Recreating the Neighborhood Marketplace

A reproducible business model for a supermarket comprised of local stores

Venice Project Center

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Authorship

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Executive Summary

In the historic city of Venice, Italy 22 supermarkets have opened since 1994. This rise of corporate food stores coupled with a rapidly declining resident population has strained small 'mom and pop' food stores that once dominated the island.

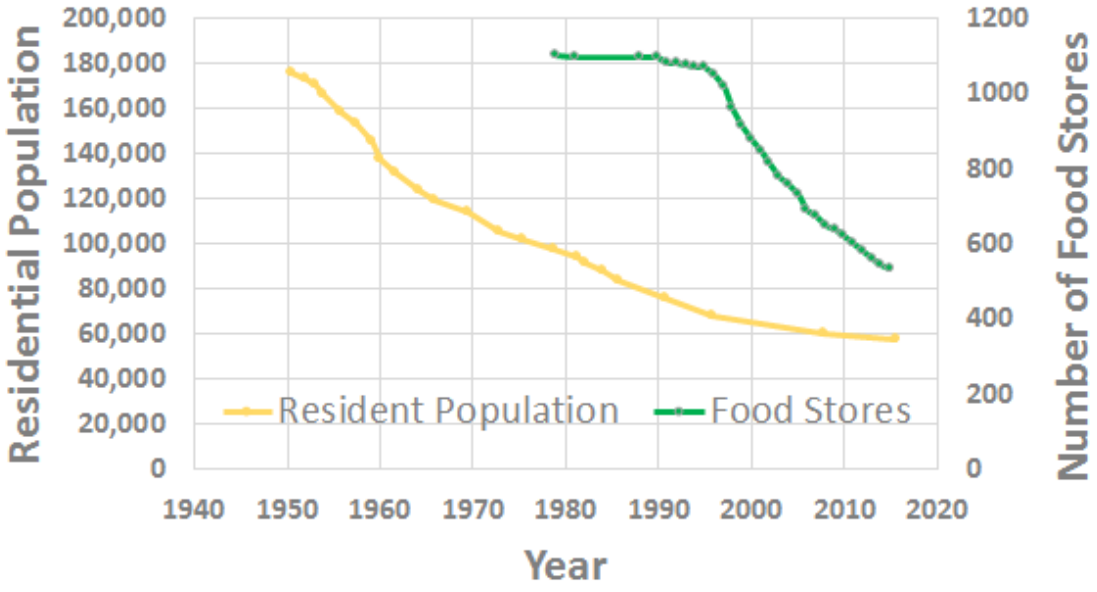

Figure i Venetian resident population and number of food stores as determined by the Census and Chamber of Commerce respectively.

As a result of these closures many food stores do not reopen and result in abandoned squares and vacant neighborhoods.

Figure ii Abandoned storefront and butcher shop in Campo Do Pozzi in the sestiere of Castello.

In addition to shop vacancy, the closing of these stores reduces the number of neighborhood food shops As a result there are several areas of the island that are not only not serviced by supermarkets, but also food store clusters. Venetians in these areas must shop at several locations in order to obtain all of their grocery needs.

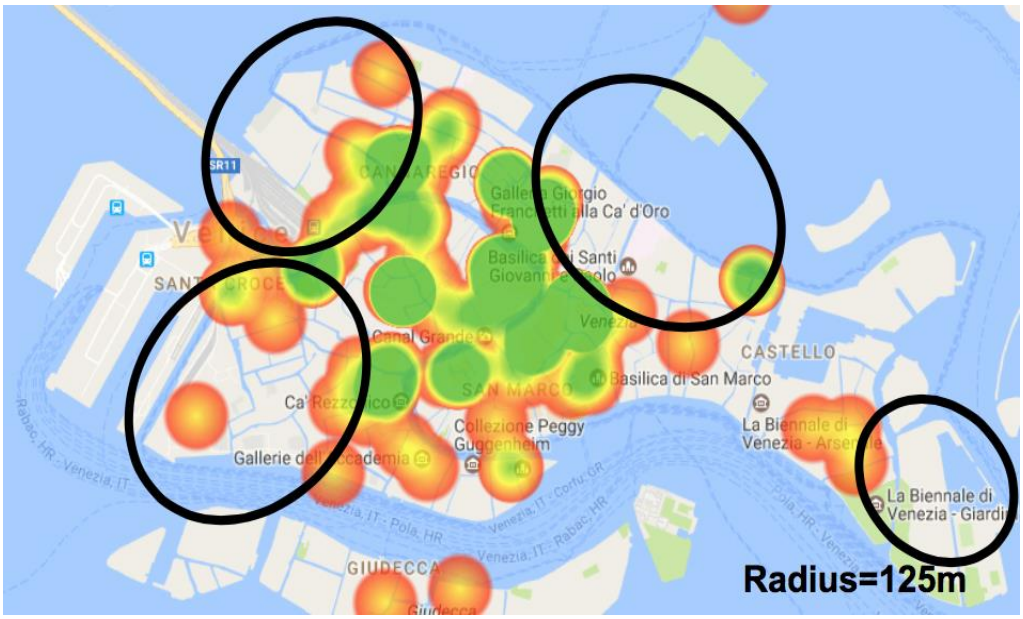

Figure iii Heat map of food store clusters and supermarkets within a 125 m radius and circled areas that are not serviced by supermarkets or food store clusters as determined from the Chamber of Commerce data and our observations.

The goal of our project was to identify these areas of vacant stores and determine areas that could be revitalized and reopened as a single entity supermarket comprised of separate storefronts. This distributed market was named MarketZquare, where "Z" stands for kilometro zero in order to highlight the market's mission to provide local and high quality goods from within and around the Venetian lagoon.

We designed and tested the feasibility of MarketZquare with the following objectives:

1. To analyze shop and chamber of commerce data in order to determine store closure trends.
2. To design and identify locations for the conceptual marketplace.
3. To explore a supply chain model in order to provision the store.
4. To determine the viability of a distributed supermarket at the pilot location.

The first objective focused on analyzing shop data from the previous Venice Project Center project teams and from the chamber of commerce. This analysis allowed us to determine trends in the retail food market that would pertain to our market location criteria. From this data we were able to see that 49% of the total recorded food shops have closed since 1924. We used QGIS mapping software in order to determine locational factors that impact food store sustainability. From this data we could conclude that within the past 6 years new supermarkets are opening in areas of low resident population and in close proximity to other supermarkets meaning that supermarkets must be catering to the growing tourist population. The data also indicated most markets were located along commuting paths and boat stops in order to offer a convenient shopping experience. These factors were added into the creation of criteria for our pilot location.

Using this information and the ShoppMappApp tool created by a previous project team we were able to locate areas with a high residential population that lacked a neighborhood supermarket. Once these areas were determined we visited each location to determine if they had adequate closed storefronts for our design. By observing Venetian supermarkets we were able to see that the most dominant grocery departments were produce, bakery, butcher and deli, dry goods and dairy. For that reason, our conceptual market includes each department operating out of its own storefront.

We established a set of criteria that encompassed the number of storefronts, distance to nearest boat stop, distance to nearest supermarket, the surrounding population number and average age. The criteria aimed to promote success of the marketplace and to ensure that the location selected could sustain MarketZquare. Out of 6 potential pilot locations we determined that two were ideal marketplace locations, one was satisfactory and three were unsatisfactory. Due to the number of storefronts, existing seed businesses and presence of a closed butcher shop we decided to conduct our case study on Campo Do Pozzi in the sestiere of Castello.

Our third objective determined what the market would supply. We determined organic food to be a niche market that would differentiate MarketZquare from the other supermarkets on the island. We researched local and organic food movements and located producers and business owners in the Venetian lagoon and surrounding areas. We visited Venetian farmer's market in order to identify local producers in the area and determine both the demand for local goods and the type of products that were offered. From this research we were able to conclude that there are four weekly markets that offer organic goods in addition there is the Rialto Market and 3 permanent markets that offer fresh produce to Venetian residents. From visiting these markets

and talking with business owners we identified 16 producers in Mestre and 4 in the Venetian lagoon.

In order to determine if MarketZquare could be feasibly implemented in Venice we calculated an estimated cost and revenue for the marketplace. For the purpose of the study we calculated the cost to purchase the storefronts to provide a worst-case estimate as well as suggest a way to avoid Venetian rent increases. We provided estimates for mortgage payments, renovation costs, equipment costs, product cost, staff wages and utilities. From this data we determined that the total first month start up cost including equipment and renovations would total 366,000€ and following the first year it would cost 588,000€ to maintain MarketZquare. Based on household spending data we calculated that for the 313 households in the catch basin surrounding Campo Do Pozzi spend 2,200,000€ annually on food. This means following the first year of operation only 14% of residents in the catch basin area would need to shop at MarketZquare to breakeven. From these numbers and the supply of high quality goods we determined MarketZquare is feasible. However, we feel that due to the high upfront cost of the entire marketplace and the expense of supply that the market should be opened in phases with one store at a time. This gives MarketZquare a chance to build brand identity and a consumer base which reduces the risk of opening additional storefronts. The MarketZquare model is reproducible and could be applied to other Venetian neighborhoods and areas around the world.

Abstract

The rise of supermarkets has provided Venetian residents with a large variety of goods in one convenient location, which coupled with competitive pricing make supermarkets a favorable choice for locals. This competition along with depopulation places a strain on small food stores. Since 1924, 49% of all Venetian food stores have closed. This store closure leaves many neighborhoods not serviced by either a supermarket or food store clusters, making it inconvenient for Venetians to complete routine shopping trips. This project explored the feasibility of a locally sourced and distributed marketplace comprised of revitalized local food stores. By conducting a case study on the Venetian neighborhood, Campo do Pozzi, we determined that a marketplace of this kind would be feasible in Venice.

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1.0 Introduction

Globalization has resulted in the opening of large corporations such as Walmart and chain supermarkets that offer a wide variety of goods to consumers at economical prices (Dean and Sobel, 2005). The widespread openings of these stores has resulted in the closing of local "mom and pop" shops that cannot compete with the variety offered by the corporation. In the American state of Iowa, the opening and growth of Walmart contributed to the closure of "555 grocery stores, 298 hardware stores, 293 building suppliers, 161 variety shops, 158 women's stores and 116 pharmacies" (Wal-MartWatch, 2005). Walmart, and other stores of the same caliber, offer such a large supply that they have a huge economies of scale, and can therefore sell their goods at low prices (Wolff-Mann, 2016). The combination of low prices and a large variety of supply make it hard for small businesses to compete. One area that experiences a high number of shop closures is the city of Venice, Italy.

In Venice, local store closure is compounded by depopulation. Since 1952, the Venetian population faced a major shift, reducing the historical center from a thriving city of almost 200,000 people after World War II, to less than 55,000 today (Venipedia, 2015). Meanwhile, as the number of supermarkets rose, the number of food stores decreased by 41% since 1996 when businesses were first required to report to the Venetian Chamber of Commerce (Chamber of Commerce, 2015). The closure of stores leaves several once bustling neighborhood squares vacant. The loss of food stores directly impacts neighborhoods by making it difficult for residents to obtain basic necessity food items such as bread, meat, fruits and vegetables, and created areas known as food deserts (Greene et al, 2005). The inconvenience created by the food store closures is increased by the aging population and lack of automobiles on the island (Greene

et al 2005). For this reason Venetians, on average, must cross three to four bridges just to complete a routine shopping trip which is not only an inconvenience but also a difficult feat for an aging population (Greene et al, 2005).

In the past, students part of the Venice Project Center have analyzed the difficulties of provisioning basic need goods for a city that is devoid of automobiles and affected by an aging population. Other Worcester Polytechnic Institute project teams in both 2004 and 2005 assessed the distribution of basic necessity food items that include but are not limited to bread, meat, and produce (Chandonnet et al, 2004; Greene et al, 2005). From their analysis and incorporated Census Tract data, they analyzed the convenience of a resident's commute, counted the number of bridges that needed to be crossed and determined the total travel distance in order to quantify resident satisfaction... In 2015, another WPI project team filtered through Chamber of Commerce data and created the ShoppMappApp, which provided a tool to visualize retail distribution for the city of Venice (LaRovere et al, 2015). From this data they were able to determine areas with decreased accessibility to food stores, or "food deserts" (Greene et al, 2005, Chandonnet et al, 2004; LaRovere et al, 2015). In order to combat inaccessibility of food products, increase accessibility to local goods, as well as revitalize neighborhoods recommendations have been provided for a food store marketplace in which the departments are housed in separate storefronts. This business model is referred to as a distributed supermarket, as illustrated in Figure 1.1.

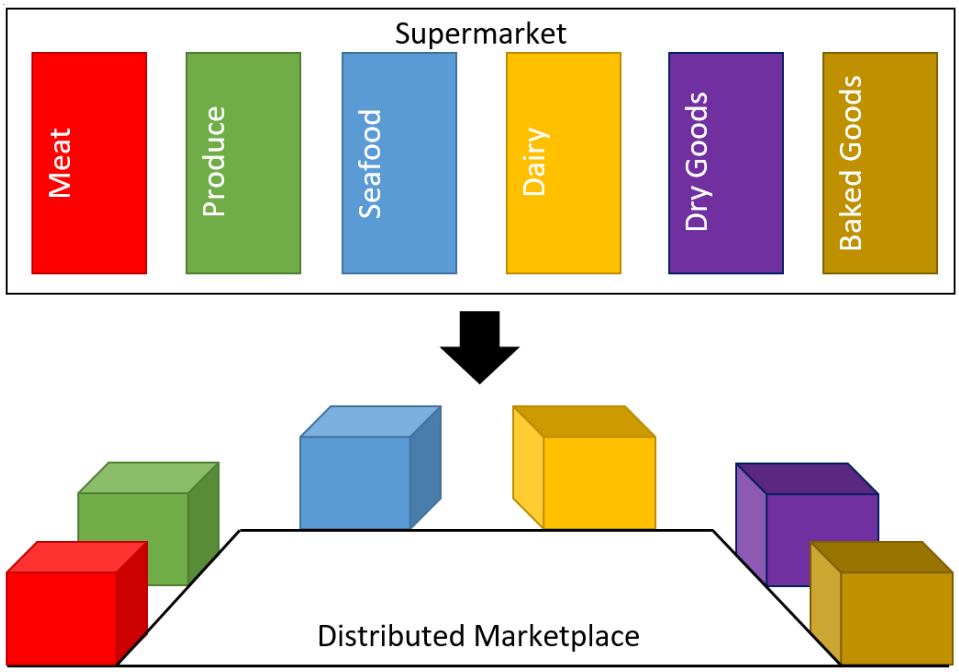


Figure 1.1 Concept of a distributed marketplace showing the supermarket departments as separate storefronts in a centralized marketplace

The Venice Project Center has already provided suggestions for a distributed marketplace, but it has not determined the feasibility of the model application in Venice. Our project will serve as the groundwork for future research that hopefully leads to implementation of the marketplace. The use of individual shops to form the marketplace offers restoration to the small shop culture by returning food shops to inaccessible neighborhoods allowing locals to have convenient access to food products they desire. The use of local and organic goods contributes to sustain Venetian businesses and provides residents with high quality products. By incorporating these types of goods and collaborating with local producers, it can cater to the current slow food movement and create a unique and innovative shopping experience.

Our goal is to explore the feasibility of a distributed supermarket, called MarketZquare, selling local and organic products at competitive prices. We created a reproducible business model that will be used to identify food deserts and test viability of a market comprised of "mom and pop" stores, or small privately owned stores that primarily sell local goods. In order to

achieve this goal we will identify a pilot location for the marketplace through the utilization of previous project and census data. We designed and configured a supply chain in order to provision the store with locally produced goods. We also analyzed the possible revenue and additional benefits of the marketplace in order to determine the viability of MarketZquare at the pilot location.

2.0 Background

Neighborhood shops once dominated the squares of Venice, Italy, offering local goods and serving as an inherent piece of the local community. These small, artisan-style shops, centered around customer and store owner interaction (Policy Link, 2010). Following World War II, the industrialized world shifted from local storefronts to consolidated, self-service grocery shops (Wittgens, 1997). This movement created an increase in supermarkets which shifted demand away from "mom and pop" stores.

The replacement of neighborhood food shops with corporate supermarkets has increased appeal for Venetians to purchase from large wholesalers rather than directly from the farmer (Marchiori, 2016). Supermarkets sell products at comparatively low prices, and sell a large variety of products out of one store, ultimately appealing to customers. Due to the lower prices the consumer naturally supports large scale farmers and neglects to continue sustained business with small local farmers (Marchiori, 2016). Venetians have access to markets and farm stands across the island, including the historical Rialto Market. This food, although fresh, often comes from a distributor and not directly from the farmer. This creates an increased distance and number of steps between the producer and the supplier which ultimately raises the cost of the product. This emphasis on supermarkets price efficiency results in a lack of social business interactions, that impact the relationships essential for community development (Marchiori, 2016). The establishment of strong producer and supplier relationships benefits both parties and opens opportunities for higher quality goods to be purchased at lower prices. The goal of our project is to determine the feasibility of a grocery marketplace comprised of revitalized local

stores that will provide residents with local, high quality products, as well as attempt to restore the neighborhood shop community.

2.1 Evolving Venetian Demographic

Since 1951 two-thirds of Venetian residents have left the estuario due to factors that include but are not limited to tourism, rising cost of living, and lack of employment opportunities (Greene et al, 2015). The residential population of the island was 175,300 in 1951 and today is just under 60,000 (Comune di Venezia, 2010). Venetians are attracted to the mainlands of Venice due to the presence of manufacturing industries that offer promising career opportunities and a lower cost of living (Greene et al, 2005). In response to these economic stimuli, young Venetians have migrated off of the island, leaving behind a dwindling and aging residential population (Greene et al, 2005).

Over the last fifty years, 4,400 stores have closed within the island of Venice, 1,600 of which sold goods produced in Venice (Venetian Chamber of Commerce, 2015). The fact that many local stores cannot compete with the convenience and low prices that central corporate stores bring to their consumers contributes to this behavior. The remaining local shops that have survived the closure are largely sustained by the tourist population (LaRovere et al, 2015). The 2015 Venice Project Center Shops team identified the correlation between the locations of bed and breakfasts and hotels, and Venetian local food stores also known as *alimentari* (LaRovere et al, 2015). The remaining active food shops are located in areas surrounded by these lodging facilities. Tourists are now staying in Airbnb and other rental properties rather than hotels (LaRovere et al, 2015). As a result of these new accommodations, guests have access to kitchens and are buying more groceries (LaRovere et al, 2015). This trend can be seen in Figure 2.1 as

every circled food store (represented with the red) is surrounded by hotels and bed and breakfasts (represented with the green "H" icons).

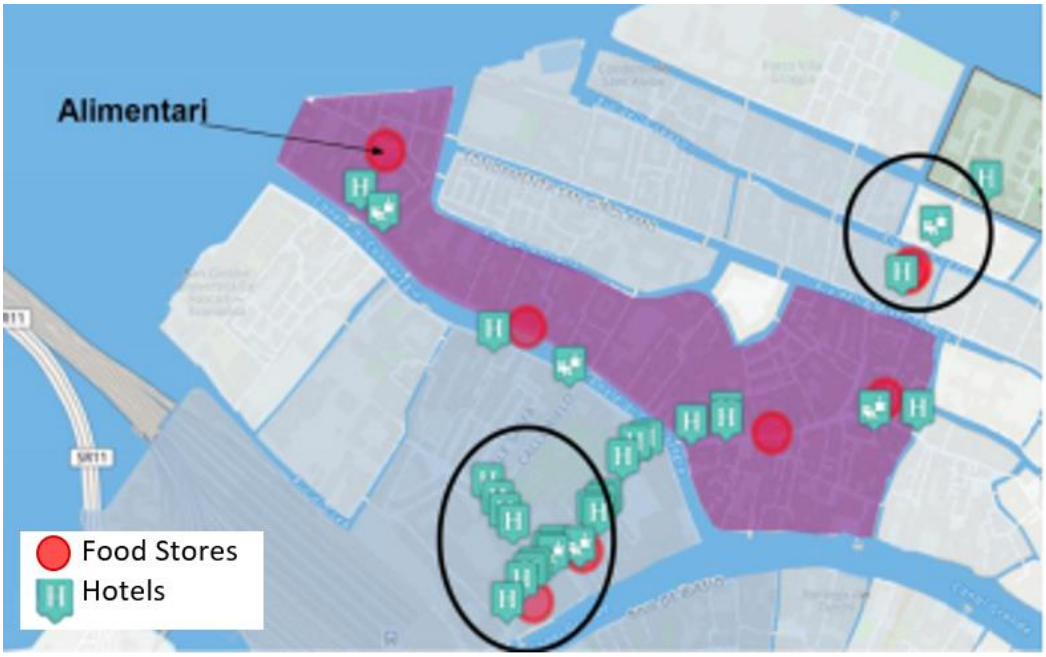


Figure 2.1 Relationship between alimentari and lodging facilities (VE15Shops, 2015).

2.2 Transportation in Venice

There are no cars permitted in the historic city of Venice, limiting travel to boating and walking. There are three different types of boat transportation in Venice: *Vaporetto, Gondola and Traghetto*. A *vaporetto* refers to a boat with designated routes and specific stops along the canals, much like a bus (Italylogue, 2010). Residents rely on both boats and walking for basic errands and local travel. This poses a problem for an older population because there are bridges all over the islands and many are not equipped with ramps. In the *sestiere* of Cannaregio, a pedestrian normally crosses a minimum of three bridges just to complete a routine shopping trip (Greene et al, 2005).

Figure 2.2 Photo of a Venetian resident carrying a grocery cart up bridge stairs

The cart on wheels as photographed in Figure 2.2 is the standard cart owned by every Venetian resident. Every bridge requires the resident to carry this cart up and down a flight of stairs. For this reason grocery shopping can become an obstacle to the older population (Greene et al, 2005). This problem is compounded by the fact that Venetians tend to buy goods in smaller quantities and shop daily which means these trips will be more frequent, making grocery shopping an inconvenient feat (Marchiori, 2016).

In addition, some food stores are isolated from others and do not even sell every item that someone might need at one time (Greene et al, 2005). There are many stores that focus primarily on a specialty item, meaning that the customer would have to visit a specific store for the good they desire. This causes customers to visit multiple stores, which adds to the total distance and number of bridges they must cross (Greene et al, 2005). For this reason Venetians prefer to shop as close to their neighborhood as possible.

2.3. Food Deserts

The inconvenience created from the limited transportation combined with the closure of food stores causes some neighborhoods to not be serviced by supermarkets or food store clusters. A food store cluster refers a group of stores that offer a variety of goods. Both supermarkets and these clusters offer Venetian residents a central place to buy all of their grocery needs. Areas that lack either of these shopping options are known as food deserts.

The term food desert has been previously defined as a "lack of retail services within say a 500-metre radius" of the customer's place of residence (David and Guy, 2004). Over time this definition has come to incorporate other variable socioeconomic contributors such as resident income and mobility (David and Guy, 2004; Wittgens, 1997). Previous approaches identified the problem but neglected to handle the social problems including the beliefs of the population and the external factors that contributed to the established trends (David and Guy, 2004).

While physical location plays an important role in providing residents with access to food, individual mobility will ultimately impact the population's ability to get to the store, meaning that the location of stores must be analyzed alongside the age of the population (David and Guy, 2004; Wittgens, 1997). In Venice, the lack of automobile transportation decreases the desirable radius of travel for residents, and places a larger strain on comfort levels (Greene et al, 2005). This current situation provides an opportunity for innovation in the Venetian retail food sector.

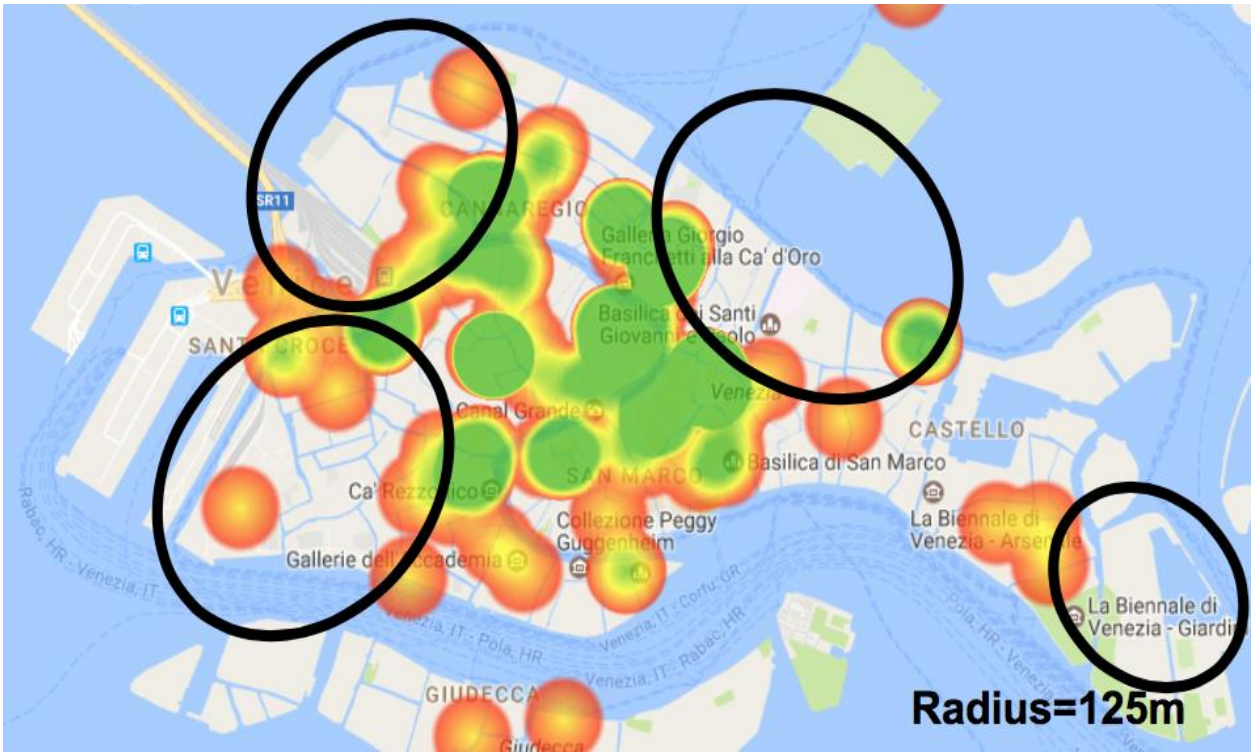


Figure 2.3 Food desert locations determined by distance from supermarkets/food store clusters.

2.3.1 Basic Necessity Goods

Resident satisfaction and food deserts are determined based off of resident access to basic necessity goods. A basic necessity good refers to one that is price inelastic and necessary for daily life. Inelasticity simply means that demand does not change in response to price changes because the good is considered essential (Hoag, 2006). If the price of such a good increases, the consumer is still likely to buy it due to a lack of alternatives (Hoag, 2006). Amongst the variety of food choices available, there are only some goods that would be considered a basic necessity good. These include but are not limited to water, bread, and meat (Satter, 2007). In order for food to be considered a necessity, it must be essential in maintaining the healthy condition of the individual (Problems of Humanity, 2010). The relative accessibility (or the ability of a person to obtain a particular good or service) can be determined from a myriad of factors that include proximity to the population and competition (Sparks et al, 2006). The inability to provide food to

residents induces social implications ranging from inadequate wellness to a dissatisfied population. The problem specific to the Venetians is the lack of these basic necessity goods within a comfortable radius of some residential neighborhoods (Greene et al, 2005).

2.4 The Organic Food Movement in Venice

In addition to desiring basic necessity goods in close proximity to their homes, Italy is taking part in the worldwide organic food movement. A study conducted throughout northern Italy found that 90% of those polled were willing to pay extra for properly documented certified organic goods (Wittgens, 1997). A study that analyzed the growth of organic food sales in Europe found that Europeans spent 162% more on organic food between 2007 and 2014 (Heinze, 2016). During that time Italy rose from 1.87 billion euros in 2007 to 2.10 billion euros in 2014 (Heinze, 2016).

Sales in Organic Food (Billion Euros)

	2007	2014
Germany	€ 5.30	€ 7.90
United Kingdom	€ 2.56	€ 2.30
France	€ 1.90	€ 4.80
Italy	€ 1.87	€ 2.10
Switzerland	€ 0.79	€ 1.83
Others	€ 3.77	€ 7.34
Total	€ 16.19	€ 26.27

Figure 2.4 Organic Food sales in 2007 and 2014 in billions of euros of European countries

This trend extends to the city of Venice, which in 2003 saw a 40% increase in organic meat sales (Galleto, 2003). In the Italian market system, organic meat can cost up to 20% more than standard processed product (Galleto, 2003). Venetians access these goods at fresh food markets throughout the island.

2.4.1 Farmer's Market

Farmer's markets bring together local vendors in order to provide them with a market and opportunity to showcase their products. This process benefits the farmers by presenting an opportunity for lower overhead costs. Farmer's markets are usually held on a weekly, biweekly or monthly basis. This market structure appeals to consumers because they receive local, high quality goods while supporting small farmers in their community (Adams, 2006). This gives the local farmers an opportunity to sell to a larger market than solely from their farm or store. A successful farmer's market operates in a way that limits competition between vendors but maximizes the diversity of the supply for the consumer, meaning that the market would only include one of every type of vendor,(LePage, 2016), In doing so the market promotes the ndividual vendor and their goods (LePage, 2016). Farmer's markets are on the rise in response to a global demand for local and organic goods (Adams, 2006). In Venice, most local and fresh food is obtained from the Rialto, permanent (blue), and weekly (green) farmer's markets as shown in Figure 2.5 below.

Figure 2.5 Fresh food markets in Venice, the Rialto Mercato indicated in red, daily markets indicated in blue, and weekly markets indicated in green.

The major market on Venice is the Rialto Mercato, which has historically provided goods and food to the locals. In addition there are permanent markets open throughout the island as well as a few weekly markets. These weekly markets are open 1-2 days a week, with four of them being considered farmers markets, and specializing in the sale of organic food (Venezia Unica, 2014). There is already a presence of markets in Venice, indicating the demand of accessibility of fresh food to the locals.

2.4.2 Community Supported Agriculture

In community supported agriculture (CSA), a producer, or farmer, sells a share of goods to locals. Consumers become members of the CSA by paying a certain amount of money per year or season. This "membership" pays farmers up front and covers the costs of the maintenance and salary of the farmer (Adam, 2006). In return, CSA members are given a certain amount of the farmer's produce or goods during the year or season. This process benefits the

farmers because they receive payment up front and directly. This maximizes profit through the elimination of a distributor (LePage, 2016).

CSA appeals to consumers because they know the products are local and it takes away the risk of relying on individual crops because they will always receive a share of viable goods. (LePage, 2016). A CSA can be implemented in order to eliminate unnecessary distribution of goods that can be obtained locally, i.e. it allows the goods to go directly from the producer to the consumer, eliminating the "middlemen". These contracts allow for the consumer to have access to local goods at a more reasonable price. Relying solely on CSA does have one drawback: it limits the types of foods a customer receives based on the season (LePage, 2016).

2.4.3 Solidarity Based Purchasing Groups (GAS)

Similar to CSA, Italy has *Gruppi di Acquisto Solidale* (GAS), which are Solidarity Based Purchasing Groups. This system is based on the focus of collectively and directly buying as a group from the food producers for commonly used goods (Tuttogreen, 2016). A GAS allows groups of individuals to come together to purchase desired goods in bulk from specific producers, getting a share of the product from the group. The participants in a GAS have different means of buying the goods from the producer. This changes per GAS depending on variables that include how many people and consumers are involved. For a major GAS, the consumers could order the group purchase by registering online and making online orders that go to the farms to be completed. In other cases, a GAS interaction may be more casual, with groups making more direct orders to farmers themselves (Eventhia, 2016).

In this model of obtaining common goods and food, the priority is on equally benefiting the group of farmers and the consumer by creating a mutual agreement of purchasing and providing goods to each other. In addition, GAS stresses the importance of the influence in the

environment on the products that are able to be purchased (Tuttogreen, 2016). The producers offer products that are available according to the season, allowing producers to sell what they can easily grow in abundance rather than focus on the demand of the consumer. The types of products typically available in these solidarity based purchasing groups include: fruits and vegetables, breads and flour, cheese, detergents, meat, clothes, juice, wine, sweets, and oils (I gruppi D'Aquisto Solidale Veneti Nel 2011).

There are a total of 15 registered GAS in the Veneto region, with only one operating off of the island itself named Veneziano GAS (Eventhia, 2016). Within Venice, 53.2% of the consumers of the GAS markets make weekly purchases in order to obtain their goods from the group, showing a steady demand for business and participation (I gruppi D'Aquisto Solidale Veneti Nel 2011). GAS promotes a close relationship between the suppliers, being comprised of different farmers and producers that complement each other so each can contribute the main product type or good from their specific farm. This setup connects with the groups of consumers seeking these high quality goods, with 80.7% of these solidarity groups making personal visits to the actual suppliers themselves (I gruppi D'Aquisto Solidale Veneti Nel 2011). This system aims to eliminate the middle-man, and make a more direct route for locally-produced goods to be easily passed from producers to the consumers themselves, as well as provide easy access to organic and farm fresh food.

2.5 Supermarket Supply Chain

Farmer's markets, CSA and GAS work collaboratively with the farmer and offer opportunities to cut the middlemen from the typical food supply chain. In a typical supermarket supply chain supermarket, producers provide food into a streamlined distribution system that transforms raw materials into processed goods. Typically these middlemen will allocate the food

to the consumer in terms of processed foods or resale (Dani, 2015). The most successful supply chains are the ones that implement technology and practices in order to accurately gauge consumer demand. Tracking demand helps to eliminate food waste and product scarcity. Ideally, it benefits both the producer and the consumer to eliminate these middle steps because it cuts down on transportation cost (Dani,2015).. The rising prices of establishing the supply chain trickles down to the price of the good. In order to provide competitive pricing these costs must be minimized (Dani, 2015).

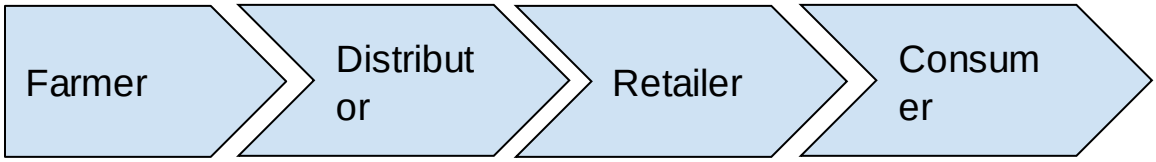


Figure 2.6 Supermarket supply chain

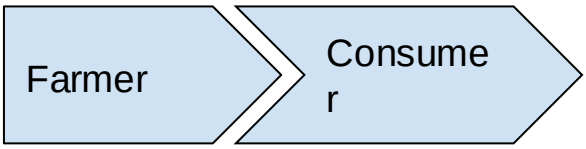


Figure 2.7 Short Supply Chain from farmer's markets, CSA and GAS

2.6 Venetian Food Industry

There are 27 supermarkets in the city of the Venice. The dominant grocery stores in Venice include, Coop, Punto Simply, and Conad (Imboden, 2016). These markets sell a variety of food products at wholesale prices, but are imported from farther locations beyond the lagoon and mainland. Fresh food markets are common for sale of produce and sometimes fish. There are a total of 29 markets in and around Venice (Venezia Unica, 2014). In addition to these scheduled markets, there are occasional food carts and street markets in *campos* and neighborhoods throughout the city. There are also specialized food stores such as family owned bakeries and

butcher shops. There are a total of 115 artisan food stores of this type (Venetian Chamber of Commerce, 2015).

2.7 Distributed Supermarket

A distributed supermarket is a single market in which the store departments operate out of separate storefronts (Greene et al, 2005). The shops can either be owned by several private owners, one central owner, or the government. Central ownership allows for the competitive pricing of a supermarket supply chain while offering high quality products (Greene et al 2005). These markets appeal to the distinct Venetian needs by providing an opportunity to revitalize abandoned storefronts and increase food store accessibility (Greene et al, 2005). Through collaboration with these local food suppliers these shops have the ability to create a unique market experience that provides consumers with a classic "mom and pop" feel while offering the same variety as a supermarket. This business model seeks to fulfill the need to revitalized closed store fronts in Venice and increase availability of local food while working with the spatial constraints of a small heritage city. The distributed supermarket will be able to revitalize the old neighborhood of Venice, ultimately bringing back the unique and historic culture of this city.

3.0 Methodology

Our project explored the viability of a grocery marketplace, comprised of locally supplied food shops called MarketZquare. The "Z" refers to *kilometro zero* meaning that the market would be supplied from producers in and around the lagoon. The design attempted to adhere to the principles of a solidarity economy which means that it aims to build up the local community around the business both economically and socially. The market differentiates itself by providing high quality goods to residents in order to increase accessibility to food stores and to establish a lost sense of community in the Venetian neighborhood square. The objectives of our project were as follows:

1. To analyze chamber of commerce data to determine store closure trends.
2. To design and identify locations for the conceptual marketplace.
3. To explore a supply chain model in order to provision the store.
4. To determine the viability of a distributed supermarket at the pilot location.

These objectives were chosen in order to address the major factors associated with developing such a marketplace. Analyzing the data from previous IQP teams and from the Chamber of Commerce was necessary to understand market trends and better understand the food industry in Venice in order to determine criteria for the selection of a pilot location. A case study location was selected in order to calculate costs and determine market feasibility. Exploring the supply chain allowed for identification of local producers and respective transportation of goods to the pilot location. Determining the viability ties the supply and location together by anticipating costs and determining whether the selected pilot marketplace would be feasible.

We examined existing data sets in order to sort existing shops data from the chamber of commerce and Venice Project Center Shop data into open food stores, closed food stores and supermarkets. This information was sorted by year to track progression through time and to determine possible relationships and trends between the closing of local food stores and the rise of supermarkets. Through map renderings of shop closures, we spatially located problem areas suffering from food store closure and determine geographical factors that foster supermarket success. We then analyzed population and proximity to local food stores, in order to center the marketplace in an area that would promote sustainability. Local farmers as well as local food stores provided information that allowed us to acquire a database of small farmers in Venice, and determine a possible list of suppliers for the conceptual marketplace.

3.1 Analyzing Food Retail Trends

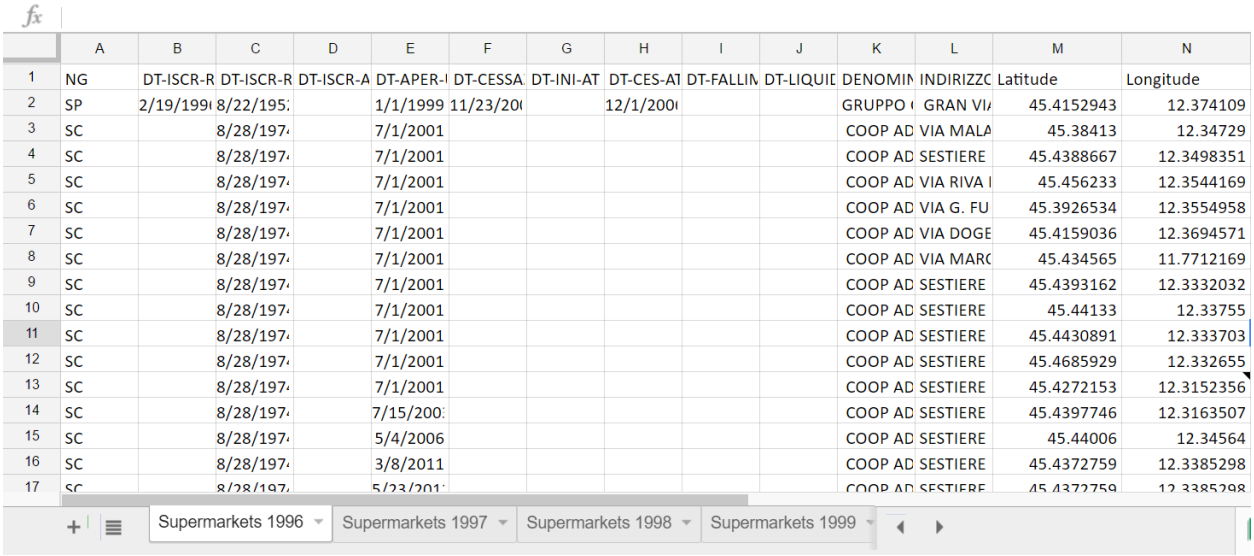
Chamber of commerce data and Venice Project Center shop data from 2015 used in conjunction with the 2011 census tracts allowed for store openings and closings to be juxtaposed against Venice's depopulation. By viewing the the data simultaneously we observed correlations and relationships between the datasets that provided insight as to what factors impact food store closure and what areas can support food stores and supermarkets. This data helped to provide the framework of our market location criteria.

3.1.1 Sorting of Chamber of Commerce Data

Using shop data from the chamber of commerce that dates back to 1924, the shops were sorted according to open food stores, closed food stores and supermarkets. Once divided into these three categories we sorted that data even further by year to indicate which supermarkets were open and which food stores were closed in each given year between 1996 and 2015. These

databases were used to create mappings that provided additional spatial information about supermarkets and open and closed food shops.

In order to create the supermarket database we first filtered the Chamber of Commerce data by activity code, which identifies the type of the store. For supermarkets the NACE activity code is 47.11.2. For each given year all shops with the 47.11.2 activity code were filtered by opening date. For example, in 1996 all Supermarkets were removed that opened past the year of 1996. Next, the closing dates were examined in order to ensure that the supermarket did not close in 1996 or before. Lastly, any duplicate addresses were removed from the spreadsheet of remaining values in order to avoid double counting one storefront if it had reopened in that year or before. This process was repeated for every year up until 2015 and stored as a separate by different spreadsheet tabs. At the conclusion of this process there were three databases: Supermarkets 1996-2015, Open food Stores 1996-2015 and closed food stores 1996-2015. Each spreadsheet tab was saved as a comma separated variable file so that the longitude and latitude values could be uploaded into QGIS mapping system.



	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	NG	DT-ISCR-R	DT-ISCR-R	DT-ISCR-A	DT-APER-I	DT-CESSA	DT-INI-AT	DT-CES-AT	DT-FALLIN	DT-LIQUID	DENOMIN	INDIRIZZC	Latitude	Longitude
2	SP	2/19/199	8/22/195		1/1/1999	11/23/20		12/1/200			GRUPPO	GRAN VIA	45.4152943	12.374109
3	SC		8/28/197		7/1/2001						COOP AD	VIA MALA	45.38413	12.34729
4	SC		8/28/197		7/1/2001						COOP AD	SESTIERE	45.4388667	12.3498351
5	SC		8/28/197		7/1/2001						COOP AD	VIA RIVA I	45.456233	12.3544169
6	SC		8/28/197		7/1/2001						COOP AD	VIA G. FU	45.3926534	12.3554958
7	SC		8/28/197		7/1/2001						COOP AD	VIA DOGE	45.4159036	12.3694571
8	SC		8/28/197		7/1/2001						COOP AD	VIA MARC	45.434565	11.7712169
9	SC		8/28/197		7/1/2001						COOP AD	SESTIERE	45.4393162	12.3332032
10	SC		8/28/197		7/1/2001						COOP AD	SESTIERE	45.44133	12.33755
11	SC		8/28/197		7/1/2001						COOP AD	SESTIERE	45.4430891	12.333703
12	SC		8/28/197		7/1/2001						COOP AD	SESTIERE	45.4685929	12.332655
13	SC		8/28/197		7/1/2001						COOP AD	SESTIERE	45.4272153	12.3152356
14	SC		8/28/197		7/15/200						COOP AD	SESTIERE	45.4397746	12.3163507
15	SC		8/28/197		5/4/2006						COOP AD	SESTIERE	45.44006	12.34564
16	SC		8/28/197		3/8/2011						COOP AD	SESTIERE	45.4372759	12.3385298
17	SC		8/28/197		5/23/201						COOP AD	SESTIERE	45.4372759	12.3385298

Supermarkets 1996 | Supermarkets 1997 | Supermarkets 1998 | Supermarkets 1999

Figure 3.1 Sample of supermarket database with data collected from the Chamber of Commerce.

Once these spreadsheets were created, they were used to create different layers in QGIS. Each year from the database was added as a separate layer so that they could be easily toggled from the layers panel by year and shop type to select which data could be seen on the map.

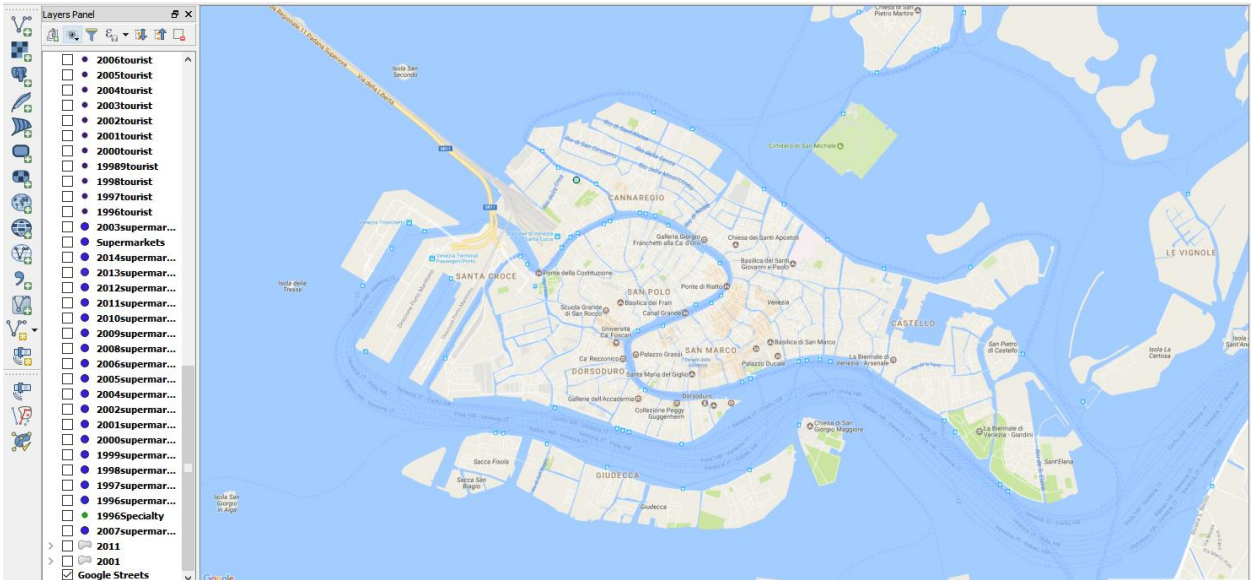


Figure 3.2 Sample QGIS software interface displaying layer panel

The Chamber of Commerce uses the United Nation's Nomenclature of Economic Activities (NACE) standard to categorize businesses according to the product that they sell. The NACE code expands upon the International Standard of Industrial Classification system used by the United Nations to add more detail to each shop classification. Each business is assigned a four digit code. The first value, or letter, denotes the category of store and each preceding number further categorizes the business. In the example depicted below, the C represents the manufacturing category.

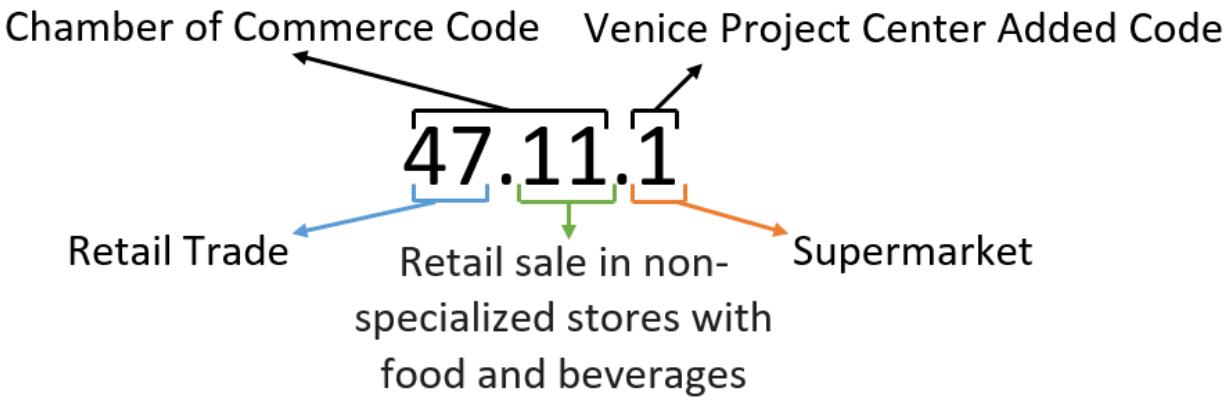


Figure 3.3 NACE coding for supermarkets from the Chamber of Commerce and the VPC.

The Venice Project Center 2015 Shops Team created their own shops database which uses a modified version of the NACE classification. Their system adds an extra two digits to increase specificity of shop classification (LaRovere et al, 2015). Increasing the specificity of the classification system provides the opportunity to provide a more accurate analysis because it creates the opportunity to pinpoint exact shop type. For example in the Chamber of Commerce data a convenience store would fall under the same category as supermarket even though they offer a much smaller quantity of goods. The Venice Project Center Code only applies to their shops database and not the chamber of commerce. Both codes can be referenced in the Appendix B. Before they had access to chamber of commerce records, the Venice Project Center relied on the elderly locals, to identify shops based on memory. This is not the most reliable means of data collection. The chamber of commerce recorded store data since 1924 and documented the evolution of each retail space on the islands of Venice. By updating the database and identifying the type of stores that closed, we were able to study the evolution of the food industry on the island and form hypotheses regarding the factors that caused this behavior.

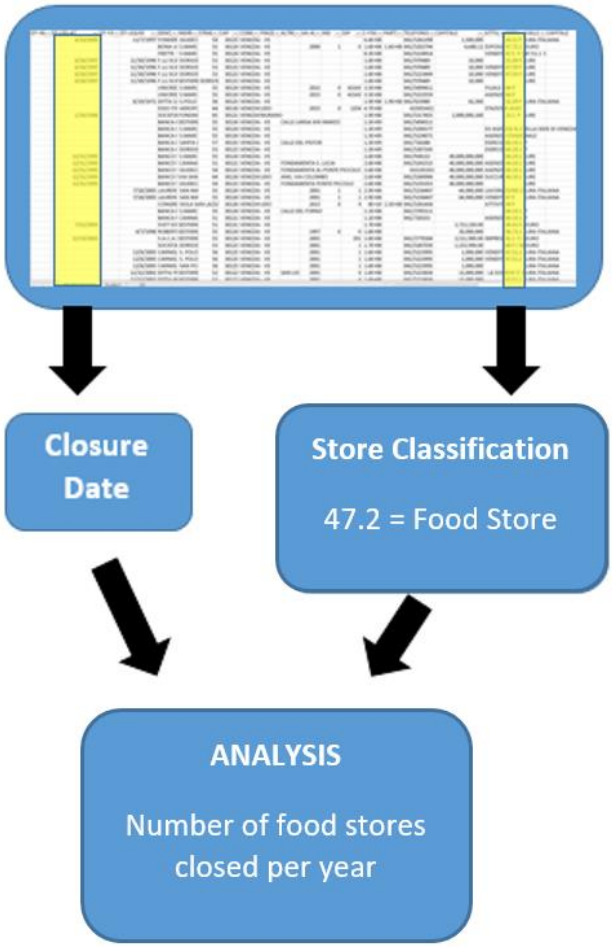


Figure 3.4 Summary of store closure data analysis process

3.1.2 Census Tracts

The Instituto Nazionale di Statistica (National Institute of Statistics) conducts a census every ten years (ISTAT, n.d.). This organization, founded in 1926, primarily serves to conduct the census. The most recent census took place in 2011 and the next will be scheduled for 2021 (ISTAT, n.d.). The census collects data in the form of small units, or tracts. These tracts are small subdivisions of a city (such as neighborhood) that are designed to be comparable in terms of population and demographics (Census Tracts, n.d.). Due to the fact that island size and

conditions vary indicators such as population density may not accurately reflect the actual demographics of Venice. The historic city of Venice is divided into about 1,200 of these divisions(Census Tracts, n.d.).

The census tracts collect data not only regarding total population but also population separated into age brackets. ISTAT also collects more detailed information such as family units, employment and employment information. This information is collected for each tract in order to analyze migration patterns and get a more accurate characteristics of Venetian neighborhood.

3.1.3 Shop Data

The Venetian chamber of commerce has a database with retail shop information dating back to 1924 when it was first established (Eurostat, 2016). The database possesses information of over 30,000 shops and was first given to the Venice Project Center in 2015 (LaRovere et al, 2015). Store owners register their business information directly to the chamber of commerce where they can record the history of Venetian storefronts. Prior to 1996 businesses were not required to report data so the records prior to that year are not complete. (LaRovere et al, 2015). The database is in the form of an excel spreadsheet and contains information that includes the address to the store, store name, opening and closing date and activity code. The NACE activity code refers to the numerical code that defines businesses by the goods or services they provide (Eurostat, 2016).

3.1.4 Compiling Databases to Analyze Food Market Trends

To identify trends and relationships between local shops and factors such as year and population, we compiled all of the mappings. From this information we visualized areas of high closure concentration and determined what areas exhibited a higher need for certain products.

These areas were analyzed in relation to population change over time, allowing us to view how changes in demographics impact the Venetian retail industry, and to identify which of the high-demand areas still retained a high resident population. The final comparison conducted related the number of supermarkets and number of "mom and pop" food stores over time. These visual tools illustrated speculative relationships between neighborhood stores and more corporate entities that have not been previously quantified.

3.2 Designing and Identifying Locations for a Pilot Marketplace

Our project focused on creating a plan for a marketplace that provided locals with increased access to organic foods and local goods. We accomplished this by creating a set of criteria (explained in a later section) to meet the needs of the locals, increasing convenience and developing a centralized location to obtain organic and fresh goods. From this criteria, along with observing the population of different areas of Venice, we narrowed down the possible locations for our pilot store, and determined an area of closed storefronts that would be best suited for our case study.

3.2.1 Design the Conceptual Layout of the Pilot Market

In order to accurately create a pilot market, we must design the conceptual idea of the marketplace. We established a criteria set in order to aid in this process, as described in Table 3.1 below, along with our justifications why these criteria are needed for the supermarket.

Criteria	*Minimum Requirement*	*Reason*
Number of Closed Storefronts	6 Stores	To provide space for all store types
Population	600	To determine the amount of foot traffic
Number of Families (2-4 people)	100 Families	To have a strong customer base
Open Square Area	Present	To allow a neighborhood market atmosphere
Average Distance from Competing Food Stores	300m	To serve those that may be in a food desert
Distance From Closest Boat Stop	300m	To serve commuting customers

Table 3.1 Table of criteria for all pilot locations used to select the case study location

Our marketplace will provide residents with a central location for a store to obtain basic grocery needs. In addition, the marketplace business model involves contributing to the revitalization of the Venetian shop culture by increasing the presence of "mom and pop" shops and accessibility to local goods and producers.

We determined that the ideal market contained storefronts that can accommodate all the major departments of a traditional grocery store. These departments include dairy, produce, meat, bread, and dry goods. In order to determine the important food types, we visited food and grocery stores throughout Venice, allowing us to visually analyze food and departments, and goods that were in highest demand. To determine the most prevalent product type, we measured shelving units by product type to find which products occupy the most store area. We measured these areas by pacing out standard shelving unit dimensions to find approximate amounts of each product, i.e. we counted the number of steps long and wide something was and used our heights to measure the shelf height. We counted the amount of shelving units occupied by each department, allowing us to calculate the ratio of departments in each store, which we averaged and standardized for comparison. Since we all have different stride lengths, foot sizes, and

heights, we agreed upon a standard height and width, using the shelves that were in the stores. Then each of us estimated the number of shelving units based on that standard size. After counting all the shelf space of departments for multiple grocery and local stores, we could determine the goods in highest demand. With this knowledge, we decided which separate storefronts to include in our conceptual pilot marketplace.

The goal pilot location was to be comprised of multiple closed down and unoccupied storefronts that are located in close proximity to one another, making up one single marketplace as illustrated in Figure 3.5 below.

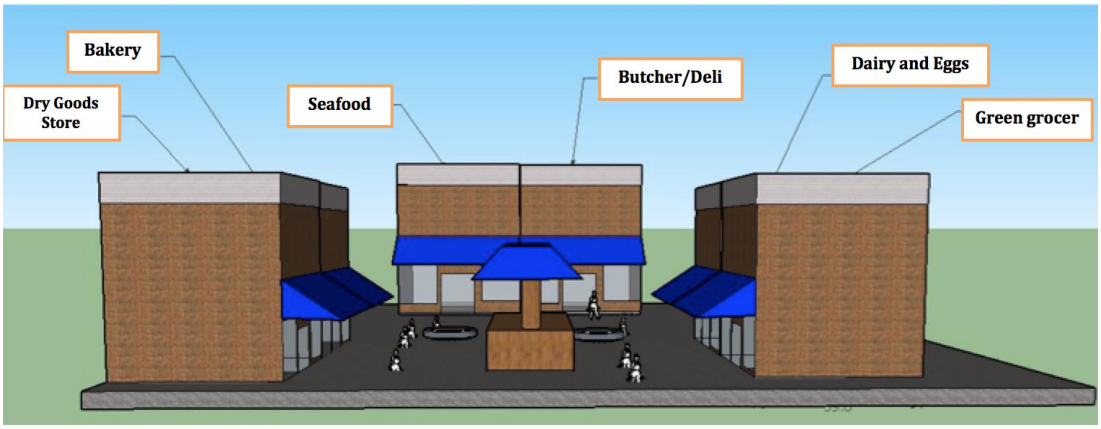


Figure 3.5 Conceptual layout of the proposed marketplace

The marketplace would be located in a square to accommodate the social environment of the Venetian neighborhood stores, as well as to provide convenience for local residents by having all the different stores easily accessible in one location. Single street stores were a possibility, but these possible stores do not neighbor each other and are scattered along the street. A square encompassed the close-knit neighborhood image of MarketZquare. In our conceptual idea of the marketplace, we also planned to have a small restaurant with outdoor seating. This would help restore the social atmosphere of the neighborhood squares, and serve as a central hub

for the neighborhood. It is also ideal for the conceptual market to have space for a local vendors to sell goods out of separate stalls or carts, in order for smaller vendors to have a chance to participate even if they are not one of the owners of the permanent stores. These goods would most likely be seasonal goods, as outdoor vendors would be there only when the weather permits. This would help promote the sale of locally made goods to the locals themselves.

3.2.2 Identify a Pilot Location

A pilot location was chosen for our case study in an area that met our criteria in terms of catch basin population, average population age, distance to nearest supermarket and distance to nearest boat stop. These factors were selected in order to promote market sustainability and ensure that the business has the potential to succeed in at the selected pilot location.

The population was calculated in terms of catch basin which provided an estimate of a reasonable group of people that the market could serve. For this criteria we based population of off the census tract of the pilot location and all of the adjacent census tracts in order to minimize consumer commute to the market. From these numbers and observation of current supermarket locations we determined that a catch basin population of at least 600 people would be able to provision the market.

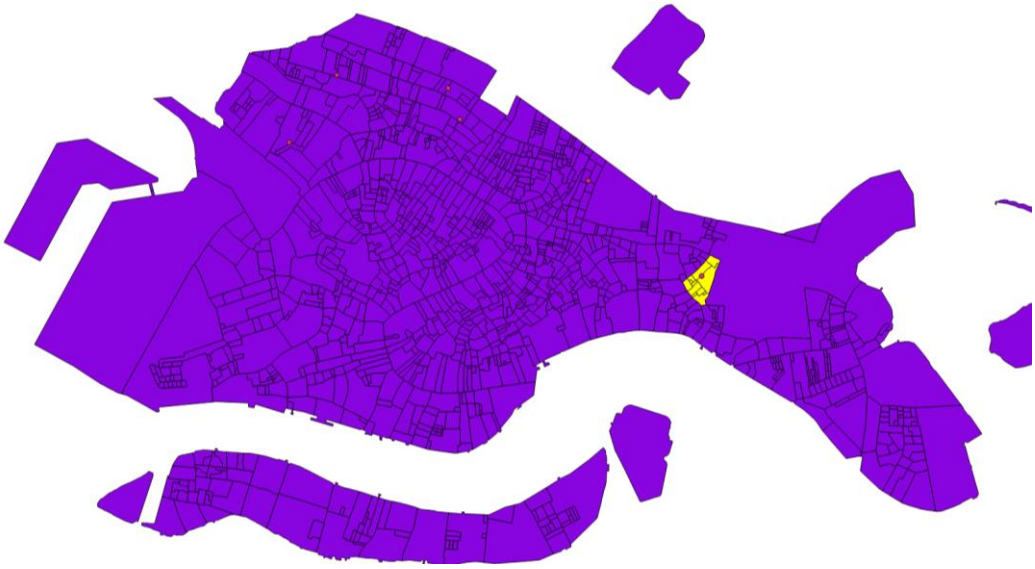


Figure 3.6 Selected catch basin population for Campo Do Pozzi (Yellow), as determined by its adjacent Census Tracts regions from the 2011 Census. This represents the minimum target population for MarketZquare.

The second criteria we looked at was number of storefronts. We decided that in order to accommodate our conceptual design we required 6 storefronts so that we could cover the six desired departments: produce, dry goods, dairy and butcher, bakery and fish. The storefronts could be condensed if no locations could satisfy this criteria, however the ideal location would be able to house each of the departments individually in a separate storefront. By assigning one type of good to one storefront it creates the neighborhood "mom and pop" shop that is an inherent part of our design.

The next criteria dealt with competition with local supermarkets. We decided to determine criteria based of off supermarkets because they provide one convenient location for Venetians to get all of their grocery needs. We determined that the convenience of one shopping stop would appeal to Venetian residents because it not only reduces the time of their errands but also the distance they are required to carry the shopping cart. We believe that a central market location such as MarketZquare is most threatened by a supermarket, so for that reason we

determined 300 meters to be the minimum distance from a supermarket that we would place our pilot marketplace.

The next factor that we decided to take into account was the average resident age. Although the organic food trend can appeal to a younger population, the older residents have the means to purchase these goods. The limited incomes of younger populations would make them reliant on the cheapest prices. Although buying directly from the farmer can be cheaper, we must account for the possibility that MarketZquare could be more expensive than a supermarket. An older population also tends to be a more stationary population and therefore would be more prone to establishing habitual customer relationships. Also, distance to the closest supermarket more important to an older population. As residents get older it is more important that they minimize stops and the amount they need to carry their cart over bridges. For this reason, an area with an older residential population is more likely to shop at a neighborhood marketplace due to convenience.

The final criteria we examined for each pilot location was distance to the nearest boat stop. Ideally we wanted to minimize the distance to the boat stop in order to make MarketZquare a convenient stop within regular resident travel. We based this estimation off of our supermarket distance because if 300 meters was unreasonable to walk to a supermarket, a resident would not maximize their efficiency going to a grocery store that is a lot more than 300 meters off of their normal commuting path.

Ideally we wanted to find a location that met all of these criteria but given that many of the ideal locations are already occupied and that closed storefronts were not always located together we determined that any location that met less than three requirements would be unsatisfactory and any location with four or more requirements would be an ideal pilot location.

Any locations that met three criteria would be sufficient, meaning that they would most likely be able to support MarketZquare but it is not the most ideal location. A summary of the pilot location criteria is summarized in Figure 3.7 below.

Population	>600
Number of Stores	6
Closest Supermarket	>300m
Average Age	>49
Closest Boat Stop	<300m

Figure 3.7 Criteria for the selection of our pilot location marketplace

3.3 Explore the Supply Chain to Provision the Store

We identified the availability of locally produced food suppliers on and around the Venetian islands. We visited Venetian farmer's markets and local farms in Mestre in order to identify producers of local goods already in the lagoon and the mainland of Venice. From these sources we collected data, such as available product type and location of each producer which allowed us to identify potential suppliers for the marketplace.

3.3.1 Networking with Suppliers

One of the focuses of the project was to sell organic locally produced good at the marketplace in order to tap into the organic food market niche. In order to determine suppliers and farmers, we filtered through a list of stores in the area of Venice by product type as compiled

in our database. We identified activity codes that corresponded to agriculture and food production and recorded producer name, product sold, and location into a Google Spreadsheet. We also visited local markets and identified suppliers to research, giving us an idea of the opportunities for purchasing local goods. We did this with the goal of locating small suppliers who were not partnered with an established corporate market. At these markets, the entire team conducted semi-structured interviews with vendors and explored pertinent information for formation of our supply network. We executed a semi-structured interview with our collaborator, David Marchiori (a chef and business owner living in Venice), in order to acquire leads for further research. These interviews took on conversational form and the following was noted in each discussion with possible collaborators:

1. What is the name of your company?
2. What types of products do you sell?
3. Price values of each item.
4. Where is your business located?
5. Where do you currently supply your goods to (include locations)?
6. What other suppliers are you aware of in the area?

Most of the local farms are advertised by word of mouth and existing connections. In order to compile a list of producers, we identified the active *Gruppo di Acquisto Solidale*, or groups of farmers that are utilized to supply to a group of consumers in Venice. By finding the established GAS in Venice, we were able to identify the farmers that were part of each GAS through online sources. We then utilized this information to add each producer in a Google Survey, allowing us to organize and compile all the information. We collected information on each farm and producer including: name of farm, location, and types of goods. The types of goods were broken down into the following categories: produce, dairy, meat, fish, and dry goods. We selected these categories in order to provision the most popular food items determined in

Objective 2. Using Geocoding Google Sheets plugin software, we obtained latitude and longitude for each supplier, which would then allow us to plot them on a map. We input each product type as a QGIS layer and created a map diagram that illustrated the location of supplier's color coded by product type for Venice and its surrounding area.

3.4 Determine the Viability of MarketZquare

In order to determine the feasibility, we calculated estimate costs for the marketplace. These cost estimates were compared with expected revenue of the MarketZquare marketplace in order to quantify how much profit MarketZquare is capable of. All cost values were estimated according to the highest cost in order to determine the worst case cost of opening and maintaining the marketplace. The higher cost estimate was conducted to strengthen the validity of our conclusions and to ensure that all expenses have been addressed and that any cut on costs will just increase revenue.

The first cost calculated was mortgage rate. Using Venetian commercial real estate data provided by the Venice Project Center, we were able to find that the average rent cost for the borough of Castello was 1500€ per square meter per year. We determined that purchasing the property would give the worst case scenario cost, but also provided a way to evade the rise of rental costs as the business becomes more successful All mortgages were based off of a 3% interest rate over a 15-year time period. Each storefront was estimated by multiplying the area by the cost rate. This value was then plugged into a mortgage rate calculator that determined the amount a buyer would need to pay per month in order to own MarketZquare. This value was multiplied by twelve in order to determine the annual cost to maintain the marketplace. This value was also totaled individually by each storefront, which made it so that any potential buyer would have the information necessary to phase in the project as their budget fits.

Due to the fact that many closed storefronts are not in pristine conditions, renovations will need to be made. These renovations will seek to accommodate any municipality regulations as well as to provide any necessary aesthetic for each storefront in the marketplace. In order to determine this, cost we will talk to local store owners and determine a reasonable cost for storefront renovation. This cost will be determined by square meter meaning we will determine a cost per unit of area for whatever cost we receive. This value can be applied to all storefronts in the square.

The design of our marketplace involves a single person or corporation having total ownership over MarketZquare. Under them there will be staff members that was determined from conversations with Venetian business owners, which allows for adequate time for breaks and vacations. The workers would be charged a salary of €1,000 for the Italian 14 term policy meaning that the salary will be about €14,000 per worker. The monthly value was added to the first month cost and the total annual salaries for all storefronts were added in order to determine an initial startup cost.

Equipment costs were determined operating under the worst case situation that the owner purchases it upfront. We determined the number of fridges, freezers and other pieces of equipment that would be needed based on observations of Venetian storefronts. The costs of these values were determined by searching through European industrial equipment stores in order to determine how much equipment costs. These values were added to the monthly total to demonstrate the large upfront cost of building this marketplace. Lastly, utilities were estimated at €60 per meter squared in order to account for the high cost of industrial utility use.

Product cost also played a factor because the food industry has a very volatile supply which poses both an expense and risk to the MarketZquare owner. Restaurant owner and organic

food expert, David Marchiori, provided us with his study that included the cost to produce the food and the cost both at the grocery store and at his GAS, TuttoGas. A study conducted by Eurostat also addressed consumer demand and had percentages of how much Venetians buy separated by product category. Eurostat and David Marchiori provided us household spending data that broke down total food spending into subgroups based on product type. The markup cost was calculated from the cost to produce and the price at the supermarket. Using the percentages for consumer demand we multiplied the percentage for each storefront in the market by the total spending in the area. Once this was complete we were left with the amount, in euro, that the catch basin area spends on food annually. We accounted for the mark up cost of the good by reducing the product type totals by reducing the costs by the scale factor in order to obtain the initial expense to make the product. This procedure gave us the total cost of product for the marketplace.

The benefits were calculated in the form of revenue. Using the catch basin population in the 2011 Census Tracts we totaled the number of households for the pilot location which was listed under the subtitle “A4”, Using the average household spending determined from David Marchiori, we would multiply€ 7,000 by the number of households in the pilot location catch basin in order to determine the total food spending in the area of the pilot marketplace. The costs were then added but renovations and equipment were excluded. These prices were neglected because we aimed to see annual maintenance cost in order to determine whether MarketZquare could be feasible. These costs were then compared and we determined the percentage of the catch basin population that would need to shop there in order to meet costs. If the percentage was over 50% then the market would not be feasible because too many people would need to shop, there and it would be necessary to convert people from their habits in order to make ends meet.

A value below 50% would be feasible and the lower the percentage the more feasible the market would be. One benefit of calculating worst-case cost is that it does not account for any additional customers that could be drawn from their neighborhood for the concept, experience, or quality of goods. It also neglects any tourists that may stay in houses or Airbnb rentals in the area, which makes 50% of shoppers a reasonable cut off for market possibility.

4.0 Results and Analysis

Within our seven weeks in Venice we analyzed and organized closed food shop data, determined a pilot location for the marketplace, identified possible local suppliers, and determined the viability of the marketplace through cost-benefit analysis. From analyzing different business models, we have concluded that a locally sourced distributed marketplace, like MarketZquare, would likely be successful in the city of Venice. This combination of business models we researched allows for high quality goods to be sold at competitive prices while providing the local store convenience to the consumer. In addition to appealing to resident needs the market can restore vacant storefronts and in doing so revive 'mom and pop' shops within the city.

4.1 Analysis of Retail Shop Data

The sorting and mapping of Chamber of Commerce data allowed for isolated study of the Venetian retail food market. The data was categorized into open food stores, closed food stores and supermarkets. A food store referred to any specialized food shop that offered one or few product types. An example of this type of store would be a butcher shop or bakery. These stores excluded mini marts and supermarkets to isolate the specialized store data from the supermarket data so that they could be analyzed for any correlations. By visualizing the data by year, we established relationships and trends in the Venetian food market that would be useful for the selection of a pilot location. We incorporated some of our findings in the criteria for our pilot location selection.

4.1.1 Venice's Food Retail Sector

Today, there are 27 supermarkets on the islands of Venice and 24 within the city. The location of these supermarkets can be seen in Figure 4.1. as represented by the blue dots.

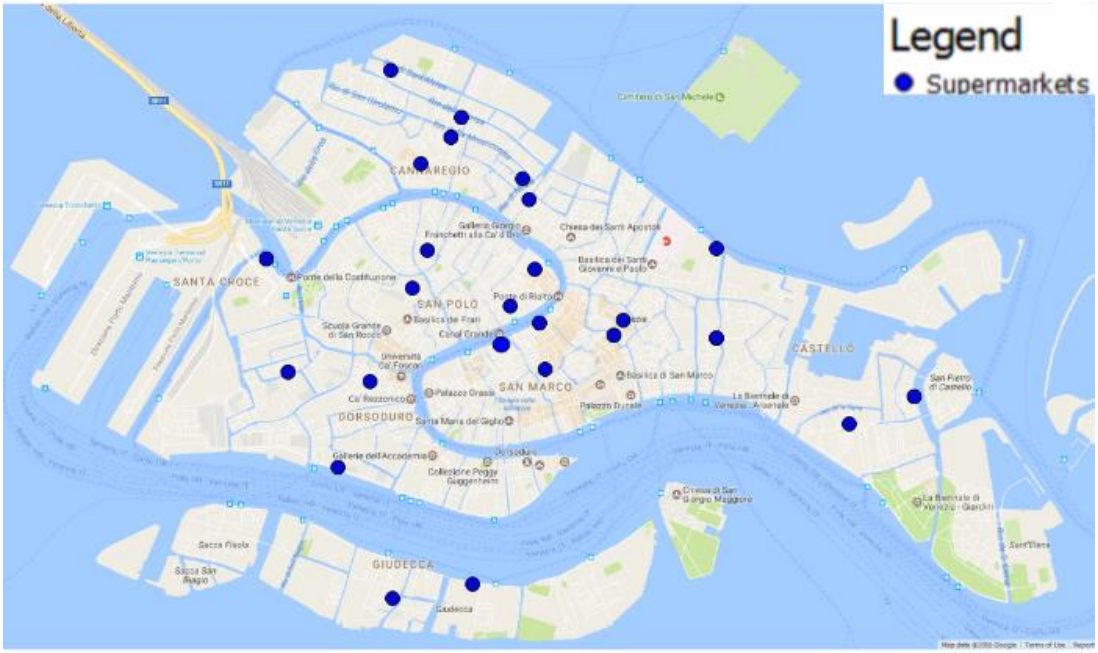


Figure 4.1 Supermarket locations (blue dot) within the city of Venice from Chamber of Commerce and Google Maps.

From the map above we observed that the supermarkets are denser in the *sestiere* of San Polo and Cannaregio. Many of the supermarkets were within close proximity to one another which seemed to be contradicting what we previously would have thought. After observing this we wanted to track the progression of these supermarkets and determine where new markets are being placed.

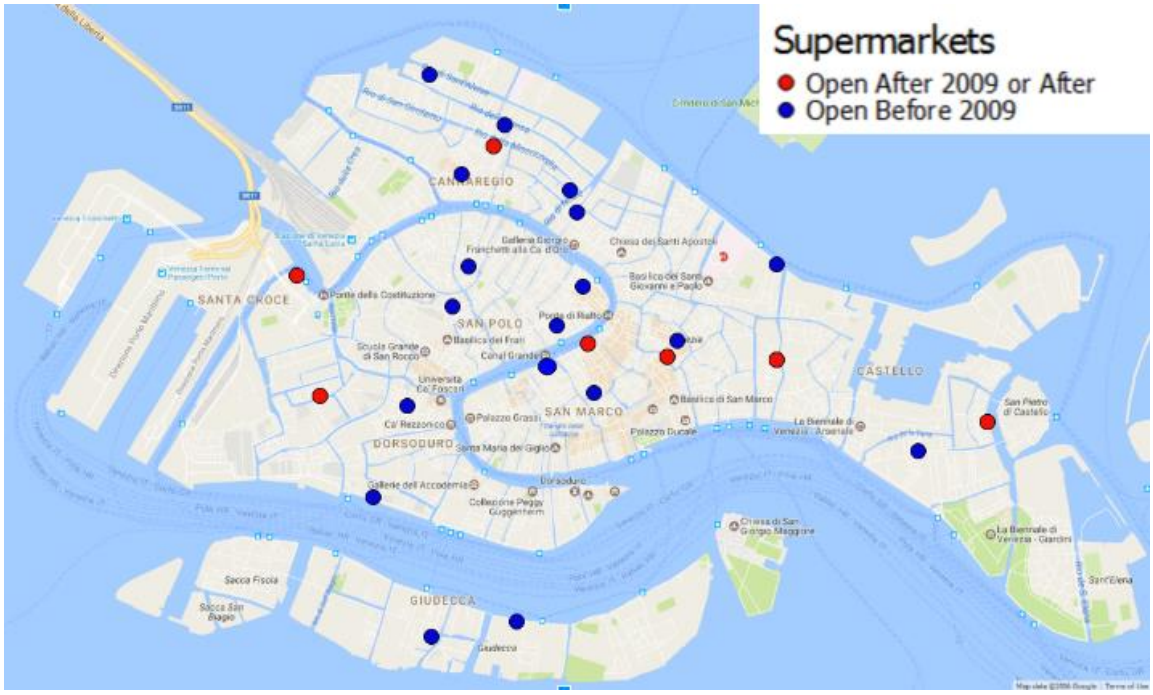


Figure 4.2 Supermarkets that opened before 2009 as represented by blue dots and supermarkets that opened in or after 2009 as represented by red dots.

We looked at 7 supermarkets that opened following 2009 and noticed that most are located in close proximity to other supermarkets. A new Despar that opened recently in 2016, is near Rialto and is 100m from an existing Coop. In order for the market location to be a logical business decision, there must be a substantial catch basin population that could support two similar supermarket branches. We overlaid the supermarket layers over the 2011 census tract in order to determine the resident population around these markets.

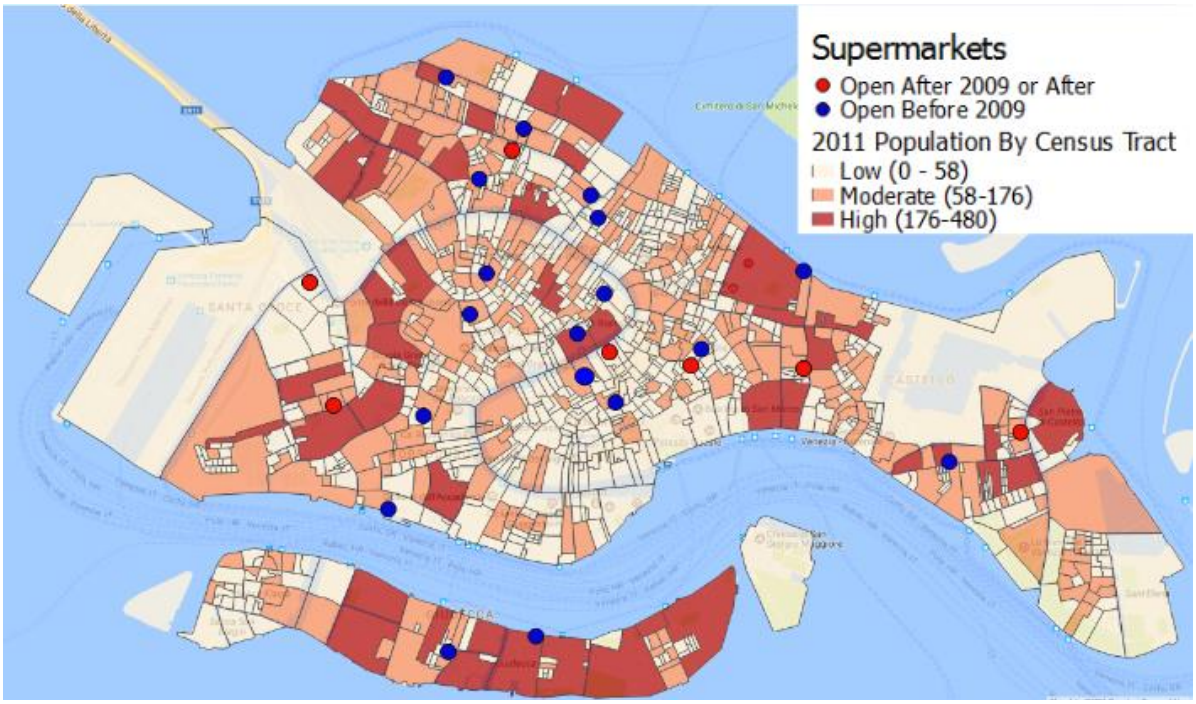


Figure 4.3 Supermarkets that opened before 2009 as represented by blue dots and supermarkets that opened in or after 2009 as represented by red dots and population by 2011 census tracts.

From viewing these markets with population simultaneously we observed that many of these supermarkets are in low population regions with a couple in or neighboring a moderate population area. In fact, many areas of high resident population did not have a supermarket at all within its own or neighboring census tract. If these businesses are being opened in these locations, they must be profitable and therefore someone must be supporting them. We were able to determine that the tourist population must be sustaining these new stores, and new markets are catering to the tourist crowd rather than residents.

We also observed a new supermarket near P. le Roma, which is an area without a high residential population. This led us to determine whether trip chaining plays a role in supermarket location selection. Trip chaining refers to maximizing efficiency by completing errands or tasks while in route to another. We observed the location of supermarkets and their nearest boat stop in order to determine the significance of this feature.

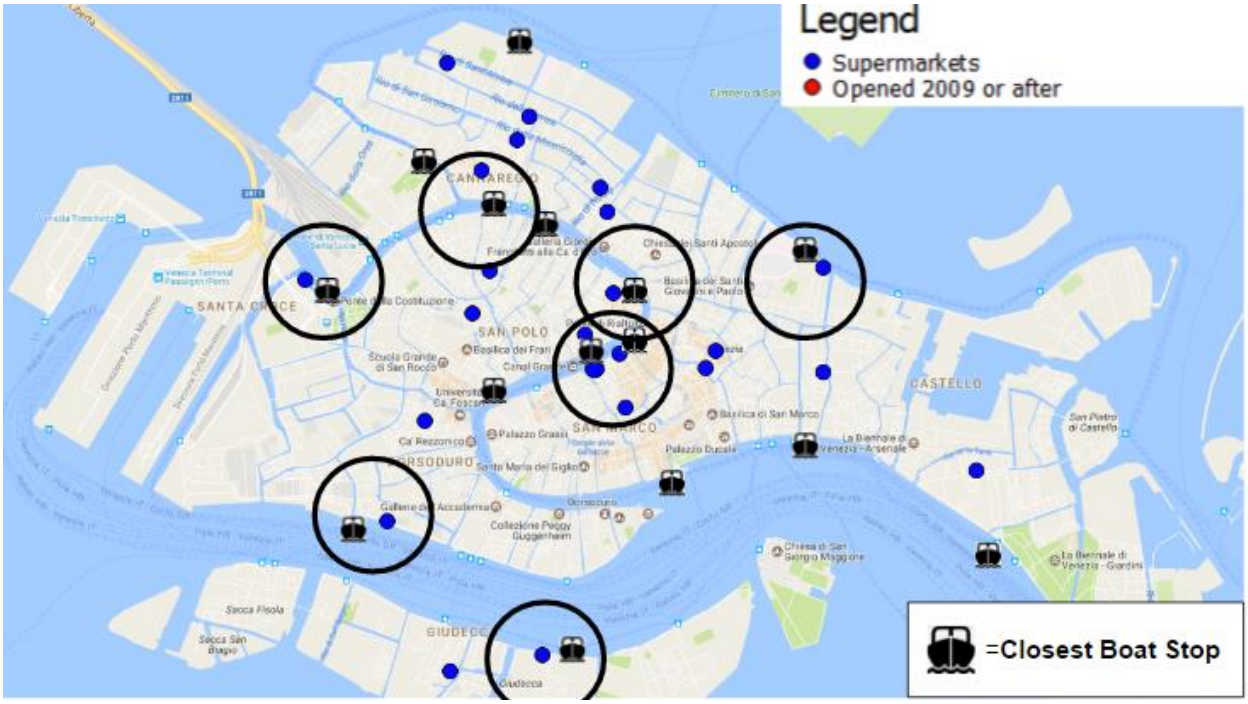


Figure 4.4 Supermarkets in and their nearest boat stop. The circles represent supermarkets that are located in close proximity to a public transportation boat stop.

From the map above we determined that almost half of the supermarkets are located near a boat stop or along a common commuting route. The proximity of the market to a boat stop makes it more convenient for people to access the store. It also has the potential to bring in customers that may be passing by and decide they need to buy something. For this reason, we determined that proximity to a boat stop would be an ideal feature that we wanted when searching for areas for our pilot location.

One final observation we had was that the remaining food stores appear in clusters again reinforcing the importance of convenience to Venetian shoppers. Food stores that are located in proximity to other food stores offer the opportunity to meet all shopping needs in one location.

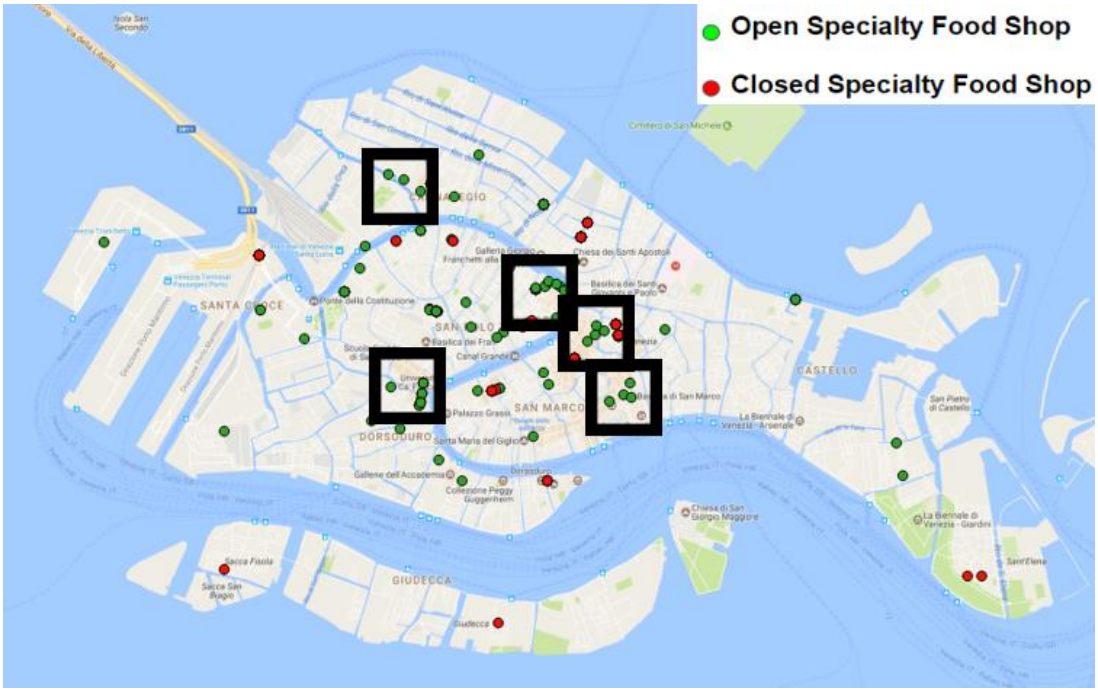


Figure 4.5 Open Shop Clusters on the Venetian Islands 2015 According to Chamber of Commerce.

These cluster patterns suggest that these stores support one another by offering varying goods that satisfy all needs. This provides an example for circular economy in which businesses support one another and are essential for each other's success.

4.1.2 Changes in the Venetian Food Retail Sector

Since 1924 there have been 1,078 food stores in Venice. The Chamber of Commerce has the first recorded closing appearing in 1979. Between 1979 and 2015, 447 food stores closed and 631 are still open today. These stores refer to all stores that are dedicated to the selling of food and excludes restaurants. These 447 food stores have closed but not all of them remained as vacant store fronts. These food stores could have either been reopened as a food store or other retail store or remained closed.

Figure 4.6 Number of Current Open Food Stores and Locations of All Closed Food Shops Since 1979 from the Chamber of Commerce

The first supermarket, Gruppo Coin, opened in 1952. Since then the number of supermarkets have increased in Venice. The supermarkets are currently at their peak at 27. The first initial rise in supermarkets occurred around 1998. In 2009, following a few years of stagnant growth, there was another increase in supermarkets and they are still on the rise as shown in Figure 4.7.

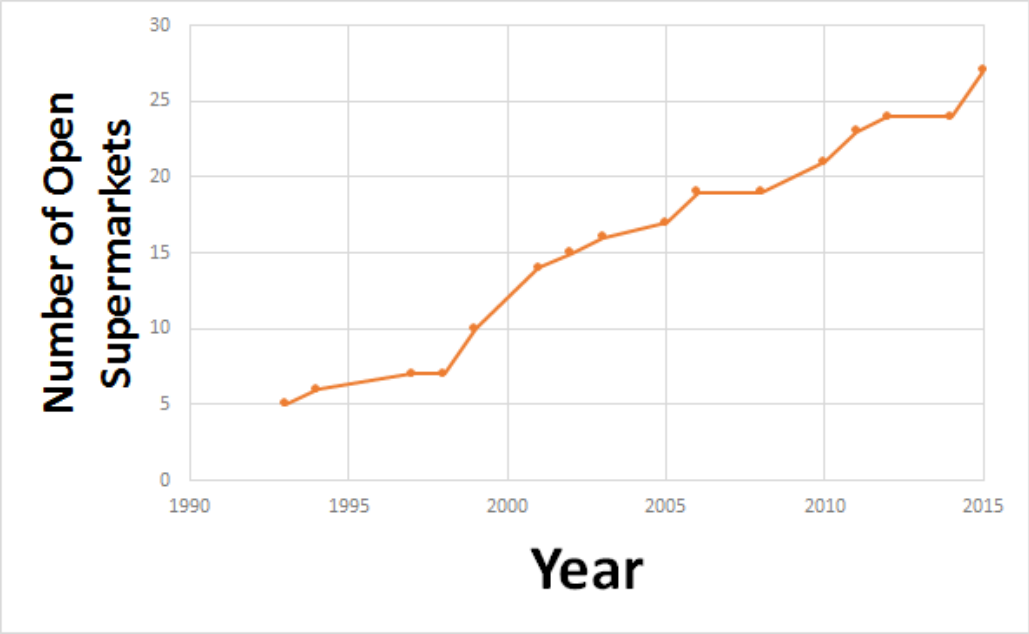


Figure 4.7 Number of Supermarkets in Venice, by year, based on the Chamber of Commerce

During this time period that supermarkets have increased, the residential population of Venice has experienced drastic depopulation. If population decreased there should be less people to service and we expected supermarkets to decrease. However, in order for stores to keep opening there must be someone sustaining it. We know from our analysis of census tract data that supermarkets are not located in densely populated areas, so therefore we looked at the tourist population. Since 1952, the number of tourists that visit the city of Venice per year steadily increased. Venice went from bringing in 9.4 million tourists annually in 1994 to 24.4 million in 2015.

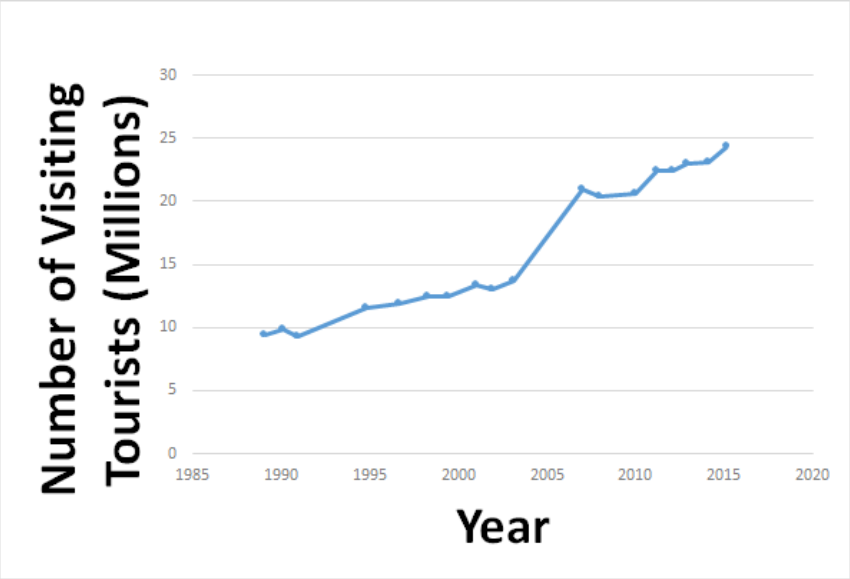


Figure 4.8 Number of Tourist Visiting Per Year According to 2011 Census, Chamber of Commerce and Venice City Council Statistics Department

The correlation between rise in supermarkets and rise in tourist population suggests that these new supermarkets could be directed towards the tourist population which is consistent with the opening of supermarkets in sparsely populated areas. During this same time frame, food stores have been closing in Venice. In 1996, there were about 1,100 food store but now only 530 remain which only accounts for 49% of total Venetian food stores.

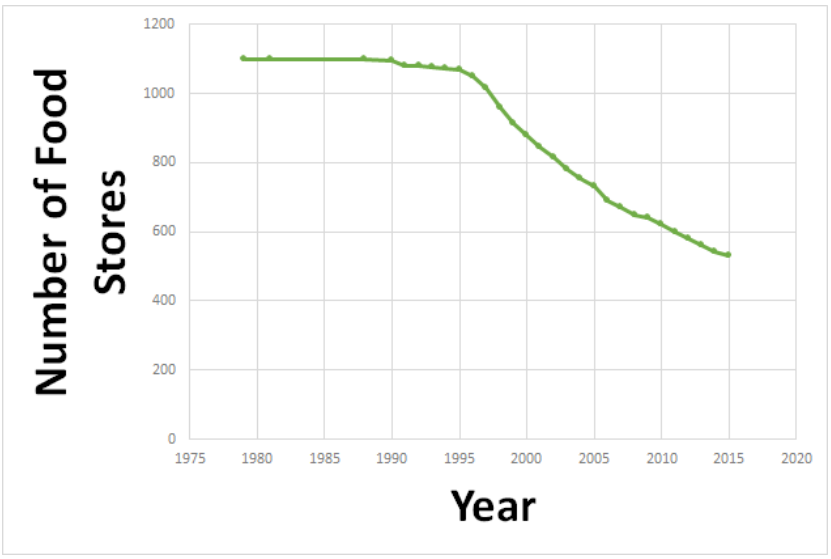


Figure 4.9 Number of Food Stores Per Year According to Chamber of Commerce

Depopulation can be partially attributed to food store closure due to the fact that there are less people to sell to. From the data, we also believe supermarkets could have provided competition that placed a strain on many closed food shops. The decline in food shops only began decreasing drastically right after 1995 which corresponds to the time period in which supermarkets first experienced expansion and growth. This correlation suggests that possibly depopulation initially put pressure on food stores but the competition of supermarkets may have pushed many food stores to the brink of closure.

Out of the 42 permanently closed specialty food shops remaining in 2015, 25.5% were previously bakeries. When looking at the data the number of closed stores rise but many food stores that closed reopened as a non-specialty food store. Due to the extensive regulations and equipment needed to provision a bakery, it would be difficult and expensive to renovate the storefront to accommodate another type of retail shop.

4.2 Conceptual Design and Pilot Location Analysis

Before we could begin investigating marketplace feasibility we first had to design MarketZquare to determine what stores would be included and what it would sell. Once the conceptual design was in place we would have a basis for selecting a pilot location that would be sufficient to provision the marketplace. To select a location, we followed our own criteria and determined areas that would be unsatisfactory, sufficient and satisfactory for MarketZquare. From this ranking we selected a pilot location that we could use for our case study analysis.

4.2.1 Designing the Conceptual Marketplace

In order to determine which storefronts would be needed in MarketZquare, we surveyed Venetian supermarkets in order to determine which goods are most important to Venetian

shoppers. We analyzed the chain supermarket, COOP, which has many locations throughout the city. We counted out shelving units, which we defined as the small repeatable units of fridge, shelving, or freezer units in the store. By surveying the store, we estimated that there was a total of 303 shelving units in the COOP store. Figure 4.10 below displays the percentage breakdown of shelving units by product type in the store.

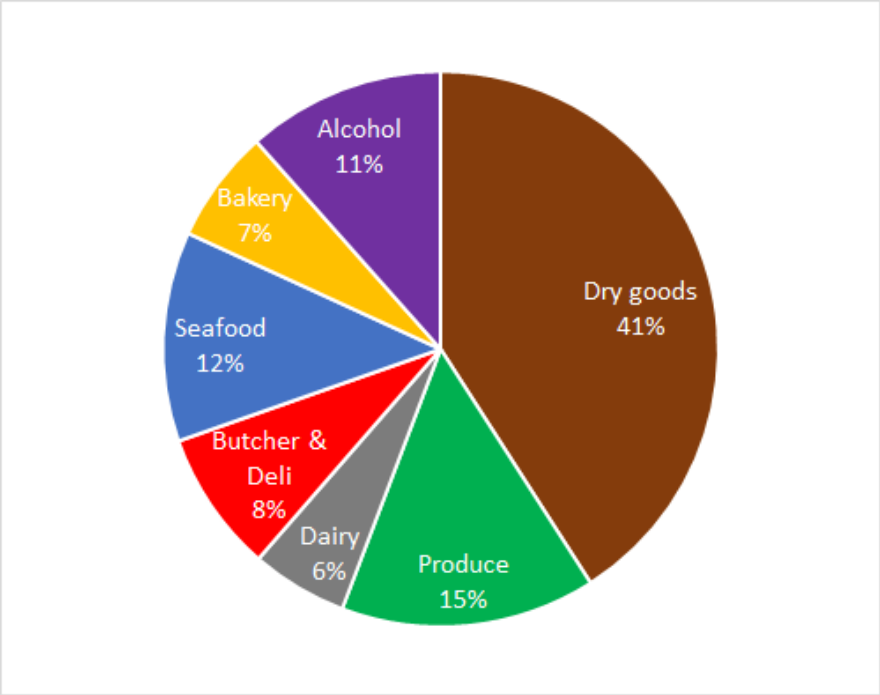


Figure 4.10 Division of Goods Sold at Venetian Coop Supermarkets

According to the figure above dry goods makes up the largest portion, 41% of the store. Due to the wide variety of goods it can supply, we felt as though a dry goods store was necessary for the marketplace concept. Alcohol makes up the next largest section. However, because we want to source product locally, and place a focus on organic product in and around the Venetian lagoon, we felt as though some locally produced alcohol could be sold out of our dry goods store and we would not require an entire store dedicated to its sales. Butcher and deli, seafood and produce made up 8%,12%, and 15% respectively. Based on this data we concluded that these products should make up their own storefront because they were the next most prevalent sections

in the Venetian supermarket. The remaining two product categories were dairy and bakery. Fresh bread would provide added value to the marketplace and would also provide a social hub for Venetian residents and maybe serve as a cafe to purchase pastries and coffee. Having a bakery or cafe location would draw more customers to the marketplace and make shopping at MarketZquare an experience. Lastly, a dairy store that provides fresh milk, cheeses and farm fresh eggs would account for the 6% dairy section. We felt that a six storefront system would not burden the consumer but rather offer them a large variety of specialized and high quality food items in one square.

4.2.2 Analysis of Possible Pilot Locations

In order to find the ideal pilot location for MarketZquare, we established a set of criteria based on our supermarket and food shop data analysis and searched for locations to fit them. We looked at locations throughout Cannaregio and Castello due to the fact that they both exhibited high residential population density with several areas that were not serviced by supermarkets. In addition, we were provided with plenty of data on these regions, making it easier to research. Once we found locations that fit our initial needs, we evaluated each location and chose the case study location: Campo do Pozzi. While it does not fit everything, it was one of the highest ranked sites, meeting four out of five of our criteria. In addition, it had available closed storefronts that met, and factors outside of our set list set it above the others.

To determine the possible pilot locations, we had criteria that included: the number of closed storefronts, the catch basin population, open square area, the average distance from competition, and the distance from a boat stop. The possible locations and their satisfaction of these criteria are shown in Table 4.1.

Location	Number of Closed Storefronts	Population Within the Area	Open Square Area	Average Distance from Competition	Distance from Closest Boat Stop	Average Age
Ideal Location	6	>600	Yes	>300	<300	>49
Cannaregio (Fondamente de le Capuzine)	X	X	X	X	X	X
Cannaregio (Fondamente Misericordia)	X	X	X	X	X	√
Cannaregio (Ramo e Corto del Paludo & C del Squero)	X	X	X	√	X	X
Cannaregio (Campo dei Mori)	X	√	√	X	√	√
Cannaregio (Campo Saffa)	X	√	√	√	√	√
Castello (Campo do Pozzi)	√	√	√	√	X	√

Table 4.1 Summary of pilot location criteria for each potential location

We utilized the ShoppMappApp interface and identified areas that had a high residential population and also lacked a supermarket on the island. We visited these locations and only areas with closed storefronts advanced to our pilot location analysis. From the observations mentioned above we found six possible pilot locations that fit that had available closed storefronts and they are shown in Figure 4.11.

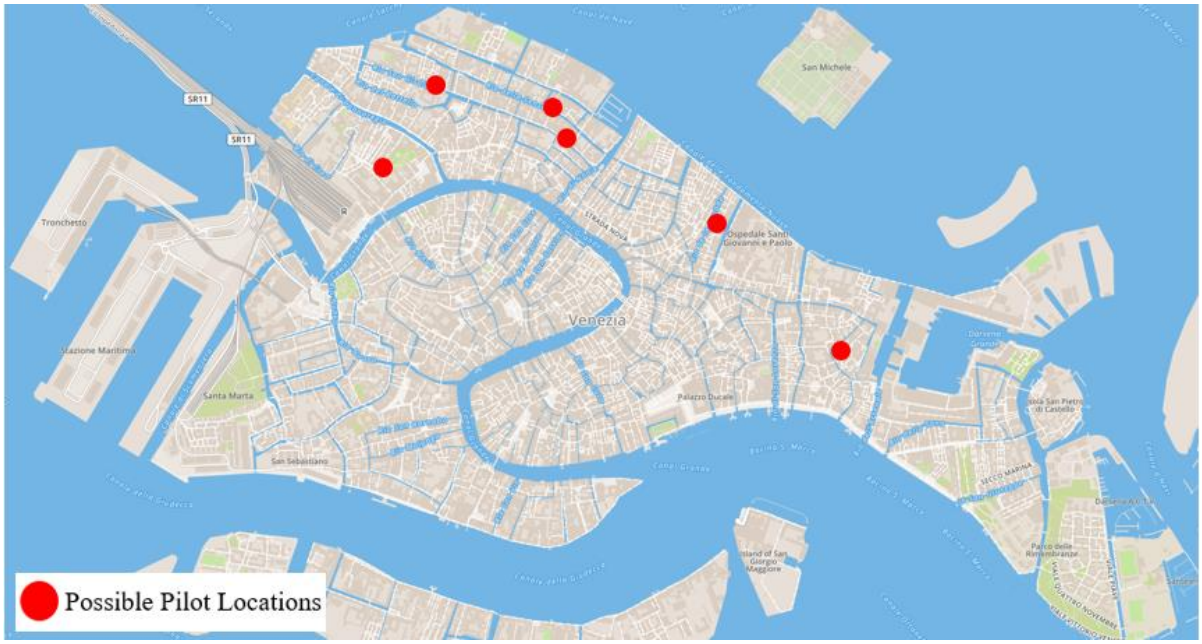


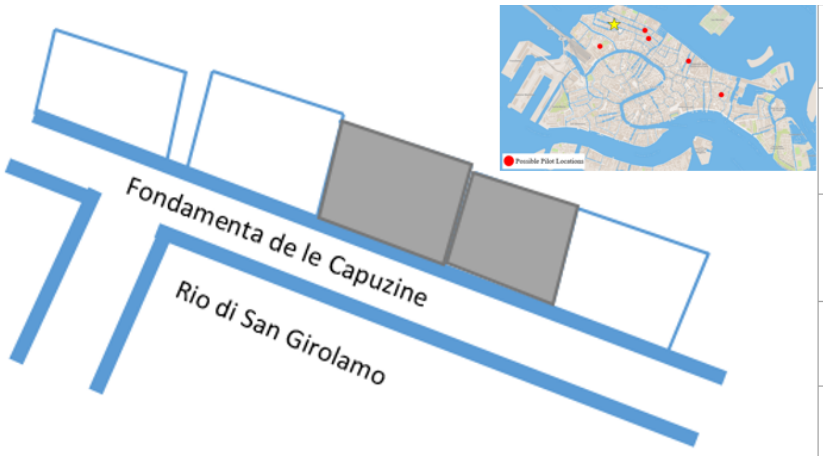
Figure 4.11 Regions targeted for pilot market location

The coordinates for all 6 pilot locations are summarized in Table 4.2 After narrowing down squares with closed storefronts all potential pilot locations were located in the sestiere of Castello and Cannaregio.

Location	Latitude	Longitude
Campo Do Pozzi	45.43626	12.34871
Campo De Mori	45.44562	12.3322
Corte Paludo	45.44098	12.34137
Campo Saffa	45.44337	12.3214
Fondamenta de La Capuzine	45.44647	12.32477
Fondamenta Misericordia	45.4442	12.33289

Table 4.2 Coordinates of Potential Pilot Locations

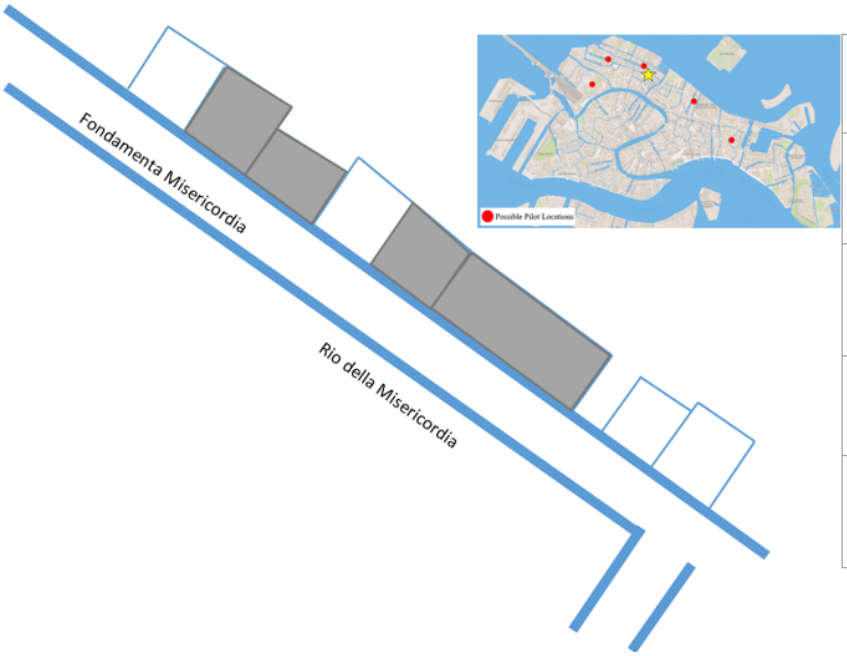
Fondamenta de le Capuzine was one of our possible pilot locations. The area had a total of 3 closed storefronts. This strip had a closed dairy shop as well as an existing bar. However, after looking at the census tracts its catch basin population was only 470 which fell short of our criteria. In addition, it was distant from a boat stop, had a younger population age than in the criteria and was located close to a grocery store. The lack of those important criteria did not make the less storefronts a worthwhile decision. Due to the fact that this location met none of our criteria we deemed this location to be unsatisfactory for MarketZquare.



Population	**470**
Number of Stores	**3**
Closest Supermarket	**290m**
Average Age	**46.9**
Closest Boat Stop	**500m**

Figure 4.12 Blueprint and summary of criteria table for possible pilot location in Cannaregio: Fondamenta de le Capuzine

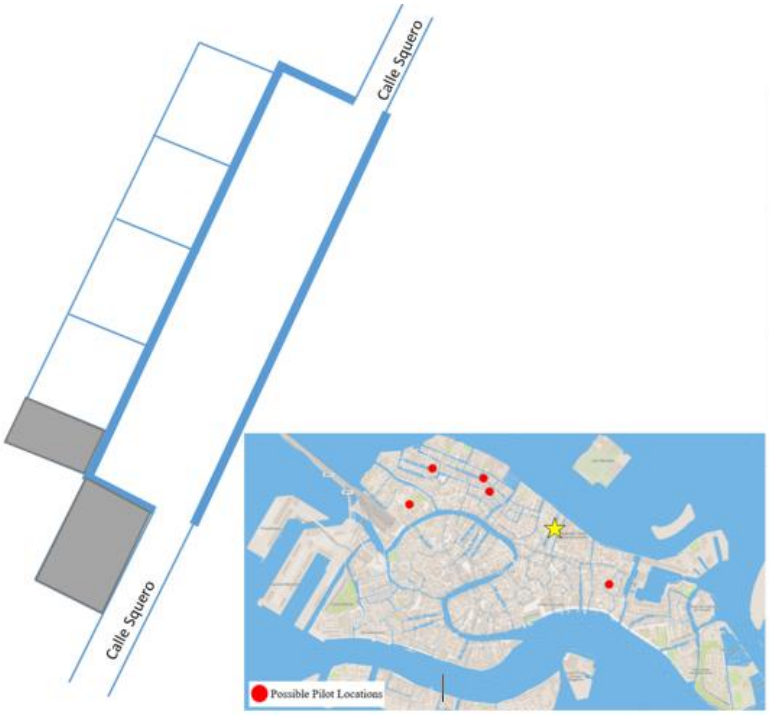
Fondamenta Misericordia, located in the sestiere Cannaregio, was another possible pilot location. It satisfies the age demographic and is directly across from a canal which facilitates transportation of goods. There are also several existent restaurants on this street that could draw more customers to the marketplace. Unfortunately, the closed storefronts are below the six outlined in our criteria and they are spread out along the street. In addition to these flaws the location satisfies no other criteria which made this location unsatisfactory for MarketZquare.



Population	**598**
Number of Stores	**4**
Closest Supermarket	**170m**
Average Age	**49.1**
Closest Boat Stop	**550m**

Figure 4.13 Blueprint and summary of criteria table for possible pilot location in Cannaregio: Fondamenta Misericordia

Our next location was in Cannaregio, at the streets of Corte Paludo and Calle Squero. This pilot location was located near a hardware store which could increase the number of customers by allowing them to conduct two errands at one spot. The only criteria that this location satisfies is the distance to the nearest supermarket. In addition, it is located across the street from a loud workshop that may take away from the shopping experience. Due to the fact that it only satisfied one criterion it was rated unsatisfactory as a pilot location for MarketZquare.



Population	513
Number of Stores	4
Closest Supermarket	600m
Average Age	47.4
Closest Boat Stop	450m

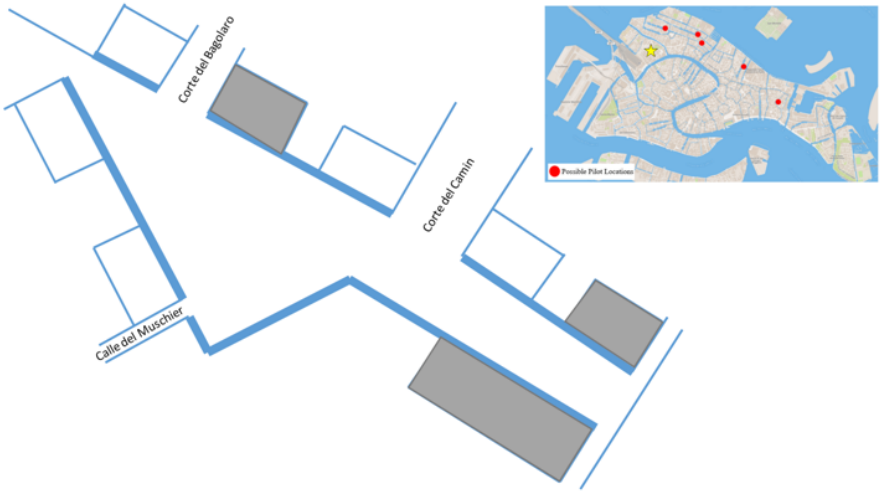
Figure 4.14 Blueprint and summary of criteria table for possible pilot location in Cannaregio: Corte Paludo & Calle Squero

Campo dei Mori located in the sestiere of Cannaregio. It has an open square area and satisfies the population, age and nearest boat stop criteria. However, it only has one fewer storefront than the desirable number and more importantly is located only 200 meters from the closest supermarket. The proximity to the supermarket would impose competition that could hinder the market's success. Due to the fact that it meets three criteria it is considered as a plausible location for the marketplace.

Population	744
Number of Stores	5
Closest Supermarket	200m
Average Age	50.7
Closest Boat Stop	300m

Figure 4.15 Blueprint and summary of criteria table for possible pilot location in Cannaregio: Campo dei Mori

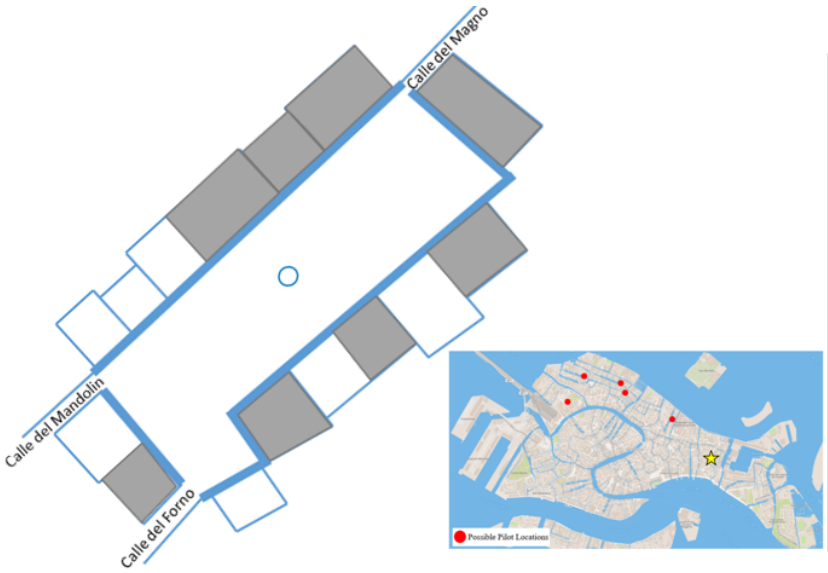
Campo Saffa, located in Cannaregio, had government owned storefronts, office space within a residential building complex and there was an open square area where the storefronts are located. Since all of the stores were occupied we identified certain businesses that seemed to be using temporary office space and labeled them possible storefronts. Overall the location satisfies all criteria, especially the population. The stores did not meet the criteria and are not currently available but the rest of the criteria and proximity to the university made Campo Saffa a satisfactory pilot location.



Population	1177
Number of Stores	5
Closest Supermarket	800m
Average Age	51.4
Closest Boat Stop	130m

Figure 4.16 Blueprint and summary of criteria table for possible pilot location in Cannaregio: Campo Saffa

The last potential pilot location was Campo do Pozzi in the sestiere of Castello. This location satisfied the six closed storefronts as indicated by our pilot location criteria and even had an additional space for storage. These storefronts are centered around an open square which fits the image envisioned for MarketZquare. There is an existing bar and hairdresser located in the square. The bar could provide a social hub for the marketplace and the hairdresser could allow existing customers to shop after their appointments. The location fit all of our criteria except for proximity to nearest boat stop. For this reason, Campo do Pozzi was considered to be a satisfactory location to conduct our case study.



Population	**601**
Number of Stores	**7**
Closest Supermarket	**350m**
Average Age	**49.0**
Closest Boat Stop	**450m**

Figure 4.17 Blueprint and summary of criteria table for possible pilot location in Castello: Campo do Pozzi

In conclusion, we chose Campo Do Pozzi as our pilot location. Although Campo Saffa also met the same number of criteria, the stores were not closed. The storefronts in Campo Do Pozzi were all closed and we were able to collect dimensional information about the location. Due to the fact that the catch basin population was lower than Campo Saffa, and that is was further from a boat stop we can assume that if the marketplace is feasible in Campo Do Pozzi it would definitely be feasible in Campo Saffa.

4.2.3 Analysis of Chosen Location

Figure 4.18 Picture of pilot location - Campo do Pozzi

The closest stores that provide access to goods in the vicinity of Campo do Pozzi were small convenience stores, which sold dry goods such as pasta and spice and some small fruit stands. We also factored in the location of farmer's markets and found that the Via Garibaldi Market is the closest farmer's market, located 850m in the opposite direction of these dry goods stores. These shops are spread out and do not possess other basic necessities such as beef and poultry, making it difficult to obtain all goods in one shopping trip. From these observations, the available space at Campo do Pozzi possessed the need indicated in our criteria and presented the highest potential for social impact within the Venetian community. In Figure 4.18 the boxes in gray represent spaces that are not available for rent, since they were residential locations. The other boxes with areas are closed shops and the bar and hairdresser are indicated in yellow with their respective icons.

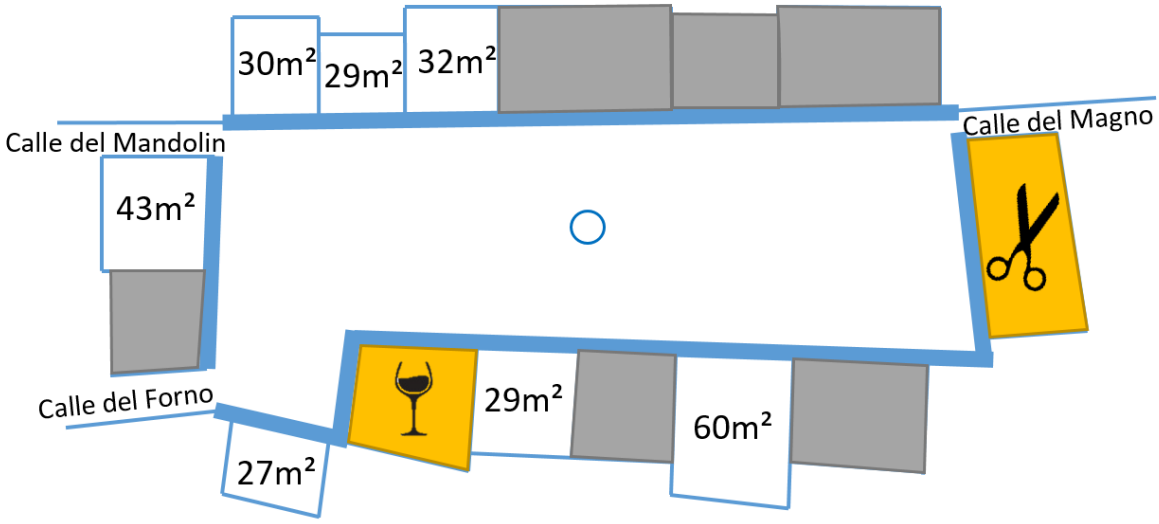


Figure 4.19 Layout of Campo do Pozzi with dimensions of each closed storefront

Once we collected the spatial data of each storefront we had to determine where each storefront should be located. The cadastral codes indicated that the 60m^2 storefront was previously a workshop. Converting this to retail space would be costly so therefore we determined that this space would be ideal for an overarching storage location for the entire marketplace.

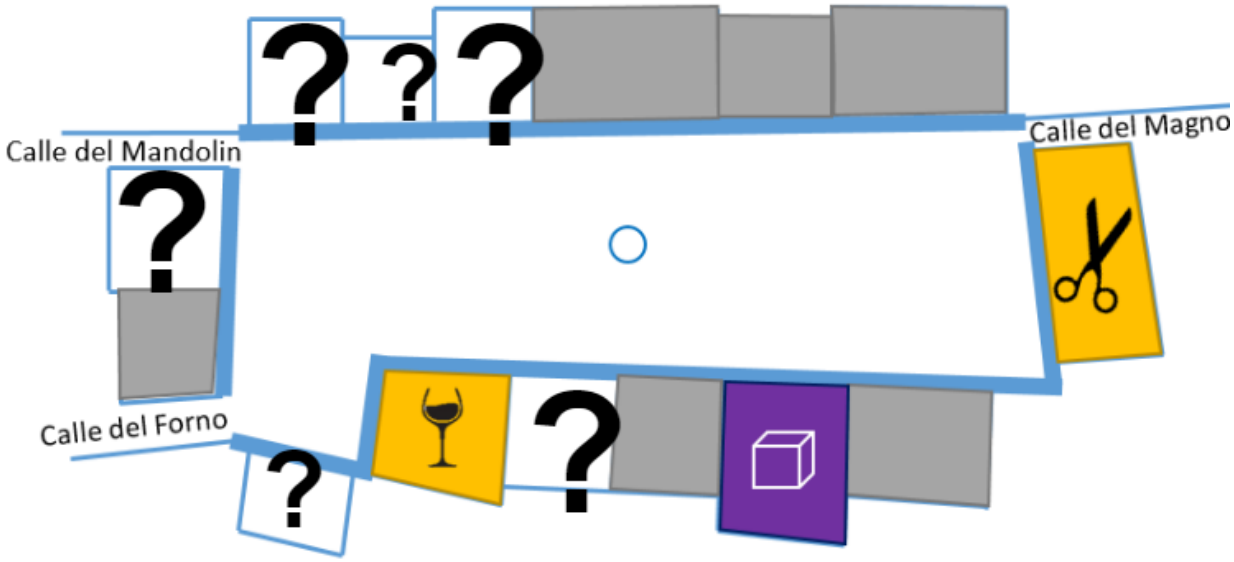


Figure 4.20 Campo Do Pozzi MarketZquare layout with storage facility represented by the purple icon.

The 27m^2 store was previously a butcher prior to closing. If it was previously a butcher shop the infrastructure should be suited to support another one and MarketZquare could save money on renovation costs. For this reason, we placed the butcher shop in that storefront location.

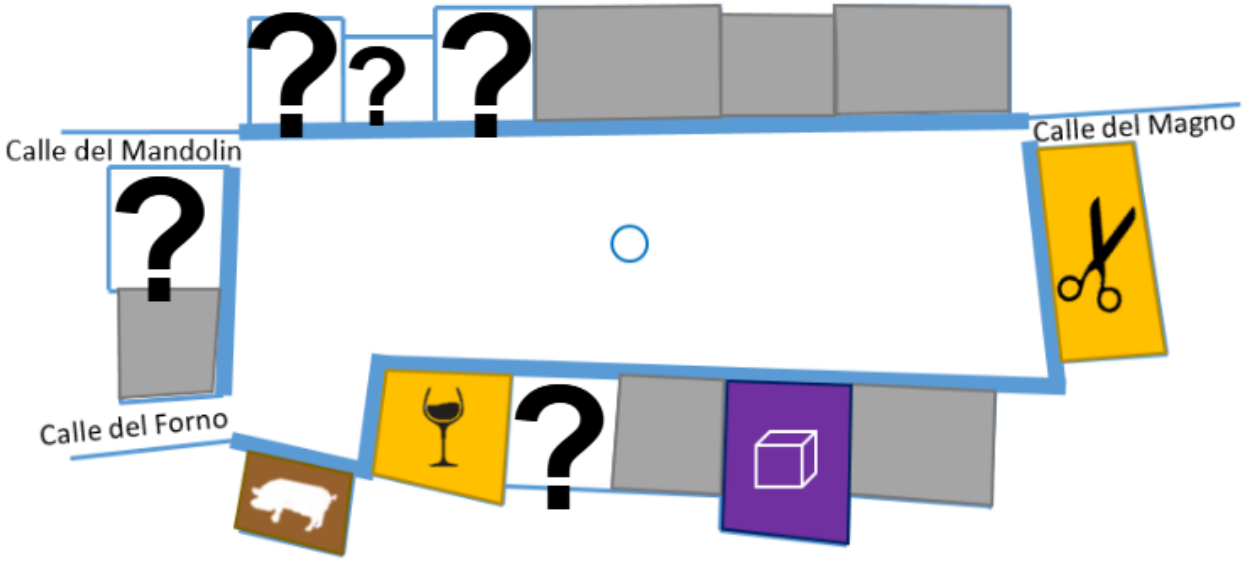


Figure 4.21 Campo Do Pozzi MarketZquare blueprint with storage and butcher shop

The next largest storefront was the 43m^2. The bakery requires the most space to accommodate ovens and the municipality must inspect the building to ensure the ovens are located a safe distance from the prep room and storefront. Therefore, we allotted the largest storefront for the bakery in order to make sure it meets municipality regulations.

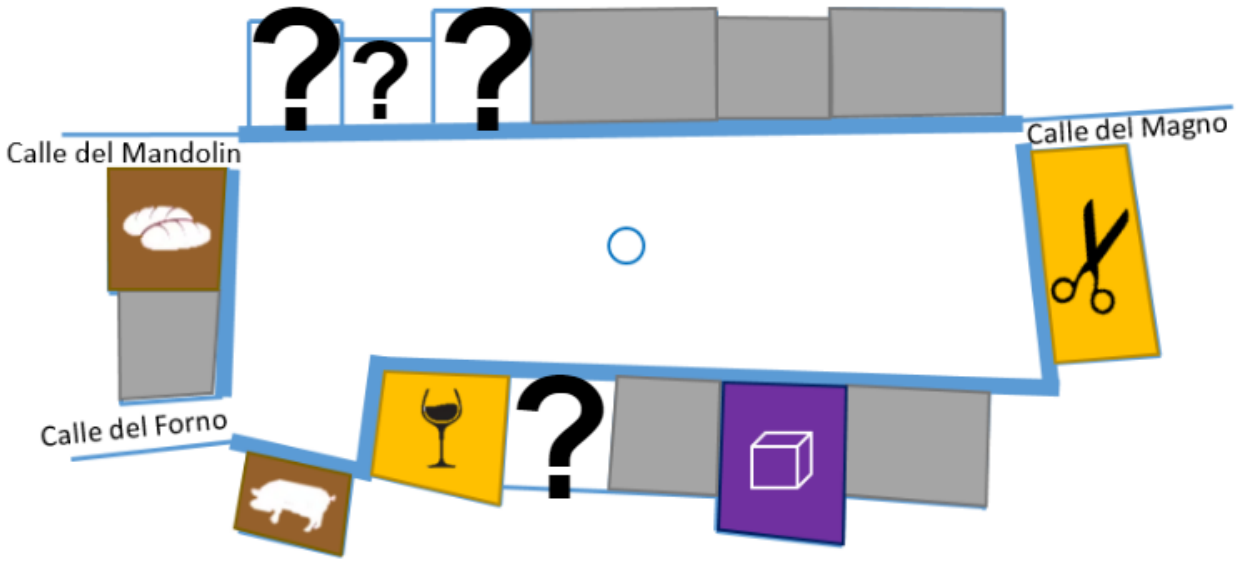


Figure 4.22 Campo Do Pozzi MarketZquare blueprint with storage, butcher and bakery.

Out of the remaining storefronts the smallest retail space available was one of the 29m^2 storefronts. Since dry goods do not require refrigeration and their products have a long shelf life we decided to place that store in one of those storefronts. A dry goods shop only requires shelving and some extra storage so it does not require extra space for fridges and freezers so it can be accommodated within one of these smaller storefronts.

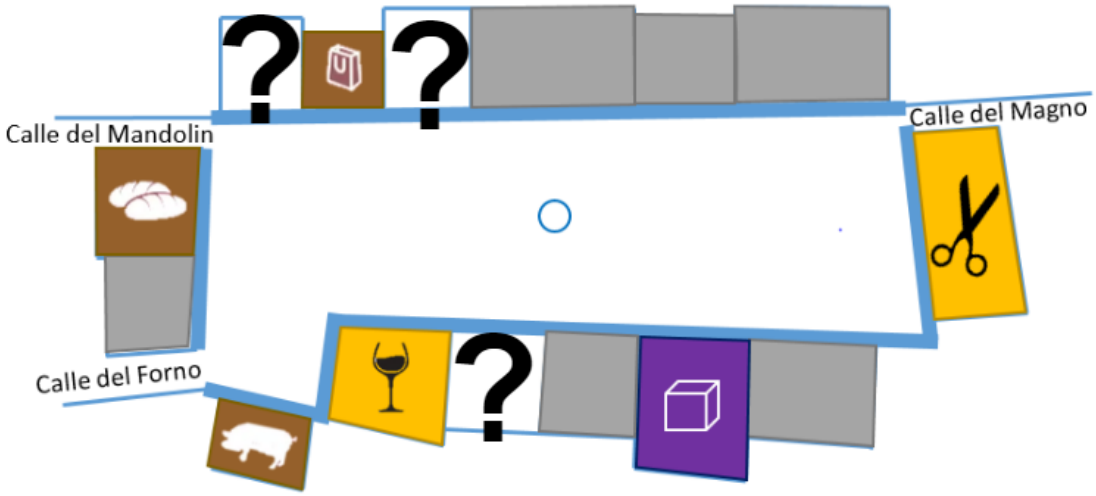


Figure 4.23 Campo Do Pozzi Marketplace blueprint including storage, butcher, bakery and dry goods.

The two storefronts adjacent to the dry goods store have areas of 30 m^2 and 32 m^2. Both storefronts have large shop windows. Through our observation of Venetian food stores we noticed that many fish stores and greengrocers (produce stores) sell out of these large windows. These buildings have areas that can house fridges and freezer equipment and would make the ideal locations for a produce shop and a fish shop. The 32m^2 shop would be provided to the fish shop so that it can maximize space for freezers that are not required for the greengrocer.

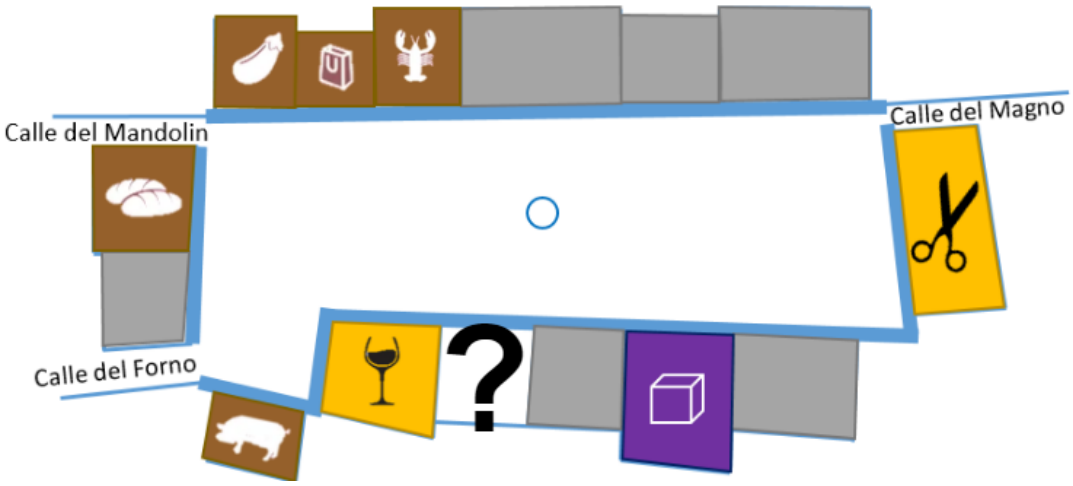


Figure 4.24 Campo Do Pozzi MarketZquare blueprint with storage, butcher, bakery, dry goods, fish and produce.

Lastly, the final remaining storefront 29m^2 and the final remaining shop is the dairy storefront. This area provides ample room for refrigerators for both milk and cheese products. Therefore, the dairy shop will be placed in this storefront by default. The entire marketplace will ideally contain six storefronts and a storage facility that can service the entire marketplace.

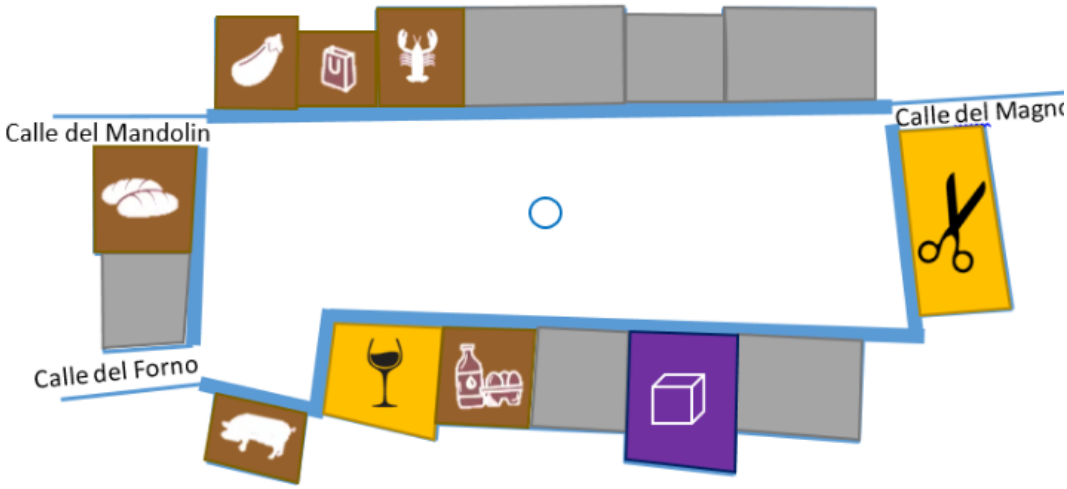


Figure 4.25 Campo Do Pozzi MarketZquare blueprint with 6 food stores and one storage facility that services the entire complex.

4.3 Supply Chain and Determining Local Producer

Once we identified the location for MarketZquare, we needed to determine a possible supply chain. To find the supply chain we had to observe the presence of fresh-food and organic markets in Venice. By observing these different markets, we were able to observe the means of supply and how different farmers and markets approached selling their goods to the consumers. We performed semi-structured interviews with local business owners and producers, allowing us to get an inside view at how local organic stores and restaurants obtain their goods, and how local farms sell their goods. We then performed research through utilizing the local Gruppo di Acquisto Solidale in Venice, GAS Veneziano, to identify local producers that already provide goods to consumers within Venice. Based on the producers that we compiled, a map was created to locate all the businesses, farms, and producers in the area that could possibly participate and provide food for MarketZquare.

4.3.1 Local Farmers Markets

In order to locate producers and suppliers of organic and local food we visited farmer's markets located throughout Venice. We identified and visited the following farmer's markets that are plotted on the map of Venice below in Figure 4.26.

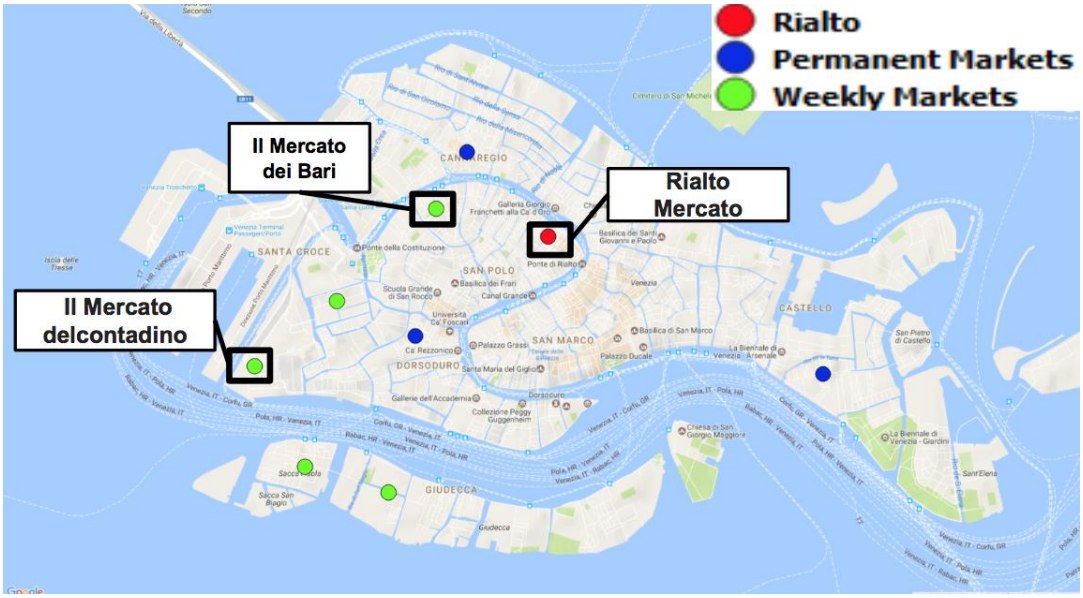


Figure 4.26 Fresh markets identified in the city of Venice, with the markets visited identified as il Mercato dei Contadino, Il Mercato dei Bari, and Rialto Mercato.

We were able to identify and research all the markets plotted on the map, but were limited to personally visiting the Rialto Mercato, il Mercato dei Bari, and il Mercato dei Contadino. At the markets we visited, we observed the organization of the market, types of goods sold, suppliers of the goods, and whether or not the market sold organic goods. The Rialto Mercato mainly focuses on the sale of fish (having its own fish market section) and fresh produce. There are also vendors of fresh meat and dairy products based out of store fronts neighboring the market. Through observation we were able to note that most of the produce sold at the Rialto Market was imported from wholesale distributors rather than local or organic producers. In contrast, all the fish sold at the Rialto Mercato was freshly caught that morning from fisherman in the area, making the product as fresh as possible.

The next market we visited was Il Mercato dei Bari. This market was only open one day a week, at night was based out of a small building that contained a bar and sitting room for the customers/visitors. The good sold in this market included fresh produce, freshly made bread, and

organic cosmetics/soaps. The produce from this market was grown at a local farm on the mainland at Asseggiano in Venice, named Casa di Anna. This market was open preceding a presentation on local agriculture and organic food, and then a community dinner. This kind of market focused on raising awareness on local and organic agriculture.

Another market visited was Mercato dei Contadino, or Farmers Market of Venice. This market was organized in several separate different stands for each different vendor. There was a variance between vendors meaning there was one of each type of stand, which minimizes competition within the farmer's market. The goods sold included fresh produce, meat (with separate vendors for chicken, pork, and beef), bread and pastries, wine, dairy, flowers, and more. Each vendor of this market sold organic and fresh goods that were sourced from local farms and producers.

4.3.2 Interviews with Business Owners and Farmers

In order to learn more about the local and organic market in Venice, we met with local business owners and farmers. We held semi-structured interviews with the owners of Osteria Plip, Casa di Anna, Azienda Agricola Basso, Strábon, Donna Gnora, and I sapori di Sant'Erasmo (Appendix C).

4.3.2.1 Osteria Plip

We held a semi-structured interview with our collaborator David Marchiori, a chef and owner of a local farm-to-table restaurant, Osteria Plip. We met with David and discussed the organic market, local farms, how he has used these resources to develop Osteria Plip to operate as a farm-to-table restaurant, and the emphasis on building communal relationships to create a community for his restaurant. David gave us multiple resources for information to further guide

our research on local producers. This information included personal insight on the local organic movement, and contacts to which we could reach out to and discuss the operations of our market in the perspective of the producers or companies that would supply the goods.

4.3.2.2 Casa di Anna

We were able to visit Casa di Anna, found in Asseggiano on the mainland. Casa di Anna is a local farm who focuses on being a social organization and growing organic food. This farm focuses on providing employment opportunity to disabled individuals as well as convicts from local prisons. In addition, this farm grows certified organic food, which they sell through farmer's markets and through a CSA/GAS type system, where they compile boxes of goods to be delivered to the customer. Through the visit at Casa di Anna, we were able to learn more about how CSA worked and find more information about local farmer's markets and outlets that farms use to sell their goods. Casa di Anna gave us the information on il Mercato dei Bari, a farmer's market in Venice.

4.3.2.3 Azienda Agricola Basso

We visited the local farm Azienda Agricola Basso located in Favaro Veneto, Venice. This is a family-run farm, operated by two brothers. The main products of the farm are dairy products, including milk and cheese as well as meat (primarily beef), and fresh produce. In addition, this farm produces primarily organic goods, but is not certified due to issues in the process of certification. This farm primarily does business through personal connections, and mainly sells from their farm stand at the farm itself, as well as through a local organic food store in Mestre, Campagna Amica. This farm used to be involved in a GAS in Mestre, but unfortunately had to stop because they could not meet the demand of the consumers. From this

farm, we were able to observe the importance of personal connections between the farm and the consumer, and how this increases the demand and business that the farm experiences.

4.3.2.4 Strábon

We were able to meet with Federica Vianello, the owner of Strábon, a local Venetian specialty and organic food store. This store is located in the sestiere of Castello in the city of Venice. This store sells prepared food that is made from a cook on the mainland that's brought over daily. In addition, the store sells organic prepackaged food and goods that are locally made. Federica was able to find her suppliers of food by going to personally visit the supplier and establishing a personal connection. In addition to selling local goods, Strábon brings in customers by serving as a CSA pickup location. This means that when locals order fresh goods through a CSA, the producer can leave it to be collected from the consumer at the store. This deal with a local CSA is a great business tactic for Strábon, ultimately bringing more people into the store, who will most likely end up buying goods from Strábon itself to complete the shopping trip.

4.3.2.5 Donna Gnora

We met with a local farmer and business owner, Federico Mantovan. Federico runs the farm and CSA, Donna Gnora, based on the mainland in Noale, Venezia. This farm grows all organic food that they mainly sell through a CSA with other partnered farms in the area. This works by individuals ordering the crate of goods that they desire online, usually containing a share of the food grown by the farm for that season. Donna Gnora then delivers the orders directly to the households of the consumers throughout Mestre and Venice twice a week by their

small boat. Donna Gnora delivers their organic goods to an average of 150 families a week across Venice. This shows the demand for organic and local food in the city of Venice.

4.3.2.6 I sapori di Sant'Erasmo

We were able to learn about a I sapori di Sant'Erasmo, a local farm based out of the islands of Venice on San'Erasmo. We had email contact with one of the owners of the farm, Carlo Finotello, because they were too busy to meet due to the high demand of the upcoming farming season. We were able to send a list of questions to Carlo, and learn about the details of the farm. This farm also operates through a type of community supported agriculture, similar to Donna Gnora. Every week they send out the products that are available to their customers, who then pick the goods they want, along with the day and location they would like the goods to be picked up at. After that Carlo and his colleagues deliver the goods to the designated drop off points five days of the week, with around 150 orders per day. In addition, this farm partners with a few restaurants to participate in the farm-to-table movement, but mostly participates in a direct producer to consumer relationship to ensure a higher quality of goods.

4.3.3 Gruppi D'acquisto di Solidare (GAS) and Identifying Producers

In order to compile an actual list of producers in the area, we identified a Gruppi D'acquisto di Solidare (GAS) that operates in Venice, named Veneziano GAS. Since most farms and local producers are mostly advertised by word of mouth or through personal connections, it became difficult to find a list consisting of the bulk of the farmers in Venice. In order to compile information on the local producers, we utilized the resource of the suppliers involved in the registered GAS in Venice. Each registered GAS has an online list of producers and farms that contribute products to the organization. By researching Veneziano GAS, we were able to find

resources for local farms and businesses that already provide food to the Venetian community. By finding farmers and businesses in the area, we were able to plan and identify possible suppliers that would want to be involved in MarketZquare.

Veneziano GAS is the only registered gruppi d'acquisto di solidare that operates based out of Venice. This GAS is located in Cannaregio, as can be seen in Figure 4.27

Figure 4.27 Veneziano GAS located in the sestiere Cannaregio.

The identification of the local Gruppo di Acquisto Solidale enabled us to compile a list local producers that are already utilized throughout Venice. Each producer/farmer was identified, researched and then organized in a Google Survey. This survey was for our own personal data collection to compile information on each producer, including but not limited to: name of farm, location, and types of goods produced (See Appendix D). Out of all the producers identified through research, farmers markets visits and meeting individuals through mutual contacts, it became apparent that not many producers were actually within Venice itself, there were only four farms/producers found on the islands themselves which were il Mercato del Carcere, FUD, Isapori, and La Maravegia. In addition, out of the 35 producers identified 36% sold produce

(vegetables and fruits), 20% sold dairy (cheese, milk, eggs, etc), 24% sold dry goods (alcohol, pasta, herbs, etc), 16% sold meat (beef, pork, poultry), 4% sold seafood, and the remaining producers sold other less common items including baked goods, and specialty food as seen in Figure 4.28.

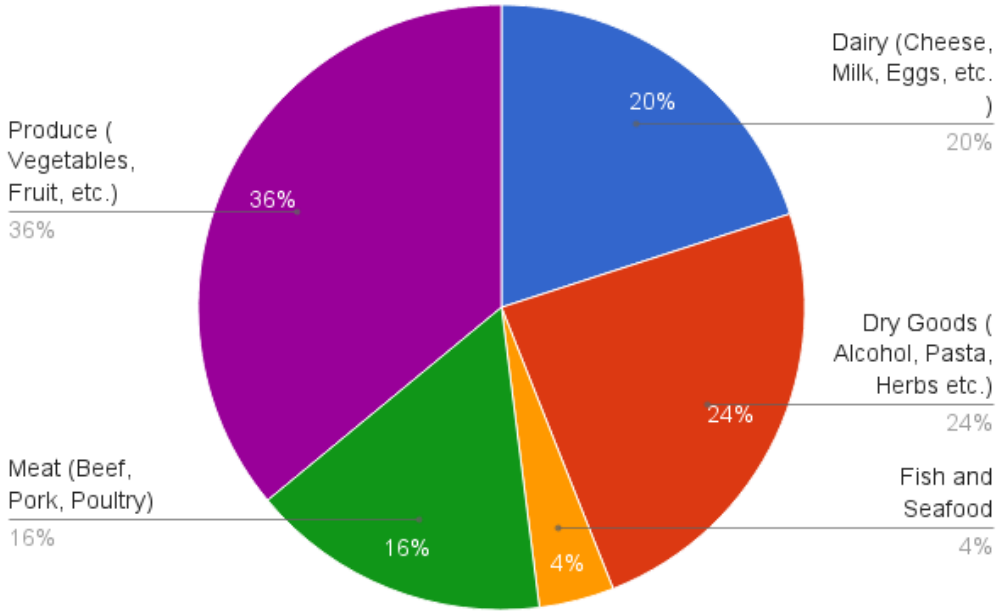


Figure 4.28 Percentage of types of product types sold by the compiled producers.

We organized and sorted the data compiled from the producers in a spreadsheet and separated them into the following groups: Dairy, Produce, Meat, Fish and Seafood, Baked Goods, and Dry Goods. We then plotted this data onto a map to visualize the locations of producers in the area as seen in Figure 4.29.

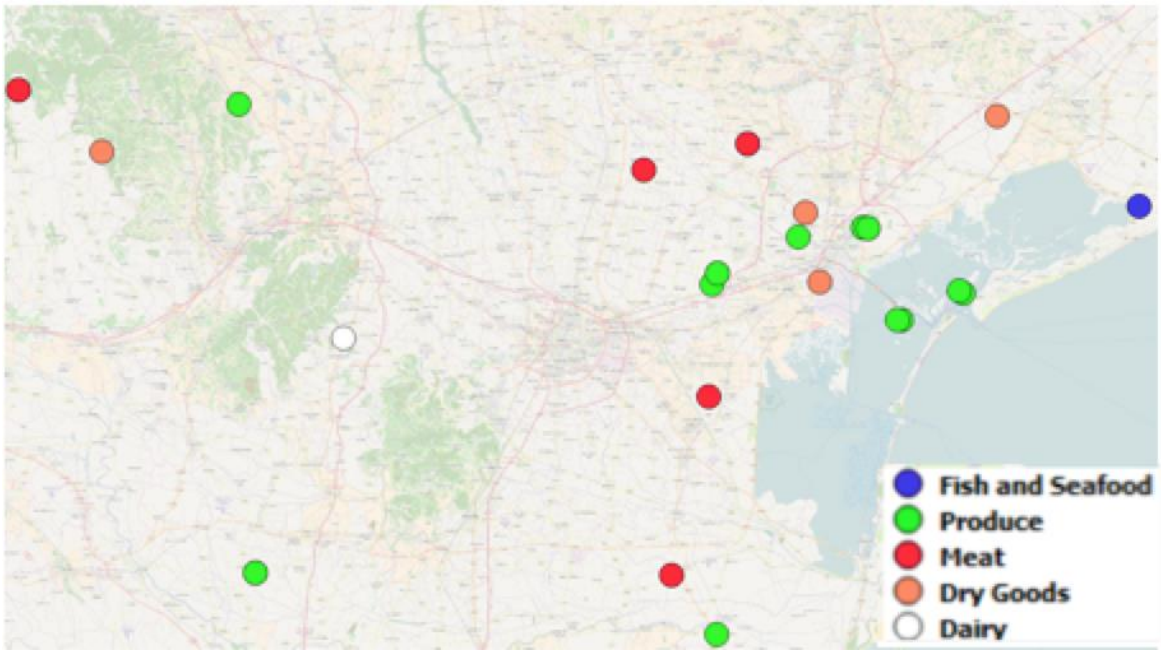


Figure 4.29 Location of producers by product type in Venice and the surrounding areas.

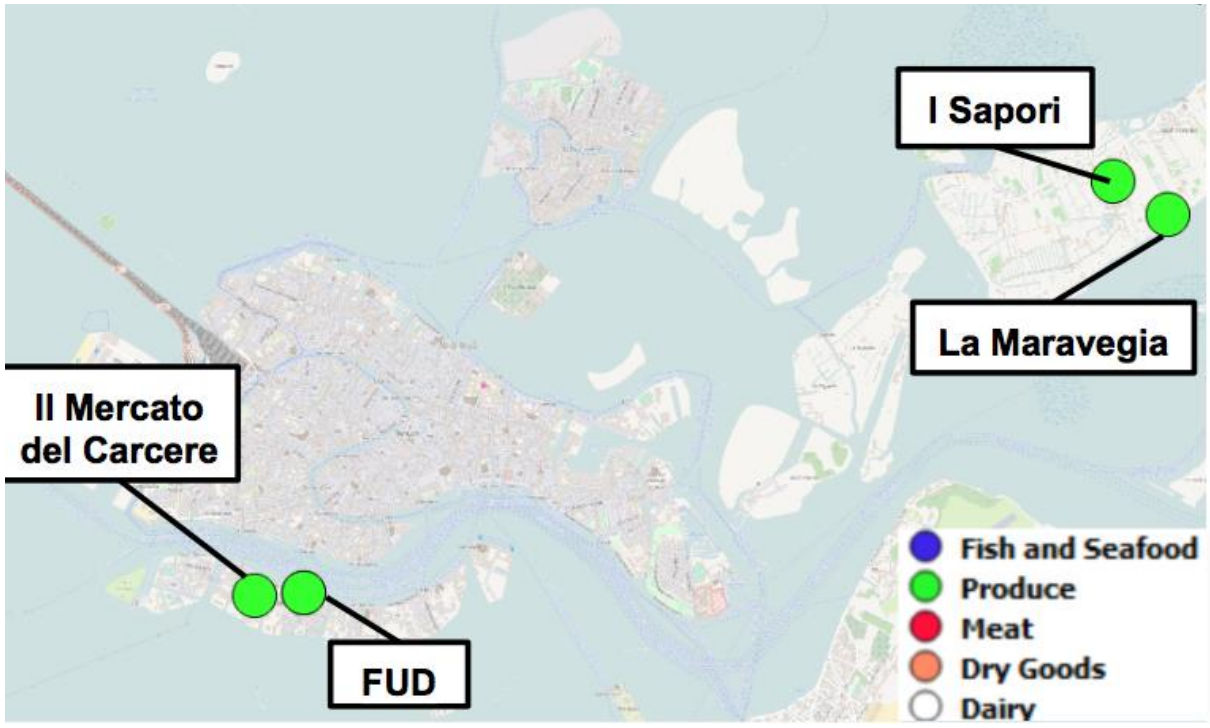


Figure 4.30 Location of the four producers located on the islands of Venice.

By identifying and locating the farms, businesses, and local producers that currently provide goods to Venice, we are able to determine the feasibility of implementing the pilot

location for MarketZquare. With a list and map of local producers, it becomes evident that there are farms and different producers within the areas that could feasibly provide the demand of supply for each section of the distributed supermarket including: produce, meat, dry goods, fish, and dairy.

4.4 Viability of MarketZquare

In order to determine the viability our marketplace, we analyzed personnel, product cost , mortgage, and utilities costs for each of the pilot locations. The total monthly rates for these costs are summarized by category in the figure below.

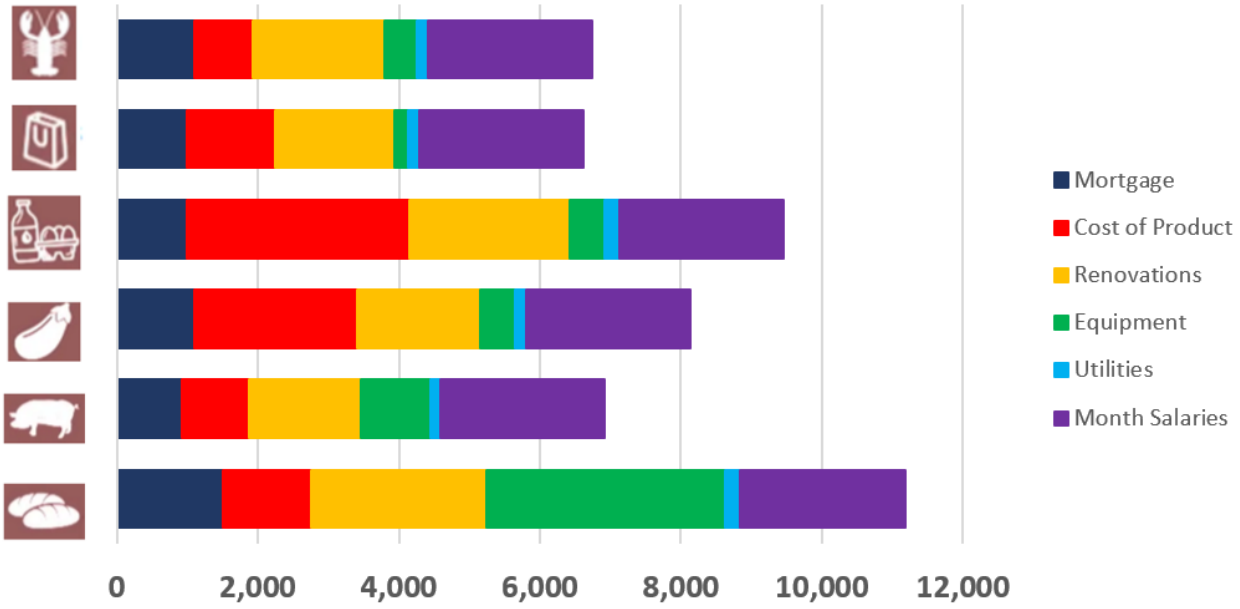


Figure 4.31 Monthly rate costs for each store for the first year of development. In order, from the top, these stores sell seafood, dry goods, dairy and eggs, produce, meat, and bread.

We estimated each of these costs in order to determine if the MarketZquare concept is feasible, these costs were operating costs and investment costs, shown below in Table 4.3 and 4.4 It would be unlikely that an investor would pay for equipment and renovations outright. For this reason we calculated how much it would cost for a monthly pay plan. The total investment

cost totals are summarized in Table 4.3 and include the capital investments that would be needed to open MarketZquare in its entirety. These costs were divided and spread out over a longer pay period when calculating estimated annual cost in order to account for the loan payments on these investments. Table 4.4.presents the other monthly operation costs of the MarketZquare.

Storefront	Cost of Total Renovations (Euros)	Cost of Total Equipment (Euros)
Bakery	30,100	40,550
Butcher & Deli	18,900	11,900
Produce	21,000	5,900
Dairy	27,300	5,800
Dry Goods	20,300	2,400
Fish	22,400	5,500

Table 4.3 Table of Total Investments Costs for MarketZquare

Storefront	Cost of 15 Year Monthly Mortgage Rate (Euros)	Cost of Monthly Product (Euros)	Monthly Salaries of Two Part-Time Employees (Euros)	Monthly Rate of Utilities (Euros)
Bakery	1,500	1,250	2,333	215
Butcher & Deli	930	950	2,333	135
Produce	1,100	2,300	2,333	150
Dairy	1,000	3,150	2,333	195
Dry Goods	1,000	1,250	2,333	145
Fish	1,100	825	2,333	160

Table 4.4 Table of Monthly Operating Costs for MarketZquare

4.4.1 Mortgage Costs

The mortgage costs were determined according to the Venetian real estate online database. These sources detailed the average mortgage costs of a typical store in Castello. Based

off of a 15 year, 3% interest rate mortgage, the monthly costs of each of the stores would be 1500, 930, 1,100, 1,000, 1,000, and 1,100 for the stores that sell seafood, dry goods, dairy and eggs, produce, meat, and bread, respectively, as shown in Table 4.5 below.

Type of Store	15 Year Mortgage With 3% Interest Rate (Euros)
	1,500
	930
	1,100
	1,000
	1,000
	1,100

Table 4.5 Table of 15-year monthly mortgage rates with 3% interest rate for each storefront

4.4.2 Product Costs

We found the product costs for our store by visiting food shops around Venice. These prices were based on an average of Coop prices and the Rialto Biocenter. This was done so that we could represent prices that may be higher than a traditional supermarket but more economical than the Rialto Biocenter mark ups. These prices are presented in Table 4.6 below.

Average Prices (in euros)			
Eggs (per 6)	1.85	Beef (per kg)	13.00
Cheese (per kg)	19.95	Pork (per kg)	5.90
Milk (per L)	1.74	Poultry (per kg)	27.37
Vegetables (per kg)	15.25	Fish (per kg)	18.04
Fruit (per kg)	1.69	Wine (per L)	10.00
Bread (per loaf)	2.50	Herbs (per kg)	262.88
Pasta (per kg)	4.73		

Table 4.6 Average prices of goods as observed by the team from in COOP and Rialto BioCenter.

When we met with David Marchiori he provided us with his own personal study of GAS activity in Venice. He observed price values of products sold at his GAS TuttoGas and a supermarket. He also provided us with the price of producing a kg of product for each food type category.

From data collected in Europe by Eurostat, we have percentages of how much of household food spending is spent annually by each household in each product category. These percentages are displayed in the table below.

Product Type	Percentage of Household Spending
Bread and Cereals	18
Meat	24
Fish	5
Milk, Cheese and Eggs	17
Oils and Fats	3
Fruits	20
Vegetables and Potatoes	13

Table 4.7 Percentage of household spending by product type as determined by Eurostat European food spending study.

For the purpose of this study we gave the bakery and dry goods the same percentage due to lack of available data and the overlap of their product categories. Produce was also determined by summing the percentages of vegetables and fruits. All of the other categories were provided explicitly in the table.

The last data value required was the mark up cost that can be determined from the production cost and the final sale price. David Marchiori provided these two values in his study that allowed us to determine the markup price for each product category. These two price values are listed in the Table below.

	Production Cost	Supermarket Price
Produce	0.7	3.5
Bread	1	5
Dry Goods	1	5
Dairy	4.8	9
Meat	4	35
Fish	8.6	17.2

Table 4.8 Production cost and supermarket price as determined by David Marchiori

We divided the supermarket price by the production cost in order to determine the markup value for each product type. From restaurant owner David Marchiori and a Eurostat food spending study we were able to determine that the average Italian household spends 7,000€ on food annually. In the catch basin area of Campo Do Pozzi there are 313 households indicating that 2.2 million dollars are spent on food annually within that area. Using the percentages determined from the Eurostat study we could determine the amount spent annually one each product type. The estimated spending on each project category is summarized in the last column in the table below.

Product Type	Percentage of Household Spending	Spending/Year	Campo Do Pozzi Spending
Bread and Cereals	18	18634212	110880
Meat	24	24845616	147840
Fish	5	5176170	30800
Milk, Cheese and Eggs	17	17598978	70707.25
Oils and Fats	3	3105702	12477.75
Fruits	20	20704680	83185
Vegetables and Potatoes	13	13458042	54070.25

Table 4.9 Percentage of household spending by product type, spending per year and spending for the catch basin population of Campo Do Pozzi.

Once we have the markup value we could determine the cost of the product by category. In order to get this we reduced the total Campo Do Pozzi spending by product type by the

markup value factor which provided us with the raw production cost of each product category. This estimate provided a worst case product cost because it is based off of what would be necessary in order to provide to the entire Campo Do Pozzi and is adjacent census tracts. Although this catch basin is ideal it is extremely unlikely that every resident will shop at MarketZquare. Therefore, if the marketplace is feasible with these product costs then it will be under realistic conditions.

4.4.3 Management

We determined that there are several business structures our distributed marketplace could take. First, the market could take on a collaborative ownership in which each shop is individually owned by a private and specialized owner. In this scenario each shop would operate as a separate entity. In this market structure all the business owners would operate independently but would attract a larger consumer base due to the variety of products offered. Residents could minimize the number of trips they need to take in order to finish a routine grocery shopping trip. This collaboration would entice shop owners to participate because it offers them the opportunity to draw in additional customers. In a circular economy businesses support one another due to the close proximity of these storefronts to one another.

Another option for management structure involves a private owner for the entire marketplace. This owner could be either be an individual entrepreneur or an existing corporate business. An existing business may see this market as a profitable venture to expand their current business as an organic brand niche. The ownership would serve as managerial role rather than a landlord because the marketplace would be operated as a single market. This option could potentially be the ideal solution for a supermarket corporation because they would have the finances to invest in the property as well as the supplier contacts to stock the stores. The

downside to this option is that it removes the local feel to the marketplace that caters to the local residents.

Third, the buildings could be owned by an investor who purchases the storefronts and leases them to potential shop owners. This individual may have no experience in the food industry but has the capital to invest in the space and believes in the potential of the market design.

Lastly, due to the way that the market aims to revitalize closed shops, support local farmers and businesses and offer organic goods to the community it may the market could be government owned and subsidized, and each producer would rent from the government. The other option is that the storefronts could be acquired from the government.

The group decided that it would be the most feasible to have a single owner. Through our discussions with local business owners and producers it became evident that there are sufficient small, local producers in the Venice area. Many of these producers are engrossed in their work and often have very little time. With this option, the farmers and other producers would only be required to bring the goods to the shops, and the owner would allocate tasks to the employees of each shop from there.

4.4.4 Employees

We calculated estimate costs of a typical retail employee, allowing us to determine how much it would costs the store operators to be open. We talked to the local store owner of the organic food store Strábon, Federica Vianello. Her shop, also located in Castello, has 2 employees throughout the year and possibly a third during the peak summer months. Under our current business model, we assume that we would require one manager for the entire market and two employees per storefront. The cost for personnel would be €50,000 for the manager and

€28,000 for the 2 part-time employees (€14,000 each), totaling €78,000 for the year to open a single store. This number would increase by €28,000 per year for every store that opened up, for a total of €218,000 euros annually. These salaries are based off of research on store personnel salaries and conversations with Venice Project Center employees who provided us with reasonable and realistic salary values.

4.4.5 Determining Potential Revenue

In order to estimate the possible demand of MarketZquare, we observed the amount of people who visit a farmers market, compared the amount of business at the Rialto Market and the local supermarket, COOP. We observed the business experience by the "Venice Farmer's Market," which located in Santa Marta on the island of Venice and is exclusively open on Monday from 7:00am to around 12:00pm. We chose this location based on the observation that it was composed of separate stalls of goods comprising almost all of the departments that MarketZquare will provide, including: Dairy, Produce, Meat, Fish and Seafood, Baked Goods, and Dry Goods. Two of us went to the market and stationed ourselves at the two main entrances and counted the amount of people that came into the market area during the hour time block between 10:30am and 11:30am. For the hour, we counted a total of 259 people coming into the farmer's market to shop and obtain organic and local goods. We confirmed that this is 42.3% of the the catch basin population of 612. Therefore it would be reasonable to believe that a similar permanent market would attract residents.

From David Marchiori we were able to conclude that the average Italian household spends €7,000 annually on food. We multiplied this number by the 313 households to arrive at a value of €2.2 million, which represented the total food spending of Campo do Pozzi.

Next, we calculated the total annual cost of the entire marketplace. This cost was determined by multiplying the following cost values by twelve: mortgage, renovation loans, equipment loans, product cost, personnel and utilities. Equipment and renovations were divided and spread out into monthly payment plans so that we could determine the average monthly cost of operating this marketplace. These costs were selected because they recur annually which would determine the sustainability of the marketplace. A breakdown of these costs can be seen in the Table 4.10 below.

Storefront	Area of Storefront (m^2)	Average Cost of Property (€/m^2)	Total Upfront Cost of Property	15 Year Monthly Mortgage Based off 3% Interest Rate
Bakery	43	6000	258000	1476
Butcher & Deli	27	6000	162000	927
Produce	32	6000	192000	1099
Dairy	29	6000	174000	996
Dry Goods	29	6000	174000	996
Fish	32	6000	192000	1099
		Total	1152000	6592

Table 4.10 Breakdown of Cost for Each Storefront by Month, Year, and Total

From these totals we were able to provide the estimate that the entire marketplace monthly has a cost of €6,600 which corresponds to an annual cost of €1,152,000.

Since we knew that there is an estimated €2.2 million of food spending in Campo do Pozzi we could calculate how much of the total population would need to shop at the marketplace in order to break even and then we could aso extend that to determine revenue. We determined that if 27% of the population shops at this new market, then MarketZquare would break even. To take this one step further if 42.3% of people shop at MarketZquare, meaning that 259 people shop there (the number we recorded visiting the markets), it would bring in €330,600

in revenue. From these calculations we determined that our MarketZquare business model is viable.

5.0 Conclusions and Recommendations

For our project, we analyzed decades of retail data, determined a pilot location, identified possible local food suppliers, and calculated the cost of the marketplace in order to determine whether or not our pilot distributed supermarket, MarketZquare, is feasible. We were able to isolate an ideal marketplace by identifying correlations between supermarkets and food stores. By understanding what locational factors impact supermarket locations and how food stores have been impacted by competition, we could establish a set of criteria that would be used to select a case study pilot location.

The ideal pilot location was determined based criteria consisting of: population within the area, proximity to a supermarket and boat stop, average age of the population, and containing vacant store fronts. In Castello, Campo do Pozzi met four out of the five criteria and also had existing seed businesses and closed storefronts. For these reasons we chose to focus our case study around this location.

Once we determined a pilot location we identified, semi-structured interviews with organic suppliers across Venice were conducted. These interviews led us to finding local farms and producers, as well as gauge an interest of our distributed supermarket to local business owners. Each business owner and producer provided us with business strategies and relevant cost values such as renovation and personnel. From these interactions we were able to identify producers across the Veneto region, with four being in the lagoon islands themselves. We discovered that Venice already has producers that specialize in organic and local goods and as a result there is an ample network of producers to support MarketZquare from Venice and the on Veneto region because they satisfy the product categories outlined in our conceptual design: dry goods, bakery, dairy, produce, meat, and fish.

Finally, we gathered prices of organic and non-organic goods, determined mortgage rates in order to buy the closed storefronts in Campo do Pozzi, and estimated possible number of consumers. By using all these variables to determine the total costs, we were able to determine that for the first year Campo Do Pozzi will cost 600,000 euros annually excluding renovation costs. Campo Do Pozzi will be able to break even on revenue and cost if it reaches a revenue consisting of only 27% of the catch basin of residents in the census tracts of the area around Campo do Pozzi. With 42.3% of these residents buying from MarketZquare, it will make a revenue of 330,600 euros. Based on this positive revenue, MarketZquare will be profitable and be a stable way to promote organic food and revitalize closed store fronts. Overall, MarketZquare in Campo do Pozzi is a feasible business plan that can be applied to other neighborhoods in Venice and around the world.

5.1 Recommendations

Although we have determined that the MarketZquare concept is feasible we have suggestions We have a few recommendation for the site in order to foster a successful business and ensure that the market can generate revenue and succeed in the city of Venice.

5.1.1 Recommendation One: Implement one store at a time.

We concluded that using Campo do Pozzi for MarketZquare would be feasible, so long as it was done gradually to establish brand identity and develop a consumer base. Due to the high cost of the marketplace opening each shop location simultaneously would prove costly due to wasted supply. We learned from our interactions with producers and shop owners that Venetians rely on company reputation.

There are already two existing stores there: a brand a hair salon. We would suggest collaborating with the bar owner and putting them in contact with some local producers in order

to introduce the farm to table concept in the square. In doing so the bar could generate additional consumers through collaborating with MarketZquare and it would be a favorable addition to the marketplace design to showcase the product.

The first store we would suggest opening is dry goods store similar to Strábon. The products have a long shelf life and do not require frequent shipments. Opening this store would minimize initial product waste costs. After this store was established and had a consistent consumer base we would open a butcher. Since the shop was previously a butcher shop, location would require less costly renovations than other storefronts.We would suggest buying this storefront before another business owner has the opportunity. This initial market structure is shown in Figure 5.1 below.

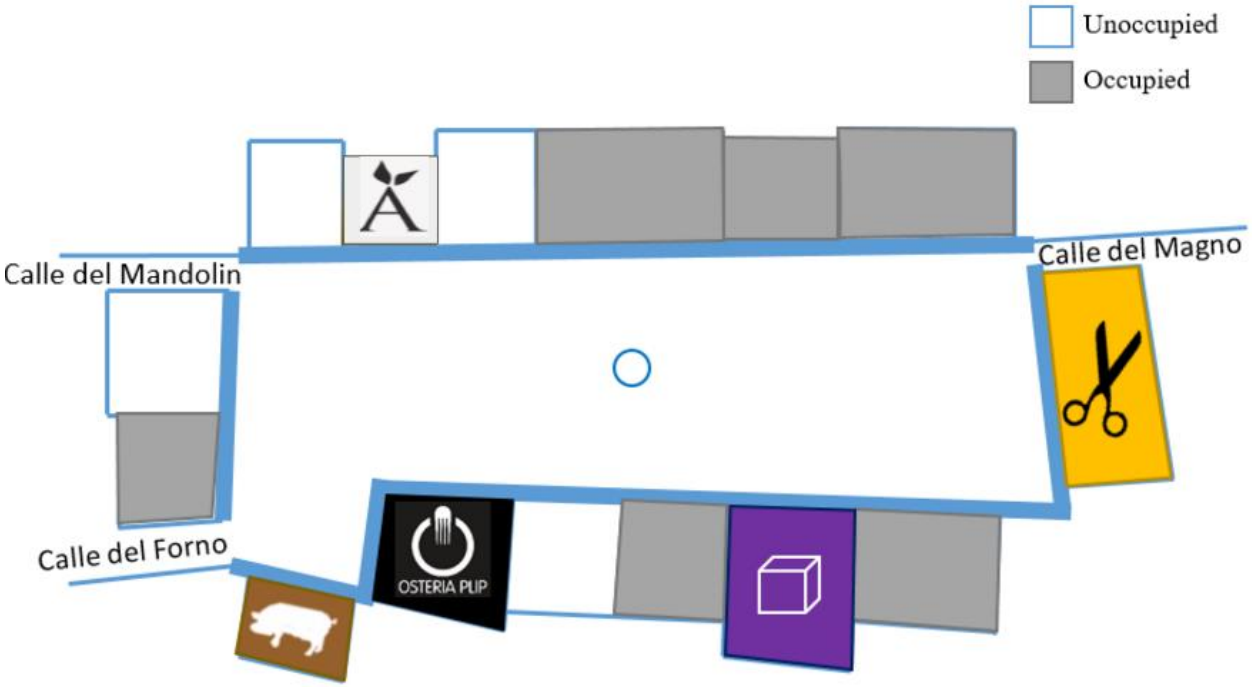


Figure 5.1 Layout of Campo do Pozzi with the butcher added to dry goods store, cafe and hair salon comprised of Strábon and Plip

Next, a bakery would offer fresh bread to the market which would attract additional consumers. This could be hosted on site in the largest shop in Campo do Pozzi, or if the

renovation becomes too expensive, there is a closed bakery that is located only 300m away , shown in Figure 5.2.

Figure 5.2 Location and Front Exterior of Possible Substitute of a Bakery for the Marketplace

If the goods were prepared at the other location, then the on site location would be used only as a storefront to sell and store the goods.

We would also suggest making the dry goods shop a CSA pickup location. It inflicts no cost on the business and allows consumers to get produce in the quare and also attracts additional customers. This eventually could expand to full greengrocer store. The fish store and dairy stores would follow. This is shown in the figure below.

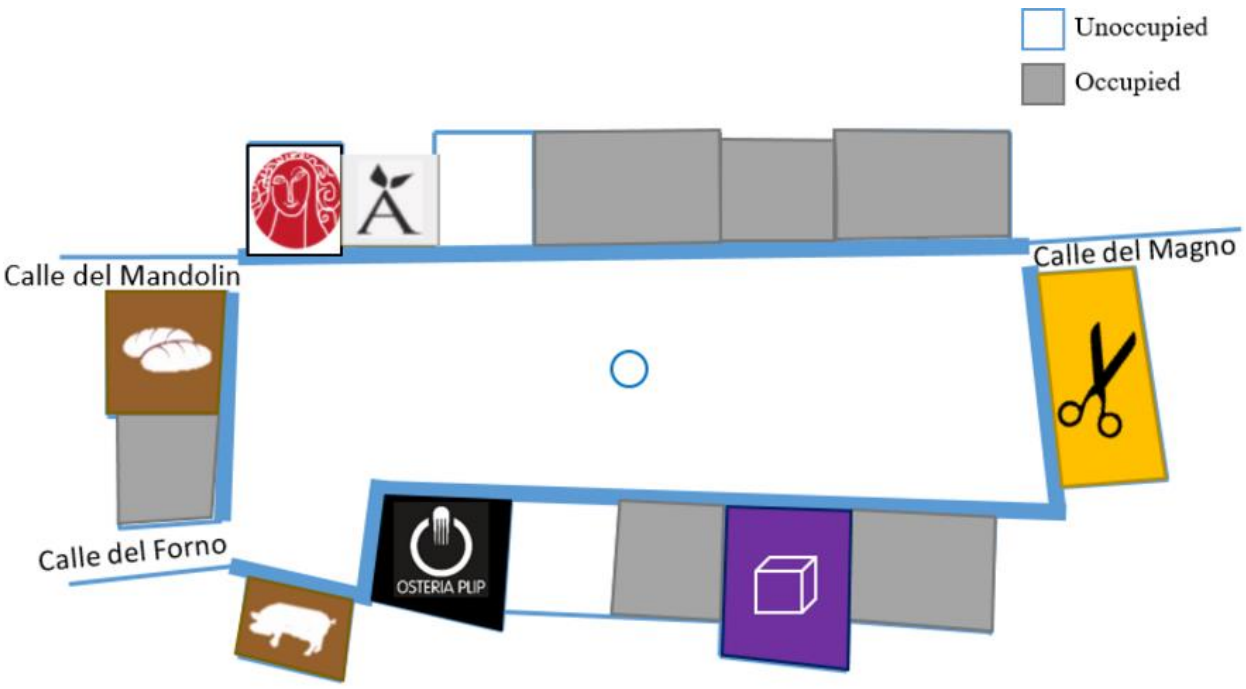


Figure 5.3 Layout of Campo do Pozzi including bar, dry goods, butcher, bakery, green grocers supplied by a producer similar to Donna Gnora

Finally in later phases of the Market we would add dairy, fish and a storage location. These storefronts are the least necessary for the marketplace.fish producers usually already have a market outlet to sell their goods and dairy could be sold out of another storefront, such as dry goods, if costs were too high.

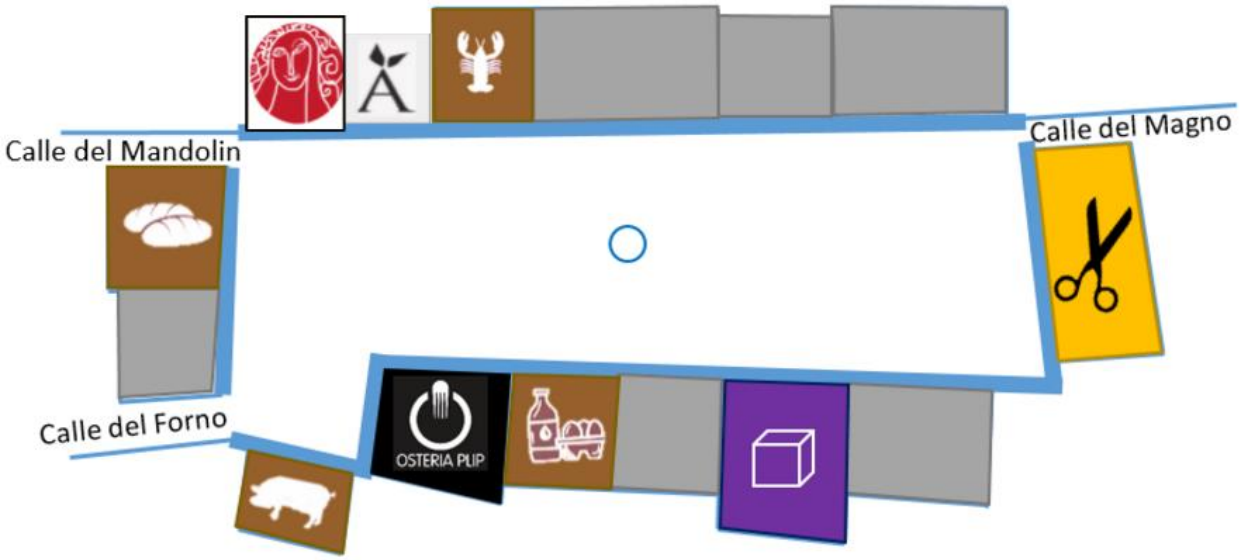


Figure 5.4 Final expansion of the marketplace with 6 storefronts, storage and a bar.

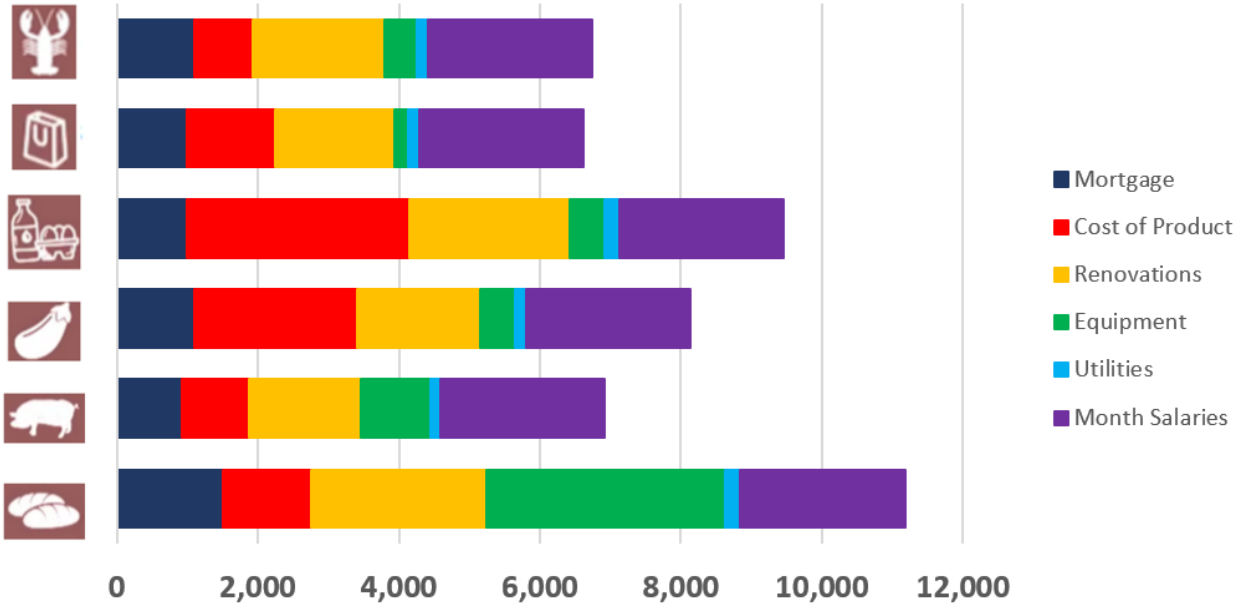


Figure 5.5 Breakdown of monthly cost for each department of MarketZquare. From top to bottom these are seafood, dry goods, dairy and eggs, produce, meat, and bread.

5.2 Recommendation Two: Continue cost benefit analysis.

We recommend that the estimated cost-benefit analysis be continued for the rest of the sites, so that there can be ample evidence for why one site is better than another for MarketZquare. This would involve evaluating the following areas:

1. Transportation of goods: The cost and logistics of transportation was not accurately determined. We recommend after the suppliers and location are chosen, that the details of the transportation of the goods to the market be configured. It will be necessary to determine how the goods will get to the customers. For example, we feel a delivery system could alleviate resident inconvenience and differentiate MarketZquare from other supermarkets.
2. Amount and price of products: Depending on the needs of the area chosen, the amount of products that must be housed in the store on a day to day basis would change. The larger the store, the more room to house goods, but it was not determined how much storage was necessary for each site. We also recommend that other stores be visited so that a more well-rounded price range for the goods, as well as talk to as many other producers as possible in order to establish connection and gauge interest.
3. Salaries: Our numbers for the salaries of the employees were only estimates provided to us by Venice Project Center staff and internet research. . The actual salaries of the employees could vary depending on the profitability of the market, and could include raises from the 14,000 euros per year that we factored in. This could be taken a step further to determine if a worker would be part-time or if they can fully support themselves with this job.
4. Mortgage: Our mortgage costs were estimates given to us by the Venice Project Center and Venice real estate data. Future groups could add mortgage rates to the pilot location criteria.

5.3 Recommendation Three: Explore other sites.

We did not have access to the interiors of the buildings we encountered. We do have the dimensions of our chosen pilot location, but the blueprint and interior were not accessible..This

would be a valuable component to the analysis. The interiors could possibly be determined through contacting the owners and asking to measure the sites.

5.4 Recommendation Four: Meet with Venetians.

In this stage of the project, we visited three suppliers, farmer's markets and business owners as well. There are still suppliers in and around Venice that can be contacted for more information. In order for the business to be successful, MarketZquare must establish relationships with supplier. Producers are often very busy especially in these months due to the holiday season. Many producers are unable to meet for this reason. Consider reaching out in A-term and making appointment so that they may be more likely to participate. This requires that the remaining suppliers be visited, and that semi-structured interviews be conducted. This can even take the form of having lunch with someone, which can be an enjoyable experience.

There was not an overwhelming amount of evidence suggesting that Venetians were interested in the market of organic or high quality food. So, it is necessary to talk to the locals and conduct surveys about their interest in the market. This should be done both for the producers and the customers. Once there are some relationships established, and the interest in the market has been gauged, we suggest that the specific number of suppliers be chosen, and then those suppliers be contacted. From there, the relationships should be further established. One thing to keep in mind is that some farmers are not able to meet certain levels of demand, so some products might require two or three farmers to ensure that there are fresh products daily. This may not always be the case, but is something that should be studied.

Data on Farmer's markets and GAS organizations in Venice is hard to find and weak. As a result, it may be favorable for a future group to create a Farmer's Market application that shows the location of each market and details about their hours and products. This could be

structured like ShoppMappApp and could assist future groups and local Venetians know about these markets.

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Appendices:

Appendix A: List of Stores

Neighborhood Stores

The transitions to commercialization have caused neighborhood stores to close down. A vast majority of these stores consist of single entity stores, *"Mom and Pop Stores"*. The name insinuates the small nature of the business and the family ownership (Merriam-Webster, 2016) Factors ranging from high rent and operational costs due to tourist inflation have forced store owners to leave. Massimo Zane, a local Venetian who sold fish in the Rialto market followed suit with most Venetian residents when he compared the city to that of forty years ago when he described, "we had rows of people lined up two deep," He then provided an image of modern time and wrote, "There are just a few retired people here. I'm sorry for them. Life is expensive," (Donadio, 2009). The following section elaborates on the many small shops that suffer as a result of this market transition.

Haberdasheries

Merriam-Webster defines a haberdasher as "a person who owns or works in a shop that sells men's clothing. The word haberdasher stems from the word hat, which refers to its historic context as a men's accessory store (Wonderopolis, 2014). Traditionally a haberdashery would attract men in search of custom made suits, gloves and other accessories(Wonderopolis, 2014; STV News, 2016). Due to the prevalence of a streamlined manufacturing system, hand crafted clothing has been disappearing and shopping malls and large stores have dominated the clothing

retail market (Wonderopolis, 2014). In response to the market trends, haberdasheries have evolved into craft stores and offer products that including fabrics, thread and other sewing essentials (Wonderopolis, 2014).

Greengrocers-*Fruttivendolo*

The term greengrocer refers to a store owner that specializes in the produce (InputYouth, n. d.). At its origin, food retail was divided by each store's specialty item (Groceteria,n. d.). Greengrocers either work directly with farmers or distribution centers in order to stock their stand, shop or stall (Input Youth,n. d.). The small store business model allows the store owner to offer more variety to their client and allows for direct collaboration with farmers. These connections allow for flexibility to make seasonal changes in order to offer a wide variety of quality goods to the consumer (InputYouth,n. d.). The development of chain grocery stores has led to the replacement of the greengrocer by the produce department in chain stores (InputYouth, n.d.; Groceria, n.d.). However, as a result of the societal push for organic goods increases greengrocers are reappearing in the form of farmer's markets and farm stands (InputYouth, n. d.).

Bakeries-*Panetteria*

Bakeries can range from small scale to large industries that supply grocery industries. Small artisan bakeries have been in existence dating back to the middle ages but became economically accessible to the middle class in the sixteenth and seventeenth century. (Mason, 2013). Fresh baked goods developed into a status symbol and began to be seen as trendy and were served alongside and after meals (Mason, 2013). Although bakeries are an incumbent department of supermarkets many still exist as individual shops and in Europe they represent the

fifth highest sub-sector in revenue for the food industry. (LEO, 2016). Small artisan bakeries preserve the "mom and pop" feel by appealing to the cultural and historical ties to breads and sweets.

Butcher Shops -*Macelleria*

During the eighteenth and nineteenth century the meat industry was dominated by the sales from neighborhood butcher shops (The Butcher's Guild, 2016). These shops were directly responsible for the slaughter of their own meat and existed in almost every neighborhood (Esqueda, 2015). In small neighborhood stores butchery was an artisan craft and required extensive training and skill in order to master the trade. Due to the rise of the meat packaging industry and the lack of youth incentivization to learn the craft, small neighborhood butcher have been diminishing (Esqueda, 2015).

Delicatessens-*Salumeria*

Delicatessans offer a variety of cured and smoked meats, cheeses and salads. In Italy, these meats are referred to as *salumi*. (Martin, 2014; Meriam-Webster 2016). Curing refers to the process of adding salt and spices to meats in order to preserve them and enhance their flavor (Martin, 2014). Delis offer pre-prepared food options that can be taken home or consumed in house (Merriam-Webster, 2016). While deli shops are still prevalent through local sandwich shops, they have also been usurped into the commercial grocery store department layout.

Seafood-*Pescheria*

The fishing industry has been a reliable source of food and commerce throughout history (Ankenman et al 2012). Locations can base their success off of being settled close to water,

Accessibility to waterways and an abundant supply of fish gives an advantage to coastal cities. Fish markets are wholesale markets that allow fisherman and different seafood industries to sell fresh products directly to the consumer. In Venice, a city surrounded by water, the fish industry has served a major factor of the economy and social stability (Silvestri 2006). A famous fish market in Venice is the Peschiera found in the Rialto Market. This market is a hub for the sale of seafood caught in the lagoon, including sole, crabs, squid and more (Venicexplorer, 2013).

Appendix B: Retail Shop Classification Systems for Food Retail

i: NACE Codes

G47.1 - Retail sale in non-specialised stores
G47.1.1 - Retail sale in non-specialised stores with food, beverages or tobacco predominating
G47.1.9 - Other retail sale in non-specialised stores
G47.2 - Retail sale of food, beverages and tobacco in specialised stores
G47.2.1 - Retail sale of fruit and vegetables in specialised stores
G47.2.2 - Retail sale of meat and meat products in specialised stores
G47.2.3 - Retail sale of fish, crustaceans and molluscs in specialised stores
G47.2.4 - Retail sale of bread, cakes, flour confectionery and sugar confectionery in specialised stores
G47.2.5 - Retail sale of beverages in specialised stores
G47.2.6 - Retail sale of tobacco products in specialised stores
G47.2.9 - Other retail sale of food in specialised stores

ii: Venice Project Center Retail Shop Codes

47	COMMERCIO AL DETTAGLIO (ESCLUSO QUELLO DI AUTOVEICOLI E DI MOTOCICLI)
47.1	COMMERCIO AL DETTAGLIO IN ESERCIZI NON SPECIALIZZATI
47.11	Commercio al dettaglio in esercizi non specializzati con prevalenza di prodotti alimentari e bevande
47.11.1	Ipermercati
47.11.10	Ipermercati
47.11.2	Supermercati
47.11.20	Supermercati
47.11.3	Discount di alimentari
47.11.30	Discount di alimentari
47.11.4	Minimercati ed altri esercizi non specializzati di alimentari vari
47.11.40	Minimercati ed altri esercizi non specializzati di alimentari vari
47.11.5	Commercio al dettaglio di prodotti surgelati
47.11.50	Commercio al dettaglio di prodotti surgelati
47.19	Commercio al dettaglio in altri esercizi non specializzati
47.19.1	Grandi magazzini
47.19.10	Grandi magazzini
47.19.2	Commercio al dettaglio in esercizi non specializzati di computer, periferiche, attrezzature per le telecomunicazioni, elettronica di consumo audio e video, elettrodomestici
47.19.20	Commercio al dettaglio in esercizi non specializzati di computer, periferiche, attrezzature per le telecomunicazioni, elettronica di consumo audio e video, elettrodomestici

47.19.9	Empori ed altri negozi non specializzati di vari prodotti non alimentari
47.19.90	Empori ed altri negozi non specializzati di vari prodotti non alimentari
47.2	COMMERCIO AL DETTAGLIO DI PRODOTTI ALIMENTARI, BEVANDE E TABACCO IN ESERCIZI SPECIALIZZATI
47.21	Commercio al dettaglio di frutta e verdura in esercizi specializzati
47.21.0	Commercio al dettaglio di frutta e verdura
47.21.01	Commercio al dettaglio di frutta e verdura fresca
47.21.02	Commercio al dettaglio di frutta e verdura preparata e conservata
47.22	Commercio al dettaglio di carni e di prodotti a base di carne in esercizi specializzati
47.22.0	Commercio al dettaglio di carni e di prodotti a base di carne
47.22.00	Commercio al dettaglio di carni e di prodotti a base di carne
47.23	Commercio al dettaglio di pesci, crostacei e molluschi in esercizi specializzati
47.23.0	Commercio al dettaglio di pesci, crostacei e molluschi
47.23.00	Commercio al dettaglio di pesci, crostacei e molluschi
47.24	Commercio al dettaglio di pane, torte, dolciumi e confetteria in esercizi specializzati
47.24.1	Commercio al dettaglio di pane
47.24.10	Commercio al dettaglio di pane
47.24.2	Commercio al dettaglio di torte, dolciumi, confetteria
47.24.20	Commercio al dettaglio di torte, dolciumi, confetteria
47.25	Commercio al dettaglio di bevande in esercizi specializzati
47.25.0	Commercio al dettaglio di bevande
47.25.00	Commercio al dettaglio di bevande
47.26	Commercio al dettaglio di prodotti del tabacco in esercizi specializzati
47.26.0	Commercio al dettaglio di generi di monopolio (tabaccherie)
47.26.00	Commercio al dettaglio di generi di monopolio (tabaccherie)
47.29	Commercio al dettaglio di altri prodotti alimentari in esercizi specializzati
47.29.1	Commercio al dettaglio di latte e di prodotti lattiero-caseari
47.29.10	Commercio al dettaglio di latte e di prodotti lattiero-caseari
47.29.2	Commercio al dettaglio di caffè torrefatto
47.29.20	Commercio al dettaglio di caffè torrefatto
47.29.3	Commercio al dettaglio di prodotti macrobiotici e dietetici

47.29.30	Commercio al dettaglio di prodotti macrobiotici e dietetici
47.29.9	Commercio al dettaglio di altri prodotti alimentari in esercizi specializzati nca
47.29.90	Commercio al dettaglio di altri prodotti alimentari in esercizi specializzati nca

Appendix C: Interview Minutes

The following sections detail the minutes from each of our interviews. The dates are included.

i: Azienda Agricola Basso Minutes

Local Food and Neighborhood Stores **Date: 11/16/2016**

Attendance: Fabio, David, Claudia, Casey, Emily, Patrick
Secretary: Claudia Dufour

Azienda Agricola Basso Minutes

Interviewed Nicola from his family farm. He likes to see his customers face-to-face.

What is the farm like?
Nicola, his brother, and 10 others work there. Some third parties involved to trim trees and such, so that they don't have to buy the equipment to do it themselves. They till their own land. They have 200 cows. They added pigs. They have one hectare of veggies. Not certified organic, but they are actually organic nonetheless. They feed their animals a mix of veggies, including corn and soy.

What do they sell?
Initially they only sold cheese. They now sell byproducts from pigs (meat). They sell fresh meat -- beef, pork, and poultry -- as well as veggies. You will only find food in season sold at their farm. They sell wine which is made elsewhere, but uses their grapes. About 200 customers come every day.They sell 1,000L of milk per day, but 70% of that is in cheese form.

Who do they supply?
They provide goods to Campagne di Mica in Mestre. Three main farm supply there then 12 others (including Basso) that provide less. Part of a Farm association, which has lower quality goods because it's a mix of producers. They have trucks deliver there 2x per week and only sell about 1/1000 of their goods there because not much sells due to the raised prices, which are upwards of 30% more expensive. They tried selling out of a vending machine, but vandalism stopped that effort. They didn't make much money that way anyway due to all the regulations.

ii: Casa di Anna Minutes

Local Food and Neighborhood Stores **Date: 11/16/2016**

Attendance: Fabio, David, Claudia, Casey, Emily, Patrick

Secretary: Claudia Dufour

Casa di Anna Minutes

About

Casa di Anna is certified organic. Not everything sold on site is produced there. Right now, garlic and onion are in season. They sell food in bags. They have CSA there. People sign up and have it delivered to their business. The farm makes deliveries daily. They sell produce, primarily. Not everything at their farm stand is produced by them. Eventually, they hope to add animals, including horses, donkeys, and chickens, in order to have some "social inclusion/integration" for the workers. The property was purchased in 2014. They started out with only 3000 euros. Eventually, they were given more funds and added more workers. This isn't the only farm that has the plan they do. And they plan to be more than a farm. They plan to have a hub for the community.

Workers

Everyone comes together at 8am for a "mindfulness exercise". The workers pack the bags and work the fields. Casa di Anna employees accompany them to the job and teach them so they know how to work. It's a slow process. The workers are sent from institutions and get paid there. Some people are state funded workers. Most of them have some sort of mental disability, varying in severity. They have about 6-7 workers per day, 21 for the week. This is sort of a pilot project. There are a few other farms that do this.

iii: Donna Gnora Minutes

Local Food and Neighborhood Stores **Date: 12/07/2016**

Attendance: Fabio, Sarah, Claudia, Casey, Emily, Patrick
Secretary: Claudia Dufour

Donna Gnora Minutes

Start Time: 3:00pm **End Time: 4:00pm**

Who are they?
Donna Gnora is a farm that delivers house to house. Federico and 2 others are the producers. People ask for deliveries in advance so the farm knows how much to produce. They bring "the garden is a box". They make wheat bread, and have a wood oven to bake it. All of their products are organic. They sell eggs and jelly. He grows most of the products, but also has some other producers (3-4) help depending on the season. They collaborate. They deliver as well as have a farmstand for 2 hours per week. Their business model is called "SARL". Federico studied geography at the University of Venice.

Deliveries
They deliver in all of Venice and a little beyond. They have 150 families on their delivery list. Their deliveries are weekly, and they vary location depending on the day: for example, on wednesdays, they deliver to the historic center; Tuesday and Thursday they are in Mestre. Usually, a delivery day is long: 8am to 9pm. For a shop, deliveries should be more frequent than once a week. If DG was the provider, they would recommend 2x per week.

Misc
If he were to participate in MarketZquare, he would want to have the opportunity to grow his sales, be better known (grow reputation), work less hours (have the funds to hire more workers), know how much cost is involved, time for delivery. Having another partner would be beneficial. Possibly Sant Erasmo and Giudecca.

iv: Isapori Minutes

Local Food and Neighborhood Stores **Date: 12/13/2016**

I Sapori Minutes

I sapori di sant'erasmo interview
Azienda agricola

Carlo- owner

Overview: every week, Carlo send an email with a list of their available products to all the mailing list, people send back an answer with theys orders on it and the preferred delivery day with at one of the the 7 location established. Then Carlo and his partners bring by boat all the products to the scheduled place 5 days a week

Questions

Q-How many people work in your company?

A- 5 is a relatives company

Q- how many orders you have per delivery day

A-150 orders, but depends on the season (more during summer)

Q-able to full fill orders?

A-yes

Q-do you work with restaurant?

A-for a few, because we prefer a producer/ consumer direct selling method - it's a choice to keep a good quality level.

Q-If you can have a shop in marketplace would you use it?

A-Yes but selling only boxes with mixed products in it - we don't want to sell single pieces.

v: Osteria Plip (David Marchiori) Minutes

Local Food and Neighborhood Stores **Date: 11/07/2016**

Attendance: Fabio, Aaron, Claudia, Casey, Emily, Patrick
Secretary: Emily Newman

Osteria Plip Minutes

The team had the chance to meet with David M for a chat about community you supported agriculture and how it affects his business. We had a lot of fun in the process. David was a really neat guy. His vision for the restaurant was unlike most of the places we've researched.

What did you do before opening Plip? David wasn't always in the restaurant business.

CSA is really big here. Restaurant very big into organic/local food. Promote local little systems with little farmers/producers. EQUAL market.
Relationship with people very important. Has relationship with each producer of food.

Key is NOT profit but in the connection between people. That leads to the sustainable profit.

In their business they have 70 people working. They have projects they work on. Ex they've helped a lot of refugees.

Different model from capitalism but very capitalistic enterprise.

He wants strong community in the neighborhood. Displays pictures of his suppliers in his restaurant.

How did you start out?
4 years ago, but its current style started about 2 years ago. He built trust in his community. Day by day, he built his reputation. He lost his job in government due to a small scandal. A silly one that shouldn't have led to this. Someone didn't pay a small tax or something. It was ridiculous that multiple people lost their job over it. This led to his job change.

David invested 150k euro into the building which used to be a milk factory under the same name. There was no clear identity of the place. For 2 years, things were bad there.

Osteria Plip
2012 --> Space was abandoned. The startup was slowed down by politics. They don't pay rent there. They barder. Rent free until 2020. He wants to start a local market in there. Part of the space is used for ballroom dancing currently. David wants to take over the whole building. The

market would include food, wine, shoes, clothing, etc. All local. Coming from a strictly defined economy. "metropolitan market" He doesn't use this as a marketing tool. He chooses his suppliers based on their need. He has THEIR best interest in mind. The ones that couldn't survive on their own.

They have a good reputation. People come to them. Suppliers are 4-20 km away. Relatively close. But they also have cars, which makes it easier.

When he can't find local, he finds the best ingredients he can. SAMPLING is essential to finding good products. Gives farmers 600 euro a month. The restaurant RESPECTS THE SEASON. Not everyone does this. But that's the best way to have fresh products.

BIG IDEA: Fresh products from local farmers at competitive prices.

Solidarity group purchasing system --> group purchasing leads to better prices. He will be providing data about this.

The thing he started 10 yrs ago is still going on (tuttogas) It's not as structured as they used to be but still in existence. Because here are more ways to buy from local farmers. Sell online. Delivered right to your door.

He was asked to take over the Plip building because of his background. This place was supposed to be communal. Very different from other countries. The government asked him to do this to save it.

David decided that a restaurant would be a way to generate the funds in order to fund the other projects that they do. It took some time for the politics to settle down. That's why the first 2 years were slow.

*20-25% LESS EXPENSIVE with BETTER QUALITY. Middle-man is where all the cost is.

In a comparative --> relationship with members is essential.

None of the products are hard to find for him.

Jason Nardi --> social networking contact
Andrea Calori --> professor at polytechnic of milan
These two guys have information useful for the project. David can get us in contact.

David is very aware of the distributed market idea. His model is not too different. There are a lot of these in Europe and Italy, specifically.

MAIN IDEA: Build community. Buying food is a daily thing. Half of the Italian paycheck is spent on food. If you do it right, you build community and grow the economy. Model is direct with producers and vendors. To work with David, the person must be under 35 years old so David helps them to build a job. He hasn't had a problem finding people. He offers space and they pay 5000 euro a year, which is really cheap. Customers pay at each booth. He calls and has a criteria. Each one met is some point value. More points puts you higher on the list. He wants 10 vendors for the market. You have to go through a formal process since this is a public space. He's providing a chance to start for so many.

He recommended we find a public place (owned by the government) and then that would make it more likely that we'd be able to get the market government subsidized or some tax breaks. He also said that we should buy products frequently in order to ensure that everything is fresh. It also makes it so that we need less storage space in the market. Win-win. We should get the city involved in our efforts.

Fabio said that we need to calculate the population in the area and not have just the density. We also need to map the other stores in the area and get an idea of the renting costs there.

vi: Strábon Minutes

Local Food and Neighborhood Stores

Date: 12/06-07/2016

Attendance: Fabio, Aaron, Claudia, Casey, Emily, Patrick
Secretary: Emily Newman

Strábon Minutes

Links: http://www.strabon.it/STRABON/Home.html

- What kind of goods does your store sell?

  A ready-to-eat (gastronomia) food place, good to go at high end quality. Made locally on the mainland and brought over to the store. Sell prepackaged organic and non-organic food items. Cater to tourists and venetians.
  Found specialty foods that they sell by going to meet the suppliers. Found these people by chance to stumble upon suppliers or producers, and asking different places like locals (word of mouth) to create these relationships. Roamed around to find their products and set up, research on the slow food world.

- Is there demand for organic food?

  Yes, looked at growth of organic food business and thought it would be profitable in this area, don't sell just organic food.

- What went into deciding where you were the location of your store was going to be?

  Area that isn't all touristy

Fresh food isn't sold here, only prepackaged specialty foods but no organic produce.

Suppliers not quite organized yet, hard to find
Key group- national distributor of organic foods
Probios - ", both of these don't sell produce, only prepackaged
Another one- sells produce

CSA distributor- and different pickup locations of the rowboat distributor
"doing this to create an atmosphere for their store no a money incentive
12 boxes every week
CSA host
They have a 100 sq. meter store, building is rented
Now since the bakery next door is closed, they have taken on selling bread
Not far from our square was the organics - Panafica Mollin
Go and visit, to be pointed towards meat place and bread place to see This store is basically a mini market

Appendix D: List of Producers

Name of Producer/ Farm	Location of Producer/ Farm	Types of Products sold
Orione Uova	Via don Orione 69 – Loc. Scaltenigo - Mirano (VE).	Meat (Beef, Pork, Poultry)
Azienda Agricola Basso	Via Ca' Solaro, 6/e, 30173 Favaro Veneto, Venezia VE	Dairy (Cheese, Milk, Eggs, etc.)
azienda avicola il gallese di michielan fabio	Via Gallese, 30037 Scorzè VE	Dairy (Cheese, Milk, Eggs, etc.)
Basso Formaggi	Via Ca' Solaro - Favaro Veneto (VE) Tel: 328/0440442	Dairy (Cheese, Milk, Eggs, etc.)
Caseificio Barbieri	via Ore Ponte di Mossano, Vicenza, Italy	Dairy (Cheese, Milk, Eggs, etc.)
CONSORZIO EMILIANO - ROMAGNOLO PRODUTTORI LATTE	VIA TIRO 16/A, VENEZIA - VE (Lido)	Dairy (Cheese, Milk, Eggs, etc.)
Farm Persegona sas	63, Frazione Pieve Cusignano, Fidenza, PR 43036, Italia	Dairy (Cheese, Milk, Eggs, etc.)
Orione Uova	Via don Orione 69 – Loc. Scaltenigo - Mirano (VE).	Dairy (Cheese, Milk, Eggs, etc.)
The Casara Of Boracia	Via Casara 8 , 37030 Selva di Progno (VR) - Italy	Dairy (Cheese, Milk, Eggs, etc.)
Uova Pascolo	33030 - Nogaredo di Corno (UD) Italia	Dairy (Cheese, Milk, Eggs, etc.)
Allevatori del Cansiglio Coop a.r.l	Viale Marconi 82, 32010 Tambre (BL) - Italia	Dairy (Cheese, Milk, Eggs, etc.)
Azienda agricola Antonio Robbe	Contrada Perillo - Loc. Contrada Perillo, 85020 Montemilone (PZ) - Italia	Dry Goods (Alcohol, Pasta, Herbs etc.)
Azienda Agricola Basso	Via Ca' Solaro, 6/e, 30173 Favaro Veneto, Venezia VE	Dry Goods (Alcohol, Pasta, Herbs etc.)
Bustaffa	Via Boscariola 3/b 30030 Trivignano (Venezia)	Dry Goods (Alcohol, Pasta, Herbs etc.)

F.U.D fattoria urbana diffusa giudecca	Orto-Giardino di SpiazziVerdi Giudecca/Venezia	Dry Goods (Alcohol, Pasta, Herbs etc.)
La Terra e il Cielo Società agricola cooperativa	Zone PIPN 229h Fraz. Piticchio , 60011 Arcevia (AN) - Italy	Dry Goods (Alcohol, Pasta, Herbs etc.)
Lazzarato (farm Fabio Lazzarato)	in azienda, Via Roma 214, 30020 Meolo (VE)	Dry Goods (Alcohol, Pasta, Herbs etc.)
Azienda agricola Luca Rossetto	Via degli Alpini 56 , 31030 Arcade (TV) - Italy	Dry Goods (Alcohol, Pasta, Herbs etc.)
Ai Pavoni Fattoria Agrituristica	Provincial 44 - Loc. Ramello, 45012 Ariano nel Polesine (RO) - Italy	Dry Goods (Alcohol, Pasta, Herbs etc.)
Azienda agricola Altaura e Monte Ceva	Via Correr 25 - Loc. Altaura Casale, 35040 Casale di Scodosia (PD) - Italia	Dry Goods (Alcohol, Pasta, Herbs etc.)
Azienda agricola Le Barbarighe	Via Barbarighe 1700, 45030 San Martino di Venezze (RO) - Italia	Dry Goods (Alcohol, Pasta, Herbs etc.)
BUSTAFFA ALDO	Via Casati 22 - Loc. Marghera, 30175 Venice (VE) - Italy	Dry Goods (Alcohol, Pasta, Herbs etc.)
The Bridge srl	Via Marcigaglia 22, 36070 San Pietro Mussolino (VI) - Italia	Dry Goods (Alcohol, Pasta, Herbs etc.)
ADRIAMAR SOCIETA COOPERATIVA	Via Lungomare San Felice 22 , 30013 Cavallino-Treporti (VE) - Italy	Fish and Seafood
Pesce di Valle Dogà (Demaniale)	30016 Jesolo (VE) - Italia	Fish and Seafood
Azienda Agricola Basso	Via Ca' Solaro, 6/e, 30173 Favaro Veneto, Venezia VE	Meat (Beef, Pork, Poultry)
Azienda Agricola Pastrello	13, V. Zingarelle 35012 - Camposampiero (PD)	Meat (Beef, Pork, Poultry)
azienda avicola il gallese di michielan fabio	Via Gallese, 30037 Scorzè VE	Meat (Beef, Pork, Poultry)
Maniero Rino Macelleria	Via Cornio 42 30010 Camponogara (VE)	Meat (Beef, Pork, Poultry)
The Casara Of Boracia	Via Casara 8 , 37030 Selva di Progno (VR) - Italy	Meat (Beef, Pork, Poultry)
Azienda agricola Altaura e Monte Ceva	Via Correr 25 - Loc. Altaura Casale, 35040 Casale di Scodosia (PD) - Italia	Meat (Beef, Pork, Poultry)

Azienda agraria Fidora	Pegolette Cona - Loc. Pegolette, 30010 Cona (VE) - Italy	Meat (Beef, Pork, Poultry)
Agricola Paglione	Contrada Perazzelle SP 116 Km. 9.8 , 71036 Lucera (FG) - Italy	Produce (Vegetables, Fruit, etc.)
Azienda agricola Antonio Robbe	Contrada Perillo - Loc. Contrada Perillo, 85020 Montemilone (PZ) - Italia	Produce (Vegetables, Fruit, etc.)
Azienda Agricola Basso	Via Ca' Solaro, 6/e, 30173 Favaro Veneto, Venezia VE	Produce (Vegetables, Fruit, etc.)
Azienda agricola BioMele di Farina Maria	Via Monte Grappa 1 - Loc. Torre Mozza, 75025 Policoro (MT) - Italy	Produce (Vegetables, Fruit, etc.)
Basso Formaggi	Via Ca’ Solaro - Favaro Veneto (VE) Tel: 328/0440443	Produce (Vegetables, Fruit, etc.)
Casa di Anna	via Sardi 16-30174 Zelarino (VE), via Guido Guinizelli - 30174 Asseggiano (VE)	Produce (Vegetables, Fruit, etc.)
F.U.D fattoria urbana diffusa giudecca	Orto-Giardino di SpiazziVerdi Giudecca/Venezia	Produce (Vegetables, Fruit, etc.)
Farm Andrea Gosetti	Gone With Ferer Menin , 32030 Cesiomaggiore (BL) - Italy	Produce (Vegetables, Fruit, etc.)
La Maravegia azienda agricola sant’erasmo	Via dei Forti 67 / A Sant 'Erasmo - Venice	Produce (Vegetables, Fruit, etc.)
Mandato	VIA BALLO', 100/A MIRANO BALLO' 30035 VENEZIA	Produce (Vegetables, Fruit, etc.)
Orione Uova	Via don Orione 69 – Loc. Scaltenigo - Mirano (VE).	Produce (Vegetables, Fruit, etc.)
Azienda agricola Cortiana Giandomenico	scovizza 20 , 36033 Isola Vicentina (VI) - Italy	Produce (Vegetables, Fruit, etc.)
Azienda Agricola Fam. Fabris	marinotti 11 - Loc. Pianzano, 31010 Godega di Sant'Urbano (TV) - Italy	Produce (Vegetables, Fruit, etc.)
Ai Pavoni Fattoria Agrituristica	Provincial 44 - Loc. Ramello, 45012 Ariano nel Polesine (RO) - Italy	Produce (Vegetables, Fruit, etc.)
Azienda agricola Altaura e Monte Ceva	Via Correr 25 - Loc. Altaura Casale, 35040 Casale di Scodosia (PD) - Italia	Produce (Vegetables, Fruit, etc.)

Azienda agricola Botta e Cuora di Clelia Giusberti	30014 Cavarzere (VE) - Italia	Produce (Vegetables, Fruit, etc.)
Azienda agricola Le Barbarighe	Via Barbarighe 1700, 45030 San Martino di Venezze (RO) - Italia	Produce (Vegetables, Fruit, etc.)
Il Mercato del Carcere femminile della Giudecca	Fondamenta delle Covertite, Giudecca 712	Produce (Vegetables, Fruit, etc.)