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Business Plan

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WheelLock

Business Plan

By

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1. Executive Summary

Cycling is growing in popularity as a mode of transportation in Singapore. It was reported that 1 in 4 households in Singapore own at least one bicycle in 2018, while over 125,000 people use it daily as part of their commute to work, school, and recreation. Furthermore, in the past 2 years, trip data collected by bike-sharing operators have proven that cycling has become an alternative mode of first- and last-mile transportation, even replacing short trips between MRT stations and several bus stops. Local sales of bicycles have also increased by 20% to 50% in the same period. With the continued development of Singapore's cycling infrastructure, to move towards a car-lite society, there is a need to bolster the current services and supplement the growth. However, this increase in ridership has resulted in two key issues.

There is an increased tendency of haphazard or unattended parking of bicycles in MRT stations and commercial properties, leading to obstructed walkways. This is compounded by the barebones cycling infrastructure in Singapore being ill-equipped to provide a secure and convenient solution for bicycle parking. As a result, cyclists face the inconvenience of having to invest in and carry a bicycle lock with them. There is also the issue of finding a convenient and suitable structure to secure their bicycles on, with the added worry of the capability of that lock to prevent the theft of their bicycle. Secondly, bicycle theft is still common in Singapore. Despite police anti-theft measures, such as the installation of mirrors and surveillance cameras, they have limited deterrence, in part due to their finite scale. Hence, cyclists continue to worry about the security of their parked bicycles.

Our business concept is centred around our core values of N.T.U., which stands for Notice, Tinker and Uphold. We "Notice" challenges and gaps faced by the Bicycle Parking industry, "Tinker" with ideas to fill those gaps and "Uphold" our vision to provide safe, comfortable and quality equipment. By doing so, we earn the customer's trust and establish a strong reputation as a provider for quality equipment and services. Through upholding the core values, Wheelock Inc, our company name, has clinched multiple awards such as the 'A' Innovation Devices, Eco Equipment Design Award, The CES Innovation Awards 2022. Wheelock will continue to strive for excellence, innovate and provide top service to the cycling parking community.

Our team proposes Wheelock, an automated bicycle rack locking system to improve the convenience and security of the current public-use bicycle racks in places such as MRTs and

commercial properties. WheelLock is designed to change the way bicycles are locked, by having an adjustable modular attachment onto existing single or two-tiered bicycle racks. An adjustable arm extending out from the front of the rack allows the user to have the flexibility over where they would like to secure the bicycle to. The modular attachment comes in the form of a locking mechanism at the end of the arm, having the ability to lock and unlock the bicycle using a temporary (4-digit) PIN created by each user. Moreover, to enhance security, an alarm will alert the public when the system detects any tampering with the lock.

With Singapore's target to have an integrated 1320 km of cycling paths by 2030, along with the current rapid increase in bicycle ridership, we can foresee that there is an urgent need to upgrade the nation's existing cycling infrastructure to support this growth. With a convenient and secure system, we believe that it can encourage more people to take up cycling, reducing the reliance on motorised transportation, which aligns with the nation's goal of being car-lite. Our product presents a cost-effective solution for both commercial property developers and public transport operators (e.g. LTA, SBS Transit) to upgrade their existing bicycle parking infrastructure for the benefit of increasing commuter traffic and visitor rates. We foresee a growth in market demand for WheelLock with the proliferation of delivery services and a global push to adopt sustainable and carbon-free modes of transportation.



Figure 1: WheelLock Product Application

WheelLock will retail at \$1000 per unit and distributed mainly through the digital platform. Promotional events will be incorporated to promote sales in the 2nd half of FY2022. The primary marketing objective for the first year is to gain market penetration of 5%, which corresponds to sales of 1000 units. With a price to earnings ratio of 2, the primary financial goal is to achieve an annual growth rate of 19.3%.

2. Business Description

2.1 Industry Overview

Cycling is growing in popularity all over the world. In cities, cycling has been adopted as a form of leisure activity or as a mode of transportation, reducing the need for motorised vehicles. Due to the rise in global warming, cycling has formed a critical role in most cities' urban planning, such as Paris, who are transforming their transport network by redeveloping 50 km of roads into bike-only paths (Chng, 2022). In Europe, over US\$1.1 billion has been invested in cycling infrastructure, with more than 2,300km of bike lanes built since 2020.

As for Singapore, it was reported that over 1 in 4 households here own at least one bicycle in 2018, while over 125,000 people use it daily as part of their commute to work, school, and recreation (Abdullah, 2018). This figure has been boosted during the Covid-19 pandemic as local sales of bicycles have increased by up to 50 per cent while trip data collected have proven that cycling has become an alternative mode of first- and last-mile transportation, even replacing trips commonly taken via the MRT or bus (Abdullah, 2021). With Singapore's target to double the cycling network in the next 2 years and ultimately to have an integrated 1320 km of cycling paths by 2030 (LTA, 2021), we can foresee that there is an urgent need to upgrade the nation's existing cycling infrastructure to support this growth.

One such infrastructure that requires an update is public bicycle parking racks. A key concern for all cyclists is finding a safe, convenient and secure place to park their bicycles (Cheong, 2014). This is compounded by the barebones cycling infrastructure in Singapore being ill-equipped to provide a secure and convenient solution for bicycle parking. They are further inconvenienced by the need to invest in and carry a bicycle lock every time they travel. Despite having over 147,000 public bicycle racks, errant parking of bicycles is still a common sight (Choo, 2018). This increased tendency of haphazard or unattended parking of bicycles in MRT stations and commercial properties, are causing walkways to be obstructed, which is a sight for sore eyes.

Moreover, with regards to security, parking at these racks does not deter thieves as personal locks can still be tampered with, resulting in bicycles getting stolen. Despite police anti-theft measures, such as the installation of mirrors and surveillance cameras, they have limited deterrence, in part due to their finite scale. Hence, cyclists continue to worry about the security of their parked bicycles.

The global bicycle lock market size is estimated to be valued at over USD\$1.3 billion in 2022 (MarketWatch, 2022). This will only continue to grow year on year with increasing ridership

figures. However, a smart bicycle rack system market has barely been tapped into in 2022, which creates an exciting opportunity for WheelLock to become a pioneer in this brand-new industry, having little to no competition. There is a massive financial potential to draw cyclists away from buying personal bicycle locks and to adopt a smart bicycle rack that rents spaces instead. This industry can leverage on convenience by saving the hassle of having to bring around personal locks, whilst also providing a sense of safety and security that personal locks just do not have.

Apart from renting out spaces, a smart bicycle rack system has massive potential to be further commercialised, such as providing a platform for advertisements or as a charging station for e-bikes. Considering that this is a brand-new industry that has barely been tapped into, and with the ever-increasing global ridership, the market reach is immense and can be expanded out of Singapore.

2.2 Our Mission

WheelLock Inc. focuses on enhancing and upgrading the existing public bicycle parking infrastructure in Singapore using innovation and automation technology. Not only will this provide a convenient and secure parking option for cyclists, it will also aid in complementing Singapore's goal of reducing the reliance on motorised transportation.

2.3 The Company

WheelLock Inc. is a local start-up company founded in 2020 by a group of 8 friends, who share the same passion of cycling and exploring Singapore on 2-wheels. We celebrated the government's plans to expand the cycling network and fully supported the idea of a car-lite nation. However, we felt that the supporting cycling infrastructure needed improvements, especially towards bicycle parking. Errant and indiscriminate parking of bicycles is common in areas with heavy human traffic, such as in local malls and MRT stations, whilst bicycle theft was a prevalent issue too. That was further exacerbated during the start of the Covid-19 pandemic, when we noticed the surge in bicycle ridership, especially amongst food delivery riders. Moreover, we felt that existing public bicycle racks were being underutilised, with bicycles secured to fences and sidewalk railings being a common sight, causing a hindrance to pathways in these high footfall areas.

From then onwards, we knew that this was an issue that needed to be addressed. On top of that, it had the potential to be commercialised. With our group's wide range of accreditation and skillsets, we founded WheelLock Inc with the main goal in mind of improving the existing cycling infrastructure in Singapore, making cycling a more enjoyable experience for all Singaporeans.

WheelLock aims to be a pioneer in the smart bicycle parking provider in Singapore, aiming to upgrade and enhance existing infrastructure for transit companies, residential and commercial properties. Therefore, we will be primarily targeting corporations such as the Land Transport Authority (LTA), SMRT, Housing Development Board (HDB) and shopping mall operators such as CapitaLand and Lendlease. These corporations tend to deal with the most bicycle traffic in Singapore, with a demographic such as those adopting cycling as their first and last-mile transportation and food delivery riders.

WheelLock has an exclusive selling proposition for these corporations and cyclists alike, as this will be the first smart bicycle parking provider in Singapore and ASEAN. Cyclists will have to worry no more about what bicycle lock to buy or the risk of their bicycles getting stolen. Furthermore, by providing a seamless process of parking and securing their bicycles, it allows the user to continue on with their day stress-free.

2.4 Our product

Our team proposes WheelLock, an automated bicycle rack locking system to improve the convenience and security of the existing public-use bicycle racks in places such as MRTs and commercial properties. WheelLock is designed to change the way bicycles are locked, by having an adjustable modular attachment onto existing single or two-tiered bicycle racks. An adjustable arm extending out from the front of the rack allows the user to have the flexibility over where they would like to secure the lock onto, be it on the wheel or frame of their bicycle. The modular attachment comes in the form of a locking mechanism at the end of the arm, having the ability to lock and unlock the bicycle using a temporary (4-digit) PIN created by each user. Moreover, to enhance security, an alarm will alert the public when the system detects any tampering with the lock.



Figure 2: WheelLock exterior view

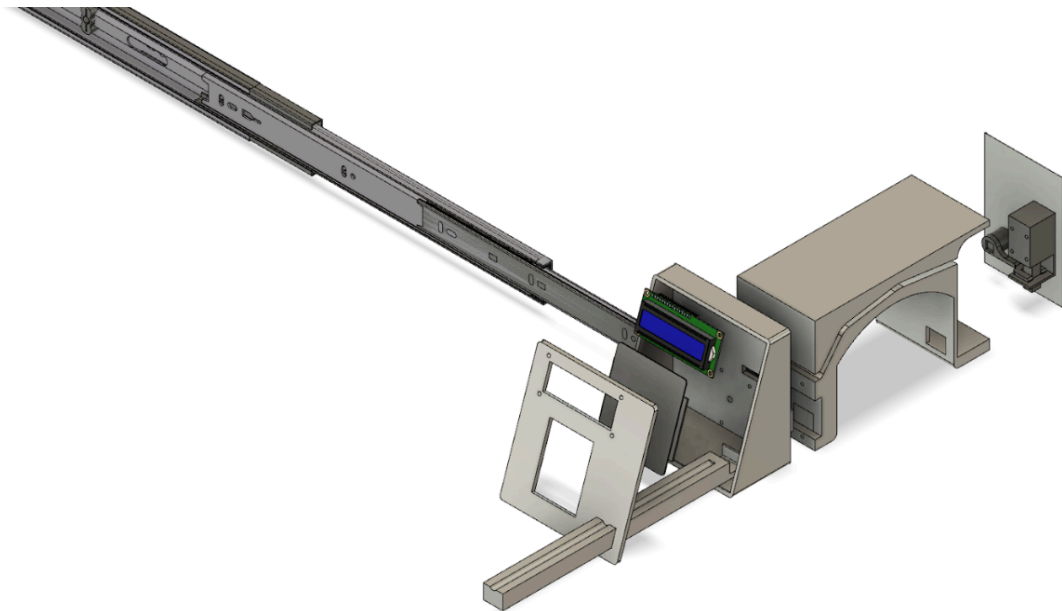


Figure 3: Modular locking attachment

2.5 Unique Selling Proposition

WheelLock wants to make parking your bicycle a breeze, by branding our product with the tagline “LockNGo in just 15 seconds”. Cyclists will no longer have to go through the motion and inconvenience that a personal bicycle lock requires, such as fumbling about with taking out their locks, or bending down awkwardly to secure the front wheels of their bicycles. With WheelLock, the user simply needs to raise and adjust the extendable arm to the desired position, before latching the lock into place and lastly inputting a (4-digit) PIN to secure it. Unlocking the bicycle is just as simple, as all the user needs to do is to re-input their original (4-digit) PIN, unlatch the lock and move the extendable arm away to free the bicycle. This simple process requires little time and effort from the user, making locking and unlocking a stress-free experience.

Being the first of its kind in Singapore, WheelLock will showcase how easy, secure and reliable bicycle parking can truly be. With a simple locking mechanism coupled with safety features such as sensors, loudspeaker alarms and distress signal forwarding system, WheelLock will be constantly on guard 24/7 to protect each user’s bicycle. This will open-up WheelLock’s users to experience a whole new world of easy bicycle parking that they never did before, relieving the worries previously accustomed to this process. With this experience, carrying around personal bicycle locks will become a thing of the past.

Furthermore, with WheelLock being a product that is an extension of existing infrastructure, it will be a cost effective way of upgrading these bicycle racks, rather than investing in completely new racks. These companies will not have to worry about the construction as well, as WheelLock is designed to be an add-on feature. Hence, our company will be designing suitable attachment brackets to suit their existing racks.

In order to reach out to our potential customer’s, the company will utilise several channels such as social media, a crowdfunding platform for startups and our own website to gather interest for our product. With sufficient interest and crowdfunding, we will aim to enter local Smart Nation physical roadshows, to showcase the potential of our product in improving the lives of Singaporeans. The ultimate goal for WheelLock Inc. would be to partner with the Land Transport Authority, to aid with the process of rolling out our product for all cyclists in Singapore to experience the ease of bicycle parking in areas most common with cyclists.

We believe that our product has the potential to attract more visitors to places that has WheelLock installed, since cyclists do not have to worry about the lack of suitable parking spaces in these premises. Furthermore, there is also the potential to commercialise WheelLock, should the customers of our product intend to. One option is to charge a rental fee from its users, when a bicycle is parked for a certain period of time. All the user needs to have is an EZ-Link card with sufficient value and tap on onto the modular attachment to make payment. Another option would be making use of these bicycle racks for advertisement placements, either through physical stickers or installing screens. Since bicycle racks are used on a daily basis, with many more commuters walking past such structures, it can be a good use of public infrastructure for advertising reach and engagement.

3. Market Analysis

3.1 Customers

Currently, automated bicycle racks are an uncommon sight in the cycling community of the world, especially in Singapore. This is in spite of the fact that the growth of cycling as a form of transport as well as leisure has been increasing over the past few years. Since our company's main goal is to upgrade and enhance the existing bicycle parking infrastructure, our target customer demographic will be towards corporate customers, such as transit companies and residential/commercial property developers. We are striving to form a partnership with the Land Transport Authority (LTA) and Housing Development Board (HDB) to aid with the funding and launch of our product. With the government's plans of expanding the cycling road network to 1320km by 2030, we believe that investing in the upgrading of bicycle parking infrastructure will be critical for Singapore, in order to accommodate and sustain the growth in bicycle traffic that such organisations will face in the near future.

3.2 Estimated Sales

By forming a partnership together with LTA and HDB, the best case scenario would be for 10% of the over 147,000 public bicycle racks in use today to be upgraded with WheelLock, within the first 2 years of our launch. A worse case scenario would be 1%, whereas the more likely scenario would be 5%. We are also aiming to sell a further 1,000 units to private and commercial property developers as well.

Being the first of its kind in Singapore, WheelLock will showcase how easy, secure and reliable bicycle parking can truly be. Our product is suitable for the entire demographic of cyclists, and should not hinder those that are less tech-savvy, since the user only requires the simple input of keying in a 4-digit PIN on the modular attachment. Once users understand the convenience and worry-free experience that WheelLock provides to the market, we believe that it can attract people to feel more inclined to cycle to locations with WheelLock stations, making cycling their alternative mode of transportation. As a result, this can have the potential of increasing human traffic to these locations, while also complementing the government's plan of Singapore being a cycling-friendly city, reducing the dependency on motorised transportation.

After growing in Singapore, Exploration into the ASEAN regions may be very promising as well. Allowing us to implement the WheelLock system in1 these countries, with the benefit of it being that it encourages more environmentally friendly modes of transport.

3.3 Competitor analysis

After analysing the market for automated bicycle locks and solutions, it seems that one of our main competitors is 'I Lock It'. It claims to be the first smart bicycle lock in the world that attaches to your bike, as depicted in Figure 4.



Figure 4: 'I Lock It' Product

While the design is smart and it seems to solve the issue of the user's bicycle being ridden away by a stranger, it does not properly account for the fact that a bicycle is light and can just be carried away. Moreover the extravagant price point for a single lock is another reason for users to be reluctant to make a purchase. The price ranges from 149 Euros to 199 Euros or SGD 220 to SGD 294 for the base model and higher end model respectively.

3.4 SWOT analysis

Strengths

The main strengths of WheelLock include an easy to use interface to provide a secure and convenient mode of securing one's bicycle. Our product will be suitable for all demographics of cyclists, even for those who are less tech-savvy, as the locking system does not require the use of a smartphone or bluetooth connection. The adjustability of the locking system allows WheelLock to be used with most sizes of bicycles. Being an extension of the existing bicycle parking infrastructure, it will be an attractive and cost-effective upgrade solution.

Weaknesses

There are a few established companies already in the market, however, not many of them offer the same amount of compatibility with different bike types and sizes. To remain competitive, WheelLock needs to provide the best value for money in terms of product as well as services rendered. Proper targeted marketing needs to be implemented to convince clients the need for and benefits of WheelLock.

Opportunity

The development of WheelLock's adjustable locking system is state of the art and no other established competitor on the market has a similar technology. This gives WheelLock a competitive edge, since our product is able to secure a large variety of bikes, from different sizes or types. With the increasing cycling population in Singapore and the rest of the world, we expect there to be a larger variation in bike types, allowing us to have an edge over other products in the market, which may only cater to a certain bike size.

Threats

Established companies already in the market may develop similar technology to that used in WheelLock, allowing them to secure a large variation of bikes as well. To combat this, WheelLock needs to keep our pricing competitive and ensure that after sales support rendered is of quality. The registration of a utility patent would also protect WheelLock's innovation of the adjustability aspect of our product.

4. Development and production

4.1 Research and Development

1. Research and Conceptualisation

The surveying and research phase, which began in January of this year, has been completed according to the timeline. The development team concentrated on coming up with fresh concepts for improving bicycle security while keeping creativity and efficiency in mind. The design team gathered information on previous and current bicycle lock designs to establish the best size to achieve our goal. These were carried out by gathering information from bicycle owners and learning about the issues they had with storing their bikes in public locations. However, the design was created with the rise in bicycle theft in mind, as well as how to make public bicycle parking safer. This is consistent with WheelLock's objective of making bicycle safety accessible to all.

2. Prototyping, testing

We've arrived at this point and are on schedule to meet the deadline. The prototype has been modelled on a 1:1 scale, which is the precise size of the supposed product. Through computer modelling, the design team has created an exact design of the desired product. Furthermore, the 3D printed prototype is an exact copy of the intended product, complete with all of the WheelLock components. A metallic locking rod and a 3D printed bracket with metal hinges are among the components that will be affixed to the parking pole. The 3D printed parts will be made out of metal, while the housing will be made out of injection moulding.

Following prototyping, the Development team will construct the final product in order to test it. Stress testing and functionality checks are two types of testing that will be carried out. The design team can still make any necessary changes before the official release if there are any design issues. The project will be launched after this phase is complete.

3. Patent filing

WheelLock's copyright and patent registration will most likely take a few months once the final design is completed. As a result, the team will collaborate closely with raw material makers and suppliers to mass produce the wheellock. Simultaneously, the Marketing team will begin marketing efforts for the wheellock, and the Sales team will plan for establishing trade agreements with external companies and public infrastructure owners, as well as settling the product's financial aspects, such as material procurement and projected revenue.

4. Securing investment, bulk customers

We'll be searching for Angel investors who specialise in Business-to-Business (B2B) after the final product is ready. Angel investors are our primary target because they will not only supply funding but also vital advice on how to run a firm like this. Customers will be served primarily by commercial infrastructure owners and public transportation operators (LTA, SBS Transit). As a result, our marketing and sales teams will concentrate on companies that provide public services. We believe that our product will improve people's experiences in these locations because they will no longer have to worry about bicycle theft.

5. Mass production

We intend to begin mass production once we have secured contracts with public infrastructure owners, as this will ensure that we have a clear number of manufactured units on hand. It is critical for us to be cost effective at this time, so as we continue to earn contracts, mass production will most certainly follow. Furthermore, as previously stated in the market analysis section, WheelLock has a high possibility of future market and growth potential.

6. Continued comprehensive service package

Because the WheelLock will be part of the public infrastructure, regular maintenance will be an important aspect of our service. Every two weeks, routine maintenance and service will be performed on all the WheelLock systems in the public spaces. We will ensure that our bicycle safety system is working to its full potential by doing routine maintenance.

7. Research and development

WheelLock's culture emphasises continuous development. As a result, we will take customer input and experience seriously and will continue to innovate to improve their experience. Our ultimate goal is to have WheelLock available in every public location in Singapore. WheelLock will also use new technologies such as fingerprint locks and facial recognition to improve efficiency. WheelLock's production will be constantly improved in order to maximise efficiency while lowering costs.

8. Expansion into overseas markets



Figure 5: Statistic On Cycling Usage Worldwide

As we achieve our goal of making bicycle safety available to everyone in Singapore, China and India will be our next Asian target markets. According to Statista, 36% of Indians and 25% of Chinese people ride their bikes at least twice a week. Given the populations of India and China, as well as the percentage of the population who rides bicycles on a regular basis, these countries can create a viable business. The next stage for our organisation would be to integrate the WheelLock security system into these countries' public spaces.

4.2 Production process

Listed below are the steps that will be taken to ensure that WheelLock is manufactured in the most cost efficient manner:

1. Sourcing for materials and parts

Manufacturing in Singapore will result in high manufacturing costs. As a result, we must outsource and obtain our components from countries with cheap labour prices, such as China. Because we have strong ties with our Chinese supplier, we can easily obtain the necessary materials and resources at a reasonable price. Materials and resources will be delivered in bulk by sea, which takes approximately three weeks from the date of order.

2. Assemble and Quality Control

An inspection team will inspect the required materials as indicated in the blueprint after the parts arrive in Singapore. This ensures that the final product is of the highest quality and complies with all safety and security regulations. A safety test will be carried out to check that the materials are genuine and meet all safety requirements. We will manufacture in Singapore so that we could supply the product as quickly as feasible. However, when demand ramps up, we will relocate the manufacturing site to a country with lower manufacturing costs, ensuring the business's long-term viability and profitability.

3. On-site installation

A last round of tests would be undertaken after the product was developed to ensure its effectiveness. The following criteria will be used to evaluate the product:

- Does the product comply with the safety regulation?
- Does the product meet its specifications?

Each WheelLock system will be installed by a skilled team of specialists to ensure that it is installed appropriately.

4.3 Labour and Production Costs

Cost breakdown of developing of the product:

Components of Prototype	Cost (\$)
3D Printed Housing	20
Locking Rod	10
Drawer Rail	35
Pole attaching Bracket	20
Electronics	150

The total cost of the materials for the prototype is \$235. When it comes to manufacturing, the cost may differ slightly with the inclusion of the metals in the manufactured products.

Prototype Materials Cost	235
Assembly	50
Installation	20

Table 1: Cost of all the processes involved in the manufacturing of the WheelLock

From the table above, the total cost to manufacture a WheelLock is \$305. It is to be noted that the manufacturing cost will differ according to the material and the manufacturing processes used. For example, in case of the housing, even though the prototype is 3D printed, injection moulding may be used to build the actual product. This will increase the up-front cost due to the fabrication of the mould, but high volume production will be more efficient in the long run.

Labour Requirements:

Team	Number of Members	Average Salary (\$)
Management Team	1	4000
Administrative Team	1	2000
Research and Development Team	1	4000
Technicians	1	2500

Table 2: The number of people in the initial team and their expected average salary

The initial cost for the labour is around \$12500. Production and volume rate are likely to rise as demand rises. As a result, there is a need to boost labour by hiring more individuals to work on the assembly and manufacturing lines. As manufacturing activities develop and more production factories are built, general labour requirements will grow in tandem, raising manufacturing costs.

The personnel recruited for the position should possess the necessary qualifications. For manufacturing management, for example, labour worker supervisors need to have the suitable manufacturing and production education. To build a link between management and ground workers, the managers must have good interpersonal communication skills and sales strategies, as well as interact successfully with suppliers for the planned amount of materials required to be delivered to the correct manufacturing factory. General labour workers typically do not require qualification, only a positive learning attitude and the ability to run the machinery that repair and install the Wheelock. If and only if one does not have relevant knowledge or expertise, on-the-job training will be offered.

4.4 Expenses and capital requirements

Expenses	Cost (\$)
Salary	12500
Manufacturing Cost	500
Utilities	1200
Maintenance	2000
Marketing Campaign	1500
Overhead Expenses	2000

Table 3: Cost Split of Several Predicted Wheelock Expenses

These are Wheelock's projected expenses for the first quarter. It should be remembered that when the company grows, many of these costs may change. For example, as we relocate our production site overseas, manufacturing costs will inevitably fall, but as demand grows, the cost of manufacturing per unit can be further reduced.

Furthermore, as we expand our operations and add more members to our team, our salary costs will inevitably rise. However, as Wheelock becomes more well-known, we expect that massive marketing initiatives will become less necessary, and just promotional activities would suffice. As a result, marketing costs will be reduced overall.

Projected Capital Expenses:

Year	Capital Required (\$)
2022	86800
2023	104160
2024	124992

Table 4: Projected Capital Expenses for the next 2 years

We calculated that the price necessary for capital will rise over time owing to global economic inflation.

5. Sales and marketing

5.1 Sales and Marketing Strategy

Purchasing bicycle locking devices for public usage require a great deal of consideration, research and information. The decision-making process can be categorised into three main components being awareness, consideration and purchasing. Understanding these considerations allow us to market and sell our product better.

Through targeted advertising, awareness of WheelLock is created. Thereafter in the consideration phase, customers will want to seek more information about the product's effectiveness and the product review through testimonials and case studies. Hence it is essential to have the information and marketing materials ready for users to access and aid them with their decision-making process.

WheelLock is highly versatile and can be used in places which require safe and secure bicycle parking facilities as the world progresses to a green era which encourages cycling their respective destinations such as workplaces, nearby shopping malls or even to MRT stations. These destinations can purchase our WheelLock units as it can be easily mounted onto their existing bicycle parking structures.

As the world transitions to reducing their global carbon emissions (United Nations,n.d), the use of our product will be actively marketed in Asia for the first two years from its launch to secure a strong foothold in the region. After gaining enough capital and potentially more investors, we will be expanding the usage of WheelLock overseas and by 2025, we hope that the majority of the currently parking bicycle facilities worldwide will have WheelLock integrated in them.

5.2 Digital Marketing

With the advancement in technology, consumers are more receptive to direct online marketing. Hence, an online website and social media platforms are essential to allow easy access to the relevant marketing documents. Video tutorials will be recorded and uploaded to showcase the features of WheelLock. This will allow WheelLock to be marketed internationally.



[Home](#) [Product](#) [About](#) [Featured](#) [Contact](#) [Demo](#)

LockNGo in just 15 seconds



Figure 6: Wheelock Website Design

WheelLock

LOCKING IN JUST **15** SECONDS

LOCKING

ADJUST



Push bike into mount and adjust the extendable arm to desired length



LOCK

Push lock handle in fully & ensure that handle is secured in place



CREATE PIN

Enter a 4-digit PIN

UNLOCKING



AUTHENTICATION

Enter your 4 digit PIN created at the start



UNLOCK

Push lock handle in fully & ensure that handle is secured in place



ADJUST

Retract arm back to default length before leaving



Do contact WheelLock@hotmail.com for any damaged/faulty equipment



User Guide

Figure 7: Instruction Guide

Apart from that, our website will be designed to optimise keywords related to the product and thus reach out to more potential clients. This process is also named search engine optimization where it allows our websites to rank higher in search engine results. This will enable our website to rank above our competitors and stand out, attracting more consumers in the process.

When delivering Wheelock to end-users, there is a need to maintain constant communication and allow users to contact us for any enquiries. The live-chat function will be available during working hours. After working hours, they can drop us an email or reach out to us on social media platforms. We will typically respond within one working day. With the digital platform, consumers and professionals can reach out to us efficiently.

5.3 Advertising

WheelLock being an innovative product is new to the market and lacks awareness since the majority of bicycle parking systems worldwide still involve people bringing in their own key and lock to secure their bicycles. With social media platforms like Youtube, Instagram and Facebook, we can regularly post digital posters of WheelLock so that more people will be aware of a product like WheelLock and by then, governments and shopping mall developers alike will be enticed to purchase WheelLock for their bicycle parking facilities.

5.4 Public Relations

To achieve this, we will actively collaborate with government facilities and shopping centres to promote the usage of WheelLock among the general population that visit these facilities. Not only does this reduce traffic and parking congestion during peak hours, having a secure parking facility for the customers that visit shopping centres for example will be encouraged to ride their bicycles knowing that their bicycles will be safe within the parking facility.

5.5 Promotion

It is essential to create a sustainable business model for our bicycle parking locks. Hence, our company will provide waivers for maintenance and admin charges for the first year of the sale of the products. Being an electronic parking lock mechanism device, it is vital that maintenance of these devices should be done periodically to ensure its smooth operation. Also for orders above 100 units, cash rebate vouchers for maintenance related fees will be given. This would entice potential customers of WheelLock to purchase our product knowing that the purchased products will have excellent after-sales service and not have to worry about the device breaking down.

5.6 Method of Sales

WheelLock can be ordered from our website directly and can be shipped to all countries. However, shipping fees will differ for different regions.

6. Financial Plan and Analysis

6.1 Business Risk

For every new product launched in the company, there will be risks involved. Hence, some of the dangers present will be taken into account as it directly impacts the company's overall funding. Risk is common and is present in every business around the world. However, with proper planning, business funds including investor funds and reputation can be preserved. In this section, the company will identify and address the potential risks associated with the business model in the future.

6.1.1 Economic Risk

The economy is unpredictable and is often susceptible to demand and supply shocks, such as an example is the Covid-19 Situation and even the recent Ukraine-Russia War which has severely impacted demand and supply lines around the world (Deloitte,2022). This could lead to disastrous consequences for companies that do not have sufficient supplies in their inventories to keep up with customer demands, effectively leading to huge revenue losses for companies as they are unable to produce products in the given timeframe.

However, with the incorporation of good forward planning, such events can be anticipated and avoided as warning signs usually precede them. Therefore, it is vital that our company monitors the market news and changes in market sentiment constantly. Business continuity plans and economic risk management strategies are being incorporated into our company to ensure our company can mitigate potential risks in the future. Our company also strives on providing the best customer service team dedicated to our customers, boosting our reputation and sales.

6.1.2 Operational Risk

Unexpected events such as machine failures and outbreak of fire could destroy business and cause disruptions to our manufacturing operations. Inevitably, human errors could also occur in our employees and that outsourced parts could face delays due to unforeseen complications. This will impact our company's reputation, resulting in negative impacts on our finances.

Hence, business continuity plans are essential in the company to prevent such risks. Furthermore, automation manufacturing will be employed in our future plans in the business as our product is incorporated into more sites locally or potentially overseas.

6.1.3 Competition Risk

WheelLock design and ease of use is unseen before in the present market. Competitors during the launch of our product will be limited. However, others may follow suit and launch similar designs referencing our product. Hence, our company will establish well-defined patent rights and continuously innovate and improve the design to stay ahead of our competitors and ensure that WheelLock dominates the bike parking system market and remains relevant in our local community and even overseas.

Since WheelLock is a new concept and despite its ease of use, advertising the product will be paramount to allow potential customers to learn and appreciate the usage of our product and the security and conveniences it will bring to them. In our current digital age, the main forms of advertising would be through social media platforms where it's possible to connect with more people and maintain strong relationships with our partners.

6.2 Projected Income Statement

The projected launch date of the product is set for August of 2022, with a predicted sales of 200 units from the transport sector and retail sectors. With a retail price of \$1000, our company will be expecting a marginal profit of \$500 from both the transport and retail Sectors totalling \$100000.

6.3 Profit and Loss Statement

Table 5 below illustrates the profits and losses in the first three years of product launch. The first year is formatted in a monthly statement, while the second and third year are shown in a quarterly statement format.

Profit and Loss Statement										
Year 2022										
Income Statement	August		September		October		November		December	
Unit Sales(Transport Sector, Retail Shopping Sector)	150	50	150	50	150	50	150	50	150	50
Selling Price	\$1,000.00	\$1,000.00	\$1,000.00	\$1,000.00	\$1,000.00	\$1,000.00	\$1,000.00	\$1,000.00	\$1,000.00	\$1,000.00
Cost of Sales	\$400.00	\$400.00	\$400.00	\$400.00	\$400.00	\$400.00	\$400.00	\$400.00	\$400.00	\$400.00
Gross Profit	\$120,000.00		\$120,000.00		\$120,000.00		\$120,000.00		\$120,000.00	
SG&A	\$20,000.00		\$20,000.00		\$20,000.00		\$20,000.00		\$20,000.00	
Profit Before Tax	\$100,000.00		\$100,000.00		\$100,000.00		\$100,000.00		\$100,000.00	
Tax	\$0.00		\$0.00		\$0.00		\$0.00		\$0.00	
Net Income	\$100,000.00		\$100,000.00		\$100,000.00		\$100,000.00		\$100,000.00	

Year 2023	Quarterly							
Income Statement	1		2		3		4	
Unit Sales(Transport,Retail Shopping)	300	200	300	200	300	200	300	200
Selling Price	\$1000,00	\$1000,00	\$1000,00	\$1000,00	\$1000,00	\$1000,00	\$1000,00	\$1000,00
Cost of Sales	\$400.00	\$400.00	\$400.00	\$400.00	\$400.00	\$400.00	\$400.00	\$400.00
Maintenance Fees/Unit	\$50.00	\$50.00	\$50.00	\$50.00	\$50.00	\$50.00	\$50.00	\$50.00
Gross Profit	\$525,000.00		\$525,000.00		\$525,000.00		\$525,000.00	
SG&A	\$22,000.00		\$22,000.00		\$22,000.00		\$22,000.00	
Profit Before Tax	\$503,000.00		\$503,000.00		\$503,000.00		\$503,000.00	
Tax	\$0.00		\$0.00		\$0.00		\$0.00	
Net Income	\$503,000.00		\$503,000.00		\$503,000.00		\$503,000.00	
Year 2024	Quarterly							
Income Statement	1		2		3		4	
Unit Sales	250	150	250	150	250	150	250	150
Selling Price	\$1000,00	\$1000,00	\$1000,00	\$1000,00	\$1000,00	\$1000,00	\$1000,00	\$1000,00
Cost of Sales	\$400.00	\$400.00	\$400.00	\$400.00	\$400.00	\$400.00	\$400.00	\$400.00
Maintenance Fees/Unit	\$50.00	\$50.00	\$50.00	\$50.00	\$50.00	\$50.00	\$50.00	\$50.00
Gross Profit	\$420,000.00		\$420,000.00		\$420,000.00		\$420,000.00	
SG&A	\$21,000.00		\$21,000.00		\$21,000.00		\$21,000.00	
Profit Before Tax	\$399,000.00		\$399,000.00		\$399,000.00		\$399,000.00	
Tax	\$0.00		\$0.00		\$0.00		\$0.00	
Net Income	\$399,000.00		\$399,000.00		\$399,000.00		\$399,000.00	

Table 5: Three Yearly Projected Profit and Loss Statement

6.4 Projected Balance Sheet

The projected balance sheet, which includes the company's assets, payable liabilities and equity costs, are shown in Table 6 below.

Balance Sheet (Projected)			
WHEELLOCK			
	Beginning		Projected
	As of Aug 2022		As of Jan 2024
Assets			
Current Assets	\$		\$
Cash in Bank	40,000.00		200,000.00
Account Receivable	20,000.00		35,000.00
Total Current Assets	60,000.00		235,000.00
Fixed Assets	\$		\$
Machinery & Equipment	30,000.00		30,000.00
Land & Building	0		0
Inventory	10,000.00		10,000.00
Total Fixed Assets (Net of Description)	40,000.00		40,000.00
Total Assets	100,000.00		100,000.00
Liabilities			
Current Liabilities	\$		\$
Account Payable	7,500.00		9,000.00
Interest Payable	0		0
Taxes Payable	5,000.00		5,000.00
Accrued Expenses	1,000.00		1,000.00
Short-Term Liabilities	25,000.00		0
Total Current Liabilities	38,500.00		15,000.00
Long-Term Liabilities	0		0
Total Liabilities	38,500.00		15,000.00
Owners' Equity	\$		\$
Invested Capital	30,000.00		70,000.00
Retaining Earning	8,000.00		15,000.00
Total Owner's Equity	38,000.00		85,000.00
Total Liabilities and Owner's Equity	76,500.00		100,000.00

Table 6: Projected Balance Sheet Statement

6.5 Cash Flow Statement

Table 7 below illustrates the projected cash flow statements from 2022 to 2024. The cash flow statement summarises the value of operations, investing activities and financing activities within the company.

Wheelock			
Cash Flow Statement			
	FY2022	FY2023	FY2024
Operations			
Net Income	\$500,000.00	\$2,012,000.00	\$1,596,000.00
Depreciation	-	-	-
Changes in non cash working Capital	-	-	-
Accounts Payable	\$7,500.00	\$9,000.00	\$8,300.00
Inventory	\$20,000.00	\$31,000.00	\$28,000.00
Accounts Receivable	\$30,000.00	\$45,000.00	\$42,000.00
Net Cash Flow from Operations	\$557,500.00	\$2,097,000.00	\$1,674,300.00
Investing Activities			
Capital Expenditure	\$18,000.00	\$120,000.00	\$90,000.00
Acquisitions	-	-	-
Net Cash Flow from Investing Activities	\$18,000.00	\$120,000.00	\$90,000.00
Financing Activities			
Issuance of Stock	\$26,000.00	\$30,000.00	\$20,000.00
Increase (Decrease) in Debt	\$26,000.00	\$20,000.00	\$15,000.00
Net Cash Flow from Financing Activities	\$52,000.00	\$50,000.00	\$35,000.00
Net Cash Flow	\$627,500.00	\$2,267,000.00	\$1,799,300.00
Opening Balance	-	\$627,500.00	\$2,894,500.00
Closing Balance	\$627,500.00	\$2,894,500.00	\$4,693,800.00

Table 7: Three Yearly Projected Cash Flow Statement

7. Funding Requests and Return

WheelLock aims to provide a convenient and secure solution to bicycle security issues currently faced when secured to a bike rack. Our “add-on” feature differentiates us from competitors. The feature allows clients to make use of their existing bike racks, ultimately cutting down on their initial cost, as well as, reducing the manpower needed for installation.

WheelLock received a capital investment of \$350 from Nanyang Technological University, used to fund for the initial and prototyping stages of the WheelLock. To be able to mass produce our product, mass production is needed. However, the initial capital investment is not sufficient in allowing us to invest in mass production capabilities. Therefore, Wheellock is looking at the possibility of external investments. Wheellock is sourcing out for potential investors, in hopes of acquiring an additional \$35,000 in funding. The \$35,000 will go into purchasing and developing tools and equipment needed to mass produce parts for the WheelLock product itself. The remaining funds will then be used to manufacture certain parts of the system to be kept as inventory. This allows us to streamline the manufacturing processes by making use of prefabricated parts upon orders received.

7.1 Exit Strategy

Caution needs to be put into practice when operating a large scale business. WheelLock has a list of several measures to be taken to reduce the risks that follow, when running a business.

Weekly meetings will be held to be able to keep track of our progress as a company, such as order fulfilment, customer acquisition and potential business opportunities. Monthly meetings for the heads of the departments also allows us to review the progress of the company, as well as allows us to spot and rectify potential issues before they affect the company on a larger scale.

In the case where the company is in the profits, WheelLock will invest in research and development, to source out for more cost efficient manufacturing processes and materials, that does not interfere with the quality and safety of our products. A net reduction in manufacturing costs would allow the company to be more profitable in the long run as well.

Finally, in the worst case scenario where the costs continually exceed the revenue, the Board of Directors of WheelLock would come together and review the product as well as the

company. They will then come to a unanimous decision based on a voting system to decide the best outcome for the company. In the case where the decision reached is to terminate the company to minimise further losses, assets of the company will be liquidated to be used to honour existing debt and costs.

8. Organisation and Management

Each department is led by a responsible individual, as shown in the organisational chart below. The responsibility of the Chief Executive Officer is the management of Wheelock and is in charge of choosing heads of each of the departments. The main sectors are finance, operations, product development, business development, customer service, human resources, logistics and sales and marketing.

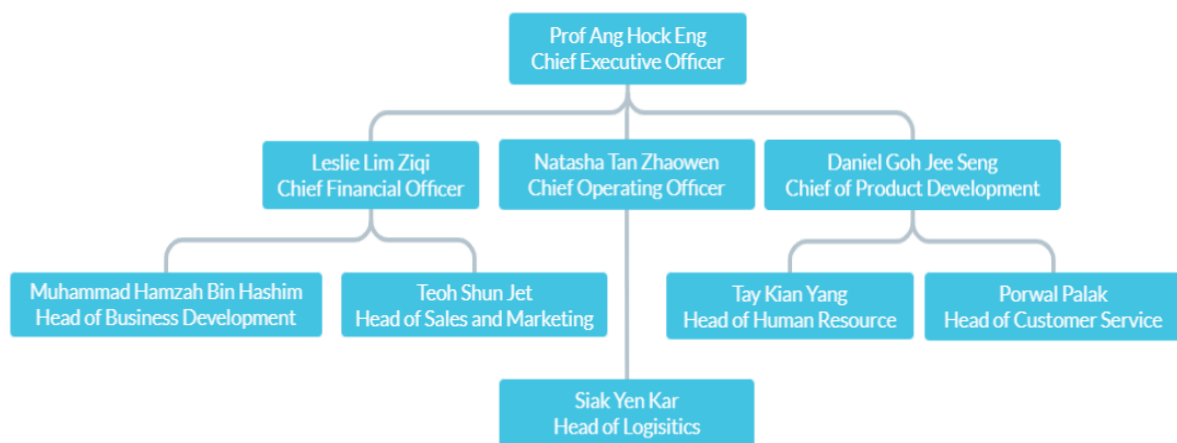


Figure 8: Organisational Chart

Ang Hock Eng

Chief Executive Officer of Wheelock

Prof Ang Hock Eng has had over 10 years of experience in leading a team of employees. His extensive experience in management positions as well as in the engineering aspect of the company, allows him to guide the company in the right direction, as well as offer help whenever required.

Natasha Tan Zhaowen

Chief Operating Officer of Wheelock

Ms. Natasha Tan Zhaowen oversees the daily operations of the company and ensures all business operations are efficient. She ensures the efficiency during operation of the company as well as the effective use of resources. Her experience in being a part of the operations team previously allowed her to effectively lead her team now as the head, being able to relate to problems faced on the ground.

Leslie Lim Ziqi*Chief Financial Officer of Wheelock*

Mr. Leslie Lim Ziqi oversees the budget creation of Wheelock as well as the strategies implemented to ensure financial stability. His vast experience in an accounting firm allows him to effectively help the business reach financial goals.

Daniel Goh Jee Seng*Chief of Product Development of Wheelock*

Mr. Daniel Goh Jee Seng researches and develops products, as well as making necessary improvements. By constantly reaching out to clients as well as potential customers, it allows him to have a broad view of issues faced by consumers, as well as features which were a success. This allows him to make necessary improvements to ensure the consumer experience is of high standards.

Muhammad Hamzah Bin Hashim*Head of Business Development of Wheelock*

Mr. Muhammad Hamzah Bin Hashim has committed a very large amount of his time and expertise to source out for opportunities for the company to grow. His business plans and proposals have helped the company widen its pool of clients. He takes his role very seriously and always looks for ways to improve the business, in hopes of the company constantly improving as a whole.

Teoh Shun Jet*Head of Sales and Marketing of Wheelock*

Mr. Teoh Shun Jet has honed his skills through all the past experiences he has had. He is responsible for developing marketing strategies and keeps the team updated on any new marketing trends, allowing effective marketing.

Siak Yen Kar*Head of Logistics of Wheelock*

Mr. Siak Yen Kar is responsible for the strategic planning of the logistics in the company. He takes it upon himself to ensure smooth running on the logistics side, which includes, on time shipments, sufficient inventory and a good relationship with Wheelock's suppliers.

Tay Kian Yang

Head of Human Resource of Wheelock

Mr. Tay Kian Yang firmly believes that good welfare for employees leads to higher productivity levels. He ensures that the employees are happy to be working in Wheelock and tries his best to help voice out issues faced by the employees to the management, for them to solve the issue as soon as possible.

Porwal Palak

Head of Customer Service of Wheelock

Ms. Porwal Palak has extensive experience in working with people. Her excellent interpersonal skills allow her to communicate with clients and consumers effectively. She tries her best to ensure that the Wheelock's clients are more than happy with the services and products provided, alerting the management if issues are faced, as well as providing appropriate compensation when needed.

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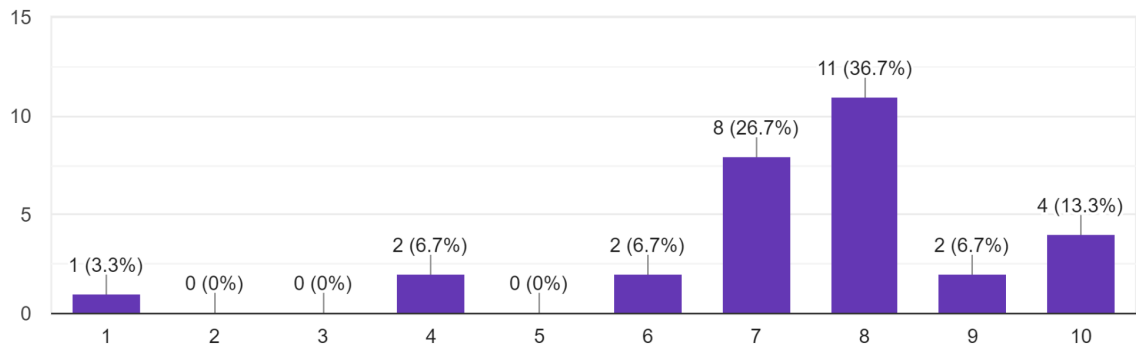
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Survey Inference

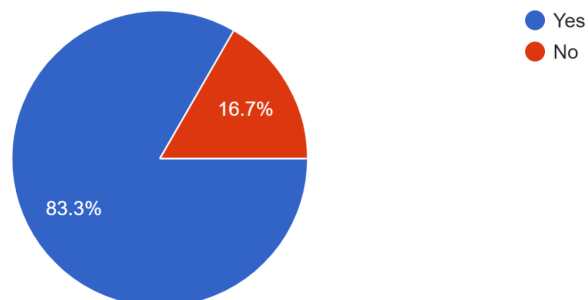
How worried do you feel parking your bicycle at a public bicycle rack

30 responses



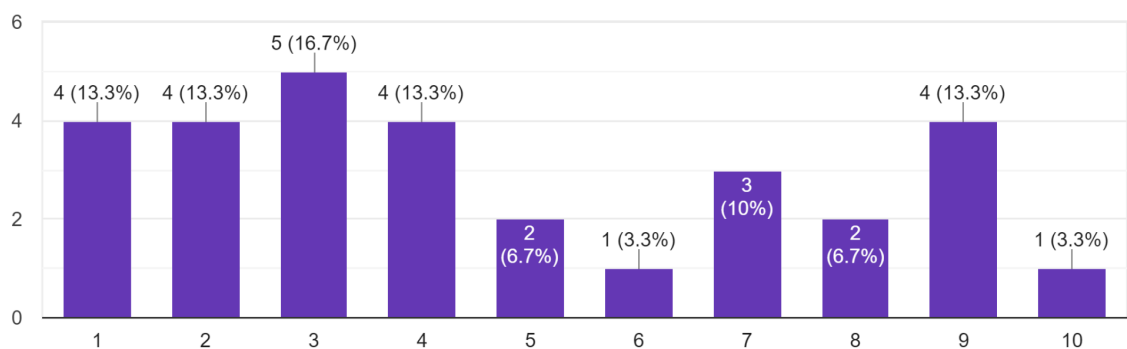
Do you think there is a need to upgrade the existing Bike Lock/Parking system public spaces such as void deck/Mrt/Shopping Malls

30 responses



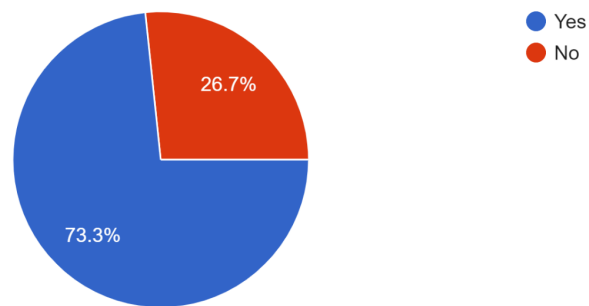
How safe do you think is the current Bicycle Parking System At Public spaces

30 responses



Is it a Hassle to bring your personal bicycle locks around just to secure your bike to bicycle parking docks at public spaces?

30 responses



How important is the bicycle security to you when visiting a place / parking your bike?(Assuming you cycle)

30 responses

