

Chart 5.14: Portion Of Infused Product Manufacturers That Are Profitable Or Break-Even By Operation Type



Note: Profits are calculated on an after-tax basis.

Just getting an infused product company off the ground in a regulated market is a major achievement, but to bring that business to profitability – or at least to a point that it's not losing money – is a tough task as well. So it's encouraging that only 1 in 5 revenue-generating infused product companies in our survey indicated their businesses were operating in the red.

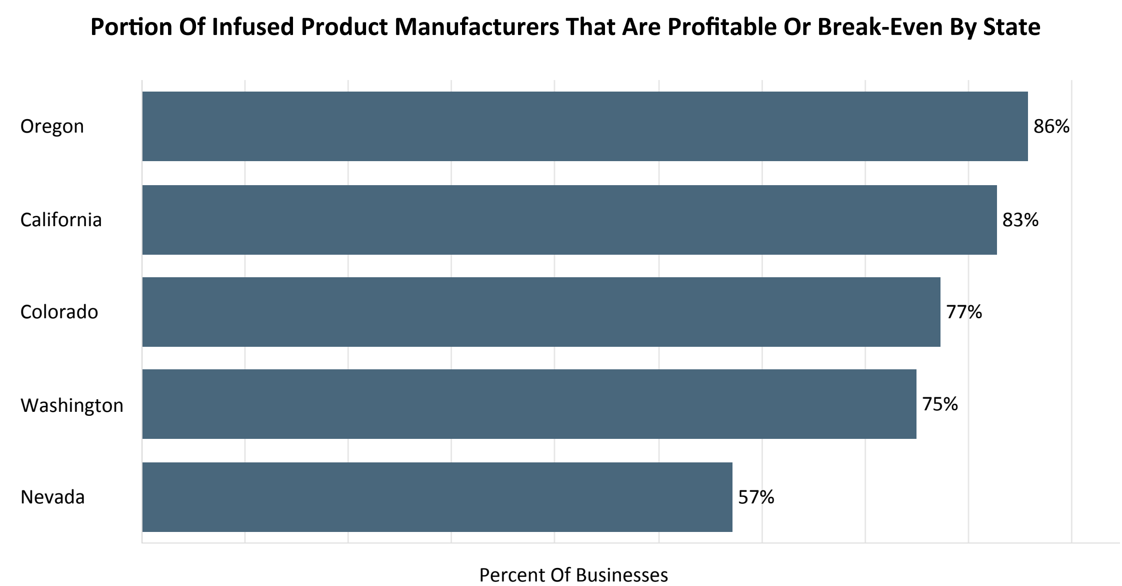
Infused product companies are a relatively new type of marijuana business, as the market for products like vape cartridges and infused lotions was essentially nonexistent in most markets just five years ago. Companies in this space are still learning about their customers and establishing new methods of extraction and infusion. But despite the lack of experience for most businesses in this segment of the industry, consumer and patient demand has been steadily increasing.

To be sure, these are still early days for infused companies, and inevitably a smaller portion of these businesses will be able to operate profitably. Entrepreneurs are drawn to this segment of the industry because of the strong demand, falling price of wholesale cannabis and a general lack of restrictions on the number of available licenses in some key markets. There's also the potential for more sophisticated players to establish large and recognizable brands, as the same basic principles that make for a successful product in the traditional economy apply to the cannabis industry as well. An increasing number of companies are now selling products in multiple states, and even some celebrity brands are gaining traction in the market.

Portion Of All Infused Product Manufacturers That Are Profitable Or Break-Even:

79%

Chart 5.15: Portion Of Infused Product Manufacturers That Are Profitable Or Break-Even By State



Note: Profits are calculated on an after-tax basis.

Until June 2016, Oregon prohibited the sale of edibles, concentrates and topicals in the recreational market, meaning infused product companies were allowed to sell only to medical patients. But the recreational market is now fully operational, though issues with testing requirements have created some short-term supply shortages. Most infused product companies appear to be doing quite well, however, though the market will undoubtedly become more competitive moving forward.

While California's market is fraught with questionably legal businesses, it remains the oldest medical marijuana market in the nation. Typical annual revenue for infused companies in the state is low relative to companies in Colorado or Washington state, but most do not face steep licensing fees or costly regulatory requirements – allowing a higher percentage of businesses to reach break-even or profitability. However, California's market will be drastically different once statewide regulatory reforms are implemented in 2018.

Colorado and Washington state are two of the most mature adult-use markets in the nation, giving infused product companies access to a large volume of potential customers. But strict and constantly changing regulatory requirements – combined with a fiercely competitive marketplace – means fewer businesses are able to operate without taking a loss. Launching a business that can successfully compete with entrenched players in either of these states will require a substantial amount of capital, thus it may take longer to reach the break-even point.

Even though out-of-state MMJ cardholders are allowed to purchase cannabis from Nevada dispensaries, the state's MMJ market has been somewhat underwhelming for business owners – as the patient pool has proved too small to sustain the nearly 50 dispensaries operating throughout the state.

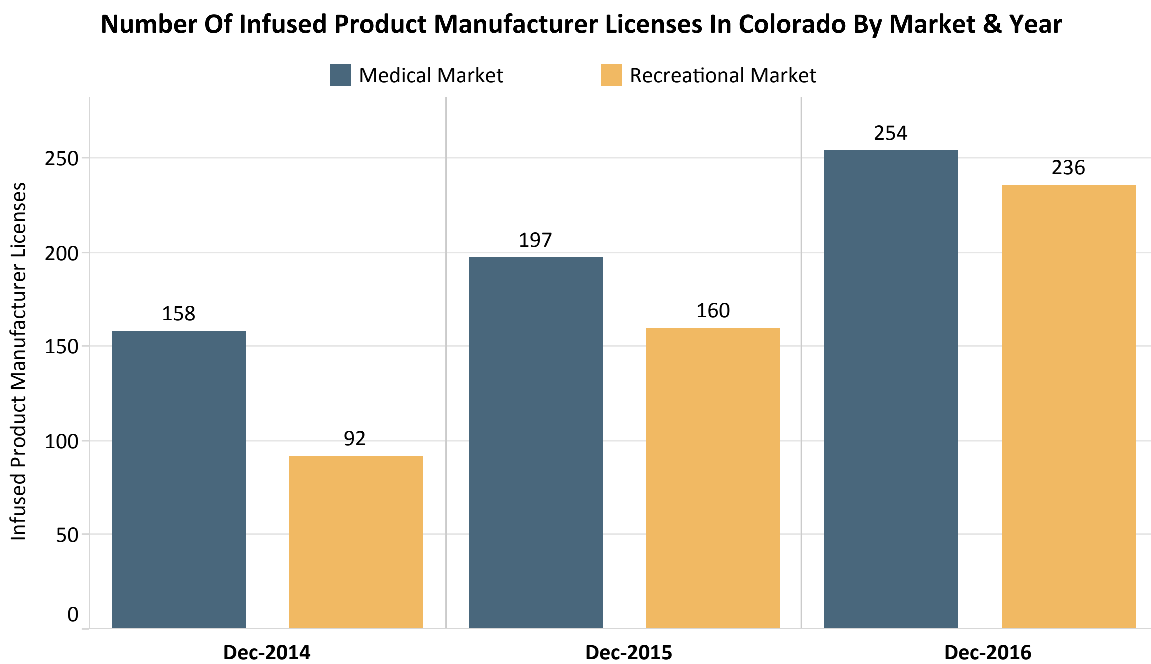
Compared to Oregon, California, Colorado and Washington, Nevada's marijuana industry is still very young, and it will take some time for businesses there to successfully navigate the landscape and reach profitability. But recreational marijuana sales may begin as soon as July 2017, and infused product manufacturers could be in a great position to capitalize on the large number of tourists visiting Las Vegas. Many hotels and casinos expressly forbid the use of marijuana, which suggests discrete products like edibles and vape pens will be in high demand.

Infused Product Manufacturer Average Length Of Time To Break-Even Or Profitability By Operation Type

Processors/Infused Companies With In-House Processing:	6-12 months
Purchase Extracts From Third Parties Or Combination:	6-12 months
All Infused Product Manufacturers:	6-12 months

REAL WORLD EXAMPLE

Chart 5.16: Real World Example: Number Of Infused Product Manufacturer Licenses In Colorado By Market & Year



Source: Colorado Department of Revenue

The number of licensed infused cannabis product manufacturers in Colorado has exploded in recent years, state records show.

In one 24-month span – between December 2014 and December 2016 – the number of marijuana infused product manufacturer (MIP) licenses shot up 157% on the recreational side and 61% on the medical side.

Edibles makers say they're seeing more competition from companies trying to break into the space, but also from retailers and growers looking to diversify their business – expanding into new segments of the industry to boost margins in one of the nation's most competitive cannabis markets.

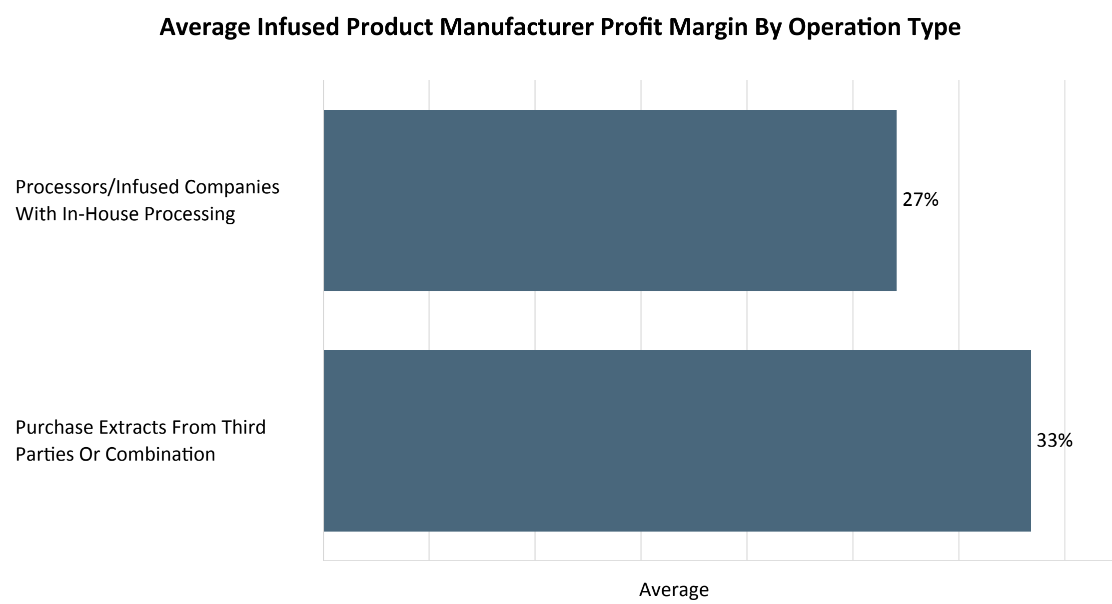
Colorado allows for vertical integration among different cannabis businesses in a way that many other states do not. That means licensed marijuana retailers can obtain permits to grow marijuana and produce extracts or edibles. (By contrast, Washington state prohibits retailers from growing or extracting marijuana and bans growers from selling directly to consumers.)

The oversupply of marijuana in the state has made it cheaper for retailers and growers to make their own products for sale – versus buying them from another vendor.

This has put pressure on established infused companies in Colorado, as heightened competition for shelf space forces businesses to accept lower margins in order to retain a presence at retail.

Despite the many challenges faced by infused product companies, most businesses eventually reach break-even or profitability. And perhaps more encouraging is how quickly they do so, with most taking less than a year. In combination with low wholesale cannabis prices, growing consumer demand for edibles and concentrates have created favorable business conditions for infused product companies. But increased competition – especially in recreational markets – is extremely likely, and the average length of time to profitability will almost certainly rise in the coming years.

Chart 5.17: Average Infused Product Manufacturer Profit Margin By Operation Type



Note: Profits are calculated on an after-tax basis.

As the price of wholesale marijuana has fallen, it may be more of an advantage to purchase extracts from a third party rather than spend upfront to acquire the necessary equipment, facilities and personnel to perform it in-house.

Compared to companies that purchase extracts wholesale, infused businesses with in-house processing typically spend 75% more to launch a business and have 40% higher annual operating costs. Most are generating about 22% more in annual revenue, but average profit margins are actually lower for those with in-house processing.

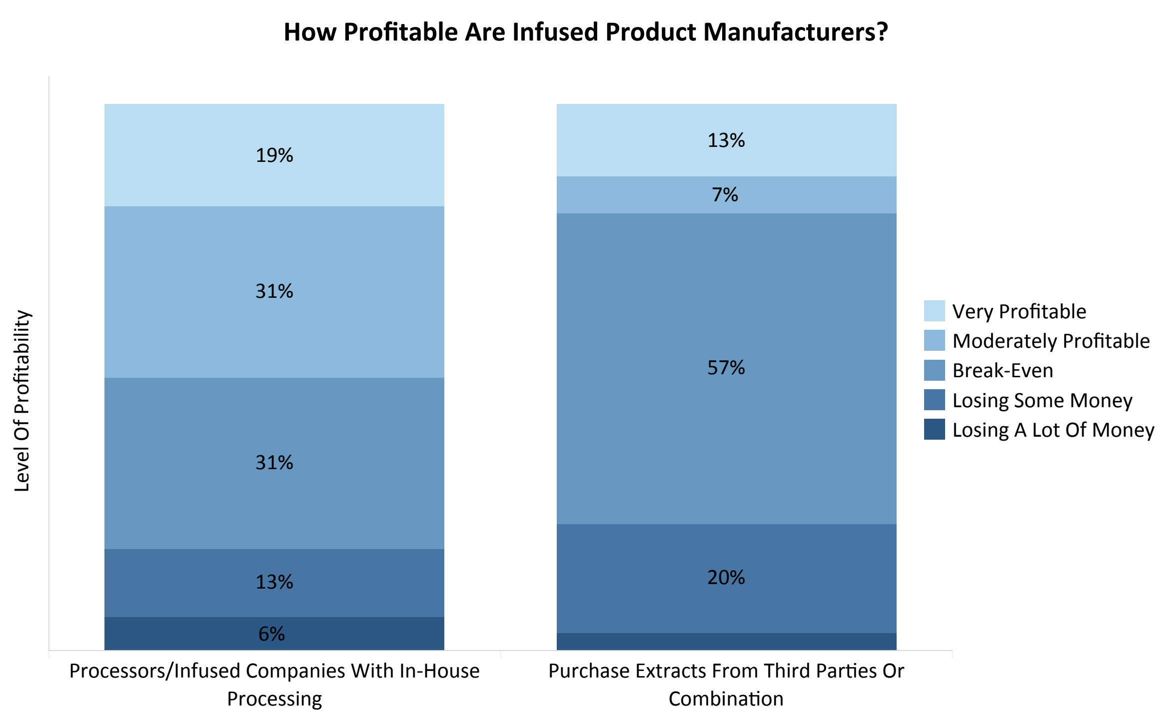
This suggests that starting an infused company with in-house processing is more of a long-term play, as it will take longer to recoup the initial investment and business owners will need time to minimize operating expenditures. Though profit margins are slightly lower for this group of infused companies, they're very comparable. And considering the additional revenue these businesses bring in, profits will actually be higher in terms of total dollar amounts.

No matter what type of operation infused product companies are running, profit margins of 30% are enviable. Not subject to the same tax liabilities as retailers, infused product companies are able to turn more of their revenue into profit, making this segment of the industry especially desirable to entrepreneurs.

Average Profit Margin: All Infused Product Manufacturers

30%

Chart 5.18: How Profitable Are Infused Product Manufacturers?



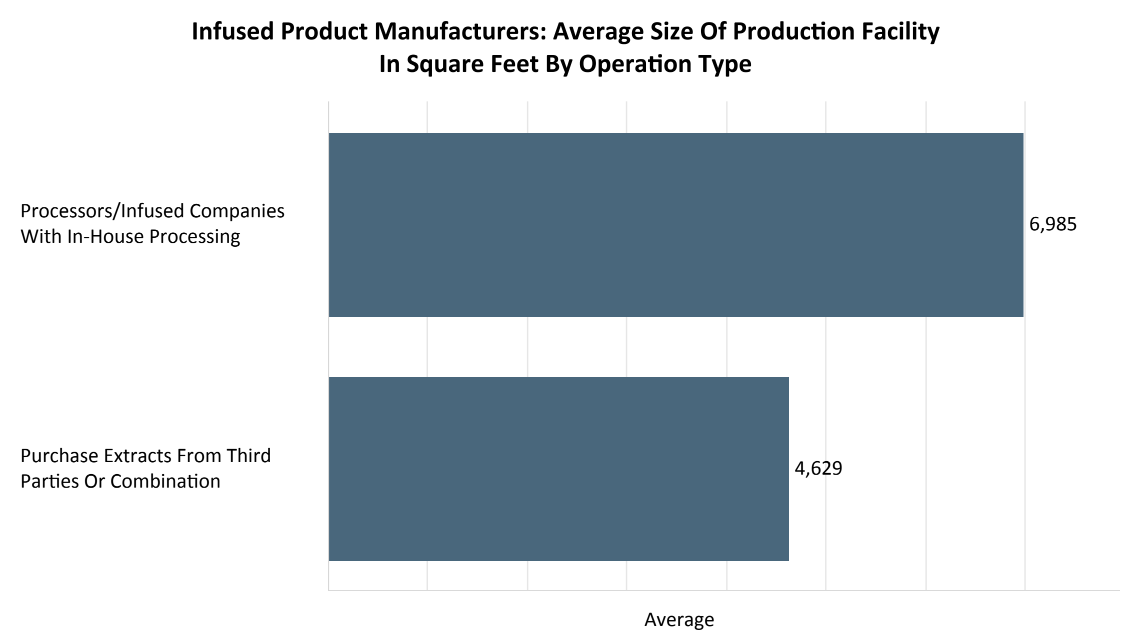
Note: "Losing A Lot Of Money" (expenses and taxes exceed revenue by more than 25%); "Losing Some Money" (expenses and taxes exceed revenue by up to 25%); "Moderately Profitable" (up to 25% of revenue left after expenses and taxes are paid); "Very Profitable" (more than 25% of all revenue left after expenses and taxes are paid).

Though average profit margins and the portion of businesses that reach break-even or profitability are similar between infused companies that purchase extracts wholesale and those with in-house processing, a significantly higher percentage of businesses with in-house processing indicated they were moderately or very profitable. That's in stark contrast to the nearly 60% of infused companies purchasing at least some extracts from a third party that are only breaking even.

It is worth noting, however, that nearly 70% of businesses that purchase extracts from a third party were launched within the last two years, compared with 47% for companies with in-house processing. As these businesses mature, more should advance into profitability.

Infused Product Manufacturer Operational Data

Chart 5.19: Infused Product Manufacturers: Average Size Of Production Facility In Square Feet By Operation Type

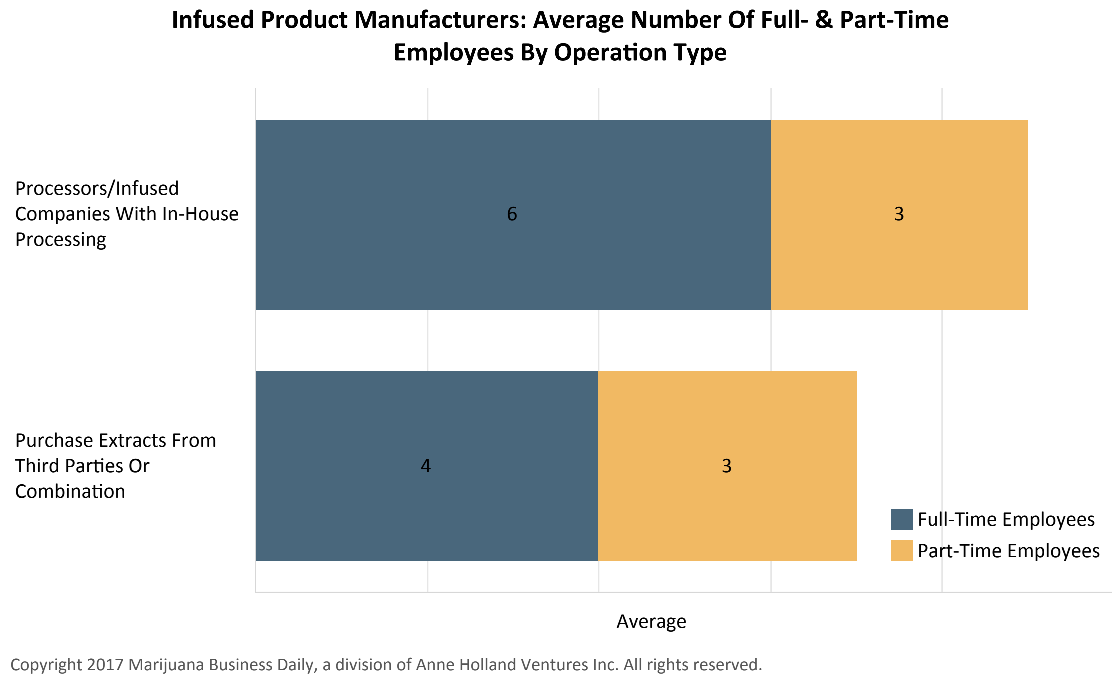


Processors and infused product companies with in-house processing need facilities that meet all necessary safety requirements, have room to store and operate extraction equipment and – in most cases – are large enough to accommodate a commercial production line. Thus, these businesses require about 50% more space than infused companies that purchase at least some of their extracts from a third party.

Average Production Facility Size: All Infused Product Manufacturers

5,901 Square Feet

Chart 5.20: Infused Product Manufacturers: Average Size Of Production Facility In Square Feet By Operation Type

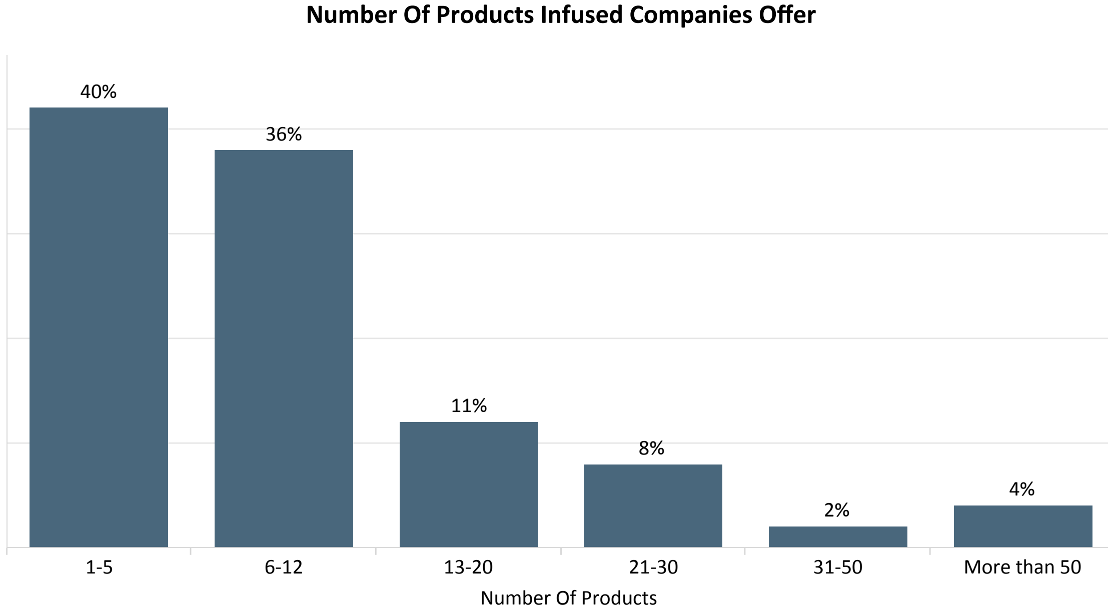


Given the added capabilities of processors and infused companies with in-house processing compared to infused businesses that purchase extracts wholesale, more employees are needed to perform day-to-day operations. In general, infused product companies are relatively small enterprises that need to supplement their workforce with part-time positions.

Average Number Of Employees: All Infused Product Manufacturers

Full-Time Employees:	4
Part-Time Employees:	3

Chart 5.21: Number Of Products Infused Companies Offer



Note: Number includes distinct products, not just flavors/versions/colors, etc.

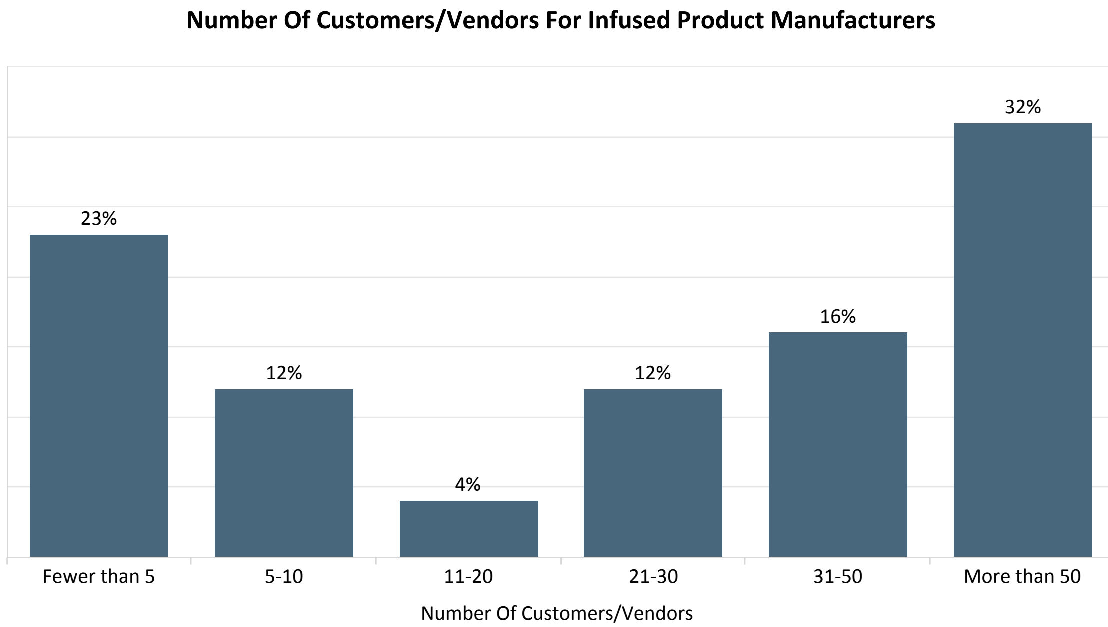
The infused product space is beginning to see larger, multimillion-dollar businesses emerge that are not averse to producing several types of infused products spanning multiple categories, such as chocolates, beverages and mints. But for now, this segment of the industry remains fragmented, and smaller players producing less than five distinct products rule the landscape.

Though larger companies often produce many products, the marijuana industry as a whole is maturing very quickly. As businesses in the traditional economy have come to understand, being a jack of all trades but master of none is often not a successful business strategy. As the level of competition and sophistication increases within the industry, expect to see more companies attempt to specialize and dominate a single category rather than spread out over multiple categories.

Average Number Of Products Manufactured By Infused Companies:

Processors/Infused Companies With In-House Processing:	12
Purchase Extracts From Third Parties Or Combination:	13
All Infused Product Manufacturers:	12

Chart 5.22: Number Of Customers/Vendors For Infused Product Manufacturers



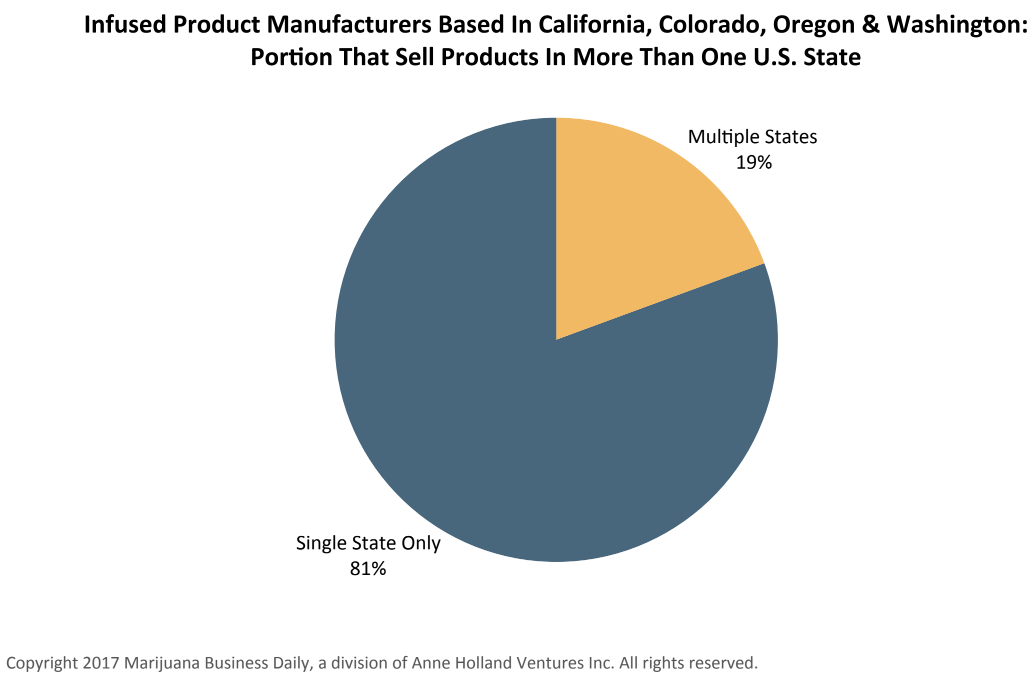
The number of customers/vendors for infused product manufacturers is spread broadly throughout the various response options, though there are noticeable concentrations at each end. This indicates most of these businesses likely start out with just a few vendors that carry their products – and then the manufacturer either finds success with a limited distribution network or quickly expands to a diverse vendor network, spending relatively little time in the in-between territory.

What constitutes a vendor or customer will depend on the type of business, as an extracts-only processor is further upstream in the supply chain, likely selling only to other infused product companies without in-house processing that would use the extract in their final product. On the other hand, a customer for a business that produces a line of infused chocolates would be a wholesaler or dispensary.

Average Number Of Customers/Vendors: Infused Product Manufacturers

Processors/Infused Companies With In-House Processing:	35
Purchase Extracts From Third Parties Or Combination:	24
All Infused Product Manufacturers:	30

Chart 5.23: Infused Product Manufacturers Based In California, Colorado, Oregon & Washington: Portion That Sell Products In More Than One U.S. State



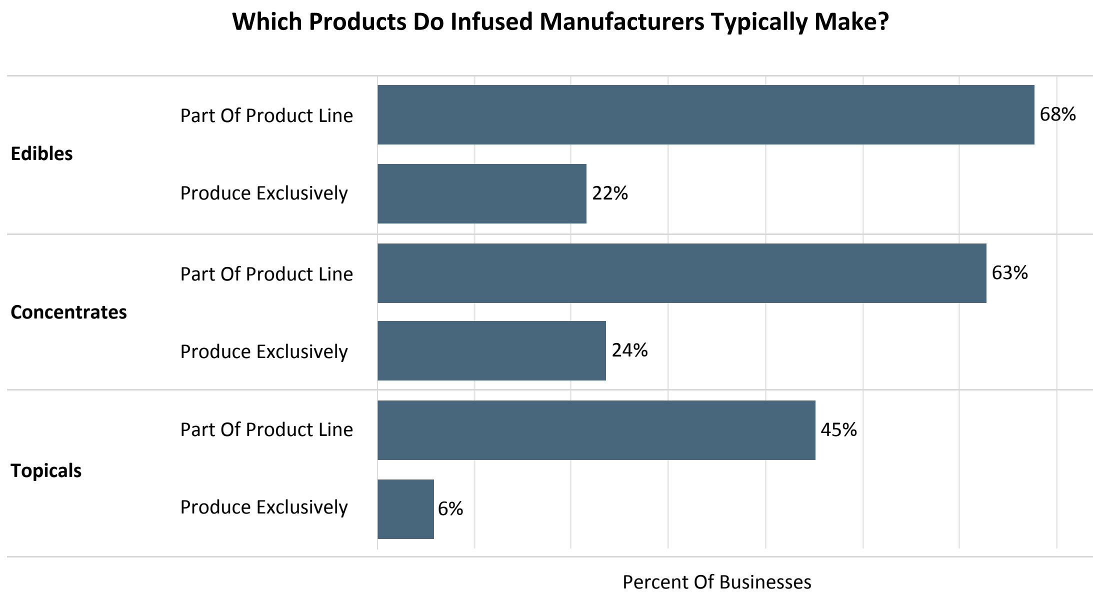
More than any other plant-touching sectors of the marijuana industry, infused product manufacturers are more easily able to expand their operations across state lines. Though it remains illegal for a company to physically transport any product containing marijuana from one state to another (even if two states with adult-use laws share a physical border, like Washington and Oregon), infused product companies are able to leverage licensing agreements to enter new markets.

If, for example, a Colorado-based manufacturer of a popular brand of infused mints wanted to capitalize on its success by expanding into Oregon's recreational market, that company could license their brand to another manufacturer that's physically located in Oregon. This allows the company licensing the brand to recognize significant revenue by tapping into an entirely new market, while avoiding the legal quandary of operating a marijuana business across state lines. The company paying to license the brand also benefits, as it won't have to build a brand from scratch – an expensive, lengthy and risky endeavor – immediately benefiting through the manufacture of a product that's already established brand recognition and loyalty.

California, Colorado, Oregon and Washington are the four largest cannabis markets in the United States, the latter three of which currently allow adult-use sales. Though California only legalized recreational marijuana in the 2016 election, many companies have established operations in the state through the sheer size of the market and the relative lack of regulations on cannabis businesses.

The vast majority of infused product companies – including the largest and most prominent brands – are located in these markets, and 1 in 5 are selling products outside the state in which they're headquartered. This represents a growing trend among more sophisticated infused product companies, likely to continue as the industry matures.

Chart 5.24: Which Products Do Infused Manufacturers Typically Make?



Note: Multiple-choice question; respondent total may be greater than 100%.

The majority of infused product companies are manufacturing more than one type of good – typically edibles and concentrates, as these categories dominate the infused product landscape. Nearly half of all businesses are producing topicals, though just a small number have chosen to focus on this category exclusively – as it comprises a relatively small portion of the retail and medical markets.

In the recreational industry especially, the market for edibles and concentrates continues to grow. Edibles are particularly appealing to consumers and tourists who are curious about marijuana but do not want to smoke flower, while concentrate sales have benefited from the rise in popularity of vape pens. Both categories are large enough to sustain multiple players that operate solely in this segment of the market.

CHAPTER

6

Testing Labs & Ancillary Firms

The marijuana industry is just that – an industry. While wholesale cultivators, retail stores and infused product/concentrates companies form the foundation, they do not exist in a vacuum. A multitude of businesses have sprung up alongside cannabis companies, providing a wide array of services and products necessary for the industry to succeed.

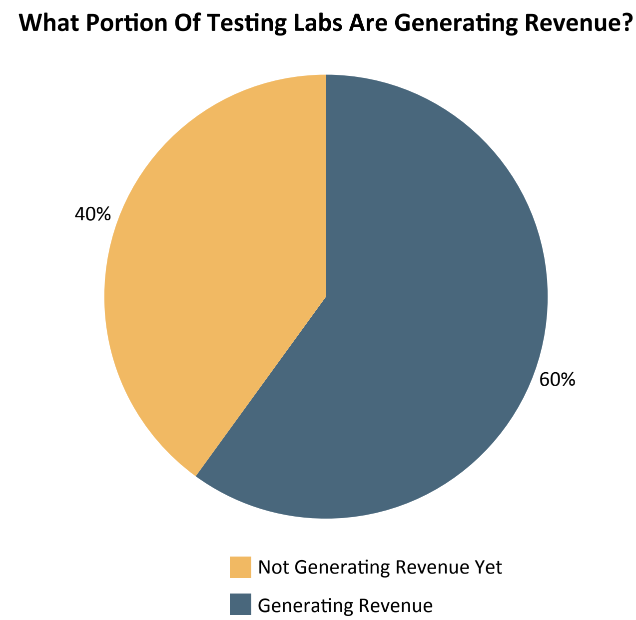
This report breaks down these types of businesses into two overarching categories:

- **Testing Labs:** Cannabis testing is by far the smallest segment of the industry when measured by number of companies. But the work labs perform is critical from a health and safety perspective, as these companies test for everything from pesticides to potency. Lab-tested cannabis is a requirement in nearly every state that regulates marijuana businesses, though no federal or industrywide standards exist. These labs technically "touch" the plant but do not sell it to other companies or businesses.
- **Ancillary Firms:** Marijuana companies need many of the same types of products and services that mainstream businesses require, ranging from inventory software and retail display cases to legal and accounting help. They also have some unique needs: Indoor growers, for instance, heavily utilize lighting technology, while many infused product companies use pricey equipment to pump out consistent gummies and chocolate bars. The ancillary companies that provide these products and services to the industry – as well as those that target cannabis users directly, such as dispensary listing websites – are growing in importance. Not subject to the same level of regulatory scrutiny as plant-touching companies, ancillary firms face much lower barriers to entry, and by conservative estimates, they outnumber plant-touching businesses by 2-1. For the purposes of analysis, ancillary firms are split into two categories: those that provide products to other cannabis businesses and users, and those that offer technology or services.

This chapter highlights financial and operational data for testing labs and ancillary firms.

CANNABIS TESTING LABORATORIES

Chart 6.01: What Portion Of Testing Labs Are Generating Revenue?



Similar to other plant-touching sectors of the industry, the time between launching a testing lab and generating revenue can be quite lengthy. Delays in medical marijuana program rollouts are quite common, and in some markets these types of setbacks have been tied specifically to testing regulations. Forty percent of testing labs that responded to our survey have yet to generate any revenue – the highest of any industry segment.

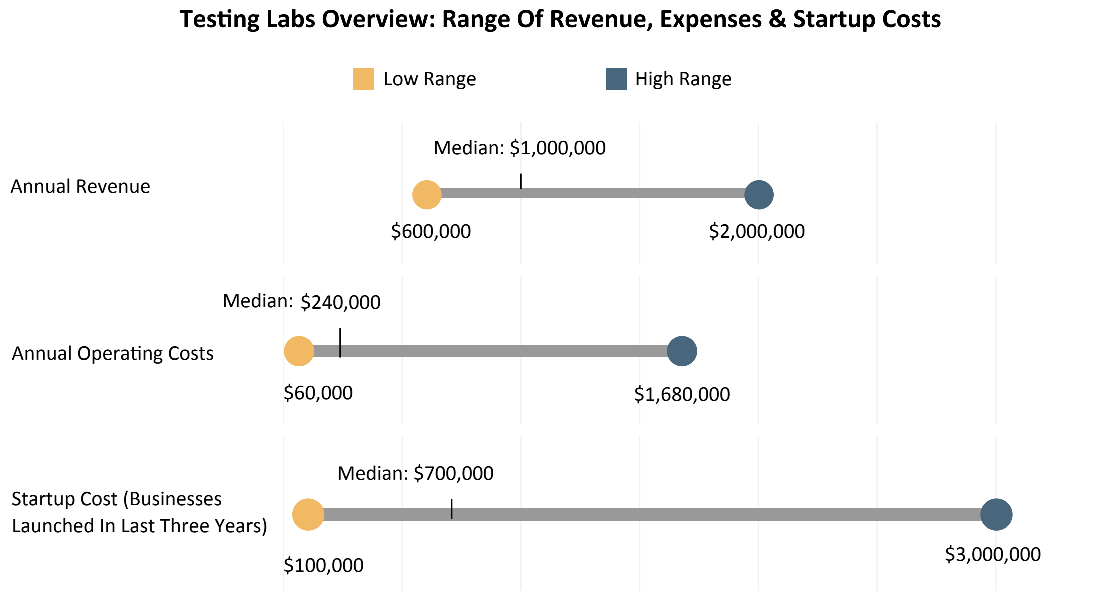
There are likely two main factors at play:

We have a relatively small sample size in this niche, as just 10 labs took the survey. There aren't many labs out there to begin with (by our estimates between 100 and 150) – so even though our respondents represent roughly 10% of the companies in this space, one company can sway the averages significantly.

Many labs are launching as new states come online and existing markets implement testing standards. That dynamic, coupled with the fact that the number of existing labs is relatively small to begin with, results in a higher percentage of startups versus mature companies in the testing sector compared to other segments of the marijuana industry.

Because testing labs are so connected to plant-touching companies, the percentage of revenue-generating testing labs may lie somewhere between the 60% seen here and the approximately 80% seen in other segments of the industry.

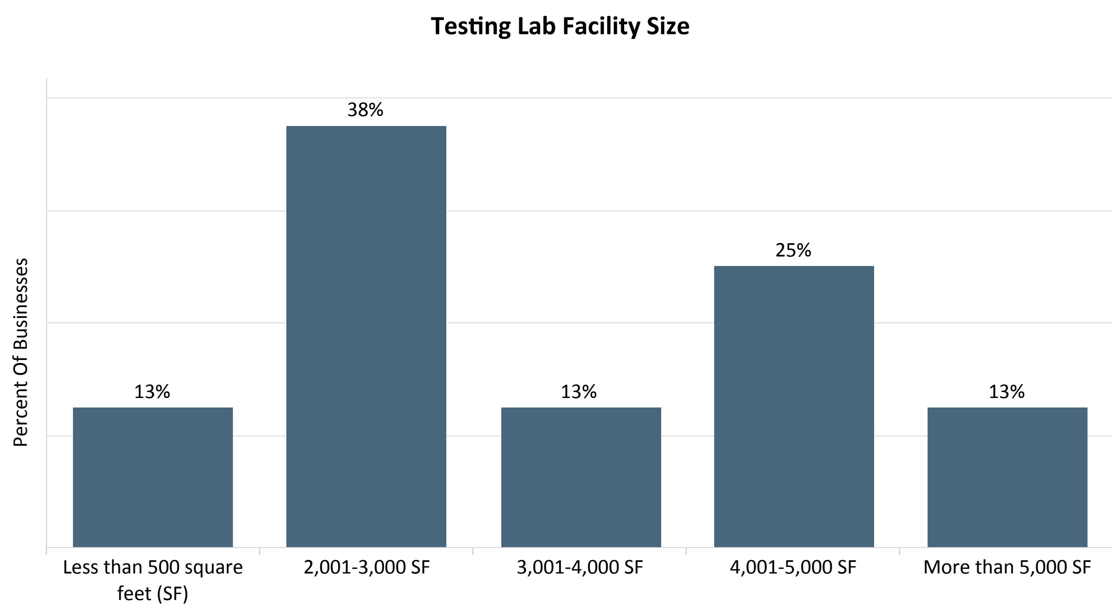
Chart 6.02: Testing Labs Overview: Range Of Revenue, Expenses & Startup Costs



Because the methods and procedures used by labs to test cannabis are not wholly unique to the marijuana industry, a number of labs work with cannabis businesses in addition to their clients in other industries. Testing labs that serve the cannabis industry exclusively are not uncommon, but this variation in business structures – combined with the small number of testing labs in the market – makes granular financial analysis less useful.

However, it can be beneficial to compare a range of key financial metrics, as this will give prospective business owners a better idea of what to expect should they choose to enter this segment of the industry. Similar to other cannabis companies throughout the industry, testing labs appear to be a largely profitable business – at least among those that are actually generating revenue. With median annual revenue outpacing annual operating costs by a nearly 5-1 margin, it's not unreasonable to expect a testing lab to recoup its startup costs within a year. This could change going forward, though, because the trend in new markets is to enact stricter regulations on testing labs, which can increase startup costs.

Chart 6.03: Testing Lab Facility Size

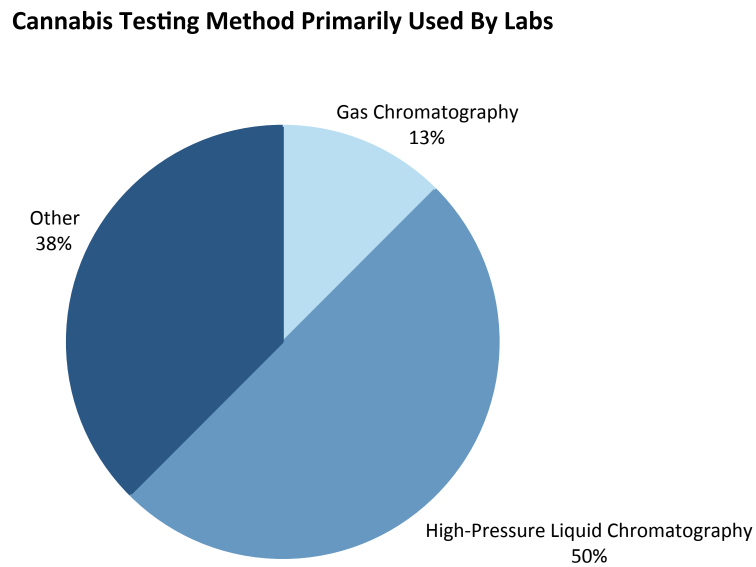


Relative to wholesale cultivators and infused product manufacturers, testing labs do not require as much physical space to conduct operations. Labs are testing just a small sample of the end product that appears on retailers' shelves, and the equipment used to perform their analysis has evolved outside the marijuana industry for many decades – growing in technological complexity but shrinking in size.

Average Cannabis Testing Lab Facility Size:

3,250 Square Feet

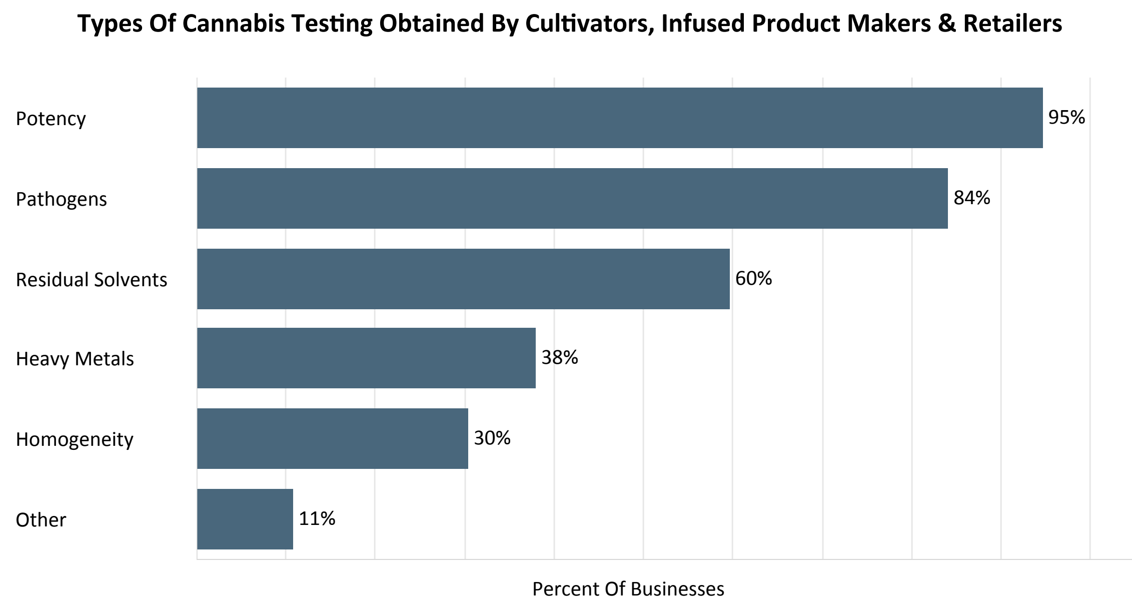
Chart 6.04: Cannabis Testing Method Primarily Used By Labs



The specific techniques and procedures used by many businesses in this space are considered proprietary, and labs are continuing to adopt new methods while also making refinements to existing practices. At the same time, most states don't stipulate the type of testing that labs should perform, nor does the federal government. Given this backdrop, coupled with the lack of widely used industry standards, a high percentage of labs that responded to the survey chose "other" as their primary method of testing cannabis. Among these respondents, a couple indicated that they use a supercritical CO2 chromatography method instead of a traditional liquid or gas, suggesting that businesses in this sector are evolving their techniques.

For the past two years, a majority of testing lab survey participants have indicated high-pressure liquid chromatography is their primary testing method, and that holds true this year as well. While it is still the most prevalent technique, the portion of companies that utilize high-pressure liquid chromatography has fallen from 63% last year to 50% this year.

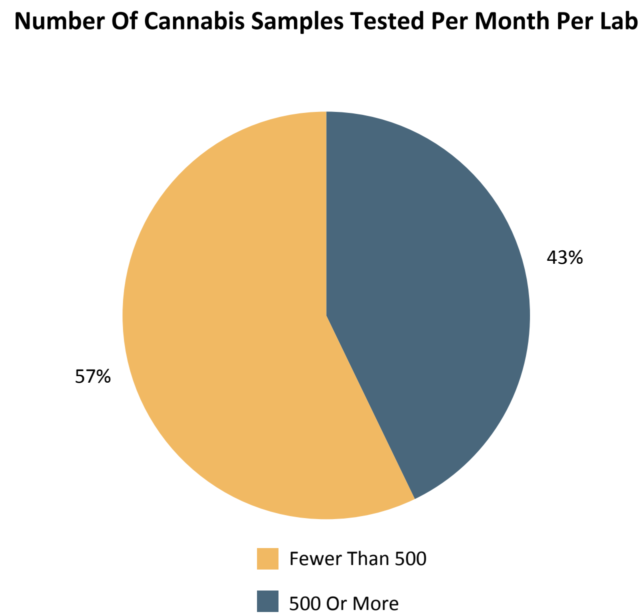
Chart 6.05: Types Of Cannabis Testing Obtained By Cultivators, Infused Product Makers & Retailers



Note: Multiple-choice question; respondent total may be greater than 100%.

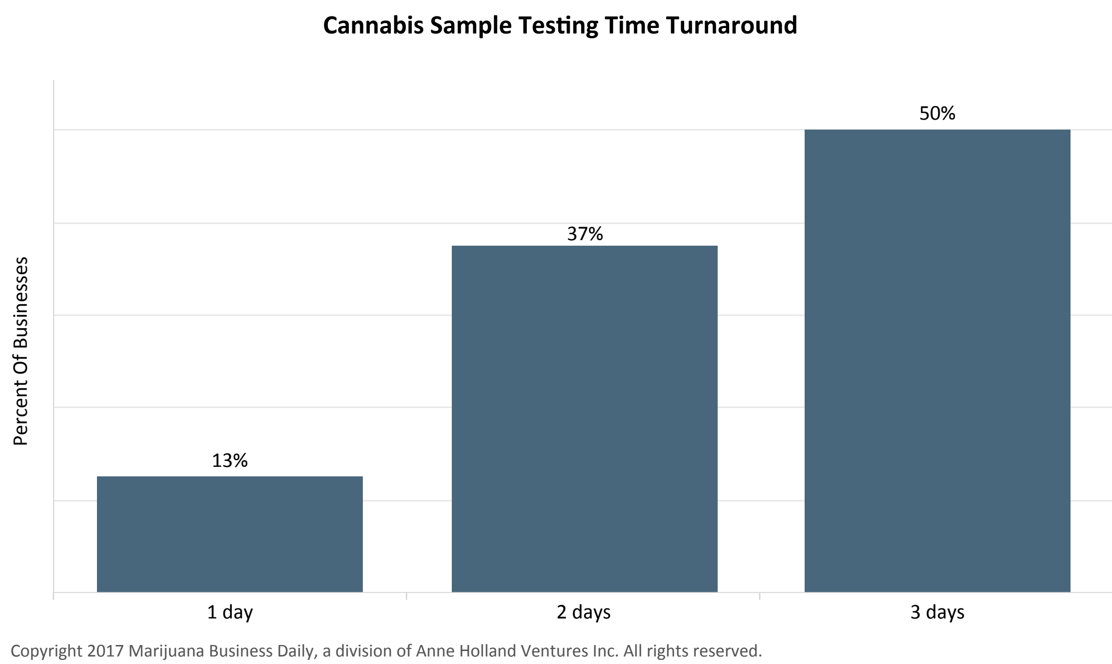
States that require lab testing do so in an effort to ensure patients and customers are consuming cannabis that is safe and relatively free of harmful chemicals or contaminants. But each state differs in what must be tested. Regardless of what's required on the regulatory front, the vast majority of growers, infused product companies and retailers want labs to test for potency and, primarily, for concentrations of THC and/or CBD. Aside from providing transparency, these companies understand that providing potency information can drive purchasing decisions for many consumers and patients. Testing for residual solvents, heavy metals and homogeneity can be performed by most labs, though the degree to which clients are demanding these services varies.

Chart 6.06: Number Of Cannabis Samples Tested Per Month Per Lab



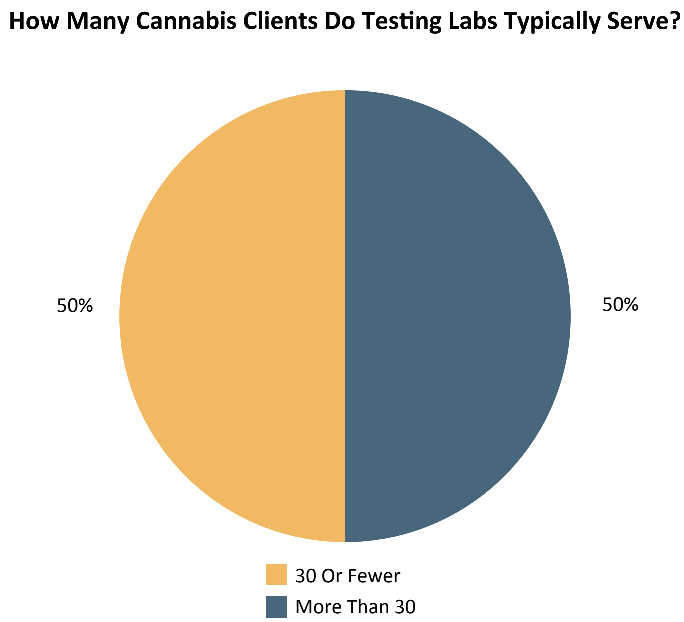
The number of samples a lab tests on a monthly basis is largely a function of where the business is located, as states with mature recreational and medical programs where testing is required – like Colorado and Washington state – will see much higher demand than a smaller, medical-only state like Delaware. Labs that serve smaller markets with only a handful of clients will likely never reach that level of output for cannabis testing.

Chart 6.07: Cannabis Sample Testing Time Turnaround



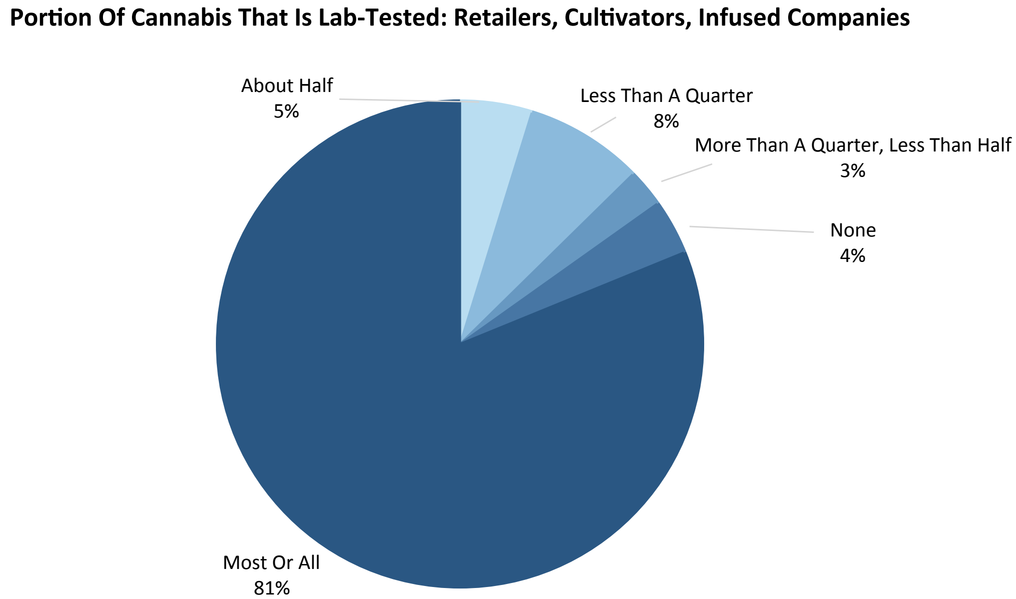
How quickly a lab can turn around samples often depends on state testing requirements, the local business climate and the maturity of the lab. Programs that are just getting off the ground are often bottlenecked by testing labs, with several cultivators waiting to send samples to a single, brand-new testing facility. But about half of testing labs are able to turn around samples within two days, and no labs currently take longer than three days to perform testing and provide results. Additionally, labs that have been serving the cannabis market for several years often are able to shorten their turnaround times as they improve their processes.

Chart 6.08: How Many Cannabis Clients Do Testing Labs Typically Serve?



The number of clients a testing lab serves comes down to where the lab is located, with the potential for those based in major recreational markets to attract many more clients than labs located in states with small medical programs.

Chart 6.09: Portion Of Cannabis That Is Lab-Tested: Retailers, Cultivators, Infused Companies

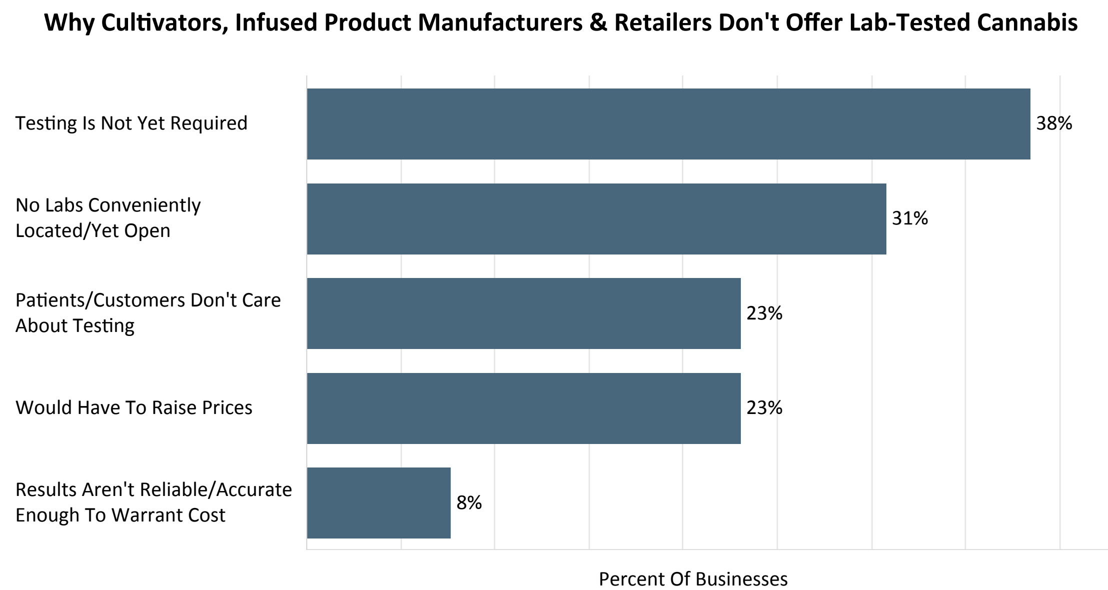


The vast majority of retailers, cultivators and infused product companies have most or all their cannabis tested, which is driven primarily by state regulations that mandate testing.

However, it is surprising that only 4% of businesses are not providing any lab testing, given that testing is not currently mandated in California – the largest marijuana market in the United States. Though this will change once statewide regulatory reforms are implemented in California in 2018, this suggests that market forces are compelling some businesses to provide lab-tested cannabis even in the absence of state requirements. It's worth noting, however, that some companies in the currently unregulated states of California and Michigan likely say they test, even if they don't. Many of these companies are less likely to test in the absence of regulations, and they're also perhaps less likely to take our survey in the first place.

Looking forward, lab testing will remain an integral part of the industry, as every state that legalized medical or recreational marijuana in 2016 has already written or is expected to write legislation requiring marijuana to be tested before it can be sold to patients or customers. States that legalize in the future will almost certainly follow the same path. This is a positive development for prospective business owners looking for new opportunities in this sector of the marijuana industry.

Chart 6.10: Why Cultivators, Infused Product Makers & Retailers Don't Offer Lab-Tested Cannabis



Note: Multiple-choice question; respondent total may be greater than 100%.

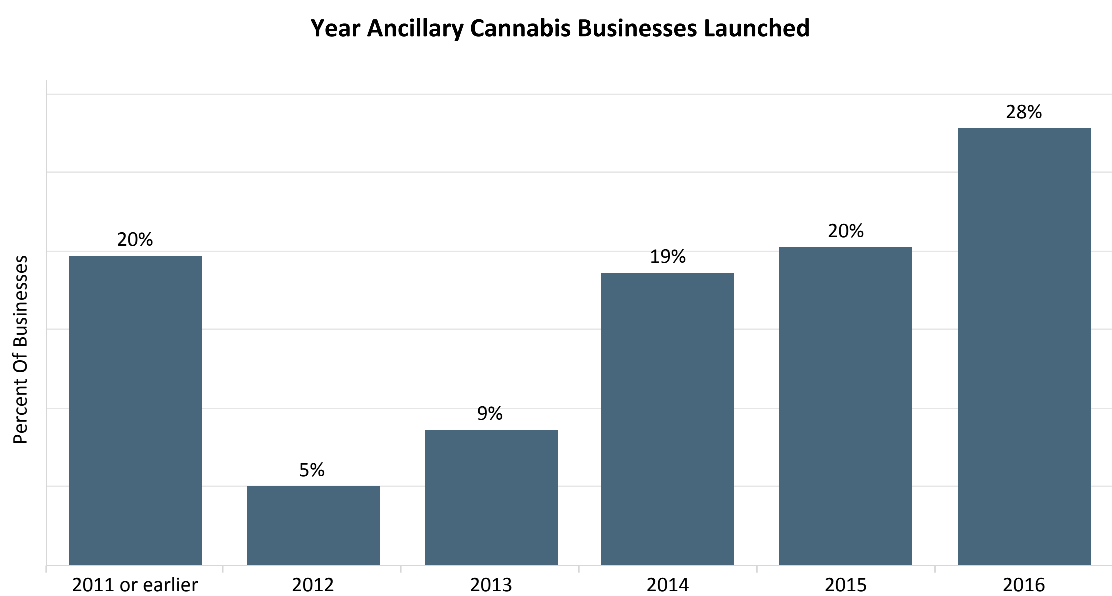
A small portion of cultivators, infused product manufacturers and retailers choose not to provide any lab-tested cannabis, primarily because they are not required to. A degree of skepticism regarding the reliability of testing results has always been present among a contingent of business owners in this industry, though a very small number of businesses cite this as the reason they don't provide lab-tested marijuana. Instead, much of this concern has been channeled toward improving processes and establishing industrywide testing standards, an issue that many industry advocacy groups continue to debate. In California and Michigan, some plant-touching businesses simply aren't near any labs. Given that testing isn't mandated at the state level in these markets, these businesses see little incentive to take on additional costs and logistical hurdles to ship samples off to far-away labs. Interestingly, roughly a quarter of plant-touching businesses that don't currently test their strains and products say it's simply not something their customers care about. Patients and recreational marijuana users increasingly are demanding tested cannabis in general, but it appears some feel that other factors, such as price, are more important.

ANCILLARY COMPANIES

The social stigma surrounding marijuana has receded in recent years as the industry becomes more mainstream, but businesses, entrepreneurs and investors remain hesitant to jump feet-first into an industry the federal government still views as illegal. Many that are still skittish about the plant-touching side of the industry are employing "pick-and-shovel" strategies – or creating businesses that provide necessary equipment and services to companies that are actually handling marijuana.

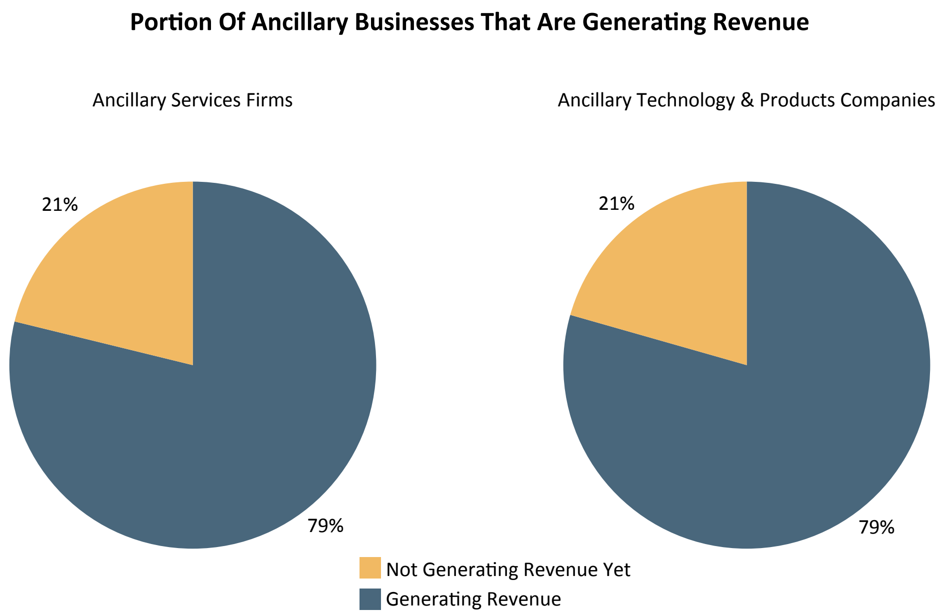
The ancillary sector therefore includes many different types of businesses that don't have much in common, aside from the fact they provide products and services to the cannabis industry. It also includes brand-new enterprises that exclusively serve the cannabis sector as well as large and older businesses that found success in other industries and are now dipping their toes in marijuana. Because of these circumstances, it's often not meaningful to compare detailed metrics for these businesses. However, as with testing labs, there are certain benchmarks that can help you get your arms around this diverse sector of the cannabis industry.

Chart 6.11: Year Ancillary Cannabis Businesses Launched



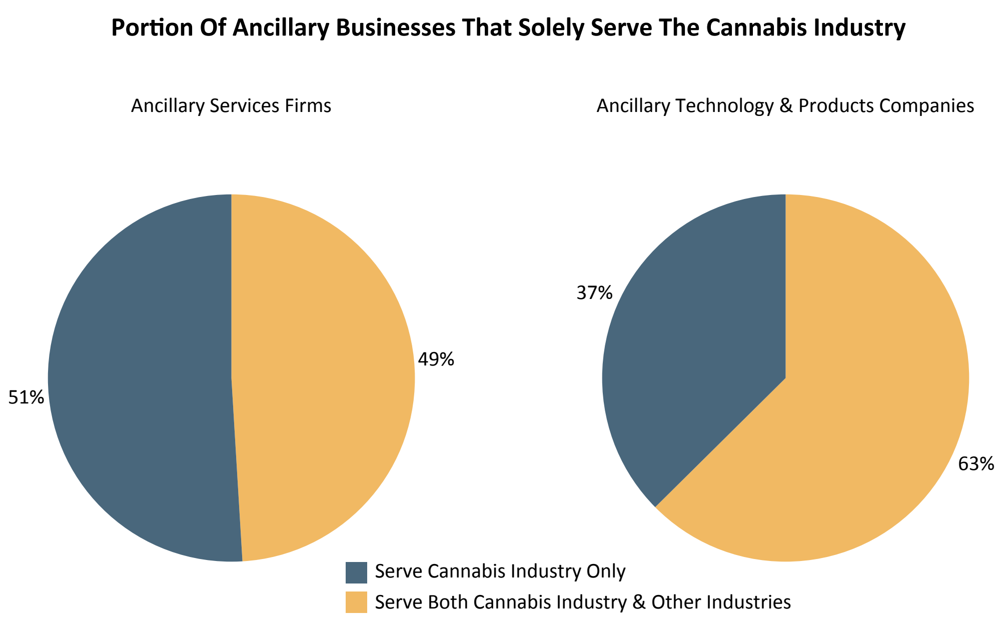
The general trend of increased startup activity after the launch of Colorado's recreational market in 2014 observed in the plant-touching sectors of the industry is present among ancillary companies as well. This is to be expected, as ancillary companies exist to serve plant-touching businesses and the end users they serve. Though the distribution of the launch date for ancillary firms very closely mirrors that of the plant-touching sectors, startup activity in both the retail and wholesale cultivation sectors peaked in 2015. For ancillary firms, however, more new businesses launched in 2016 than in any other year – demonstrating the contingent relationship between the two. While dominant firms exist in some segments of the ancillary industry, there is still plenty of room for newcomers, particularly in new markets.

Chart 6.12: Portion Of Ancillary Businesses That Are Generating Revenue



The portion of ancillary businesses that have launched but are not yet generating revenue is very comparable to the plant-touching sectors of the industry, another example of how interconnected these businesses are. However, ancillary companies can typically begin generating revenue much quicker than a plant-touching business, as they do not need to obtain additional licenses or meet complex regulatory requirements. Many of these businesses were already operating outside the marijuana industry, so the lag between launching and generating revenue is only as long as it takes to find a client.

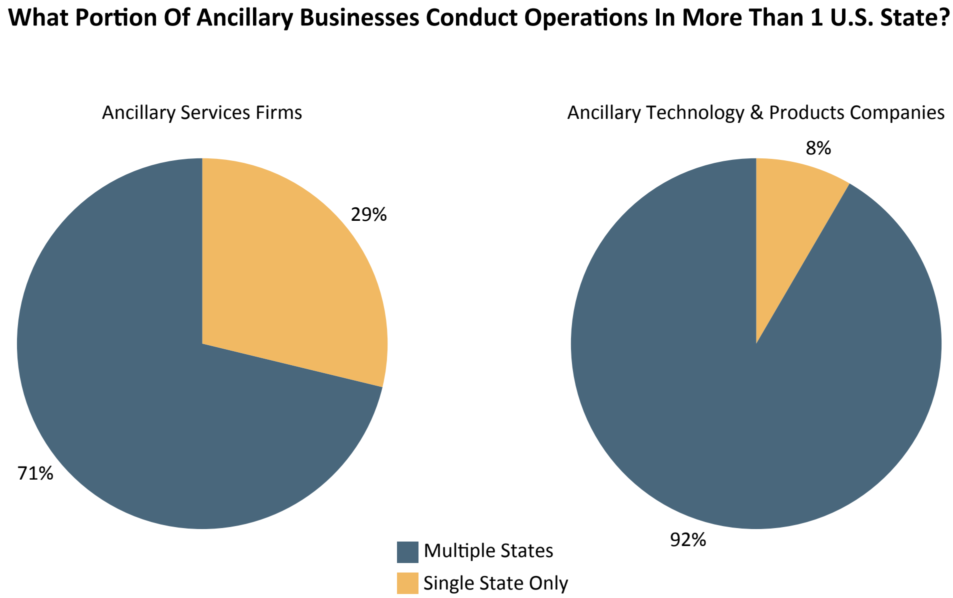
Chart 6.13: Portion Of Ancillary Businesses That Solely Serve The Cannabis Industry



About half of ancillary services firms and a third of ancillary technology and products companies serve the cannabis industry exclusively, a reflection of the large number of traditional businesses attracted to this high-growth industry and a signifier of demand among plant-touching businesses for traditional goods and services.

However, over 60% of ancillary services firms and 50% of ancillary technology and products companies founded in 2016 are focused solely on the cannabis industry, demonstrating the growing opportunity entrepreneurs have identified to provide cannabis-specific products and services.

Chart 6.14: What Portion Of Ancillary Businesses Conduct Operations In More Than 1 U.S. State?



Average Number Of U.S. States Served By Ancillary Businesses

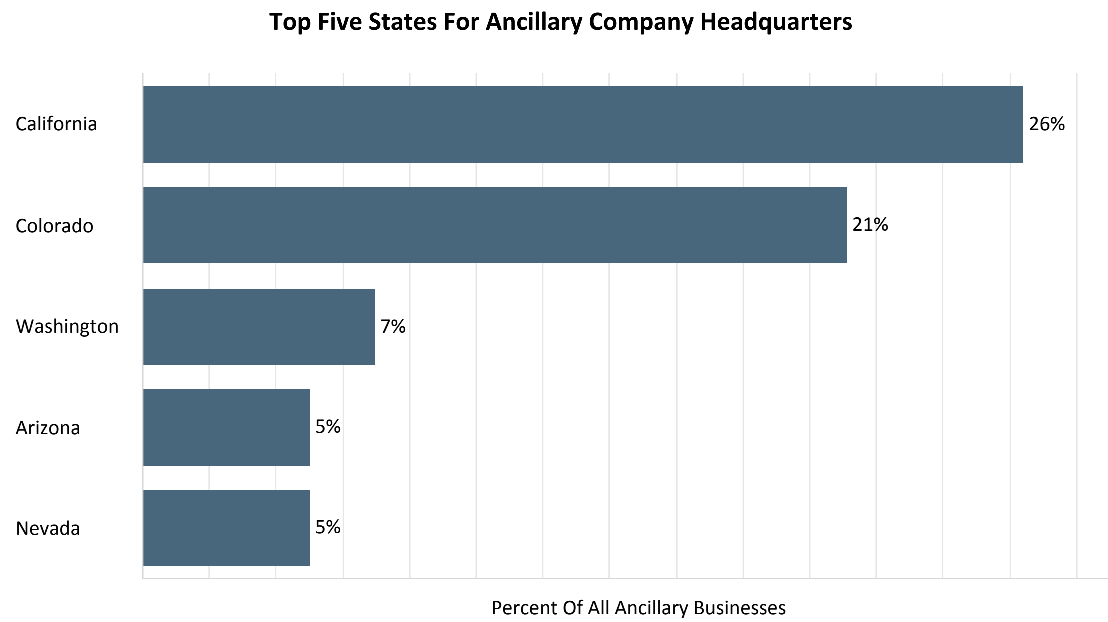
16

Not bound by the same regulatory and legal restrictions as plant-touching companies, ancillary businesses are able to conduct operations across multiple states with relative ease. In fact, it's often in an ancillary company's best interest to conduct business in more than one state, as their potential revenue stream increases greatly with every additional market the business enters.

About a third of ancillary services firms operate in just a single state, which is likely a function of their geographic proximity to plant-touching companies. For example, a small accounting firm that serves a couple of clients in the marijuana industry in addition to their larger client base in the traditional economy may not feel compelled to seek out more cannabis industry clients from outside their home state. State-specific regulations can come into play here, too, as some ancillary businesses run into difficulties customizing their services to the unique needs of companies in different markets. A company that develops regulatory compliance software, for instance, must tailor its product to each state, which can be costly and time-consuming.

A larger portion of ancillary technology and products companies conduct business in multiple states – some even in multiple countries – as sales of products like grow lighting or security cameras can take place over the internet.

Chart 6.15: Top Five States For Ancillary Company Headquarters



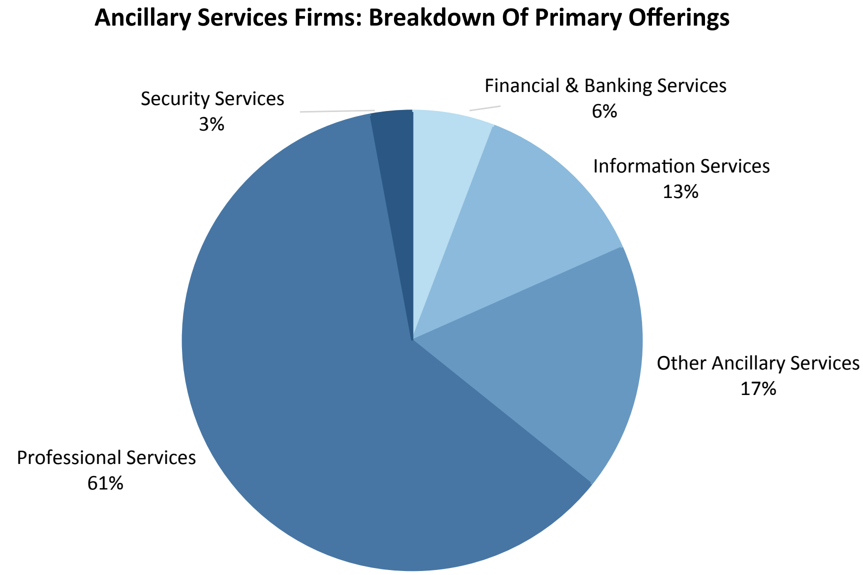
Despite how easy it is for ancillary companies to operate in multiple states, many have found it advantageous to conduct operations in close proximity to their largest client base. With the exception of Arizona – where a recreational ballot initiative was narrowly defeated in 2016 - each of these five states has legalized adult-use marijuana. This is no coincidence, as companies located in these states can more easily serve existing clients and network with local business owners.

Ancillary Services Firms

The sector includes any business that provides services to retailers, cultivators, infused product companies, testing labs, other ancillary businesses or patients and customers. Examples include but are not limited to:

Law Firms	Accounting & Tax Practices
Business Consultants	Training & Education Companies
Public Relations Firms	Marketing & Advertising Agencies
Security Services & Consulting Companies	Alternate Payment Processing Providers
News/Media Organizations	Conference & Expo Companies

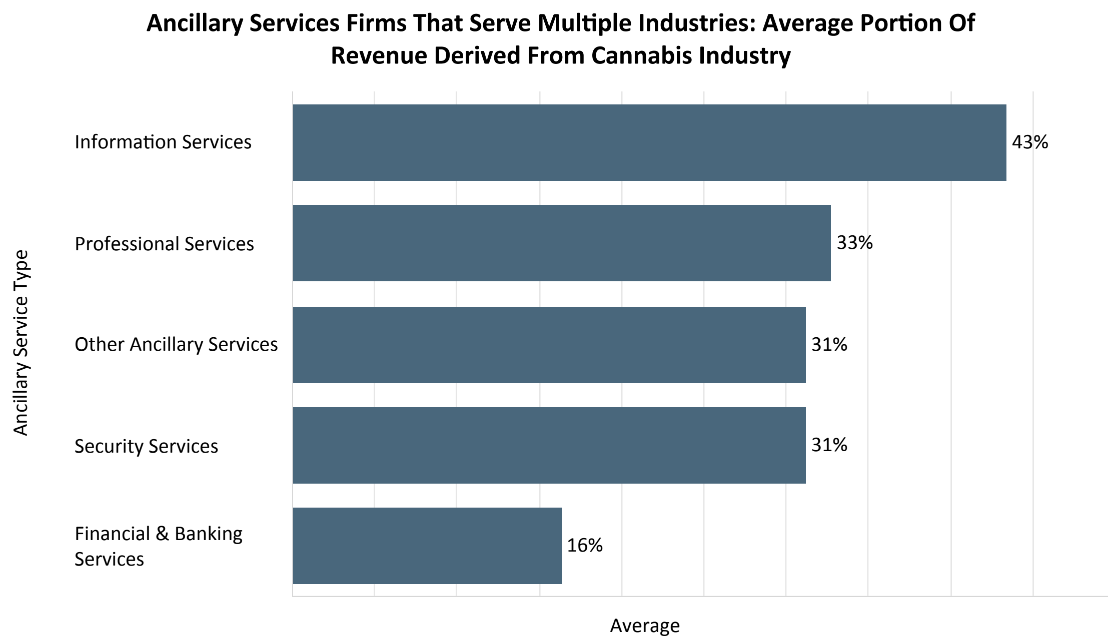
Chart 6.16: Ancillary Services Firms: Breakdown Of Primary Offerings



The wide-ranging nature of the services provided by businesses in this sector makes it challenging to place them in meaningful categories, but on the whole, firms in this space can be classified as offering professional, information, financial & banking, security or "other" services.

The majority of these companies offer some sort of professional service – law firms, accounting practices and marketing agencies are a few notable examples. These are basic services that just about any business needs, and marijuana companies are no exception. Information service companies represent a relatively small portion of this segment, but look for this to grow as the level of sophistication among plant-touching companies begins to increase in the coming years.

Chart 6.17: Ancillary Services Firms That Serve Multiple Industries: Average Portion Of Revenue Derived From Cannabis Industry



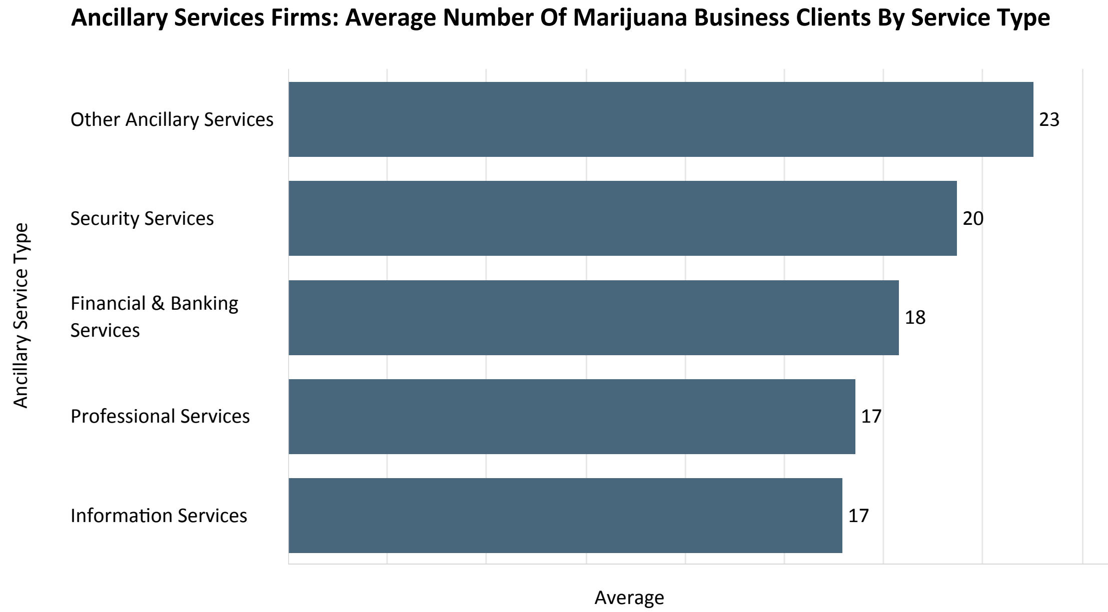
While the majority of ancillary services companies launched within the last two years serve the marijuana industry exclusively, most businesses in this space continue to operate in multiple industries. And as the chart above shows, some of these companies now derive a significant portion of their revenue from marijuana clients.

But financial and banking services firms still generate most of the revenue from outside the marijuana industry. Though it may behoove an ancillary company hoping to become a major player in the cannabis industry to specialize specifically in the marijuana space, this is a nascent and particularly risky industry for many established companies to maneuver. In some cases, the risk is not worth the reward. Several financial and banking service firms have found that working with cannabis companies poses extensive regulatory compliance issues, making it a much more time-intensive and costly affair. It's no surprise that for the financial and banking firms that do serve the industry, the revenue generated from marijuana businesses is relatively small.

Average Portion Of Revenue Derived From Cannabis Industry By Ancillary Services Firms That Serve Multiple Industries:

32%

Chart 6.18: Ancillary Services Firms: Average Number Of Marijuana Business Clients By Service Type

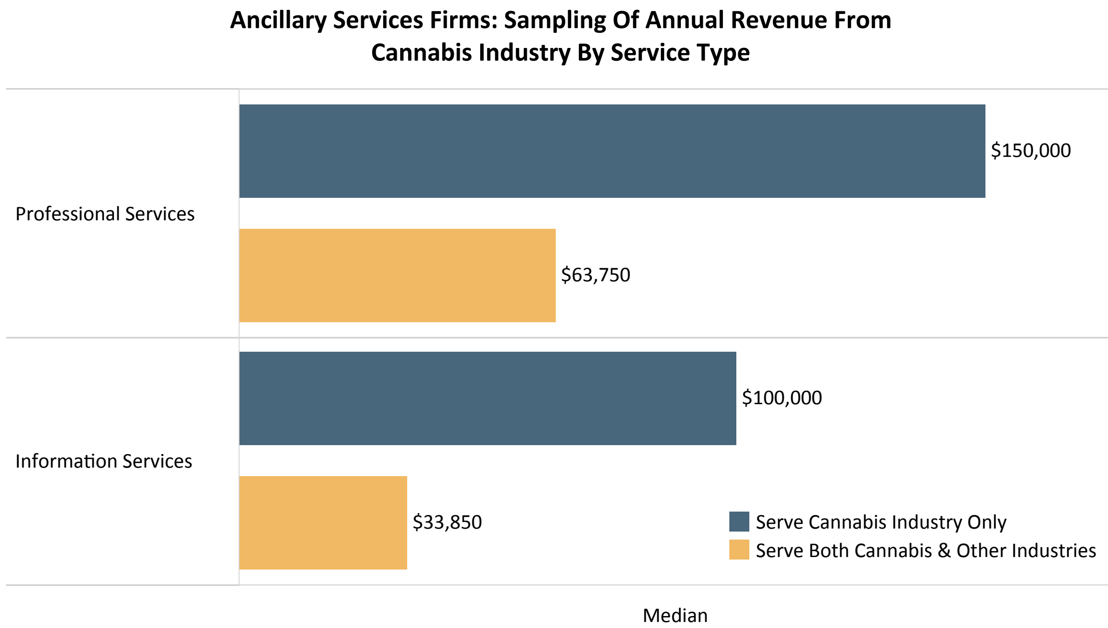


With opportunities for ancillary services firms limited largely to the states with legal marijuana, it makes sense that the average number of marijuana business clients is similar across service types. Some sort of security service is mandated by nearly every state with a medical marijuana program, whether it be money vaults or a 24/7 alarm system, explaining why these providers serve more clients than the average ancillary business.

Average Number Of Marijuana Business Clients For Ancillary Services Firms:

18

Chart 6.19: Ancillary Services Firms: Sampling Of Annual Revenue From Cannabis Industry By Service Type

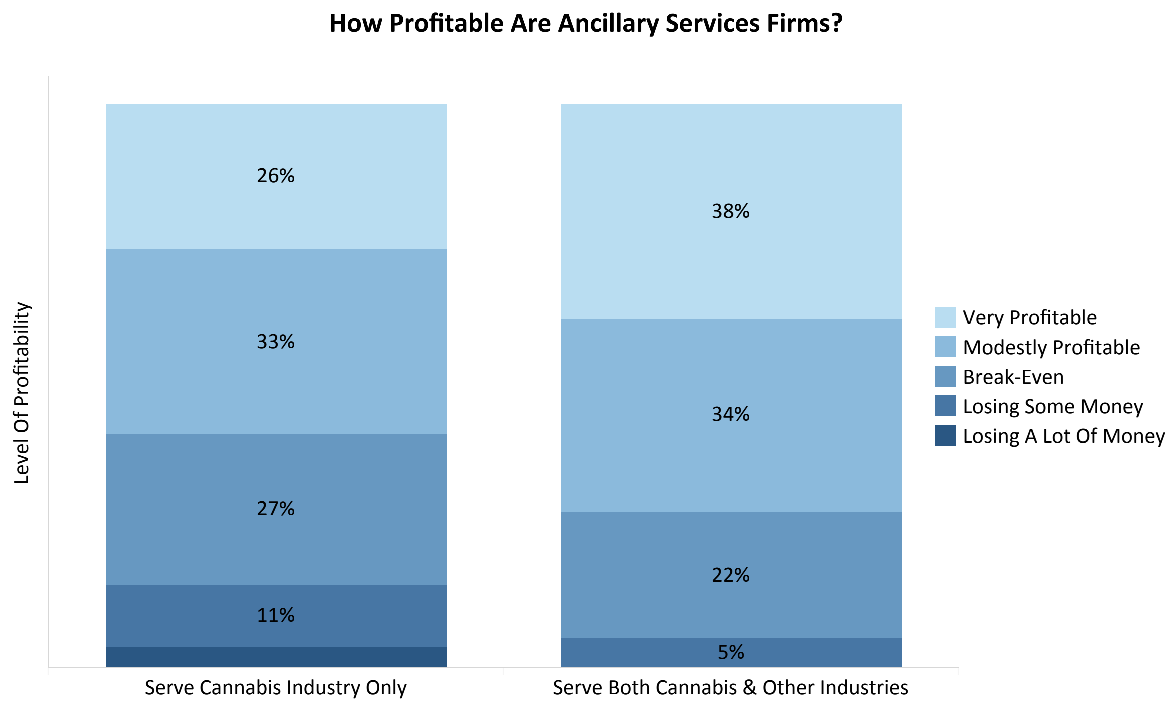


Within professional and information services – two of the most prevalent types of ancillary services firms – the typical amount of revenue generated from marijuana businesses by ancillary companies that solely serve the cannabis industry is greater than that of ancillary firms that serve multiple industries. Many of these ancillary companies provide traditional services that any business would need – like accounting or web development – but those that cater their offerings specifically to the cannabis industry have found success, as the nuances of doing business in such a nascent and legally dubious industry provide opportunities for ancillary firms to carve out their own niche in the market.

Median Ancillary Services Firm Annual Revenue From Cannabis Industry:

Serve Cannabis Industry Only:	$200,000
Serve Both Cannabis & Other Industries:	$63,000
All Ancillary Services Firms:	$100,000

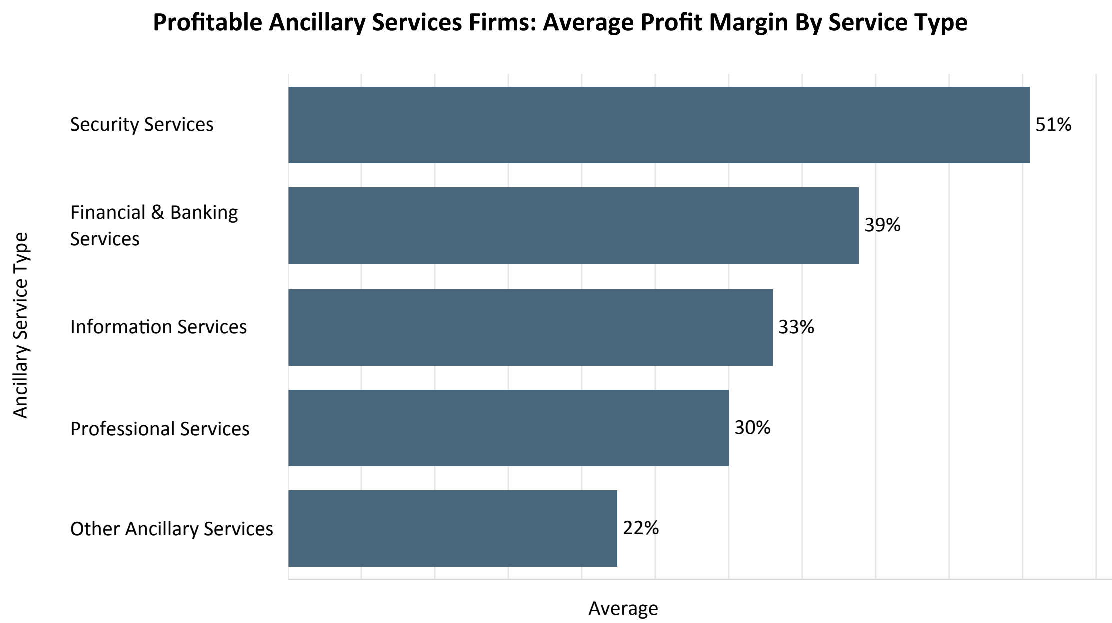
Chart 6.20: How Profitable Are Ancillary Services Firms?



Note: "Losing A Lot Of Money" (expenses and taxes exceed revenue by more than 25%); "Losing Some Money" (expenses and taxes exceed revenue by up to 25%); "Moderately Profitable" (up to 25% of revenue left after expenses and taxes are paid); "Very Profitable" (more than 25% of all revenue left after expenses and taxes are paid).

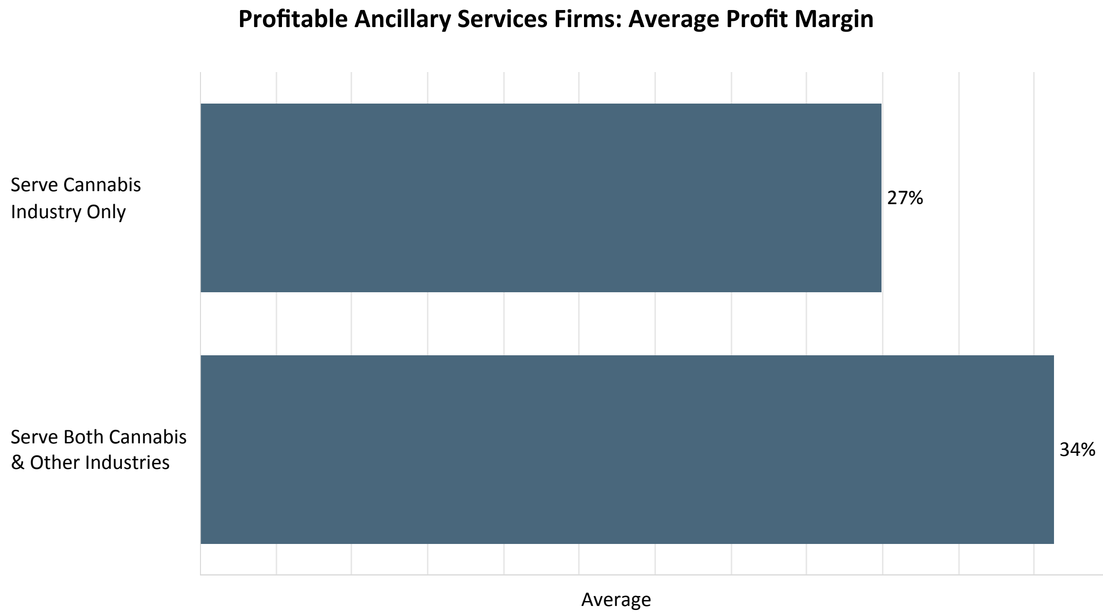
Though ancillary services firms that solely serve the cannabis industry appear slightly less profitable than those that serve multiple industries, both groups of businesses are doing quite well. Collectively, 90% of ancillary services firms that serve the cannabis industry are profitable or break-even, right in line with companies on the plant-touching side of the industry and yet another example of the symbiotic relationship between the two sectors.

Chart 6.21: Profitable Ancillary Services Firms: Average Profit Margin By Service Type



Generally speaking, profit margins are higher for businesses offering less common ancillary services. Just 3% of ancillary services firms in our survey provide security services – the smallest portion of all ancillary service types – but profit margins are significantly higher for these companies. With the exception of businesses providing "Other Ancillary Services", this notion holds true amongst all ancillary services firms – an example of supply and demand market forces at play.

Chart 6.22: Profitable Ancillary Services Firms: Average Profit Margin



Ancillary services firms that work in both the cannabis sector and other industries are commanding slightly higher profit margins than their peers solely focused on marijuana businesses. Firms that serve multiple industries might see higher profit margins in the other sectors they serve, boosting their overall totals. And some businesses that have a long track record in other industries might be able to charge a premium with their cannabis clients.

Average Profit Margin For Ancillary Services Firms:

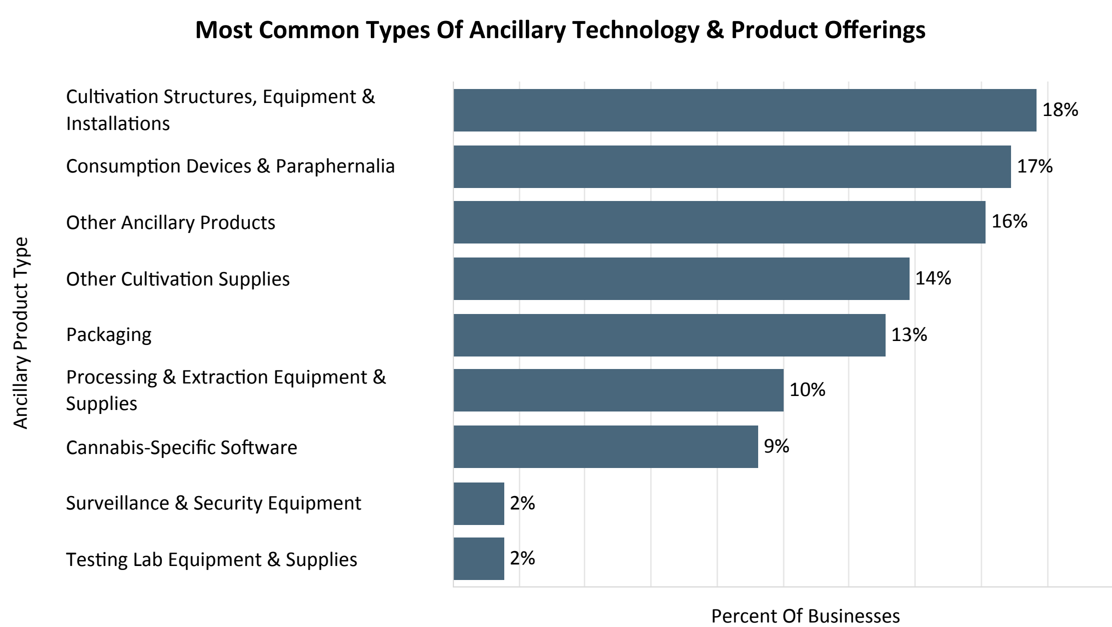
31%

Ancillary Technology & Products Companies

Similar to ancillary services, businesses providing technology and products to the cannabis industry and patients/consumers provide a wide range of offerings. Though many of these businesses provide solutions that are cannabis-specific, others have simply seen the opportunity to sell their existing products/solutions in the marijuana space. This is especially true of agricultural and hydroponics companies, many of which have existed for decades and are now bringing valuable expertise to the cannabis cultivation space. Examples of offerings and technology in this sector include but are not limited to:

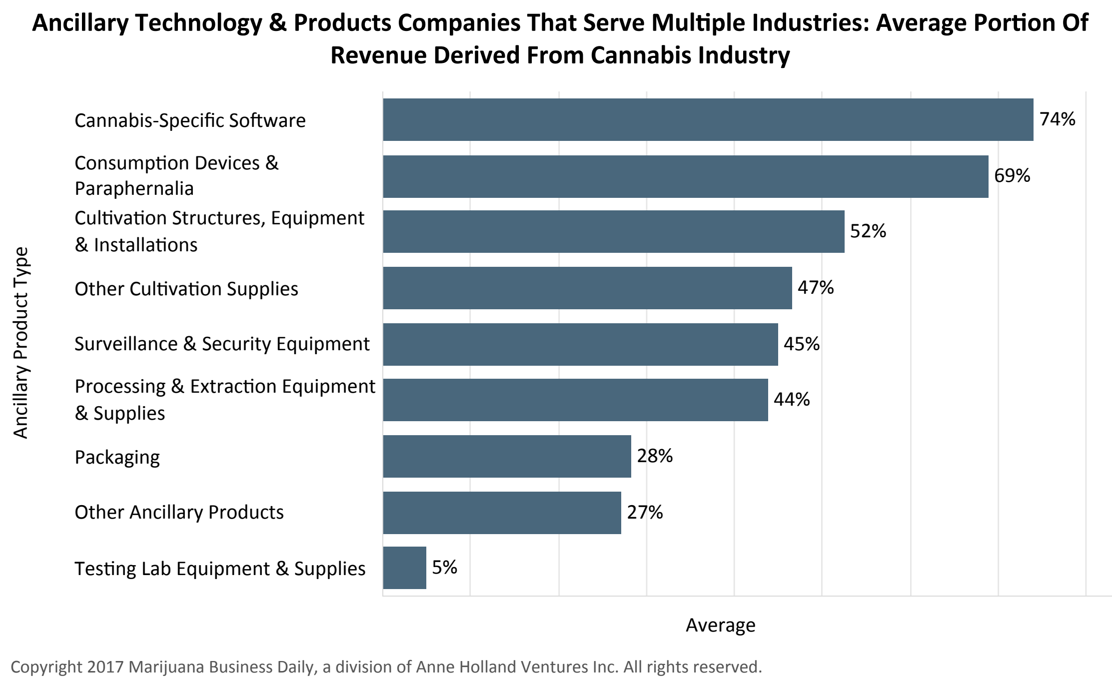
Cultivation Lighting & Other Supplies	Cannabis Packaging
Seed-to-Sale Software	Consumption Devices
Greenhouse & Cultivation Structures	Automated Nutrient Delivery Systems
Surveillance Cameras & Equipment	Payment Kiosks
Extraction Equipment & Supplies	Testing Lab Equipment & Supplies

Chart 6.23: Most Common Types Of Ancillary Technology & Product Offerings



Cultivating high-quality marijuana is a delicate process that requires growers to maintain very specific soil and climate conditions, which necessitates the use of highly specialized equipment and facilities. This has proved to be a major opportunity for ancillary technology and product companies, with 32% of businesses in this space providing solutions to wholesale cultivators. On the other end of the spectrum, only a handful of ancillary companies have sprouted up to provide equipment to testing labs, as this represents the smallest segment of the plant-touching side of the industry. And while security is a big part of the industry, a relatively small number of players are providing these types of services and equipment compared to other parts of the ancillary sector.

Chart 6.24: Ancillary Technology & Products Companies That Serve Multiple Industries: Average Portion Of Revenue Derived From Cannabis Industry

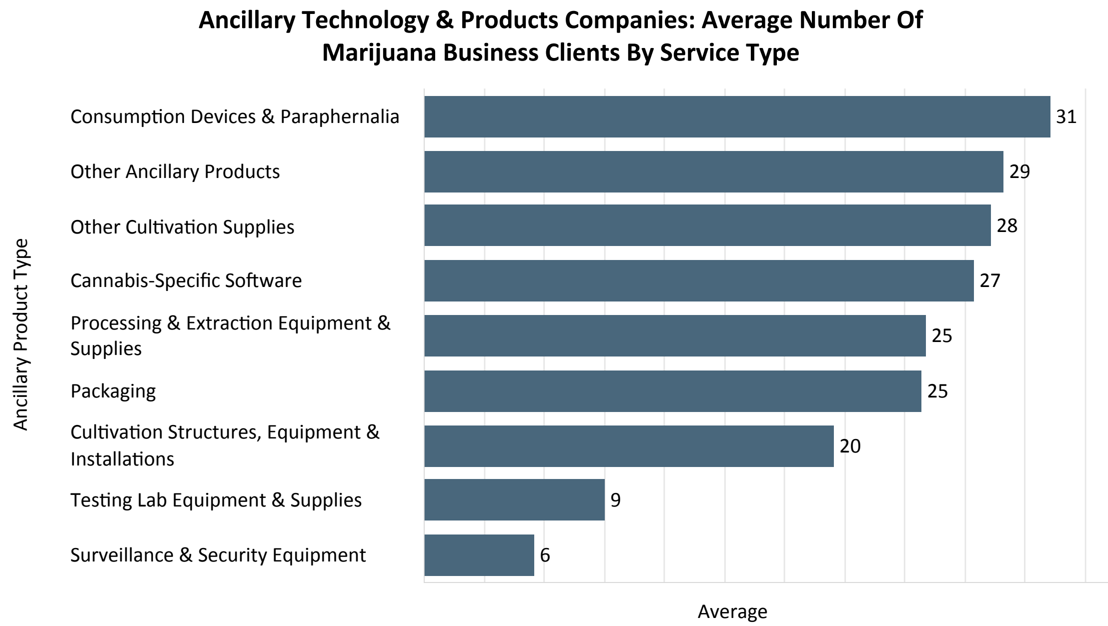


Cannabis businesses in most states with legal marijuana are often subject to very strict rules and regulations, and most states require businesses to maintain extensive sets of records and participate in seed-to-sale tracking programs. The complex operating environment in which these businesses operate has given software companies an opportunity to step in and try and ease this regulatory burden, often with solutions that are developed specifically for cannabis companies. Therefore, most cannabis-specific software providers generate the lion's share of their revenue from cannabis businesses. Though most ancillary technology and products companies do not serve the cannabis industry exclusively, the business generated from marijuana companies represents a sizable share of revenue nearly across the board.

Average Portion Of Revenue Derived From Cannabis Industry By Ancillary Technology & Products Companies That Serve Multiple Industries:

46%

Chart 6.25: Ancillary Technology & Products Companies: Average Number Of Marijuana Business Clients By Service Type

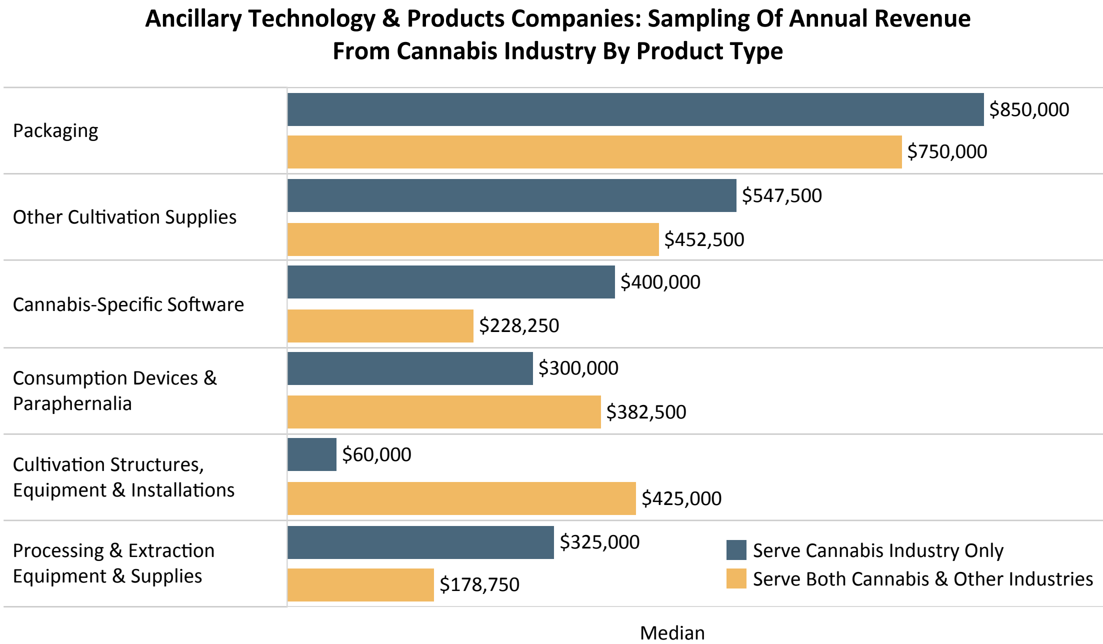


With the exception of ancillary companies that provide testing lab and security equipment, most ancillary businesses serve between 20 to 30 clients, which is more than the average ancillary services company. Businesses that produce consumption devices and paraphernalia stand out in this particular analysis, as they are uniquely able to serve the marijuana consumer base throughout the entire United States. Because these products are often marketed – with a wink and a nod – as devices by which to consume tobacco, they can be sold to retail outlets and wholesalers with limited restrictions. Typically only plant-touching businesses serve consumers directly, limiting the potential for any single business to offer consumer-focused marijuana products in all 50 states.

Average Number Of Marijuana Business Clients For Ancillary Technology & Products Companies:

26

Chart 6.26: Ancillary Technology & Products Companies: Sampling Of Annual Revenue From Cannabis Industry By Product Type



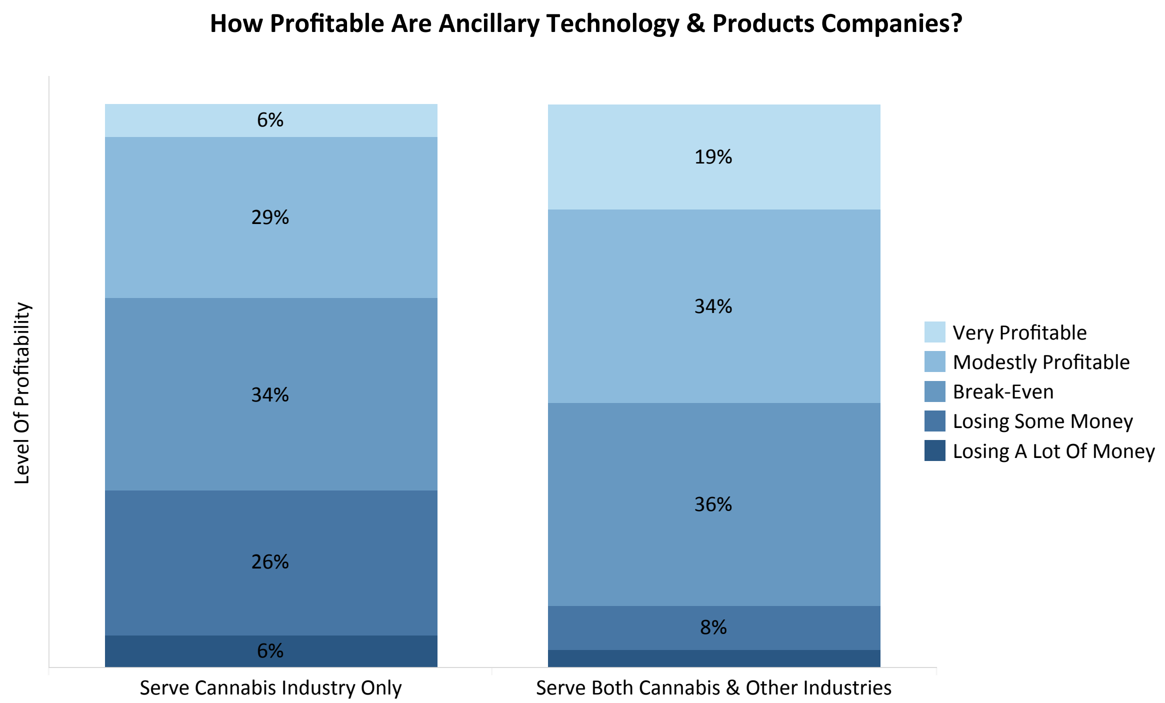
As shown earlier, ancillary services firms in multiple industries tend to generate less revenue from cannabis companies than their peers serving the marijuana industry exclusively. For the most part, this trend holds true for ancillary technology and products companies, but the revenue disparity between businesses that solely serve the cannabis industry and those that serve multiple industries is much smaller relative to ancillary services firms.

This may stem from the high costs faced by manufacturers looking to enter a new industry, such as purchasing new equipment or hiring more employees. The molds used by packaging manufacturers to construct new types of packaging, for example, can easily stretch into the six figures. Thus, ancillary technology and products companies that serve multiple industries may not enter the cannabis space until a high-dollar opportunity has been realized.

Median Ancillary Technology & Products Companies Annual Revenue From Cannabis Industry:

Serve Cannabis Industry Only:	$500,000
Serve Both Cannabis & Other Industries:	$235,500
All Ancillary Technology & Products Companies:	$300,000

Chart 6.27: How Profitable Are Ancillary Technology & Products Companies?

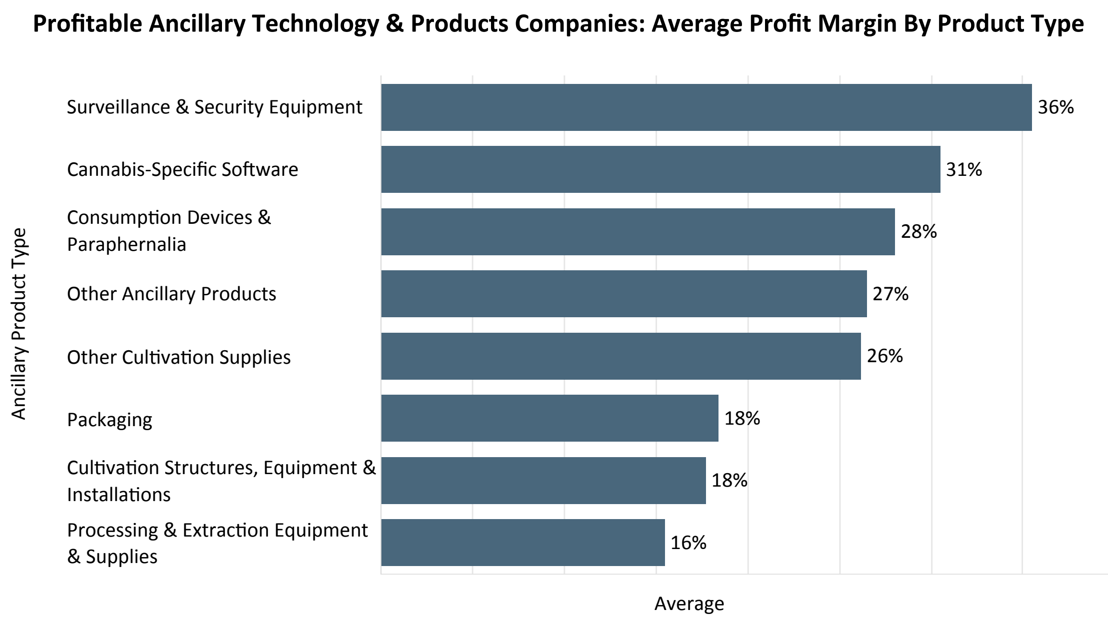


Note: "Losing A Lot Of Money" (expenses and taxes exceed revenue by more than 25%); "Losing Some Money" (expenses and taxes exceed revenue by up to 25%); "Moderately Profitable" (up to 25% of revenue left after expenses and taxes are paid); "Very Profitable" (more than 25% of all revenue left after expenses and taxes are paid).

Compared to ancillary services firms, fewer ancillary technology and products companies indicated that their business was very profitable, while a higher percentage reported losing some or a lot of money – especially among ancillary technology and products companies that serve the cannabis industry exclusively.

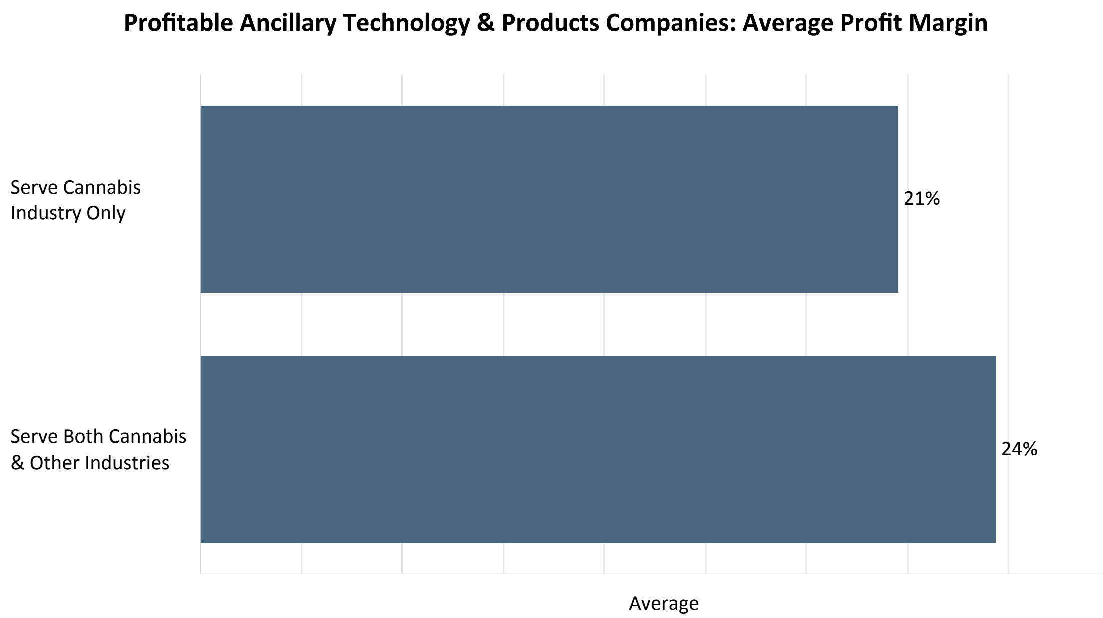
This speaks to the major differences between these groups of ancillary companies in terms of how they approach the cannabis industry, as the production of technology and goods often requires more time and upfront capital relative to that of an ancillary services firm. Furthermore, companies producing products like grow lighting or vaporizers face significant competition from overseas, where manufacturers in China are able to provide similar products at a significantly lower price. Though ancillary technology and products companies that serve marijuana businesses may be faced with more risk than ancillary service providers, overall these metrics paint a profitable picture for this segment of the industry.

Chart 6.28: Profitable Ancillary Technology & Products Companies: Average Profit Margin By Product Type



Firms providing surveillance and security equipment and cannabis-specific software – two of the least common ancillary technology and product types – are receiving the highest profit margins; a trend also borne out amongst ancillary services firms. As the market matures, an increasing number of entrepreneurs will be drawn to these highly profitable and less crowded segments of the industry, so more competition and lower margins are to be expected in the future.

Chart 6.29: Profitable Ancillary Technology & Products Companies: Average Profit Margin



Though the difference is less drastic relative to ancillary services firms, ancillary technology and products companies that serve both the cannabis industry and other industries are recording higher profit margins than those that serve the cannabis industry exclusively. Again, this likely stems from the product premium demanded by more traditional companies that choose to enter the cannabis industry, expecting a larger return on investment given their expertise and the risk that comes with doing business in an industry fraught with legal concerns.

Ancillary Technology & Products Companies
Average Profit Margin:

23%

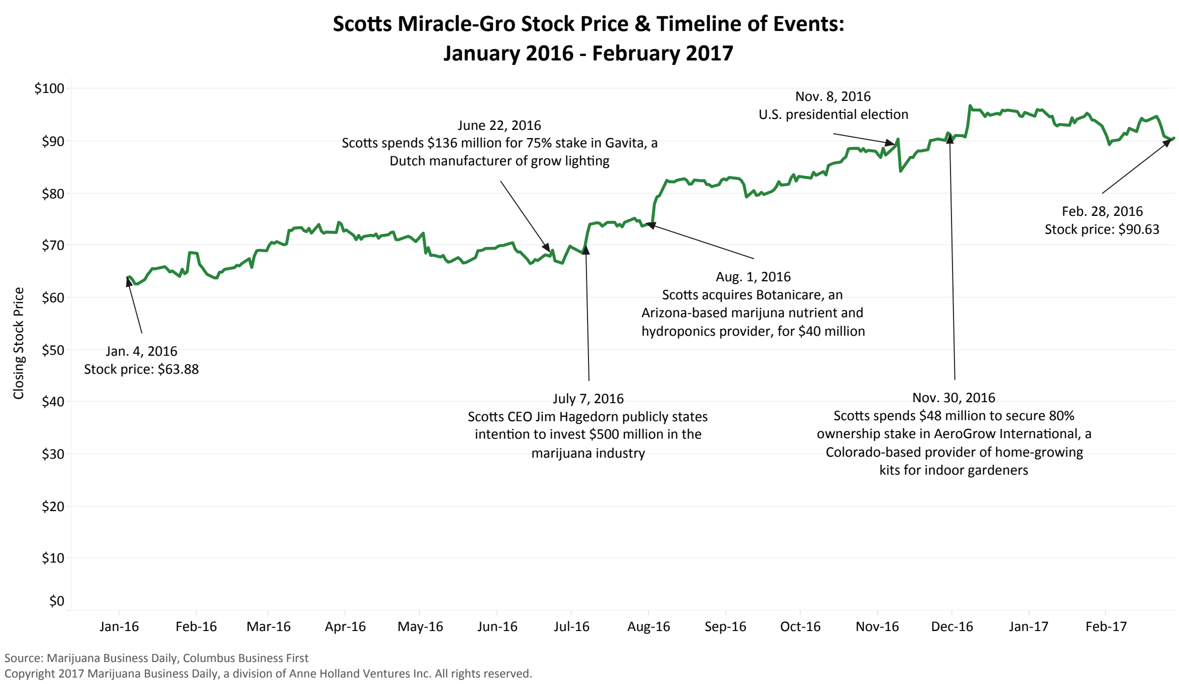
REAL WORLD EXAMPLE

Chart 6.30: Real World Example: Scotts Miracle-Gro Stock Price & Timeline Of Events: January 2016-February 2017

Scotts Miracle-Gro, a publicly traded provider of lawn and garden products since 1868, recently made several bold plays in the marijuana industry. While the investments are rather small considering the size of the company – Scotts has annual revenue of over $3 billion – they certainly haven't hurt its stock price, which has risen 42% since the beginning of 2016.

The company is one of the few traditional ancillary businesses spending heavily to secure a presence in a marijuana industry many companies still view as too risky for significant investments. But Scotts CEO Jim Hagedorn sees cannabis as a major opportunity and has invested substantial sums into the industry, including $136 million for a majority stake in a Dutch cultivation lighting manufacturer – the company's largest deal in nearly 20 years.

Here's a closer look at Scotts' stock price and the company's cannabis industry deals throughout 2016.



CHAPTER

7

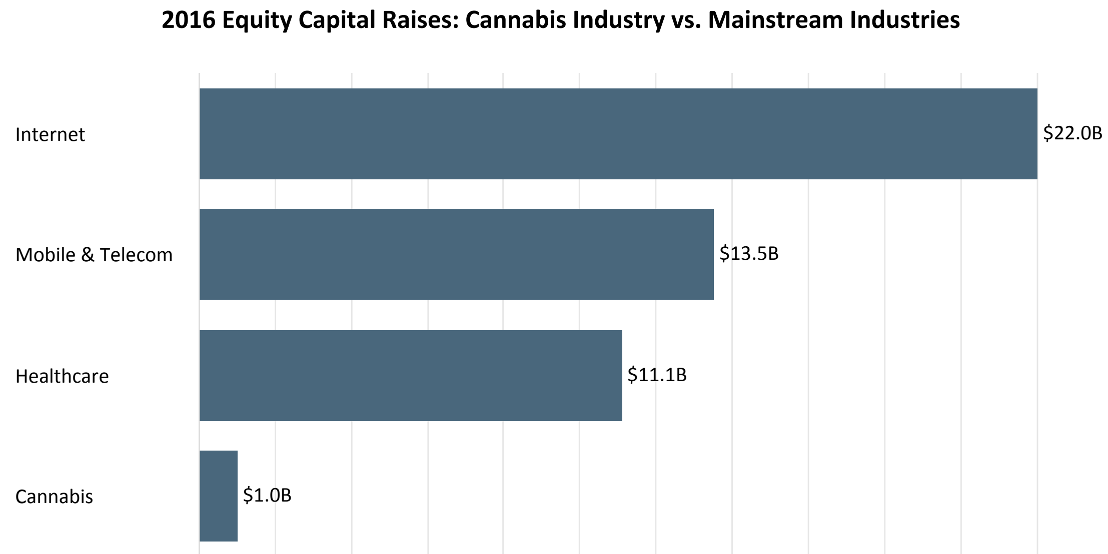
Cannabis Business Funding & Investing

The marijuana industry as a whole is rapidly maturing, and the social stigma surrounding cannabis continues to erode as more states legalize medical and recreational MJ. The risks of doing business in and around the cannabis sector also have diminished significantly in recent years, even though marijuana is still illegal at the federal level.

As a result, a growing number of wealthy individuals and smaller investment firms are funneling money into startup cannabis companies and mature businesses looking to expand. The volume of deals is rising rapidly, as is the overall amount of investment money flowing into the industry. Several years ago, seven-figure deals were relatively rare. Now, companies are landing millions – and even tens of millions – of dollars on a regular basis. Many investors are now willing to fund plant-touching companies as well, which wasn't the case in the past.

REAL WORLD EXAMPLE

Chart 7.01: Real World Example: 2016 Equity Capital Raises: Cannabis Industry vs. Mainstream Industries

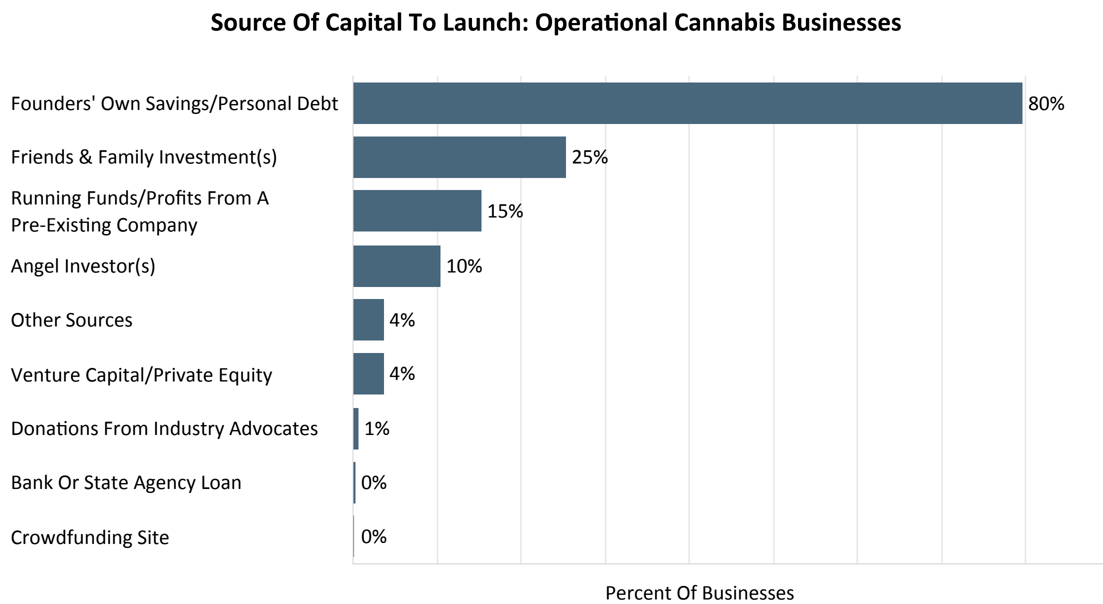


Source: Viridian Capital Advisors, CB Insights
Note: Cannabis industry equity raises are global totals, including funds provided to both public and private companies. Equity raises across all other industries include only private companies in the United States that have received funds from venture capital firms or angel investors.

Although investment activity in the cannabis industry is increasing, big investment firms, venture capitalists and institutional investors largely remain on the sidelines, wary of getting involved in an industry that revolves around a federally illegal substance.

Global equity funding of both public and private businesses in the cannabis industry totaled just over $1 billion in 2016, according to Viridian Capital Advisors, a comparatively small amount relative to more traditional industries. While the chart above is not a perfect comparison (see chart note for further detail), there is a clear lack of large-scale investment activity in cannabis compared to other industries.

Chart 7.02: Source Of Capital To Launch: Operational Cannabis Businesses

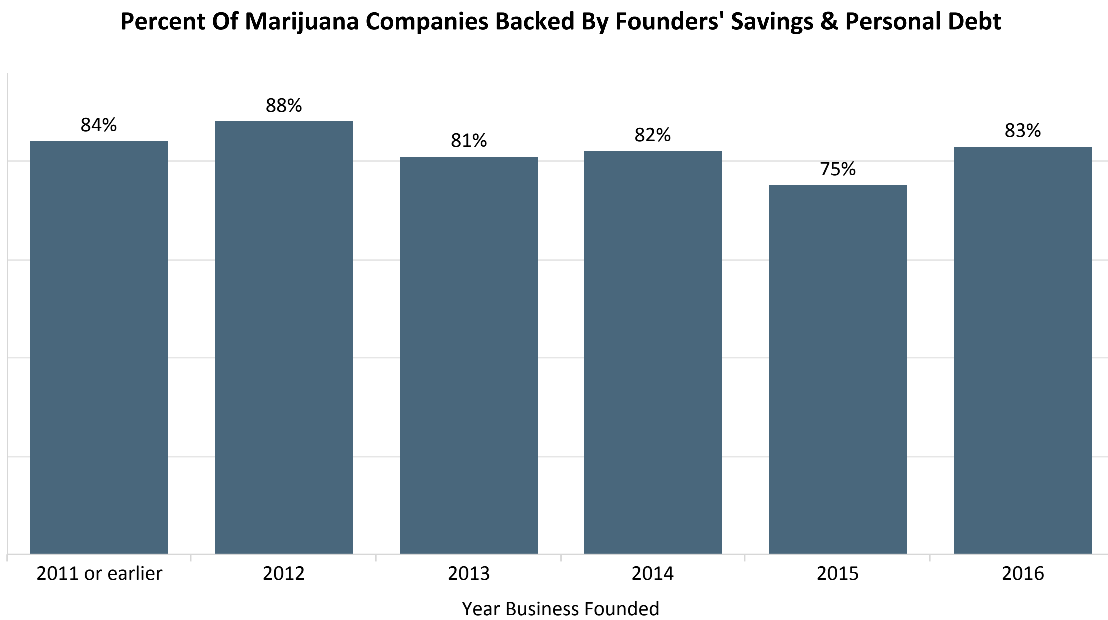


Note: Multiple-choice question; respondent total may be greater than 100%.

The election of Donald Trump as president introduced a host of new uncertainties, giving even some longtime cannabis investors pause. The marijuana industry also is extremely fragmented, making it difficult to build large national companies with powerhouse brands. And many businesses in the space are small, family run operations that lack the level of sophistication large investors are seeking.

For all these reasons, investments in the cannabis space still pale in comparison to other industries. While the investment climate is improving, many entrepreneurs must still fund their businesses personally, tapping into savings and utilizing credit cards to launch their companies.

Chart 7.03: Percent Of Marijuana Companies Backed By Founders' Savings & Personal Debt



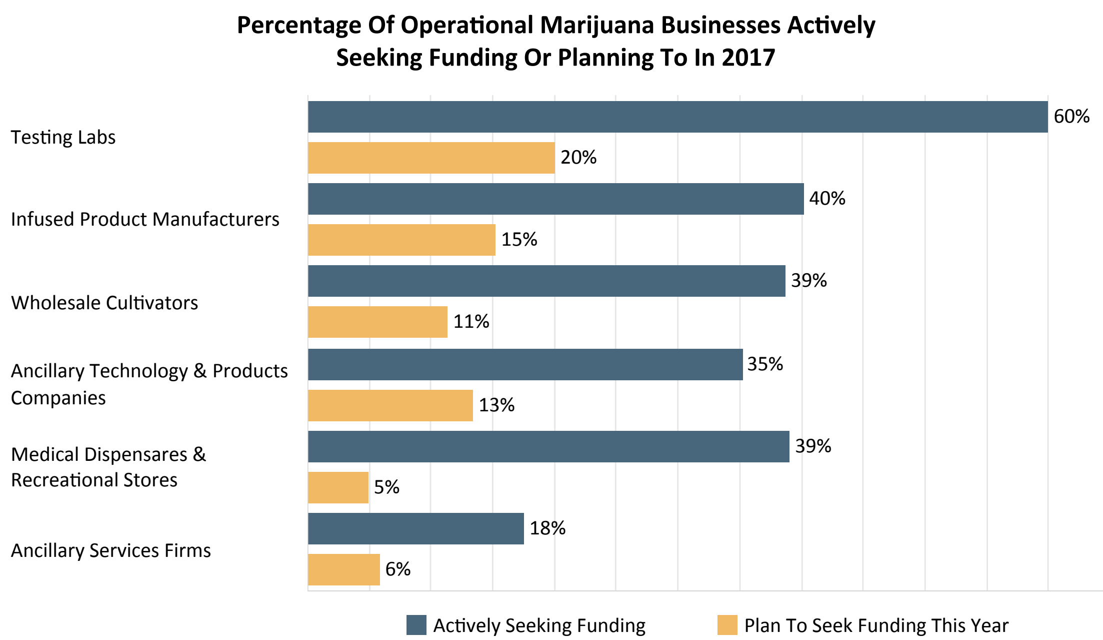
The percentage of marijuana businesses launched with savings or personal debt began decreasing in 2013 as more investors began pumping money into the industry, hitting a low of 75% in 2015.

But 2016 was a presidential election year, so the marijuana industry's future was uncertain no matter which party's candidate won – causing some investors to pull back from funding marijuana businesses.

Though marijuana was very much a background issue for both Donald Trump and Hillary Clinton, many believed that if Clinton won she would reschedule medical marijuana, potentially opening the doors for large pharmaceutical firms to enter the industry. A Donald Trump victory was considered improbable, but he caused concern among industry professionals simply by receiving the Republican Party's nomination.

THE INVESTMENT OPPORTUNITY: COMPANIES SEEKING FUNDING

Chart 7.04: Percentage Of Operational Marijuana Businesses Actively Seeking Funding Or Planning To In 2017



In most sectors of the cannabis industry, roughly 50% of revenue-generating companies are either actively trying to raise capital or plan to this year.

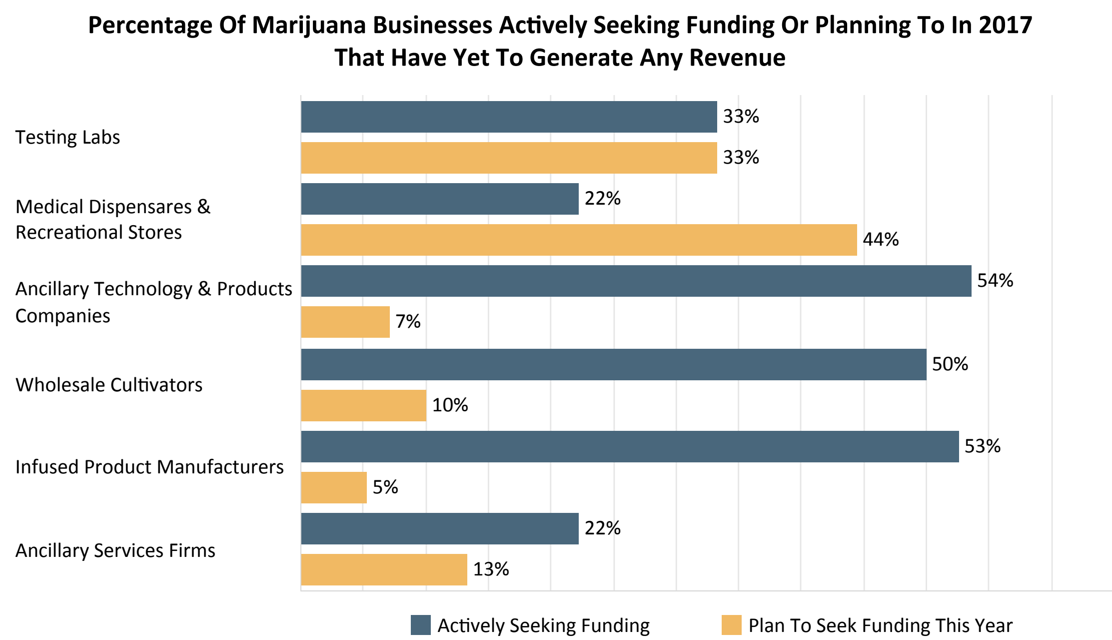
Many of these businesses need money after they launch – either to expand or to simply pay the bills until they hit profitability. Testing labs lead the pack in this regard. Labs are unique and capital-intensive businesses, as daily operations are carried out by highly skilled workers performing specialized testing procedures on technologically complex equipment.

Some other notable takeaways from this data:

- Infused product manufacturers also stand out when it comes to funding plans. These businesses face significant operating costs. Many must purchase and maintain expensive extraction equipment and develop their products in professional-grade kitchens – all while maintaining compliance with strict safety regulations. This often requires additional investments along the way and, therefore, the need for outside money. Edibles and concentrates also are becoming more popular with patients and consumers, leading to a growing number of businesses entering this space. Infused companies in many markets are realizing they must scale up to remain competitive, and that requires more money. Another factor at play: A growing number of infused companies are expanding across state lines, utilizing local partners and licensing their brands and recipes. This type of expansion often requires additional capital.

- Wholesale cultivators in several markets have been battered by decreasing prices, and additional funding may be necessary for many of these businesses to survive. Turning a profit comes down to a cultivator's ability to produce high-quality products with an extreme level of efficiency, but the costs of building a facility to meet these needs are significant. Many growers also are switching to or incorporating greenhouses, which require a substantial investment at the outset.

Chart 7.05: Percentage Of Marijuana Businesses Actively Seeking Funding Or Planning To In 2017 That Have Yet To Generate Any Revenue

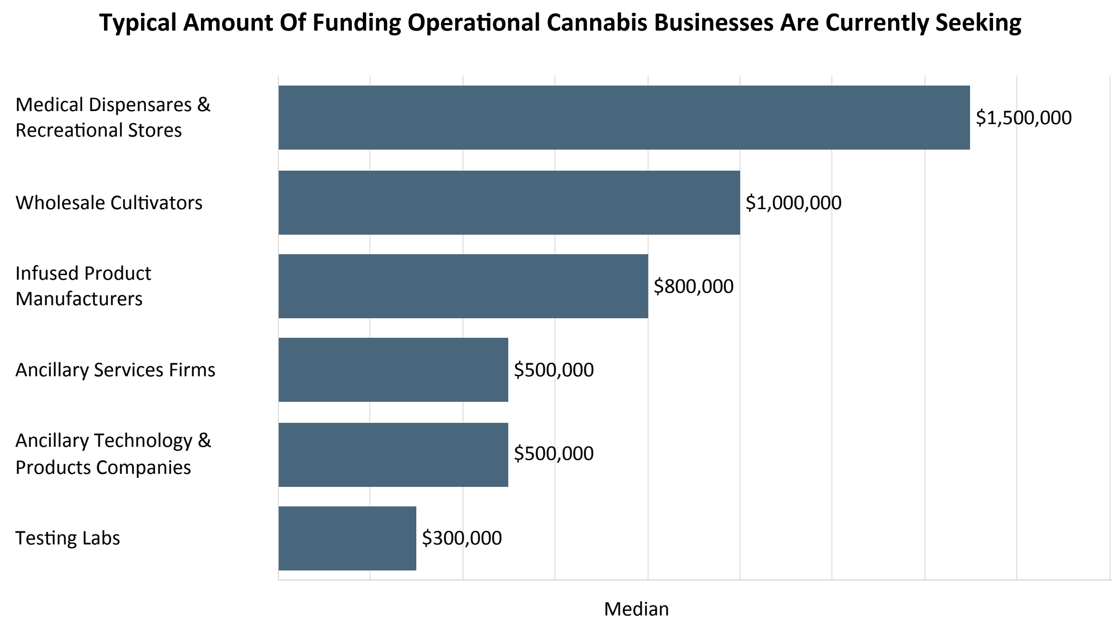


In general, a higher percentage of businesses that have launched but are not yet generating revenue are in need of financing compared to operational businesses. A majority of revenue-generating cannabis companies use funds from existing operations to keep their businesses going, so it makes sense that companies without any cash flows are looking to outside investors for help.

In most cases, delays in new markets are often the reason that an otherwise operational company has yet to begin generating revenue, as slowdowns in the application, licensing and rule promulgation processes can leave a business waiting to serve clients or customers.

In Massachusetts, for example, licensing bottlenecks have allowed just a handful of dispensaries to open, causing major financial concerns for many businesses that aren't generating revenue – yet they remain on the hook for major expenses, like rent or a mortgage.

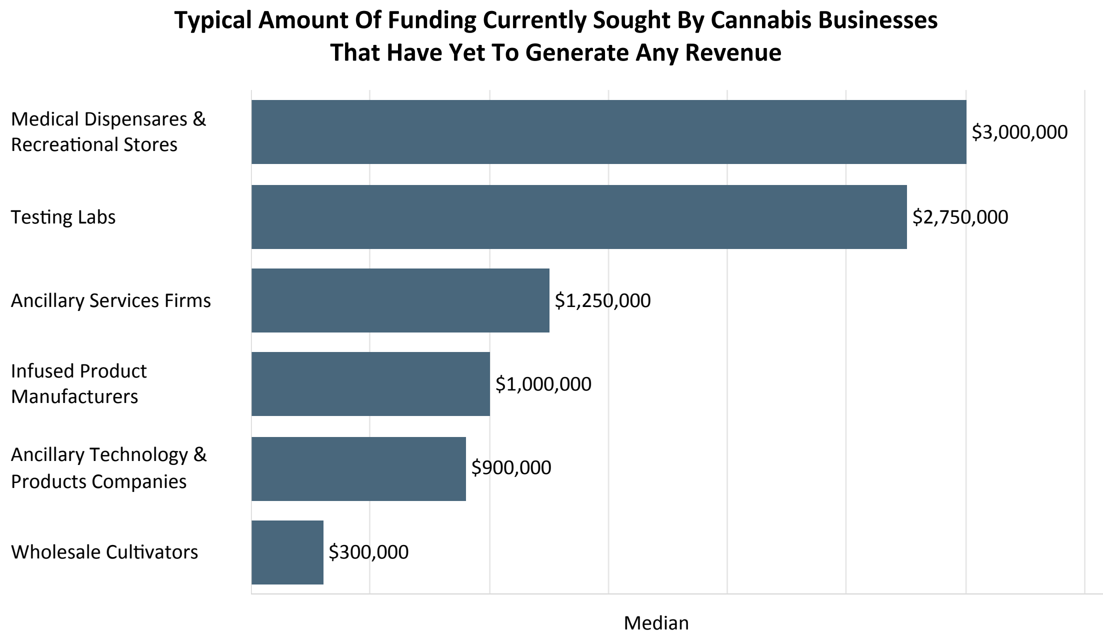
Chart 7.06: Typical Amount Of Funding Operational Cannabis Businesses Are Currently Seeking



Compared to most other sectors of the cannabis industry, a smaller percentage of marijuana retailers are actively seeking funding or plan to in 2017. But the amount of money dispensaries and rec shops that are pursuing financing deals hope to land is significantly larger.

Retailers must also overcome considerable tax burdens in order to turn a profit, which often leads to additional financing needs. But this segment of the industry has proved relatively resilient to falling cannabis prices and increased competition – issues that weigh heavily among growers and infused product companies. Entrepreneurs should not be afraid to pitch investors with a high ask, as long as there's a viable plan for providing a return.

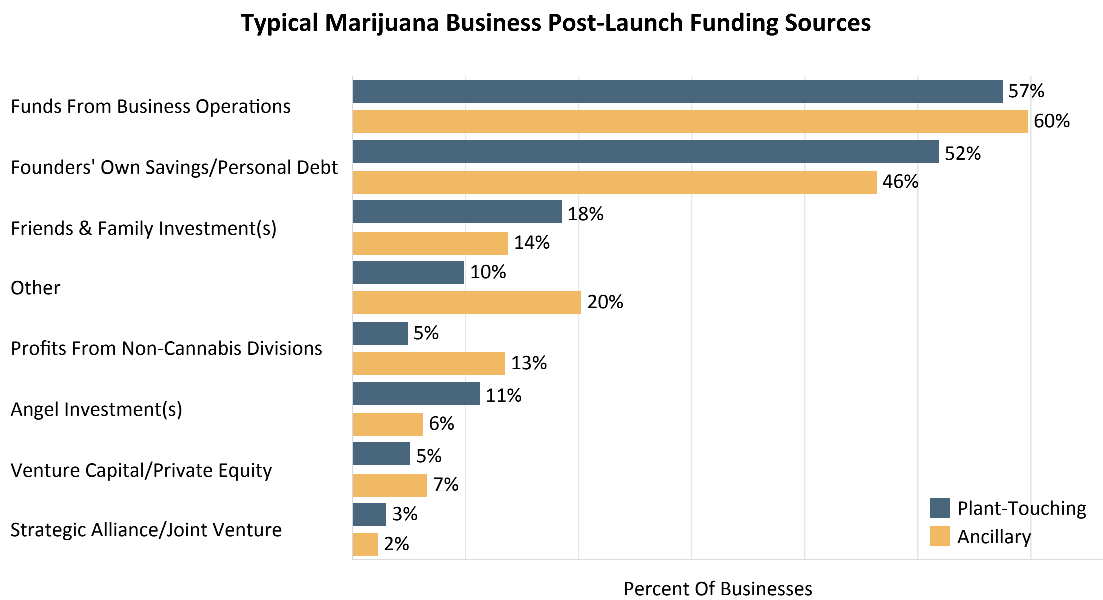
Chart 7.07: Typical Amount Of Funding Currently Sought By Cannabis Businesses That Have Yet To Generate Any Revenue



Depending on the market a retailer serves and the business' level of integration, startup costs are among the highest in the marijuana industry – right up there with testing labs – explaining the relatively large amount of funding sought by companies that have yet to begin generating revenue.

The situation for wholesale cultivators can be quite different, as those that are not generating revenue may simply be waiting to harvest flower that's already been planted. With a revenue stream waiting to be realized once their product is ready to hit the market, additional capital may be used to upgrade existing facilities rather than to endure program delays.

Chart 7.08: Typical Marijuana Business Post-Launch Funding Sources

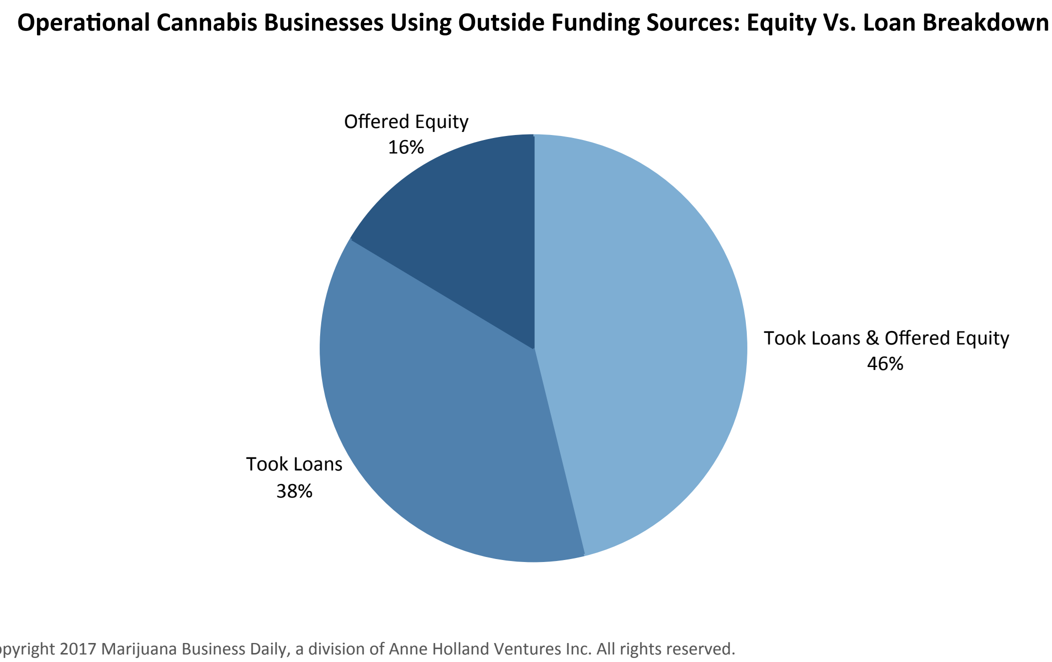


Note: Multiple-choice question; respondent total may be greater than 100%.

The fact that most companies are able to use funds from existing operations to keep their businesses going underscores the relatively high profitability rates and profit margins in the marijuana industry. But for the majority of companies that rely on a mixture of post-launch funding, a large portion are turning to non-institutional sources of funding like personal savings or friends and family.

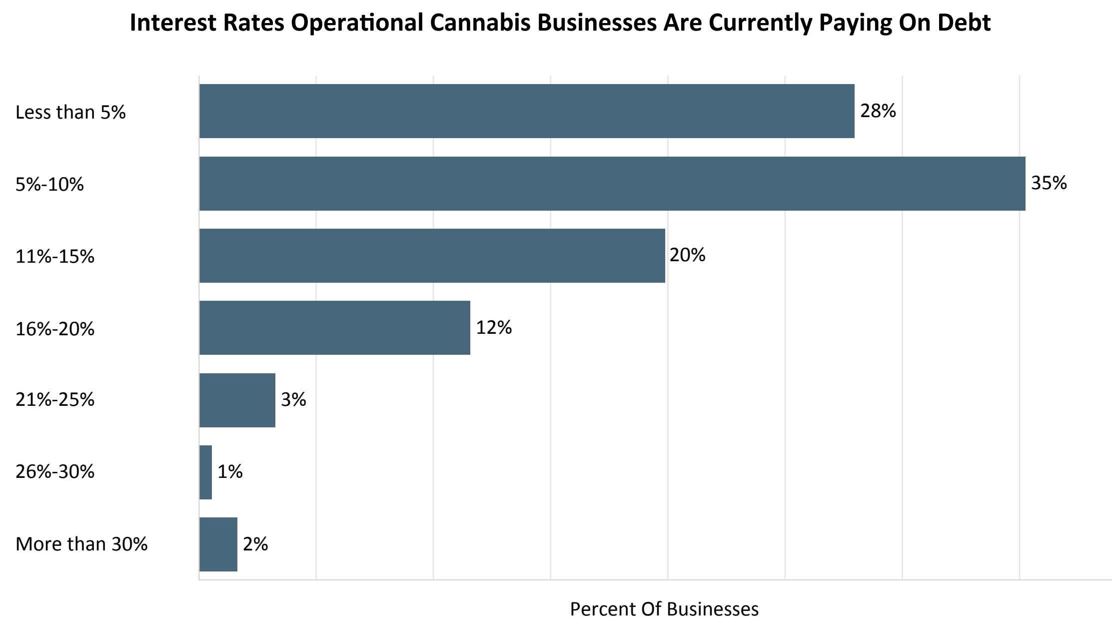
To a limited degree, angel investors and venture capital/private equity firms are stepping in and providing capital to businesses after they've launched. And as subsequent charts will show, cannabis investors are planning to make more investments in more mature companies. But the number of businesses that can attract these kinds of investors is small and therefore not a reliable source of funding for most entrepreneurs.

Chart 7.09: Operational Cannabis Businesses Using Outside Funding Sources: Equity Vs. Loan Breakdown



Of the companies unable to finance existing operations or future expansions entirely through personal savings or funds generated by the business, most offered equity and took loans in order to secure additional capital. A number of factors may be driving these results – investing and business conditions can vary widely by state – but on the whole, business owners appear to be valuing control over their companies over accumulating debt.

Chart 7.10: Interest Rates Operational Cannabis Businesses Are Currently Paying On Debt

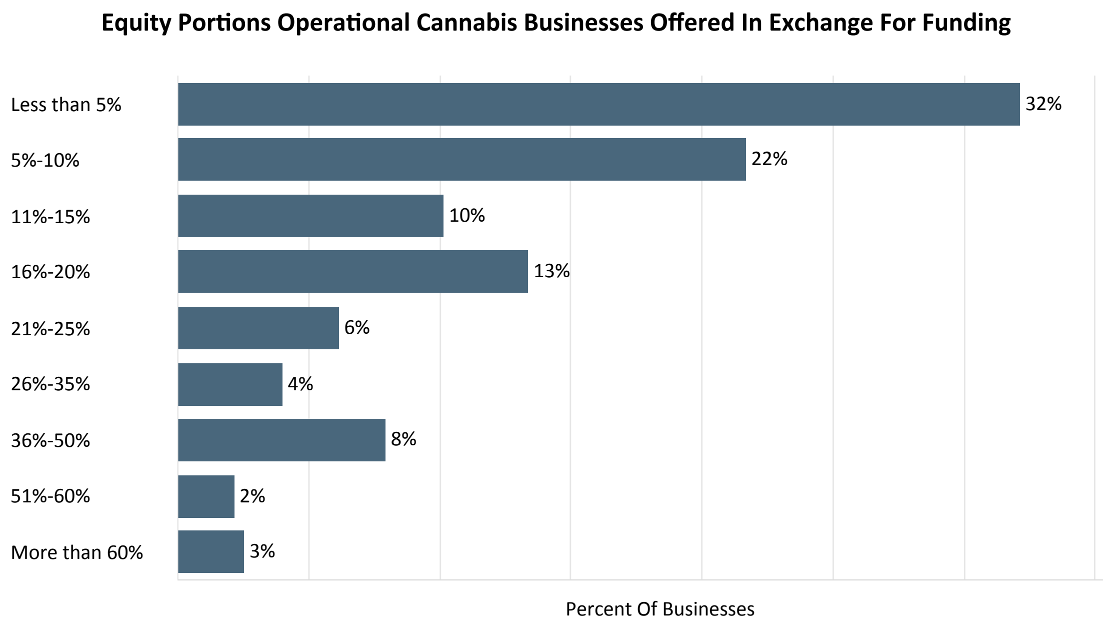


As seen in the first chart in this chapter, banks and state agencies are still very averse to providing loans to cannabis businesses. But as the investment climate in the marijuana industry improves and more sources of funding become available, interest rates are more favorable for the businesses that are able to secure a loan. Over 60% of marijuana businesses with outstanding loans are paying 10% or less in interest, a much lower rate compared to just last year.

Average Interest Rate Operational Cannabis Businesses Are Currently Paying On Debt:

10%

Chart 7.11: Equity Portions Operational Cannabis Businesses Offered In Exchange For Funding



For many reasons, a cannabis business may choose to offer investors equity in the company instead of taking on loans, which can be especially risky if the organization is not generating steady cash flow.

Offering equity stakes also aligns incentives between the business and investors, as both have a material interest in the company's success. Businesses are freed from the stress of having to make payments on a strict timeline, and investors are better positioned to make a lucrative exit should the company go through some sort of liquidity event, such as an acquisition or initial public offering.

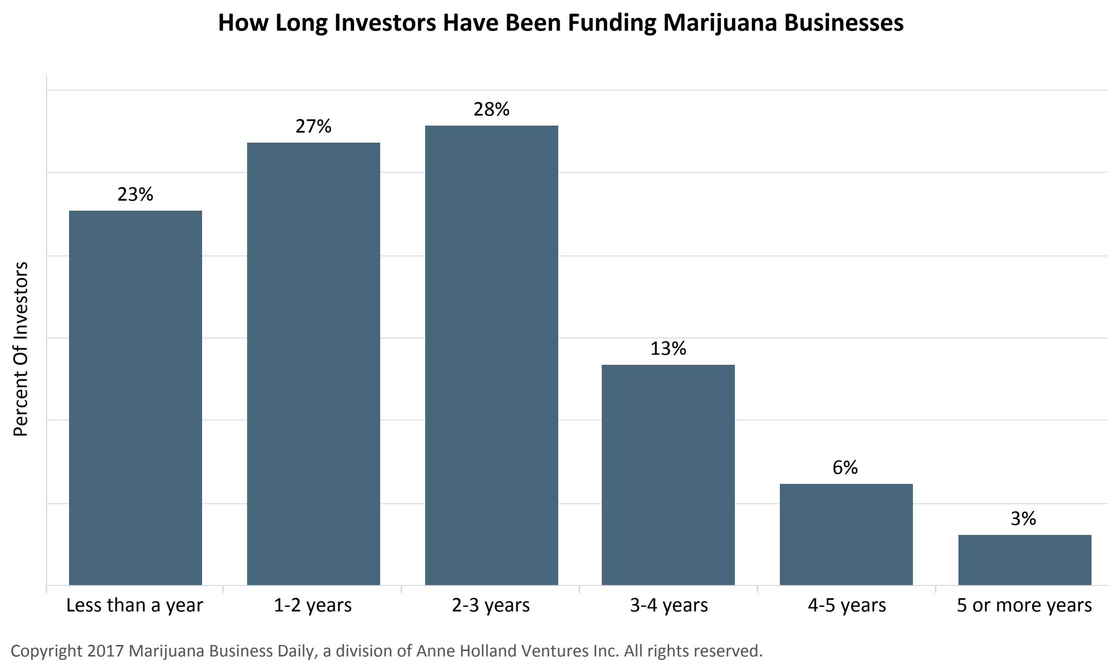
The amount of control investors are gaining in the companies they're funding is relatively small, with over half of businesses offering 10% or less in equity.

Average Equity Portion Operational Cannabis Businesses Are Offering In Exchange For Funding:

15%

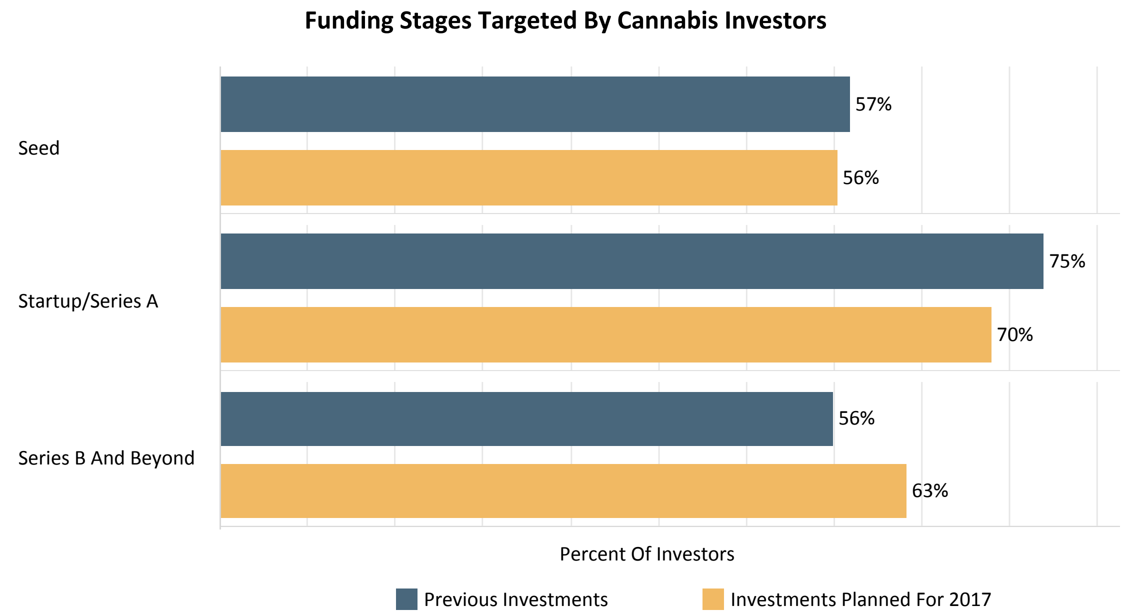
THE LANDSCAPE: INVESTORS FUNDING CANNABIS COMPANIES

Chart 7.12: How Long Investors Have Been Funding Marijuana Businesses



Nearly 80% of investors involved in the cannabis space have been funding marijuana businesses for three years or less. This is largely expected, as it aligns with the launch of recreational markets in Colorado and Washington state in 2014. Investment opportunities were significantly less appealing before 2014, as the medical marijuana markets that existed were limited in size and fraught with legal concerns. While issues of legality remain, the expansion of recreational markets across the United States has helped grow the consumer base exponentially, giving investors much more reason to endure the uncertainty. The rise of the rec industry also has helped lower risks in general for both companies and investors. Still, many new investors have pumped money into their first cannabis companies over the past year, and plenty more are expected to enter the marijuana industry going forward.

Chart 7.13: Funding Stages Targeted By Cannabis Investors



Note: Multiple-choice question; respondent total may be greater than 100%.

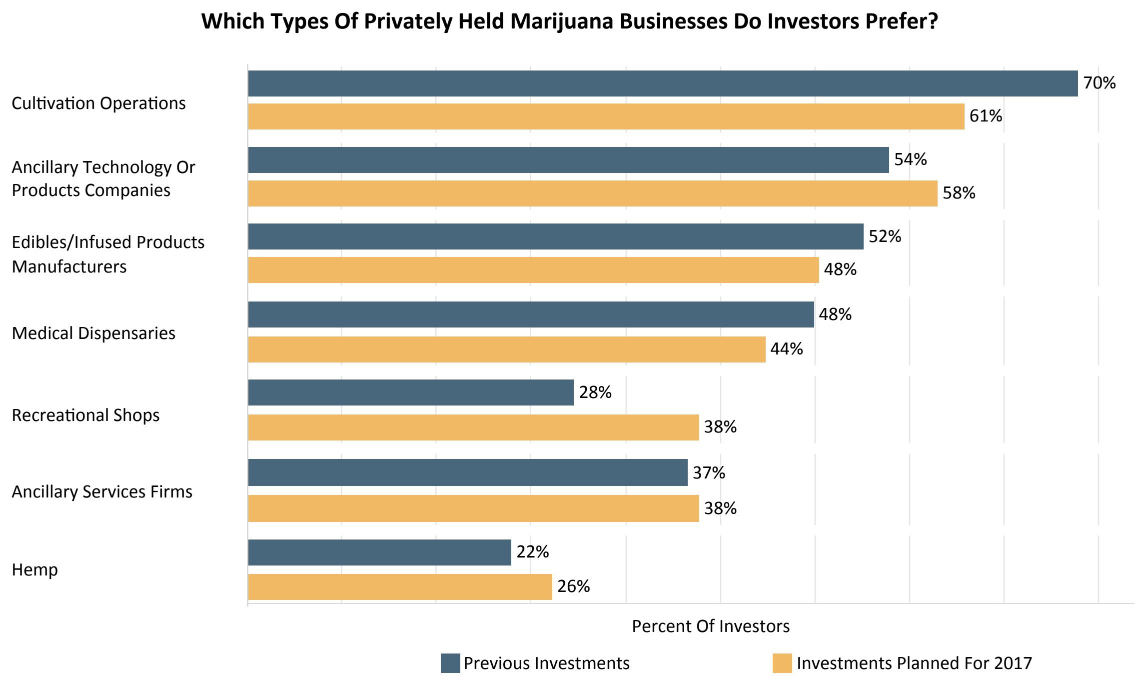
Investors are injecting capital into marijuana businesses at various levels of maturity, showing a slight preference for those in the Startup/Series A stage. These businesses typically have some sort of track record – having already opened a store or produced a product – but need additional funding to refine their operations.

Over half of investors are providing seed capital, financing cannabis businesses just as they begin. These investments are usually made in exchange for an equity stake in the company. But they can be more risky considering that businesses in this stage are often not generating any revenue; they're simply using the seed funding to support an initial idea or concept.

An increasing number of investors are eyeing later-stage investments in 2017, which bodes well for existing companies looking to expand. In general, Series B funding is provided to successful startups that have established a customer base for the product or service they're providing, with the additional capital used to scale the operation.

The marijuana industry is still very much in its infancy, with huge potential for growth on the recreational side especially. Startups will continue materializing for years to come, giving investors many opportunities to get involved in businesses at very early stages. But for those looking to fund relatively less risky and more established companies, mature markets like Washington state and Colorado are ripe for late-stage investment.

Chart 7.14: Which Types Of Privately Held Marijuana Businesses Do Investors Prefer?



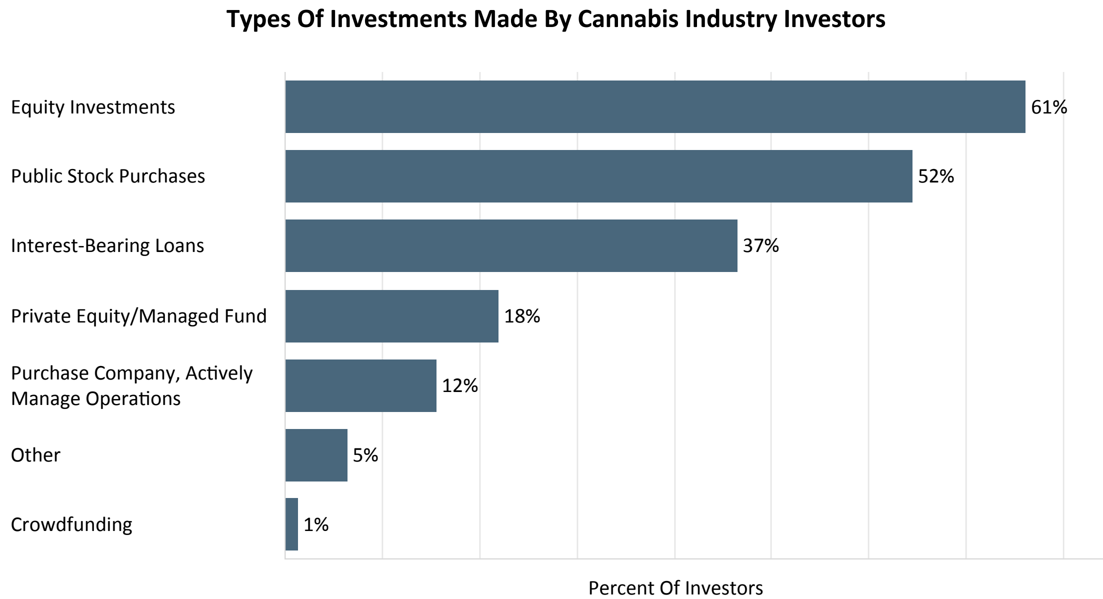
Note: Multiple-choice question; respondent total may be greater than 100%.

In the years following recreational marijuana legalization, cultivation operations became increasingly attractive to investors enticed by the opportunity of controlling the means of production. But the proliferation of wholesale cultivators has been profound, with over 1,700 licensed growers in Colorado and Washington state alone. This has led to a significant supply glut, with overproduction causing the price of wholesale cannabis to plummet. Many cultivators now operate on the precipice of viability, as the cost of producing a pound of marijuana can easily outweigh its market value for less efficient growers.

Though investors are still planning to fund cultivation operations, they're pulling back from this segment of the industry to a greater extent than any other.

Planned 2017 investment activity across most other industry segments remains comparable to previous years, though recreational stores appear to be gaining significantly more interest from investors. With such strong consumer demand, capital will continue flowing into recreational markets. And with fewer wholesale cultivators and infused product manufacturers able to reach profitability, investors are eyeing retailers for their next opportunity.

Chart 7.15: Types Of Investments Made By Cannabis Industry Investors



Note: Multiple-choice question; respondent total may be greater than 100%.

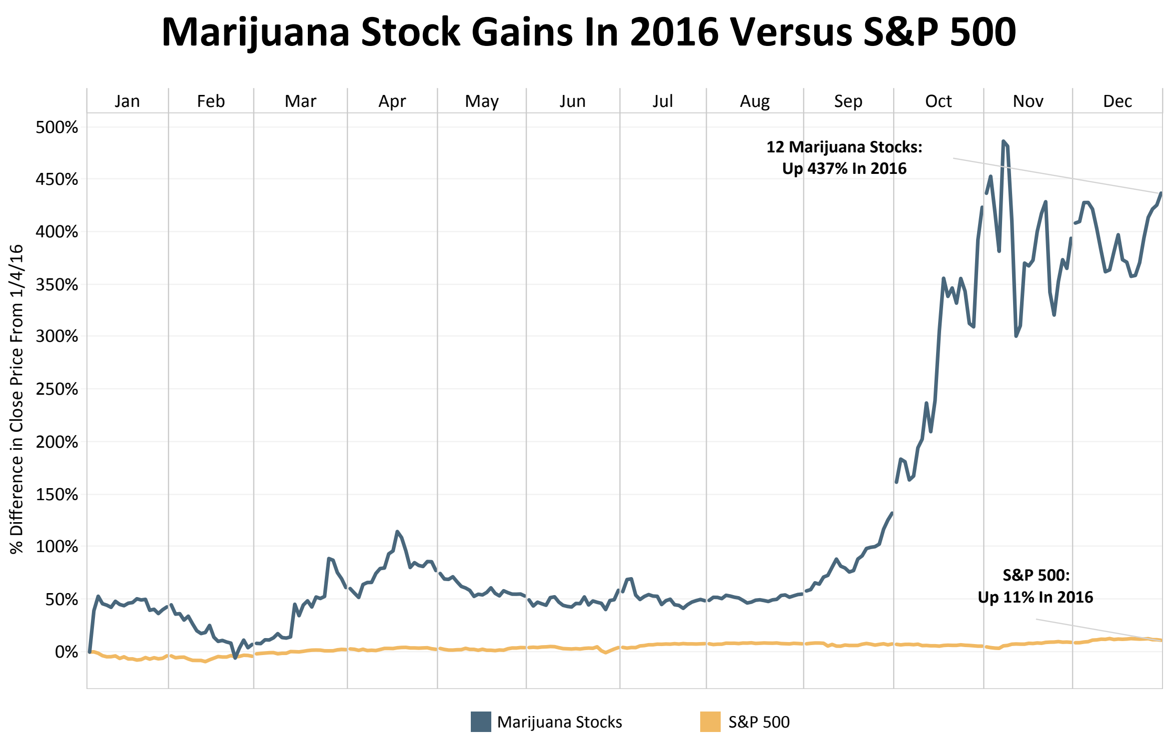
In terms of how investors choose to deploy capital, it's clear that most are interested in gaining an ownership stake in the business they've invested in. Equity investments give investors a degree of control in terms of how a company is run, which may benefit both the financier and the business owner – as the investor has a clear incentive to see the business prosper. This creates scenarios in which investors may provide companies with more than just capital, leveraging their knowledge and professional networks to bolster a company's chance of success.

Public stock purchases are an easy way for investors to get involved in the industry, as stock prices are typically quite low and trading is a relatively simple process. However, nearly every public cannabis company trades on an over-the-counter (OTC) market, where financial reporting standards are much more lax relative to major exchanges such as the Nasdaq. This can make it more difficult to understand the underlying financial health of a company, so many investors approach publicly traded cannabis with an extra degree of caution.

Though not as widely utilized as equity investments, interest-bearing loans can be a great way for investors to get solid returns on an investment – the typical interest on loans to cannabis businesses is 10% – without getting involved in the day-to-day operations of a company. This also allows business owners to retain complete control over their company, a significant factor considering how passionate many entrepreneurs are about the marijuana industry.

REAL WORLD EXAMPLE

Chart 7.16: Real World Example: Marijuana Stock Gains In 2016 Versus S&P 500



Note: MJ stocks are AMMJ, AXIM, CANN, CBDS, CNAB, CVSI, KSHB, MSRT, SRNA, TRTC, VAPE, XXII
Source: Yahoo! Finance

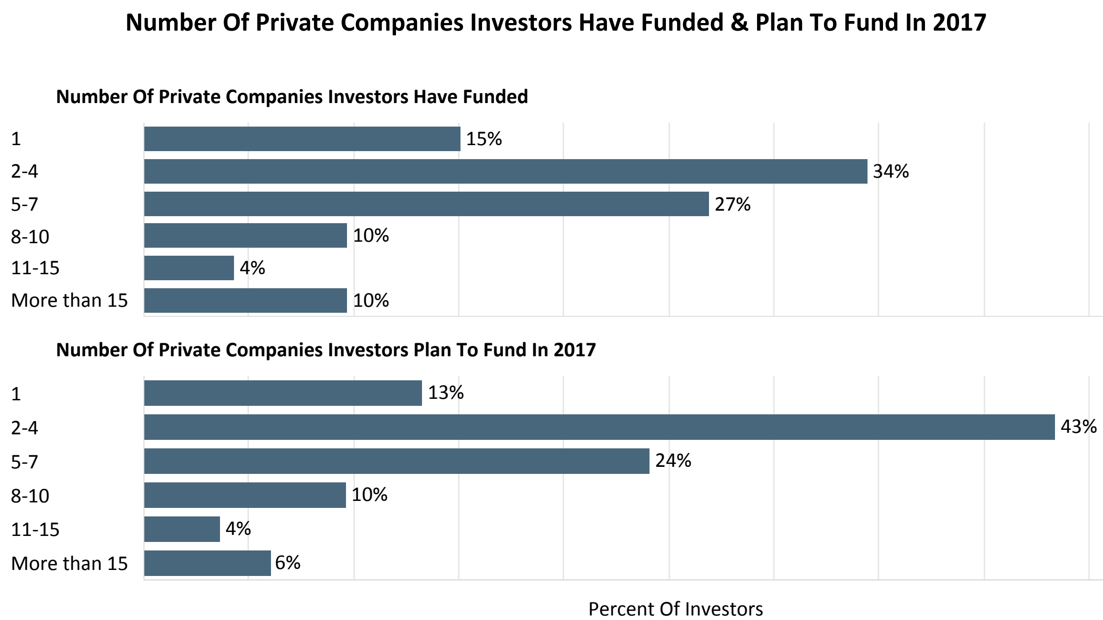
Stocks of U.S. publicly traded cannabis companies – a notoriously volatile and risky segment of the equity markets – posted strong gains in 2016. To be fair, there really wasn't anywhere to go but up, given that marijuana stocks tanked in 2015.

Though the cannabis space currently is made up of several hundred publicly traded companies – most of which provide ancillary products and services to plant-touching businesses – stocks of 12 U.S. marijuana businesses were picked to ensure broad representation across all sectors of the industry.

Prices spiked 50% in over-the-counter trading during the first week of January 2016, continuing to rise and fall above that mark throughout the first half of the year. By contrast, the S&P 500 rose at a relatively steady pace throughout 2016.

Prices then climbed dramatically in the weeks and months leading up to the Nov. 8 presidential election. Judging by the precipitous decline in prices the day after the election, the market was anticipating a Clinton presidency. Prices never returned to their pre-election highs. Still, despite some characteristic dips and spikes, cannabis stocks ended the year up more than 400%.

Chart 7.17: Number Of Private Companies Investors Have Funded & Plan To Fund In 2017



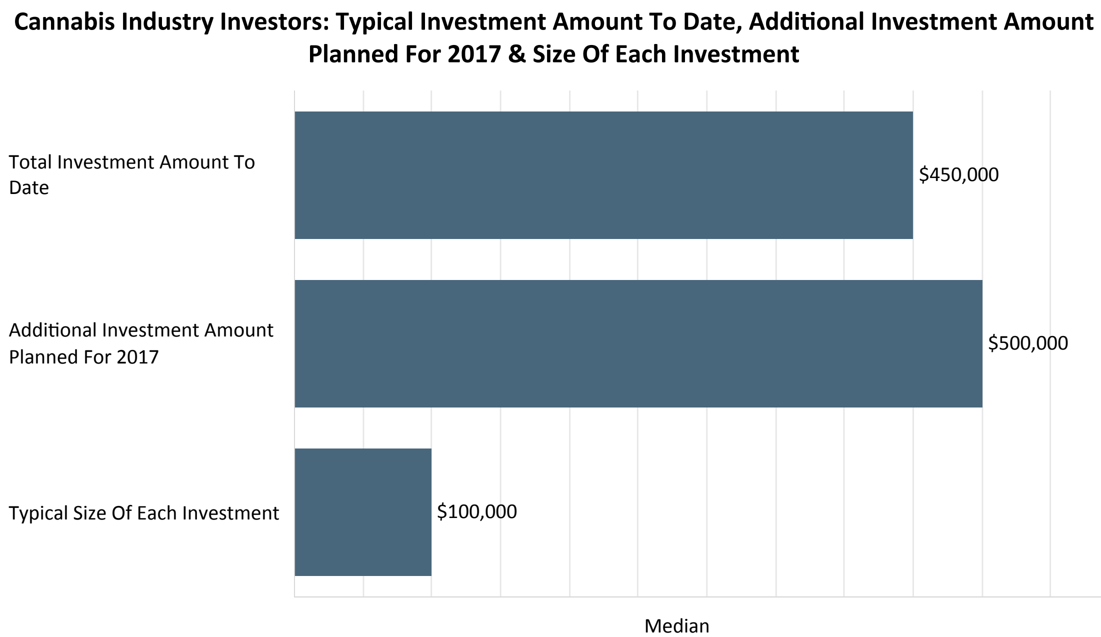
Marijuana industry investors have shown a tendency to keep relatively small investment portfolios, as over half of investors have funded fewer than four cannabis companies. But it's also important to remember that 50% of investors have been active in the industry for just two years or less, meaning many simply haven't been around long enough to fund a large number of businesses.

But 2017 appears primed for increased investment activity, as the average number of companies that investors are planning to fund this year is nearly as many as the number they've collectively funded over the course of several years. The fact that nearly 70% of investors are planning to fund two to seven companies in 2017 clearly indicates the demand among cannabis businesses for investors and the funding they provide.

Average Number Of Private Cannabis Companies Investors Have Funded to Date: 6.1

Average Number Investors Plan To Fund In 2017: 5.4

Chart 7.18: Cannabis Industry Investors: Typical Investment Amount To Date, Additional Investment Amount Planned For 2017 & Size Of Each Investment



The level of sophistication and involvement among investors in the marijuana industry varies quite widely, as some belong to cannabis-specific venture capital firms while others have taken a material interest in a friend or family member's cannabis business. For example, only a handful of investors in our survey indicated they intend to invest over $25 million in cannabis companies this year alone, whereas a large portion of respondents plan to invest less than $20,000.

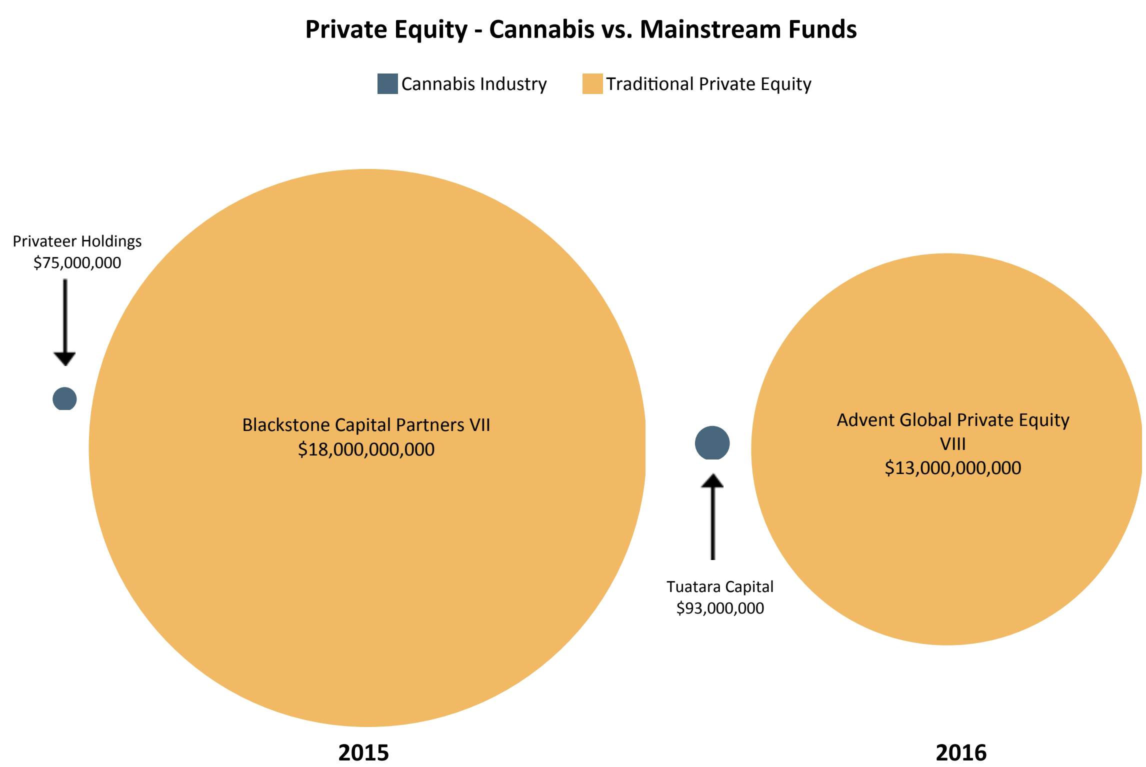
But just as the previous chart showed, investors are ready to provide more capital to cannabis companies this year than all previous years combined. This is another indicator that the funding dam is starting to crack, with more money flowing into cannabis companies as the industry matures and investors become more comfortable taking on risk to pursue large returns.

REAL WORLD EXAMPLE

Chart 7.19: Real World Example: Private Equity – Cannabis vs. Mainstream Funds

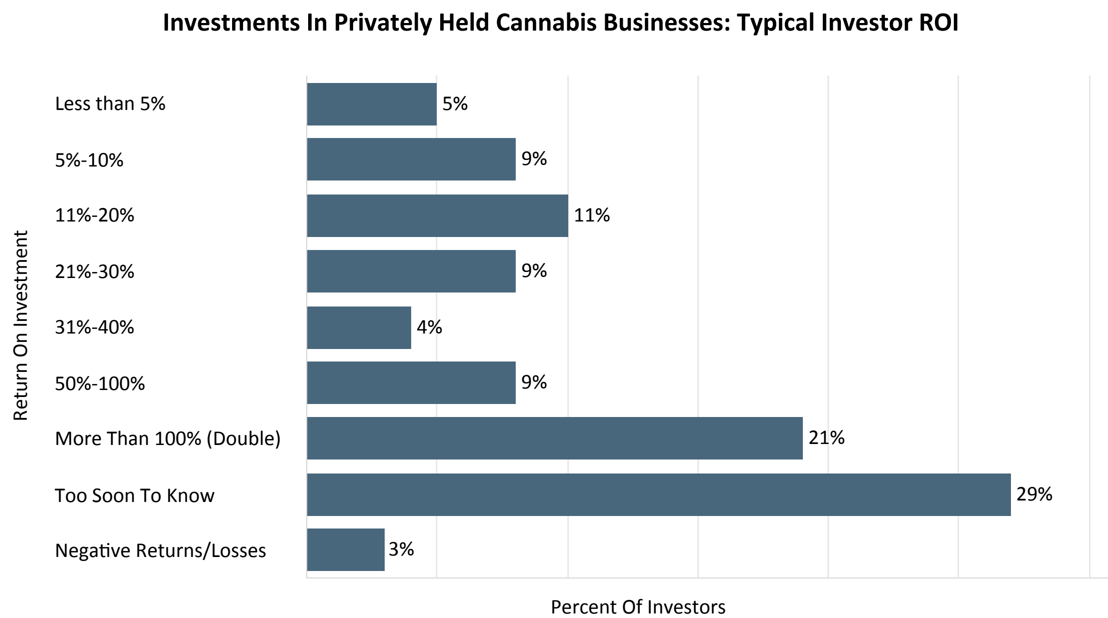
In 2016, New York-based private equity firm Tuatara Capital raised $93 million to pump into cannabis companies, a record sum for an investment fund focused on the marijuana industry. The previous high-water mark was set in 2015, when Seattle-based Privateer Holdings closed on a $75 million capital raise.

Slowly but surely, deep-pocketed investors are beginning to enter the industry, eschewing the traditional stigma of marijuana in pursuit of large returns. But marijuana's classification as a Schedule 1 controlled substance has kept many institutional investors on the sidelines. Thus, the largest capital raises in the marijuana industry are quite small relative to the economy at-large. For perspective, here's a look at the largest capital raises over the past two years by private equity funds focused on the cannabis industry compared to the largest raises by traditional funds.



Source: Marijuana Business Daily, Law360, Private Equity International

Chart 7.20: Investments In Privately Held Cannabis Businesses: Typical Investor ROI



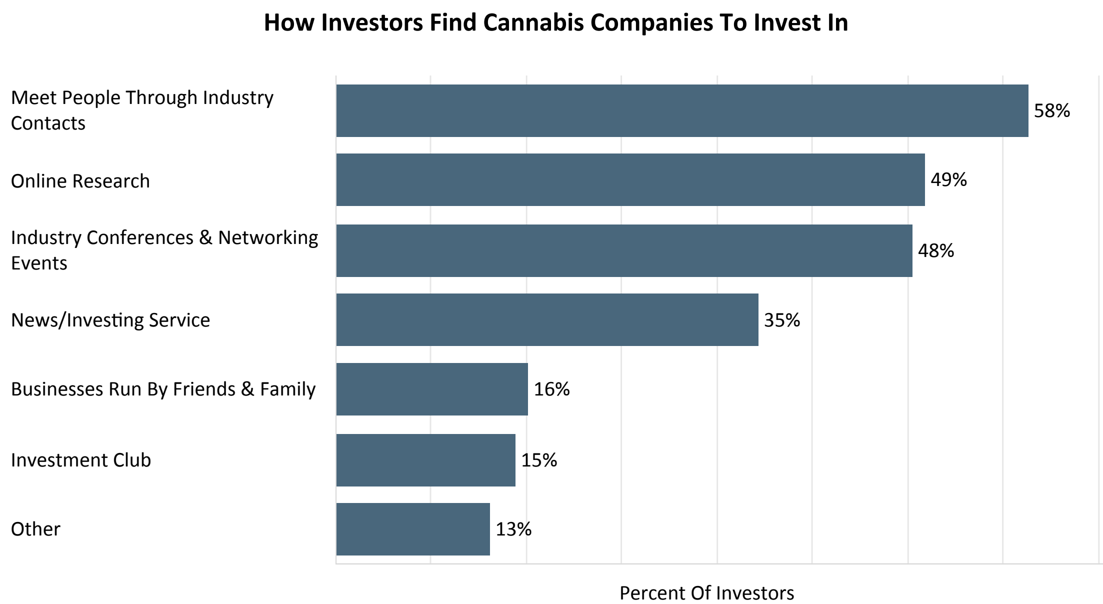
The returns investors are realizing on their cannabis-industry investments are extremely impressive, and this chart alone goes a long way in explaining why investors are so eager to fund more businesses and provide more capital in 2017 than ever before. While a considerable number of investors are still waiting to see how their investments pan out, over half received returns of at least 11% – and an astonishing 21% of investors more than doubled their initial investment.

It remains to be seen how long such favorable investment conditions will persist. As the industry matures and access to capital increases, these types of double-digit returns will begin to diminish. But recently legalized medical and recreational markets have yet to come online – California is the most notable example – but when they do, they should provide quality investment opportunities for several years at least.

Median ROI Realized By Investors With Positive Returns On Investments In Privately Held Cannabis Businesses:

31%

Chart 7.21: How Investors Find Cannabis Companies To Invest In



Note: Multiple-choice question; respondent total may be greater than 100%.

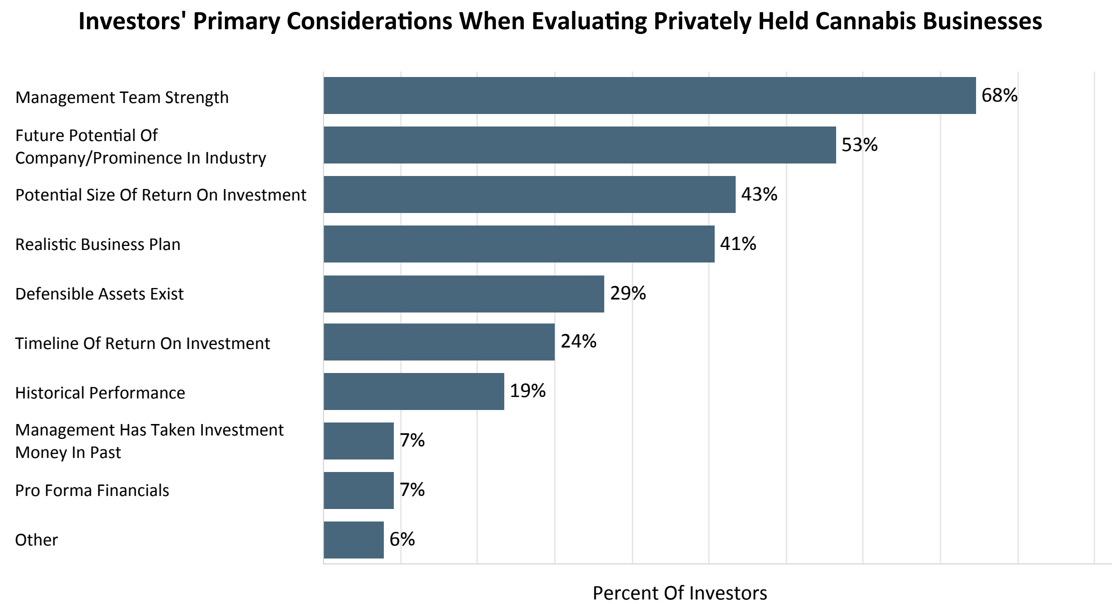
For many decades, the business community within the marijuana industry was a small group of like-minded individuals driven by a shared passion for cannabis. While the industry has grown increasingly professional and mainstream over the last few years, it remains relatively small and tight-knit – with many entrepreneurs preferring to do business with someone they know personally. Investors are keenly aware of this dynamic, and most find cannabis investment opportunities through their network of industry contacts.

Other avenues by which investors find cannabis companies to invest in are also driven by personal interactions, as many financiers use industry conferences and networking events to form new connections while continuing to leverage existing relationships with friends and family members who run or own cannabis businesses.

However, online resources and news services are growing in popularity with investors looking for new opportunities, as this method of information gathering has been viable for investors in traditional companies for decades.

The marijuana industry, however, is composed of a large number of small, privately run businesses for which little reliable data regarding financial fundamentals is available – suggesting that cannabis companies actively seeking funding would do well to make this type of information easily accessible to potential investors.

Chart 7.22: Investors' Primary Considerations When Evaluating Privately Held Cannabis Businesses



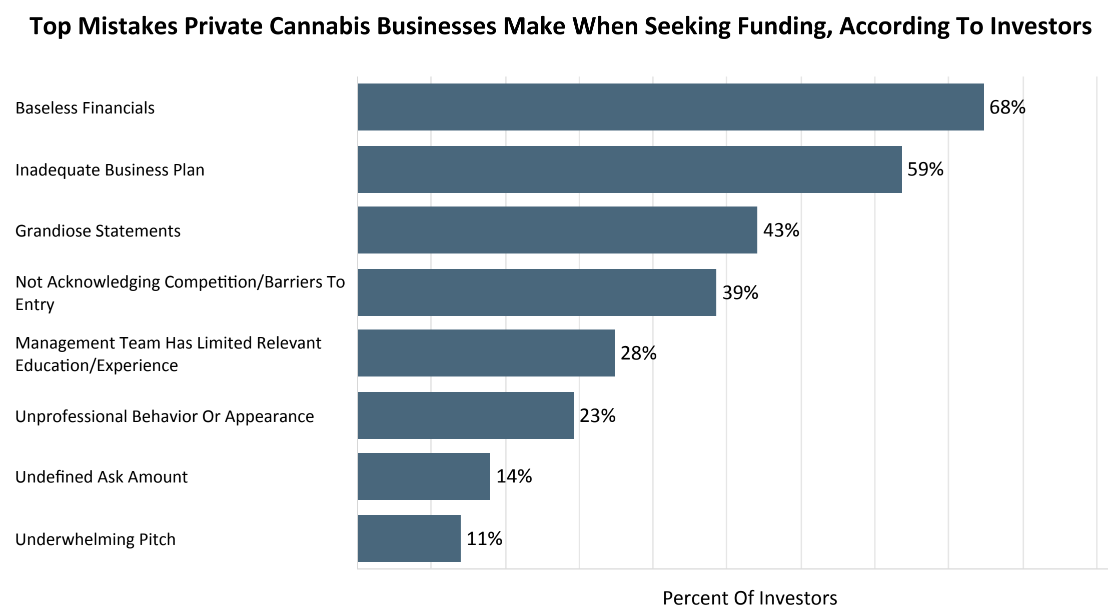
Note: Multiple-choice question; respondent total may be greater than 100%.

Once an investor identifies a potential investment opportunity, the due diligence process begins. Marijuana businesses seeking funding should make sure they've assembled a strong management team with a clear, profitable vision for the company's future – as investors have clearly deemed these factors important when evaluating the investment potential of privately held cannabis companies.

Given the nascent state of the marijuana industry and the relative lack of market data, financial information or historical benchmarks, investors in the cannabis industry are generally less concerned with some of the more quantifiable details of a company's operations, like pro forma financials or historical performance.

That's not to say investors don't pay attention to more measurable facets of a business, as the potential size of return on investment and the existence of a realistic business plan remain atop the list of financiers' investors' primary considerations when evaluating cannabis companies to invest in.

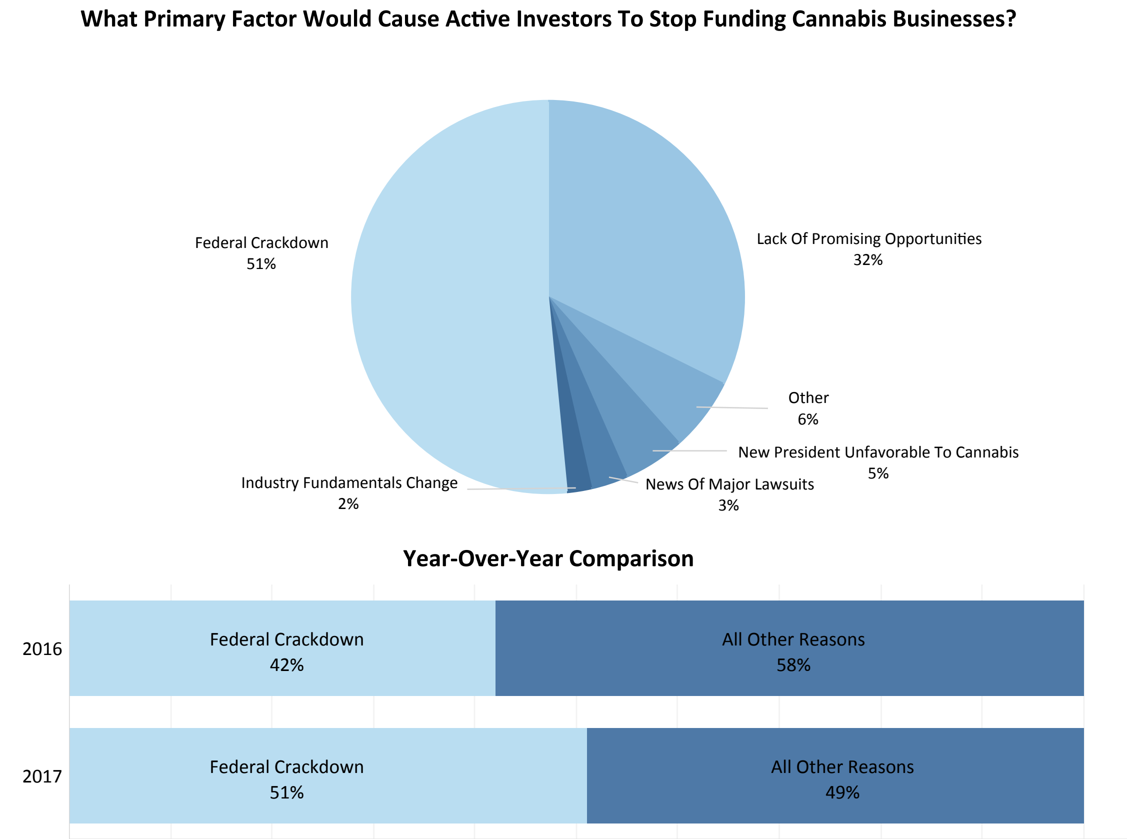
Chart 7.23: Top Mistakes Private Cannabis Businesses Make When Seeking Funding, According To Investors



Note: Multiple-choice question; respondent total may be greater than 100%.

Though investors are drawn primarily to companies with strong management teams that have the potential to become prominent players in the marijuana industry, businesses must be able to support their vision with defensible financial statements and a reasonable business plan. Simply having a top-notch management team often is not enough to woo potential investors in the absence of sound businesses fundamentals.

Chart 7.24: What Primary Factor Would Cause Active Investors To Stop Funding Cannabis Businesses?



In 2015 and throughout most of 2016, the majority of cannabis investors weren't overly concerned about the possibility of a federal crackdown on the marijuana industry. Since the election of Donald Trump as president, however, that has changed. More respondents now list a federal crackdown as the primary factor that would cause them to stop funding cannabis businesses – more than all other factors combined.

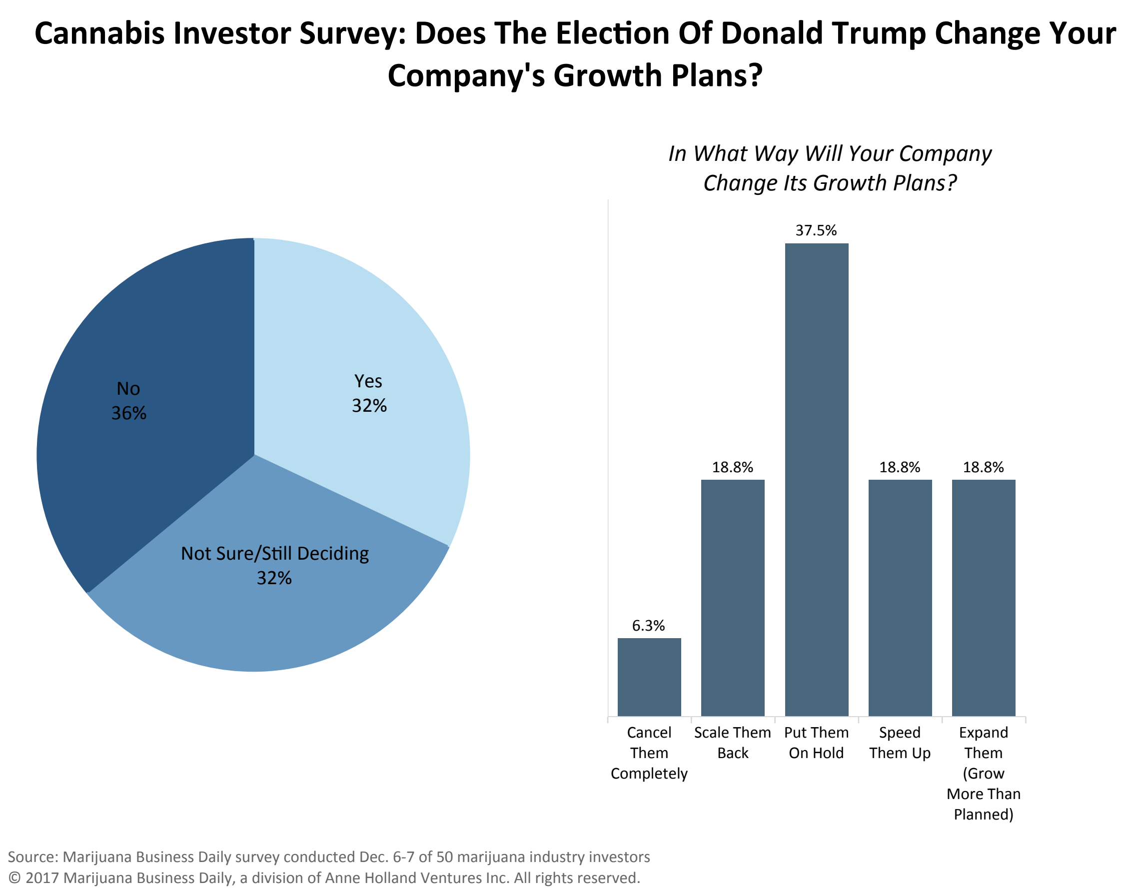
Important note: This survey was administered at the beginning of January 2017, so the chart is reflective of investors' concerns after the 2016 presidential election.

Though a federal crackdown could be devastating, some financiers view it as an opportunity – as the mere threat of federal intervention keeps larger institutional investors from entering the industry and upending what has proved to be a very lucrative investment climate for many small firms and individual investors.

Aside from a federal crackdown, a lack of attractive investment targets is the primary reason investors would stop funding cannabis businesses, though most industry professionals believe appealing investment opportunities will remain for the foreseeable future.

REAL WORLD EXAMPLE

Chart 7.25: Real World Example: How Has The Election Affected Investors' Growth Plans?



The cannabis industry has seen increased activity from large-scale investors the last couple of years, as the lure of big returns began to outweigh the risks of investing in an industry that is still illegal in the eyes of the federal government.

But the election of Donald Trump – and perhaps to a greater extent his largely anti-marijuana cabinet picks – has cast a cloud of uncertainty over the industry.

In a poll conducted by *Marijuana Business Daily* in early December, about one-third of investors indicated the election of Donald Trump has changed their companies' growth plans, while another third were still deciding how to proceed under a Trump administration. And of those investors whose companies are changing their growth plans, most have chosen to put them on hold.

Though members of the Trump administration have made public comments that seem to indicate recreational marijuana businesses will eventually be subject to increased federal scrutiny, the situation remains relatively unchanged since investors took this particular survey. Investors are proceeding with caution until there's more clarity around the situation, but there has been no major pullback since last November's election.

Appendix

Methodology

Each year, our in-house editorial team reperforms the research for the entire Factbook from stem to stern. All the data, charts and analysis in this report are created from scratch each time. The cannabis industry evolves and changes so quickly that prior assumptions can quickly become outdated, necessitating new research to resubstantiate those assumptions and develop new ones.

Marijuana Business Daily's primary goal is to provide cannabis companies and investors with the most reliable and timely data possible. Our organization's purpose is not to hype the industry, but rather to serve as a trustworthy reality check. When you see differences between our numbers and those of others, bear in mind that our sole goal is to bring cannabis entrepreneurs and investors a realistic, conservative view of the truth – or as close to the truth as one can get at this time.

We are not trying to recruit investors, sell consulting services, land licenses, go public or lobby politicians. Our job is to bring you the numbers. Here's how we do it:

Exclusive Study Data

Every year since 2012, the team at *Marijuana Business Daily* has conducted an industrywide, anonymous online survey of cannabis executives from across the industry as well as marijuana investors. We ask that respondents answer questions related to the finances and operations of their businesses honestly and to the best of their knowledge.

The industry has matured over the years, so respondents have a better sense of their companies' financial and operational performance. Our brand and presence have also matured, so respondents are more likely to share this type of information with us. These factors have allowed us to pose increasingly sophisticated and detailed questions that in turn allow us to present more specific and actionable data.

This year's survey took place from Jan. 10 through Jan. 23, 2017. A typical respondent answered roughly 40 questions relevant to their sector and involvement with the industry.

In total, we received 839 qualified responses, the demographics of which break down as follows:

• Medical Dispensaries/Recreational Stores	107
• Infused Product Manufacturers	110
• Wholesale Cultivators	155
• Testing Labs	10
• Ancillary Services Firms	224
• Ancillary Technology & Products Companies	136
• Investors	97

These figures and much of the data and statistics throughout this book represent responses from individuals who are operating in a legal capacity in the U.S. cannabis industry. We take an extremely conservative approach and exclude data for businesses/respondents whose legal standing is unclear in any manner.

Examples of what we exclude consist of, but are not limited to, responses from those who:

- Claim they operate plant-touching businesses in states that have not legalized medical or recreational cannabis
- Claim they operate wholesale grows in states where such sales are not permitted
- Operate plant-touching businesses outside the United States (though international companies in the ancillary services and technology/products or investing sectors that serve the U.S. market are included)

We also adjust our methodology when we deem necessary to account for clear outliers so that the responses of a handful of companies don't distort our data.

State Data

To the extent possible, all information in Chapter 2 is based on publicly reported data from state medical/recreational cannabis programs themselves. The amount and type of publicly reported information available on medical/recreational marijuana programs varies considerably by state. Many states provide only a basic overview of their programs, and only a handful provide sales-related data. Our analysts use patient registries, tax records, regulatory documents, program reports produced by the state, news reports and any other available data source to gather all of this information. We then review the gathered information and assess it for accuracy and reasonableness based on our extensive experience covering all aspects of this industry.

In cases where stats and figures are unreliable or unavailable, we develop estimates based on a wide variety of sources, including state and municipal regulations; survey and interview data with companies in the region; population and patient demographics, and comparisons to similar states with higher-quality documentation. Lastly, in some cases we leverage our extensive network of knowledgeable sources to review the final figures and provide feedback.

State-level information and conditions are continually changing. Our cutoff date for information updates was early March 2017 for the purposes of going to press. However, some data is reflective of conditions as of late April. For updates on particular states since then, please see the News by State tab on our main website, www.MJBizDaily.com.

Sales Projections

As with everything in this report, we take a conservative approach to our sales estimates and projections based on a belief that it's more prudent for business owners and investors to prepare for the worst and hope for the best. This is not to say we take a pessimistic outlook on the industry and its trajectory, but rather that we are keeping our feet firmly planted on the ground.

Overall, our sales projections incorporate a variety of factors, including our state-by-state data, sales and regulatory trends, qualifying conditions, average patient/consumer spend, extrapolations from other markets that release public information about their programs, survey data, and a healthy dose of professional judgment based on our experiences of covering these markets as they have played out for the past five years.

Because the landscape changes quickly and there are still many unknowns, we must make many assumptions. For instance, California is enacting statewide regulations on medical cannabis businesses in 2018, but it's difficult to determine how that will impact everything from sales to the number of MMJ businesses in the state. States also often add new medical conditions to their programs or introduce new regulations, which can have a drastic impact on sales. And then, of course, the federal government is continually shifting its position on cannabis, which affects the size and reach of the national marijuana industry. There is a host of uncertainty under the Trump administration, and that could affect industry growth.

We make assumptions on what will happen to the best of our ability using our institutional knowledge and extensive interviews with experts on the ground in each state, and we also create ranges – rather than estimate a specific sales number – that account for best- and worst-case scenarios.

Legalization can throw a huge curveball at projections. It's difficult to predict which states will legalize recreational or medical marijuana and when – let alone estimate how big those markets will be. For this report, we assume that five additional states will legalize recreational marijuana from 2017 to 2019 and five states will legalize medical cannabis in that time range as well. We then presume that:

- One of these new expected recreational markets will launch toward the end of 2018, one in 2019, another two in 2020 and one more in 2021.
- Two of these expected new medical markets will launch at some point in 2019, one in 2020 and two more in 2021.

For these new markets, we also assume some will be smaller and some larger, so we include a range that accounts for these differences in sizes.

Any state that legalizes after 2019 likely won't have its industry up and running by 2021 – or at least won't have a material impact on overall retail sales for the entire U.S. market. It usually takes two or three years for a new medical state to start sales and a year or two for new rec states to launch their programs. Dispensary/retail store openings often proceed on a rolling basis, and it could take another year or two for a market to become fully functioning. Our forecasts, therefore, build in expectations for those factors.

For sales estimates through 2021, we analyze each market individually and project revenues based on unique factors in each state. We also look at the expected timing of the launch of new MMJ and rec states that legalized in 2016 or earlier and are in the process of setting up their programs.

You may notice in some cases our projections have changed slightly from what we published a year ago. Each year, we revisit – and revise if necessary – our previous and future estimates for national sales and state MMJ and recreational retail revenues. In the 2017 edition, we revised our 2016 estimates up slightly, meaning revenue came in a little bit higher than we anticipated.

Economic Impact Estimates

Economic multipliers are commonly used to illustrate the "trickle out" effect of a dollar spent within a market. For example, a patient goes to a dispensary and spends $100. The MMJ business will then use a portion of that to pay an employee, who in turn goes out and uses that money to pay rent, dine at restaurants, buy a car, and so on until the marginal additional dollars injected into the economy are virtually zero.

Traditional macroeconomic multipliers can range anywhere from 10 to 20 times the original dollar amount spent, while more specific values can be derived for particular industries, regions, etc. Through a series of calculations based on data from survey respondents, in addition to consultation with a cannabis economist, we arrived at a standard multiplier of four for the marijuana industry – which we used in the 2016 Factbook as well.

In other words, for every $1 consumers/patients spend at dispensaries or rec stores, an additional $3 of economic value will be injected into the economy, much of it at the local level.

This is not the same metric as total revenues along the cannabis supply chain that can be used to approximate the "total size" of an industry. Rather, the economic multiplier paints a picture of the impact the cannabis industry as a whole has on the broader economy. The multiplier does reflect the economic value created along the supply chain since marijuana retailers use revenue from customers to pay suppliers and vendors, but it also encapsulates the broader impact and can be applied to any instance of spending/sales/revenue.

For example, any type of individual cannabis company could use this multiplier to quantify the impact on the local community of its decision to hire two more employees by multiplying their wages by four to determine the total impact of those jobs. Conversely, the multiplier can be used to demonstrate the value that will be removed from a community if jobs are lost or whole businesses are forced to close down.

Legislators and bureaucrats often rely on this type of metric when determining the economic impact of welcoming new businesses to a municipality or the implications of a tax rate change. Cannabis entrepreneurs can use this metric on a broad scale to make impact statements, influence/inform legislative processes and rulemaking, and so on.

Employment and Number of Companies Estimates

For the first time this year, we track year-over-year employment in the marijuana industry and also project future growth through 2021.

While the federal government publishes employment numbers for most sectors of the U.S. economy, it does not collect data on the marijuana industry. To come up with estimates, we use a variety of methodologies, including extrapolating data from Colorado – which tracks the number of cannabis-related employee permits it gives out – and using survey data on average number of employees for each overarching type of company in the industry. We then apply that to the estimated number of companies in each sector, arriving at a rough idea of how many employees work in the industry. Note that the employment numbers do not include every worker at ancillary companies that touch the industry in some capacity. Rather, they reflect our best estimate of how many people work at companies that derive all or a significant portion of their revenue from cannabis. So employees at a local heating and cooling company that has worked with, say, one or two marijuana clients but generates most of its revenue from mainstream customers are not included.

We then apply the average rate of projected retail sales growth each year to the job total, providing an idea of how employment could increase in the coming years.

Got questions or input? We are always delighted to hear from folks in the field with their questions, concerns, data and experiences. Please feel free to contact us at CustomerService@MJBizDaily.com or (401) 354-7555 x1.

Also, to keep up with news and developments throughout the year, be sure to sign up for *Marijuana Business Daily's* free newsletter and watch for our Chart of the Week feature every Monday.

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CANNABIS BENCHMARKS®

Cannabis Benchmarks®, a division of New Leaf Data Services, LLC, is an independent, unbiased Price Reporting Agency (PRA) and is the creator of the world's first Spot & Forward benchmark price assessments for wholesale cannabis markets. Our mission is to bring transparency and efficiency to cultivators, dispensaries, investors, traders, and other cannabis market participants through validated production cost data and standardized wholesale price benchmarks.

By deploying critical business data services and analytics that have proven successful in every agricultural commodity market, we enable buyers and sellers to transact with confidence and efficiency while driving the calculations used to make an array of financial and operational go/no-go decisions. Cannabis Benchmarks® offers a variety of products and services built around trusted wholesale price benchmarks for national and state-level markets using industry-accepted methods and practices.

Our team has worked with the leading price assessment and benchmarking firms in energy, chemicals and agricultural commodities. We are supported by our cannabis specialists and field reporters who have an in-depth knowledge of the cannabis market and market participants.

Our goal is to capture a high percentage of buy/sell wholesale transactions across local cannabis markets. We gather data from three primary sources: Our Price Contributor Network consisting of producers, processors, retailers, brokers and consultants; In-the-field price reporters who have developed longstanding relationships with wholesale participants in local markets; and data provided in partnership with industry vendors, exchanges, and state and regional associations. Our transaction data and sources remain confidential and secure so industry participants can report with complete confidence.

As legal cannabis markets develop and expand, cultivators and retailers increasingly recognize the vital importance of the detailed wholesale market assessments and analysis provided by Cannabis Benchmarks®. We provide essential information for a diverse assortment of tasks from data for completing economic pro forma analyses, conducting debt and equity research, and performing asset valuation and due diligence, to using our indices for settling transactions and measuring risk. Cannabis Benchmarks® brings transparency to wholesale cannabis markets, empowering our customers to make decisions faster, with greater accuracy and confidence.

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HEADSET™

Headset® is the first real-time business intelligence and analytics service for the cannabis industry. We are a data-driven cannabis tech company with deep roots in cannabis, and we're passionate about helping the industry succeed. Our core team founded Leafly, the site that helped revolutionize the cannabis industry by empowering consumers with information.

With Headset®, we want to do the same thing for cannabusinesses. Our services cover an array of specialized needs that businesses in the industry have, be they growers, extractors, processors, or retailers. We also release monthly, quarterly, and annual market reports, sharing the insights from our aggregate data with the growing cannabis industry.

We've leveraged our expertise from Leafly to develop products that offer our clients access to up-to-the-minute data on sales trends, emerging sectors, hot products, pricing, and more, allowing them to make fully informed business decisions. Our proprietary data set—which consists of over $1B in tracked transactions—helps clients identify new areas of opportunity, keep tabs on the competition, and tailor product development to reflect actual, real-time consumer transaction data. Headset's® software delivers a seamless user experience across platforms, offering our customers a simple and accessible way to access important information from anywhere.

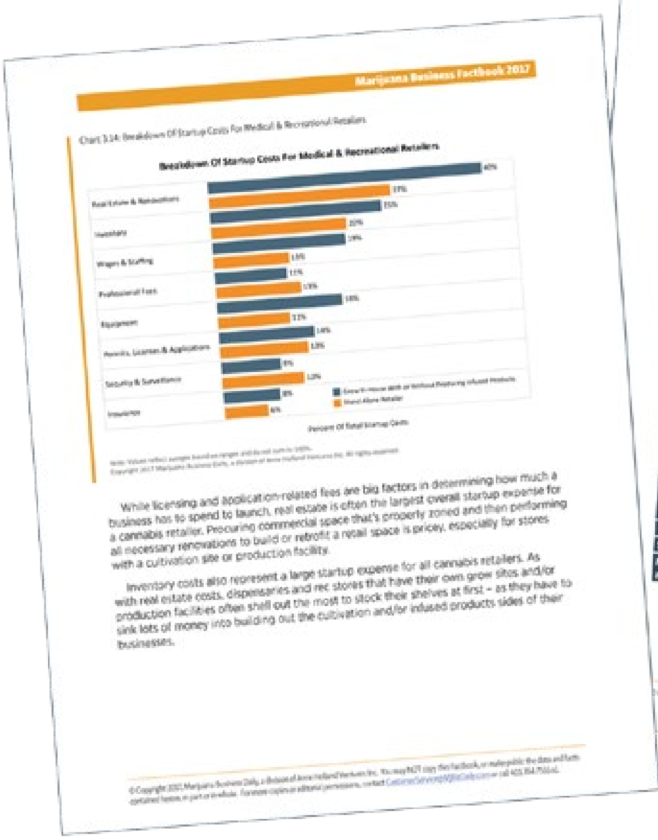
We currently offer three key products: Retailer, Bridge, and Insights. Headset® Retailer provides up-to-the minute inventory control and sales data to retailers, while Headset® Insights offers market and pricing data to wholesalers to help them target their products effectively. Headset® Bridge helps connect the two groups, ensuring that the inventory pipeline is as streamlined as possible. The common theme of all our products is that they not only package clients' own sales data in useful ways, but also put that data in the context of a larger aggregated dataset for the industry as a whole.

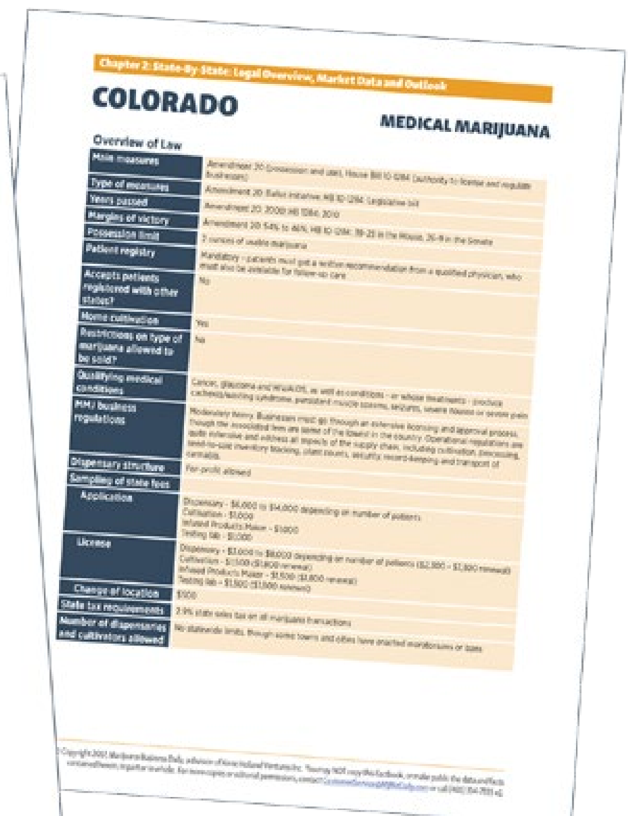
Marijuana Business Factbook 2017

Exclusive Financial Data For Cannabusinesses & Major Investors

The annual Marijuana Business Factbook is your leading resource for information and statistics on the marijuana industry. The editors and analysts at *Marijuana Business Daily* painstakingly research and evaluate the industry to provide readers with the most comprehensive and detailed look at the cannabis sector, including overarching trends and overviews of the market in each state (as well as Canada).

The 2017 edition covers over 300 pages of all-new and exclusive financial benchmarks, stats and forecasts as well as data on revenue, profitability and costs. *Marijuana Business Daily* provides the most trusted and unbiased business news coverage of one of the globe's fastest growing industries, while the 2017 Marijuana Business Factbook is the leading business resource for information that drives industry growth.





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