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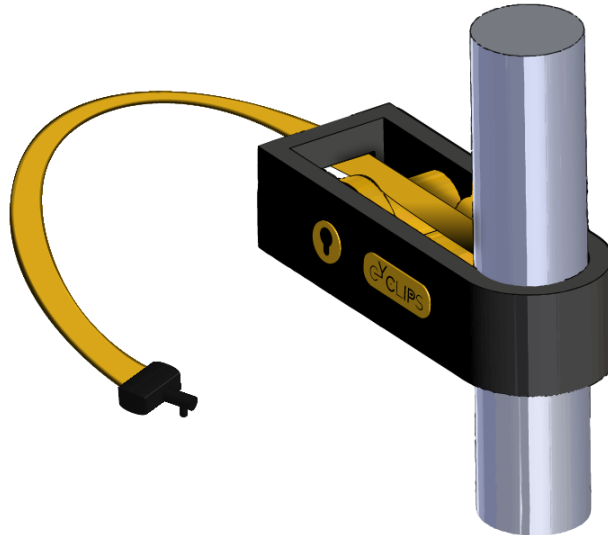
# Cyclips Business Model

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## 1. Executive Summary

Cyclips has been created to design, promote and sell a new product in the form of a unique kind of bicycle lock. The lock is comprised of a long retractable strap (about 2 meters), thanks to a mechanism based on the retractable principle of a seatbelt. The strap is composed of two materials. The core is made of steel cables and the coat is in Kevlar in addition of UHMWPE polymer fiber. These materials highly increase the durability of the lock, making it nearly unbreakable. Made and thought with an elegant and straightforward design, the lock can easily be attached to the bike if needed.



*Figure 1. Design of the lock*

## 2. The Team

### Management Profile

The team is composed of members with a background within management, mechanical and aeronautical engineering in such a way that the group tasks are oriented individually according to each one's strongest skills, prior knowledge and background experiences.

Keeping in mind that an ideal startup team consist of technical, creative and business skills, we divided the jobs mainly in three categories:

- **Development Team**

Composed by mechanical and aeronautical engineering students. Responsible for technical part in order to lead the bike padlock development: defining the product dimension and material, creating the product and think about the system that allows it assembly. More than this, the team shall ensure the feasibility of the product: searching for manufacturing processes and the required resources as well as estimating costs (raw material and production cost) to do so.

- **Business Team**

Formed by management engineering students. Responsible for the viability of the business model and knows how to market the products to our target. The job consists of searching for the possible competitors, doing the financial analysis, studying the potential customers, investors and partners, etc.

- **Design Team**

Main responsibility designated to one of the mechanical engineering students due to his prior knowledge on this area. This person was in charge of understanding human behaviour and how the design (shape, dimension and work principle) of the lock could affect and improve the user experience in order to differentiate the design of the product and make it stand out in comparison to competitive products. The rest of the team would come with feedback to the proposals laid forward by the main design responsible.

To summarize, by matching tasks to people's strengths and giving them responsibilities with consideration to their skill level in specific areas, the startup development process was made more efficient.

## **Why We Are a Winning Team**

Besides the team being composed by students from distinct branches of engineering, there is also a rich diversity of culture, hailing from five different countries on three continents (Brazil, India, Sweden, France and Turkey). By being culturally heterogeneous, every team member is made more aware of their own potential biases. Moreover, this allows for a broader range of perspectives and various points of views, not only by enriching discussions and helping the team digest information in order to better decision-making, but also by assisting innovative thinking, a crucial characteristic for a winning team and for a business prolonged competitiveness.

Equally important, each team member shares a consistent vision of what is being built, a shared committed to the project, an understanding of the importance of individual tasks and, perhaps most essentially, a desire to grow in their professional skills.

## 3. Value Proposition

Cyclips aims to provide a bicycle lock for normal and electrical bikes that is theft proof, convenient, clean-cut and not too pricey. The main selling points are the lock's durability, the retractable mechanism, and the modern design. The combination of the above is a unique solution on a market which is characterised by a lot of uncertainty and difficulty when it comes to finding the right type of lock (see Survey Results, Appendix 9).

The target customers are everyday cyclists who care about their bike security and find traditional locks inconvenient. By differentiating the product from those of competitors, who mostly compete on only one differentiating factor, customers will be won over by emphasizing the combination of durability, convenience and design.

The full Business Model Canvas with the value proposition can be found in Appendix 1.

## 4. Vision, Mission & Values

### **Vision Statement**

Cyclips wants to encourage people to bike and simultaneously make them feel safe and comfortable in their everyday life. Bike thefts are a worldwide phenomenon that impacts millions of people every year, and a reason for many people not to use their bikes as much as they would want (see Survey Results, Appendix 9). At the same time, the most secure locks are often heavy or inconvenient to use, resulting in a lot of hassle for everyday users. In the future, Cyclips would like to inspire a new wave of people using bicycles as their main means of transport, thereby increasing both personal and environmental prosperity and wellbeing, as well as an increased sense of safety.

## Mission Statement

The main mission is to provide customers with a complete experience of safety and convenience, from the first encounter with the product until final use. The product must be impeccable when it comes to the three main areas of durability, flexibility, and design, and the customer buying experience must be smooth, safe and convenient in order to inspire the same sort of feelings as the product aims to do.

## Values

The core values are meant to act as a guiding tool for the company, its products, and its employees, both in the short and long term. After thorough discussion, the following values have been determined as core:

- **Honesty, Trust and Safety**

The most important reason for developing the Cyclips bike lock is to inspire a sense of safety and trust in customers, which of course must be incorporated in the company values as well. As a company that is taking a stand against bike theft, it is important that Cyclips and its employees also embody the values of honesty, trust and safety in order to spread those values both internally and externally.

- **High Quality**

Every employee should be able to stand behind the product and be completely committed to it. If concerns about the product's technical proficiency or any of the company's activities arise, those thoughts are encouraged to be lifted. In order to facilitate that, an open discussion climate must be present. It is expected that the management aims to foster and support the ability to discuss freely within the company.

- **Community**

Cyclips is much more than a company that sells bicycle locks. We want to contribute to both society and environment by spreading our values of trust and safety, inspiring bike use, and potential corporate social responsibility measures.

## 5. Internal Analysis

### Key Resources and Activities

One of the key resources of Cyclips is the development team, which is composed of people with various skills and cultural backgrounds. There is a lot of competence both within management and the technical areas, thus granting a wide scope and good combination of knowledge within important areas, making it possible to deliver the best possible product.

Another key resource is the technologies which the product is composed of; a patented retracting system, an almost unbreakable strap made of high quality durable polymers and hardened steel, and a nice-looking design.

For the key activities, R&D is probably the most important in the early development stages. The creation of a MVP (Minimum Viable Product) to be tested with customers and the gathering of feedback will be very important in order to design the best product for the market.

Secondly, the production process is key. Initially the product will be assembled by the group members, but with growth this process will likely be sourced out to be able to produce more and cut costs. An important part for many customers today is customizability, a need which will be met by offering the possibility to alter the paint job on the lock. This part will also need to be integrated into the production process.

Marketing and sales are also essential to gain customers. The advertising will focus on two complementary aspects; one is the technical part (sturdiness, durability, ergonomics), the other will be the branding and the design. Lastly, customer support and assistance must be of high quality to keep customers as well as a good reputation. To do this, a support and assistance platform will be erected in connection to the e-commerce platform.

Additionally, the brand strategy and way of reaching out to potential customers is a key activity. The first wave of advertising through the crowdfunding campaign will help gain a solid foothold with a small circle of users. The next step is to obtain visibility through these customers when they use the product, showing it around town and on social networks. Finally a parallel channel of communication will be through bike events such as Giro d'Italia as well as (positive) reviews from specialized bike magazines. All of these actions would support the branding strategy. Selling and marketing channels will be further discussed in chapter 8.

## Value Chain Analysis

In the beginning, the main primary activity will be fundraising in order to create an MVP and communicate it out to people. When the funds are sufficient, the primary activities will revolve around two main axes. The first is *product quality* and will be carried out through quality control of both the raw materials and the final product. The second is *customer experience*. This will be achieved beforehand through the advertising and selling on the e-commerce platform, and after the product has been bought via the customer support & assistance in case of a problem. The support activities will be mainly focused on procurement to get the best quality materials at the lowest price from suppliers and on R&D to research possible improvements (materials, mechanism, etc.) or add-ons (alarm, GPS tracker, etc.). A list of all primary and support activities can be found in Appendix 2.

## 6. External Analysis

The bike lock market is very competitive, which is why it's hard to quickly gain a good reputation and to reach out to a lot of customers. However, there is no real market leader or final solution, which leads to a huge diversity of available products. Thus the power of negotiation is handled by the customers for whom the needs are various and different according to their activity, lifeplace, age, etc. To gain an overview of the external environment, two analyses have been made using the famous Five Forces and PESTLE frameworks.

### Porter's Five Forces

By conducting a market analysis with Porter's Five Forces, the market is looked upon from five perspectives:

- **Competitive Rivalry**

The bike lock market is very competitive. Competitors are approximately the same size. There is a multitude of different products available. Some actors are established on the bike lock market since a long time and have both money and reputation. However, there is no real market leader or final solution.

- **Supplier Power**

There is a huge amount of possible suppliers, meaning that they have a weak power of negotiation. This should make it easier to find good suppliers for a reasonable price.

- **Buyer Power**

The product is for the consumer market (as opposed to businesses). The bike lock market is very diverse and presents a lot of segments according to the consumers' needs: low price, light lock, easy-to-use. Their power of negotiation is very high.

- **Threat of Substitution**

Some customers don't use a bike lock (potential ones or from other segments such as mountain bikers). The shared bikes are becoming more and more common (see Appendix 4 - Shared Bike Evolution).

- **Threat of New Entry**

For each new upcomer, it's hard to have a good reputation quickly and hard to reach a lot of customers. The entry barrier is not very high and new competition can relatively easily enter the market.

## PESTLE

A complete PESTLE analysis leads to set the opportunities and threats for each pillar: political, economical, social, technological, legal and environmental. The bike lock is a high-technology product, promoting an ecological mode of transport and which tends to improve society by fighting against bike robbery. However, we have to take into account the different stakeholders involved (all countries are not facing and fighting bike robbery the same way) and the issues engendered such as concurrent reproductions or legal procedures. The full PESTLE analysis can be found in Appendix 3.

## Competitor Analysis

Taking a look at the market for retractable bike locks two different segments can be identified: a cheap segment and a high-end one.

The cheap one include products such as ABUS Combiflex, Bosvision Ultra-Secure, Squire Retractable Cable Bike Lock, Kryptonite, Tidenduk, Yale, Hoovo, and more. The principle is pretty much the same for each product: a plastic body, and a thin cable (2,4 mm in average) and a code lock. The price fork is between 12 to 18 euros (<http://amazon.com>).

The high-end segment is less crowded. The main competitor is a product made by Litelock which is sold for 128.95€ and is flexible, light, strong, and easy to use. The product has also been independently tested by Sold Secure, the world-class certification house, achieving their highest security rating (Sold Secure Bicycle Gold). The design is also attractive and an important part of the product. It's important to notice that there is no clear market leader for retractable locks.

According to cross-sources<sup>1</sup>, we found that the main competitors' products in non-retractable bike locks segment are:

- **U-Shape Locks:** Kryptonite Kryptolok, Abus Granit X-Plus 540
- **Big Cable Locks:** Kryptonite Kryptolok 955 Mini, Kryptonite New York Noose 1275
- **Foldable Locks:** Foldylock Compact, Abus Bordo 6500.

These locks are interesting competitors because they belong to an economic mid segment: between 40 and 130€. However the strengths and weaknesses of each product are different and attention must be given to position and create our product wisely: the U-shape ones are more resistant but don't protect the integrity of the bike, the big cables locks are resistant and flexible but heavy, the foldable locks are practical but quite weak.

The internal and external analysis has been summarized in a SWOT Analysis, found in Appendix 5.

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<sup>1</sup> <http://thebestbikelock.com/> and <https://www.bikeradar.com/advice/buyers-guides/best-bike-lock/>

## 7. Competitive Advantages

When it comes to gaining competitive advantage, Cyclips' best option lies in *differentiation*. The fact that the product stands out from most direct competitors can be used for several different strategic purposes. First of all, it is an advantage when launching the new product since a differentiated product is likely to find it easier to make some room for a new entry and effectively gain a share of the market.

In a few years, once Cyclips has established itself as an incumbent with a fair market share, the differentiated aspect will also make it easier to defend against new entrants. This is a large difference between an industry competition that is based on *cost leadership*. A well differentiated and well positioned product can defend against competition and substitutes despite cost disadvantages because brand loyalty to differentiated product offsets price competition. Additionally, differentiation also brings with it a stronger ability to mitigate buyer power, as customers are less sensitive to price increases.

Another important part of gaining competitive advantages is the *focus*, meaning what geographical areas and customer segments to concentrate on. The focus is usually a trade-off between focusing on a narrow target to gain a cost advantage and faster become profitable, or focusing on serving a large market fast and gain higher sales volume. In the case of Cyclips, it is estimated that the adoption rate of customers depends a lot on the number of users (=sales volume). Therefore it makes sense to try to acquire a higher sales volume fast by expanding to several markets fast.

However, it is also determined that starting of with a narrower focus will be necessary in the first year, as the product can be tested on one market to gain insight of how to optimize the business and its operations before expanding to other markets. The prioritization is often one between profitability and sales volume; in this case the initial year will focus on a narrow market (Italy) to build a foundation, focusing on the set-up of the business, finding the right suppliers and optimizing the marketing measures. The next phase will instead focus on rapid expansion, fast increasing sales volume and the spread of the Cyclips brand.

As previously mentioned, upstream competitive advantages such as cost leadership are scarce as a start-up, and therefore it makes sense to take a deeper look downstream. To see how Cyclips can utilize downstream advantages, the costs and risks that customers encounter in the buying process must be uncovered.

In this case the customer's costs could for example be actual monetary cost, the time spent buying the lock, difficulties in understanding the information about the product or understanding the buying process. Risks could be that they aren't happy with the lock, that the lock doesn't live up to their expectations, that they're not getting enough social acceptance for the purchase or that they will stop using the lock in the future, which would end up decreasing the product's reputation on the market.

These costs and risks can be mitigated and utilized to gain a competitive advantage versus competitors. If we can reduce or erase the problems our customers face better than our competitors we will gain an important edge. The main features of the Cyclips product that will help gain a downstream advantage are determined to be:

- The flexibility of using the product (the retractable aspect)
- The customizability of the product
- The durability of the product
- The ability to change the product and be flexible in production

To highlight these features, there are a number of ways to go about. The Marketing Plan (chapter 8) will go further into detail, but some ways could be to perform well in “Best-in-test” reviews, to have trusted ambassadors for the locks who can lift the brand image, have the lock be seen used by people, by having an appealing and well-liked design, or by having a smooth ordering or browsing experience. The aim is to have the key features highlighted for the customer and have them associate Cyclips with feelings of trust, security and style.

## 8. Marketing Plan

For our business plan to be successful, we need to have a good marketing plan and execute it properly. To create it, we have researched, discussed and agreed on the following plan.

### Segmentation

Based on research on bike riders, the market can be divided into a few main segments such as:

- **Urban Riders:** Those who ride bikes for daily purposes such as going to their work or school.
- **Professional Bikers:** People who ride long distances (i.e. between cities), or ride for money (attending competitions etc.)
- **Mountain Bikers:** Those who ride the bike on the mountain tracks.

After doing some research on the market and talking to bike riders, some important information related to each segment was retrieved.

- Professional bikers most importantly care about the weight of the lock since they ride for long hours and speed is important for them. We have decided not to target this segment since we are not planning to compete on weight, and this segment makes up a small percentage of the market.
- Mountain bikers, on the other hand, are not always using bike locks. Since they're only going out to bike and returning home after biking, they usually don't require a lock. Additionally, since they're also not a large segment of the market, we have decided to not target them either.
- Urban riders, which is the biggest segment among all, is the most logical segment to target since they require locks all the time. Combining it with the information of most bikes being stolen in public places in cities makes it a perfect segment for Cyclips' purpose.

### Targeting

Due to the product's main features of flexibility and durability, we have decided to set the target customer segment by customer need & characteristics, instead of by product. A mathematical method is being used to narrow the customer base and the target segment is defined by looking at the demographics and plan the positioning accordingly.

Since the core product is a lock, bike sharing users are excluded from the customer segment. Looking at the data provided by [UNdata](#) (an Internet search engine, retrieving data series from statistical databases provided by the United Nations System), we found that the total amount of bikes & e-bikes in Italy in 2016 was about 5 million.

On the pricing side, considering the high cost of the retractable mechanism combined with higher durability, cost of the product is higher than the market average. Therefore people with a lower income range such are teenagers and/or students will not be targeted. Looking at the income distribution data in Italy, middle and high income classes make up to 67% of the total



population. Therefore 67% of 5 million, equalling 3.4 million people, will be targeted (at the initial launch, which will only focus on Italy).

Considering all of the above-mentioned characteristics, the customer segment can be defined as such:

*“Daily normal and electrical bike owners in Italy\* who find traditional locks inconvenient to use, and have a middle to high income range.”*

*\* After the initial year, other geographical markets than Italy will be targeted.*

## Positioning

We have compared our product with various types of bike locks on the market and created a value curve to use for our positioning. To do so, we have taken 7 of the most important criterias when it comes to performing bike lock (price, convenience, size, flexibility, practicality, durability, integrity) and given each type a value out of 10; 10 being the best and 1 being the worst performing.

We have also created a perception map to better position our brand in customers' minds. We have previously identified a gap in the market for durable and not so expensive locks. This gap enlarges in the case of considering nearest competitor products lack flexibility.

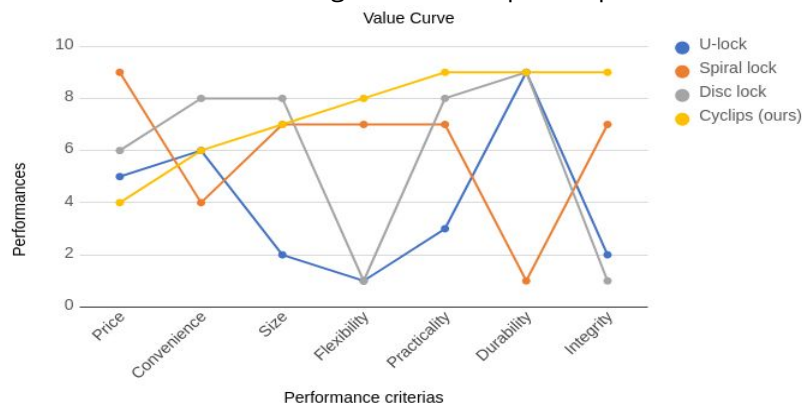


Figure 2. Performance comparison for different types of locks for different criterias

Therefore, we are going to position our brand and product in customers' minds as durable, flexible and economical luxury product. That is why we chose the black and yellow colors for our base product. Yellow symbolizes joy, happiness and optimism, while black symbolizes power, authority and strength.

We are positioning our product in the price range of 60-80€, which is the middle-high range of the bike locks. Also highlighting the strength of the lock will create the perception of a durable and economical luxury product image in customers mind.

We will be offering different colors of straps to which will help customers to feel closer to the products since they can choose custom colors depending on their taste and matching the color of their bike.

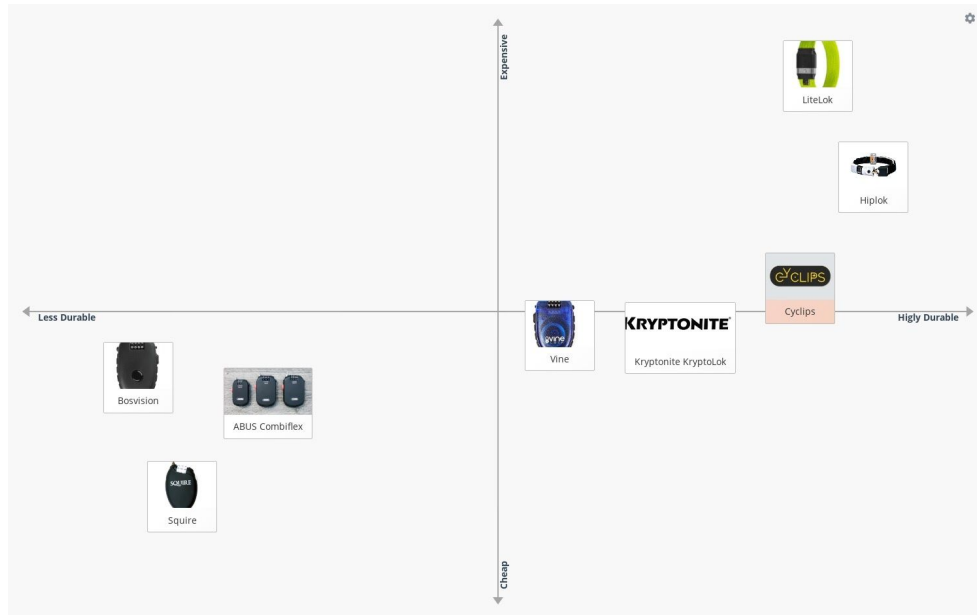


Figure 3. Perceptual Map

## Marketing Mix

Since the business model does not include a service, we will be focusing on the main 4Ps of the marketing mix.

### Product

Our product will be used to protect the user's bike as a whole, which is the main need of the user. So, we focused on this must-have feature and made our lock extra durable. On the other hand, the flexibility feature of our Cyclips can be seen as a satisfier to the customer. It is not an essential but users will like it more this way. Finally, making it customizable with different colors is going to make our customers delighted.

### Price

Since the purpose of the product is to secure bikes and e-bikes, the higher value of the bike, the more important the lock is. So, the value of the security we're bringing to the customer increases with the value of the bike. Therefore, targeting quality bike owners will increase the value perception of our product as well. We will be pricing our product in the 60-80€ segment, which corresponds to the economical luxury bike locks. This price range has been chosen since it is a sweet point which has comparatively less competition.

### Place

The places that we will be selling our product are the following:

- **Bike & Bike Accessory Stores:** We will be making contracts with bike stores in Italy, mainly in Milan and Rome, to sell our products with their margin. This will help us reduce sales costs as well as target the right, specific customer segment.
- **Website:** There will be an option to buy the product on our website. We are going to focus on cyclist groups on social media and internet forums so that we can inform them about bike security and locks, as well as promote the sales of our product online.

### Promotion

We plan to make agreements with bike producers & retailers to create promotions for bike buyers to buy our lock together. The lock will become cheaper for them, and we will be psychologically associated with a bike brand that they trust. Also there will be discounts for bike rentals and others that buy in large numbers to encourage more sales and brand awareness. To

increase our brand awareness even more, we plan to attend cyclist events and social influencers that are into cycling, health, fitness and offer them our product for free or with a discount.

## 9. Strategic Plan

### Objectives

#### First 3 Months

- Finalize the product design.
- Create brand awareness for the customers and bike retailers/producers

#### From 3 Months to End of 1st Year

- Produce a thousand locks.
- Sell 60% of the products.
- Get 100 retailers to sell our product.

#### From the 2nd to the 5th Year

- Expand to other countries such as Germany, France, Netherlands, in order respectively.
- Sell 5000 locks in the second year and keep 500 in the inventory at all times.
- Grow the sales and production 10% internationally each following year.

### Plan

#### First 3 Months

Technical part:

- Produce the prototypes and start experimenting on them.
- Make beta tests to see if prototype actually works and satisfies the potential customers.
- Decide on what to produce ourselves and what to outsource to have minimal costs.
- Decide on where & how the production facility will be, also considering logistical costs.

Sales & Marketing part:

- Deeper market and retailer analysis. Talking to bike & e-bike retailers and producers to gather data on what do they look for when doing and agreement with a lock company.
- Create website and social media pages and start collecting emails & followers.
- Analyze competitors and their strategies.

#### From 3 months to End of 1st Year

Technical part:

- After finalizing the design start producing in scale for at least a thousand.
- Continuing on R&D to design alternate products or improve current one.

Sales & Marketing part:

- Get 100 retailers in Italy to sell our product in the next 9 months.
- Get 1 bike producer in Italy to make a campaign to offer our product with their bikes/e-bikes.
- Start selling on our own B2C & B2B ecommerce site.

#### Plan for the 2nd to the 5th Year

Technical part:

- Develop secondary products that can complement bike lock.

Sales & Marketing part:

- Get 1 Bike producer to make an agreement in each new country we're expanding to.
- Find employees that speaks each of the languages of expanding countries. Translate the website and social media accounts accordingly.
- Find retailers to sell our product in new countries and cities.

## 10. Technical Specification

### Material Choices

For the material choice, we took into consideration the main tools used to cut through the bike lockers, as cutting pliers, bolt croppers, hammer together with the freezing spray, hacksaw and in the ultimate case, the angle grinder. Having this in mind, we defined the following materials:

#### Hardened Alloy Steel

Used in our product casing. It is drill resistant and also high resistant to impact, being good to protect our bike locker retractability working principle and also the locker part.

#### Hardened Carbon Steel

Medium to hard plain carbon steel, undergone to heat treatment (quenching and followed by reheating) in the interior of the straps. This material is resistant to wear, rough usage, high-impact pressure, shock and also resistant to corrosion. Besides, as it is located in the core of the straps, it acts as a structural component, sustaining the product itself.

#### Kevlar & UHMWPE Polymer

It is used for coating the straps. It has high crystallization, extremely long molecular chains that transfer load more effectively, being typically used in industrial anti-cut gloves (cut resistance level 5). More than this, it has a low density, which explains your light weight. To sum up, it is up to 15 times stronger than steel (weight for weight basis) and resistant to moisture, UV and chemicals. Also, this material is widely used in the aviation industry.

In conclusion, our idea is to make a bike lock that it is resistant to wear, cut, abrasion, high impact, tough, but at the same time, flexible. These characteristics allow our product to be durable and retractable, highlighting our product regarding to our competitors.

### Material Costs

The cost of the lock has been estimated as a first approximation taking into account the dimensions of the prototype and the price of the raw materials.

#### Cost of Main Materials & Parts

Subassembly	Part	Material	Cost [€]
Lock	Tubular Plug Lock	Steel	3.06
Retracting Mechanism	Torsional Spring	Stainless Steel	0.54
	Pawls and Ratchets	Carbon Steel	0.45
	Housing of the Webbing	Hardened Alloy Steel	10.65
Webbing	Cable	Hardened Steel	6.09
	Fiber	UHMWPE + Kevlar	4.20

This gives an approximated cost of the product of **24.99€** in materials. (More Technical Specifications can be found in Appendix 6).

## 11. Financial Analysis

Main revenue source for our business is the sale of our locks. As we have mentioned in the technical part, we have a variable material cost of 27€ per product. We also have other manufacturing costs such as employee salaries, electricity, production facility & warehouse rents. Additionally, our non-manufacturing costs include office employee salaries, rent and sales & marketing expenses. Considering we produce 1200 products per year, our cost per product including manufacturing and non manufacturing costs becomes 40€ (Appendix 7.1).

We have taken the normal and e-bike shares in the last 3 years in Italy and considering 15% reach and 8% adoption rate, we come to find the numbers below.

Italy	Normal Bike Sales Last 3 Years	E-Bike Sales Last 3 years
Market Volume	4,629,750	445,000
Reach (In 18 months)	694,462	66,750
Number of Sales (In 18 months)	55,557	5,340

So, considering these bike sales it can be concluded that the potential gross profit of Italy is €2.4 million (Appendix 7.2).

After making potential market & revenue analysis, different scenarios have been calculated for predicting our businesses financials. We have taken different reach and adoption estimates to find best, likely and worst case scenarios (Appendix 7.3). At the end of this calculation we estimate in the likely case that, even though we won't reach our break-even point, we will start making profits in the second year.

Other than our main revenue from the sale of the goods, we are planning to have another revenue source which is having brand promotions on the straps of our locks. While the cost of producing branded straps will be low, we need to establish our brand awareness first. Therefore we are planning to work on this second revenue source starting from the second year. Another possible source of income we are planning to exploit is entering to a crowdfunding platform, to potentially gain revenues to have a budget to create our prototype and jumpstart our business.

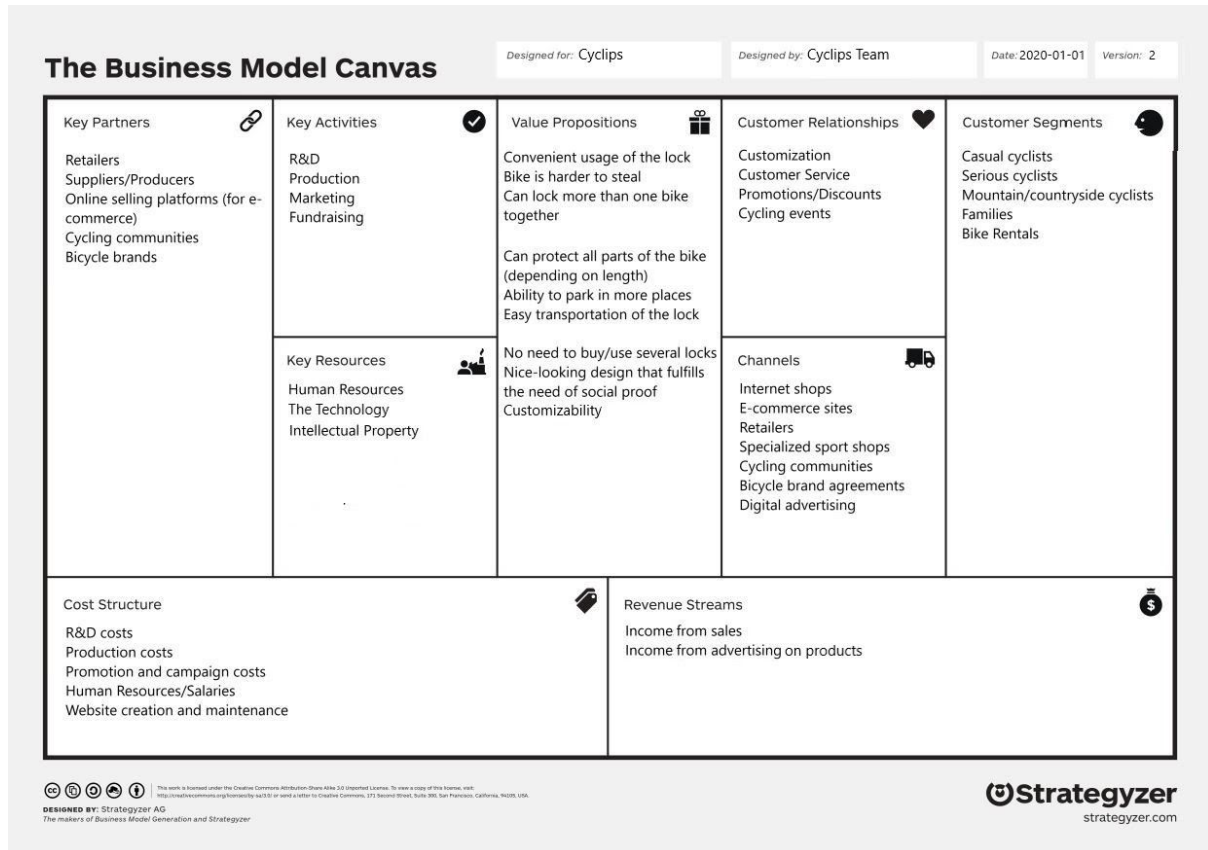
## 12. Risk Analysis

For entrepreneurs, anticipating risks and preparing for them can make the difference between failure and success. The key is to quantify risks and come up with some contingency measures. The top most risks for our startup are team, market, finance and technology as listed in Appendix 8.1.

Once listing all the potential risks next step is to enlist the mitigation strategies for each risk. This analysis is largely based on assumptions. But, these assumptions will help Cyclips to prioritize things to be done in the first place. The mitigation tactics can be found in Appendix 8.2.

## 13. Appendices

### Appendix 1 - Business Model Canvas



### Appendix 2 - Value Chain Analysis: Primary & Support Activities

#### Primary Activities

- Fundraising: during the early stages of the startup, this will be one of the main activities in order to get sufficient funds to create an MVP and to start communicating on the lock.
- Inbound logistics: quality control of the raw materials (steel, polymer fiber, springs, lock...) acquired among trusted providers.
- Operations: assembly of the product with quality control at the end
- Outbound logistics: shipping to the bike shops (or it stays with us for the e-commerce platform).
- Marketing & Sales: advertising.
- Service: customer support & assistance platform.

#### Support Activities

- Procurement: contact raw materials suppliers and negotiate prices according to quantities bought
- R&D: research new materials and add-ons
- Human Resources & Infrastructure

## Appendix 3 - PESTLE

	<b>Opportunities</b>	<b>Threats</b>
<b>POLITICAL</b>	Potential worldwide market in countries where the use of bikes is common and advocated.	All the countries are not facing and fighting bike robbery the same way.
<b>ECONOMICAL</b>	Contribute to the fight against bike robbery. Amount of raw materials (steel and polymer for the body). Increasing use of bikes.	Require the investment of the purchase. Costs of raw materials (Kevlar and UHMWPE). Increasing use of shared bikes.
<b>SOCIAL</b>	Contribute to the fight against bike robbery. Nice-looking design.	Optimal production and work conditions.
<b>TECHNOLOGICAL</b>	Practical and durable product. New system of retractability	Concurrents reproduction (reverse engineering if a patent is issued)
<b>LEGAL</b>	Contribute to the fight against bike robbery.	Doesn't protect totally the bike against robbery. Be sure to exclude the company from any legal proceeding.
<b>ENVIRONMENTAL</b>	Bikes are a green modes of transport: environmentally friendly sport, builds awareness of eco-friendly activity.	Product lifecycle to take into consideration.

## Appendix 4 - Shared Bike Evolution

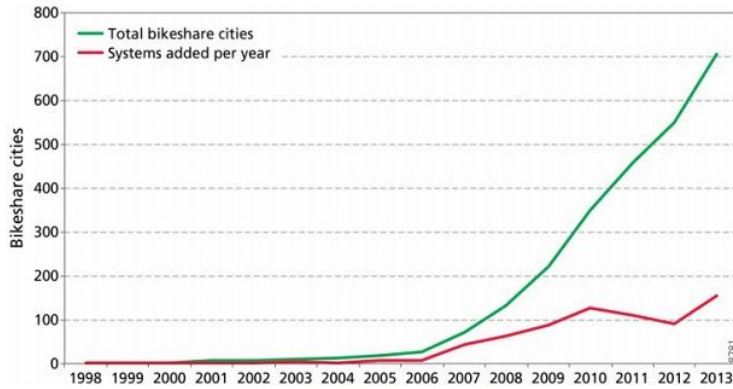
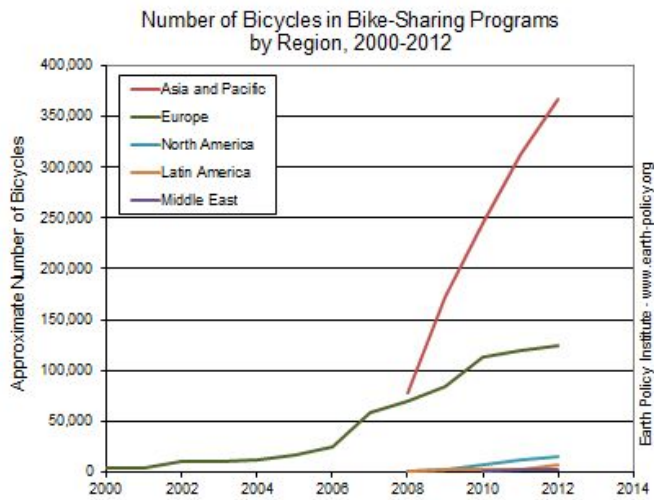


Figure 1. Growth in bikeshare cities (1998–2013).

Source: Meddin (2014)



Source: EPI based on Midgley; Meddin and DeMaio; Yang et al.; Shaheen et al.



Source: EPI based on Midgley; Meddin and DeMaio; Yang et al.; Shaheen et al.

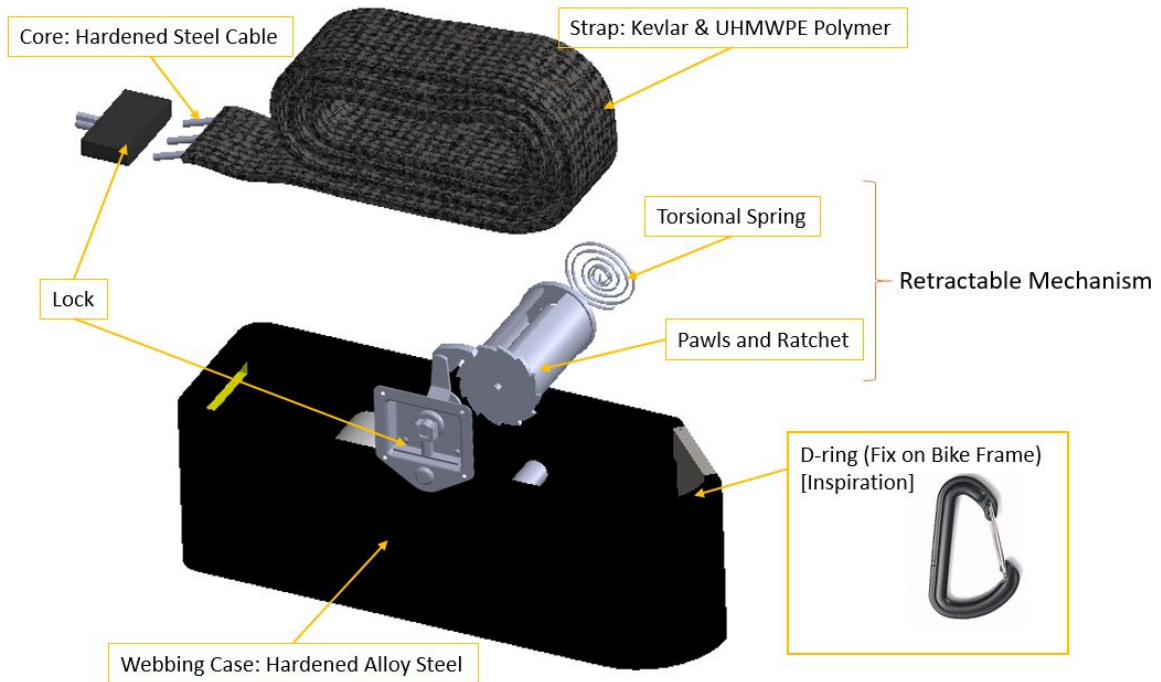


## Appendix 5 - SWOT

	Positive	Negative
Internal	<p><b>STRENGTHS</b></p> <ul style="list-style-type: none"> <li>- Practical and Strong;</li> <li>- Possibility of add-ons;</li> <li>- Not a drastic change of the users' habits, i.e. easy to use;</li> <li>- Replace the use of several bike locks to guarantee and protect the integrity of the bike (cf. survey: a lot of users use 2 locks to protect their bike).</li> </ul>	<p><b>WEAKNESSES</b></p> <ul style="list-style-type: none"> <li>- Price;</li> <li>- Lack of capital;</li> <li>- Lack of reputation;</li> <li>- No production facilities;</li> <li>- Lack of know-how.</li> </ul>
External	<p><b>OPPORTUNITIES</b></p> <ul style="list-style-type: none"> <li>- There is no real market leader or final solution;</li> <li>- There might be a gap in the market for locks which combine high durability and are easy-to-use;</li> <li>- No competition in the 40-80€ price range for retractable bike locks;</li> <li>- Increasing bike usage/active lifestyle;</li> <li>- Increased awareness of sustainability (leading to people using bikes more);</li> <li>- Easy to adopt;</li> <li>- Large possible market;</li> <li>- Possibility of also selling to motorcyclists;</li> <li>- Most cities and governments are actively encouraging biking;</li> <li>- Possibility of state-aided bike incentive programs might get more people to bike (for example, subventions or pay-to-bike-to-work programs which already exist in many Italian cities);</li> <li>- Increased sales of e-bikes which are generally more expensive than regular bikes.</li> </ul>	<p><b>THREATS</b></p> <ul style="list-style-type: none"> <li>- Many actors are already on the market, many of them established on the bike lock market since a long time and have both money and reputation;</li> <li>- Lack of awareness and trust of retractable bike locks;</li> <li>- The usage of bike sharing is increasing.</li> </ul>

## Appendix 6 - Technical Specifications

### 6.1 Schematic of the Product



### 6.2 Dimension of the Product

#### Strap

Length: 2000mm

Width: 40mm

Thickness: 4mm

#### Webbing Case

Length: 240mm

Width: 60mm

Height: 75mm

Thickness: 5mm

### 6.3 Material Costs Comparison

Part	Material	Source
Tubular Plug Lock	Steel	<a href="https://www.ebay.com/itm/LOT-OF-50-Pepsi-Vending-Plug-Lock-For-T-handle-Vending-Soda-Machine-Vendo-KD/174011099467?hash=item2883dea94b:g:TriAAOSwImRYm60W">https://www.ebay.com/itm/LOT-OF-50-Pepsi-Vending-Plug-Lock-For-T-handle-Vending-Soda-Machine-Vendo-KD/174011099467?hash=item2883dea94b:g:TriAAOSwImRYm60W</a>
Torsional Spring	Stainless Steel	<a href="https://www.alibaba.com/product-detail/China-Manufacturer-High-Quality-OEM-custom_62355710694.html?spm=a2700.7724857.normalList.204.7a215f">https://www.alibaba.com/product-detail/China-Manufacturer-High-Quality-OEM-custom_62355710694.html?spm=a2700.7724857.normalList.204.7a215f</a>

		<a href="#">84PIH3RT</a>
Pawls and Ratchets	Carbon Steel	<a href="https://www.alibaba.com/product-detail/Factory-customized-powder-metallurgy-sintered-ratchet_60813845684.html?spm=a2700.7724857.normalList.21.201b419f4gO4Mu">https://www.alibaba.com/product-detail/Factory-customized-powder-metallurgy-sintered-ratchet_60813845684.html?spm=a2700.7724857.normalList.21.201b419f4gO4Mu</a>
Housing of the Webbing	Hardened Alloy Steel	<a href="https://www.custompartnet.com/partcost-731">https://www.custompartnet.com/partcost-731</a>
Cable	Hardened Steel	<a href="https://www.amazon.com/7x19-Stainless-Steel-Flexible-Cable/dp/B07L7Y4K8Y/ref=sr_1_9?crid=1PURF7XBANPYK&amp;keywords=1%2F4%2Bwire%2Broke%2Bsteel&amp;qid=1575828418&amp;srprefix=1%2F4%2Bwire%2Caps%2C276&amp;sr=8-9&amp;th=1">https://www.amazon.com/7x19-Stainless-Steel-Flexible-Cable/dp/B07L7Y4K8Y/ref=sr_1_9?crid=1PURF7XBANPYK&amp;keywords=1%2F4%2Bwire%2Broke%2Bsteel&amp;qid=1575828418&amp;srprefix=1%2F4%2Bwire%2Caps%2C276&amp;sr=8-9&amp;th=1</a>
Fiber	UHMWPE + Kevlar	<a href="https://dutchwaregear.com/product-category/myg/fabrics/dyneema-composite/">https://dutchwaregear.com/product-category/myg/fabrics/dyneema-composite/</a>

## Appendix 7 - Financial Analysis

### 7.1 Cost Calculations

<b>Overall Costs</b>	Likely	Worst	Best
<b>Quantity first year:</b>	<b>1,200</b>	<b>600</b>	<b>3,000</b>
Total product cost first year	€48,213.00	€24,106.50	€120,532.50
Total cost first year	€142,513.00	€118,406.50	€214,832.50
<b>Quantity second year:</b>	<b>2,400</b>	<b>600</b>	<b>12,000</b>
Total product cost second year	€96,426	€24,107	€482,130
Total cost second year	€190,726	€118,407	€576,430
<b>Fixed costs</b>			
Private Office (for 4 people)	€9,600.00	Per Year	
Warehouse/Assembly Location	€7,200.00	Per Year	
Salaries	€72,000.00	Per Year	
Website setup & maintenance	€500.00	Per Year	
Digital Marketing	€5,000.00	Per Year	SEO, Google Adwords, Social etc.
<b>Total fixed costs</b>	<b>€94,300.00</b>		
<b>Variable costs*</b>	<i>* When produced in batches of 1200</i>		
Electricity	€4.50		
Logistics	€6.00		
Packaging	€2.50		

Materials	€27.00		
<b>Total variable cost</b>	<b>€40</b>		

## 7.2 Profit Calculation

<b>Cyclips Planned Cost &amp; Price</b>	
Production Cost / unit	€40
Sales Price	€80
Margin	€40
<b>Total Market Size Revenue In Italy</b>	
Total Revenue	€4,871,760
Cost of Goods Sold	€2,435,880
Gross Profit	€2,435,880

## 7.3 Best, Likely and Worst Cases

<b>Best, Likely and Worst case scenarios</b>		
	<b>2020</b>	<b>2021</b>
Reach best case	0.2	0.32
Reach likely case	0.15	0.24
Reach worst case	0.1	0.15
Adoption rate best case	0.15	0.2
Adoption rate likely case	0.1	0.11
Adoption rate worst case	0.05	0.08
Market share best case	0.02	0.04
Market share likely case	0.01	0.02
Market share worst case	0.005	0.015
Sales best case	3,045	12,991
Sales likely case	761	2,679
Sales worst case	127	913
Revenues best case	€243,588	€1,039,309
Revenues likely case	€60,897	€214,357
Revenues worst case	€10,149	€73,076

Costs best case	€189,333	€474,430
Costs likely case	€132,313	€170,326
Costs worst case	€113,307	€113,307
EBIT best case	€54,255	€564,879
EBIT likely case	-€71,416	€44,031
EBIT worst case	-€103,157	-€40,230
(After 30% tax)		
Net Profit best case	€37,979	€395,415
Net Profit likely case	-€49,991	€30,822
Net Profit worst case	-€72,210	-€28,161

#### 7.4 Total Bike Sales in Europe (Based on the Available Data)

		All bikes			E-bikes	
	2016	2017	2018	2016	2017	2018
<a href="#">Austria</a>		397,000			87,000	
<a href="#">Belgium</a>	461,000			141,000		251,500
<a href="#">Bulgaria</a>		77,000				
<a href="#">Croatia</a>	333,000					
<a href="#">Cyprus</a>						
<a href="#">Czechia</a>	490,000			15,000		
<a href="#">Denmark</a>	510,000			45,000		
<a href="#">Estonia</a>	75,000			2,000		
<a href="#">Finland</a>	320,000			20,000		
<a href="#">France</a>		2,783,000			134,000	338,000
<a href="#">Germany</a>		3,850,000		605,000		980,000
<a href="#">Greece</a>	166,000			2,000		
<a href="#">Hungary</a>	221,000			2,000		
<a href="#">Ireland</a>						
<a href="#">Italy</a>		1,688,000		124,000		173,000
<a href="#">Latvia</a>						

<a href="#">Lithuania</a>	113,000			4		
<a href="#">Luxembourg</a>						
<a href="#">Malta</a>						
<a href="#">Netherlands</a>		961,000		273,000		409,400
<a href="#">Poland</a>	1,200,000			10,000		
<a href="#">Portugal</a>	350,000			3,000		
<a href="#">Romania</a>	510,000			2,000		
<a href="#">Slovakia</a>	140,000			2,000		
<a href="#">Slovenia</a>	310,000			1,000		
<a href="#">Spain</a>		1,116,000		40,000		
<a href="#">Sweden</a>		576,000		45,000		
<a href="#">United Kingdom</a>		2,914,000		40,000		
		19,561,000		1,593,004		

**Green Countries** are those of interest for the first few years

All information gathered from Statista<sup>2</sup>, ECF<sup>3</sup> and Conebi<sup>4</sup>

## Appendix 8 - Risk Analysis

### 8.1 Risk & Probability

Risk Area	Typical Risk	Probability of Occurrence	Chance of Failure if Occurs	Probability of Failure	Probability of Success
<b>Totals</b>				0.7703505316	0.2296494684
<i>Team</i>	Team has no entrepreneurial experience	0.9	0.5	0.135	0.865
	Team lacks technological understanding and execution power	0.4	0.8	0.096	0.904

<sup>2</sup><https://www.statista.com/statistics/276036/unit-sales-e-bikes-europe/#:~:targetText=In%202018%2C%20e%2Dbike%20sales,on%20the%20continent%20noticeably%20increased>

<sup>3</sup> [https://ecf.com/cycling-data/italy?field\\_cd\\_country\\_region\\_tid=1662](https://ecf.com/cycling-data/italy?field_cd_country_region_tid=1662)

<sup>4</sup><http://www.conebi.eu/wp-content/uploads/2018/09/European-Bicycle-Industry-and-Market-Profile-2017-with-2016-data-update-September-2018.pdf>

	Team lacks sales & marketing skills & experience	0.85	0.8	0.136	0.864
<i>Market</i>	The market is very competitive	0.7	0.7	0.147	0.853
	The market is hard to enter (entry barriers)	0.3	0.7	0.063	0.937
	The problem isn't worth solving (low willingness to pay)	0.6	0.6	0.108	0.892
	Too many alternatives and/or substitutes exist	0.5	0.8	0.16	0.84
	The target customer is not well defined	0.5	0.5	0.025	0.975
	Complex decision making will lead to long sales cycles	0.5	0.7	0.07	0.93
<i>Finance</i>	Large amount of funding needed to build the technology	0.3	0.8	0.024	0.976
	Large amount of funding needed to market the product	0.6	0.4	0.096	0.904
	Customer Acquisition Costs are high	0.5	0.5	0.05	0.95
	Profit margin is expected to be low	0.6	0.5	0.15	0.85
<i>Technology &amp; Operations</i>	Complexity of technology requires specialist developers	0.25	0.8	0.02	0.98
	Technology is not accessible / usable everywhere	0.3	0.6	0	1
	Technology has high uncertainty in development and/or performance	0.3	0.7	0	1
	Technology has limitations in scaling	0.5	0.7	0.07	0.93
	Timely availability of the service / products provided	0.3	0.6	0.036	0.964

## 8.2 Mitigation Tactics

Risk Area	Typical Risk	Mitigation Tactic	Chance of Mitigation
<b>Totals</b>			
<i>Team</i>	Team has no entrepreneurial experience	Find mentors / advisors with experience in setting up a business	0.7
	Team lacks technological understanding and execution power	Hire team of freelancers	0.7
	Team lacks sales & marketing skills & experience	Hire someone to complement the team / find cofounder with skills	0.8
<i>Market</i>	The market is very competitive	Establish strategic partnerships	0.7
	The market is hard to enter (entry barriers)	Arrange access to the market through existing channels	0.7
	The problem isn't worth solving (low willingness to pay)	Review the value proposition (freemium models)	0.7
	Too many alternatives and/or substitutes exist	Review the value proposition (blue ocean strategy)	0.6

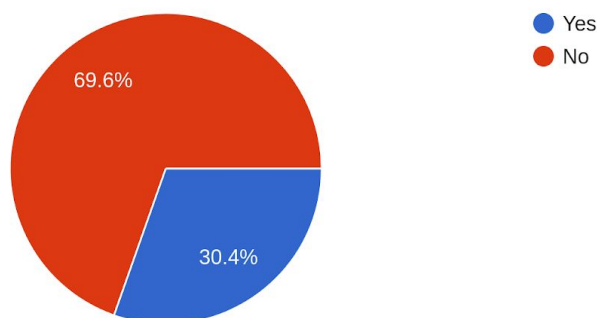
	The target customer is not well defined	Create and validate buyer personas	0.9
	Complex decision making will lead to long sales cycles	Easy step in product or service / develop tools to support the sales	0.8
<i>Finance</i>	Large amount of funding needed to build the technology	Breakdown the development into CMVP, MVP and MLP steps	0.9
	Large amount of funding needed to market the product	Seek strategic partners that can make market entrance easier	0.6
	Customer Acquisition Costs are high	Experiment with cheaper traction channels or find strategic partners	0.8
	Profit margin is expected to be low	Find ways to add value or lower the costs	0.5
<i>Technology &amp; Operations</i>	Complexity of technology requires specialist developers	Make sure to have enough back-up skills	0.9
	Technology is not accessible / usable everywhere	Review technology choices	1
	Technology has high uncertainty in development and/or performance	Review technology choices	1
	Technology has limitations in scaling	Review technology choices	0.8
	Timely availability of the service / products provided	Find ways to increase response and delivery times	0.8

## Appendix 9 - Survey Results

### 9.1 Theft Frequency

Have you ever got your bike stolen?

102 responses

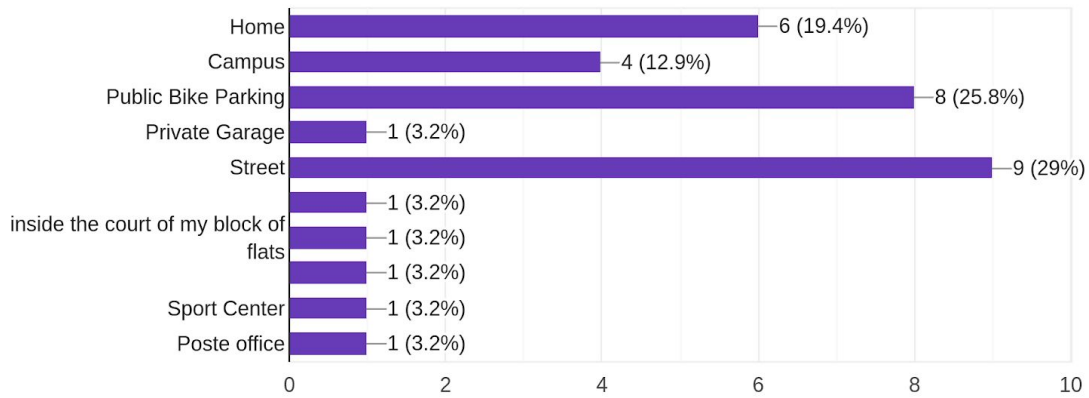




## 9.2 Theft Locations

Where did it get stolen? (Choose all that apply if your bike got stolen more than once)

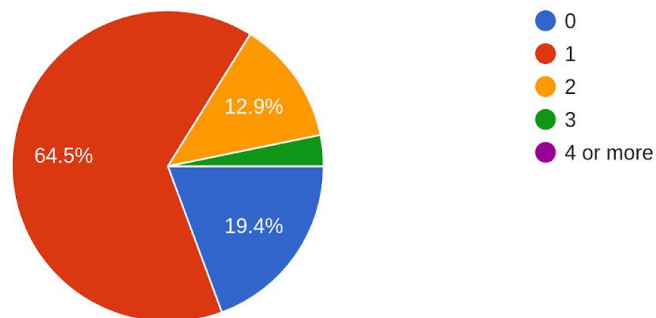
31 responses



## 9.3 Number of locks used

How many locks did you use to protect it when it was stolen?

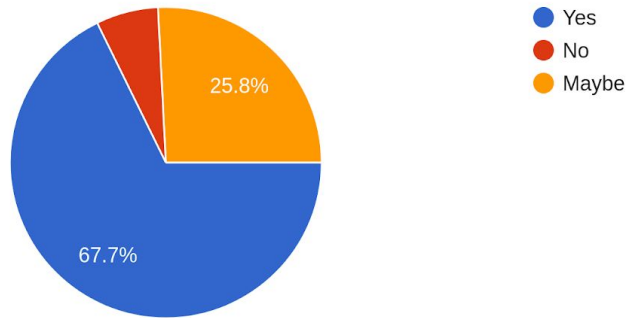
31 responses



## 9.4 Theft Scared

Are you afraid of having it stolen again?

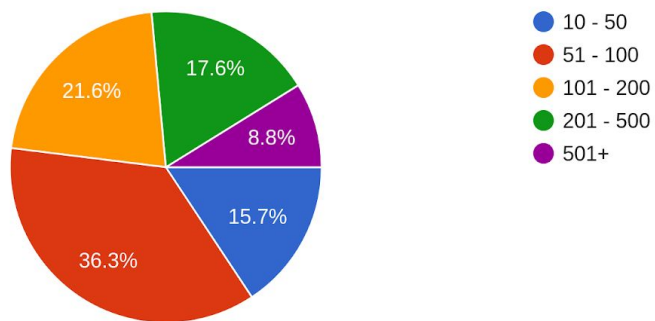
31 responses



## 9.5 Bike Prices

How much did you pay for your bike in euro?

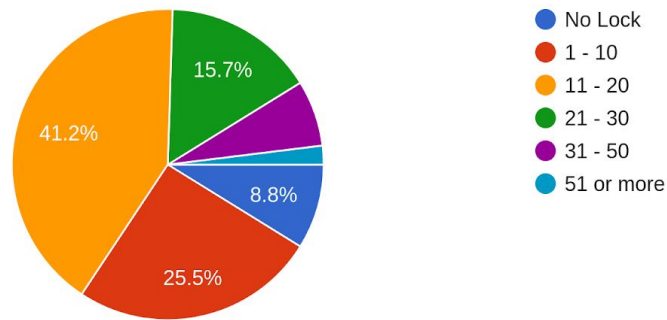
102 responses



## 9.6 Lock Prices

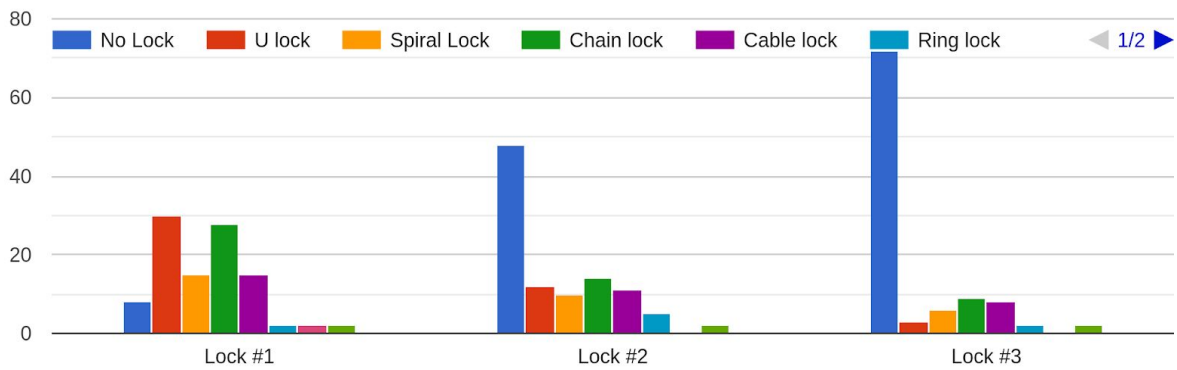
How much did you pay for your primary lock?

102 responses



## 9.7 Types of Locks

What type of locks do you use?



## 9.8 Lock Inconvenience

Have you ever struggled with your lock or found it inconvenient to use?

102 responses

