

COLLABORATIVE INSIGHTS

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■ Cannabis

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CONFERENCE TAKEAWAY

COWEN'S CANNA-CONCLUSIONS: SUMMIT TAKE-AWAYS

THE COWEN INSIGHT

Last week, we hosted our third Cannabis Summit (summary video [here](#)), which featured over 50 global cannabis industry executives and experts, participating in panels covering topics ranging from consumer insights, market structure, brands, domestic & international cannabis, CBD, and regulation as a window into the industry's future prospects.

Regulatory Dominos Set To Fall (Vivien Azer)

The 2018 Farm Bill and the STATES Act were a main focus during the conference by both companies and regulators alike. The 2018 Farm Bill would have meaningful implications on the cannabidiol (CBD) industry. Indeed, while various industry estimates peg the current U.S. CBD market size at ~\$500 mm, many panelists believe the global number could be far larger, given its ability to address pain, anxiety and sleep and its broad number of use cases. Meanwhile, many of the regulatory panelists were skeptical about the STATES Act passing before the 2020 election. Instead, incremental legislation, such as expanded cannabis banking laws, would be more likely to pass and cause a domino effect for the industry. With the recent victories by Democrats in the 2018 midterm elections, there was greater confidence that incremental pro-cannabis legislation would be passed.

A Rising Tide Lifts All Boats (Vivien Azer)

Given its relative size, we have seen many of the current U.S. operators generating revenues approaching the levels seen for the largest Canadian LPs. As momentum continues to build and more states continue to legalize cannabis, we believe ample opportunity exists for multiple early movers to benefit simultaneously. In the long-term, we believe that brand equity will ultimately dictate winners and losers, but near-term, making distribution gains and building scale will be the focus in order to generate consumer trial & repeat necessary for long-term brand building. That said, while the majority of consumers are currently brand agnostic, consistency will be the most important attribute a brand will have to offer consumers at this point. As it relates to different form factors, in particular consumables, a large amount of R&D continues to go into improving time to onset, which ideally would ultimately mimic that of alcohol.

Canada Supply Remains Tight, Continuing International Expansion (Vivien Azer)

With additional form factors and an expanded retail footprint coming online in 2019, demand in the Canadian adult use market will remain strong. In order to drive consumer interest across adult and medical use cases, the LPs are focused on building scalable IP to create unique offerings with targeted outcomes by emphasizing cannabis as an ingredient vs. as a finished product. However, as demand ramps, supply will likely be stretched further. As such, our panel of top executives from leading international cannabis companies expects rolling supply shortages to extend beyond the next 12 months, which will likely pressure revenues and profits. As a potential offset, geographic expansion remains a key tenant of the LPs growth strategy. While our panelists remain steadfast on extending international reach, there were varied opinions on how to tackle Europe, Asia's appetite for medical cannabis and strategies for moving into the U.S.



COWEN'S CANNA-CONCLUSIONS: SUMMIT TAKE-AWAYS

Last week, we hosted our third Cannabis Summit, which featured over 50 global cannabis industry executives and experts, including participants on panels covering topics ranging from consumer insights, market structure, brands, domestic & international cannabis, CBD, and regulation as a window into the industry's future prospects. Herein we provide our take-aways:

Market Structure Panel: Trading in cannabis can be a challenge for institutional investors, as the sector presents unique dynamics and added volatility. However, there are strategies to identify retail trades and optimize windows for narrower spreads.

Consumer Insights Panel. Consumer attitudes towards cannabis continue to evolve, reinforcing our thesis from 2016 ([here](#)). Our panelists continued to see a shift from combustion to value-added form factors, though the shape of category change largely remains dependent on the evolution of the regulatory landscape.

Brands Panel. While the landscape remains fragmented, brand consolidation is expected. Like all traditional CPG, consumer research for market insights and segmentation remain a key focus.

U.S. Public/Private Panel. Given its relative size, coupled with the growth prospects of new states coming online for adult use and medical, ample opportunity exists for multiple early movers to prosper simultaneously. At this stage, the common theme across most of the U.S. operators will be making distribution gains and building scale as potential regulatory changes on the docket for 2019 will provide an inflection for the industry if passed.

International Panel: With strong and growing demand for adult use in Canada, our panel suggested that supply shortages will extend beyond the next 12 months, which will likely pressure revenues and profits. As a potential offset, geographic expansion remains a key tenant of the LPs' growth strategy, with multiple views on how to tackle opportunities in Europe, Latin America, Asia, and the U.S.

Keynote – Bill Weld: As the former Governor of Massachusetts, Weld has been a staunch supporter of cannabis since 1991, when it was completely out of political favor. Reflecting on his experience, Weld touched on the politics of cannabis and how it has historically been chastised by the U.S. government.

Regulatory Panel. The STATES Act and the 2018 Farm Bill are the two most in-focus pieces of legislation as it relates to cannabis. With the Democrats having a successful midterm election and the 2020 Presidential election cycle soon to begin in the next few months, cannabis will be an important issue for President Trump. That said, our panelists believe other incremental pieces of legislation are more likely to pass in the near-term instead of the STATES Act.

CBD Panel. While tetrahydrocannabinol (THC) and cannabidiol (CBD) are the most widely known, used and studied cannabinoids, there are over a hundred of other cannabinoids that could provide medical or wellness benefits for individuals. In particular, CBD's ability to treat pain, anxiety and sleep without psychoactive effects makes it particularly versatile. Given its broad use cases, the CBD market is grossly underestimated and will likely surpass the THC market size.

Please find detailed summaries of each respective panel below.

Market Structure (Vivien Azer)

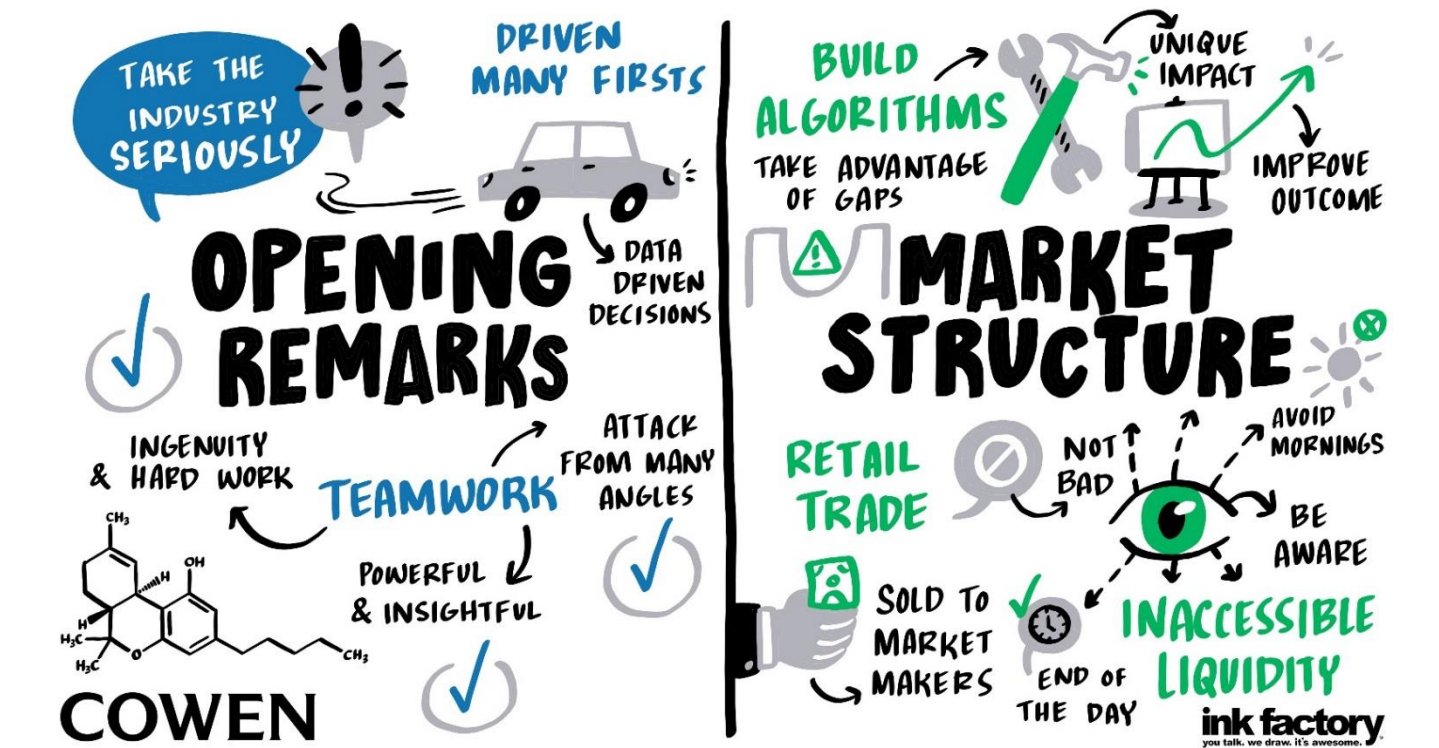
Who We Heard From:

- **Cowen** - Jenny Hadiaris, Head of Global Market Structure

Key Take-aways:

- Trading in cannabis can be more nuanced for institutional investors, as the sector presents some unique challenges, unlike traditional CPG stocks, and added volatility.
- While trading cannabis stocks has increased complexity, there are strategies to identify retail trades and optimize windows for narrower spreads, namely towards the end of the trading day.

Figure 1 Market Structure Panel



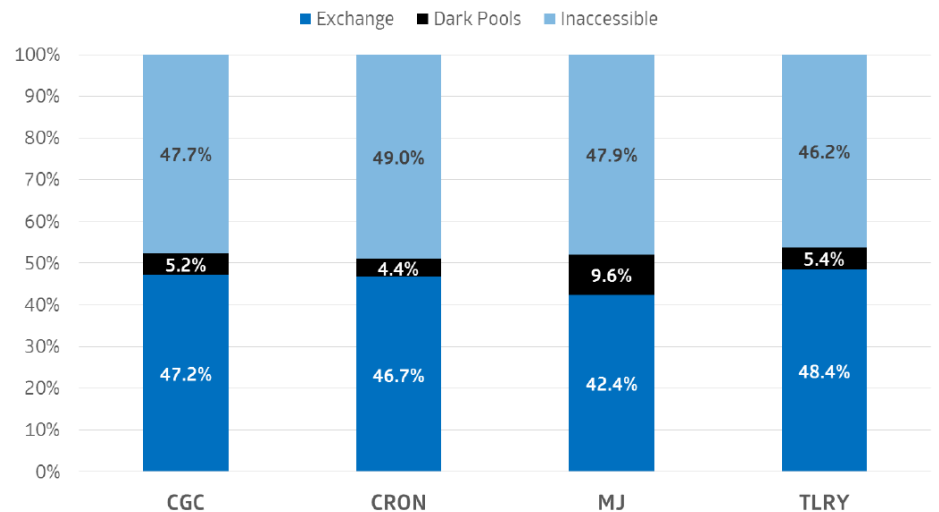
Source: The Ink Factory and Cowen and Company

Below we highlight our key insights from the presentation on how to navigate a volatile market:

- 1) **Unique in the U.S.** Retail trading is unique in the U.S. such that market makers allow retail traders to get faster executions and cheaper transactions through online brokers.
- 2) **Intraday Volatility.** Retail trading also creates intraday volatility as they enter and exit the stock for intraday moves. In particular, trading volumes are elevated in the mornings and before the market close, as ~35% of the trading volumes in cannabis stocks are traded in the final 15 minutes of the day.

- 3) **Inaccessible Liquidity.** Retail flow is “inaccessible” to institutional investors which allows retail investors to secure better prices than they would on an exchange.

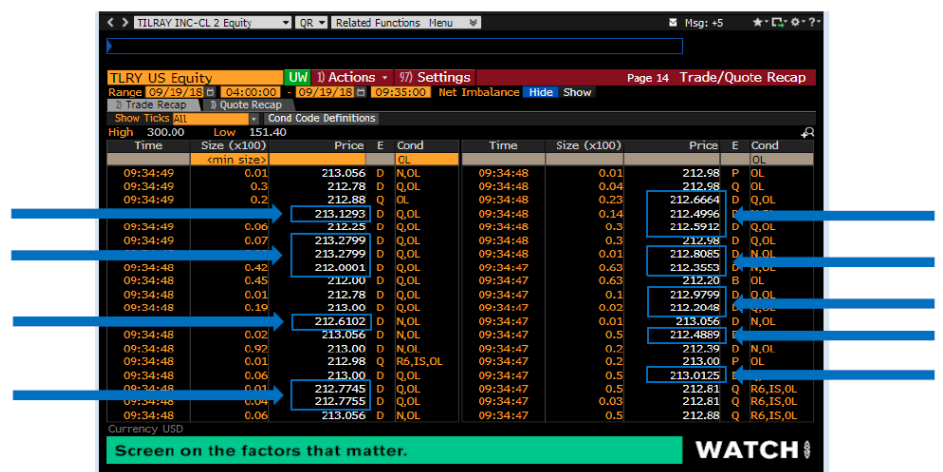
Figure 2 Breakdown of Liquidity by Venue Type: October 2018 (10/1-10/26)



Source: Cowen and Company

- 4) **Spotting Retail Trading.** Institutional trades are typically done in whole cent increments, however retail trading is typically executed in 4-decimal place increments.

Figure 3 Look for the 4-Decimal Place Prints to Identify Retail Trading



Source: Bloomberg and Cowen and Company

- 5) **Win The End of The Day.** The end of the day is the best time to trade for institutional clients, due to narrow spreads, more liquidity and lower transaction fees.

Consumer Insights (Vivien Azer)

Who We Heard From:

- **Deloitte**- Jennifer Lee, Partner
- **Headset** - Cy Scott, Founder & CEO

Key Take-aways:

- **Evolving Behavior.** Consumer acceptance of cannabis continues to grow, with the evolving regulatory landscape matching that shift in consumer sentiment. An increasingly frictionless customer experience and in the near-term a recognition of price transparency / differentials are key considerations.
- **Forms are Factors.** While flower remains a basic staple in cannabis markets, consumers are increasingly choosing alternative forms of consumption (in both the U.S. and Canada). Indeed, consumables seem to be resonating with new cannabis consumers who may not want a combustible product.
- **Brands are Increasingly Important.** Cannabis is a legitimate CPG category, as the category will be increasingly consumer-centric and brand-driven. As such, we are beginning to see evidence of brand consolidation in the U.S.

Figure 4 Consumer Insights Panel



Source: The Ink Factory and Cowen and Company

Deloitte – Jennifer Lee, Partner

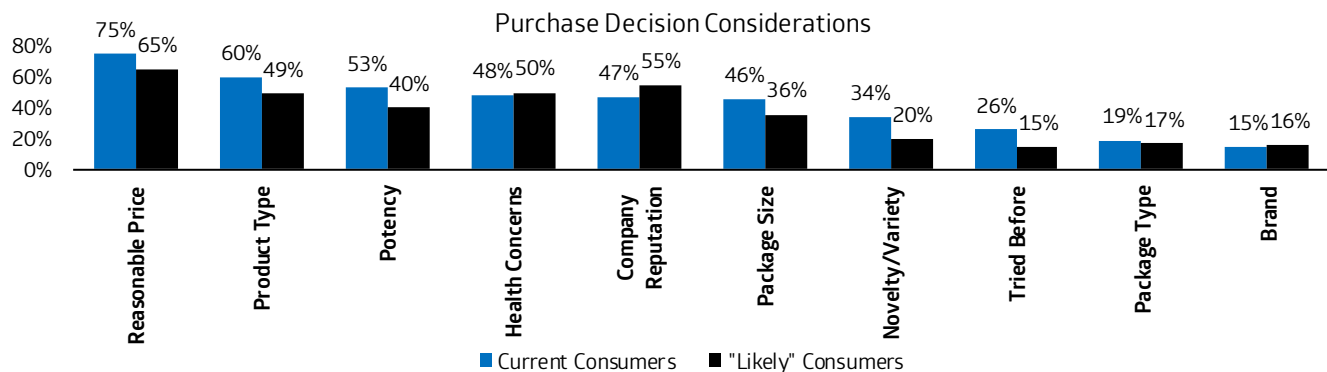
Deloitte has been an integral thought leader in Canadian cannabis, starting with their report in summer 2016, followed by their consumer deep dive published in June 2018, ahead of the launch of adult use.

With adult use cannabis now commercially available (as of October 17, 2018), Deloitte estimates the market currently generates combined sales of \$7.2 bn. Today, consumer demand for legal cannabis has far exceeded supply, as also articulated by many of the large public operators.

Given the sizeable illicit market in Canada (which prompted the recent regulatory change), 75% of current consumers and 65% of “likely” consumers say price will be the biggest determining factor of their purchase behavior. Despite that price sensitivity, consumers report being willing to pay a 10% premium for legalized cannabis relative to the black market. Finally, 68% of consumers expect to increase their purchase frequency and spend post-legalization.

Additionally, consistent with our views on the inverse relationship between alcohol and cannabis use, Deloitte Canada believes 10% of cannabis usage is expected to cannibalize beer & spirits, as cannabis and alcohol use-cases share a number of similarities – for example, socializing, relaxing, relieving stress, and more.


Figure 5 Price & Product Variety Are the Biggest Determinants of Consumer Behavior



Source: Deloitte Canada and Cowen and Company

As we think about the future of the legal framework in Canada, Lee laid out four key principles to win in cannabis:

- 1) **Consumer Experience.** Either in brick-and-mortar or e-commerce, customers desire the least amount of friction while purchasing cannabis (as with any consumer good). Within physical stores, consumers want a knowledgeable sales staff to educate them on the uses and differences of cannabis products. As well, consumers have expressed a desire for stores in safe neighborhoods, clearly marked prices and visible physical security. Within e-commerce, one-third of consumers have said they worry about privacy. Lee believes cannabis' customer experience will eventually be compared to Amazon's frictionless platform.

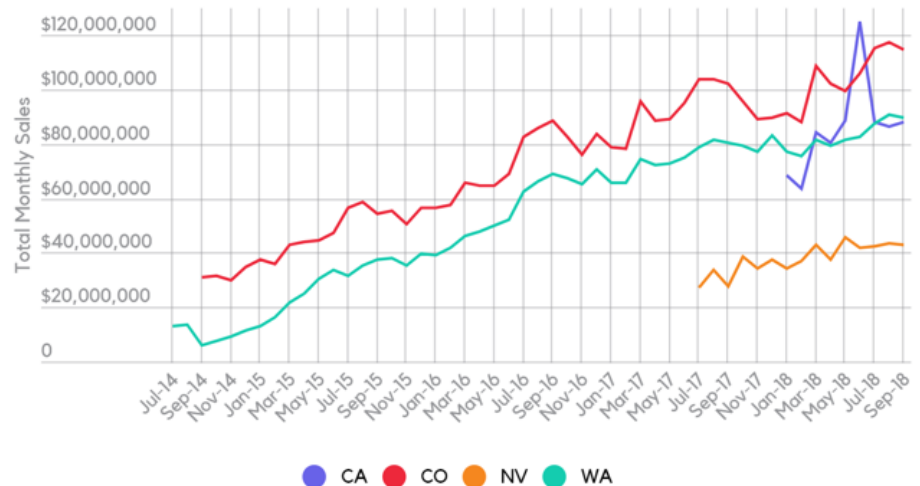
- 
- 2) **Assortment.** Lee believes in 3-5 years flower will only represent ~20-30% of the total category. In its place, she expects easier to consume form factors such as edibles and beverages to take its place, which will attract new entrants into the category. The introduction of additional form factors in Canada (which is expected by October 2019) will also play a significant role in taking market share from the sophisticated black market, which offers a wide assortment of form factors.
 - 3) **Location.** As the Canadian market evolves, more brick-and-mortar locations will open, which should improve consumer access. In addition, stores that are located in safe neighborhoods and which are centrally located in densely populated areas will succeed.
 - 4) **Differentiation.** Whether by product, price or brand assortment, differentiation will be key for the Canadian cannabis market. In particular, this will be necessary to convert consumers over from the black market.

Headset – Cy Scott, Founder & CEO

After announcing an agreement for Cowen to exclusively sell and distribute Headset cannabis data through its Kyber Data Science subsidiary ([here](#)), we heard from Cy Scott, Founder and CEO Of Headset. Founded in 2015, Headset is a real-time data and analytics provider for the cannabis industry – which tracks cannabis sales across CO, CA, NV, and WA.

Month over month growth has been consistent in all four states covered by Headset, even in WA and CO where adult use sales have been ongoing since 2014. Most notably, WA and CO have grown at a 24% CAGR over the last four years, significantly ahead of the LSD growth seen in beer.

Figure 6 Recreational Cannabis Sales by State



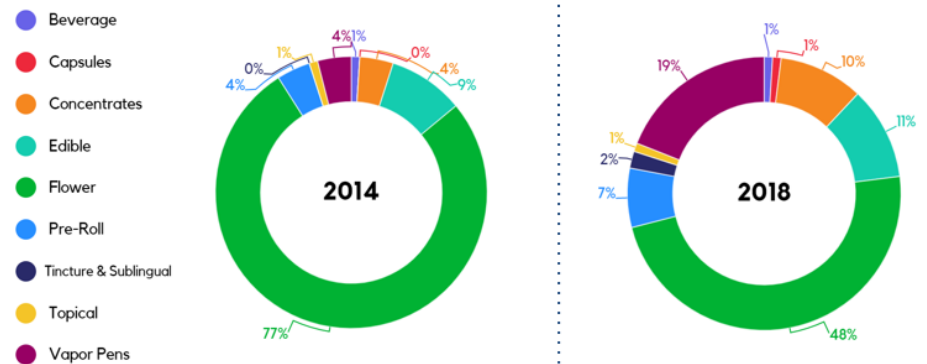
Source: Headset

Across CO, NV and WA, Headset is seeing four specific consumer trends:

- 1) **Frequency.** The average customer makes 5.5 trips to a dispensary per year, and nearly 20% of consumers shop at least 1x per month.
- 2) **Spend.** The average basket size of a consumer is \$51, notably ahead of grocery and alcohol where we see average basket sizes in the range of \$20-\$40.
- 3) **Form Factor.** While combustion is the most common form of cannabis consumption, 13% of consumers did not purchase any inhalable products in the last year.
- 4) **Beverages.** Although beverages only represent ~1% of total net sales, the segment is quickly growing (particularly from older consumers who don't want inhalable products) and 5.2% of consumers purchased at least 1 beverage in the last year.

These changes in product use have led to a dramatically different marketplace across the four states. In 2014, ~77% of the product consumed in CO and WA was flower, however as product innovation has improved, we have seen a bigger shift towards non-flower products. Indeed in 2018, with access to vapor products increasing and price points coming down, the category now represents ~19% of total sales (nearly 5x the amount it was in 2014).

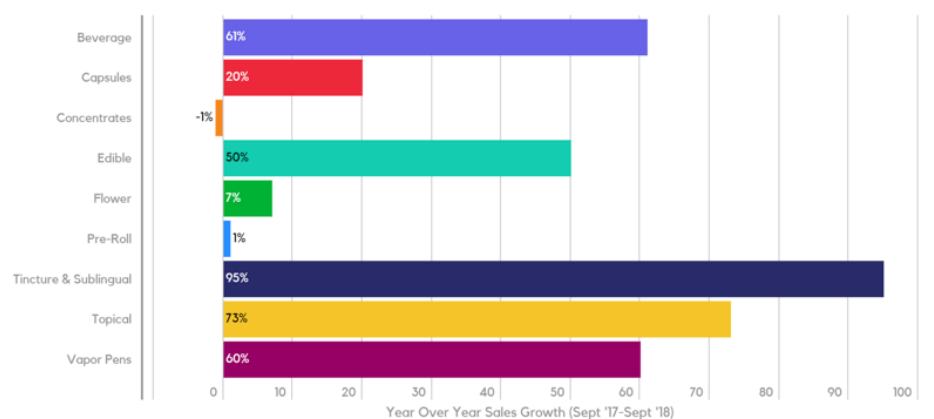
Figure 7 Adult Use Markets Are Evolving



Source: Headset

These share shifts are underpinned by varying growth rates by form factor, as YoY growth rates for combustibles (flower and pre-rolls) notably underperform newer form factors such as vapor pens, beverages, edibles, tinctures, and topicals. Similar to what we heard from Jen Lee from Deloitte Canada, consumables seem to be resonating with new consumers in the category who may not want a combustible product (either due to health reasons or complexity).

Figure 8 Non-Combustible Products Driving Cannabis Growth

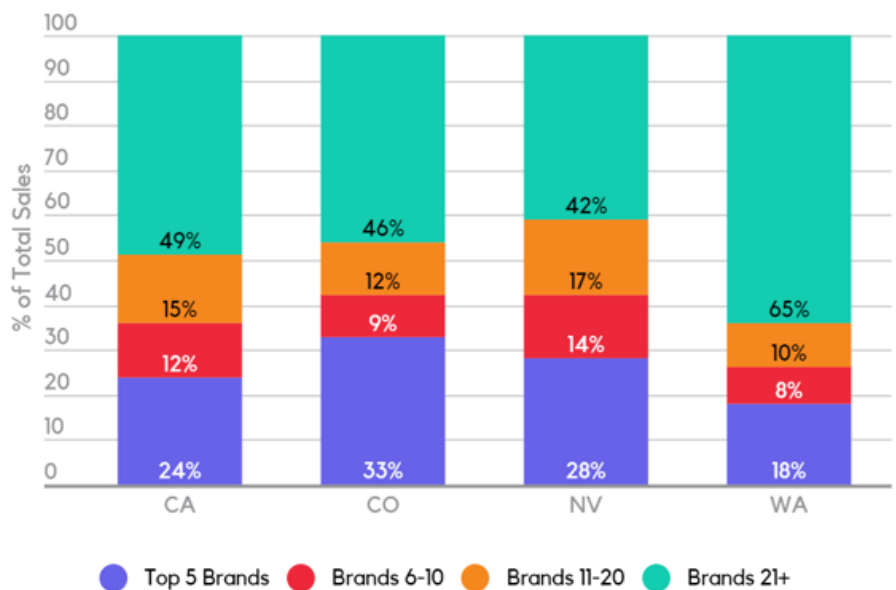


Source: Headset



Consistent with our takeaways from our conference in April 2018 ([here](#)), we view cannabis as a legitimate CPG category, as the category will be increasingly consumer-centric and brand-driven. If we look at the top contributing brands by state, the market remains fragmented, however top 5 brands are starting to consolidate share in their respective home markets. Specifically, top 5 brands account for 24% of all of CA's sales, while CO (33%), NV (28%) and WA (18%) all are highly represented by their respective top 5 brands. While there are over 1,500 brands across the four states today (and still growing), we would expect the top 20 brands to continue consolidating share in each state, similar to what we see in alcohol today.

Figure 9 Brands Are Increasingly Becoming More Important to the Category



Source: Headset

Brands (Vivien Azer)

Who We Heard From:

- **1906** – Peter Barsoom, Founder & CEO
- **Jetty Extracts** – Ron Gershoni, Co-Founder & CEO
- **Lighthouse Strategies** – Michael Hayford, Founder & CEO
- **Loudpack** – John Cochran, CEO
- **PAX Labs** – Bharat Vasan, CEO
- **Toast Holdings** – Punit Seth, Co-Founder & CEO

Key Take-aways:

- **Non-Flower in Focus.** All of the companies on our panel are orienting their businesses away from flower, whether emphasizing vapor pens, edibles, beverages, or any other type of consumable.
- **Geographic Nuance.** Given the rapid expansion of legal cannabis access in the U.S. (both for medical and adult use), geographic priorities were increasingly disparate, as the cannabis opportunity continues to benefit from growing multi-state opportunities.
- **Consumer First.** Like traditional CPG companies, consumer segmentation is a key focus, which facilitates product and price differentiation.

Figure 10 Brands Panel

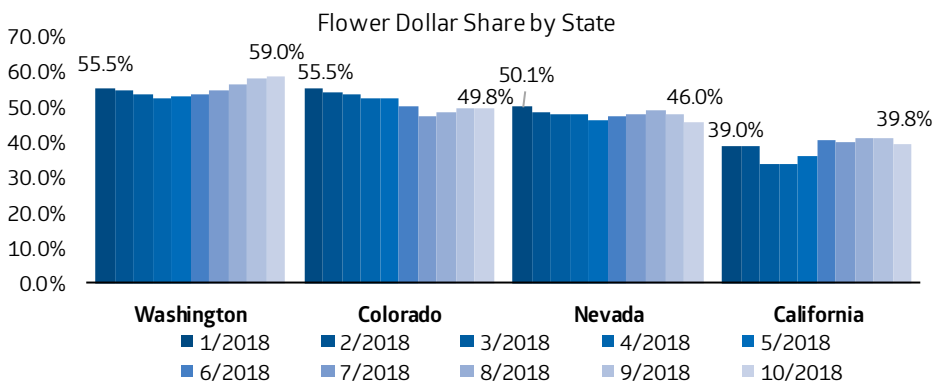


Source: The Ink Factory and Cowen and Company

Brands Overview

Still the biggest segment for the category, combustible form factors (both flower and pre-rolls) accounted for roughly 56% of sales across WA, CO, NV and CA in October 2018. However, on an underlying basis this is being driven by WA (66.6% share) and NV (58.5% share). As new value-add form factors enter the marketplace, flower has continued to lose share, except in WA, which is the biggest flower market across the four states. Meanwhile, flower is least popular in CA, which unsurprisingly is where vapor is the most popular.

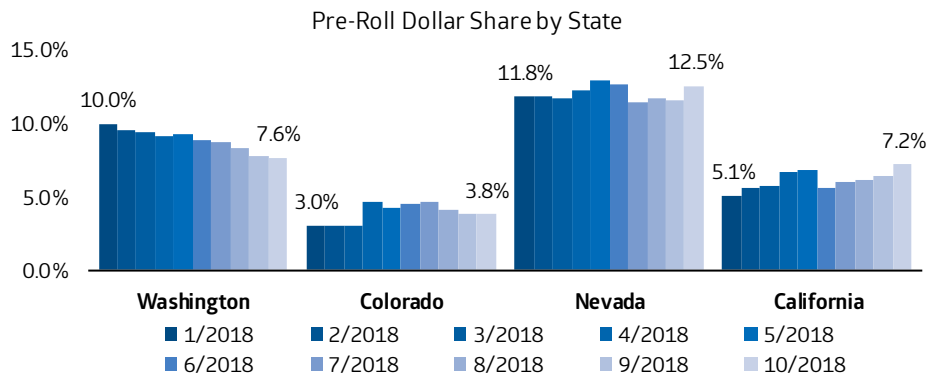
Figure 11 Flower Losing Share Across the U.S. To Value-Add Form Factors



Source: Headset and Cowen and Company

While less popular, pre-rolls offer consumers the “flower experience” without the added complexity of rolling a joint. In high tourist markets like NV, pre-rolls hold a DD share (12.5% in October), while CA also has been seeing pre-roll share increase, though only to 7.2% in the same period. All in, pre-rolls have maintained a steady MSD share in the U.S., most recently holding a 6.9% share across the four states in October 2018.

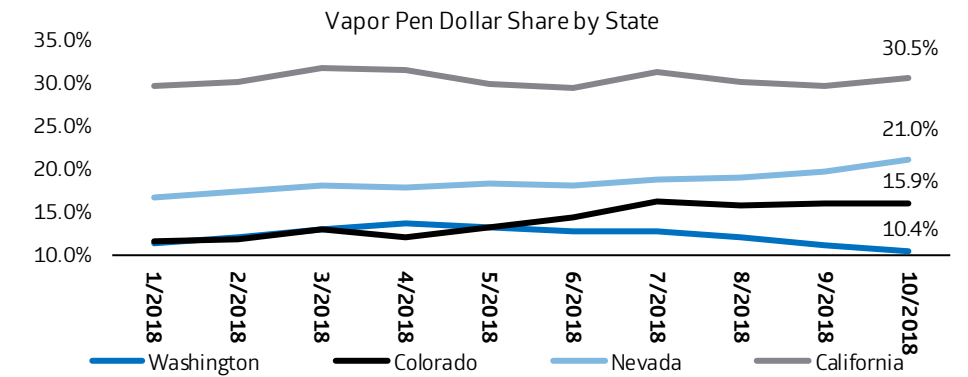
Figure 12 Pre-Rolls Benefiting From Tourism in NV



Source: Headset Cowen and Company

Across the states for which we have data, we can see that universally for legacy states (CO, WA and NV), vapor is growing in popularity. YTD, vapor in those legacy states now account for 12%-18% of total cannabis sales. In CA however, likely by virtue of the easier access to medical cannabis, we see a far more developed vapor market. YTD, vapor has accounted for ~30% of total cannabis sales in CA, which is only slightly behind flower's ~39% share.

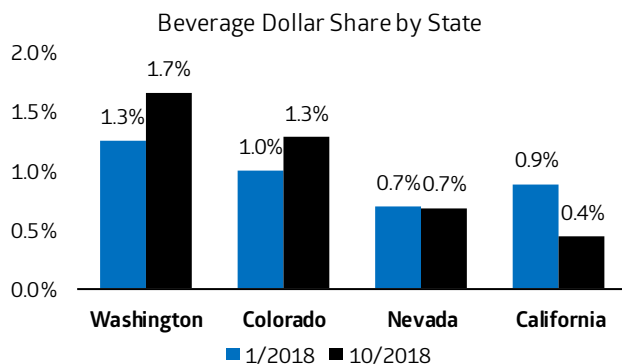
Figure 13 Vapor Notably More Popular in CA



Source: Headset and Cowen and Company

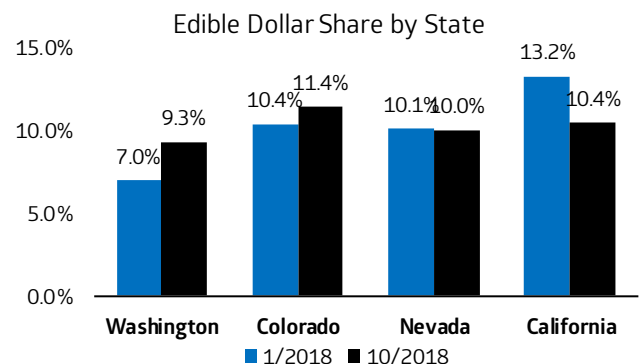
In 2018 there has been a notable evolution in category share for both edibles and cannabis-infused beverages. We believe this is a function of shifts in consumer behaviors towards more familiar forms of consumption. Across all the states, edible share typically hovers around 10%, though in CA, edible share is down 2.8 pts since January 2018 to 10.4% share most recently. Meanwhile beverages, which only represent ~1% dollar share in the U.S. has shown mixed trends, though it is growing in mature markets like WA and CO.

Figure 14 Beverages Growing Share in Mature Markets...



Source: Headset and Cowen and Company

Figure 15 ...While Edible Share Is Consistently ~10%





1906 – Peter Barsoom, Founder & CEO

1906 is based out of Henderson, CO and founded in 2015. The company has an edible-focused strategy and aims to expand the addressable market by targeting un-met consumers, namely women and seniors.

Utilizing an “effect-based” segmentation strategy, the company offers five distinct products which promote either energy, arousal, sleep, relaxation, or euphoria. Management had initially focused on chocolate edibles due to its accessibility and familiarity with the general population, however they are hoping to launch a beverage by 3Q19. As it stands today, the company aspires to maintain a targeted approach, focusing on ingestibles. Stretching this paradigm, 1906 also plans to address a sixth need state, by introducing a variant that gives consumers cognitive focus.

Contrary to most of the other companies on the panel, 1906 is not focused on California, and in fact wants to aggressively expand towards the East coast. While almost all U.S. cannabis brands have originated out of the West, 1906 believes the East coast, and in particular states like NJ and MA can be great jumping off places for their product. Pragmatically, the company also has near-term expansion plans to go into IL and FL.

Jetty Extracts – Ron Gershoni, Co-Founder & CEO

Founded in 2013 and based in California, Jetty has taken a more focused approach, both from a geographic and form factor perspective.

Jetty Extracts is most widely known in California for their pre-filled vape cartridges, both for their own brand as well as a trusted partner for PAX. Indeed, for years they only had one SKU in the California market. Recognizing the fragmentation of the market, Jetty has expanded, though remains focused on extracts and vape (which makes sense to us, as vapor share in CA, per Headset, is over 30% of sales).

The company sizes the California opportunity as larger than Canada (we concur), and as such remains committed to a lead market strategy. That said, if the 2018 Farm Bill passes with hemp-derived CBD language, they plan to launch a nationwide CBD brand.

Lighthouse Strategies – Michael Hayford, Founder & CEO

Founded in 2016, Lighthouse Strategies is best known for its non-alcoholic, beer-inspired, Two Roots offerings of canned THC-infused beverages.

Lighthouse Strategies’ focus is to embrace products that consumers view as social and sessionable. They aim to do this with the introduction of Two Roots, a non-alcoholic THC- and CBD-infused beer that consumers can self-regulate with a “one and done” mentality (meaningfully juxtaposed against a standard 10 mg edible). At 80 calories per bottle and containing electrolytes, the product is intended to be sessionable and healthy. The targeted effect of their THC and CBD formulation relies on microdosing in order to mimic the onset of alcohol.

Leveraging this differentiated position, Lighthouse is looking ahead to regional expansion and recently signed a brewing contract with a San Diego Brewery. Beyond CA, where the company hopes to penetrate more deeply, emerging market opportunities are also top of mind, with the company keenly focused on the Northeast, Florida and internationally (outside of North America).

Loudpack – John Cochran, CEO

Loudpack is a cannabis CPG company which owns 10 distinct brands and is licensed and based in Los Angeles, CA. Its portfolio of brands include Kingpen, Loudpack, and Honey Pot among others.

Loudpack relies upon a wealth of consumer research to determine how to position its brands. After determining Kingpen's core consumer is a young male, the company decided to not expand its product offering beyond vape pens. However, Loudpack, which originally began as an extract brand, changed its core branding and expanded into other form factors given its broad demographic appeal.

The company is significantly leveraged to California, as it has already invested over \$65 mm into its facility in Monterey, CA. Loudpack is looking to do an RTO in February given their current levels of capital, and their aspiration to expand into Michigan and Arizona. The company's main focus is acquiring brands and gaining distribution, similar to "Diageo and Southern Glazer's," which management views as a scaleable and repeatable model.

PAX Labs – Bharat Vasan, CEO

Headquartered in San Francisco, CA and founded in 2007, PAX Labs is an ancillary product company that designs and develops premium cannabis vaporization devices. The company is best known for the PAX Era, a connected, app-driven pod system for concentrates, and the PAX 3, a multi-use vaporizer for dry herb and extract.

Likely the most well-known company on the panel, PAX Labs has focused its efforts towards creating the best vape experience possibly, modeling the product and its aesthetic to companies like Apple and Tesla. Given cannabis has different effects on people, the company believes you need to apply some level of technology and science in order to procure the best possible experience for consumers. In particular, the app-enabled devices allow users to modulate the temperature for either more flavor or vapor, varied dosing, and also offers privacy controls. That said, the app isn't necessary to operate the device, which gives users flexibility to either use the PAX on a more casual basis or as an enthusiast.

PAX consumables are currently in 12 states, as well as in Europe and Canada. In legal markets that recently opened, such as Massachusetts, the company deploys regional sales teams on the ground to directly connect with consumers. For the consumables, the company relies on third party partners to fill their pods, as PAX does not touch the cannabis plant or fill the pods itself.

Toast Holdings – Punit Seth, Co-Founder & CEO

Founded in Aspen, CO in 2017, Toast sells luxury pre-rolled, lower-potency cannabis cigarettes as well as CBD oil. Their product assortment is analogous to alcohol, in which they offer the gold slice (champagne equivalent), the original slice (alcoholic cocktail equivalent), and Toast CBD oil.



Toast uses alcohol as an analogue to easily communicate to consumers the effects they should expect to feel when consuming their products. Over the next 12 months the company will be focused on expanding their CBD side of the business. The company's focus is to position cannabis as a lifestyle product, and they believe the inclusion of CBD can help attract consumers who are seeking experiences for health and wellness.

While all of the companies believe the 2018 Farm Bill will pass, and include the proposed hemp language soon, they were more or less split on the States Act passing. Toast believes having a strong legal team and being hyper-compliant will help build a moat around the company as legalization and regulations expand. The company is focused on promoting micro-dosing and smart consumption, which they believe will position them successfully in a federally regulated market.

International Cannabis Panel (Vivien Azer)

Who We Heard From:

- **Aphria** – Vic Neufeld, CEO
- **Aurora** – Cam Battley, CCO
- **Canopy Growth** – Bruce Linton, CEO
- **CannTrust** – Peter Aceto, CEO
- **Cronos Group** – Mike Gorenstein, CEO
- **The Green Organic Dutchman** – Brian Athaide, CEO
- **Northern Swan** – Kyle Detwiler, CEO
- **Tilray** – Brendan Kennedy, CEO

Key Take-aways:

- **Strong Demand Will Continue.** With additional form factors and an expanded retail footprint coming online in 2019, our panelists believe that demand in the Canadian adult use market will remain strong. Building scalable IP to create unique offerings with targeted outcomes remains a key focus area.
- **Supply Will Remain Challenged.** As demand ramps, supply will likely be stretched further. As such, our panel expects rolling shortages to extend beyond the next 12 months, which will likely pressure revenues and profits.
- **International Remains a Focus.** Geographic expansion remains a key tenant of the LPs' growth strategy. While our panelists remain steadfast on extending international reach, there were varied opinions on how to tackle opportunities in Europe, Latin America, Asia and the U.S.

Figure 16 International Cannabis Panel



Source: The Ink Factory and Cowen and Company

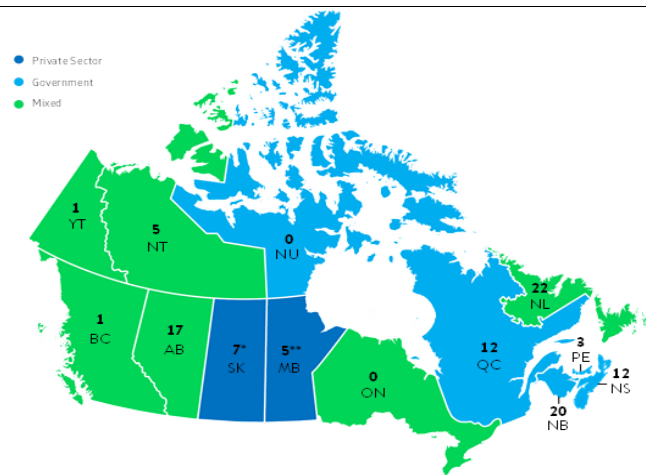
International Cannabis Overview

While the Canadian adult use market is up and running, there are a number of upcoming regulatory catalysts which can help propel the market forward and further stimulate demand from its nascent stage. However, this increased demand could further pressure supply and lead to rolling shortages through late 2019 / early 2020. In particular, we heard insights from the Canadian LPs regarding:

- Novel form factors.** We await the market introduction of novel form factors such as vapor, beverages and edibles. Upon initial market launch, these products were not permitted as they had not been introduced into the medical market at the time. However, Health Canada is required to issue regulations for these products within one year, although LPs have remained cautiously optimistic that a soft launch could come sooner. Largely, our panel remains confident that new form factors will be in place by 4Q19, although some LPs are optimistic about an earlier timeline. For example, we note that Aurora introduced the market's first vape product, Aurora Cloud, on October 16, which could expedite the regulatory process for vapor product availability in the adult use market. In addition, WEED and HEXO are developing beverage lines as part of their partnerships with STZ and TAP, respectively.
- Store openings.** We note there were only ~100 adult use cannabis dispensaries open at the time of market launch. What is more, ~40% of those stores were in NB and NL, which represents 3.5% of the Canadian population combined. By comparison, Ontario (39%) will not have retail stores until April 2019 while BC (13%) has only one retail location in the province. As such, an increased proliferation of brick-and-mortar stores, based on provincial licensing, will be necessary for the market to develop.

Given these restrictions, we continue to believe that adult use only captures 30% of the illicit market in year 1 of legalization. As these factors are mitigated, we expect to see more robust growth, beginning in late 2019 as additional supply comes online.

Figure 17 Retail Stores At Market Launch



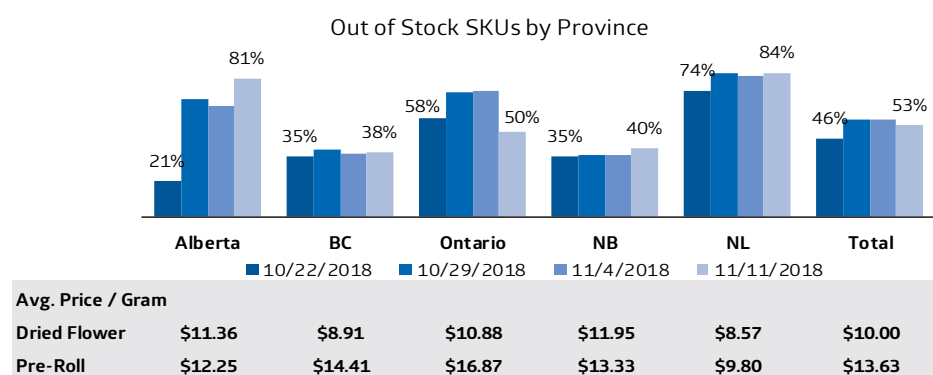
Source: Provincial Government Estimates, Bloomberg, Cowen and Company

Note: * = at least seven

Note: ** = at least five

Overall, initial demand for cannabis has remained strong, as evidenced by our e-commerce analysis covering 65% of the population [here](#). As of November 11, we observed 566 product offerings with 1,217 SKUs from the e-commerce platforms for Alberta, British Columbia (BC), Ontario, New Brunswick (NB), and Newfoundland & Labrador (NL), we note that 53% of total SKUs were out of stock, although there are wide discrepancies between provinces. What is more, we note that provinces have adopted varying pricing strategies, as dried flower prices for BC (C\$8.91) and NL (C\$8.57) remain at a discount to overall averages (C\$10.00).

Figure 18 Retail Out of Stocks Remain Elevated, But Moderated in Ontario

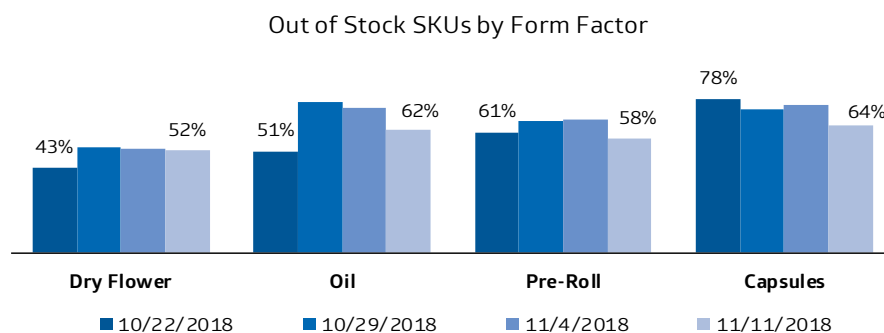


Source: Provincial Websites and Cowen and Company

Note: Price per gram in CAD

With loose leaf flower representing nearly 80% of SKUs, it is not surprising to see these items are most often available. In contrast, pre-rolls, which are priced at a 36% premium, have far fewer SKUs (and higher out of stocks). While oils and capsules represent only 8% of total SKUs, stockout rates for those products are higher than flower-based variants. While commentary from LPs suggest a preference to mix higher on oil sales, provincial demand for high-THC dry flower will likely continue in the near term.

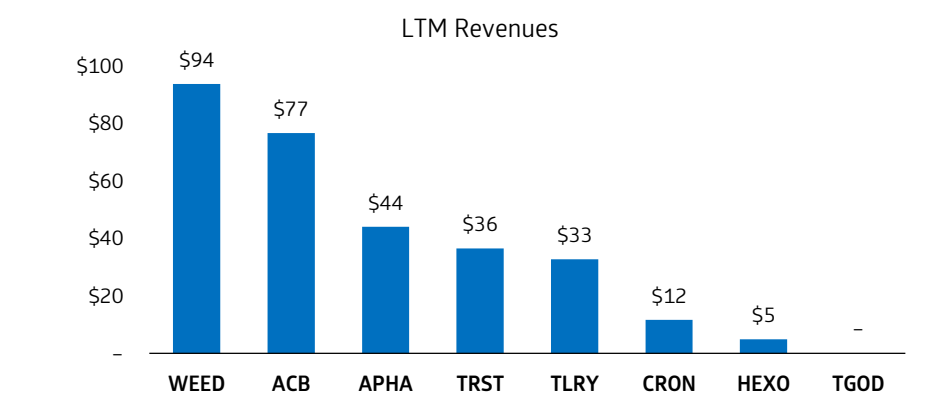
Figure 19 Dry Flower Has the Lowest Out of Stock Rates Among Form Factors.



Source: Provincial Websites and Cowen and Company

As market demand remains strong and continues to grow, it remains to be seen whether supply can keep pace in the near term. Among our panel, only one executive (APHA CEO Vic Neufeld) believed that supply challenges would normalize within the next 12 months. The LPs commented that as they continue to build capacity, the expected increases in demand from novel form factors and new store openings will initially exceed supply gains. Thus, near-term revenues will likely be under pressure across the sector.

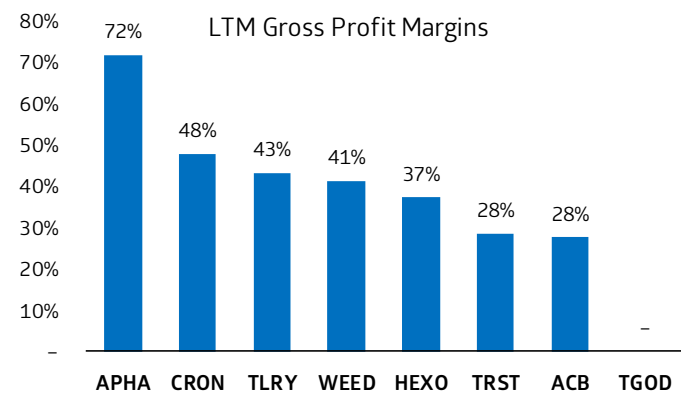
Figure 20 Near-term Revenues May Be Challenged Given Supply Challenges



Source: Thomson, Company Reports, Cowen and Company

The Canadian LPs continue to invest in production and organizational infrastructure, which has weighed on sector profitability. As capacity investments, both domestically and internationally, continue to increase over the next several quarters, coupled with potentially lower scale benefits from revenue pressures, we would expect near-term pressure in gross margins. However, sales and marketing efforts should begin to scale back given Health Canada regulations are restrictive on certain advertising as offset. Thus, EBITDA margins will have multiple puts and takes, which may result in a slower ramp than expected.

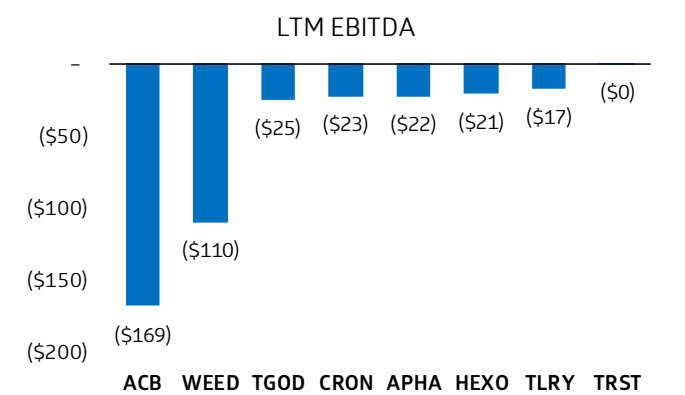
Figure 21 Gross Margin Burdened By Costs to Scale...



Source: Thomson, Company Reports, Cowen and Company

Note: TLRY and WEED per Cowen and Company

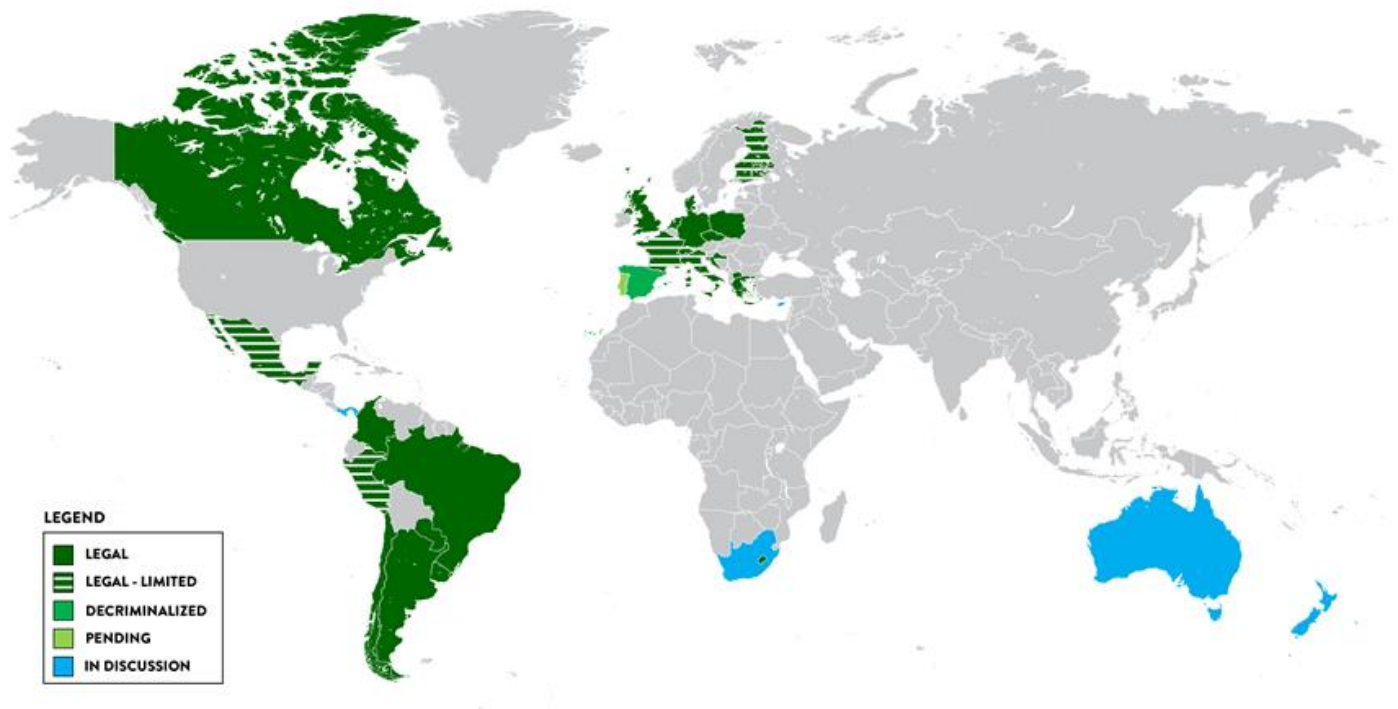
Figure 22 ...As EBITDA Losses Have Mounted



As initially discussed in our TLRY initiation ([here](#)), we believe that international markets represent a significant whitespace opportunity with substantial upside and offer a potential offset to initial domestic challenges. Clearly, the recent pace of legalization has exceeded expectations, with ~35 countries that have made some type of effort to legalize or consider medical cannabis as an alternative medical solution. In particular, we have seen recent examples of continued progress such as Mexico's Supreme Court ruling (making cannabis prohibition unconstitutional) and South Korea's and Thailand's progress towards becoming the first countries in Asia to legalize medical cannabis.

We estimate a \$9 bn market TAM for international based on the potential medical cannabis opportunity across every international country that has made any type of progress towards legalization (as of August, thus excluding recent news from Asia Pacific). While legislative progress for cannabis internationally is different in each country, we believe the U.S. could be a useful analogue to determine the potential size of the total international market. On a population-weighted adjusted basis, market share across the U.S. in 3Q18 was 1.0%. While some states see higher market shares than others, we feel this is a good approximation for what international markets could look like. That said, we conservatively estimate international market share of 70 bps, which leaves upside to our numbers.

Figure 23 Cannabis Legalization Heatmap

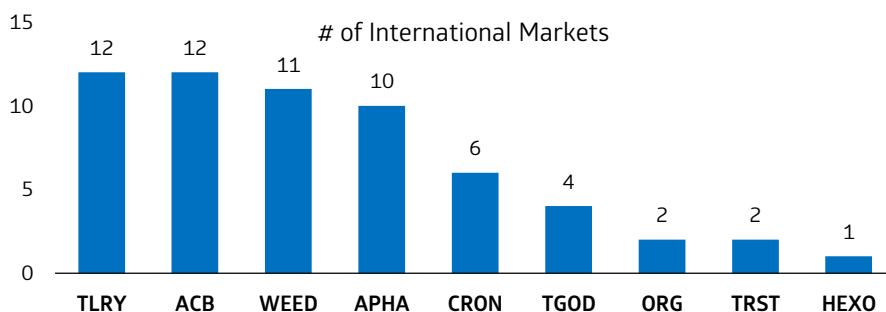


Source: Cowen and Company



As such, the Canadian LPs continue to increase their international presence, whether via pick-and-shovel builds, joint ventures or M&A. In particular, we note that TLRY, WEED, ACB, and APHA all have operations in at least ten countries. Moving forward, most LPs are focused on Europe as the next big market, with some expecting a broader E.U. adoption that encapsulates the region. Broadly, most on the panel believe that European countries want to benefit from local finished goods manufacturing, but not necessarily cultivation. While U.S. market entry is a top priority, there are multiple options and strategies the LPs can deploy, though ultimately this will be dependent on regulatory changes.

Figure 24 LPs are Focused on International Expansion



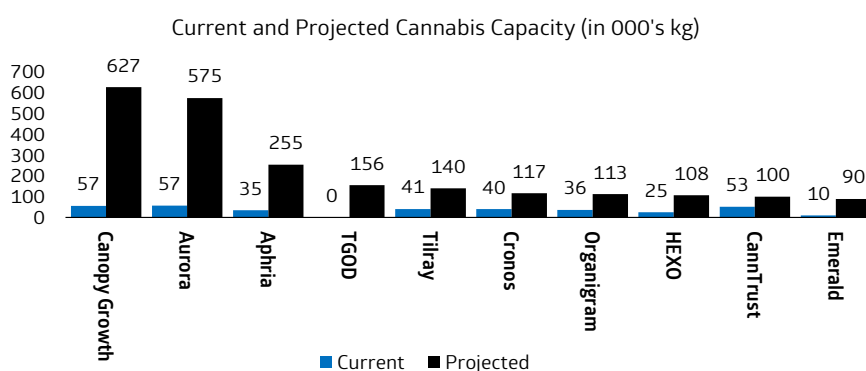
Source: Company Reports and Cowen and Company

Aphria (APHA) – Vic Neufeld, CEO

Aphria is a Health Canada licensed producer of medical cannabis products. Their cannabis is 100% greenhouse grown.

Among our panelists, Aphria was the most optimistic that supply imbalance would be corrected within the next twelve months. However, CEO Vic Neufeld was simultaneously bearish on the potential for market over-supply, citing that the Canadian LPs have publicly committed to over 3 mm kg of supply to meet ~600-650k kg of demand, based on estimates from Deloitte.

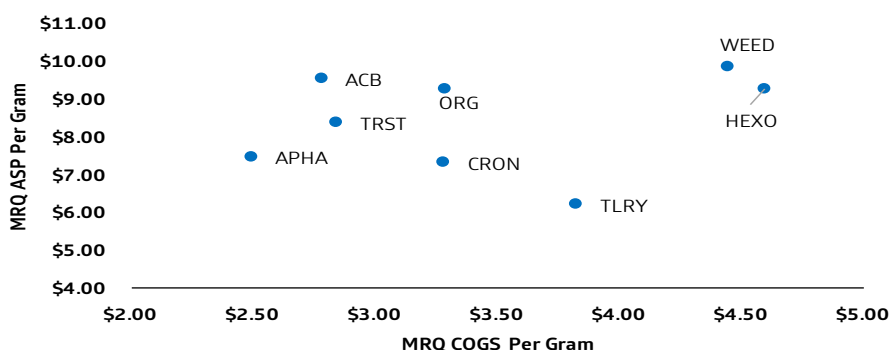
Figure 25 Capacity Expected to Significantly Ramp



Source: Company Reports and Cowen and Company

In addition, Neufeld anticipates that pricing will become increasingly competitive in Quebec, which plays to Aphria's advantage as the sector's low-cost provider. Neufeld believes that the province's primary objective is to eliminate the illicit market and the province will use pricing as a key variable for future product allocations between the LPs. As such, Aphria is likely to be aggressive on pricing in order to take volume share from its competitors. However, Neufeld was optimistic that pricing in Ontario would play out differently given the province's premium pricing structure.

Figure 26 Unit Economics Will Evolve With Adult Use



Source: Company Reports and Cowen and Company

Note: ASP per gram and COGS per gram as of calendar 3Q18, except for HEXO (2Q18) and ORG (2Q18)

Note: COGS Per Gram exclude fair value adjustments and non-cannabis production costs, where provided

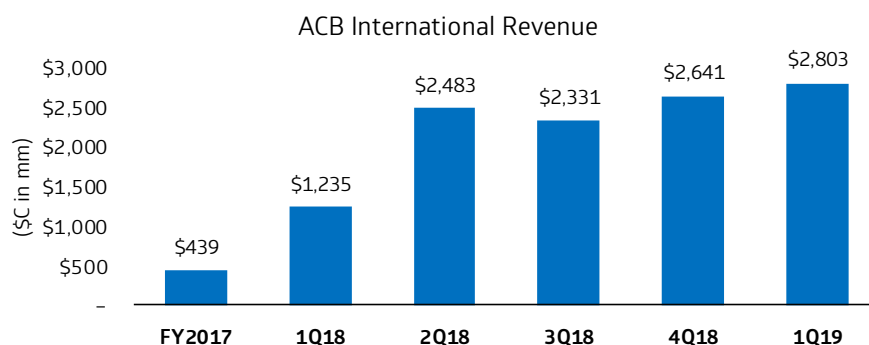
Aurora Cannabis (ACB) – Cam Battley, CCO

Aurora Cannabis is a licensed producer of medical and adult use cannabis in Canada with operations in 12 additional countries. In July 2018, the company acquired MedReleaf and is among the industry leaders in size and scale.

ACB was bullish on adult use demand, commenting that it is seeing a clear willingness of consumers to move to legal markets, similar to trends observed in CO and WA. In addition, Chief Corporate Officer Cam Battley anticipates that new regulations for additional form factors will be available in Spring of 2019 which will help fuel additional demand (ahead of schedule, and ahead of Canada's 2019 elections). We note that Battley's optimism is aided by ACB's recent introduction of Aurora Cloud, the first vapor product available in the Canadian medical cannabis market. While form factors remain a focus area for ACB, given their attractive margins, Battley believes that LPs, broadly, will need to develop partnerships with farmers to help solve current and future supply shortages. Consistent with most of the panel, Battley believes that supply shortages will continue for the next 12-24 months.

That said, Battley commented that the global medical cannabis market is the single largest opportunity for the next 5-10 years and that there is strong excess demand internationally. As such, ACB is investing significantly in R&D and science, which is apparent in the company's 40 clinical trials completed or underway, 7 preclinical studies and 27 clinical studies currently under discussion in order to demonstrate efficacy and safety for specific indications. As ACB expands globally, it plans to leverage its IP for increased credibility with patients and providers as well as its scale and capacity to generate strong early market share leadership. ACB's primary international strategy is focused on the E.U. and Latin America, although it will move into the U.S. as soon as legally viable through options in Australis.

Figure 27 International Medical Market is Key Growth Area for ACB



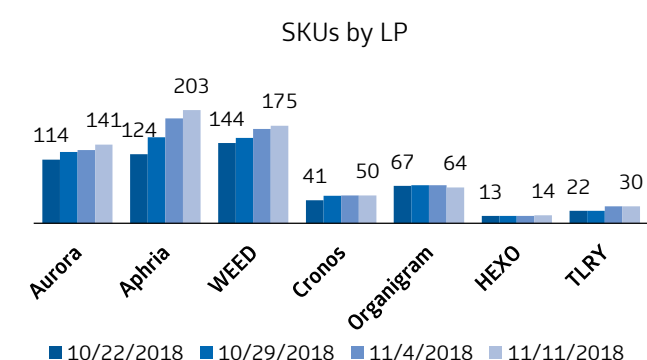
Source: Company Reports and Cowen and Company

Canopy Growth (WEED) – Bruce Linton, CEO

WEED is a licensed producer of cannabis in Canada with additional operations in 11 countries. The company's portfolio of brands include Tweed, LBS, DNA Certified, Spectrum and Plain Packaging.

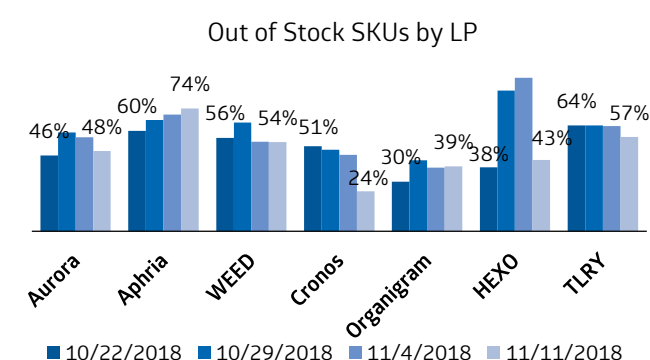
WEED continues to make incremental progress on its supply chain execution as it fills the adult use channel, despite some early growing pains. Company CEO Bruce Linton commented that WEED is continually increasing volumes weekly as it gains incremental efficiencies and throughput. Indeed, our analysis of five provincial ecommerce platforms, covering 65% of Canadian population, indicates that WEED continues to add SKU's while decreasing stock out rates. That said, WEED believes the market will see rolling shortages through 2Q20, as Linton believes Canada will have 10x its current retail footprint of ~100 stores in 12 months. Interestingly, Linton acknowledged that provincial supply issues are worse in Western Canada as provinces are using cannabis as a political tool over the Trans Mountain Pipeline. By comparison, Linton sees much stronger performances in Eastern Canada in provinces such as Newfoundland, New Brunswick and Nova Scotia.

Figure 28 WEED Has the Second Most SKU's Among LPs...



Source: Provincial Websites, Cowen and Company

Figure 29 ... With Out of Stock Rates Starting to Improve



Source: Provincial Websites, Cowen and Company

Outside of Canada, most of the focus on WEED surrounded its potential entry into the U.S. WEED currently holds options in several U.S. operations, such as Canopy Rivers and TerrAscend, but will look to significantly expand once federally permissible. As such, a sizable portion of WEED's dry powder from the STZ acquisition is earmarked for the U.S. In addition, Linton believes there is still significant whitespace opportunities in the U.S., despite the recent growth of multi-state operators, given that current operations are in unfavorable real estate locations, which would likely evolve under a regulatory change. In addition, the lack of available bank financing and interstate commerce prevents current U.S. companies from building scalable operations. Linton also maintained that the recent ebbs acquisition positions WEED to benefit from the potential Farm Bill passage and provide technology and R&D advantages to scaling CBD production.

Separately, within North America, WEED believes it is likely to be well positioned to capitalize on the pending adult use market in Mexico given STZ's local sphere of influence through distribution and regulatory networks.

CannTrust (TRST) – Peter Aceto, CEO

CannTrust is a federally regulated licensed producer of adult use and medical cannabis. Founded by a team of pharmacists, the company is the third largest patient provider of cannabis in Canada.

While CannTrust participates in both adult use and medical cannabis markets, the company's underlying technology and science appears to be a driving force for both markets. As industry leaders broadly view cannabis as an ingredient in multiple products, TRST CEO Peter Aceto places increased emphasis on innovation. Aceto noted that TRST is developing a seed technology that it believes can reduce COGS per gram by 70% and provide significantly improved capacity for greenhouse production. Further, Aceto noted that TRST is developing a proprietary patent-pending nanotechnology which will improve cannabis bioavailability, solubility in water and significantly better dispersion of cannabinoids. As a result, TRST can leverage its technology to improve absorption (i.e, time to effect) and enhance its ability to deliver cannabis in multiple form factors, such as beverages, edibles and other delivery mechanisms.

Figure 30 Nanotechnology Platform Enables Product Development Across Form Factors



Source: Company Reports, Cowen and Company

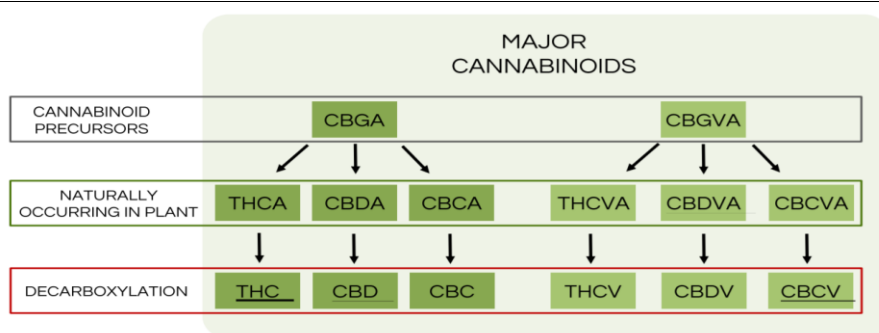
On international expansion, Aceto appeared less bullish on near-term U.S. legalization/entry as he views legalization as a longer-tail event with some smaller tailwinds (such as tax breaks) coming in 2019. Instead, TRST is more focused on expansion into Europe which is centered on partnerships and JV's as opposed to a build-or-buy strategy. TRST's primary international partnership is with Stenocare in Denmark to produce and sell medical cannabis, which is primarily oil extracts at higher margins vs. dried flower. Aceto indicated that the company has additional partnerships in Australia, Germany and the Netherlands with additional JV's in development.

Cronos Group (CRON) – Mike Gorenstein, CEO

CRON is a geographically diversified and vertically integrated cannabis group that operates within Health Canada's ACMPR and distributes globally.

Cronos CEO Mike Gorenstein illustrated the complexities of supply imbalances in that there is broad confidence that the industry can solve for current demand based on current products, but demand will increase with the next batch of form factors and create continued challenges. As such, Gorenstein believes that the potential uses of cannabinoids are vast, but the key to successfully bringing cannabinoid-based products to market is in creating reliable, consistent and scalable production of a full spectrum of cannabinoids, not just THC and CBD. As such, CRON will rely on its partnership with Ginkgo Bioworks to produce rare forms of cannabinoids at scale, allowing CRON to, in turn, develop outcome-based products which it will support with clinical data to show active benefits.

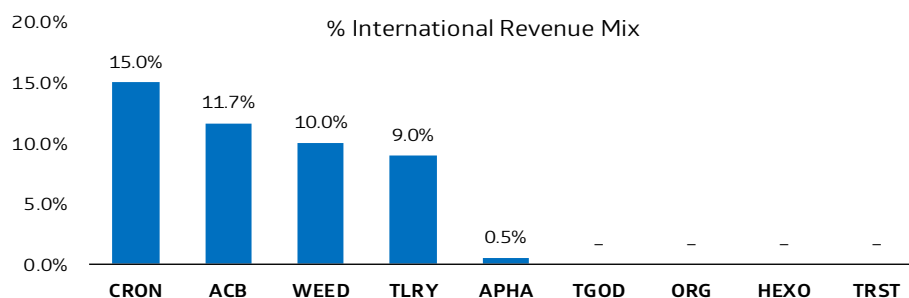
Figure 31 Ginkgo and CRON Will Focus on Production of a Wide Range of Cannabinoids



Source: Company Reports and Cowen and Company

In addition, Gorenstein highlighted international expansion complexities, as some countries such as Germany want to protect the economic benefits of value added manufacturing, without necessarily supporting in-country cultivation. Gorenstein was also the most bullish among the panel on Asia as a potential opportunity, and China in particular, while viewing Europe as a challenge to determine the next logical point of entry. CRON took a mostly neutral tone regarding the U.S., as Gorenstein (an American) indicated that any move is dependent upon the final bill details, which he characterized as a moving target.

Figure 32 CRON has the Largest Proportion of Revenues from International Amongst Canadian LPs



Source: Company Reports and Cowen and Company

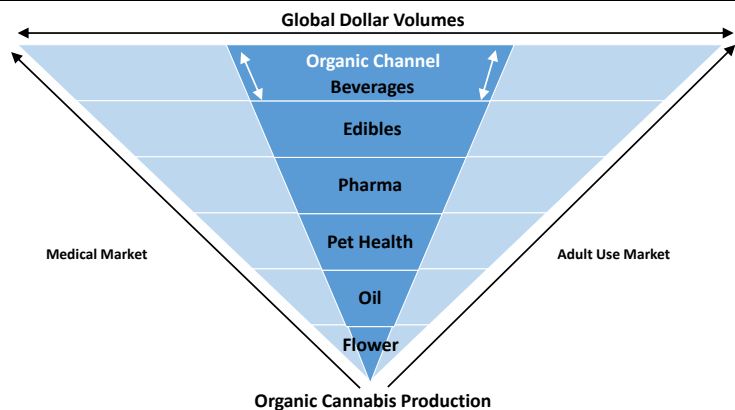
The Green Organic Dutchman (TGOD) – Brian Athaide, CEO

TGOD is a global premium organic cannabis company focused on both medical and adult use markets in Canada, Europe and Latin America.

As one of only three certified organic cannabis licensed producers, TGOD aims to align value on extraction and branding with consumer preferences. Indeed, nearly 57% of medical consumers and 43% of adult use consumers prefer organic cannabis to non-organic cannabis, according to CEO Brian Athaide. Further, Athaide estimates that the price premium for organic cannabis products are ~34% higher compared to non-organic cannabis products, which positions TGOD to generate strong profit margins.

Athaide anticipates that by 4Q19 new form factors will create more distinction among brands which provides an opportunity for TGOD to stand out amongst its peers. At the top of TGOD's product value-chain is beverages which TGOD believes offers the largest category volumes and growth rates within the organic channel. When comparing potential cannabis beverages success in Canada to its U.S. analogue, Athaide commented that the form factor hasn't taken off in the U.S. due to improper design and target market. Rather, TGOD is targeting a consumer who wants to relax with a lower dose THC serving size. To support its beverage buildout, TGOD hired Prem Vermani, who led the development of Walmart's Sam's Choice cola, Loblaw's President's Choice cola and major private label brands for Publix, Wegmans and Safeway.

Figure 33 TGOD CPG Vertical Integration Aims to Increase Margins



Source: Company Reports and Cowen and Company

TGOD is taking a measured approach to its initial product launch and does not believe that it is negatively impacted by a delayed start given market execution issues. In addition, Athaide commented that 95% of Canadian cannabis consumers do not know the name of the brand that they use. The company plans to test market its product to 200 patients in January and will further expand with a full launch once the company reaches a 98-99% service level. Ultimately, TGOD anticipates a full national rollout by the end of 2019 and expects to be cash flow positive by 4Q19. In addition, TGOD anticipates reaching C\$1bn in revenue in 2020 with upside from further international expansion.




Northern Swan – Kyle Detwiler, CEO

Northern Swan is a holding company which is developing a federally-legal portfolio of cannabis assets focused on low-cost, large-scale cultivation in Colombia.

Northern Swan had the unique position as the only company on our panel without a presence in Canada. Northern Swan's focus on Colombia reflects the attractiveness of notably lower operating costs and higher gross margin potential than in developed markets. Unlike its Canadian peers, Northern Swan is not experiencing the same supply restrictions, as CEO Kyle Detwiler commented that local supply is healthy and abundant.

Meanwhile, Northern Swan is seeking to leverage Canada's supply imbalance to enhance its own international export attractiveness. Detwiler noted that the Canadian LPs are handicapped in their ability to guarantee significant product allocation abroad if there are shortages domestically. As such, Northern Swan has been able to secure supply agreements and memorandums of understanding (MOUs) in four countries and is currently developing a European distributor in Germany. Further, Detwiler commented that there are a number of countries in Europe that do not want to cultivate cannabis within their borders which provides a market for Northern Swan imports.

Figure 34 Northern Swan Portfolio Companies

Clever Leaves	
	<ul style="list-style-type: none"> • Low-cost, large-scale Colombian cultivation and extraction <ul style="list-style-type: none"> – Capex and opex are a fraction of Canada, Germany, and US, creating an industry disruptor – 1.4 million sq. ft. of cultivating greenhouses – 30,000 sq. ft. GMP extraction factory – 100+ person organization – B2B supply agreements or MOUs signed in 4 countries
European Distribution	
	<ul style="list-style-type: none"> • Developing a European distributor based in Germany, including application for controlled substance importation license
Lift & Co.	
	<ul style="list-style-type: none"> • Minority ownership of Canada-focused data company that offers consumer and retail data, as well as Canada's largest cannabis events

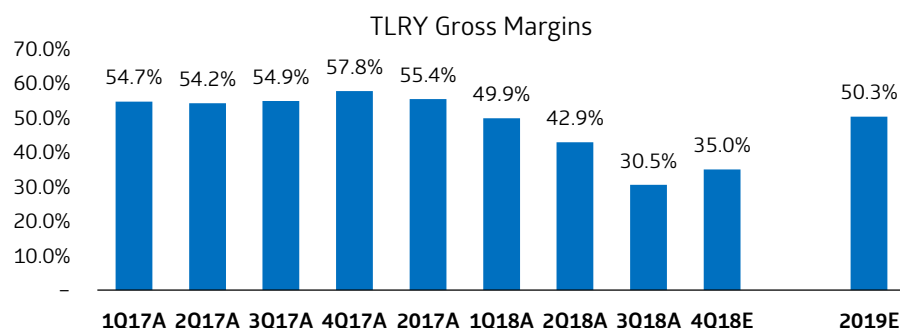
Source: Company Reports and Cowen and Company

Tilray (TLRY) – Brendan Kennedy, CEO

Tilray, Inc. is a licensed producer and distributor of cannabis and cannabinoids. Through the company's strategic partnership with American-owned Privateer, TLRY licenses established U.S. based cannabis brands in Canada including Marley Natural, Irisa, Goodship, Grail, and Dutchy.

While all our panelists acknowledged supply constraints, TLRY CEO Brendan Kennedy commented that the availability and quality of available cannabis was much lower than they had anticipated. While TLRY currently produces 90% of its product supply, TLRY sources 10% from other LPs with a long-term goal to achieve a 50/50 split and focus its attention on value-added manufacturing and brand building. As a result, TLRY expects to make incremental investments over the next 90 days to help fulfill demand expectations given limited available 3rd party supply. As articulated when the company reported earnings, the combination of purchasing high potency THC from 3rd parties and increased capacity spend with over-indexing exposure to bulk oil sales will put pressure on gross margins for the next couple of quarters before normalizing in 2H19. That said, we think margin recovery will be aided by new form factor deployment at higher margins, which TLRY anticipates coming to market prior to October 2019.

Figure 35 TLRY Gross Margins to Ramp Over Time Post-Supply Imbalance



Source: Company Reports and Cowen and Company

With a keen focus on international, Kennedy expects that the current international medical market opportunity can expand from 35 countries today to ~60 over the next few years. However, we note that Kennedy was not optimistic about continued adult use expansion globally, and thus maintains the need to produce in Canada longer term. Kennedy believes that the next substantial domino to fall would be the E.U. as an entire block and then have its member countries fold in. As such, TLRY continues to rely on Portugal as its European hub and is pleased with progress on the location to date. In addition, TLRY reiterated that it will be very aggressive in moving into the U.S. once federally legal, although there are a number of ways to prepare in advance such as buying land, greenhouse, processing facilities or non-cannabis brands. In addition, TLRY could pursue options in other U.S. cannabis brands, similar to its Canadian peers.

While TLRY looks to expand its geographic footprint, we do not anticipate the company will become vertically integrated through retail locations. Rather, TLRY is more likely to invest in building its brand equity. As such, we do not think TLRY would be interested in acquiring a U.S. multi-state operator.

Keynote – Bill Weld (Vivien Azer)

For our keynote speech, we heard from former Massachusetts Governor Bill Weld. As Governor, Weld was a Republican who most recently ran as Vice President on the 2016 ticket with Gary Johnson as an Independent. Weld has never focused on the political risk that comes along with elected office and as such, has been a staunch supporter of cannabis since 1991, when it was completely out of favor (in addition to being a supporter of gay rights 15-20 years before it started to gain momentum).

Weld's speech focused on the politics of cannabis and how it has historically been demonized by the U.S. government. In total, the former Governor offered 14 different reasons why cannabis should be legalized, with in depth examples ranging from how studies show that CBD combined with cytotoxins have the ability to penetrate cells and enhance the drug's power, to PTSD and the 20 vet suicides per day that come along with it. Out all of the reasons he laid out to legalize, the one he is most passionate about is seizures. Additionally, he acknowledged the problems with opioid addiction and the benefit that cannabis can have on addressing this epidemic. See our note ([here](#)).

Figure 36 Governor Weld's 14 Reasons to Legalize Cannabis

1	Tumor Fighting Agent	8	Liver/Kidney Disease
2	Pain	9	Blood Disease
3	Nervous System Benefits	10	Skeletal Disorders
4	Septic Shock	11	Appetite
5	Opioids	12	Asthma
6	Nausea and Vomiting	13	Chronic Brain Injury
7	Sleep	14	PTSD

Source: Cowen and Company

This past April, former Governor Weld joined the BOD of Acreage Holdings along with former Speaker of the House John Boehner, who admittedly had a major change in opinion on cannabis as he was opposed to it in 2011, but his constituents drove a pivot in his views.

As part of his efforts, Weld continues to champion the legalization of cannabis for health reasons, but also for social justice reasons as African Americans in particular are four times as likely to get arrested, go to prison and get a longer prison-term for cannabis related offenses.

U.S. Public / Private Panel (Vivien Azer)

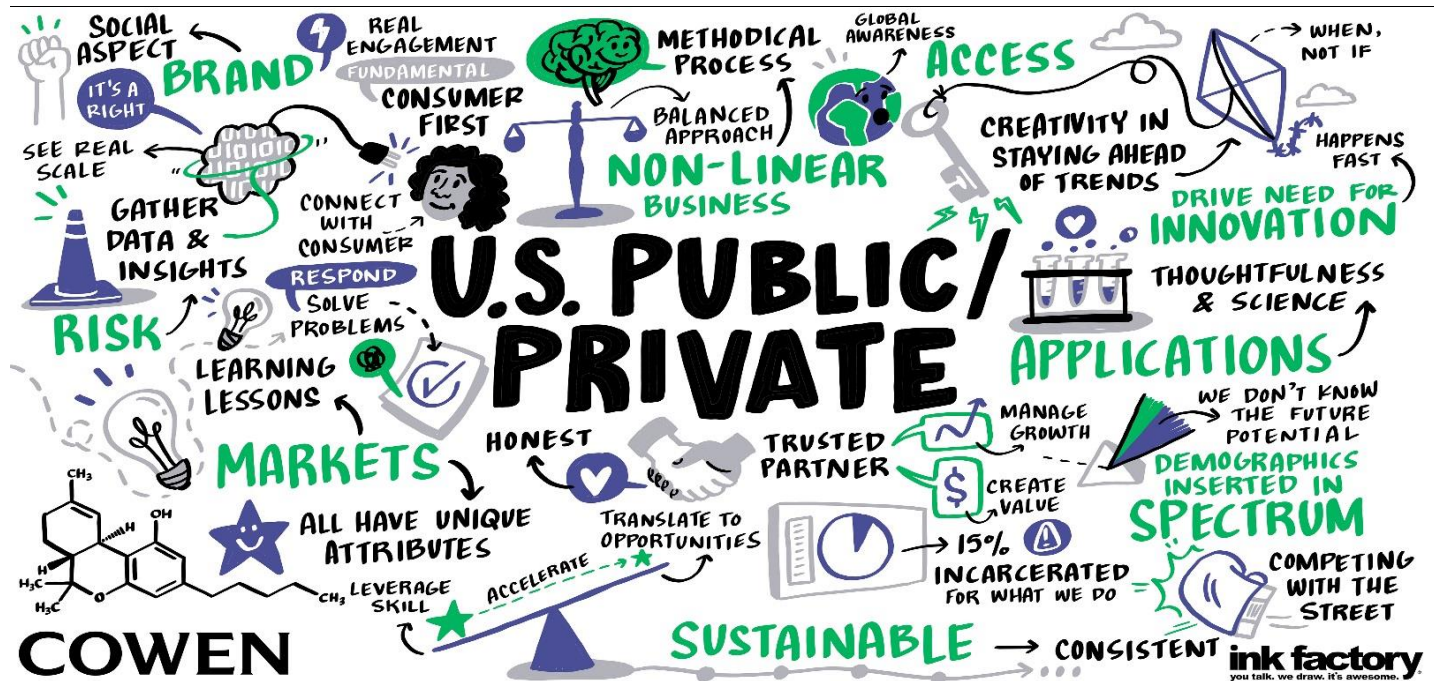
Who We Heard From:

- **Acreage Holdings** – Kevin Murphy, CEO
- **Columbia Care** – Nicholas Vita, CEO
- **Curaleaf** – Joseph Lusardi, CEO
- **Green Thumb Industries** – Ben Kovler, CEO
- **Privateer Holdings** – Christian Groh, Partner

Key Takeaways:

- **A Rising Tide Lifts All Boats.** The U.S. population is ~10x the size of Canada and as more states continue to come online for adult use and medical cannabis, multiple early movers can benefit simultaneously.
- **Distribution Trumps Brands (Today).** In time, we expect brand equity to dictate winners and losers but at this stage, distribution is more important and will drive trial and repeat.
- **Federal Regulation is the Biggest Catalyst.** A lack of progress from lawmakers has artificially depressed an industry that is ripe for growth; The Farm Bill and STATES Act represent the two most important catalysts for the industry.

Figure 37 U.S. Public / Private Panel



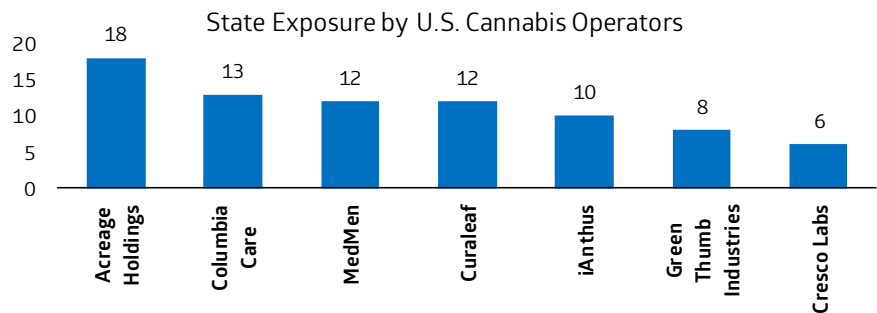
Source: The Ink Factory and Cowen and Company

U.S. Industry Overview

There are a number of vertically integrated cannabis companies operating on a state-by-state basis that have established an early mover advantage in the sizable, but still nascent U.S. cannabis market.

Building scale and expanding into new markets remains a key priority for all of the U.S. companies and below we offer a snapshot on the geographic footprint for some of the notable operators. As it currently stands, Acreage Holdings has the broadest footprint at 18 states, followed by Columbia Care (13), MedMen (12) and Curaleaf (12). We would note that being an early mover here certainly comes with advantages and although we expect most of these companies to ultimately compete in a similar fashion akin to traditional CPG (where brand equity should dictate winners and losers), with no company yet achieving a 1% share of the U.S. market, distribution and scale should allow for multiple companies to reap the benefits of robust revenue growth over the near- to medium- term.

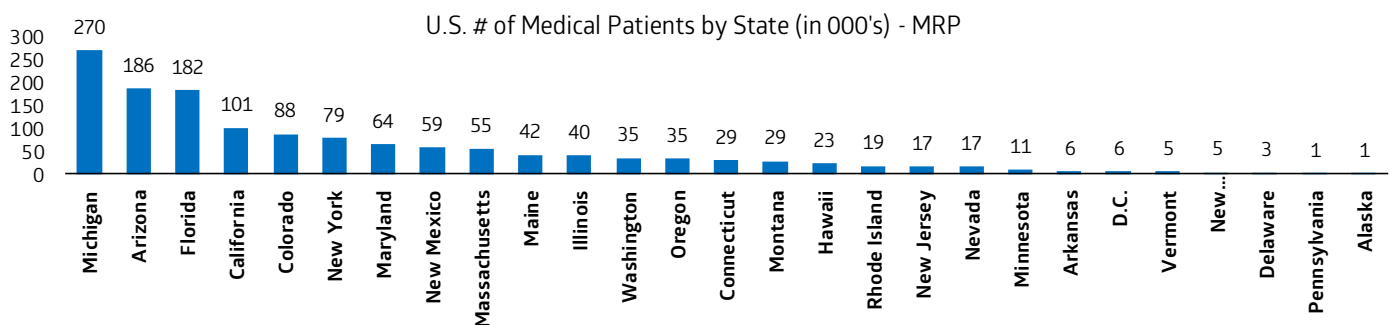
Figure 38 U.S. Operators Focused on Expanding U.S. Footprint



Source: Company Reports and Cowen and Company

Beyond adult use, we continue to see growing consumer interest in cannabis as a medical solution, and we estimate that there are already ~1.4 mm medical cannabis patients in the U.S. today. Indeed, category development can vary dramatically by state, largely reflecting: 1) the scope of permissible indications, 2) the number of doctors that are qualified to prescribe medical cannabis and 3) the form factors available in the legal medical cannabis market.

Figure 39 ~1.4 mm Medical Patients in the U.S., All Paying out of Pocket

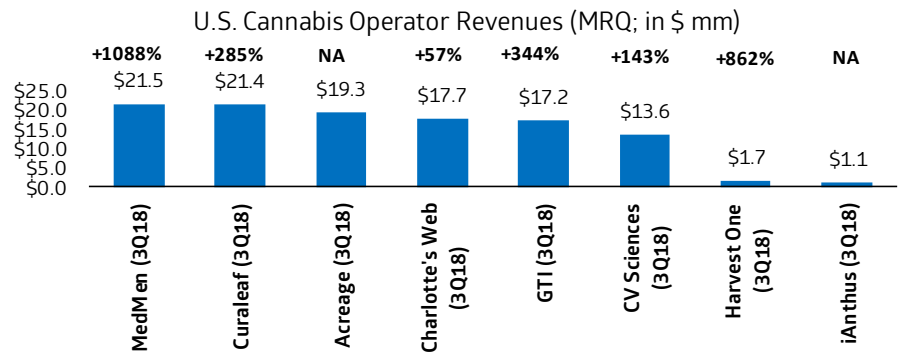


Source: State Reports and Cowen and Company

Note: Note: Most Recent Period (MRP): AK (2017), AZ (3Q18), AK (10/18), CA (2Q18), CO (7/18), CT (10/18), DE (2Q17), D.C. (3Q18), FL (10/18), HA (3Q18), IL (2Q18), ME (2017), MD (3Q18), MA (3Q18), MI (3Q17), MN (2Q18), MT (10/18), NV (2Q18), NH (2017), NJ (2017), NM (3Q18), NY (10/18), OR (3Q18), PA (2017), RI (1Q18), VT (1/18), WA (3Q18).

In the U.S. revenue generation is quickly approaching the levels we are seeing for the largest Canadian LPs, while U.S. operators are generally reporting even faster growth. We would expect to see growth accelerate, with more regulatory changes and M&A, as the larger companies continue to build scale.

Figure 40 U.S. Cannabis Operator Revenue Snapshot

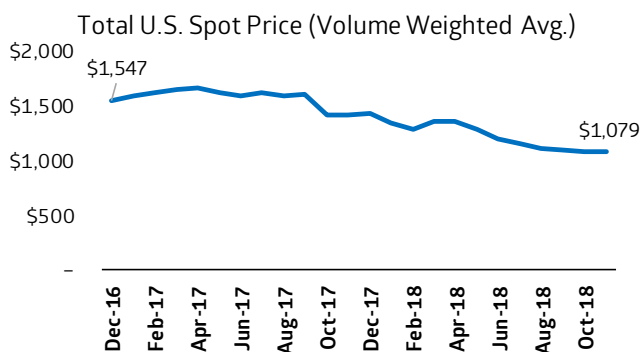


Source: Company Reports and Cowen and Company

Note: All quarters reflect calendar year; For Acreage, \$19.3 mm reflects pro-forma revenue; reported revenue was \$5.5 mm

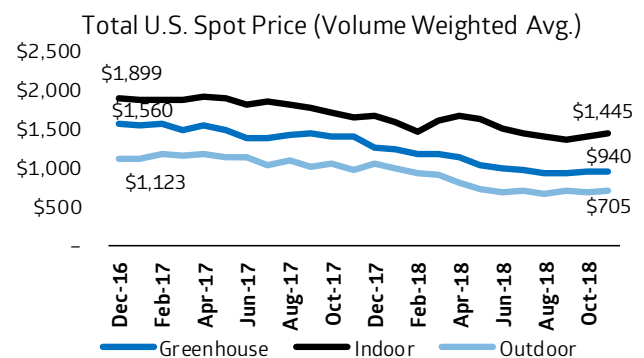
One important consideration for these vertically integrated operators is commodity deflation. Leveraging data from Cannabis Benchmarks, a division of New Leaf Data Services, we can see that price deflation is generally apparent. On a national basis, wholesale flower pricing is down ~30% since December 2016, to \$1,079 per lb. in November 2018. Across grow-type, greenhouse growing has seen the most price deflation as its volume weighted spot price is down ~40%, to \$940 per pound in the most recent data. Meanwhile, outdoor growing is down ~37%, to \$705 per lb. and indoor growing is down a lesser ~24%, to \$1,445 per lb. over the comparable timeframe.

Figure 41 Flower is Seeing Price Deflation...



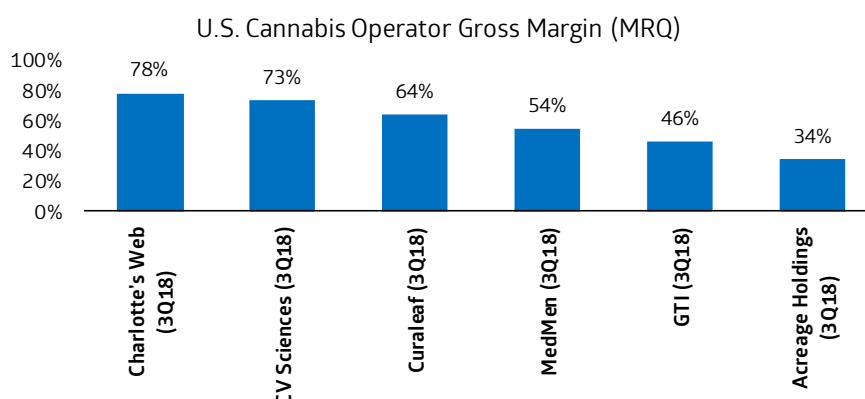
Source: Cannabis Benchmarks, a division of New Leaf Data Services and Cowen and Company; Note: spot prices are per lb. of cannabis flower

Figure 42 ...Which Varies by Grow-Type



Despite a broad deflationary wholesale pricing environment, the gross margin profile for many of the U.S. operators is solid, though with all of these companies looking to build scale and market share, we would expect QoQ performance to be volatile. That said, as the category matures over time, we would expect U.S. operators that are focused on finished goods production to eventually compete with the margin profile historically seen from traditional CPG companies. For operators with more retail focused concepts, we would expect higher gross margins than those seen for traditional retail, given a smaller store footprint, higher velocity and higher ASPs.

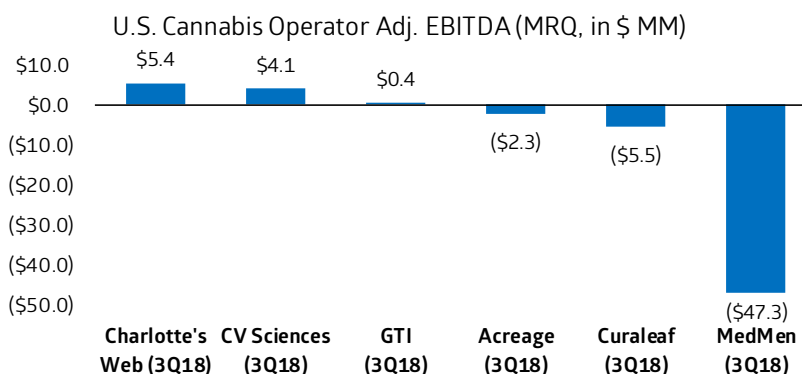
Figure 43 U.S. Margin Profile Snapshot



Source: Company Reports and Cowen and Company

From an EBITDA perspective, the current financial performance is volatile and differs materially by company. With the highest gross margins and no meaningful retail footprint, it is not surprising to see Charlotte's Web and CV Sciences posting the strongest EBITDA performance of all the companies benchmarked below. Investing will be a necessity and over the short-term and we would expect EBITDA performance to be lumpy. The notable outlier here is MedMen, which is posting considerably higher EBITDA losses than their competition, given a stronger retail focus, coupled with much higher SG&A expenses, as they continue to build out new locations and increase headcounts to conform to their overall retail concept.

Figure 44 EBITDA Performance Should Be Lumpy, But Should Vary by Focus

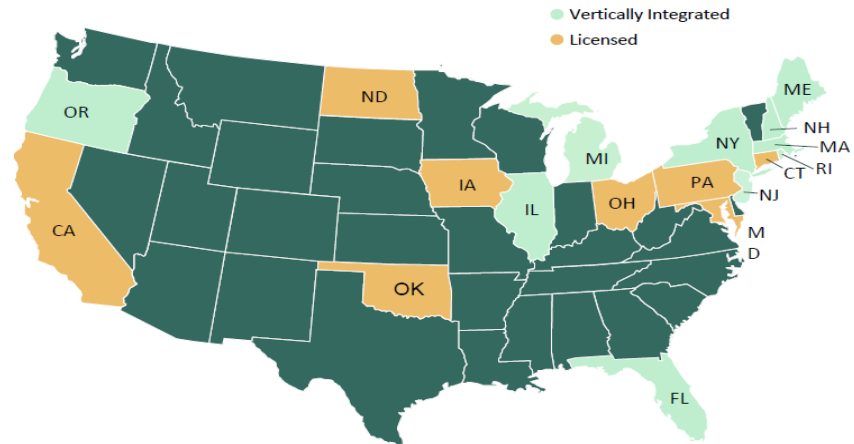


Source: Company Reports and Cowen and Company

Acreage Holdings– Kevin Murphy, CEO

Having gone public in November, Acreage Holdings is a leading multi-state cannabis operator with a diverse portfolio of cultivation, processing and dispensing, which is operational across 12 states, with a footprint spanning 18 states.

Figure 45 Acreage Geographic Footprint



Source: Company Reports and Cowen and Company

Since its inception, Acreage has operated through three distinct phases, which began with CEO Kevin Murphy making small minority investments in cannabis operators, with a focus on states with a limited amount of licenses. Post phase 1, which ran through 1Q17, the company initiated a roll-up strategy, gaining majority ownership / control of the underlying investments, which ran from 2Q17 to 3Q18. As it currently stands, Acreage has essentially completely consolidated their positions and is now in phase 3, which consists of integration, conversion and scale. As the company transitioned from an investment vehicle to an operator, Murphy had waited longer than some competitors to begin building out a team, which has resulted in the ability to pick from a more diverse pool of talent as more people from traditional CPG are now looking to get into cannabis.

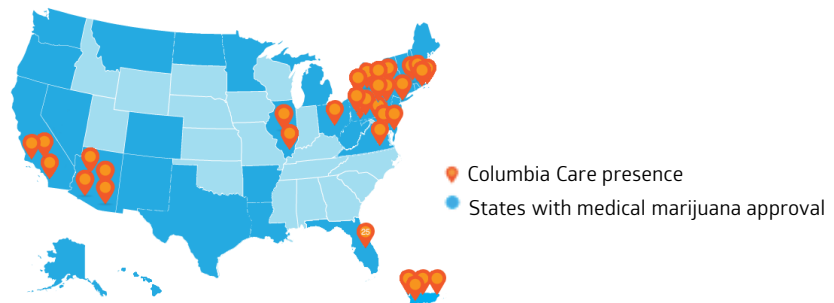
On the panel, Murphy spoke a lot about the company's focus on brands, which he defines as an end-product that people are willing to pay a premium for. Admittedly today, distribution trumps brands because opening up a store and selling cannabis is inevitably going to drive strong traffic, but Acreage believes that will change in due time. Acreage has developed five house brands starting with The Botanist, which is a health and wellness brand that shares the same name as the company's retail store concept (~\$750K to rollout a store), designed to appeal to novice and casual consumers. Prime, Superflux, The Hague, and Kind Bill round out the lot and Acreage subscribes to the theory that California, despite all of its current issues, is going to be the state to establish brand development.

Out of all the cannabis operators on the panel, Acreage has been the most vocal and active about the need to change the regulatory landscape and this passion has informed the makeup of their BOD, which consists of former MA Governor Bill Weld, former Speaker of the House John Boehner and former Canadian Prime Minister Brian Mulroney, where their collective efforts are largely spent educating lawmakers and lobbying for change.

Columbia Care – Nicholas Vita, CEO

Founded in 2013, privately-held Columbia Care is the largest provider of medically focused cannabis-based products and services in the U.S., with operations in 13 states.

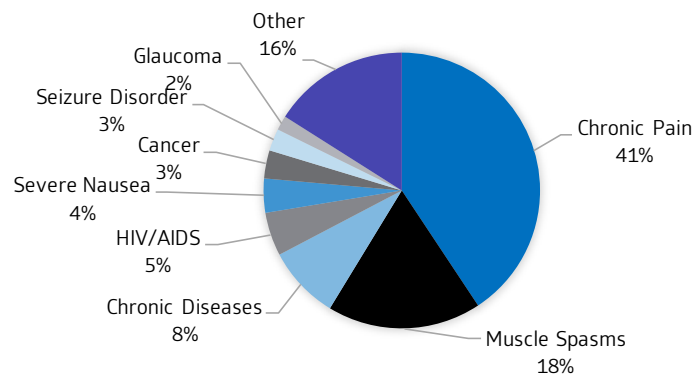
Figure 46 Columbia Care Geographic Footprint



Source: Company Reports and Cowen and Company

Columbia Care manufactures and distributes over 20 brands through its national network (76% of products sold are company manufactured) to treat a wide array of conditions, most notably, chronic pain, which accounts for over 40% of therapeutic areas treated by Columbia Care, followed by muscle spasms and chronic diseases, which account for 18% and 8%, respectively. 80% of company revenue is retail driven and Baby Boomers represent one of the fastest growing segments of their business.

Figure 47 Columbia Care Therapeutic Areas Treated



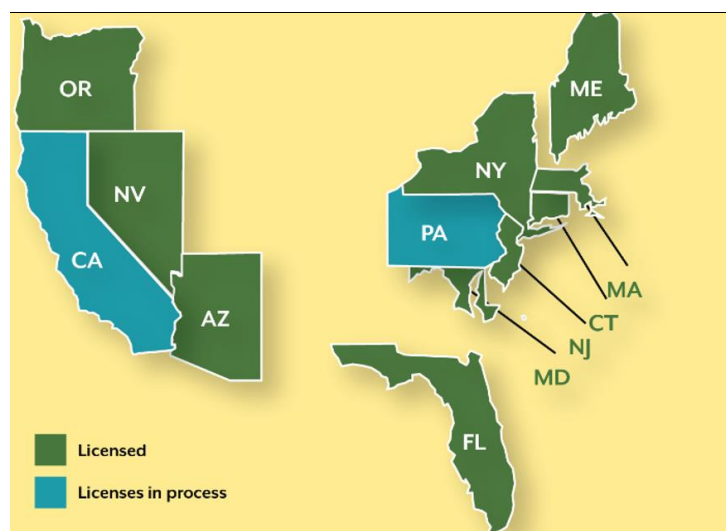
Source: Company Reports and Cowen and Company

According to CEO Nicholas Vita, 66% of doctors in NY State refer their patients to Columbia Care and their focus on quality and consistent products, coupled with pharmacists on the premises of most of their retail locations give them more credibility relative to competition. The company is nearly 100% vertically integrated given regulatory requirements, which is something that Vita does not believe will change, given that most states are strapped for cash and vertical integration allows the states to capitalize on maximum tax revenue. Interestingly, of all the operators we heard from, Vita indicated the most caution around an irrational move to rec legalization and the potential unintended consequences that may arise as a result.

Curaleaf – Joseph Lusardi, CEO

Curaleaf is a leading vertically integrated U.S. based cannabis operator, headquartered in Massachusetts, with 33 retail locations across 10 states with an overall footprint in 12 states. The company began trading publicly on the CSE in October.

Figure 48 Curaleaf Geographic Footprint



Source: Company Reports and Cowen and Company

Curaleaf has the largest retail dispensary footprint under a single, unified brand. In October, the company raised ~\$400 mm in a private placement where it will apply for new licenses and enter new markets through accretive acquisitions. Of the \$400 mm raised, the company has already committed \$83.5 mm to fund acquisitions in MD, MA, NV, and AZ, with another ~\$83 mm for minority buyouts in MA, FL and CT. CEO, Joseph Lusardi has indicated that the company is focused on being the largest retailer in the U.S. and currently has no interest in looking at international markets, given the early innings and market size opportunity in the U.S. By the end of 2018, Curaleaf is targeting at least 40 operational stores, with the goal to increase its footprint to at least 67 stores by the end of 2019.

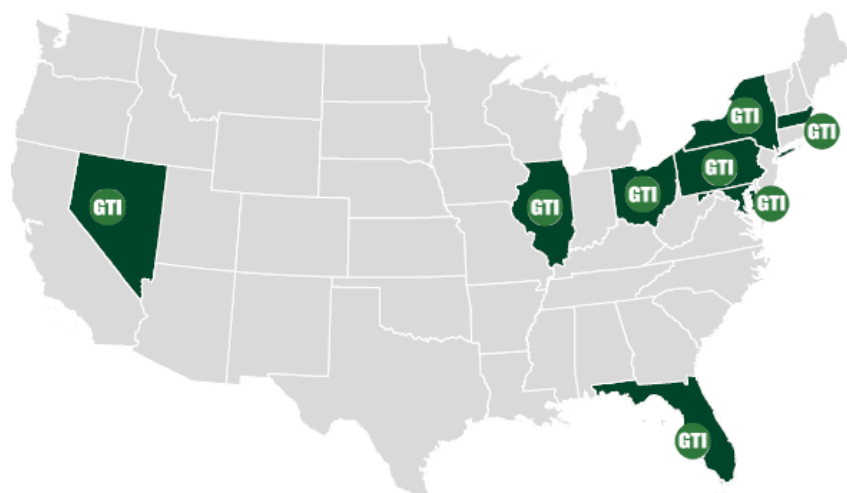
On the panel, Lusardi indicated that of all the states, he is currently most bullish on FL and MA, in particular given that it's the company's home state and adult use sales in the two dispensaries that opened up were very favorable. As a reminder, on November 20th, MA officially opened its adult use cannabis market with retail locations in Leicester and Northampton. Over the first 5 days, sales collectively totaled ~\$2.2 mm.

Like most of the panel, Lusardi was admittedly optimistic on the STATES Act, given favorable mid-term election results, where he feels that the Democrats will ultimately try to push the legislation through. In terms of new adult use markets on the cusp, he believes that New York and New Jersey will be the next states to legalize.

Green Thumb Industries – Ben Kovler, CEO

Green Thumb Industries (GTI) is a national cannabis cultivator, processor and operator, with a geographic footprint currently spanning 8 states. The company began trading publicly on the CSE in June 2018.

Figure 49 Green Thumb Industries Geographic Footprint



Source: Company Reports and Cowen and Company

With roughly 10x the population of Canada, CEO Ben Kovler sees the U.S. as the biggest market opportunity for future growth and has consistently spoken about the company's focus on brand building, which makes good sense to us, given his pedigree and family ties to the Jim Beam brand. Kovler believes that brands distributed at scale will dictate winners and losers across the U.S. market. To be sure, a long runway exists, given the nascent stage of the industry as none of the U.S. operators have achieved a 1% market share to date. As it currently stands, the company is focusing its efforts on scaling its portfolio of branded products, which includes Rythm, DogWalkers and The Feel Connection.

Subscribing to the belief that you can't build a brand without penetrating multiple retail channels, GTI's strategy focuses on selling their brands to non-owned retailers first, providing maximum distribution opportunities per state. This strategy of scaling looks to be working, particularly in their home market of IL, where their brands are available in all 55 retail locations across the state. Scaling their retail business is also a main focus of their efforts as GTI expects to more than double their RISE dispensary footprint over the next 12 months. Most recently, the company signed a definitive agreement to acquire 100% ownership interest in Las Vegas-based Integral Associates for ~\$290 mm. Most notably, as part of the acquisition, the company will get access to three dispensaries named Essence, allowing the GTI to penetrate the highly trafficked Las Vegas strip.

From a regulatory perspective, GTI is clearly bullish on the adult use legalization prospects in IL after the election of J.B. Pritzker (D) as Governor who supports adult use legalization but is also optimistic that states across the U.S. will begin to legalize public points of consumption, starting with Las Vegas.

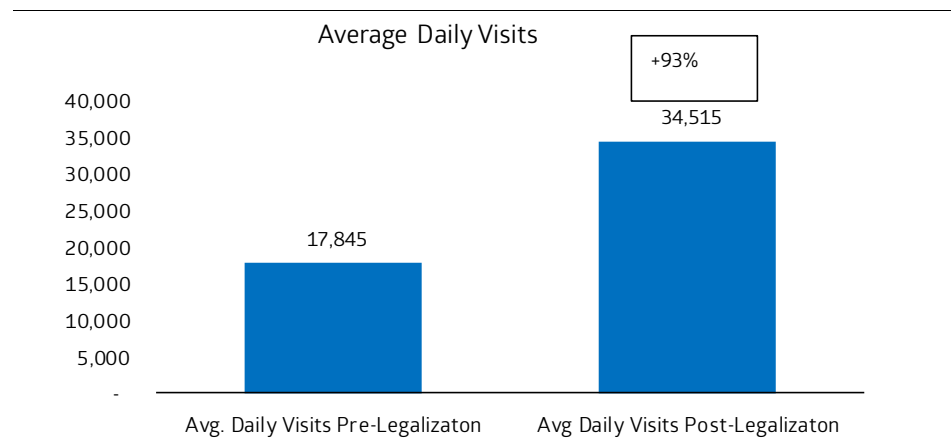


Privateer Holdings – Christian Groh, Partner

Privateer Holdings is a private equity firm that was founded in 2010 and is headquartered in Seattle, WA. Privateer is the largest shareholder in Tilray with an ownership of 83%.

The company also owns Leafly, the largest cannabis website in the world with over 13 mm monthly visitors and 40 mm page views across its website and mobile applications. Leafly allows Privateer to leverage consumer insights and changes in preference, which becomes more pronounced as new adult use markets come online. This informs their decisions on consumer brand building, which Partner, Christian Groh manages through the lens of adult use and medical segments.

Figure 50 Visits Increase as Rec Markets Come Online



Source: Company Reports and Cowen and Company

Note: Reflects U.S. data taken from Colorado, Nevada, Oregon, and Washington

In terms of regulatory outlook, Groh was one of the more bullish panelists on passage of the STATES Act, which makes sense as Privateer operates under three fundamental beliefs:

- 1) Cannabis is a mainstream product consumed by mainstream people
- 2) The end of cannabis prohibition is inevitable
- 3) Brands will determine the future of the cannabis industry

Regulatory (Seiberg – Washington Research Group)

Any portion of this report prepared by a member of Cowen Washington Research Group is intended as commentary on political, economic or market conditions and is not intended as a research report as defined by applicable regulation.

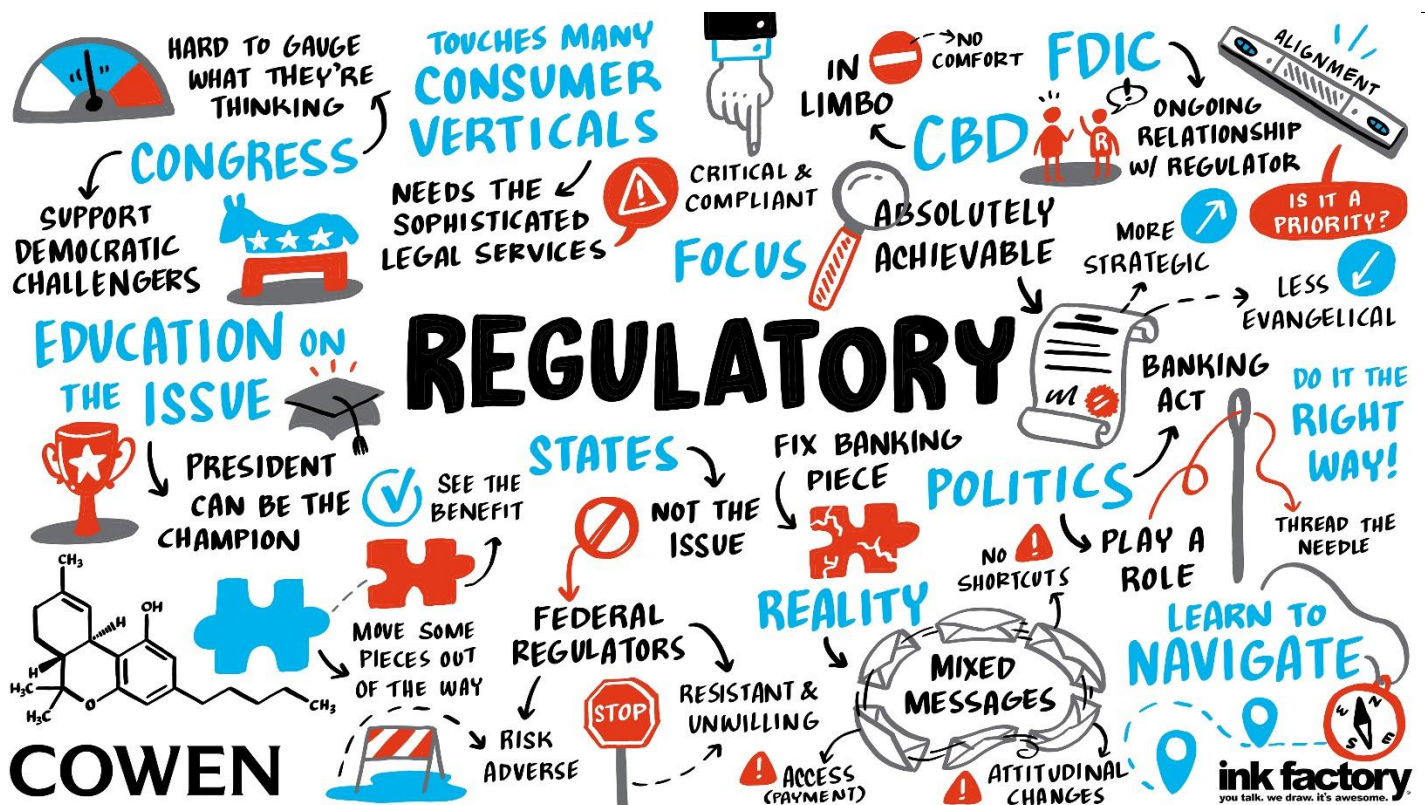
Who We Heard From:

- **Federal Advocates** – Michael Esposito, President
- **Hypur Inc** – John Vardaman, EVP & General Counsel
- **Jones Day** – Eric Berlin, Partner
- **Massachusetts Division of Banks** – David Cotney, Former Commissioner
- **National Cannabis Industry Association** – Michael Correia, Director of Government Relations

Key Takeaways:

- **STATES Act.** The panel was skeptical if Congress could enact the STATES Act before the next Presidential Election, likely because the Democrats will push for outright legalization, as opposed to incremental pro-cannabis legislation.
- **Cannabis Post-Election.** The post-election environment has been better for cannabis, as pressure from the Democrats and President Trump's desire to create jobs and stimulate economic growth may push legislation to pass.
- **Incremental Legislation.** The panelists generally agreed that more incremental legislation such as in banking, veteran healthcare, and even the Farm Bill, would be more likely to pass and should be the focus for Democrats.

Figure 51 Regulatory Panel



Source: The Ink Factory and Cowen and Company



The policy panel painted an overall positive view of how Washington would deal with cannabis, though the timeline for action may be more extended than what the cannabis industry is seeking. More specifically:

The post-election environment is better for cannabis because House GOP leaders never had an interest in moving cannabis legislation to the floor. This was not just about House Rules Committee Chairman Pete Sessions blocking cannabis bills. It was the overall view of House Speaker Paul Ryan and other GOP leaders that cannabis would split the party and force some Republicans to cast votes in which they lose politically no matter whether they support legislation or oppose it.

President Trump sees cannabis as a winning political issue even though his natural inclination was to oppose legalization because he does not even drink alcohol. What won the President over is the idea that the United States needs federal legalization in order to become dominant in this industry, which means more jobs and more economic growth.

On the banking front, the problem is that federal regulators are not willing to put their necks on the line and promise safety to banks that service the cannabis industry. Much could be done on banking cannabis companies if there was a will to act. For instance, FINCEN could provide better relief on the need to file Suspicious Activity Reports. And the federal banking agencies could publicly promise not to pursue enforcement actions against banks that service cannabis-related companies in states where it is legal. Watch FDIC Chairman Jelena McWilliams as she is the most likely to speak publicly about how banks could service cannabis without running into trouble with their regulator.

Attorney General Jeff Sessions was not nearly as negative for cannabis as the industry feared. Despite repealing the Cole Memorandum, Sessions did nothing to change how the Justice Department treated cannabis. As a result, the U.S. Attorneys continued to act as if the Cole Memorandum was still in effect. If Sessions really wanted to go to war against cannabis, there would have been federal raids around the country. That didn't happen. It is why the risk is that Trump ends up with an Attorney General that is more combative than Sessions. It is not that anyone saw this outcome as likely. It is more that predicting whom the President will name to senior posts is very unpredictable. So the risk of someone like Sen. Tom Cotton cannot be completely dismissed.

The panel overall was skeptical if Congress could enact the STATES Act or something similar before the presidential election. This is partly because the Democrats in the House may push for outright legalization, which is not something the GOP Senate would consider. It is also because there are still roadblocks to action in the Senate, including Senate Majority Leader Mitch McConnell and key members of his leadership team. The panel questioned if McConnell would want to devote the floor time needed to advance such legislation even if he was willing to personally support cannabis. In addition, Congress rarely acts quickly. This might be to delay action to collect even more campaign contributions. Or it could simply be because there are bigger priorities on Capitol Hill. In either case, the panel believed federal action is inevitable. So if it does not happen in the 116th Congress than it would occur in the 117th Congress.

A related issue is whether the President would support that STATES Act given the role that Sen. Elizabeth Warren played in crafting it and sponsoring it. There were some views expressed that the President is not going to want to hand a victory to Warren or anyone else that could challenge him in 2020.



If the STATES Act or full legalization is a bridge too far, then narrower bills will advance. There is a broad consensus to fix the veteran's healthcare problem, which would mean veterans could get medicinal access without negative consequences in states where it is legal. There was also a broad consensus that legislation to give cannabis companies access to the payment system could garner enough votes to pass either as a standalone bill or as an amendment to broader legislation. The basic view was that it is better to get something rather than dying on the beach because industry sought too much in the next Congress.

Another obstacle to legislation might be a desire by President Trump in the run up to the election to take unilateral action so he gets credit for even partial cannabis legalization. This would be a way to deprive Democrats of a legislative victory and a campaign issue. It is unclear exactly what he could do by executive order, though he could work with FINCEN, the bank regulators and the Justice Department to reset how the federal government views cannabis in states that have legalized it.

One area where the cannabis industry is not doing enough work is the planning for what happens after Congress passes the STATES Act or similar legislation. There are numerous other regulatory regimes that could trip up companies, especially those related to claims about the health benefits of specific products. For instance, federal and state unfair trade practices laws target inaccurate advertising. Consolidation within cannabis cannot occur even after federal legalization if the industry is not already in compliance with all the other laws that govern companies that sell products to consumers.

With legislation advancing, the industry also needs to think about the Food and Drug Administration, which could come into play especially if cannabis gets delisted from the Controlled Substances Act. The point is that federal agencies might have authority over different aspects of cannabis. They have not exerted that power because the federal government deems cannabis illegal. One should not assume these agencies remains hands off when that changes.

CBD (Vivien Azer)

Who We Heard From:

- **CV Sciences** – Joseph Dowling, CEO & CFO
- **Elixinol** – Paul Benhaim, Founder & CEO
- **Lord Jones** – Robert Rosenheck, Founder
- **Mary's Medicinals** – Lynn Honderd, CEO & Co-Founder
- **Tuatara Capital** – Al Foreman, Partner

Key Takeaways:

- **Broad Industry Opportunity.** Given the broad health and wellness applications of CBD and the different types of industries it can impact, the current ~\$500 mm estimate by various industry sources is grossly underestimated.
- **Cannabinoid Research.** While tetrahydrocannabinol (THC) and cannabidiol (CBD) are the most widely known, used and studied cannabinoids, there are over a hundred other cannabinoids that could provide medical or wellness benefits for individuals.
- **Regulatory Hurdles.** The passage of the 2018 Farm Bill won't open the floodgates for multinational companies to enter, and in fact would lead to stricter regulation of CBD.

Figure 52 CBD Panel



Source: The Ink Factory and Cowen and Company

CBD Overview

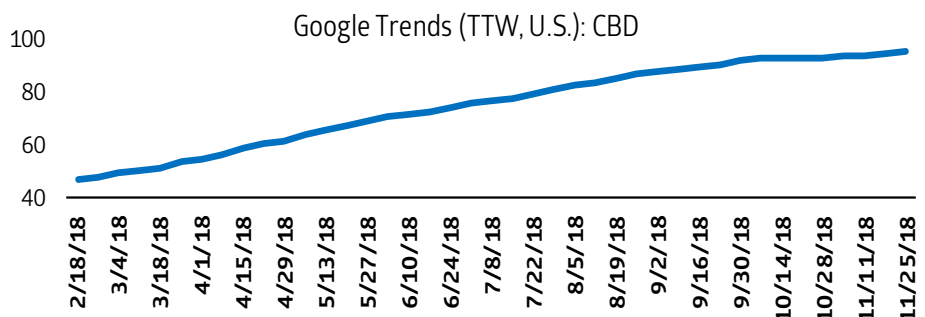
Hemp vs. Marijuana. Cannabis is a family of plants with two primary classifications: indica and sativa. Hemp and marijuana are both members of the cannabis sativa family. While hemp and marijuana share similarities, there are some distinct differences. Cannabis contains a variety of compounds called cannabinoids, however the two compounds most companies focus on are tetrahydrocannabinol (THC) and cannabidiol (CBD). THC is known for its psychoactive effects, while CBD is known for its health and wellness benefits. Hemp specifically contains very low levels of THC (0.3% or less), while marijuana can contain much higher concentrations of THC (higher than 20% sometimes). Due to this difference, marijuana is typically grown for recreational and medicinal purposes while hemp is primarily used for industrial purposes (such clothing, oils, lotions, seeds, and food).

Cannabinoid Use Cases. While most of the focus is on THC and CBD, more research is being done on a number of alternative cannabinoids such as CBG, CBC, CBN, CBE, and more. There are at least 100 different cannabinoids isolated from cannabis which all exhibit different effects. All of these different cannabinoids can play a different role in a number of market segments, including beauty and nutraceuticals, pharmaceuticals, and wellness. That said, CBD specifically is known for three main use cases:

- 1) **Inflammation.** CBD is often touted for its anti-inflammatory benefits, which supports the notion of CBD as an additive to sports recovery drinks.
- 2) **Anxiety.** While THC can be known to trigger or amplify feelings of anxiousness and paranoia in certain individuals, CBD has been used on a number of people suffering from PTSD, anxiety, panic disorder, obsessive-compulsive disorder, and more.
- 3) **Sleep.** CBD has been known to help individuals who suffer from insomnia and restlessness, due to its calming and relaxing effects.

2018 Farm Bill. While adult use cannabis likely represents the biggest opportunity from a consumer staples perspective, we view the most near-term catalyst for the category to be hemp-derived CBD legislation through the 2018 Farm Bill. Based on commentary from Senate Majority Leader Mitch McConnell (R-KY), hemp is expected to be a part of the 2018 Farm Bill. Given the growing interest in CBD, as evidenced by Google Search Trends.

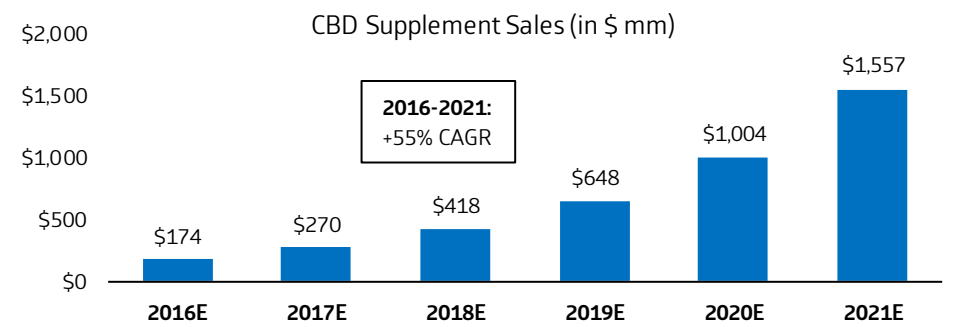
Figure 53 The 2018 Farm Bill Is The Most Near-Term Catalyst



Source: Google Trends and Cowen and Company

Market Opportunity. Though the Brightfield Group's estimate of the total CBD market is notably less than cannabis (at an estimated \$1.6 bn by 2021 vs. our estimate for cannabis at ~\$54 bn by 2021), the category could offer traditional CPG much-needed top-line growth, given the segment's estimated 55% CAGR over the next 5 years. Given the broad number of health and wellness applications for consumers and the accessibility of value-add form factors, CBD will likely be able to gain popularity with non-THC users.

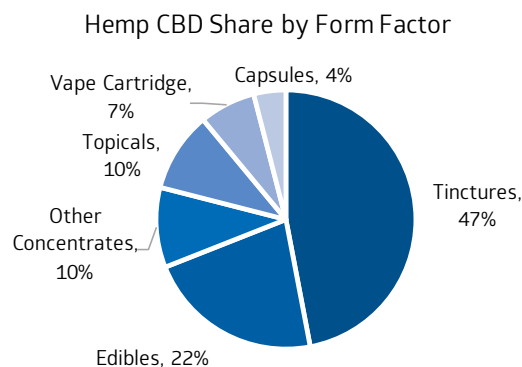
Figure 54 CBD Market Estimated To Grow To ~\$1.6 Bn By 2021



Source: Brightfield Group and Cowen and Company

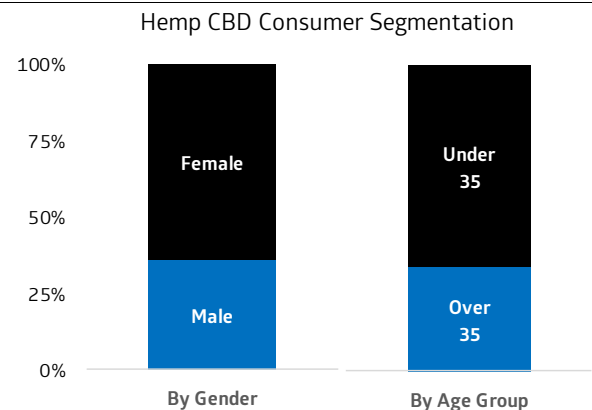
Not surprisingly, given CBD's health and wellness focus, the most common form factors are tinctures (47%) and edibles (22%) according to the Brightfield Group. While this is a stark contrast to cannabis (which skews higher towards combustibles and vaping), user demographics are also quite different, with young women representing a significant part of the product's user base.

Figure 55 CBD Form Factors are Predominantly Tinctures and Edibles



Source: Brightfield Group, Company Reports and Cowen and Company

Figure 56 CBD Skews to a Younger, Female Consumer



CV Sciences – Joseph Dowling, CEO & CFO

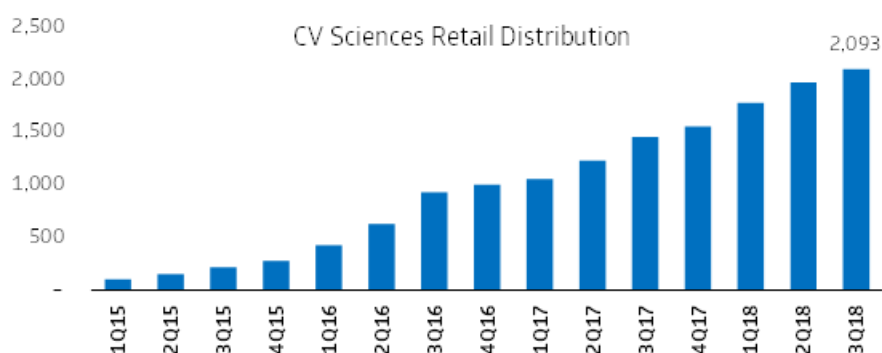
CV Sciences is a publicly-traded CBD-focused company headquartered in San Diego, CA, with two distinct operating divisions, consisting of consumer products and specialty pharmaceuticals.

The company's Consumer Products Division is focused on the development, manufacturing, marketing, and distribution of consumer products containing hemp-based CBD. The company's product line consists of capsules, oils, sprays, balms, beauty products, and gummies, distributed nationally to health food stores and healthcare providers. The CV Pharmaceuticals division is focused on developing synthetically-formulated cannabidiol-based medicine utilized to treat nicotine addiction.

While CEO Joseph Dowling believes that the language around the 2014 Farm Bill provides legitimization around CV's operations, ambiguity around the Bill has essentially caused many of the larger retailers to stay on the sidelines for the time being. This could be on the mend however, as the 2018 Farm Bill will provide much better clarity around hemp-derived CBD, which Dowling believes will result in a massive influx of larger players into the space. The puts and takes here are that CV Sciences will leverage its early-mover advantage and presumably be able to capitalize on new distribution opportunities to larger retailers, but competition should increase meaningfully, particularly from the larger traditional CPG companies, who are waiting to get into the CBD category.

CV Sciences is currently in over 2,000 retailers across the U.S. and holds the GRAS (Generally Recognized as Safe) designation, which Dowling believes will provide credibility with retailers looking to scale nationally. It is much easier for a CPG company to get distribution in Food, Drug and Mass and this is another area for Dowling believes CV Sciences holds an advantage.

Figure 57 CV Has Been Consistently Growing Distribution



Source: Company Reports and Cowen and Company

Elixinol – Paul Benhaim, Founder & CEO

Elixinol Global Limited manufactures and distributes organic hemp-based medicinal cannabis products in the U.S. and Australia. The company uses state-of-the-art manufacturing facilities to produce high quality CBD extracts and their CBD oil is tested in-house and by an independent third party. Elixinol operates three distinct segments within the industrial hemp and medicinal cannabis sectors:

Figure 58 Elixinol Global Segment Channels

USA	Australia	Australia
Dietary Supplements	Hemp Foods	Medicinal Cannabis
Cannabidiol "CBD" Non-psychoactive	No active "CBD" or "THC" Non-psychoactive	"CBD" Non-psychoactive & "THC" Psychoactive
Sales distribution network – 40 countries	Domestic sales – exports planned	Advanced planning stage
Industrial Hemp*/**		Marijuana*/**





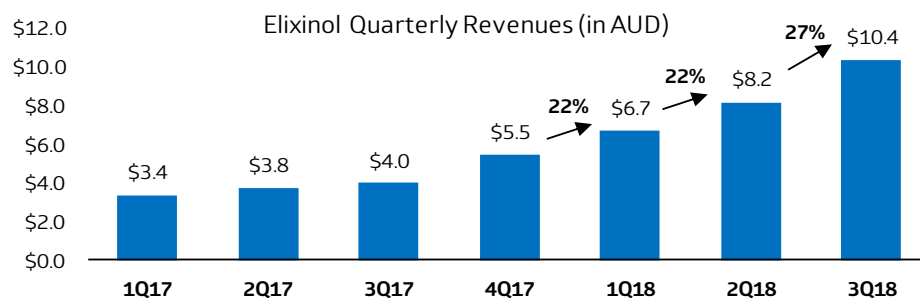
Note: * Cannabis has many species containing varying levels of THC and CBD include marijuana (high levels of THC) and hemp (low levels of THC).

** The plant Cannabis Sativa L. has many known compounds, of which a large number are classified as cannabinoids, the most common of which is cannabidiol (CBD)
Source: Company Reports

Elixinol USA sells whole plant dietary supplements based hemp-derived CBD oil, which contain 0.3% THC and is cultivated using specialized broad acre farming. While the company has been focused on U.S. lobbying efforts for the Hemp Farming Act of 2018, Benhaim believes changing U.S. legislation isn't the issue, but rather it's the interpretation of the law.

Outside of the U.S. the company recently increased their stake in Elixinol Japan to 50.5% in anticipation of the growing Japanese market. This is consistent with their recent \$40 mm raise, which will be used to accelerate international growth for the company. The company has also been consistently growing revenues, most recently posting 27% QoQ growth to \$10.4 mm in 3Q18.

Figure 59 Elixinol Has Sustained Revenue Growth



Note: AUD/USD = 0.73

Source: Company Reports and Cowen and Company

Lord Jones – Robert Rosenheck, Founder

Based in Los Angeles, CA, Lord Jones manufactures and distributes CBD-infused products including tinctures, body lotion and confections. The company's products have been featured in *Vogue*, *Forbes*, *Rolling Stone*, *Elle*, and more.

Figure 60 Lord Jones Is Known For Their High Quality Packaging & Ingredients



Source: Company Reports

Differentiation. Lord Jones has two business lines: 1) hemp-derived CBD and 2) THC. The company produces edibles, topicals and supplements which each account for one-third of the total business. They developed all formulations on the non-cannabis side, including nano-emulsion in the gel caps, which offers a different delivery pathway because it is water soluble CBD. The company aspires to offer accessible luxury products for consumers – they don't want to be a status symbol, but rather be known for their quality ingredients and packaging.

National Expansion. Most notably, Lord Jones is the first CBD company to have products sold through Sephora, which they have an exclusive agreement through the end of February 2019. Currently, Lord Jones products are sold online through Sephora, but will be available in stores beginning March 2019. Other than Sephora, Lord Jones products are currently in over 500 stores nationwide, mostly consisting of independent, high-end beauty boutiques. Additionally, the company has a partnership with the Standard Hotel, and they have plans to open a flagship dispensary in the Standard Hotel in Los Angeles.

Regulatory Hurdles. Rosenheck held a contrarian view on the 2018 Farm Bill relative to the other panelists. Today, anyone can sell CBD with impunity, however when the Farm Bill is passed, he believes the FDA will regulate by state and limit the claims companies can make about CBD. This will likely prohibit large cap and multinational companies from entering the space for 12-24 months until regulations are finalized. However, in case post-Farm Bill regulations are too strict, Lord Jones has contingency plans in place to reinvent themselves as a pharmaceutical CBD company which they will do by raising capital so they can start clinical trials.

Mary's Medicinals – Lynn Honderd, CEO & Co-Founder

Founded in 2013, Mary's Medicinals produces and sells cannabis based products in three main categories: 1) hemp-based products promoting health and wellness, 2) cannabis and other plant-based medicines, and 3) whole plant remedies for pets.

Figure 61 Mary's Medicinals Three Product Categories



Source: Company Reports

Background. With a background originally in finance, CEO Lynn Honderd saw an opportunity to enter into the cannabis space with a focus on servicing customers with a patient-first mentality. Mary's Medicinals was the first company to bring a transdermal patch to market. In November 2017, the company partnered with PAX Labs, and later in January 2018 they formed a strategic partnership with Rose Capital to begin fueling growth into new markets and products. Most recently however, the company completed their rebranding, including a new logo, tagline, mission and packaging in July 2018.

Changing the Mindset. Mary's Medicinals makes it a point to reach out and partner with health and wellness spas to show efficacy of the product and change the mindset of consumers. Most notably, Mary Medicinals are in the Ritz Carlton, which should serve to further broaden the brand's demographic. Lastly, the team remains focused on offering a variety of form factors to maintain accessibility for consumers.

Cannabinoid Research. Regardless of the 2018 Farm Bill outcome, Honderd remained committed to not only pursuing the CBD segment more broadly, but as well to continue research on the lesser known cannabinoids. Most notably, in February 2018 Mary's Medicinals and PAX released a 1:1 CBN:CBD blend distillate. While THC and CBD are the most widely known cannabinoids, many of the panelists recognized that these other cannabinoids should be extensively researched and admitted we are only just starting to begin understanding what other positive health benefits these compounds could have.

Tuatara Capital – AI Foreman, Partner

Tuatara Capital is an NYC-based sector-focused alternative investment manager, currently supporting experienced management teams in creating industry-leading brands and companies across: 1) research & testing, 2) cultivation, 3) processing, and 4) consumer & retail.

Portfolio. Tuatara looks to add brands to its portfolio that have defensible IP and a strong management team. The company is currently invested in 5 companies:

- Teewinot Life Sciences (2015) – Series A - \$7 mm
- Teewinot Life Sciences (2017) – Series B - \$12.3 mm
- Green Dot Labs (2017) – Series A - \$3.3 mm
- Willie's Reserve – Convertible Note - \$12 mm
- Enlighten (2018) – Series A - \$3 mm
- CanAscen Group (2018) - \$10 mm

Figure 62 Tuatara Capital Portfolio



Source: Company Reports

Industry Opportunity. Given the wide application of cannabinoids, Tuatara Capital takes a broader view on the industry outlook. In particular, the company estimates the global beauty and nutraceutical market size to be ~\$275 bn and global pharmaceuticals to be ~\$800 bn. While these numbers are notably ahead of the \$490 - \$520 mm range provided by MJ Biz or the \$418 mm 2018 estimate provided by the Brightfield Group, all of the panelists believed that the CBD opportunity is much bigger than THC. Indeed, any company on the panel with a THC business acknowledged CBD could outgrow THC in the future due to its number of use cases.



VALUATION METHODOLOGY AND RISKS

Valuation Methodology

Cannabis: Our valuation methodology is primarily based on Relative EV-to-Sales (EV-to-Sales divided by Sales-Growth), followed by EV-to-Sales.

Investment Risks

Cannabis: Cannabis is an emerging industry and is subject to regulatory headwinds. While over 50% of the population is in favor of legalization, only a few states have thus far legalized cannabis for recreational use and the product remains illegal at the federal level. Looking forward, much work and change still needs to occur in order for this industry to realize its full potential.

Risks Pertaining to U.S. Cannabis-Related Companies: If you are considering investing in a U.S. company that is connected to the cannabis industry, be aware that cannabis-related companies may be at risk of federal and/or state criminal prosecution. The Department of Treasury has issued guidance that The Controlled Substances Act ("CSA") makes it illegal under U.S. federal law to manufacture, distribute, or dispense cannabis and cannabis-related products. Many states impose and enforce similar prohibitions. Notwithstanding the federal ban, however, many U.S. states and the District of Columbia have legalized certain cannabis-related activities.

Risks Pertaining to Canadian Cannabis-Related Companies: In Canada, cannabis is an emerging industry and is subject to regulatory headwinds. While medical cannabis is legal in Canada, legislation has also been introduced to legalize adult-use sales on October 17, 2018. An initial regulatory framework has been laid out for the adult-use market, looking ahead, the category will be subject a number of potential headwinds, including taxes and restrictions on from factors and packaging.

ADDENDUM

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