



BUSINESS PLAN OF A BREWERY

Pittsburgh, Pennsylvania





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Resume

The main goal of the business plan is to open a new brewery in Pittsburgh. The production capacity of the equipment amounts to 20,000 liters per year.

The United States is ranked 25th in the world in terms of alcohol consumption. On average, in 2019, one resident of the country consumes about 75 liters of beer per year. Most U.S. residents enjoy the beer produced by Molson Coors Brewing Company and Anheuser-Busch InBev. First of all, this is due to the fact that these manufacturers actively advertise their products during sport events. These producers also export millions of barrels of beer worldwide. However, craft beer, not a factory one, becomes increasingly popular every year. Experts agree that as the number of beer connoisseurs grows, the craft beer market will continue to expand in the future.

Main Benefits of a Brewery Business Plan

Great demand for a so-called “live” high-quality beer. Such beer has a richer flavor. In terms of health considerations, it brings more benefits to the organism than the pasteurized beer. Demand for “live” beer is constantly growing, conquering an increasing share of the alcohol market.

Relatively low initial investments. Even a beginning entrepreneur, who has not yet made his fortune, can try himself as a brewer launching a production at home. The most cost-effective and promising option is a brewery with a production volume of 500 liters per day.

It is possible to change production volumes quickly. Frequently, mini breweries increase their productivity after getting familiar with the production

technology, researching the market and finding wholesale or retail customers. This requires a small amount of second-round investments. Once they are attracted, the production volume increases very quickly.

The brewery will open in Pennsylvania in 2020. It is necessary to complete a set of tasks to launch a factory with a capacity of 20,000 liters of beer per year.

Major Tasks for Implementing the Business Idea of Brewery in Pennsylvania

Warehouse rental. It is planned to locate production facilities in the city of Parker, however, a warehouse in Pittsburgh is necessary to organize storage and sales. At the initial stage of activity, a warehouse of a smaller area is going to be rented. Warehouse space will increase along with growth of production volumes. Parker is 62 miles away from Pittsburgh.

Purchase of equipment. To organize brewing, one needs to purchase equipment. A Chinese-made brewery equipment is planned to be installed and launched within six months from the date of purchase.

Creation of product. The brewery is going to produce beer of three brands that will be offered to the market both in bottles and barrels. It must be a product that everyone would like. On the one hand, it should have a special taste, but on the other hand, it should not be very different from traditional drinks. It is planned to expand the assortment over time.

Personnel. A leader who finances the development of the business is the head of the company. In order to manage the brewery in a proper way, it is necessary to hire 11 people. In particular, it is necessary to find a specialist familiar with brewing technologies as well as brewers and their assistants. A sales department, drivers and an accountant are also needed.

Organization of sales. The primary task is to reach out to regular customers and sign a contract for a regular supply. After using the equipment at full

capacity, it is possible to launch the production of the bottled beer and expand sales in Pennsylvania.

Obtaining a solid market position and expansion of activity. This step envisages renting a larger warehouse in Pennsylvania to optimize logistics operations as well as entering a broader market.

Chapter 1. Production Facilities of Brewery

Production equipment with a capacity of 20,000 liters of beer per month will be purchased. This capacity is enough for the enterprise for several years ahead. At the initial stage, it is planned to produce three brands of beer. After producing the first batch of beer, the company will receive a hygiene certificate and acquire a license to sell its products.

Marketing Policy

To promote its products, the brewery is going to maintain personal friendly relations with the managers of restaurants, clubs and other leisure establishments located in the city. The company will deliver beer by its own transport owned by the head of the enterprise.

Product Description

There is no single definition of craft beer. The Brewers Association defines craft beer as a low-alcohol drink produced by the individual entrepreneurs and small businesses. There are no definitions regarding the production technology or characteristics of beer, therefore, in general, any product produced in a microbrewery can be considered a craft beer.

The project deals with the production of three types of beer:

IPA – a light low-alcohol pasteurized beer;

Pilsner – a light low-alcohol pasteurized beer;

Stout – a dark pasteurized strong beer.

Features of IPA beer

The abbreviation IPA (India Pale Ale) has become synonymous with American craft beer. This fruit and hop beverage is known for its pronounced bitterness, high percentage of alcohol and heady hop aroma. Influenced by IPA, almost all traditional sorts of beer, from seasonal and Scottish ales to pilsners and porters, were produced using hop.

India Pale Ale owes its origin to English domination in India. An ale with a high concentration of hop not only withstood long maritime voyages, but also acquired a mature taste during that time. The concentration of hop in IPA was two times higher, so, following the traditions, a large quantity of hops of Kent Fuggles and Goldings sort is used to produce it allowing create a full and fresh taste. A voluminous malty beer with a deep taste and hoppy bitterness perfectly complements Indian cuisine as well as English cheeses and tastes well with pickled steak.

Aroma: Intense hops aroma is obtained from American hop (citrus hop characteristics are almost always present). Beer is dry-hopped and may have an additional herbal aroma. On the background, a slightly pure malt sweetness is felt. Light hop fruitiness can also be found in some versions, although neutral fermentation characteristics are typical for it.

Description: The color of the beer is of medium golden shades. It is transparent, although unfiltered dry-hopped versions may be slightly hazy. It is characterized by a good foam resistance.

Taste: The taste of hop is strong and complex. Hop bitterness is high, although the malt base emphasizes strong hop characteristics and provides the best balance. The malt taste varies from low to medium. There is no diacetyl and a weak fruitiness is felt. Long-lasting remaining bitterness is usually available in the aftertaste, but it is not harsh. The ending is dry.

Mouthfeel: Smooth, fullness varies from medium to full. There is no hop astringency, although carbonation (moderate to medium-high) creates an overall

dry sensation along with the presence of malt sweetness. The beverage has a mild alcohol warmth.

General impression: This is an intense and very strong pale ale without much malt and/or deeper malt flavors of American barleywine. Heavily hopped, but pure, without harshness, this is a true tribute to original IPA.

Ingredients: Pale Ale malt (well-dissolved and suitable for single-temperature mashing); a complex of hop varieties (English, American and noble ones); American yeast creating a clean or slightly fruity profile. Usually pure grain, but mashed at lower temperatures to achieve a high degree of fermentation. Characteristics of water vary from mild to moderately sulfate.

Table 1. Parameters of IPA beer

Parameters	Value
IBUs	76
SRM	12
OG	1.085
FG	1.020
ABV	7.5 %

Beer analogues in the market: Dogfish Head 90-minute IPA, Rogue I2 PA, Stone Ruination IPA, Three Floyd's Dreadnaught, Russian River Pliny the Elder, Moylan's Moylander Double IPA.

Features of Pilsner beer

The beer of Pilsner type, i.e. Pilsener, Pilsner or just Pils, is a kind of lager. Nowadays, Pilsner is one of the most popular kinds of beer. Many people confuse or even combine Czech and German Pilsner into a single beer. In fact, both are independent, separate styles. German Pils has Bavarian features, i.e. it is lighter, slightly poorer in color, bitter, stronger, drier and more carbonized than a Czech Pils. In terms of character, the German version of this style is closer to the Munich

Helles. Pilsner advertisements often use a candle, the brewer's tried and tested tool. A candle represents a source of light through which brewers looked at the glass to check the transparency of beer.

Aroma: Hop bouquet with spicy floral tones.

Appearance: A color of this beer has deep golden shades. It is transparent, although unfiltered; dry-hopped versions may be slightly hazy. It is also characterized by a creamy foam and good foam resistance.

Taste: The beer is rich with malt notes with hints of bread and honey, combined with floral or spicy hop components. Bitterness is not sharp. The aftertaste is the balance of hop and malt, though dominated by malt.

Mouthfeel: Smooth, fullness varies from medium to full. There is no hop astringency, although moderate carbonation creates a general dry sensation along with malt sweetness. A mild bitterness as well as soft alcohol warmth is felt.

Table 2. Parameters of Pilsner beer

Parameters	Value
IBUs	36
SRM	3
OG	1.048
FG	1.013
ABV	4.4 %

Beer analogues in the market: Victory Prima Pils, Bitburger, Warsteiner, Trumer Pils, Old Dominion Tupper's Hop Pocket Pils, König Pilsener, Jever Pils, Left Hand Polestar Pilsner, Holsten Pils, Spaten Pils, Brooklyn Pilsner.

Features of Stout beer

Stout is a dark ale sort of beer produced using roasted malt made of barley grain and adding some caramel malt. It was originally brewed in Ireland as a kind of porter. Stout is very popular in the UK and Ireland. Stout differs from the porter

by a darker color, which is due to a more strongly roasted malt, as well as a more pronounced burnt taste and aftertaste of cold coffee. In terms of the strength, English and Irish stouts are lighter than porters.

Our beer is a very dark, sweet, full-bodied, slightly roasted ale, in which there may be notes of coffee with cream or sweet espresso.

Aroma: Medium roasted grain flavor, sometimes with coffee touch. There is an impression of creamy sweetness and light fruitiness. Diacetyl level is low or absent. Hop aroma is weak with earthy touch.

Appearance: Almost black matted shades.

Taste: Sensations of dark fried malt and chocolate flavors dominate. Hop bitterness is moderate. Sweetness is medium that balances the fried taste as well as hop bitterness and remains until the very end. Fruit ethers are moderate. Diacetyl is absent. The balance between malt and sweet is moderate.

Mouthfeel: Full creamy taste with moderate carbonation.

Comparison of styles: Much sweeter and less bitter than other stouts (except for stronger tropical stouts). The fried character is soft, but not burnt, like in other stouts. In terms of balance, it is somewhat similar to oat stouts, although with a higher sweetness.

Table 3. Features of Stout beer

Parameters	Value
IBUs	32
SRM	35
OG	1.024
FG	1.045
ABV	6 %

Packaging. About 33% of produced beer will be bottled, while the rest will be kept in barrels for supplying to the restaurants and clubs.

To manufacture the bottles, a contract will be signed with domestic factories that produce glass containers. When purchasing large volumes, the price of one beer bottle of a unique shape (with logo) is 1\$ per unit.

A unique design is developed for each beer. Each type of product is marked with self-adhesive labels for both a bottle of beer and a barrel. Barrels are purchased by the company based on double demand, since taking away empty containers from the points of sale, it is necessary to provide full ones immediately. The cost of replacing barrels and bottling equipment is covered by the brewery.

Legislative Regulation and Licensing of Brewing in Pennsylvania

Several years ago, breweries in Pennsylvania enjoyed a variety of opportunities having purchased a GP-license which allowed to open a brew pub on their production sites. However, new brewery licences were adopted that changed the situation.

Act 166 went into effect on January 14, 2017.

The law provides breweries operating under a G-license with a right to sell Pennsylvania limited wines, Pennsylvania limited distillery products and Pennsylvania beer brewed by other manufacturers.

Before the adoption of Act 166, only pubs with a GP-license sold Pennsylvania limited distillery products and limited wines.

Furthermore, Act 39, passed in August 2017, demands the licensees to pay extra \$700 for the renewal of their brewery license in Pennsylvania.

Let's examine in more detail all the cons and pros of obtaining G-license and GP-license.

If a brewery owns a G-license only, it is obliged to have ten seats and provide snacks for beer. This enables them to sell beer for on-premises consumption.

Expo and farmer's market permits

It is possible to purchase expo permits allowing to sell beer at festivals. The bottles/glasses or package shouldn't exceed 192 ounces. Expo permit costs \$30 per day, however, it can't be used for more than 30 days at a row and 100 days per year. Farmer's market permit is another permit that can be obtained to sell beer at a farmer's market. The price is \$250 per year but it can be used at many farmers' markets at the same time. The volume is limited to 192 ounces as in case with expo permits. Finally, the breweries are allowed to self-distribute beer to other licensees.

Nevertheless, a G-license allows breweries to have their tasting rooms open until midnight only. Another shortcoming is that G-license forbids a brewery to obtain an off-premises permit.

Unlike G-license, GP-license allows brew pubs to stay open until 2 a.m. At the same time, PA licensed breweries can obtain off-premises catering permits. It allows to serve beer and limited wines for on-premises consumption.

The negatives of GP-license are as follows. First and foremost, the brewery should have enough seats and food to serve thirty people. Extra license requires additional fees for renewal and the surcharge fee is \$700. Also, self-distribution is forbidden which means the breweries with GP-license have to sell their products to wholesalers.

Obviously, brewery law in Pennsylvania has plenty of positive and negative aspects when it comes to adding a GP-license to the existing G-license. So only a careful consideration of even the smallest details can result in a positive outcome.

Taxation of breweries in Pennsylvania

Since beer is an alcoholic beverage, it is subject to excise taxes in Pennsylvania. Excise tax is commonly applied on a per unit basis, i.e. gallon. The tax is paid by the vendor selling beer. However, in fact, excise tax is passed on to the customer who has to pay a higher price.

Pennsylvania state laws demand beer merchants to pay the excise tax of \$0.08 per gallon. Apart from this rate, a federal excise tax should also be paid.

Federal beer excise taxes are included into the price of all beer sold in the state of Pennsylvania. Federal excise tax is paid by the brewer and collected by the Alcohol and Tobacco Tax and Trade Bureau. Small breweries can count on certain tax discounts.

The rate of the Federal excise tax on beer amounts to \$0.05 per 12-oz can or \$18.00 per 31-gallon barrel.

This summer an active discussion arised regarding the intentions of Pennsylvania Department of Revenue to impose a 6% sales tax on breweries that sell their beer from a taproom. Many brewers were afraid that increased prices on beer would result in losing their clients or laying the workers off. For local communities, brewing industry is a very important business based on old traditions. Besides, it provides thousands of jobs. So the negative effects of imposing a sales tax would be far-reaching.

Initially, a tax bulletin prepared by the Pennsylvania Department of Revenue demanded brewers pay a 6% sales tax for each dollar of beer that was sold to customers in brew pubs, taprooms and tasting rooms. The law was planned to go into effect on July 1, 2019.

The Brewers of Pennsylvania cooperated with the office of governor Tom Wolf on this matter. The aim was to find a mutually acceptable solution to allow Pennsylvania brewers pay fair rates of sales tax.

As a result a bill was created that would impose a sales tax on breweries but the whole process would not be as rapid and painful as the one offered by the Pennsylvania Department of Revenue.

Theodore J. Zeller, general counsel for the Brewers of Pennsylvania, in his interview to The Morning Call told that “This legislation will allow breweries in Pennsylvania to continue to build their businesses and try to make Pennsylvania the best beer state in the U.S., if it isn’t already”.

Peculiarities of Alcohol Laws in Pennsylvania

The state of Pennsylvania has tough laws regarding alcohol consumption. This traces its roots back to 1933 when the Pennsylvania Liquor Control Board was established aimed at making drinking alcohol as expensive and inconvenient as possible. Nowadays, there is a state monopoly on the sale of gin, whiskey, rum, vodka, tequila, etc. in Pennsylvania.

Let's review the main categories of restrictions on alcohol consumption that concern both residents and visitors of Pennsylvania.

In Pennsylvania, a person of 18 or older has the right to tend bar and serve in places selling hard drinks for on-site consumption. When it comes to selling alcohol off-premises, the same age rule applies. A person of 17 years of age can sell alcohol in off-premises venues or tend bar under one of two conditions. Such person should either graduate high school or have a document certifying the person has reached his academic potential.

It is illegal to use a false ID to purchase drinks containing alcohol. It's forbidden for people under 21 to drive a car with the blood alcohol concentration exceeding 0,02%.

People under 21 are not allowed to buy alcohol. Pennsylvania alcohol laws are so strict that they even forbid such people to drink communion wine. If a person under 21 is a Designated Driver, it may still be convicted of drinking, especially driving from the party. It happens just because policemen sometimes don't want to spend time testing all the participants of the party.

Pennsylvania alcohol laws impose heavy penalties for driving under the influence, though the final decision largely depends on circumstances and the judge. A driver also has the right not to pass a BAC test. But the state interprets such refusal as a direct evidence of guilt and punishes by a license revocation for one year.

Government monopoly stores in Pennsylvania sell wine and spirits (beer is excluded) from 9 a.m. to 10 p.m., Monday to Saturday. A special category of beverage distributors is allowed to sell beer in cases and kegs. But even having

obtained a license, they are not allowed to sell before 11 a.m. Retailers like bars and restaurants sell wine and beer in quantities that does not exceed 192 fluid ounces of beer per single purchase. Also, they sell four bottles of wine per purchase. Bars and restaurants close at 2 a.m., while the private clubs sell alcohol until 3 a.m. As for grocery stores, they may sell wine, if a special license is purchased.

Chapter 2. Beer Market Overview

The importance of the brewing industry for the US economy can hardly be overestimated. According to the findings of beer market analysis conducted in 2018, the breweries produced \$79.1 billion worth of products. The industry provides 550,000 jobs, of which 150,000 people work in breweries and pubs serving beer.

The major quantity of beer is produced in California. Pennsylvania goes second with the total output of beer worth \$6.3 billion per year (tabl.1).

Table 4. Top five US beer manufacturers

Rank	State	Output
1	California	\$8.2 billion
2	Pennsylvania	\$6.3 billion
3	Texas	\$5.3 billion
4	New York	\$4.1 billion
5	Florida	\$3.6 billion

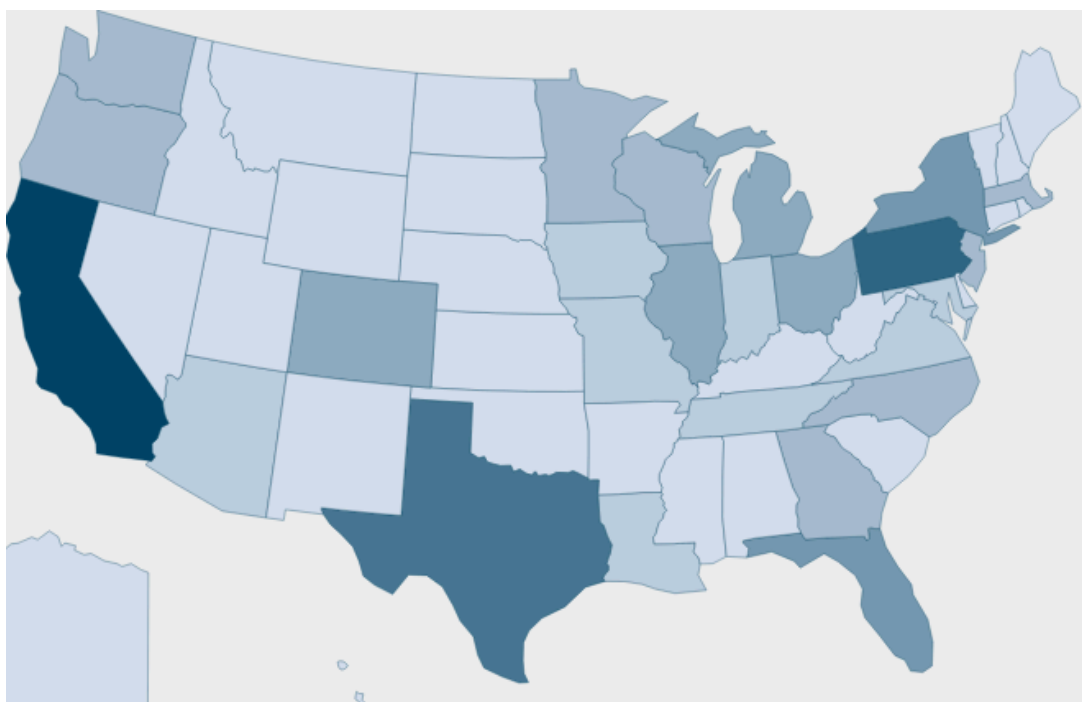


Chart 1. The importance of brewing industry for the US economy

Business plan is prepared for a brewery in Pennsylvania, since this state is one of the most promising in terms of selling beer. The state hosts Pittsburgh Beerfest

every year, which is frequently organized in summer. During this period, beer sales reach the highest values.

Consumption of beer in the USA

Beer is the favorite beverage of the Americans. The share of beer accounts for 41% in aggregate alcohol consumption in the USA. Moreover, the dynamics of beer consumption changes in different years. Over the past ten years, the smallest quantity of beer was consumed in 2013, which is only 36% of the total volume of alcohol. On the contrary, the largest quantity of beer was consumed in 2018, i.e. 42% of all alcoholic beverages.

**Table 5. Consumption of alcoholic drinks by the US citizens
in 2001-2019**

Year	Beer	Wine	Spirits
2001	46%	31%	18%
2002	44%	30%	22%
2003	42%	33%	22%
2004	39%	33%	24%
2005	39%	36%	21%
2006	41%	33%	23%
2007	40%	34%	22%
2008	42%	31%	23%
2009	40%	34%	21%
2010	41%	32%	21%
2011	36%	35%	23%
2012	39%	35%	22%
2013	36%	35%	23%
2014	41%	31%	23%
2015	42%	34%	21%
2016	43%	32%	20%
2017	40%	30%	26%
2018	42%	34%	28%
2019*	41%	33%	26%

Analysis of the beer market size allows to make a conclusion that the Americans drank 24,148 mln liters of beer in 2019. Compared to 2018, beer consumption has decreased over the past year. The same trend, i.e. reducing of beer consumption is anticipated in 2020.

Table 6 . Beer consumption in the USA in 2010-2020, million liters

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019*	2020*
Beer, at home	18574	18510	18499	18512	18632	18698	18729	18651	18560	18440	18351
Beer, out of home	6046	5942	5882	5838	5792	5734	5686	5650	5663	5708	5784
Total	24620	24452	24381	24350	24424	24432	24415	24301	24223	24148	24135

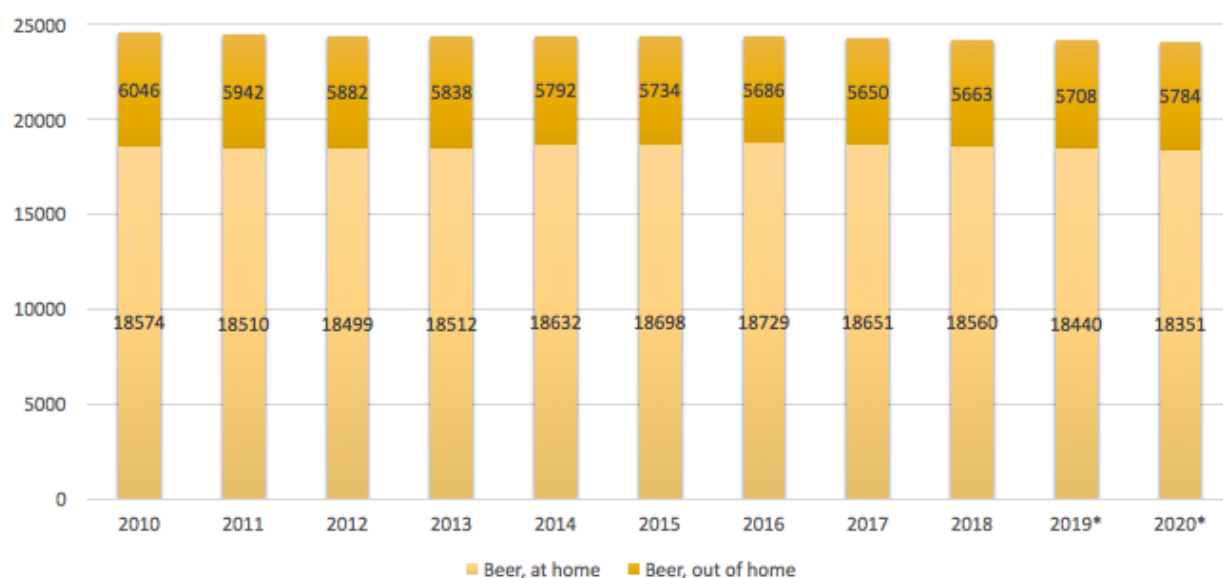


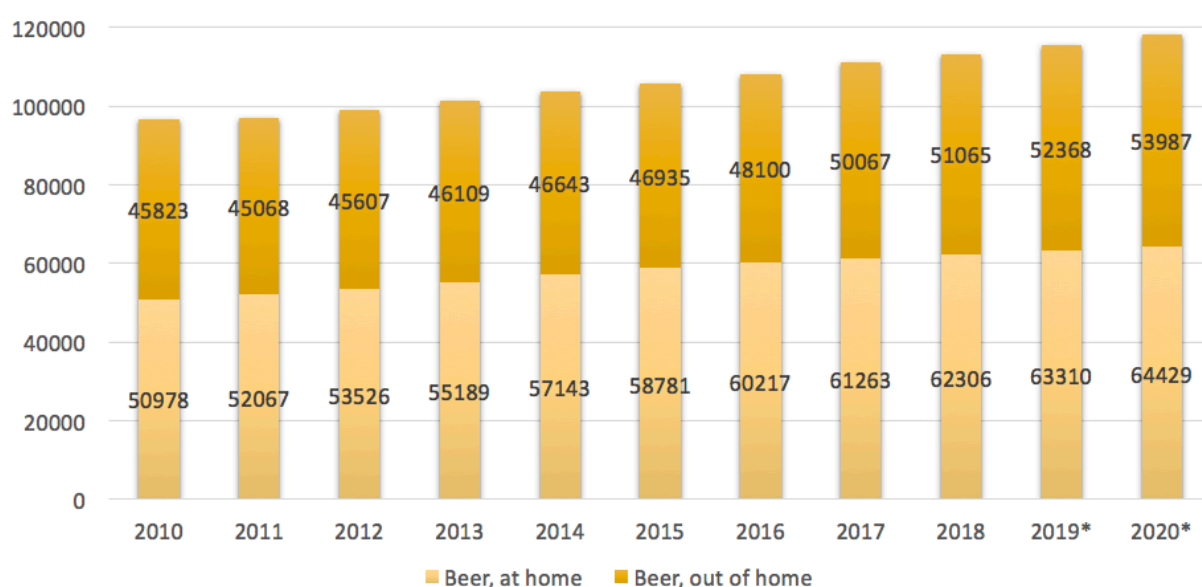
Chart 2. Beer consumption in the USA in 2010-2020, million liters

Much more beer is consumed at home than in bars and restaurants. In 2019, about 76% of beer is going to be consumed at home. At the same time, the statistics regarding the cost of consumed beer is completely different. About 54% of the budget is spent on beer for home consumption, while 46% of the budget is spent on drinking beer in bars.

Table 7. Sales of beer in the USA in 2010-2020, million USD

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019*	2020*
Beer, at home	50978	52067	53526	55189	57143	58781	60217	61263	62306	63310	64429
Beer, out of home	45823	45068	45607	46109	46643	46935	48100	50067	51065	52368	53987
Total	96801	97135	99133	101298	103786	105716	108317	111330	113371	115678	118416

The average price of beer in a store is \$3.43 per 1 liter in 2019. The price of beer in bars is about \$9.17 per 1 liter this same year.

**Chart 3. Sales of beer in the USA in 2010-2020, million USD**

Beer prices are constantly growing.

Table 8. Average beer prices in the USA in 2010-2020, USD

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Beer, at home	2,74	2,81	2,89	2,98	3,07	3,14	3,22	3,28	3,36	3,43	3,51
Beer, out of home	7,58	7,58	7,75	7,90	8,05	8,19	8,46	8,86	9,02	9,17	9,33

An interesting fact is that beer is consumed in equal amounts by both men and women. At the same time, an ordinary canned or bottled beer, which can be bought at the supermarket, is consumed most of all. The market share of the imported beer is 18%. According to the Statica website and 2019 beer market report

provided by the Brewers Association, 24,148 million liters of beer were consumed in 2019, of which 3146.8 million liters is craft beer, 4346.64 million liters is imported beer and 16,654.5 million liters is other kinds of beer.

Structure of the US beer market

Table 9. Structure of the US beer market in 2019, mln liters

Beer	Value, mln liters
Craft beer	3146,82
Imported beer	4346,64
Other domestic beer	16654,54
Total	24148

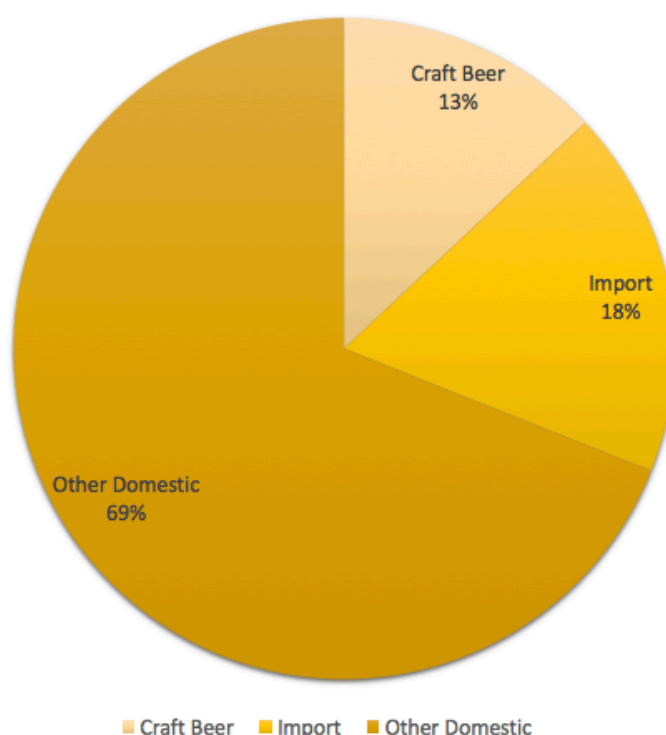


Chart 4. Structure of the US beer market in 2019

Analyzing beer production in the United States in 2019, it's obvious that 8,343 breweries are engaged in beer production, including 102 large breweries and 8,241 craft breweries. Microbreweries dominate the market, but there is also a lot of pubs

and bars that brew beer on their own. There are also regional representatives of craft beer. In 2019, the number of craft breweries grew by 12%, the planned growth in the number of breweries is about 10% in 2020.

Table 10. The number of breweries in the United States in 2014-2020

	2014	2015	2016	2017	2018	2019*	2020*
Craft	3814	4628	5539	6490	7346	8241	9133
Regional Craft Breweries	135	178	186	202	230	250,4	271,8
Microbreweries	2076	2626	3251	3933	4522	5141,3	5761,2
Brewpubs	1603	1824	2102	2355	2594	2849,5	3100,8
Large/Non-Craft	46	44	67	106	104	102	100
Total U.S. Breweries	3860	4672	5606	6596	7450	8343	9233

Brewery market reports predict that craft breweries will produce about 3,146.8 million liters of beer in 2019. Regional representatives account for the major part of the output. They are about to produce 2122.5 million liters of beer in 2019. Beer production of regional representatives has not considerably changed. Microbreweries, on the contrary, increased their production by 15.4%, which resulted in a positive output dynamics.

Table 11. Production of beer by craft breweries in 2014-2020, mln. liters

	2014	2015	2016	2017	2018	2019*	2020*
Regional	2053,0	2224,7	2109,9	2095,7	2120,4	2122,5	2123,0
MicroBreweries	369,9	461,7	569,2	644,5	683,2	788,6	869,5
Brewpubs	136,6	138,6	153,3	169,3	191,7	200,2	214,3
Contact	30,1	24,6	28,6	30,2	36,7	35,6	37,5
Total U.S. Breweries	2589,6	2849,6	2860,9	2939,7	3032,0	3146,8	3244,3

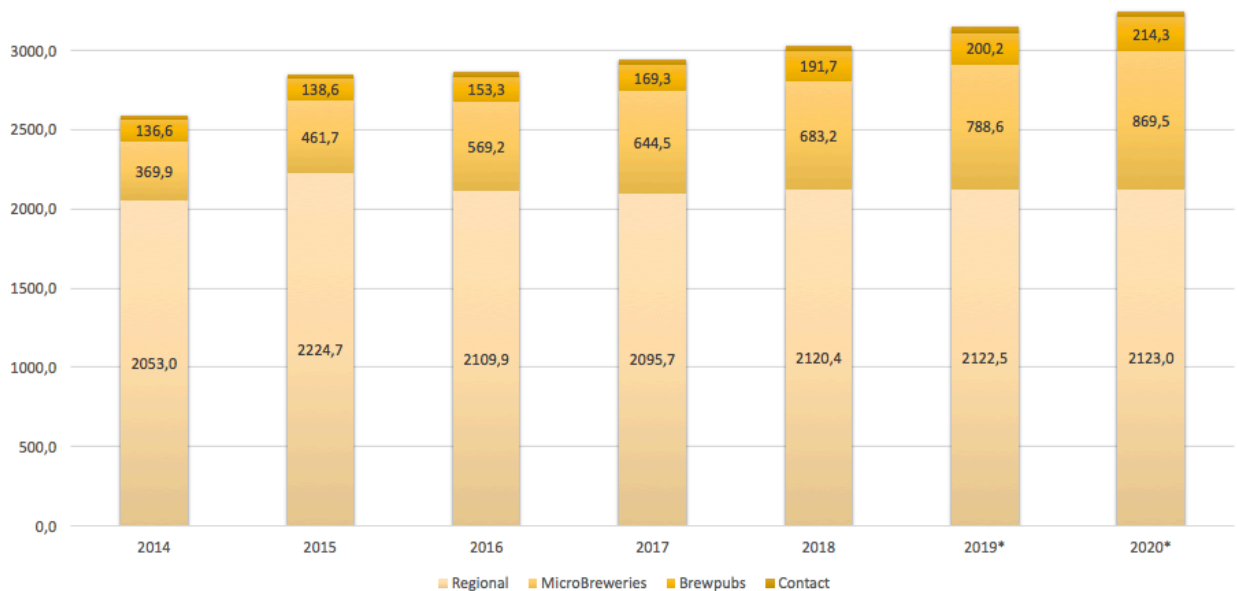


Chart 5. Production of beer by craft breweries in 2014-2020

Beer market research reports estimate the planned production volume of craft beer at 3244.3 million liters in 2020, while annual production growth is planned at 3%.

Analysis of Pennsylvania craft beer market in 2019-2020

In 2018, Pennsylvania was among top ten states with the largest number of craft breweries.

It should be noted that the number of craft breweries grew by 72 in 2017-2018. In 2015, the number of craft breweries reached its maximum. In fact, about 118 breweries were opened during that single year. Demand for craft beer is constantly growing. Though people ceased consuming more beer, they still make a choice in favor of craft beer. It is predicted that 39 new institutions will open in 2019 and there will be about 450 breweries by 2020.

Despite the fact Pennsylvania ranks 6th by the number of breweries, it produces the largest quantity of beer compared to the other states. The breweries manufactured 31,790 million liters of craft beer in 2018.

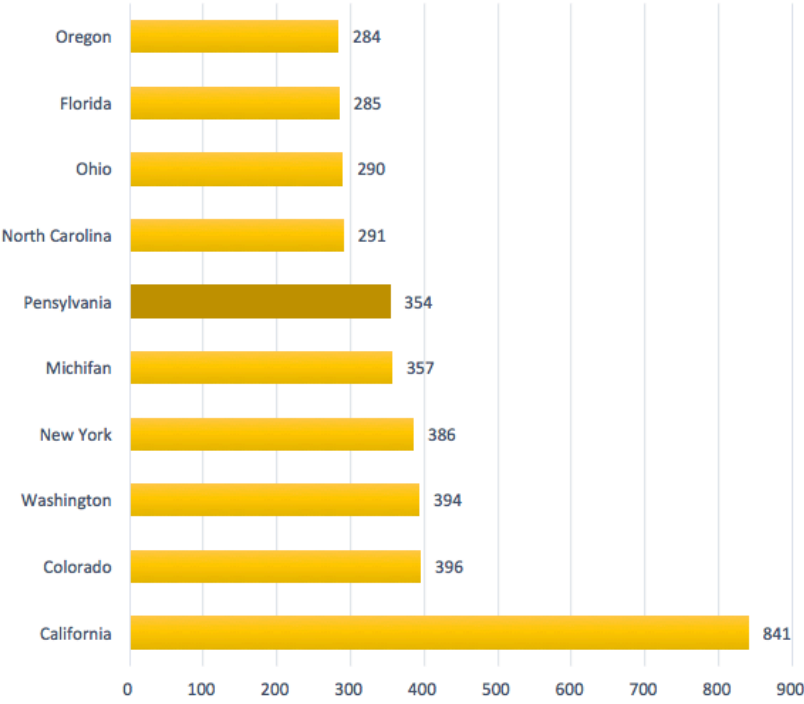


Chart 6. Top 10 states by the number of craft breweries

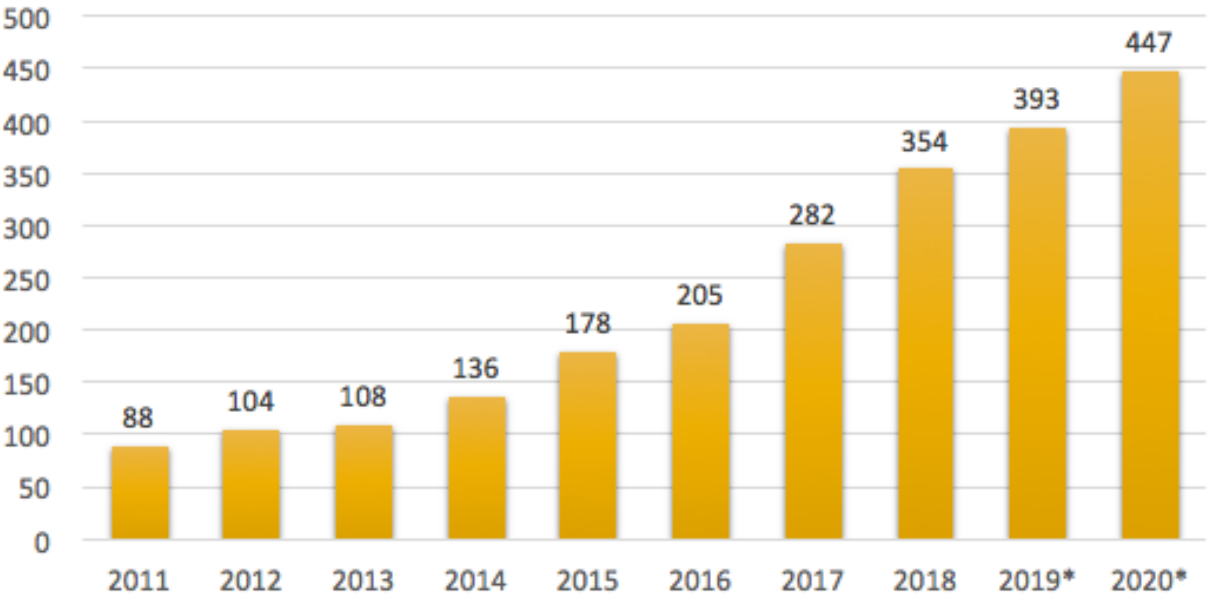


Chart 7. Number of Craft Breweries opening per Year in Pennsylvania

A slight decrease in Pennsylvania beer production is predicted for 2019 with a projected output amounting to 31,763 million liters. In 2020, the projected beer output will be 32,515 million liters.

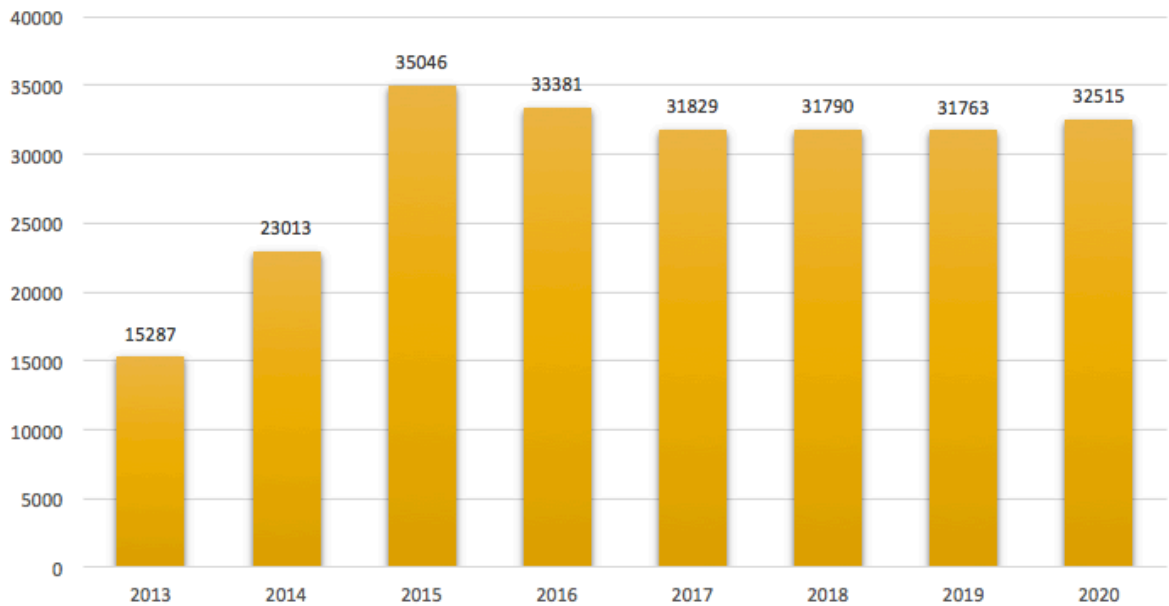


Chart 8. Volume of craft beer produced by Pennsylvania breweries

Trending Up and Down

In 2018 – 2019, the trends of Pennsylvania craft beer market are as follows.

Trending Up:

The number of breweries in Pennsylvania is growing rapidly, with at least 40 new companies offering their own unique beer annually. The number of breweries in 2020 will increase by 93 compared to 2018.

Trending Down:

Despite the increase in the number of breweries, the amount of beer consumption doesn't grow, since the state population does not grow at the same rapid pace. In addition, considering the increase in the number of new breweries, the aggregate output will decrease. For instance, in 2019-2020, manufacturers will decrease their production volumes at 10% annually.

It can be concluded that although the beer industry is one of the most developed, the newly established company will operate in a highly competitive

environment. It should also take into account the total consumption of products and the necessity to compete in terms of taste, service and price.

Craft brewery in Pittsburgh: competitive analysis

Pittsburgh is one of the cities in Pennsylvania that produces the largest quantities of craft beer. As of 2019, there are 33 private craft breweries in Pittsburgh. They are located mainly in the central part of the city, but some breweries also serve clients in remote city areas.

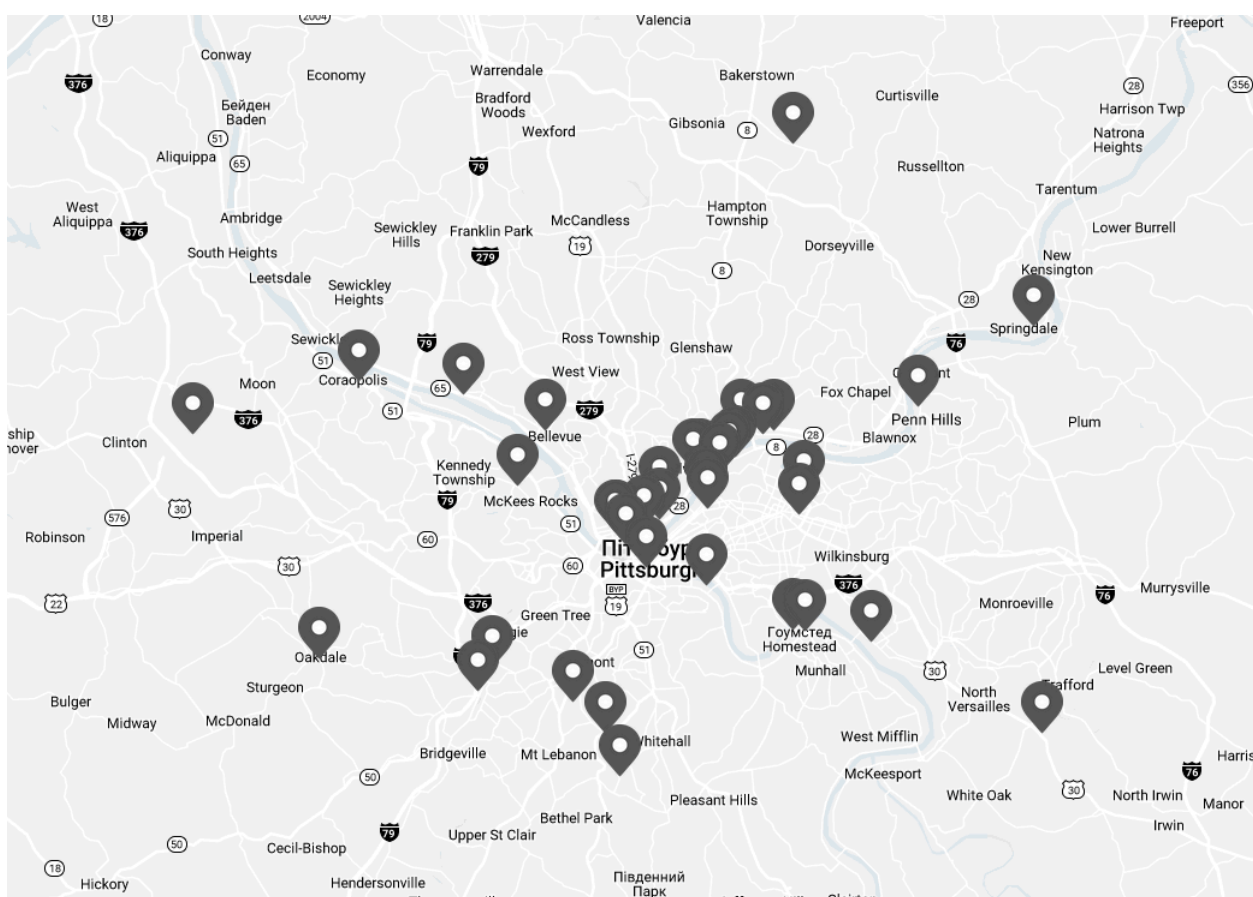


Chart 9. Locations of breweries in Pittsburgh

Most breweries have their own pubs and bars that sell their own beer. However, apart from local beer, many brands well-known all over the United States are sold in the city too. The most popular craft beer is Blue Moon beer. Its sales reached \$338.16 million in 2018.

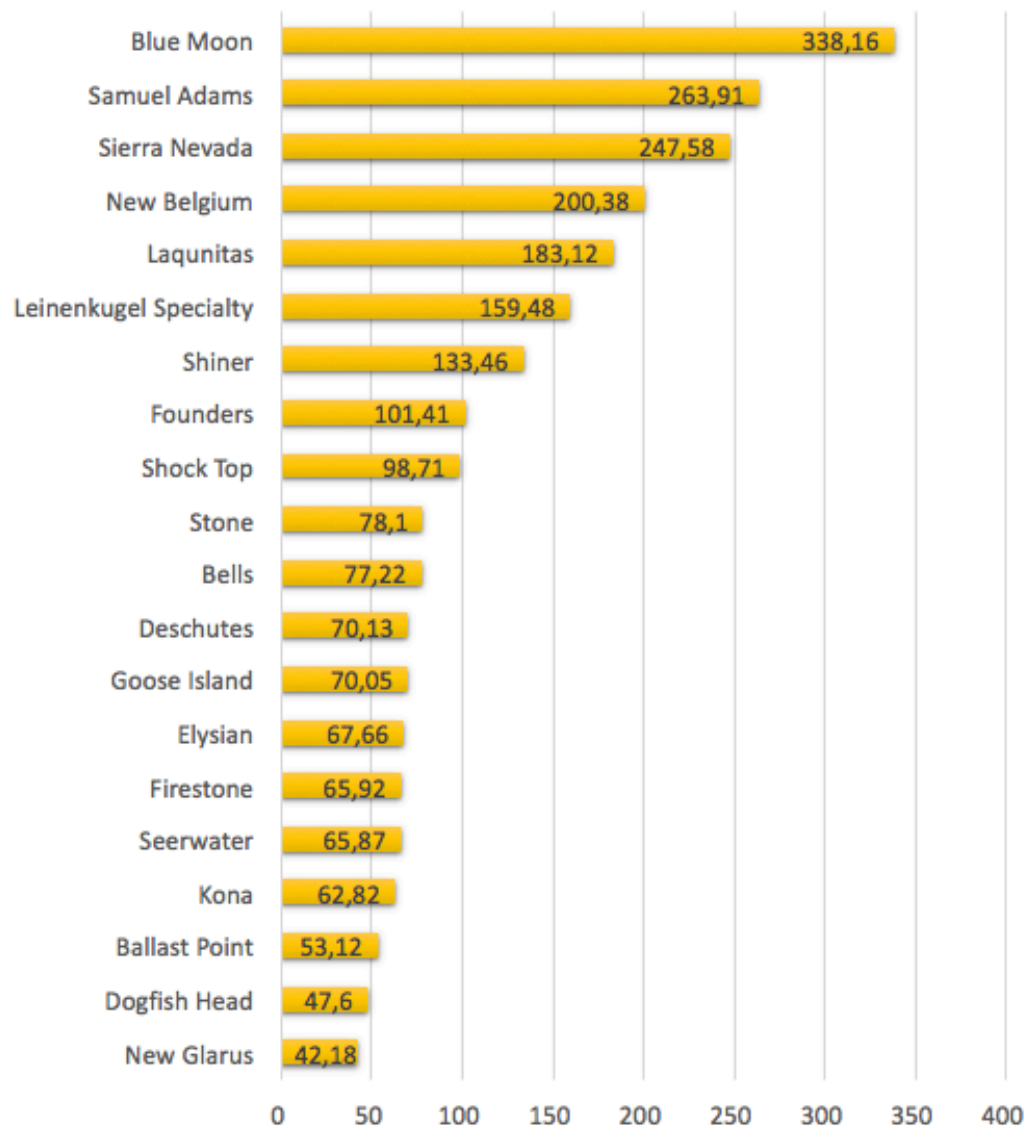


Chart 10. Sales of the leading craft beer brands in the United States in 2018 (million USD)

Samuel Adams, Sierra Nevada, New Belgium and Laqunitas represent five most popular craft beer brands consumed throughout the United States. When it comes to local production, it's necessary to review the products of all craft beer manufacturers and determine which ones are the most popular among local consumers. About 37% of local craft beer consumers choose IPA. Pilsner is virtually not available on the market being brewed by two breweries only: Penn Brewery and Eleventh Hour Brewing Co. As for the stout, it is also brewed by two breweries: Mindful Brewing Company and Couch Brewery.

Competitive rating of craft breweries in Pittsburgh

Table 12. Best products of local Pittsburgh Breweries

Brewery	Best Product
East End	Monkey Boy Hefeweizen / Crisp hefeweizen uses German yeast for the banana/clove taste
	Partly Clahdy New England Style IPA / Juicy and soft on the palette, named for Pittsburgh's hazy skies
Grist House Craft Brewery	Hazedelic Juice Grenade / New England Style IPA exploding with notes of orange and mango
	Kaboom Candy / A rotating series of highly fruited sours
Helicon Brewing	American IPA, Citra, Mosaic & Simcoe / Bright & aromatic with tropical and citrus flavors
	Helles Lager / Balanced and clean German-style lager
Hofbräuhaus Pittsburgh	Original Lager / A light colored lager, very crisp and clean. A well balanced hop bitterness/flavor makes for a nice sessionable bier. Our #1 seller.
	Oktoberfest / A flavorful Marzen style lager. Medium bodied, malty and slightly sweet.
Penn Brewery	Penn Pilsner / Amber-colored lager with a malty nose and a touch of Noble hops
	Penn Dark / Dunkel with sweet caramel malt, nutty and toffee notes
Cinderlands Beer Co	Celestial Shore / Huge peach, mango, and vanilla aromas lead into a slightly tart palate
	Blazing Crude / Deep chocolate and espresso malt flavors with bright citrus and tamarind
Dancing Gnome	Better One or Two / Double IPA exploding with citrus/tropical flavors and aromas
	Lustra / An ode to unity. A soft, balanced, aromatic American Pale Ale
Hitchhiker Brewing Company Taproom	Bane of Existence IPA / A New England style IPA with notes of tropical and stone fruits.
	Subsurface Smoothie Sour/ A rotating Sours series that features a large quantity of fruit.
Hop Farm Brewing Company	Hop Farm IPA / Flagship IPA made with three kinds of hops
	Fresh Pot of Porter / Brewed with locally roasted La Prima coffee
Allegheny City Brewing	Oceanic IPA / Double dry-hopped IPA with Citra, Galaxy and Motueka hops
	Nova Gose / Sour ale brewed with coriander and sea salt
Aurochs Brewing Company	Session IPA / Hop driven beer with citrus, pine, lemon, melon and grapefruit flavors
	Blonde Ale / Tropical notes of melon, banana, papaya, pineapple and lemon
Brew Gentlemen	General Braddock's IPA / Soft, balanced and elegant IPA made with a blend of American hops
	Table Beer / Ale aged in oak foedres with our house culture, naturally conditioned in the bottle
The Church Brew Works	Thunderhop IPA / Flagship / Light body and color create a canvas for the hops to shine
	Pious Monk Dunkel / Surprisingly mellow, wonderfully clean and roasty aroma
Spring Hill Brewing	Dusk / Belgian nut brown ale brewed with oats. Malty, with a hint of burnt toast.
	Sunrise / Light ale brewed with wheat and rye. Spiced with coriander, chamomile, and a smidge of caraway. Notes of clove and ripe yellow fruits.
Strange Roots	Haviken / Dubbel with porter-esque roasted quality & our Brettanomyces lambicus yeast strain

Experimental Ales Brewery	Red Briar / Spontaneously fermented American sour ale aged in oak casks with red raspberries
Mindful Brewing Company	Putin's Revenge / Roasty, dark lager born via English traditions, shaped by Russian Imperial Stouts & perfected in the Baltic states
	Red Brain / Toasted malt characters, light fruitiness and lightly spicy/floral hop finish
Full Pint Brewery	All In / First beer Full Pint ever released. Unfiltered amber ale with mild sweetness and solid hop backbone.
	Chinookie / American IPA, heavily hopped with nearly 4 pounds per barrel. Aromas of pine and grapefruit, with a lingering hop bite balanced by light malty sweetness.
The Leaning Cask Brewing Company	Midnight Moo / Black IPA with roasted malts with a hint of coffee
	Mosaic Mastiff / Session IPA that highlights both the bitterness and aroma of hops
Enix Brewing	Club Lanes Kolsh / A traditional, German-style beer that is light, crisp and an easy drinking beer good for any occasion.
	MadRed IPA / An old-school American IPA with a hearty malt backbone that supports assertive bitterness and finished with a heavy dose of piney hops makes this beer full of flavor.
Rock Bottom Restaurant & Brewery	Uppity Jagoff IPA / Big Hop Aroma with a delicate malt backbone.
	Good Neighbor Kölsch – Kölsch Style Beer / Balanced, crisp and refreshing ale
Southern Tier Brewing Company	North Shore Fog Hazy IPA / Hazy, foggy NEIPA born on Pittsburgh's North Shore
	Coffee Blonde Ale / Blonde ale cold-infused with Strip District's Allegheny Coffee
Spoonwood Brewing Co.	Killer Diller / American IPA loaded with Ekuanot, Columbus and various dry-hops
	Cold Drip City / Coffee blonde infused with Sulawesi dark roast from Allegheny Coffee & Tea
Cobblehaus Brewing Co	Black Bear / Pitch black in color and showcases malty and moderate roast notes
	Olde Towne Alt / Rich amber color, fruity flavors, smooth and delicate brew
412 Brewery	R-U-Ready 4-One-Too / an ESB with strong notes of burnt caramel and toffee, our flagship brew
	Orange You Gonna Have Another / a smooth milkshake IPA brewed with lactose for sweetness and blood orange for flavor
Couch Brewery	Recliner Stout / Oatmeal Stout with roasty, chocolate and coffee undertones. Hopped with Amarillo.
	Atomic Clock / Amber Ale with a slightly malt forward profile with Cascade and Willamette hops.
Eleventh Hour Brewing Co	Cult Logic / Double dry hopped, hazy IPA with hints of pineapple, fresh melon and peach
	Noble Spirit / A crisp, clean Pilsner refreshingly dry-hopped with Mosaic
Pittsburgh Bottleshop Café and Brewhouse	Out of the Gate Session IPA / German malts and American citrus hops blend into this light, crisp, and highly sessionable beer
	Double Play IPA / Generous additions of centennial hops, plus a pound-per-barrel dry hop, power this dank and earthy IPA.
War Streets Brewery	Palo Alto Pale Ale / Hoppy American-style pale ale with a tropical hop flavor profile
	Resaca Red Ale / Irish style red ale that boasts a malty flavor profile with a dry finish
Abjuration Brewing	Double IPA / Hazy, juicy and sometimes bitter, brewed with oats, wheat and revolving hops
	Chai Milkshake Ale / Brewed with wheat, oats, milk sugar, vanilla beans and chai spices

CoStar Brewing	Hopland Park Pale Ale / Slightly hazy, well balanced hop bitterness with a hint of lemon
	DIPA / Floral, hoppy and spicy flavor
Roundabout Brewery	Ginga Wheat / American wheat beer with fresh pressed ginger, honey and lemon
	Pacific Ring / An unfiltered IPA with notes of grapefruit, white grapes and tropical fruit
Lincoln Avenue Brewery	Bulldog DIPA / Big West Coast DIPA dry hopped with large doses of Simcoe, Columbus, Cascade, Amarillo and Centennial – 96IBU and 8.2%
	511 – NEIPA / Notes of Pear and Melon give way to notes of Grapefruit and Mango on the back end in this juicy New England IPA – 61 IBU and 6.8%
Inner Groove Brewing	First Born Unicorn / NE Pale Ale ABV 5.7% Dank, citrus notes with a clean, soft finish.
	Let the Mango Through / Kettle Sour ABV 5.7% Rotating sours conditioned on fruit that offer a sour and slight sweet taste

Let's consider why consumers prefer these beverages. To evaluate consumer preferences, Deloitte surveyed users why they were buying craft beer. Interestingly, an overwhelming majority of people, i.e. 28.7%, choose craft beer because of its taste. Another 18.5% of respondents believe that craft beer is of better quality and almost 10% believe it is 'live', that is, more natural and contains no preservatives. Only 13.8% choose craft beer to try a new taste and 0.1% of respondents drinks craft beer just for entertainment. Craft beer is usually more expensive compared to the ordinary bottled beer. Thus, when creating craft beer recipes, one should not conduct shocking experiments with ingredients, since few people will be able to appreciate such beer and consume it simply for fun. Basically, people appreciate the rich taste and smell that change as they drink beer and open up new experiences of beer consumption.

It should be noted that about 42.6% of craft beer is consumed in bars and pubs that produce their own beer. Another 26.2% are consumed in restaurants, bars and catering venues that deliberately order interesting kinds of craft beer to attract more clients. Only 21.5% of beer is consumed at home. That's why, developing the product, it is worth packing up to 25% of the beer into the bottles, because most of the beer will be sold from the barrel.

The main consumers of craft beer are people over 35 years of age. That is why it is necessary to consider this fact when developing beer recipes and put an emphasis more on traditions than on experiments.

Chapter 4. Marketing Plan

Brandbook

Brandbook is a tool that helps a company build relationships with its partners, advertising companies and the target audience. This is the basis for the company's strategy of market positioning.

Brandbook for LOUDER ME structural units must contain information as follows:

1. Brand concept.
2. Corporate identity of the company.
3. Corporate identity of label and bottle.
4. Corporate identity of image products.

Website

A representative website is a multifunctional software complex performing the functions of the company's "face". It is aimed at the active promotion of goods and services in the Internet.

A business website is a full-fledged representation of a company inside network. That's why its creation opens up new opportunities and prospects and allows demonstrating Internet users the company's stability and status.

A well-designed representative website is a powerful tool for promoting goods and services, attracting customers and searching for business partners.

Developing a website, it is necessary to allocate separate modules for each structural unit:

- About company

- Products
- News
- Reviews
- Contacts

Online Promotion Channels

Table 13. Channels of the project's online promotion

Tools	Description
Articles	Developing creative materials and their publication on thematic websites
SEO-optimization	A set of measures for internal and external optimization aimed at increasing the website's position in search results according to specific user requests. Organic keywords (92%), paid keywords (8%).
Writing feedbacks	Posting feedbacks on the website
Context advertising	Work is based on cost per click and subsequent transition to the project's website
PR articles	Articles cover benefits; a press release format or interview with the project's founders is also possible.

Creating own sales network

Own sales network is represented by a sales department of the company, which consists of three highly professional employees.

Planned results of creating own sales network:

1. Direct interaction with the customers of products. It allows to organize direct access to the primary information regarding the needs and preferences of the main clients, customer motivation, market development trends like supply and demand, customer attitude to company products. Thus, direct contacts allow to

monitor market demand and obtain primary information, which enables to choose an optimal market strategy.

2. Own sales network is focused on negotiating and concluding contracts. All the efforts of sales managers are focused according to the general marketing and sales strategy of the company.

3. The possibility of building a strict system of accounting and control over sales volumes, return of goods and its causes is increasing.

Total budget on marketing promotion amounts to \$32k, including the website construction worth \$5k.

Chapter 5. Organizational and production plan

Industrial premises

The brewery owns manufacturing facilities in Petrozavodsk. A fenced area has transport roads and walking paths with a hard waterproof coating. There is also a sewage system that meets all sanitary requirements. The roads are asphalted and cleaning of the territory is done every day. Tightly closing metal containers with a waterproof bottom are installed to store packing materials. There is also a garbage collection area, which is processed once in three days with a 10% bleach solution. For garbage collection, an agreement was signed with the company that recycles garbage.

The production room with a waterproof floor has an area of 250 square meters. The walls and floor are covered with ceramic tiles up to the ceiling. The height of the ceiling is 3m. The ceiling is humidity and steam resistant. The temperature inside is 21°C during the entire production cycle.

For the beer production, a double-filtered water supply system was installed. The quality indicators correspond to those of pure drinking non-mineralized water.

The room is completely ready for the installation of equipment and organization of the production process.

It is necessary to rent a warehouse in Pittsburgh in order to start sales. The cost of renting a warehouse is \$67k/year before reaching a full production capacity.

Repair of the production premises amounts to \$35k.

Equipment

The company plans to purchase Chinese-made equipment worth \$93k.

All equipment is manufactured in the factory. Modern machines and advanced technologies are used during metal processing. All equipment is tested at maximum load before the shipment to consignee.

Payment for equipment will be done in three stages. According to the supply agreement, advance payment is 50%, additional payment before delivery (in three months) and, finally, paying the rest of the equipment's value.

Table 14. List and cost of equipment necessary for the organization of brewing

Nº	Product name / Technical features	Quantity included	Value
Brewhouse			
1	Wort copper	1	1000 liters
	Double-walled stainless steel container, metal grade: AISI304 (DIN1.4301) Active volume of the tank: 1000 liters Total volume of the tank: 1320 liters Dimensions: 1560×2000mm Inner layer of AISI304 stainless steel; thickness 3.0 mm Outer layer of AISI304 stainless steel; thickness 2.0 mm 100% TIG-arc welding Joint polishing inside the tank: up to 0.4~0.6 µm Thermal insulation thickness: 80 mm Frequency control of engine revolutions, speed within: 1:43, voltage 2.2 kBT. Tank heating method: steam heating A set includes: Mash agitator – 1 pc Electric drive – 1 pc Engine power: 2.2 kW Faucets, valves, washing heads for CIP washing, temperature sensors: according to specification		
2	Filtration unit	1	1000 liters
	Double-walled stainless steel container, metal grade: AISI304 (DIN1.4301) Active volume of the tank: 1000 liters Total volume of the tank: 1320 liters Dimensions: 1560×2000mm Inner layer of AISI304 stainless steel; thickness 3.0 mm		

	Outer layer of AISI304 stainless steel; thickness 2.0 mm 100% TIG-arc welding Joint polishing inside the tank: up to 0.4~0.6 μ m Thermal insulation thickness: 80 mm		
	A set includes: Mixer of filtering unit (Bidirectional rotation; direct rotation for plowing pellets; reverse rotation for displacement) - 1 pc. Electric drive – 1 pcs; engine power - 2.2 kW. Filtration sieve, metal thickness 5 mm, sieve's cell width: 0.7 mm - 1 pc. Shovel for raking malt meal from filtration unit - 1 pc Faucets, valves, washing heads for CIP washing, temperature sensors: according to specification		
3	Cyclone separator Stainless steel tank; metal grade: AISI304 (DIN1.4301) Active volume of the tank: 1000 liters Total volume of the tank: 1320 liters Dimensions: 1560×2000mm. Single layer of stainless steel AISI304: thickness 3.0 mm 100% TIG-arc welding Joint polishing inside the tank: up to 0.4~0.6 μ m Thermal insulation thickness: 80 mm Faucets, valves, washing heads for CIP washing, temperature sensors: according to specification	1	1000 liters
4	Hot water tank Double-walled stainless steel container, metal grade: AISI304 (DIN1.4301) Active volume of the tank: 1500 liters Total volume of the tank: 1750 liters Dimensions: 1560×2620 mm Inner layer of AISI304 stainless steel; thickness 3.0 mm Outer layer of AISI304 stainless steel; thickness 2.0 mm 100% TIG-arc welding Joint polishing inside the tank: up to 0.4~0.6 μ m Thermal insulation thickness: 80 mm Tank heating method: steam heating A round hatch at the top of the tank, diameter DN500 Faucets, valves, washing heads for CIP washing, temperature sensors: according to specification	1	1500 liters
5	Two-roll malt grinder Grain grinding adjustment Dimensions: 1200x900x1500mm Power: 2 kW Noise <60db	1	300 kgph
6	Control panel for the brewhouse and the refrigeration unit of the fermentation unit	2	
7	Technological food pump Power: 0.75 kW Pressure head: 18 meters Frequency control Connection by means of clamps into a single technological line	2	3 m ³ / h

8	Two-way plate heat exchanger Cooling the wort with cold and ice water to the fermentation temperature Thermal probe and aerator in the wort outlet Cooling area: 5 m ² Pressure: 10bar / 13bar Operating temperature <150 ° C Material: SUS304 stainless steel	1	5 m ²
9	Podium (site for the brewer's work)	1	
Refrigerator compartment			
1	Refrigeration unit Function: ice water cooling. Cooling system, chiller (3000L GWT + 2 * 5P refrigeration unit). Dimensions: 850x720x1325mm 2 10P	2	10P
2	Tank with ice water Function: cooling the wort on the heat exchanger and during the fermentation and maturation of beer in cylindroconical vessel. Active volume of the tank: 3000 liters Total volume of the tank: 3660 liters Dimensions: 1560×2000mm Inner layer of AISI304 stainless steel; thickness 3.0 mm Outer layer of AISI304 stainless steel; thickness 2.0 mm 100% TIG-arc welding Joint polishing inside the tank: up to 0.4~0.6 μm Thermal insulation thickness: 80 mm	1	3000 liters
	Ice water pump Pressure head - 18 meters Power: 0.75 kW	1	3 m ³ / h
Fermentation department			
1	Cylindroconical vessel Function: fermentation and maturation of beer Double-walled stainless steel container, metal grade: AISI304 (DIN1.4301) Individual cooling of the tank with ice water, process is adjusted using the control panel Active volume of the tank: 2000 liters Total volume of the tank: 2500 liters Dimensions: 1560×2900mm Inner layer of AISI304 stainless steel; thickness 3.0 mm Outer layer of AISI304 stainless steel; thickness 2.0 mm 100% TIG-arc welding Joint polishing inside the tank: up to 0.4~0.6 μm Thermal insulation thickness: 80 mm Working pressure: 0.15mpa, test pressure: 0.3mpa Cylindroconical vessel angle: 72 degrees Faucets, valves, washing heads for CIP washing, temperature sensors, solenoid valves – according to specification	6	2000 liters
2	Cylindroconical vessel Function: fermentation and maturation of beer Double-walled stainless steel container, metal grade: AISI304 (DIN1.4301)	4	1000 liters

Individual cooling of the tank with ice water, process is adjusted using the control panel
 Active volume of the tank: 1000 liters
 Total volume of the tank: 1200 liters
 Dimensions: 1060×2400mm
 Inner layer of AISI304 stainless steel; thickness 3.0 mm
 Outer layer of AISI304 stainless steel; thickness 2.0 mm
 100% TIG-arc welding
 Joint polishing inside the tank: up to 0.4~0.6 μm
 Thermal insulation thickness: 80 mm
 Working pressure: 0.15mpa, test pressure: 0.3mpa
 Cyllindroconical vessel angle: 72 degrees
 Faucets, valves, washing heads for CIP washing, temperature sensors, solenoid valves – according to specification

Ancillary processing equipment			
1	Sterilizer of solution containers	1	100 liters
	Washing and disinfecting unit		
2	A set includes: - a 100 l tank for washing solution - 1 pc - a 100 l tank for disinfectant solution - 1 pc	1	3 m ³ /h
	Liquid pump Power: 0.75 kW		
3	Plastic pipe for connecting the ice water tank cooling system to cylindroconical vessel, service tanks and storage tanks with ready-made beer. Insulation material of the cooling system piping.	According to specification	-
4	Piping system Gaskets, manometers, valves, thermometers	According to specification	-
Additional services			
1	Installation and launching of equipment		
2	Conducting the first 4 brews, transferring the brewing technology, training your technologist to serve brewing equipment.		
3	Engineering. The layout of the equipment inside your premises.		
4	Recommendations on the preparation of documents necessary for the legalization of beer production and sales.		

Description of technological process

The technological process for brewing beer looks as follows:

Stage 1 - wort cooking;

Stage 2 - transfer to fermentation;

Stage 3 - fermentation in cylindroconical vessel.

Cylindroconical vessel is manufactured in two formats: for 2 tons and 1 ton. The pan, in which the wort is cooked, is designed for 1 ton. To fill a cylindroconical vessel of 1 ton, one boiling per day is enough. To fill a cylindroconical vessel of 2 tons, it is necessary to carry out two boilings, one ton each. As a rule, this is done during two days. After transferring the wort to the cylindroconical vessel, it takes 28 days for the beer to be ready. Thus, the containers are filled one by one. After 28 days, the finished beer is packaged into kegs or bottles. Cylindroconical vessels are cleaned every day and get prepared for the next cycle.

Raw materials are not planned to be purchased before each boiling. A monthly stock of raw materials will be available at the warehouse.

Staff

Table 15. Staff

	Number (persons)	Salary fund (k\$/year)
Director	1	98,4
Accountant	1	90
Sales manager	3	154,8
Brewer Technologist	1	74,4
Brewer	1	56,4
Driver	1	50,4
Assistant	2	96
Total	11	620,4

Chapter 6. Financial Plan

Fixed capital planning

The Brewery needs to calculate the investments to perform its activity. The company also needs both fixed and working capital to launch business. The fixed capital includes capital assets.

The cost of equipment necessary to start production is \$93k.

The furniture for office and production space is also a capital asset and is estimated at \$25k.

The cost of computers is \$5k.

It's also necessary to purchase appropriate software to ensure an accounting department functioning as well as the overall automation of work. The total amount for this is \$3k.

Biological assets, library collections and some other items may contribute to the fixed assets. The amount of the other types of the capital assets is \$2k.

The table below shows the cost of fixed assets necessary to purchase.

Table 16. The cost of the necessary fixed assets, k\$

Fixed assets:	Cost, \$	Period of operation, years	Salvage cost, \$
Equipment	93.0	5.0	0.93
Furniture	25.0	4.0	0.25
Computers	5.0	4.0	0.05
Software	3.0	2.0	0.03
Other	2.0	4.0	0.02
Capital assets	128		

Therefore, the total amount of investments in the fixed assets is \$128k. This amount is not included into the company's expenses straight away. It should be written off as depreciation. The given company uses a straight line method of depreciation.

Planning of the fixed costs

Operational expenses of any enterprise include:

- material expenses;
- labor costs;
- social costs;
- depreciation;
- other expenses.

Labor costs

Personnel is needed to perform the business activity. Let's make a planning of the personnel quantity for the next 5 years.

Table 17. Planning of personnel quantity and salary budget

Indicator	2019	2020	2021	2022	2023
Personnel quantity	11	13	16	18	19
Salary fund, k\$	620.40	806.52	1091.90	1351.23	1568.93
Social insurance, k\$	186.12	241.96	327.57	405.37	470.68
Salary budget, k\$	806.52	1048.48	1419.48	1756.60	2039.61

The planned salary budget for 2019 is \$806.52k.

In 2020 it is planned to increase personnel costs by \$241.96k.

In 2021 it is planned to increase expenses by \$371k compared to 2020.

In 2022 it is planned to increase expenses by \$337.13k compared to 2021.

Before 2023 the number of employees at Brewery is expected to count 19 staff, while the salary budget amounts to \$2039.61k, which increases by \$283k percent compared to the previous year's indicator.

Depreciation costs planning

Let's calculate the depreciation costs for the given type of capital for the next 5 years.

Table 18. Calculation of the depreciation costs of the company's main assets according to a straight line method, k\$

Fixed capital indicator	2019	2020	2021	2022	2023
Equipment	18.41	18.41	18.41	18.41	18.41
Furniture	6.19	6.19	6.19	6.19	0
Computers and office automations	1.24	1.24	1.24	1.24	0
Programs	1.49	1.49	0	0	0
Other types of fixed capital	0.50	0.50	0.50	0.50	0
Total	27.82	27.82	26.33	26.33	18.41

Let's show a way of calculations according to a straight line depreciation method:

Annual amount of depreciation for equipment is:

$$(93.0 - 0.93) / 5.0 = \$18.41k$$

Annual amount of depreciation for furniture is:

$$(25.0 - 0.25) / 4.0 = \$6.19k$$

Annual amount of depreciation for computers is:

$$(5.0 - 0.05) / 4.0 = \$1.24k$$

Annual amount of depreciation for programs is:

$$(3.0 - 0.03) / 2.0 = \$1.49k$$

Annual amount of depreciation for other types of fixed capital is:

$$(2.0 - 0.02) / 4.0 = \$0.50k$$

Administrative costs planning

A company plans to rent buildings for manufacturing process or offices.

Table 19. General occupancy expenses for 2019 - 2023

Indicator	2019	2020	2021	2022	2023
Rent costs,\$k	67.0	73.70	81.07	89.18	98.09

General occupancy expenses. In 2019 rent costs will be \$67k. The next year rent costs are expected to increase by \$6.70k. However, the planning indicator will be \$73.70k in 2020. In 2021 expenses are planned to increase by \$7.37 k compared to 2020. The rent costs amount in 2022 is planned to increase by \$8.11k compared to the previous year indicator. In 2023 it is planned to spend \$98.09k for a rent, thus the indicator increases by \$8.92k compared to 2022.

Table 20. Advertising costs planning for 2019 - 2023

Indicator	2019	2020	2021	2022	2023
Advertising costs, \$k	32.0	38.40	42.24	46.46	51.11

Advertising costs. In 2019 advertising costs will be \$32k. The next year advertising costs are expected to increase by \$6.4k. However, the planning indicator will be \$38.40k in 2020. In 2021 it is planned to increase expenses by \$3.84k compared to 2020. The advertising costs amount in 2022 is planned to increase by \$4.22k compared to the previous year indicator. In 2023 it is planned to spend \$51.11k for an advertising, thus the indicator increase by \$4.65k compared to 2022.

Table 21. Communication costs planning for 2019 - 2023

Indicator	2019	2020	2021	2022	2023
Communication costs, \$k	5.0	5.50	6.05	6.66	7.32

Communication costs. Company uses the communications to organize its activity. Planning communication costs is \$5k in 2019. In 2020 planning costs will increase by \$0.50k compared to previous year. Company plans to spend \$6.05k for Internet and mobile services in 2021. In 2023 it is planned to spend \$51.11k for Internet and mobile services.

Table 22. Transportation costs planning for 2019 - 2023

Indicator	2019	2020	2021	2022	2023
Transportation costs,k\$	8.0	9.60	12.48	14.98	16.47

Transportation costs. In 2019 transportation costs will be \$8k. In the next year transportation costs are expected to increase by \$1.60k. However, the planned indicator will be \$9.60k in 2020. In 2021 it is planned to increase expenses by \$2.88k compared to 2020. The transportation costs amount in 2022 is planned to

increase by \$2.50k compared to the previous year indicator. In 2023 it is planned to spend \$16.47k for transportation, thus the indicator increase by \$1.50k compared to 2022.

Table 23. Accounting services planning for 2019 - 2023

Indicator	2019	2020	2021	2022	2023
Accounting services costs, k\$	24.0	28.80	37.44	44.93	49.42

Outsourcing accounting company will provide accounting services for Brewery. Planning costs amount to \$24k in 2019. In 2020 accounting services costs are expected to be \$28.8k. Accounting services costs will be \$37.44k in 2021 is, \$44.93 k in 2022 and \$49.42k in 2023.

Table 24. Utility charges planning for 2019 - 2023

Indicator	2019	2020	2021	2022	2023
Electricity, k\$	26.0	28.60	31.46	34.61	38.07
Water supply, k\$	32.0	35.20	38.72	42.59	46.85
Other utility charges, k\$	56.0	61.60	67.76	74.54	81.99
Total amount for utility charges, k\$	114	125.40	137.94	151.73	166.91

In 2019 electricity charges are \$26k. Other utility charges are \$56k. Total amount of utility charges is \$114k. In 2023 the total amount of utility charges will be \$166.91k.

Table 25. Other costs planning for 2019 - 2023

Indicator	2019	2020	2021	2022	2023
General occupancy, k\$	67.0	73.70	81.07	89.18	98.09
Advertising, k\$	32.0	38.40	42.24	46.46	51.11
Communications, k\$	5.0	5.50	6.05	6.66	7.32
Delivery services, k\$	8.0	9.60	12.48	14.98	16.47
Accounting services, k\$	24.0	28.80	37.44	44.93	49.42
Utility charges, k\$	114	125.40	137.94	151.73	166.91
Total, k\$	250	281.40	317.22	353.93	389.33

All the calculations are used to plan the future operation costs. In 2019 the indicator will be \$250k, in 2020 - \$281.4k, in 2021 - \$317.22k, in 2022 - \$353.93 k, and in 2023 - \$389.33k.

Material expenses

Planned materials-output ratio is 46%. We have to solve an equation to find the total amount of operation costs in 2019:

$$\text{Material expenses} + \text{Salary fund} + \text{Depreciation} + \text{Utility charges} = \text{Operation costs (OC)}$$

$$46.0/100 * \text{OC} + 806.52 + 27.82 + 250 = \text{OC}$$

$$\text{OC} - 46.0/100 * \text{OC} = 1084.34$$

$$\text{OC} = 2008.04$$

Operation costs in 2019 are \$2008.04k

Material expenses in 2019 are: $2008.04 * 46.0 / 100 = \$923.70\text{k}$

Operation costs in 2020 are: $1357.70 / (1 - 46.0 / 100) = \2514.25k

Material expenses in 2020 are: $2514.25 * 46.0 / 100 = \$1156.56\text{k}$

Operation costs in 2021 are: $1763.03 / (1 - 46.0 / 100) = \3264.87k

Material expenses in 2021 are: $3264.87 * 46.0 / 100 = \$1501.84\text{k}$

Operation costs in 2022 are: $2136.87 / (1 - 46.0 / 100) = \3957.16k

Material expenses in 2022 are: $3957.16 * 46.0 / 100 = \$1820.30\text{k}$

Operation costs in 2023 are: $2447.35 / (1 - 46.0 / 100) = \4532.13k

Material expenses in 2023 are: $4532.13 * 46.0 / 100 = \$2084.78\text{k}$

Table 26. Material expenses planning for 2019 - 2023

Indicator	2019	2020	2021	2022	2023
Material expenses, k\$	923.70	1156.56	1501.84	1820.30	2084.78

Operation costs planning

Table 27. Operation costs planning for 2019 - 2023

Indicator	2019	2020	2021	2022	2023
Material expenses, k\$	923.70	1156.56	1501.84	1820.30	2084.78
Labor expenses, k\$	620.40	806.52	1091.90	1351.23	1568.93
Social insurance, k\$	186.12	241.96	327.57	405.37	470.68
Depreciation, k\$	27.82	27.82	26.33	26.33	18.41
Other costs, k\$	250	281.40	317.22	353.93	389.33
Total, k\$	2008.04	2514.25	3264.87	3957.16	4532.13

The planned amount of material expenses is \$923.7k in 2019. In the next year the indicator will increase by \$232.86k (increase rate is 25.21%). Material expenses will increase by \$345.28k from 2020 to 2021 amounting to \$1501.84k. The next year indicator increase by \$318.46k compared to 2021 (increase rate is 21.20%). In 2023 planned material costs are \$2084.78k, the increase compared to the previous year indicator is \$264.48k, increase rate is 14.53%.

In 2019 planned salary fund is \$620.4k. In the next year salary fund is expected to increase by \$186.12k (increase rate is 30%). Labor costs will increase by \$285.38k from 2020 to 2021 and its amount will be \$1091.9k. The indicator will increase by \$259.33k in the 2022, increase rate will be 23.75%. In 2023 planning labor costs are expected to count \$1568.93k, it increases by \$217.70k compared to the previous year, increase rate is 16.11%.

The planned amount of social expenses is \$186.12k in 2019. In the next year these costs will increase by \$55.84k (increase rate is 30.00%). Social expenses will increase by \$85.62k from 2020 to 2021 and their amount will be \$327.57. The next year indicator increase by \$77.8k compared to 2021 (increase rate is 23.75%). In 2023 planned social costs are \$470.68k, the increase compared to the previous year indicator is \$65.31k, increase rate is 16.11%.

In 2019 planned depreciated costs are \$27.82k. Depreciation costs will decrease by 1.49 \$ from 2020 to 2021 and its amount will be \$26.33k. In 2023 planned depreciation costs are expected to count \$18.41k, the indicator decreases by \$7.92k compared to the previous year, increase rate is - 30.08%.

The planned amount of other expenses is \$250k in 2019. In the next year the indicator will increase by \$31.40k (increase rate is 12.56%). Other expenses will increase by \$35.82k from 2020 to 2021 amounting to \$317.22k. The next year indicator increases by \$36.71k compared to 2021 (increase rate is 11.57%). In 2023 other planned costs are \$389.33k, the increase compared to the previous year indicator is \$35.39k, increase rate is 10.00%.

In 2019 planned operation costs are \$2008.04k. In the next year this costs are expected to increase by \$506.21k (increase rate is 25.21%). Depreciation costs will increase by \$750.62k from 2020 to 2021 and its amount will be \$26.33k. The indicator will increase by \$692.30k in the 2022, increase rate will be 21.20%. In 2023 planned operation costs are expected to count \$4532.13k, increasing by \$574.97k compared to the previous year, increase rate is 14.53%.

Planning sources for investment

Apart from investments in fixed assets, the company also needs some other kinds of investments. For instance, the registration of the organization requires the amount of \$5k. It is also necessary to collect funds for the purchase of raw materials. The predicted amount for this purpose is \$12k. To make facilities function well, it is necessary to carry out repair. According to the preliminary estimates repair cost is \$35k.

It is also necessary to take into account the fact that the Brewery will not be able to pay fixed costs at the expense of its revenue during the first month. Therefore it is necessary to create a reserve amount enough to compensate all performance costs for a single month. Since the size of annual costs amounts to \$2008.04k, the company needs \$53.20k per month.

Thus, the company requires an amount of \$233.20k in the first year including:

- fixed assets - \$125k;
- intangible assets - \$3.0k;

- stocks \$12k;
- capital investments \$35k;
- additional amount in cash to register the business \$5k
- reserve capital to repay the costs \$53.2k.

The company may use both its own capital and the attracted one for the purchase of assets and reimbursement of expenses. Equity is the share capital, due to which assets may be acquired. Brewery's amount of equity is \$50k. Thus, the organization needs a loan in the amount of \$183.2k (233.20 - 50.0).

Table 28. Loan amount distribution

Indicator	2019	2020	2021	2022	2023
Loan amount, k\$	61.07	61.07	61.07	0	0
Bank interest, k\$	15.13	15.13	15.13	0	0
Total debt amount, k\$	76.20	76.20	76.20	0	0

Brewery can get a loan for 36.0 months at 15.0% per annum. Thus, the yearly financial costs to repay the loan amount to \$76.2k.

Financial Results

Table 29. Planning of revenues and financial results of the Brewery

Indicator	2019	2020	2021	2022	2023
Earnings, k\$	2124.33	2655.85	3444.00	4155.02	4758.74
Costs, k\$	2023.17	2529.38	3280.00	3957.16	4532.13
Profit before tax, k\$	101.16	126.47	164.00	197.86	226.61
Income tax, k\$	10.12	12.65	16.40	19.79	22.66
Net profit, k\$	91.04	113.82	147.60	178.07	203.95

The following conclusions can be made according to the table data. The company will be profitable in the next year. The planned net profit is \$91.04k. The calculations took the income tax into account, which will be 10% in 2019.

In 2020, the planned income before tax will amount to \$126.47k. Net profit after paying taxes will be \$113.82k. A profit growth is planned for the next years, i.e.

the growth rate will be 29.68% in 2021, 20.65% in 2022 and 14.53% in 2023. The planned net profit after 5 years is expected to be \$203.95k.

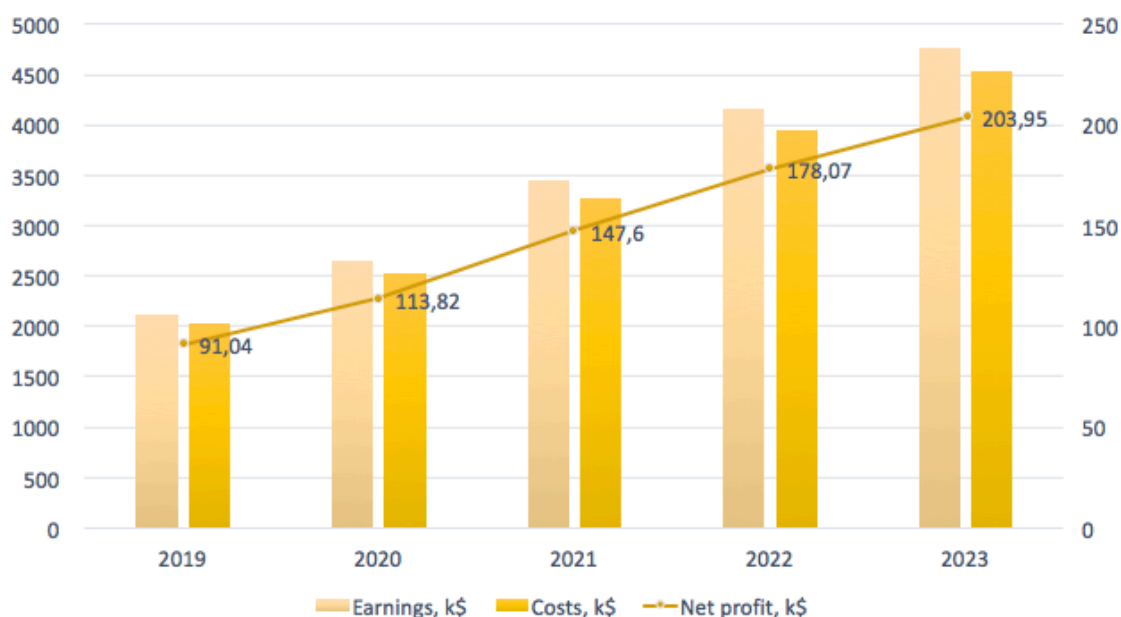


Chart 11. financial results of the Brewery

Investment project effectiveness

Calculation of the following economic indicators is performed to assess the effectiveness of the project:

- net present value;
- profitability index;
- payback period;
- internal rate of return on investment.

To obtain the required figures, it's necessary to calculate the cash flows of the brewery.

Table 30. Cash flows of Brewery for 2019 - 2023

Indicator	2019	2020	2021	2022	2023	Total for 2019 - 2023
Positive cash flow, k\$	2124.33	2655.85	3444.00	4155.02	4758.74	17137.94
Negative cash flow, k\$	2066.53	2575.28	3331.13	3950.62	4536.38	16459.94
Net cash flow, k\$	57.79	80.57	112.87	204.41	222.36	678.00

Let's perform the cash flows discounting, calculating the discount rate in advance.

While assessing the viability of investments a discount rate or a capitalization rate is set, i.e. an interest rate, which characterizes the indicator of a minimal annual income at which the investor is willing to invest. Discount rate helps determine a special discounting coefficient based on the formula of compound interest in order to bring investments and cash flows of different years to a present time.

Discount rate in its broad meaning represents the opportunity expenses in the fixed assets and expresses the rate of profit, which company would get from alternative investments.

A discounting coefficient at for a constant rate of discount E is determined according to the formula:

$$i = 1 / (1-E)^t$$

Discounting rate (i) represents the value of the attracted capital (or a total cash flow), under which the investor is willing to invest in business;

E - constant discount rate;

t - period of time.

Table 31. Calculation of the discounting rate

Period (t)	Constant discount rate (E)	Discounting rate (i)
1	10	1.10
2	10	1.21
3	10	1.33
4	10	1.46
5	10	1.61

Let's perform the discounting of cash flows for the Brewery.

The discount rate is a key element in the process of income discounting. It shows what rate of return the investor should take into account when investing in a given investment project. The discount rate uses many factors, which depend on the object of the evaluation and may include an inflationary component, a return on risk-free assets, the additional risk premium, the refinancing rate, the weighted average cost of capital, interest on bank deposits, etc.

$$DCF = CF / (1+r)^t$$

Table 32. Discounting of cash flows

Indicator	2019	2020	2021	2022	2023	Total for 2019 - 2023
Discounted positive cash flow	1931.21	2414.41	3130.91	3777.29	4326.12	15579.95
Discounted net profit	82.77	94.07	110.89	121.63	126.63	535.99
Discounted net cash flow	52.54	73.25	102.61	185.82	202.15	616.37

One of the most effective ways to assess the effectiveness of the investment project is the calculation of the **net present value (NPV)**, which is based on a comparison of the value of the invested capital (IC) with a total amount of the discounted net cash flow generated within a given period.

Discounted rate is set by the analysts based on the planned rate of return. In this case the percentage of return is 10 %.

NPV is calculated using the following formula:

$$\text{NPV} = \text{CF} - \text{IC}$$

NPV- the amount of net present value for the real investment project;

CF - the amount of net cash flow (discounted to the present value) for the entire operation period of the investment project (prior to the new investments in its reconstruction or modernization). If the full operation period of the object before the new investment is made is difficult to determine, the period of 5 years is taken into consideration;

IC - the amount of capital invested in the implementation of the given project (discounted to present value if the investments are made in various periods).

$$\text{Net Present Value (NPV)} = 616.37 - 180.0 = \$436.37\text{k}$$

Profitability Index (PI) is a measure of the investment effectiveness. This is the ratio of the discounted income to the amount of investment capital. There are also other synonyms of the profitability index, which have the same economic sense like the present value index and the index of profitability of the investment projects.

$$\text{PI} = \text{NPV} / \text{IC}$$

$$\text{Profitability Index (PI)} = 616.37 / 180.0 = 3.42$$

Payback Period (PP) is an indicator that characterizes the period for which the invested capital will bring income.

$$\text{Payback Period (PP)} = 180.0 / (616.37 / 5) = 1.46 \text{ years.}$$

Internal Rate of Return (IRR) is the rate of return that was received from investments. This is the rate of return at which the net present value of the investment is equal to zero, or it is the discount rate at which the discounted income of the project is equal to the investment costs. The internal rate of return determines the maximal acceptable discount rate at which it's possible to invest without any loss for the owner.

$$\text{IRR} = r, \text{ when } \text{NPV} = f(r) = 0,$$

Let's perform the calculation of the internal rate of return. To do this, we'll specify the upper possible limit of the discount rate which is adopted at a level of 10%. Let's assume that the upper threshold of the indicator is 15%.

Now let's perform the net cash flow discounting according to the upper limit of the discount rate.

Table 33. Cash flow discounting using a successive approximation method

Indicator	2019	2020	2021	2022	2023	Total
Net cash flow	57.79	80.57	112.87	204.41	222.36	678.00
Discounted net cash flow (E1)	52.54	73.25	102.61	185.82	202.15	616.37
Discounted net cash flow (E2)	50.26	60.93	74.21	116.87	110.55	412.82

$$\text{IRR} = 10 + (15 - 10) * 616.37 / (616.37 - (412.82)) = 12.99\%$$

Table 34. Capital Structure Planning for the Brewery

	Indicator	Value
CashFlow	Net Cash Flow	57.79
E1	Discounted net cash flow (E1)	52.54
NPV	Net Present Value	436.37
Pi	Profitability Index	3.42
IRR	Internal Rate of Return,%	12.99
PP	Payback Period, years	1.46

Planned assets structure of the Brewery

Table 35. Balance sheet

ASSETS	01.01.2019	31.12.2019	31.12.2020	31.12.2021	31.12.2022
Current assets	x	x	x	x	x
Cash	53.20	110.99	191.57	304.44	508.84
Supplies	12.0	12.0	12.0	12.0	12.0
Total current assets	65.20	122.99	203.57	316.44	520.84
Investments	35.0	35.0	35.0	35.0	35.0
Property, plant and equipment	125	98.67	72.33	46.00	19.66
Intangible assets	3.0	1.52	0.03	0.03	0.03
LIABILITIES	x	x	x	x	x
Interest payable	183.20	122.13	61.07	0	0
Total current liabilities	183.20	122.13	61.07	0	0
STOCKHOLDERS' EQUITY	x	x	x	x	x
Common stock	50.0	50.0	50.0	50.0	50.0
Retained earnings	-5	86.04	199.86	347.46	525.54
Total liabilities & stockholders' equity	45	136.04	249.86	397.46	575.54
TOTAL ASSETS	228.20	258.18	310.93	397.46	575.54

WACC (Weighted Average Cost of Capital) is the indicator used while assessing the need for investment in various securities, projects as well as discounting the expected investment income and the cost of measuring the company's capital. It shows a firm's cost of capital in which each category of capital is proportionately weighted.

$$\text{WACC} = (\text{Stockholders' equity} * \text{Discounting rate} + \text{Liabilities} * \text{Credit rate} * (1 - \text{Income tax})) / \text{Assets}$$

Let's perform the calculation of the indicator for 01.01.2020 :

$$\text{WACC} = (136.04 * 10 + 122.13 * 15.0 * (1 - 0.2)) / 258.18 = 10.95 \%$$

Thus, the weighted average cost of capital of the Brewery is:

10.95% in 2020;

10.39% in 2021;

10.00% in 2022;

10.00% in 2023.

Foreign and domestic economists consider financial leverage one of the main indicators of the impact of capital structure on profitability.

The indicator that reflects the level of additional profit on the own capital under various options of the capital structure is called the degree of financial leverage. It is calculated according to the formula:

$$DFL = (1 - ITR) * (ROA - LIR) * AC / OC$$

ITR - income tax rate;

ROA - return on assets,%;

LIR- loan interest rate,%;

AC- average amount of the attracted capital;

OC - average amount of the own capital.

Let's analyze the impact of financial leverage on the company's final results and the owners interests. The data provided by the Table are used for the analysis.

Table 36. Impact of financial leverage on the final performance results of the Brewery for 2019 - 2023

Indicator	01.01.2019	31.12.2019	31.12.2020	31.12.2021	31.12.2022
Income tax rate, %	20%	20%	20%	20%	20%
Net profit, \$	91.04	113.82	147.60	178.07	203.95
Average assets value, \$	243.19	284.55	354.20	486.50	575.54
Loan interest rate, %	15.0	15.0	15.0	15.0	15.0
Own capital, \$	45	136.04	249.86	397.46	575.54
Attracted capital, \$	183.20	122.13	61.07	0	0
Return on assets (ROA)	0.37	0.40	0.42	0.37	0.35
Differentiation of financial leverage	0.22	0.25	0.27	0.22	0.20
Tax correction	0.8	0.8	0.8	0.8	0.8
Financial leverage shoulder (FLS)	4.07	0.90	0.24	0	0
Degree of financial leverage (DFL)	0.73	0.18	0.05	0	0

Thus, we can conclude that the investment policy is profitable, financial leverage shows by how many percent the return on equity will increase at the expense of credit funds attracted to the circulation.

Conclusions

Money is needed first of all to implement the business idea. The Brewery has its own funds amounting to 50.0 \$, but they are not enough to realize the investment project.

It's necessary to make an investment plan in order to determine how much money should be borrowed. The first stage requires calculate the amount of capital investments including the purchase of the facilities, vehicles, equipment and so on.

The amount of capital investment is 125 \$. In addition to capital investments, it is also necessary to invest in stocks that will be used for the production purposes. The required amount of stocks necessary to launch a business is 12.0\$.

Additionally, a certain amount is needed to register the company. The total investment amounts to 180.0\$.

The main task when starting an own business is to cross the break-even threshold. To find out the break-even point, the amount of expenses should be planned carefully.

To organize the activity, it is necessary to involve additional labor resources. The number of staff in the early stages will be 11 employees. If the average salary in the initial stages of activity is planned to be 4.70 \$, then the annual salary expenses would amount to 806.52 \$.

Materials are necessary to produce any goods or services. Planned material consumption is 46.0, i.e. the planned cost of materials per year is 923.70 \$. Depreciation costs are a gradual reducing of the cost of the acquired fixed assets. According to the calculations they amount to 27.82 \$.

Other expenses include paying taxes, utility bills and possible payment for the lease of facilities, transportation, selling expenses. The total amount of the other expenses is planned to be 250 \$.

Thus, having calculated all the costs, we can determine the break-even point. It amounts to 2023.17 \$ in the planning period.

The preliminary assessment of the market and the power of the Brewery makes it possible to estimate that such kind of income is real with a great percentage

of possibility, that's why the company decided to attract credit funds for 36.0 months at 15.0% per annum.

According to preliminary estimates the planned revenue of the Brewery should be 2124.33 \$, that makes it possible to receive a net profit of 91.04 \$.

Evaluation of the investment project effectiveness has shown that under given forecasts a payback period is 1.46 years while a net present value is 436.37 \$ for a period of 5 years.

As a result of the forecasts, the capital value is expected to be 258.18 \$ in 2020, while a share of the own capital amounts to 136.04 \$. By 2023 the planned capital value is expected to be 575.54 \$. The average weighted cost of capital will be 10.00%.

Chapter 7. Risks

Break-even point

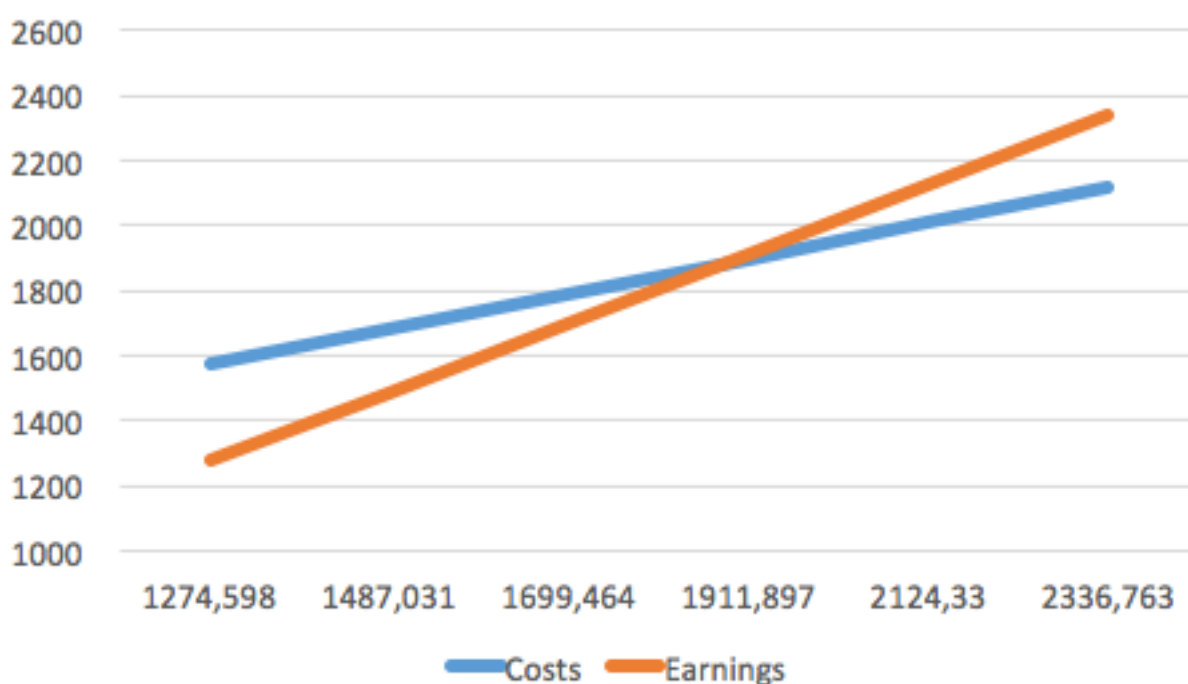
Break-even point is the amount of income at which the company does not receive losses. To achieve it, the income should exceed expenditures. As it was indicated above, we have calculated the amount of operating expenses. It is also necessary to take the financial costs into account, which are also paid out at the expense of the future incomes.

Table 37. Planning of total expenses of the brewery

Indicator	2019	2020	2021	2022	2023
Operating expenses, k\$	2008.04	2514.25	3264.87	3957.16	4532.13
Financial expenses, k\$	15.13	15.13	15.13	0	0
Total, k\$	2023.17	2529.38	3280.00	3957.16	4532.13

Thus, the break-even point in 2019 is \$2023.17k, in 2020 - \$2529.38k, in 2021 - \$3280k, in 2022 - \$3957.16k, in 2023 - \$4532.13k.

Margin is a main source of profit for the company. The Brewery establishes the margin of 5.0% for its services. Let's carry out the planning of the company incomes, adding the margin's percentage to the expenses.



Chapter 12. Break-even point of the Brewery for 2019

Risk Assessment of a Craft Brewery Business

During the first year of its activity, a private brewery may face several potential challenges that need to be dealt with.

Equipment failure

Even with a two-year warranty on purchased equipment, one cannot expect it to work flawlessly during the first years of exploitation. Small breakage of any of the components may lead to:

Defective beer batches of 100-200 liters;

Equipment downtime and lack of possibility to supply beer to the sales venues, which may result in a rapid loss of the market share.

To ensure the rapid replacement of parts or equipment, it is necessary to create inventories of finished goods, i.e. to produce beer 3-5 days prior to sales. This must be done in order to purchase new equipment and let the technicians to install it. The enterprise also forms financial reserves in case of inability to generate income. This money should be used to arrange a quick repair. Funds aimed at replacing the equipment with a more powerful one will be accumulated two years after the expiry of the warranty period.

Inability to perform the supervisor's job

This problem applies to any entity where virtually the entire amount of work is performed by a single person. In case of manager's illness, the manufacturing process may stop which results in equipment downtime and loss of the market opportunities.

These risks should be managed in a proper way. From the very beginning, it is necessary to look for an employee who will be able to help brew beer in the initial stages of activity and join the company's staff in a year.

In addition, having a stock of finished beer for three days will help solve minor problems and provide a kind of insurance in case of manager's absence.

Refusal of the sales venue to sell beer

Any business contacts cannot be regarded as permanent or long-term, since the market is constantly changing and new, more profitable players may appear any time.

If any sales venue refuses to buy beer, the brewery should consider other options for sale and seek new venues. In case of such situation, the company may increase the volume of beer production in bottles and sell it through the network of wholesale and retail stores in a given region. This situation will result in losing marketing costs and bearing additional costs to find sales venues. These funds can be deducted from the reserves that amount to 10% of total costs (note that advertising costs usually reach 3% of total costs).