Strategies for Improving Supply Chain in the Craft Brewing Industry

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Abstract

It is no secret that Americans love beer, especially when it is made of natural ingredients and produced locally. This theory is supported by the craft beer boom that is currently taking place throughout the United States. The craft beer market made approximately $19.6 billion dollars in sales in 2014, which represented a growth of 22% from the previous year. On average, there are two breweries being opened per day and a record total of 3,418 craft breweries in the US as of 2014. Defining craft beer is a difficult task because everyone seems to have their own take on its meaning, and that meaning appears to change as each year goes by. The Brewers Association categorizes craft brewers as small, independent, and traditional. The issue with that definition is that many craft breweries, which were once small, are now experiencing substantial growth, yet still considering themselves in the craft category. While the owners of these new breweries are courageous and creative individuals, often their business acumen could use improvement. Opening a brewery is a complicated experience that usually results in the owners being more preoccupied with creating interesting beers and designing artistic labels, rather than focusing on the operations side of the company. However, a few simple solutions to a brewers' supply chain could make their companies much more efficient.

Keywords: craft brewing, supply chain, strategies for improving supply chain, beer industry

Introduction

It is no secret that Americans love beer, especially when it is made of natural ingredients and produced locally. This theory is supported by the craft beer boom that is currently taking place throughout the United States. The craft beer market made approximately $19.6 billion dollars in sales in 2014, which represented a growth of 22% from the previous year (Goldschmidt, 2015). On average, there are two breweries being opened per day and there was a record total of 3,418 craft breweries in the United States as of 2014 (Littman, 2015). Defining craft beer is a difficult task because everyone seems to have their own take on its meaning, and that meaning appears to change as each year goes by. The Brewers Association categorizes craft brewers as small, independent, and traditional (Calagione, 2011, Littman, 2015).

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Supply Chain for Craft Beers

To better understand a brewers' supply chain, it is essential to know the four main ingredients involved in making beer and how those ingredients are purchased. While the science and processes of brewing can be very complex, the ingredients used remain simple. The four main ingredients generally involved in beer are water, grains, hops and yeast. Water is the most important ingredient in beer, as it makes up approximately 95% of a beer's content (Littman, 2015). It is very difficult to make quality beer with water that needs extensive filtering before brewing, which has led many brewers to locate their companies near fresh water sources. Also, some states on the west coast are in a drought, which is leading to increases in water prices, resulting in lowered margins for brewers. Even two of the largest craft breweries in the United States, Sierra Nevada and Lagunitas, have opened additional locations in Chicago and North Carolina to be located near better water sources than in California. Both companies also pointed toward lowering transportation costs as reasoning for making the move. Additionally, the drought is leading to many west coast brewers being asked to cut back on their water consumption, making the brewing process much more difficult. The Sierra Nevada Brewery in Chico has been one of the leaders in sustainability throughout the craft beer landscape and has made conscious efforts to limit their impact on the environment. One way they did this was by cutting their water usage by 25 percent; however, officials from the city of Chico recently told them that they now needed to drop their water usage by 32 percent (Watson, 2015). This is an issue for Sierra Nevada because any additional cuts would limit their production. Many of these breweries are being proactive and have invested in ways to make their wastewater reusable. About five gallons of water are required to produce one gallon of beer, making it important for breweries to reuse as much water as possible.

The next ingredient, hops, gives beer its character and has become extremely valued by consumers and brewers in the past two decades. The rise of west coast beer styles, such as pale ale and India Pale Ale (IPA), has led to a rise in the importance of hops, and this demand from customers has resulted in breweries trying to become more creative to utilize hops in their beers. This is accomplished by either increasing the amount of a particular hop in a beer or by combining a variety of hops to create a tasty, yet bitter beer. The average cost for a pound of hops is $4 to $6, while specialty hops can cost upwards of $20 a pound. The rise of hops has been exciting not only for brewers, but also for hop farmers throughout the United States (Wales, 2014). While only a small variety of hops used to be produced, farmers are now experimenting with many new hops through collaborations with brewers. Most commercial hops production in the United States is in Washington, Oregon, and Idaho. Approximately 70 percent of North American commercial hops production takes place in Washington, 15 percent in Oregon, 10 percent in Idaho, and only 2.7 percent in all other states (Turner, 2011). The Willamette Valley in Oregon and Yakima Valley in Washington are two iconic hops-growing regions in the United States. Since the production is all located in one area of the country, it's important for brewers to communicate their wants and expectations with the farmers to avoid receiving shipments of hops that are not up to par.

Grain, also known as malt, is the third ingredient involved in the brewing of beer and can come in many different varieties. These separate varieties are the reason that there are so many unique beers being made across the United States. For example, lighter grains can be used for pale ales and pilsners, while darker grains are for stouts and porters. Like hops, brewers can purchase multiple types of grains from farmers at locations throughout the United States and Canada. Typically, grain is purchased in large bags called totes or shipped in grain trailers and stored in silos. The latter method is more cost efficient because neither party has to pay for packaging and unpacking, resulting in a lower cost per pound of grain. While hops farmers make their product specifically for beer, grain farmers sell their product to a variety of customers, making it a competitive market for buyers. While many breweries receive grain shipments in truckloads, some have the commodity delivered by rail. Although this is not often the case, some breweries are located next to railroad tracks, allowing them to have their grain shipped in bulk in railcars, which is cheaper than by truck.

One disadvantage for craft brewers is that they use far more normal and specialty grains for their beers than do macro breweries. Macro breweries include beer companies such as Miller, Coors, and Budweiser, and their large size allows them to demand lower prices from malt suppliers. They also mix corn and rice into their beers, which is cheaper than all grain. Medium-sized craft brewers usually pay 40 to 50 cents per pound for malt, while macro breweries pay around 20 to 25 cents per pound (Wales, 2014).

The final and most unique ingredient needed to make beer is yeast. Yeast is a living creature, metabolizing, reproducing, and living off the ingredients in the beer. Yeast is responsible for converting the sugar from grains into alcohol and carbon dioxide. Sanitation is important for brewers because yeast is very sensitive, and they only want cultivated strains to be present in beer. When other yeast contaminates the beer, it can result in over carbonation, strange flavors, and mold. The two main yeasts used for beer are top fermenting and bottom fermenting, and they are used for different types of beers. Top fermenting yeasts are used for ales and stouts, and the brewing process is much shorter (one week to one month). Bottom fermenting yeasts are used for lager and pilsner beers, and the process can usually last for months. Brewer's yeast is the easiest ingredient to buy because it's available in many outlets and it's usually purchased in large bags and shipped on pallets. Some breweries cultivate their own yeast to avoid purchasing it from another company.

Distribution System for Craft Beers

Now that the brewing process in understood, it is important to recognize how the finished product is distributed to customers. Beer distribution in the United States is done by using a three-tier system, including brewers, distributers and retailers. While the three-tier system has its strengths and weaknesses, it is essential to first understand why it was created. In the early 20th century, brewers were able to sell their product directly to brewpubs throughout the United States. However, most of sales were often to local bars due to the difficulty of transporting beer. Issues arose during this time because many bar owners were making illegal agreements to only sell specific brewer's beer in their pubs. This, along with other issues, led to the era known as prohibition. The 18th Amendment was enacted on January 17, 1920, and it declared that the production and sale of alcohol were illegal (Elliott, 2015). Prohibition came to an end on December 5, 1933, when the 21st Amendment was passed, which repealed the 18th Amendment (Elliott, 2015). This gave states the authority to regulate the production, importation, distribution, sale, and consumption of alcoholic beverages within their borders. It was believed that allowing regulation by states rather than by the federal government would be more efficient because there was less ground to cover. States could enact laws that they felt were fair based on the alcohol issues going on in their regions, providing it was constitutional. The federal government created a three-tier distribution system because they believed that adding the layer of distribution would cause less corruption between suppliers and retailers. While the three-tier system is still in place today, it is not without its critics. Many brewers feel that it is inefficient and adds many unneeded steps to the process of delivering beer to consumers. Also, it creates higher retail prices paid by customers because distributors demand high margins from brewers, causing the overall cost of the product to rise.

Improving Supply Chains

Our first recommendation is for brewers to self-distribute in states where it is allowed. According to the Brewers Association, 33 states allow brewers to self-distribute their beer and three states allow it in a limited capacity (Littman, 2015). In the remaining states, breweries must sign with a distributor before their beers can be sold in the marketplace. In states in which it is legal to self-distribute, many larger breweries still choose to use a distributor because they have the financial means to do so, and it allows them to have their beer offered in more stores. However, small craft brewers do not have the financial benefits of the largest breweries and they must consider reducing their costs to grow as a company. Self-distribution also allows them to meet first hand with the storeowners, ensure that their beer is being presented correctly, and ensure that they are meeting the expectations of the storeowners. This will lead to stronger long-term relationships that can benefit both sides.

Next, we believe that breweries should strive to maintain stronger relationships with the farmers they receive their grain and hops from. One way this can be accomplished is by forming contracts with the farmers to benefit both parties. Farming is a very risky business because it is so dependent on weather conditions each year. Brooklyn Brewery's General Manager Eric Ottaway explained this risk by stating, "Malt and hops are subject to global forces that have nothing to do with craft beer, or even the general beer industry.

The last five years with all the erratic weather we've had around the world have been rough" (Godard, 2016). This issue of uncertain weather conditions, in addition to increased demand by other brewers for their products, has led hops and malt farmers to raise their prices and become much more selective. Ottaway explains the current situation by saying, "If you don't have contracts for your malt and hops, chances are you won't be able to get them nearly as easily" (Godard, 2016). Another benefit of maintaining strong relationships with farmers through contracts is that it can allow both sides to experiment with their crops to provide the finished product that certain breweries desire.

Our final recommendation is for breweries to switch from using glass bottles to aluminum cans. Cans offer many more benefits than bottles and that make the transition an easy decision. The only thing holding back some breweries from switching is that they prefer bottles because of their presentation. However, brewers could still offer a portion of their beers in bottles for the customers that prefer them, while producing canned beer as well. The first benefit to canning is that it is more convenient for customers. Many craft beer customers enjoy being active in the outdoors, but are unable to take bottles to certain locations, and they are more difficult for packing also. Cans are allowed at many more beaches and parks because they will not shatter like a bottle will. This will allow companies to appeal to a larger number of customers, who might have purchased a competitor's beer in the past, simply because they were canned. Next, not only are cans more convenient for customers to transport, but they also make shipping easier for companies. This is because they are lighter and more compact, resulting in more shipping space for additional beers, therefore reducing freight costs. Additionally, cans have lower shrinkage costs because they do not shatter as easily as bottles. Finally, cans are a better option because they do not allow light or air to enter inside them like bottles do. Both of those issues are two of the biggest concerns brewers have when transporting the beer to customers.

Conclusion

The craft beer industry has had exciting past two decades, and the future looks even brighter. Breweries are sprouting up around America at a record pace, as consumers are valuing quality beer more and more. While all this news is exciting, brewers must remember to maintain a strong supply chain to allow their businesses to remain strong over time. This can be done by self-distributing when necessary, creating relationships with farmers, and implementing cans over glass bottles. Although there are even more ways brewers can eventually improve their supply chains, these three are easy to implement and can have a positive impact on all parties.

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