An Exploratory Study of Companies in the Cannabis Supply Chain

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GOALS OF THE STUDY

• To understand the challenges and opportunities faced by growers, intermediate producers and retailers in the Cannabis industry.

• Method: Case studies
  - Oregon: 12 Interviews (Fall 2016-Winter 2017)
  - Content Analysis and Initial Findings
  - More planned for summer 2017: Colorado
STATE OF THE INDUSTRY: COLORADO (ADVANCED)

- $2.4 billion economic activity (2015)
- $1 billion retail sales (2015) about 1/3 in medical
- 18,000 new jobs (2015)
- $121 mil in taxes expected (2015)
- Expected 2020: 90% market regulated & licensed retailed; 10% home grown/unregulated
- Age: 21 to buy or sell
- Limit for possession: 1 ounce
- Licensed retailers
- Public use illegal; private property only
- Employers can drug test
- Re-sealable, child resistant, opaque packaging, with warning required
STATE OF THE INDUSTRY: OREGON (EMERGENT)

- $264.8 million legal sales – (2015)
- $481.7 million projected (2016)
- 762 recreational licenses approved
  - 9,041 worker permits approved - No quota for retail licenses (Jan 2017)
- New regulations for pesticides controversial: industry slow down, but looking to scale back
- Originally recreation not for sale at medical shops but now Medical & Rec merger
- 21 years of age; possession of 8 ounces in home and 1 ounce outside, 4 plants inside, Medical usage can be purchased at 18 years.
- Use only on private property; Driving under influence is illegal
- Licensed retailer sale, can share and gift product and edibles
- Packaging and labeling requires approval by Oregon Liquor Control Commission and Oregon Health Authority
- Frequent changes to labeling & testing requirements
CODING

• Content analysis to generate issues, strategies, etc.
• Generate higher order categories
• Inter-coder Reliability check between 2 researchers
• Current Oregon Data
  - 161 pages of transcripts (358 coded quotes)
  - 12 Broad Categories
SUPPLY CHAIN MEMBERS

Growers
- Med vs. Rec
- Indoor / Outdoor
- Certification – “Clean Green”
- Commodity / Specialty

Value-add Producers
- Oils
- Extracts
- Med Products
- Edibles
- Services and other

Retail
- Med vs. Rec
- Customer Focus
## Respondents

<table>
<thead>
<tr>
<th>Respondent</th>
<th>SCM Position</th>
<th>Vertical Integration</th>
</tr>
</thead>
<tbody>
<tr>
<td>CL-COO</td>
<td>Value-add: Extract &amp; Med products</td>
<td>Initially yes/ Now no</td>
</tr>
<tr>
<td>LA-CEO</td>
<td>Value-add: Edible</td>
<td>No</td>
</tr>
<tr>
<td>ST- President</td>
<td>Retail: Multi-unit stores</td>
<td>Yes (w/ grow)</td>
</tr>
<tr>
<td>DE- VP Sales</td>
<td>Grower: Recreation</td>
<td>Multiple contract-partners</td>
</tr>
<tr>
<td>BR-CEO</td>
<td>Retail: Multi-unit stores</td>
<td>Yes</td>
</tr>
<tr>
<td>SC-CEO</td>
<td>Value-add: Clinics-Medical products</td>
<td>Yes</td>
</tr>
<tr>
<td>TO-CEO</td>
<td>Value-add: Edible</td>
<td>No</td>
</tr>
<tr>
<td>BE-VP &amp; Policy</td>
<td>Value-add: Extract &amp; Flower</td>
<td>Yes, all levels</td>
</tr>
<tr>
<td>SK-CEO</td>
<td>Value-add: Topical</td>
<td>No</td>
</tr>
<tr>
<td>SA-CEO</td>
<td>Value-add: Edible &amp; Topical</td>
<td>No</td>
</tr>
<tr>
<td>MT- GM &amp; HR</td>
<td>Retail: Multi-unit stores</td>
<td>Yes</td>
</tr>
<tr>
<td>EM-GM</td>
<td>Retail: Multi-unit stores</td>
<td>Yes</td>
</tr>
</tbody>
</table>
GROWERS

Supply Chain and Operations Challenges
- Pursuit of scale versus connoisseur
- Presold contract versus market
- Efficiency of Inputs due to 280E tax schedule
- Traceability; Testing
- Organic/Clean Green Option

“It's going to be a race to the bottom. If we didn't have these contracts with our current people, we're fighting out there with everybody else, the price point of cannabis is going to decrease drastically on the wholesale market..

Having the large Bayers and big Pharma—those companies coming in and destroying the genetics and destroying the grow then taking it over. That is scary.”(DE)
VALUE-ADDED PRODUCERS

- “Middlemen”
  - Buying from growers; Selling to retailers
- Innovators:
  - Edibles, Balms, Salves, Tinctures, Oils, etc.
- Supply Chain and Operations Challenges...
  - Edibles face most government regulations
  - Coping with Medical vs. Rec route
  - Traceability & Testing
    - Frequent changes to labeling and testing requirements → Enormous costs
RETAILERS

- Product Availability
- Taxation from 280E
- Saturation
- Different Customer Models
  - Loyalty
  - Segment
  - Training/Education
EMERGENT MODELS

Commodity Model
- Cheap product
- Low skilled labor “stoner culture”
- Vertical integration for cheap product

“I treat it as a commodity. A lot of people treat it as growing individual bottles of wine. I’m more for high-volume, low-cost. I think that’s going to be sustainable. I want to be a Budweiser size, not a craft brewer size.” (SC)

Craft Model
- Curated product and offerings
- Budtenders: Skilled labor and training efforts
- Customer Loyalty & Education focus
- Vertical Integration for controlled product (Clean-Green)

“Our mission is to help people reframe their relationship with cannabis.” (EM)
DESCRIBING THE COMPETITIVE ENVIRONMENT

• “Turbulent; it's a very precise word. It's not just change, it's unpredictable change.” (TO)

• “One thing a lot of people don't understand about cannabis is that one week in cannabis is like a month out in the real world. Things move very very fast.” (BZ)
In dynamic business environments, dynamic capabilities (DC) are the capacity of an organization to purposefully create, extend or modify its resource base to reach a higher economic value than competitors (Teece & Pisano, 1994, Helfat et al. 2007).

- An extension of the resource-based view
DYNAMIC CAPABILITIES...

• Define a firm’s path of evolution and development.

• Organizational capabilities of...
  - Knowledge acquisition
  - Assimilation
  - Transformation
  - Exploitation

  ▪ These capabilities speak to the firm’s ability to build other organizational capabilities, e.g., developing, producing, marketing ...
DYNAMIC CAPABILITIES RELEVANT TO SUPPLY CHAIN MANAGEMENT

• SC Reconceptualization
  - New partners (not necessarily part of the SC) are integrated, such as experts/NGOs that provide special knowledge and contacts

• SC partner development
  - Develop partners to fulfill respective roles in SC

• Reflexive supply chain control
  - Check and evaluate practices and strategy against environment to maintain functionality

• Co-evolving
  - Adoption of capabilities through collaborations for overall performance

• Knowledge Management
  - Acquisition of new knowledge and assessment of current knowledge of partners.
TYPICAL RESOURCE BASED VIEW

- “They don't have the means to navigate themselves through all the challenges. So most people will give up.” (BZ)

- “I will say that I was lucky enough that I have a big enough cushion of funding to outlast that, because other people—let's say you only had $10,000 just to do everything—you just can't do it.” (TO)
DYNAMIC CAPABILITIES (KNOWLEDGE)

• “But what we do differently, we really analyze the chemical compounds of the chemotypes of each variety that come through.

• Then we've developed our own classification system to help people at least place more in the realm of the facts.

• We disregarded the indica/sativa binary. We are known for our knowledge-base and for just generally wanting to provide the most scientifically up to date research knowledge that we can.” (EM)
DYNAMIC CAPABILITIES (KNOWLEDGE)

• “What happens is what I call the stoner mentality kicks in; they lose hope in knowing that they may not have the resources to go out and find someone to bring capital in or a designer to design a box or someone to build them a marketing plan. That is what happens in the marketplace today. Then you get someone like myself, who has a better package, a better product, better marketing, better advertising campaign.” (BZ)
DYNAMIC CAPABILITIES (SC RECONCEPTUALIZATION)

• “People making the products are not properly emulsifying the base product. I am working with a chemist that has studied the emulsification problem in the industry. This emulsification issue has killed a bunch of products…

• This chemist is going to offer an emulsification service under a wholesaler. People can take product there, have it emulsified, and then get a recorded result. The service could guarantee the results.” (CL)
“Partnering up with other large grow organizations that have the same thought process as we do. Banding together in a potential co-op scenario. We're just now starting to talk with other companies out of the country, who would like to invest here with their products and their growing practices.” (DE)
DYNAMIC CAPABILITIES
(CO-EVOLVING)

• “I bring a lot to the retail store—a lot more than your typical company. I feel it's because one of my best friends owns a dispensary. I see behind the scenes. I see what these people get on a regular basis.” (SK)

• “So, when we started negotiating these contracts, they were with people who really share our values and they're in the same spot that we are. …They don't want to be at the mercy of the market, if the market crashes. So, we just kind of all came together and we said if we paid you this, we know our business can survive like we can put out our product at its current price if we're paying you this price.” (SA)
CONCLUSIONS

• Respondents are creating dynamic capabilities to survive (particularly if cash constrained).

• Future Research:
  - Longitudinal study of participants to see changes over time.
  - Comparison to Colorado, further along
  - Impact of Federal Legislation threats
QUESTIONS?