NBA 5070 – Final Business Plan

Team 5

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1. Executive Summary

1.1 Introduction

In New York City alone, 15,000 bikes are stolen every year. A typical bike lock required to defend your property from thieves can cost in excess of $90, while a sufficiently heavy duty bike chain can weigh over 15 lbs, or 80% of the weight of an average bike. Bike use is growing with no signs of relent, as is the criminal element that centers around it. Rather than deal with the cumbersome, unsecure, and potentially ineffective security measures that are available today, BikeSto aims to provide an all-encompassing network of bike storage units. The system will be affordable, provide peace of mind, and cater to this rapidly growing market.

1.2 Value Proposition

Most urban areas in the United States currently lack safe and convenient places to store personal bikes. This is costing urban cyclists time and money every day. BikeSto plans to provide a ubiquitous network of secure bike storage units that will greatly expand the reach of urban cyclists.

Our network will consist of two systems: A small but heavy duty bike lock that clamps onto existing bike racks providing secure bike storage at countless locations; and automated bike rack structures, holding 20-30 bikes and catering towards longer term bike storage, installed near apartments, workplaces, train stations, or by your favorite cafe. Both systems will be linked through an online network where unit locations and open slots can be viewed and reserved on your mobile device or through our website. We stand by the reliability of our storage systems and guarantee the security of bikes stored with our system.

Ultimately, BikeSto's unfair advantage lies in the rapid expansion of our storage network made possible through our simple mechanical designs and an aggressive sales mode.

Figure 1.1: *Small clamp on bike storage unit, and high capacity bike store*

1.3 Scenarios of use

BikeSto is first and foremost concerned with the storage of bicycles for frequent users. In terms of commuters, this category contains daily riders who in any part of their commute ride a bicycle, whether the user takes the metro into the city and needs a constant storage location by their subway stop, or those who commute from their doorstep to their office.

Often times this commuter segment overlaps with the daily user, whose primary form of transportation every day of the year is a bicycle. The BikeSto system will allow both categories of users to maintain long term storage and daily storage options, depending on their needs.

1.4 Ideal Customer

The ideal user we will target is the commuter in an urban area. The commuter has the income to pay for constant use of the storage system, and will guarantee usage day in and day out. A constant revenue source from the commuting market will be the backbone of our income structure.

1.5 Market Survey Result

The ideal customer was targeted in a market survey by way of bike forums and other bike related internet communities. Over 100 people answered the survey. Overwhelmingly, using a bike storage network was preferred to the use of a bike share system, and the ideal customer assumption was validated with 93% of the respondents stating they used bikes for transportation to and from work. Survey results asking how much users would value our bike storage service drove the pricing schemes used in our sales model for hourly, daily, and monthly storage rates.

1.6 Business Strategy

Upon financing, BikeSto will grow storage unit production exponentially to proliferate key markets as soon possible. Our bike storage systems will blanket major cities like New York City, Portland, Chicago, Seattle and Philadelphia by the end of our fifth year. Sales will start in New York City in the second year with our small bike locks. After 2 years of development, the larger bike storage units will rollout alongside the smaller units in more cities. Strategic partnerships will enable the rapid proliferation as will user demand in prominent cycling communities.

1.7 Competition

Several other companies exist with similar personal bike storage solutions. ECO-Cycle in Japan provides systems that store bicycles in a sealed box underground, but which is not scalable due

to installation difficulties and cost. In California, Bikelink offers bicycle storage boxes primarily located next to transportation hubs such as train stations. However, the number of bicycles they store in a given location is very limited due to the space required for each of their rectangular lockers. Additionally, security issues arise since lockers are shared by multiple users.

1.8 Target Markets

Each of the 44 million people who own a bicycle in the United States is a potential user of our systems.

Our primary market is our ideal customer, who is a bicycle commuter living in an urban area. In our second year, we will start to operate in New York City where 300,000 people ride a bicycle every day, 12% of which are commuters. By the end of the fifth year, we plan to reach 21% of the bicycle commuters in New York City, Portland, Chicago, Seattle and Philadelphia, which would account for 30,400 commuters every day.

Our second market target is what we call the 'last-mile commuter'. We expect 2,900 of them to use our system regularly at the end of year 5.

Our third market consists of the casual riders. We hope to service 2.6% of them, i.e. 22,700 people by the end of our fifth year.

Overall, we believe we can service 56,000 people, i.e. 0.12% of the Total Available Market, in year 5.

1.9 Strategic Partners

We aim at building strategic relationships like the ones enjoyed by Redbox and supermarket stores. We will collaborate with and install our units at locations of nationwide chains such as Starbucks. Mutual benefit is received, as our bike storage units will draw more customers to their store front and give greater incentive for cyclists to use our bike storage units.

Starting in the fourth year, we will also start offering repair or tune-up services performed by specialized bike stores for an additional fee while a user's bike is stored. This brings additional revenue and advertisement for local bike stores.

1.10 Marketing Communication Plan

We will want to maximize the effect of Public Relations, and aim at being mentioned in blogs and high-traffic websites viewed by bicycle riders. To achieve this goal, we will sponsor biking events and contests and organize press releases and conferences. Once bike storage units are in place, further promotion of our bike storage locations will be completed through checkpoint races that will familiarize users with our locations and offer them discounts for participation.

1.11 Global Marketing Strategy

Our company plans to take on a flanking business strategy by rushing into and rapidly installing our systems in cities with very limited or no personal bike storage solutions. Our flanking strategy will also give us an advantage over bike sharing competitors by targeting a market they have not yet attempted to tap. The rapid expansion and installation of our systems will guarantee our foothold in these areas and increase our leverage in overtaking our direct competitors in other cities.

1.12 Engineering Plan

We intend to design our two bike storage systems concurrently in the first two years through in-house rapid prototyping. In years 3-5, our engineering headcount will grow and focus on exponentially expanding our production rate by streamlining overseas manufacturing, as well as scaling our website and mobile apps to interface with our storage units.

Production overseas will be overseen by a small team that will also act as quality assurance

1.13 Operations Plan

Our company will be headquartered in Philadelphia, PA, chosen for its close proximity to our first target city, NYC, as well as to shipping ports where cargo ships will deliver our manufactured products.

Our company plans to double its headcount every year while maintaining a startup company culture that will attract the best and brightest employees. For rapid expansion of our system, engineering employees will approximately equal sales and marketing employees. Each of these two groups will constitute about 25% of our workforce while 40% of our workforce will constitute skilled maintenance technicians who will check our bike storage installations. The remaining 10% will be managers and other executives. When we reach IPO, we will transition our company to a team of executives with prior experience running medium sized and rapidly expanding companies.

Company secrecy will be strictly maintained with all new employees signing secrecy agreements upon start of employment. We will hire separate corporate and intellectual property lawyers to guide our evolvement into a corporate structured business.

1.14 Sales Model

Our sales model is based around 3 different bike storage timespan options: an hourly rate of $0.75, a daily rate of $3.00, and a monthly rate of $75.00. By paying for the longer duration rate (monthly), storage time is cheaper and certain benefits/discounts are only available to those paying for the premium service. The bike storage slots are modeled as special equipment with depreciation and average monthly maintenance costs. The size of our maintenance crew is determined based on the number of slots assuming that each slot is checked once every 2.5 days.

After the first (small) slots have been installed and are in use by the end of year two, gross margin becomes positive. In year three, we focus on getting the large units operational and slightly reduce production of the individual small slot units. This push in getting the large unit infrastructure operational leads to a positive operating profit by the end of year four and a dramatic increase by the end of year five.

1.15 Request for Investment

We are requesting $3.0 million in the first year, $3.3 million in the second year, $5.4 million in the third year, and $1.8 million in the fourth year. For round 1 an ROI of 100% per year is expected, for round 2 an ROI of 71% per year is expected, for round 3 an ROI of 46% per year is expected, and for round 4 an ROI of 21% per year is expected.

We are personally committed to expanding the reach and improving security for the everyday biker, and we would greatly appreciate your support.

SUMMARY OF FINANCIAL FORECAST ($ in 1000's)	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
Sales	**$0**	**$3,231**	**$8,886**	**$20,842**	**$45,238**
Gross Margin	-$237	$860	$1,078	$9,243	$22,866
Operating Profit	-$2,612	-$2,780	-$4,110	$2,264	$12,165
Percent of Sales	*No Sales*	*-86%*	*-46%*	*11%*	*23%*
Total Headcount	19	41	66	93	155
Cumulative Stock Sold - Venture Capital	$3,000	$6,100	$11,400	$11,400	$11,400

Table 1.1: *Summary of financial forecast*

2. Business Idea

2.1 Opportunity

Bike use over the past 10 years has been increasing with the rise of the millennial generation, and many cities worldwide are wholly unprepared for the onslaught of bikes. Since 2000 the American Community Survey reports that there has been a 61.6% increase in bicycle commuting. In the past year alone there has been a 9% increase in bike use. In the case of NYC there are over 200,000 bicycle users a day. Of those cyclists 45,000 cyclists enter or leave Manhattan.

The FBI estimates that over $350 million are lost in stolen bikes and bike parts every year. The current average bike lock in New York City (NYC) weighs 11 pounds. Combining the lack of security of current bike storage alternatives, and the volume of potential consumers, there is a need for a secure and convenient bike storage solution. Many storage solutions currently exist, ranging from the basic bike rack to the complex underground multi-level storage systems. Our bike storage system emphasizes a network along the lines of current parking lot companies like Icon of NYC, while remaining compact, easy to use, and supporting a high capacity.

2.2 Need

The customer needs a cost-effective, convenient, and safe bike storage solution that is widely available throughout a given city. The customer should be able to use any location with equal convenience and should defer traditional methods of bike storage due to the benefits of safety and convenience that our solution enables.

2.3 Product and Service

The product is an urban bike storage network of high capacity bike storage units and cloud enabled heavy duty bike locks for typical bike racks. A customer can walk up to any of the bike

storage units throughout the city, swipe their card, place their bike inside of it, and walk away knowing that their bike is secure. Typical bike storage facilities do not provide the same level of security as the BikeSto network. Current pay-for bike storage facilities are very localized and are thusly limited in their utility.

Figure 2.1: *High capacity bike store*

The high capacity version of the bike storage units is similar to a bus stop in size, and can house a range from 15 - 30 bikes at a time depending on the form factor. The store is linked into the BikeSto cloud, and automatically deducts payments and timing with a swipe of a credit card. A kiosk panel centered in the middle of the unit will facilitate payments and other basic bike storage services. The system offers protection from the elements by way of the roofing and guarantees safe, tamper free storage. Furthermore, it is aesthetically appealing, and has the potential for advertisement space on its back walls and side panels.

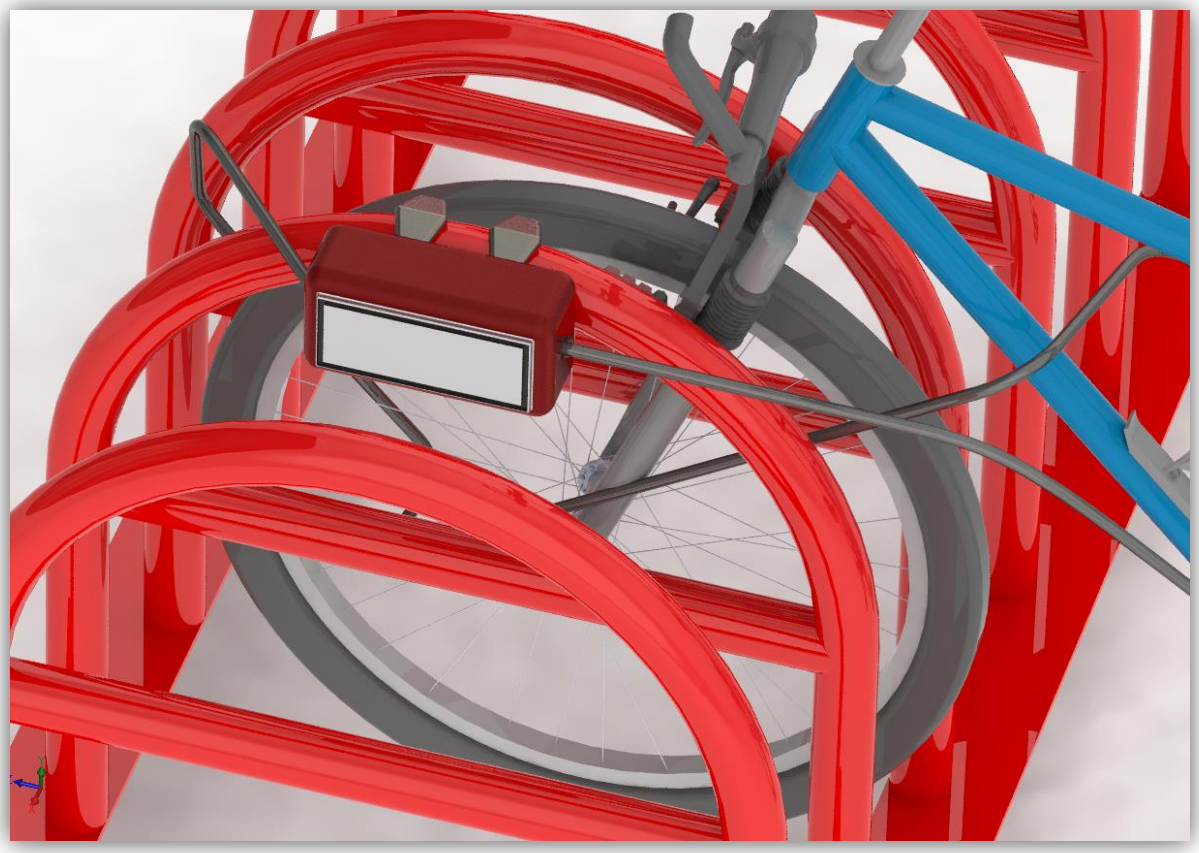


Figure 2.2: *Secure bike lock*

The ad hoc bike lock is approximately the size of a milk carton, and can be attached to most types of standard bike racks. The unit itself consists of a touch screen, a credit card swipe (out-of-view, underneath), and a strong, rubberized bike chain. The chain itself hangs off the bike lock when not in use. All interactions with the lock go through the touch screen and can enable many of the same services as the bike storage unit itself. These bike locks are more cost effective, faster to distribute, and will enable a rapid expansion of the network. The locks are intuitive to use, and require the user to swipe their credit card and consequently weave the chain through the bike and connect it at the end.

2.4 Ideal Customer

The ideal customer is the working class, mid-20's male who has any part of their commute involving a bike. This customer likely uses the bike for the final leg of their journey from the train station to the office, and they use their bike to get around the city recreationally.

The bowling pins are as follows: recreational bike riders that use bikes throughout the city on their day to day, school age children living in a big city that use bikes to get to school and home, tourists that need access to bikes throughout the city to explore, and finally those riders (recreational, commuter, etc…) that do not ride their nice bikes out of safety concerns.

Placing the units near major transportation hubs, parts of cities with heavy foot traffic, and any location that wants to increase there "green-quota" will target the ideal customer. Since the bike storage unit is covered, and LEEDS certification gives points to covered bike storage units – any building that is going for LEEDS certification would benefit from such a system. With regards to cities, the ever-increasing need to cater to cyclists as a whole while dealing with space constraints would incentivize cities to make room for these bike storage units.

2.5 Survey

A bike survey was put out to the ideal customer through means of forums and Internet communities that focused on bike commuting. The survey validated assumptions of the ideal customer and justified the need for a distributed bike storage system in addition to the costing involved and other pertinent questions. The survey garnered over 100 valid responses, of which 82% were male, 56% lived in an urban area, 59% were daily riders, and 93% used a bike to commute to work – the core components of our ideal customer.

To demonstrate need, 30% of responders have had their bike stolen, and 94% of responders would prefer a bike storage network to a bike share system or other communal use network, with 41% of responders admitting to feeling reluctant to take their bike out for fear of being stolen. That mentality had led 34% of responders to use a "beater bike", a cheap, fairly disposable bike to protect their preferred bike at home. That 34% of responders would benefit the most from the bike storage network, as it would enable them to ride more often and presents a clear need, security. That was validated by the 68% of responders who agreed that they would ride more if their storage means were safer. Overall, there is a clear and present need for a bike storage network based on the responses of our ideal customer.

Based on the validated results, the cost the customer is willing to pay per hour is $0.94, per day $4.76, and per month $31.83. Most of the ideal customer will fall into the per hour or per month category.

2.6 Value Proposition

- ✓ ***Convenient***: a blanket network of easy to access bike storage units and the prevention of a need for the customer to carry a cumbersome lock with them
- ✓ ***Ease-of-use***: takes only a few moments to a lock bike up
- ✓ ***Affordable***: the consumer should by no means feel the cost.
- ✓ ***Secure***: the system should prevent theft and damage from both other people and the elements

3. Strategy and Milestones

3.1 Strategy

The first year is purely development and fundraising, location seeking. The second year is when production begins, contracts are signed with municipalities, and expansion plans are made. Up until this point we plan on staying relatively secret and blitzing the market with a very rapid expansion across a designated city. A key to our success is the exceptionally fast expansion. After one city is well under way, expansion will take place on a similar scale in other major cities.

3.2 Competition

Bicycle Parking Network

A small scale competitor in California; the last time the website was updated was in 2005 and it seems like their network is almost defunct. They affiliated with a handful of locations in Southern California and there seems to be little to no development.

ECO Cycle Bicycle Storage Elevator

This is a much hyped system currently available in Tokyo that can stores 800 bikes in one location underground. The primary shortcoming, however, is the expense of setting up the system. Architecturally, the system is very well designed, but is by no means practical for mainstream implementation throughout major American cities.

Bike Link

Bike Link is our major American competitor. It is a series of bike storage units based in California and they are currently active and expanding. Their key points are security and

convenience, however, their bike stores are tailored towards a suburban market, not for major urban centers. The units themselves are large and take up a large footprint of valuable real estate.

CYCLEPODS UK

It is an extensive network of bike storage units in the UK that in many ways is similar to our business model. They have space efficient bike storage options, they are interconnected, and they blanket the UK. Cyclepods has the highest risk of being a major competitor in the markets we plan on competing in. Their greatest barrier to entry, though, is the Atlantic Ocean as well as the room for expansion in their own native market.

3.3 SWOT Analysis

Strengths	**Weaknesses**
- modular - scalable - robust - management (diversity) - management (marketable leader) - strategic partners - can use existing infrastructure	- may not be able to expand fast enough - potential for broken system/ maintenance needs - finding good locations - requires approval of city
Opportunities	**Threats**
- fluctuating oil costs - green conscious - city bike initiatives - major city wide events	- subject to the whims of city officials - hackers - vandals - public outcry (anti-gentrification)

Table 3.1: *SWOT Analysis*

3.4 Key Milestones

Age	***Product***	***Funding***	***Personnel***
3 months	Small automated lock prototype	Round 1	Initial Hire: engineers and marketing
6 months			
1 year	Launch small auto lock	Round 2	Maintenance hire
1.5 year	Bike storage prototype		
2 years	Launch bike storage	Round 3	
3 years			
5 years			
5+ years		***IPO***	

Table 3.2: *High capacity bike store*

4. Marketing and Sales

4.1 Market Size and Segmentation

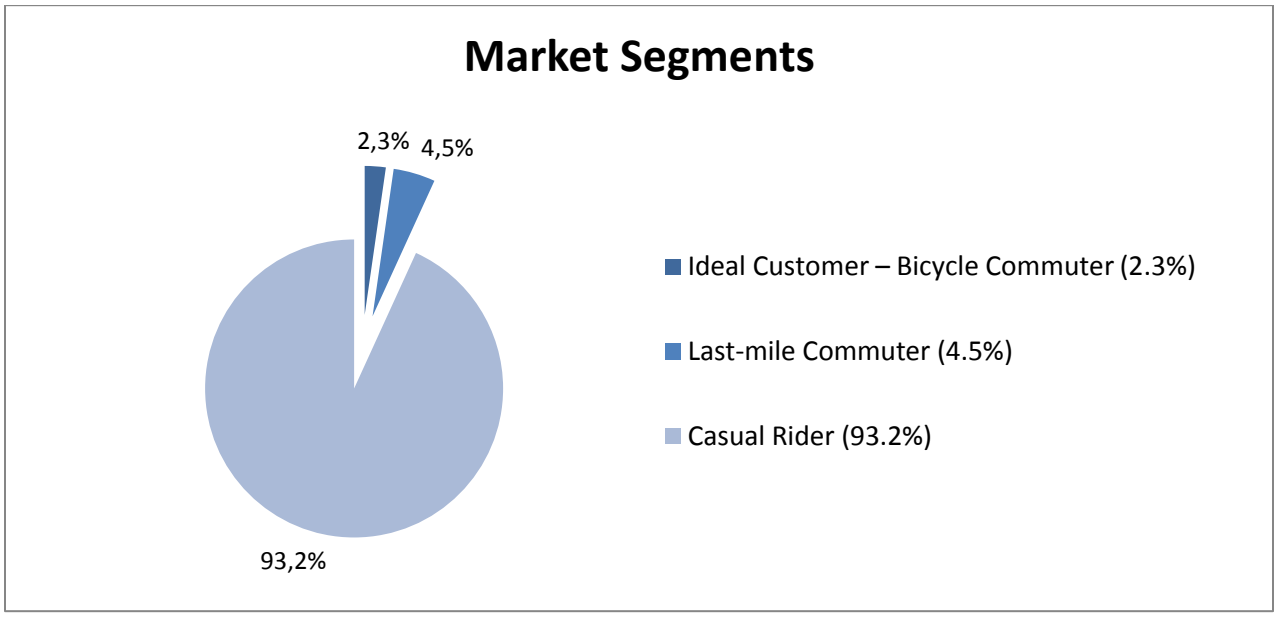


Figure 4.1: *Market segment pie chart*

Every person who owns a bicycle in the United States is a potential user of our storage systems; 44 million of them are above 15 and represent our Total Available Market (TAM).

Our primary market target, the ideal customer, uses a bicycle to commute and lives in an urban area. Over the 375 largest cities of the United States, there were 731,286 bicycle commuters in 2010 and 864,883 in 2012. A low estimation yields that there are about 1 million now.

Our second target market is what we call the 'last-mile commuter', specifically, the commuter who takes public transport but must either walk or ride a bicycle to finish the final part of their trip. Using our system will make their trip more convenient for a reasonable cost as long as they do not mind exercising and potentially sweating before going to work. Based on ridership statistics from the American Public Transportation Association, we estimate that there are 2 million last-mile commuters now.

Our third market target consists of casual riders, i.e. people who ride a bicycle from once in a while to quite regularly. While we expect that casual riders would use our system more during

the weekends, some of them would also take advantage of it for non-hobby activities, such as going grocery shopping or going to the library or the movies.

4.2 Five Year Forecast

In 000's	*Year 1*	*Year 2*	*Year 3*	*Year 4*	*Year 5*
TAM	44,000	44,325	44,653	44,983	45,315
SAM	-	63	169	323	543
SOM	-	4	11	26	56

Table 4.1: *Five year forecast*

The evolution of the TAM is based on the population growth. For the Serviceable Available Market (SAM), we only considered the cities in which we will be present. To compute the SAM, we used an SAM / TAM ratio for each city, which indicates our level of presence in each of them. For each market segment, we estimated the share of SAM that we will actually receive. This gave us the Serviceable Obtainable Market (SOM).

The first year will be used to design and manufacture the storage units. In year 2, we will install our first storage units (in their small version) in New York City, and plan to only serve bicycle commuters. In year 3, we will start serving bicycle commuters of Portland. We will expand in NYC (reaching last-mile commuters and casual riders) and install our first large units there. We will reach Chicago in year 4 and Seattle and Philadelphia in year 5.

4.3 Sales Plan

The following table shows, for any given year, the use of our system depending on the market segments.

	Ideal Customer – Bicycle Commuter	**Last-mile Commuter**	**Casual Rider**
Monthly Rate	100%	50%	0%
Daily Rate	0%	50%	25%
Hourly Rate	0%	0%	75%

Table 4.2: *Target customer distribution breakdown*

Based on those numbers and the SOM forecast, we computed the sales for each year.

Sales in $000's	Year 1	Year 2	Year 3	Year 4	Year 5
Monthly Rate	$0	$2,160	$5,940	$13,932	$30,240
Daily Rate	$0	$821	$2,257	$5,294	$11,491
Hourly Rate	$0	$251	$689	$1,616	$3,507
Total	$0	$3,231	$8,886	$20,842	$45,238

Table 4.3: *Table of sales for each year*

By the end of the fifth year, we plan to capture 0.12% of the TAM.

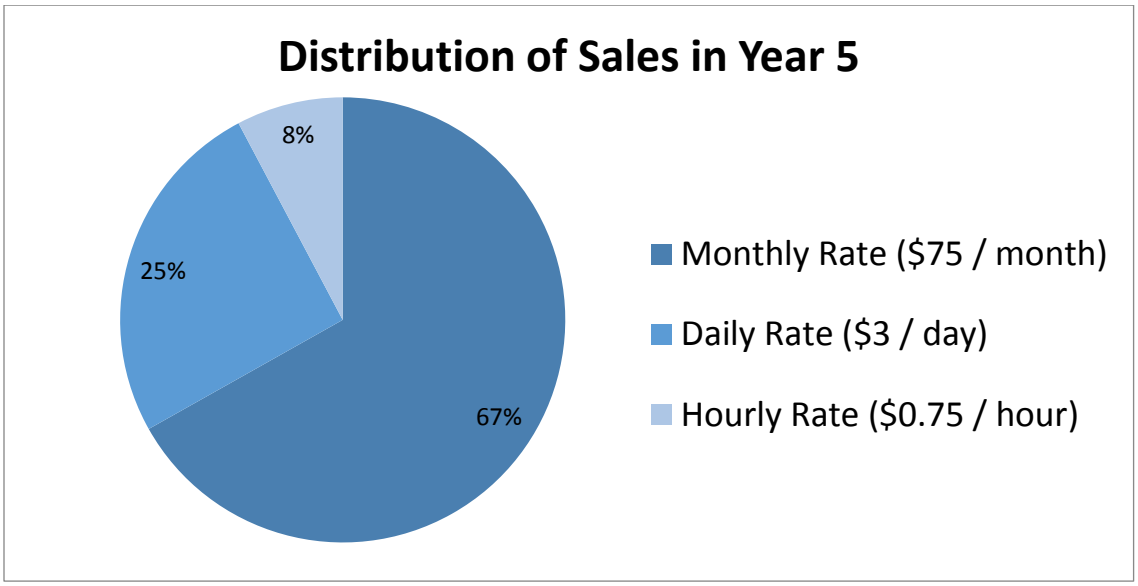


Figure 4.2: *Distribution of Sales in year 5*

4.4 Customer Support

We will assist customers in three ways: instructions & FAQ, contact via our website, and permanently available call center. For the first five years, we do not plan to set up a mailing service to handle handwritten customer inquiries and complaints. In year 1, we will hire 2 people to handle customer support. This number will grow each year.

4.4.1 Instructions & FAQ

On our website, we will write clear instructions on how to get a BikeSto card, how to use our system, how to refill a card, etc. We will create an FAQ including the most frequent questions we receive.

4.4.2 Contact via Our Website

Customers who want to contact us electronically will be able to do so via our website. They will have to fill in a form to indicate why they want to reach out (e.g. for a problem with the payment, with their BikeSto. card, with a particular storage unit, etc.) and what they want to say.

4.4.3 Call center

We will outsource the management of the call center and pay $2,000 per year for this service.

4.5 Business Model

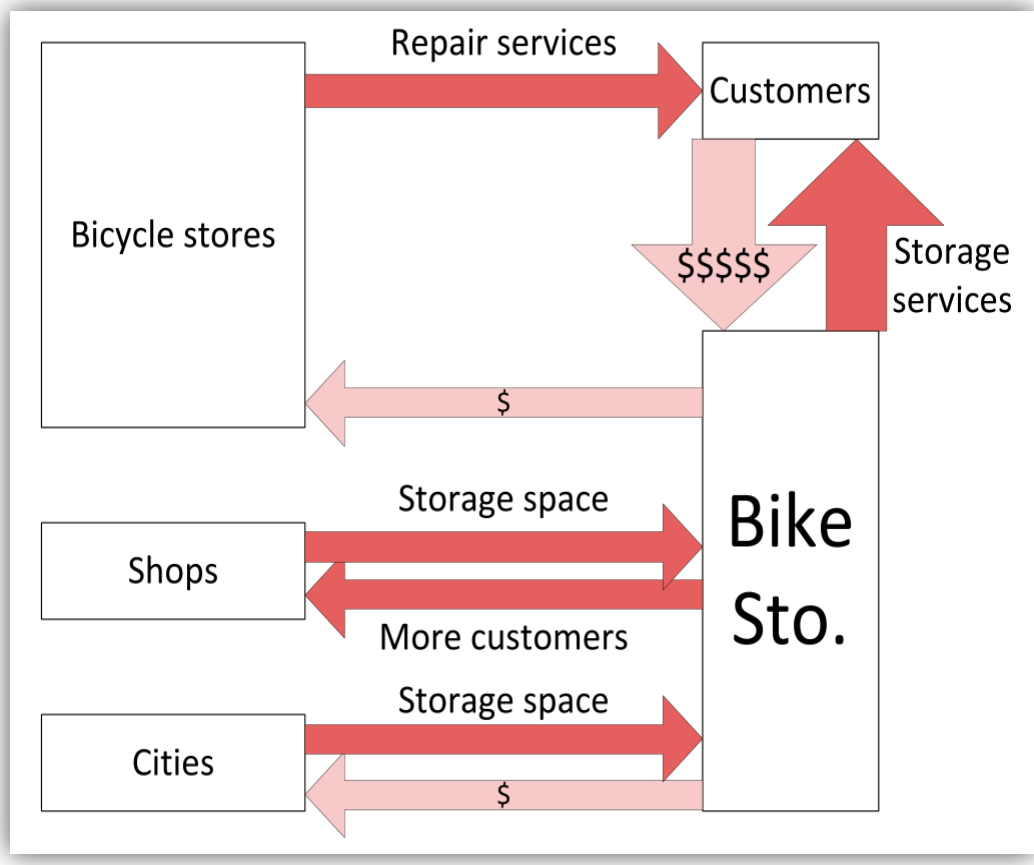


Figure 4.3: *Business model*

We will offer riders a place to store their bicycle in exchange of a duration-based fare. We will support costs related to manufacturing, installation, operations and maintenance. We will keep ownership of the storage systems and do not intend to sell them.

The main resource that we will need is space to install our storage units. Since the small version of our system is designed to be attached on existing racks, it will save us part of the effort to search for locations.

4.6 Strategic Partners

We aim at building strategic relationships like the ones enjoyed by Redbox and supermarket stores. Starting in year 1, we will contact Starbucks, McDonald's, Subway, Dunkin' Donuts, Costa Coffee, Tim Horton and similar nationwide companies that are highly present in urban areas. Mutual benefit will be received: our bike storage units will draw more customers to their store fronts while we expand our network. Furthermore, it will give greater incentive for cyclists to use our bike storage units. Taking the example of Starbucks, with 200+ stores located in Manhattan, their locations would be a tremendous help for us to quickly conquer NYC.

We will sign contracts with city officials to obtain city-wide construction permits. We will use them to build storage units next to subway and bus stations.

Starting in the fourth year, we will also start offering repair or tune-up services performed by specialized bike stores: people would pay an additional fee to have their bicycle maintained while it is stored and they are away from their bike for a substantial time, e.g. while at work. We will pay the bike stores based on the number of customers they serve for us.

4.7 Marketing Communications Plan

Our main marketing focus will first be our ideal customer. Bicycle riders form a community; they discuss on forums and participate in group events. Once we have convinced our ideal customer of the benefits of using our system, they will spread the word and help us reach more customers.

Our marketing expenses will fall into three categories. We will use 20% for press releases and conferences, in which we will describe the characteristics of our system, where the storage units

are located, etc. 50% will be allocated to rider gatherings and contests (races, orienteering, longest distance ridden, etc.). The last 30% will cover the costs of special events: expansion to new locations and cities, launch of the large version and holidays.

In $000's	Year 1	Year 2	Year 3	Year 4	Year 5
Press Releases & Conferences	$140	$202	$348	$506	$840
Rider Gatherings & Contests	$350	$504	$871	$1 265	$2 100
Special Events (launch in new cities, etc.)	$210	$302	$522	$759	$1 260
Total	$700	$1 008	$1 741	$2 530	$4 201

Table 4.4: *Costs for marketing*

Before the launch, we will not advertise our storage solution so that competitors do not try to replicate our system. To compensate, we will do a special launch day. To arouse curiosity and interest in our system, we will synchronize with Easter. The first units will be installed in NYC during the days preceding the holiday. In the early morning of Easter Day, special covers will be placed on the storage units, specifically the automatic bike locks on traditional bike racks, to make them look like chocolate eggs. During that day, our staff will video tape pedestrians looking at the covered units, and more importantly, they will shoot the time when someone removes the cover. That person will be congratulated and receive one free month of use. The recorded videos will be uploaded YouTube to kick off a viral marketing campaign. We will also cover the event on Facebook and Twitter. We estimate the cost of the launch day to be $10,000.

4.8 Global Marketing Strategy

We will rapidly expand to US cities with the highest number of bicycle commuters. By the end of year 5, we will be present in NYC, Portland, Chicago, Seattle and Philadelphia. Since riding habits vary from country to country, we first intend to focus on dominating the US market, before entering other markets. In year 5, we will start to study the feasibility of an international expansion, particularly in big European cities.

5. Operations

5.1 Engineering Design

BikeSto will design two automated bike storage solutions.

Our first product is an automated and heavy duty bike lock that is installed on existing bike racks. A customer can swipe a credit card, input their credentials, or use their smartphone to open the lock and securely store their bicycle on the bike rack. This bike lock consists of a sturdy metal box approximately 10in x 7in x 3in in size which houses the electronics, locking mechanism, payment interface, and adjustable clamps. Attached to the housing is a heavy duty bike lock chain approximately three feet long. One end is permanently fixed to the bike lock, while the other end can be removed and threaded around all of the easily removable parts of the bike, then reinserted into the housing to be engaged by the locking mechanism.

The lock accommodates installation on a wide variety of bike racks through heavy duty adjustable clamps, similar to hose clamps. These clamps are adjusted inside the lock housing. The lock housing cannot be opened or dissembled without a specialized tool that meets precise tolerances and communicated with the electronics inside via RFID. The box housing is weatherproof and features a rugged touchscreen LCD display with an intuitive interface and an integrated credit card reader. Each lock utilizes a cellular data connection to interface with our network in the “cloud,” and is powered by an internal high capacity lithium polymer 3.7V 30 Amp-hr battery. Except when being used, the lock only powers its data connection electronics once a minute to maintain communication with our linked network. As a result, the idle current draw is extremely low, around 2.1mA on average; therefore, the battery can power the lock for approximately two months. Lithium polymer batteries can be recharged rapidly, in as little as 20 minutes. They will be recharged through external jacks by our maintenance technicians during regular checks.

Our second design, existing on the same cloud network, is our high capacity bike storage structure. It is approximately 20-30ft long, 8 feet high by 6 feet deep. The design is modular and its storage capacity is fine tuned for each planned installation location. The structure is composed of weatherproof metal tubing and plastic siding and cemented into the ground. The back of the structure features vertical bike slot storage mechanisms. A user pushes their bike into a vertical slit and a mechanism automatically pulls the bike vertically upwards, clamping onto both wheels as well as the bike frame for secure storage. The mechanisms are inaccessible from the outside of the structure. Bikes are staggered in facing upwards and downwards to avoid interference from their handlebars. A kiosk is also located on the back structure where customers can pay with a credit card or login with their credentials to reserve a storage space. This entire system is powered through a connection to a mains electricity line connected during installation. This structure shields stored bikes from rain and snow.

5.2 Engineering Plan

Our bike storage solutions will be designed in-house through extensive use of rapid prototyping technology. Our headquarters in Philadelphia will be stocked with several 3-D printers, laser cutters, and basic machining tools to achieve this. The cost of this rapid prototyping equipment is taken into account as an increased cost per headcount for our first year.

The first seven months will be dedicated to designing and developing both the small bike lock and our internet network in tandem. A prototype will be completed by the end of the seventh month, ready to be installed and tested in locations near our headquarters. While it is being tested and refined upon feedback from its first use in real world conditions, negotiations for overseas manufacturing contracts will be finalized for the first production run of the auto bike lock. The first run of 1200 units will be manufactured and shipped to New York City starting in the second

year. The first product run will be fully installed and operational within 3 months of the start of the second year.

The second larger bike storage system will start design and development by our expanded engineering team in the second year. Our linked network, consisting of the software, website, and internet servers running the network system, will continue being scaled to meet our projected expansion rate in years 2 to 5; these servers will remain in our Philadelphia headquarters. Both systems will start shipping from our overseas manufacturing locations to shipping ports in Philadelphia starting in the third year. In years 3 to 5, engineering effort will be directed toward refining our product designs based on customer feedback, and on streamlining the manufacturing processes to decrease production cost.

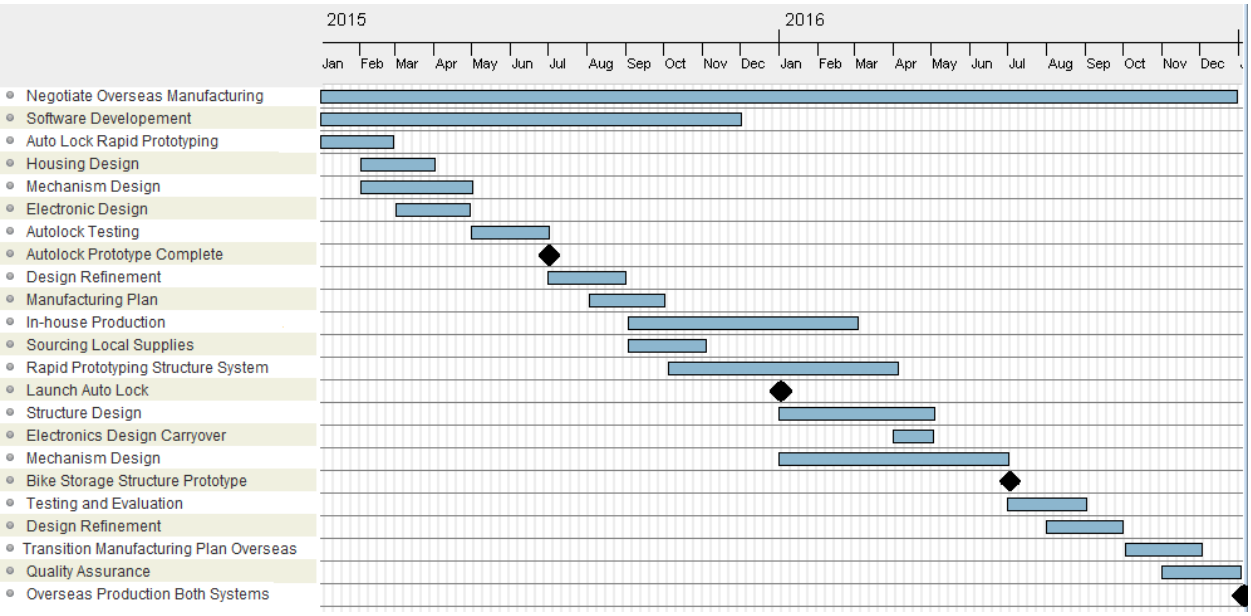


Figure 5.1: *Engineering design Gantt chart*

Other than through the on-site kiosks and LCD displays, our customers interface with our products primarily through our website. An intuitive, practical, and secure website is therefore essential to the success of our business. Both a desktop and mobile version of our website will be designed in tandem with apps for both the Android and iOS mobile phone systems. The

homepage will feature a live map automatically centered on your position showing the locations and status of nearby bike storage units. The website will allow prepayment online through secure transactions, and bike storage can be initiated through a smartphone. The website will also be the source of discounts and competitions organized by the marketing team. Figure 5.2 below shows an example screenshot of our website's home page.

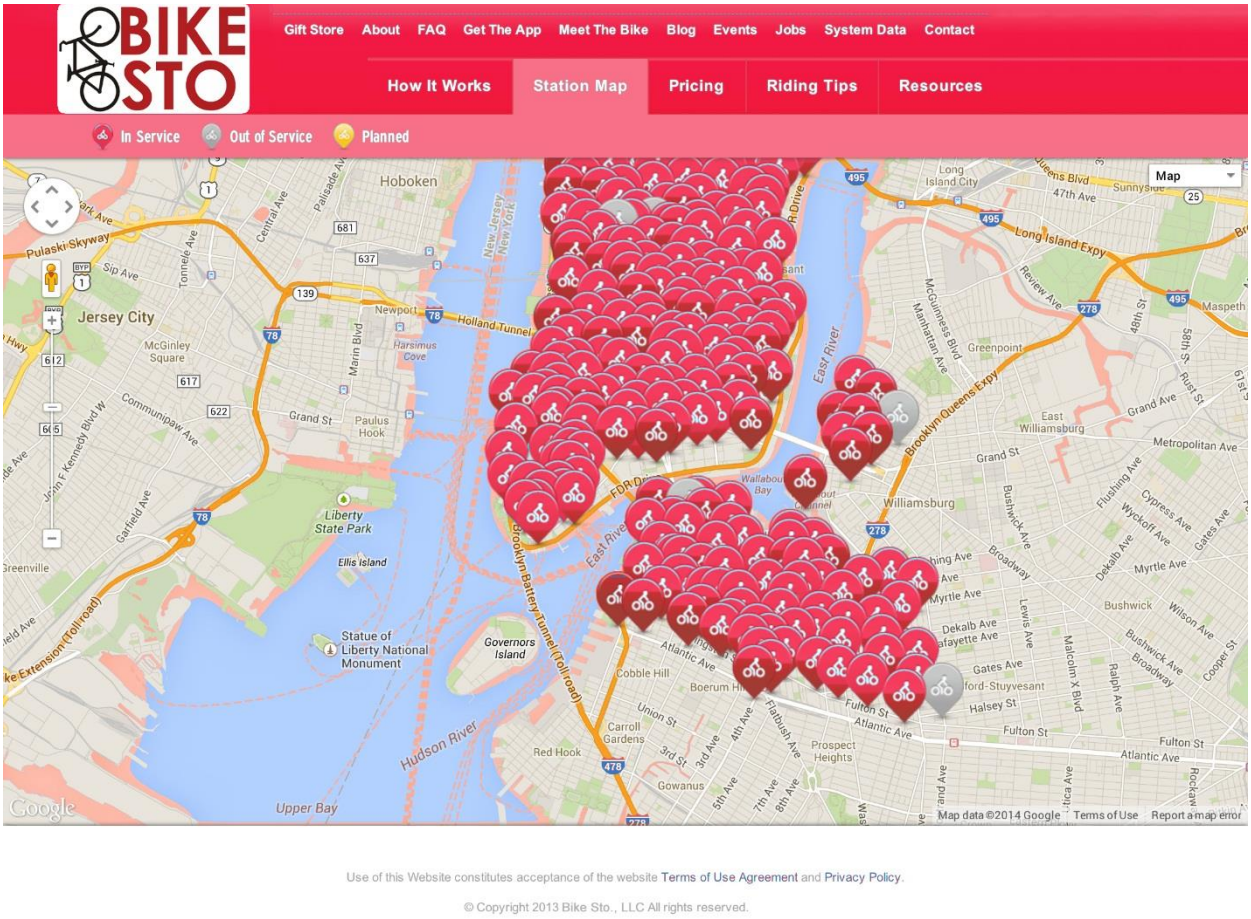


Figure 5.2: *Sample BikeSto website screenshot*

5.3 Manufacturing and Maintenance Plan

A bill of materials and production and installation costs are found in tables 5.1 below. These prices are expected to fall by approximately 3-4% every year due to streamlined manufacturing processes. Shipping costs for a standard 40ft x 8.5ft x 8ft shipping container from China to the United States costs approximately $5000. Shipping costs were calculated assuming at least five

unassembled bike structure systems could fit in one container, along with at least 100 small automatic bike locks.

Small Auto-Bike Lock Bill of Materials	
Component	**Estimated Cost**
Metal Box Housing	$30
Locking Mechanism	$65
Electronic Components	$120
Bike Chain Lock	$45
Manufacture	$20
Shipping	$20
Total	$300

20-30 Bike Storage Structure Bill of Materials	
Component	**Estimated Cost**
Metal Frame	$800
Plastic Panels	$400
Vertical Pull Mechanisms	$3,000
Locking/Clamping Mechanisms	$1,500
Back support structure	$800
Electronics (Kiosk interface)	$1,000
Fabrication Overseas	$1,200
Overseas Shipping	$1,000
Shipping to Target City	$1,000
Installation Cost	$1,300
Total	$12,000

Tables 5.1: *Bill of Materials for auto bike lock and storage structure*

A small team of engineers and sales employees will spend the first two years establishing and negotiating our overseas manufacturing and shipping contracts. Overseas manufacturing of our bicycle storage systems was chosen over domestic manufacturing for several reasons. Overseas manufacturing costs are cheaper in terms of labor and overhead, and the manufacturing is able to accommodate exponential growth in demand we require to dominate our market. The disadvantages to overseas manufacturing are shipping costs, shipping time, language barriers, and costs of staffing an on-site quality assurance teams. However, the advantages outweigh the disadvantages for our business model. For our two products, overseas manufacturing costs were

estimated by comparing product costs of equivalent items listed on Alibaba to domestic retailers. Alibaba is a website that lists high volume products for sale with costs close to their manufacturing cost.

A manufacturing contract for production of both our bike storage systems will be completed and running by the end of the second year. Outsourced overseas production has the advantage of being able to absorb the rapid and exponential growth in demand of our products, but quality and reliability need to be monitored. Therefore, the engineering sales team will stay overseas to oversee the production, quality, and shipment of our bike storage systems. Shipments will be received in Philadelphia shipping ports and shipped by truck to company offices in our target cities.

Commercial office spaces with loading docks will be rented in our target cities to house our installation and maintenance staff, and site managers. This management structure is detailed further below in our expansion plan. Each city will have 1 maintenance staff per 400 bike storage slots across both of our storage systems. Upon receiving shipment, the maintenance staff will carefully inspect build quality of randomly selected units before installing them. Installation of the small automatic bike lock will take approximately half an hour per lock, while our structured system will take approximately 4 hours to assemble and install. After installation, each bike storage slot will be checked by our maintenance staff once every 2.5 days on average. Bike slots that break will send status alerts through our networked system for immediate repair or replacement. Any customer adversely affected by a breakdown will receive discounted bike storage access for a period of time, or full compensation for a lost bike. Our maintenance staff will grow with the number of bike storage installation in their overseeing proximity.

5.4 Legal Plan

Maintaining product secrecy is an integral part of sustaining BikeSto's unfair advantage. While BikeSto will not be seeking to patent any parts of our bike storage technology, we will hire an intellectual property lawyer from Amster Rothstein & Ebstein, LLP., a mid-sized legal firm specializing in intellectual property law and with experience in consumer electronics. This law firm will aid us in enforcing a strict company secrecy policy through signed confidentiality agreements to establish trade secrets.

BikeSto will also hire corporate and litigation lawyers from the local Philadelphia law firm Spadea, Lanard, & Lignana for general legal counsel, to help handle corporate contracts, and for eventual IPO filing. Spadea, Lanard, & Lignana has 25 years of experience in helping entrepreneurs and also specializes in commercial leases and franchises. This experience will aid BikeSto in negotiating contracts for installing our bike storage solutions on government and private property in urban areas, as well as with partnering with franchises such as Starbucks.

5.5 Management

5.5.1 Mission and Vision

BikeSto's mission statement is:

BikeSto delivers convenient bike security for the urban cyclist.

Our vision statement is:

Our vision is to extend the reach of the urban cyclist through guaranteed bike security anywhere, anytime. Our storage solutions will create an urban infrastructure for bikes that will rival that of cars.

5.5.2 Core Team

Mr. Nikhil Lal will serve as the company CEO. He has a B.S. in Mechanical Engineering from Cornell University and years of rapid product design experience. An entrepreneur by nature, Nik has the vision to the venture beyond a localized bike storage network to an international

infrastructure to cater to the biking community at large. Beyond his vision for expansion, is a constant drive to deliver and produce the best possible product for all parties involved.

Mr. Kévin Soulard will serve as the company CMO. He obtained a M.S. in Mathematics and Physics in Mines Nancy, a prestigious French Engineering School, and an M.Eng. in Operations Research at Cornell University. Kévin speaks Mandarin and worked for a logistics company in Shanghai, which gave him first-hand experience in China, where we will manufacture our products. Passionate entrepreneur, he was Vice-President of a Junior-Enterprise while studying in Mines Nancy.

Mr. Robert McBride will serve as the company CFO. He has a B.S. and an M.Eng in Mechanical Engineering from Cornell University. With more than three years of experience coordinating Airforce sponsored satellite tests and 2 years of economics research, Robert is used to delivering highly robust models and systems under tight time constraints.

Mr. Michael Romanko will serve as the CTO. He has a B.S. and an M.Eng. in Mechanical Engineering from Cornell University. He has over three years' experience leading small dedicated teams in delivering engineering hardware that has gone on to win international competitions. This is complimented with work experience in research and development departments of Fortune 500 corporations

5.5.3 Expansion Plan

To meet the exponential growth in engineering, sales, marketing, and maintenance of our company, BikeSto will double its headcount every year.

Year	1	2	3	4	5
Headcount	*Headcount: End of Year*				
Manufacturing / Operations / Website	4	12	15	18	30
R&D/Engineering	5	8	10	13	20
Sales & Marketing & Customer Support	8	12	15	18	25
Finance General & Administrative	2	4	6	8	10
Maintenance	0	5	20	36	70
TOTAL HEADCOUNT	**19**	**41**	**66**	**93**	**155**

Table 5.2: *BikeSto Headcount Forecast*

A team of engineers who personally worked with the core team at Cornell University will be hired upon the start of the company. This includes hiring a Chief Sales Officer (CSO). These employees will drive the company in meeting our demanding production schedule of shipping our first product by the end of our first year. They will consist of computer science, mechanical, and electrical and computer engineers with rapid product design experience. In years 2 to 5, our CEO will continue spending approximately 20% of his time hiring more engineers, sales, and marketing employees as our business grows.

We will rent out commercial spaces in each of our target cities to house our installation and maintenance staff. They will be trained and overseen by a small team of managers that report to the management at our headquarters in Philadelphia. This staff will be composed of approximately 31 employees in each target city.

Upon reaching IPO, BikeSto will hire a succession team to take over the positions of the core team. A CEO will be chosen with prior experience in running a medium sized company which grew at an exponential rate. Gregg Kaplan is our top choice for this position given his prior experience running RedBox, which worked on a similar business model to BikeSto. The CFO will be replaced with someone specifically experienced in businesses focused on commercial leasing, a continued requirement for our business when installing our bike storage systems. We

will seek a CTO who has experience with overseas manufacturing and is dedicated to quality assurance and reliability in engineering design. We will replace the CMO with a sales and marketing executive who has proven experience in utilizing social media to create a dedicated customer base.

By the time of IPO, our staffing will consist of 155 employees.

5.5.4 Company Culture

BikeSto requires hiring of the best and brightest engineers to meet our demanding production schedule. A company culture will be established, based on the values of our CEO, emphasizing innovation and dedication in our employees.

Other than the maintenance staff who will report to managers at our target city locations, our engineering, marketing, and sales force will work in small highly productive teams who report directly to the core team founders. Our headquarters will feature an open office setting to facilitate open discussion and foster a collaborative atmosphere within the company. Rapid prototyping facilities will be freely usable by any employees. Utilizing a personal stake in our product, we will use our own bike storage systems for storing the personal bikes of our employees who choose to bike to work. This will ensure BikeSto's faith in our own product. A set of company bicycles will be available for all employees, and all employees will have free access to any of our bike storage systems. Full health benefits, stock options, and a competitive salary compared to similar companies will be provided for all employees. Free lunch and drinks will be provided for our headquartered employees to develop a mutually trusting relationship.

6.0 Financial

6.1 Financial Projections and Funding

Financial projections for BikeSto predict positive net income by year four, and $45 million in sales in year 5. The capital funding necessary to finance BikeSto will be obtained purely through equity. To fund this venture, BikeSto will hold 3 seed rounds: $3.0 million for the initial round, $3.1 million for the second round, and $5.3 million for the third round. Also note that BikeSto will lease 50% of its office equipment for the first three years as it builds momentum and implements the bike storage infrastructure necessary to obtain high, exponential growth in operating profit. A summary of BikeSto's financial forecast is shown in table 6.1.

SUMMARY OF FINANCIAL FORECAST ($ in 1000's)	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
Sales	**$0**	**$3,231**	**$8,886**	**$20,842**	**$45,238**
Gross Margin	-$237	$860	$1,078	$9,243	$22,866
Operating Profit	-$2,612	-$2,780	-$4,110	$2,264	$12,165
Percent of Sales	*No Sales*	*-86%*	*-46%*	*11%*	*23%*
Total Headcount	19	41	66	93	155
Cumulative Stock Sold - Venture Capital	$3,000	$6,100	$11,400	$11,400	$11,400

Table 6.1: *Table summary of financial forecast*

6.2 Valuation and Return on Investment

BikeSto's projected IPO valuation is $267 million, based on the average of a sales multiple of 6 on $45M and a net income multiple of 27 on $9.7M. While there are no personal bike storage companies to use as a benchmark, we used valuation multiples that were slightly higher than those used by parking garage and real estate companies focused in urban areas. We feel that the safety and wide geographical reach that our personal bike storage system provides will generate customers at a much faster rate than that of modern parking garages, thus the higher valuation multiples.

The following presents the return on investment as a percent per year:

$3.0 million → ROI for round 1: 97%

$3.1 million → ROI for round 2: 67%

$5.4 million → ROI for round 3: 41%

We are personally committed to expanding the reach and improving security for the everyday biker, and we would greatly appreciate your support in this endeavor.

6.3 Equity Plan

Just before BikeSto launches its IPO at the start of the 6th year, the projected breakdown of company ownership is as follows:

- Investors: 25%
- Employees and Management: 25%
- Founders: 50%

Projected share ownership over the course of 5 years can be seen in figure 6.1 below:

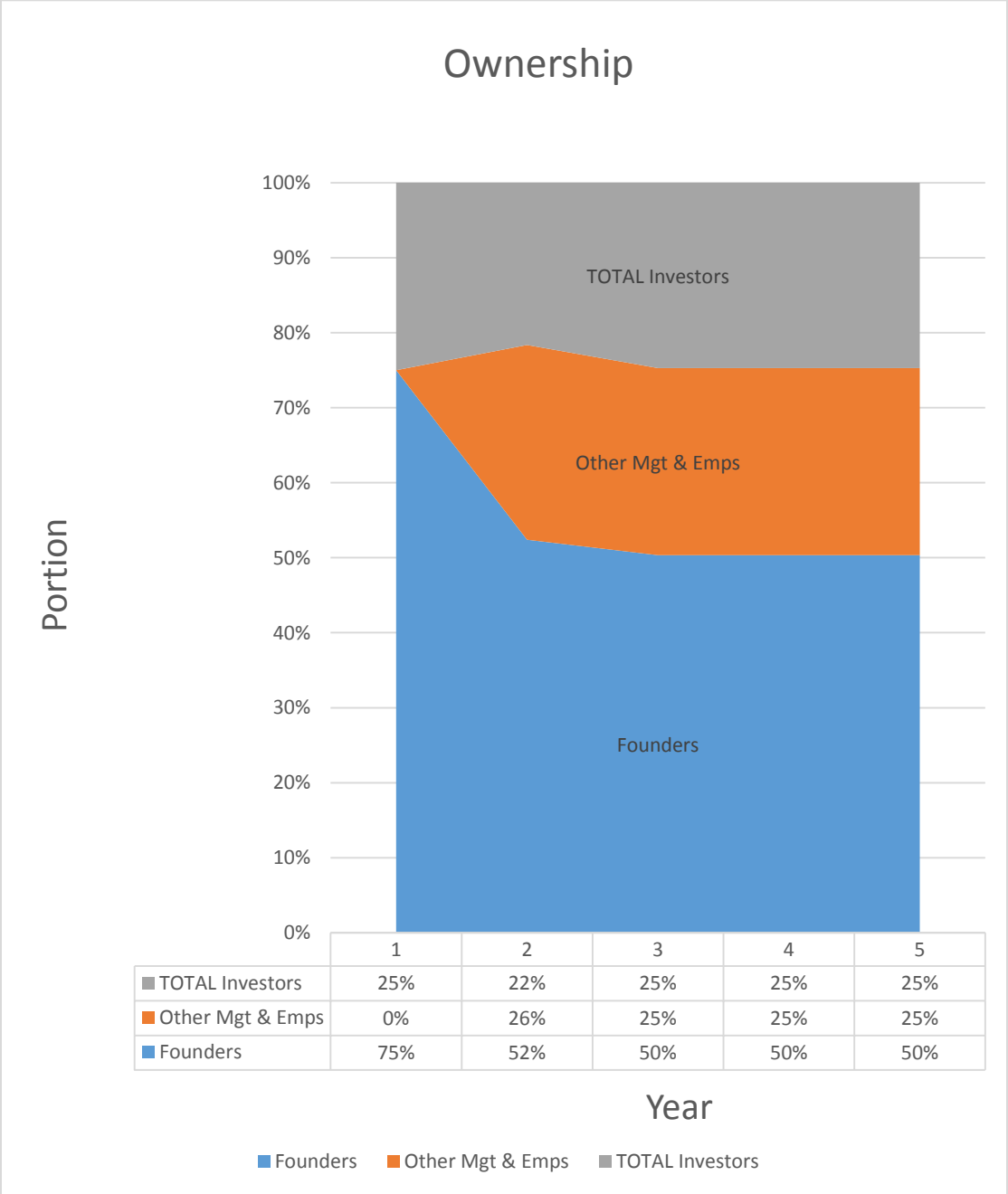


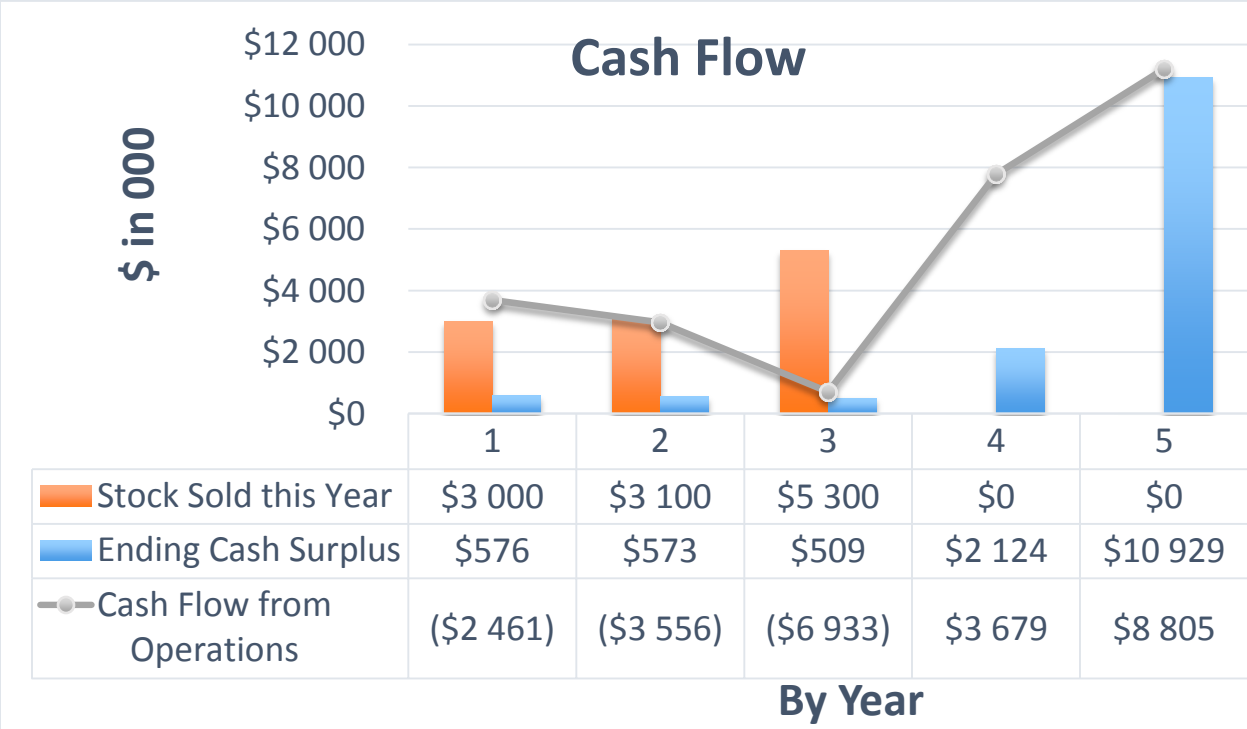
Figure 6.1: *Ownership forecast*

6.4 Sales Model

Our sales model is based around 3 different bike storage timespan options: an hourly rate of $0.75, a daily rate of $3.00, or a monthly rate of $75.00. The sales forecast was generated by

dividing the total number of users (provided by the CMO) into these three groups: hourly (10% of total users), daily (30% of total users), and monthly (60% of total users). By paying for the longer duration rate (monthly), storage time is cheaper and certain benefits/discounts are only available to those paying for the premium service.

The first small bike locks will be installed throughout year two to create positive cash flow. This cash flow will help boost development efforts of the large storage units in preparation for the next year. In year three, we focus on getting the large units operational and slightly reduce production of the individual small lock units. In figure 6.2 below, the dramatic dip in cash flow represents the production costs of the large storage units. This push to get the large unit infrastructure up and running leads to a positive operating profit by the end of year four, as shown in figure 6.3, and a dramatic increase in profit by the end of year five.



	1	2	3	4	5
Stock Sold this Year	$3 000	$3 100	$5 300	$0	$0
Ending Cash Surplus	$576	$573	$509	$2 124	$10 929
Cash Flow from Operations	($2 461)	($3 556)	($6 933)	$3 679	$8 805

Figure 6.2: *Cash flow forecast*

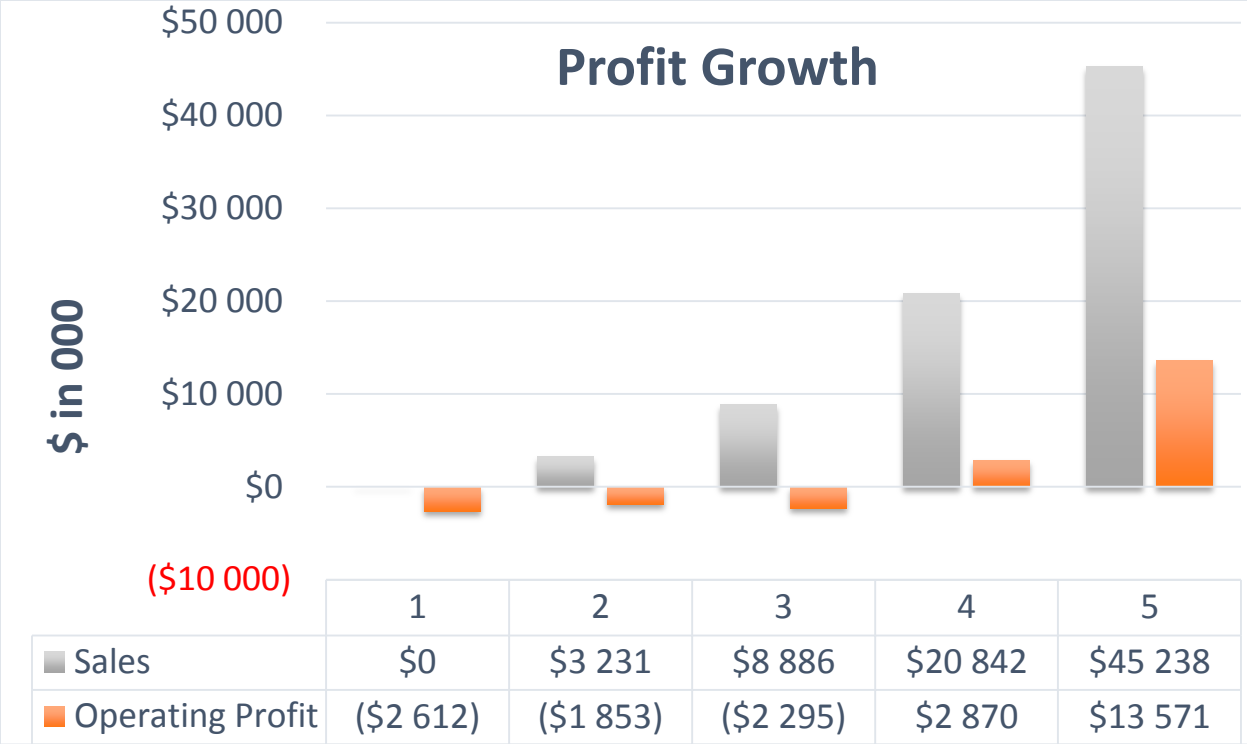


Figure 6.3: *Profit growth forecast*

6.5 Key Assumptions and Explanations

Assumptions all 5 years:

- ***Maintenance*** - The bike storage slots are modeled as special equipment with depreciation and average monthly maintenance costs. The size of our maintenance crew is determined based on the number of slots assuming that each slot is checked once every 2.5 days.
- ***Number of Slots*** - We assumed that the number of bike slots necessary each year was at least 50% of the current number of users.
- ***Production*** - The cost to produce the large storage units decreases from $12K to 10k over the course of 4 years as manufacturing becomes faster and cheaper.
- ***Receivables*** - It was assumed that on average, it takes 5 days to collect receivables from the consumers' credit card companies.

- ***Inventory*** – Since BikeSto is primarily a service provider, it was assumed that the number of days of Cost of Goods Sold on hand was 0 days.
- ***Accounts Payable*** – It was assumed that BikeSto plans to wait 30 days until we pay our suppliers and outsourced customer support and manufacturing.
- ***Tax Rate*** – The tax rate on profits was assumed to be 40% (standard U.S. rate)
- ***Leasing*** – It was assumed that 50% of office equipment would be leased for the first three years.

Assumptions by year:

1st year - First round of funding is applied to R&D, manufacturing, and marketing of the small bike lock systems. We do not have maintenance workers yet, since the storage units are in the development phase. Also the salary per headcount in all departments is slightly higher in the first year to account for the initial development costs of renting rapid prototype machinery.

2nd year - We produce and install mostly small bike lock systems along with a few large storage system prototypes. We begin to hire maintenance workers.

3rd year - We begin manufacturing and installing the large storage units, thus the drop in cash flow.

4th year - We assume that none of the office equipment is being leased by the 4th year.

5th year - While we still almost double our marketing and operations headcount, the bulk of new hires are maintenance workers to keep up with the rapid installation of new bike racks.

6.6 Income Statement

Year	1	2	3	4	5
Income Statement	$ in 000				
Sales	**$0**	**$3,231**	**$8,886**	**$20,842**	**$45,238**
Cost of Goods Sold	$237	$2,371	$7,808	$11,599	$22,372
Gross Margin	**($237)**	**$860**	**$1,078**	**$9,243**	**$22,866**
Percent of Sales		*27%*	*12%*	*44%*	*51%*
R&D/Engineering	$875	$1,320	$1,500	$1,924	$2,900
Sales & Marketing & Customer Support	$1,000	$1,440	$2,488	$3,614	$6,001
Finance General & Adminstrative	$500	$880	$1,200	$1,440	$1,800
Operating Expenses	$2,375	$3,640	$5,188	$6,978	$10,701
Operating Profit	($2,612)	($2,780)	($4,110)	$2,264	$12,165
Percent of Sales		*-86%*	*-46%*	*11%*	*27%*
Total Interest Expense	$7	$14	$20	$0	$0
Income Before Taxes	($2,619)	($2,794)	($4,129)	$2,264	$12,165
Tax Rate	*40%*	*40%*	*40%*	*40%*	*40%*
Provision for Income Taxes	0	0	0	0	1,971
Net Income	($2,612)	($2,780)	($4,110)	$2,264	$10,194
Percent of Sales		*-86%*	*-46%*	*11%*	*23%*

Table 6.2: *Income statement*

6.7 Cash Flow

Year	1	2	3	4	5
Cash Flow	$ in 000				
Checking Account	$1	$2	$3	$4	$5
Balancer: Surplus Cash	$576	$573	$509	$2,124	$10,929
TOTAL CASH	$577	$575	$512	$2,128	$10,934
Change in Cash	**$577**	**($2)**	**($63)**	**$1,617**	**$8,805**
Financing:					
Change in Stock Sold	$3,000	$3,100	$5,300	$0	$0
Change in Bank Debt	$0	$0	$0	$0	$0
Change in Leasing	$38	$44	$40	($122)	$0
Change in Financing	**$3,038**	**$3,144**	**$5,340**	**($122)**	**$0**
Cash Flow from Operations	**($2,461)**	**($3,146)**	**($5,403)**	**$1,739**	**$8,805**

Table 6.3: *Cash flow statement*

6.8 Balance Sheet

Year	1	2	3	4	5
Balance Sheet	$ in 000				
Assets					
Checking Account	$1	$2	$3	$4	$5
Balancer: Surplus Cash	$576	$573	$509	$2,124	$10,929
Receivables	$0	$44	$122	$286	$620
Inventory	$0	$0	$0	$0	$0
Current Assets	**$577**	**$619**	**$633**	**$2,414**	**$11,554**
Equipment	$76	$984	$4,104	$7,372	$14,626
Cumulative Depreciation	$25	$347	$1,690	$4,097	$8,612
Net Equipment	**$51**	**$637**	**$2,414**	**$3,275**	**$6,014**
Total Assets	**$628**	**$1,256**	**$3,047**	**$5,689**	**$17,567**
Liabilities and Equity					
Bank Debt	$0	$0	$0	$0	$0
Leases - Current Portion	$13	$27	$41	$0	$0
Accounts Payable	$215	$494	$1,068	$1,527	$2,718
Taxes Payable	$0	$0	$0	$0	$493
Current Liabilities	**$215**	**$494**	**$1,068**	**$1,527**	**$3,211**
Leases - Long Term Portion	$25	$55	$81	$0	$0
Total Liabilities	**$240**	**$549**	**$1,149**	**$1,527**	**$3,211**
Stock Sold - Venture Capital:					
Preferred Series A	$3,000				
Preferred Series B		$3,100			
Preferred Series C			$5,300		
Preferred Series D				$0	
New Stock Sold in This Year - Venture Capital	$3,000	$3,100	$5,300	$0	$0
Cumulative Stock Sold - Venture Capital	$3,000	$6,100	$11,400	$11,400	$11,400
Beginning Retained Earnings	$0	($2,612)	($5,392)	($9,502)	($7,238)
Net Income this period	($2,612)	($2,780)	($4,110)	$2,264	$10,194
Cumulative Retained Earnings	($2,612)	($5,392)	($9,502)	($7,238)	$2,956
Total Shareholders' Equity	**$388**	**$708**	**$1,898**	**$4,162**	**$14,356**
Total Liabilities and Equity	**$628**	**$1,256**	**$3,047**	**$5,689**	**$17,567**
Total Liabilities and Equity	$628	$1,256	$3,047	$5,689	$17,567
Total Assets less Surplus Cash	$52	$684	$2,539	$3,565	$6,639
Difference	$576	$573	$509	$2,124	$10,929
Difference goes to Surplus Cash.					

Table 6.4: *Balance sheet*