



# etrX

Metro, Boulot, Cadeau



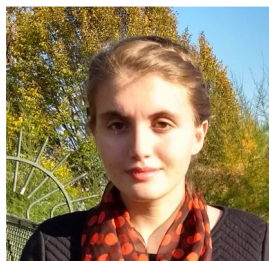
# The Team



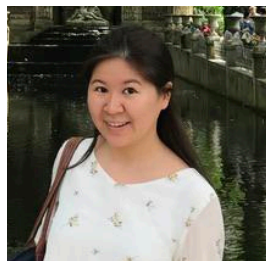
Arthur Blanchon  
SciencesPo



Robert Edwards III  
Harvard



Nadine Jamal  
Descartes



Risa Komatsu  
Harvard

## Teaching Staff

Robert Lue  
Alain Viel  
Adam Tanaka  
Jessica Liu

## Special Thanks To

Bénédicte Tilloy  
Irene Mboumoua  
Isabelle Lambert  
Lola Berges  
Xavier Mirailles  
Paul Vertier  
Nina Varchavsky

# Executive Summary

Currently, Paris is suffering from heavy traffic, air pollution, and many other negative externalities due to the large number of cars on the road. In order to combat these issues, the City of Paris has a vision of achieving a car-free society through the provision of free public transportation, but it is very difficult to turn this dream into reality. Thus, we present our project as the first step towards achieving this vision. Our project will be a private initiative, so there will be no fiscal burdens on the people of Île-de-France.

Our project, MetrX, consists of an app with a reward system for public transportation users in Île-de-

France. After downloading the app, the users will have three interfaces available to them and they may choose to use one, two, or all three.

The first interface consists of a discount system on retail items that the user can redeem through the points that they have earned from our distance-based point system. The second interface gives the user the option of donating their points to an environmentally friendly NGO of their choosing. The last interface is the “Fun Mode,” which educates the users on the positive impacts they contribute to the environment through their use of the public transportation system instead of cars.

Our biological inspiration comes from the complex network of ant colonies, where the flow of ants in and out of the nest is controlled by the use of pheromones. This is analogous to our that encourages citizens to take the metro/RER through the use of discounts, which serve the same purpose as pheromones.

With the help of private companies, City Hall, RATP, SNCF and environmentally friendly NGOs, our app can come to fruition and greatly benefit Parisians through travel efficiency, travel safety, and reduced air pollution.

Now is the moment to incentivize the use of public transportation.

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Paris has too many cars.



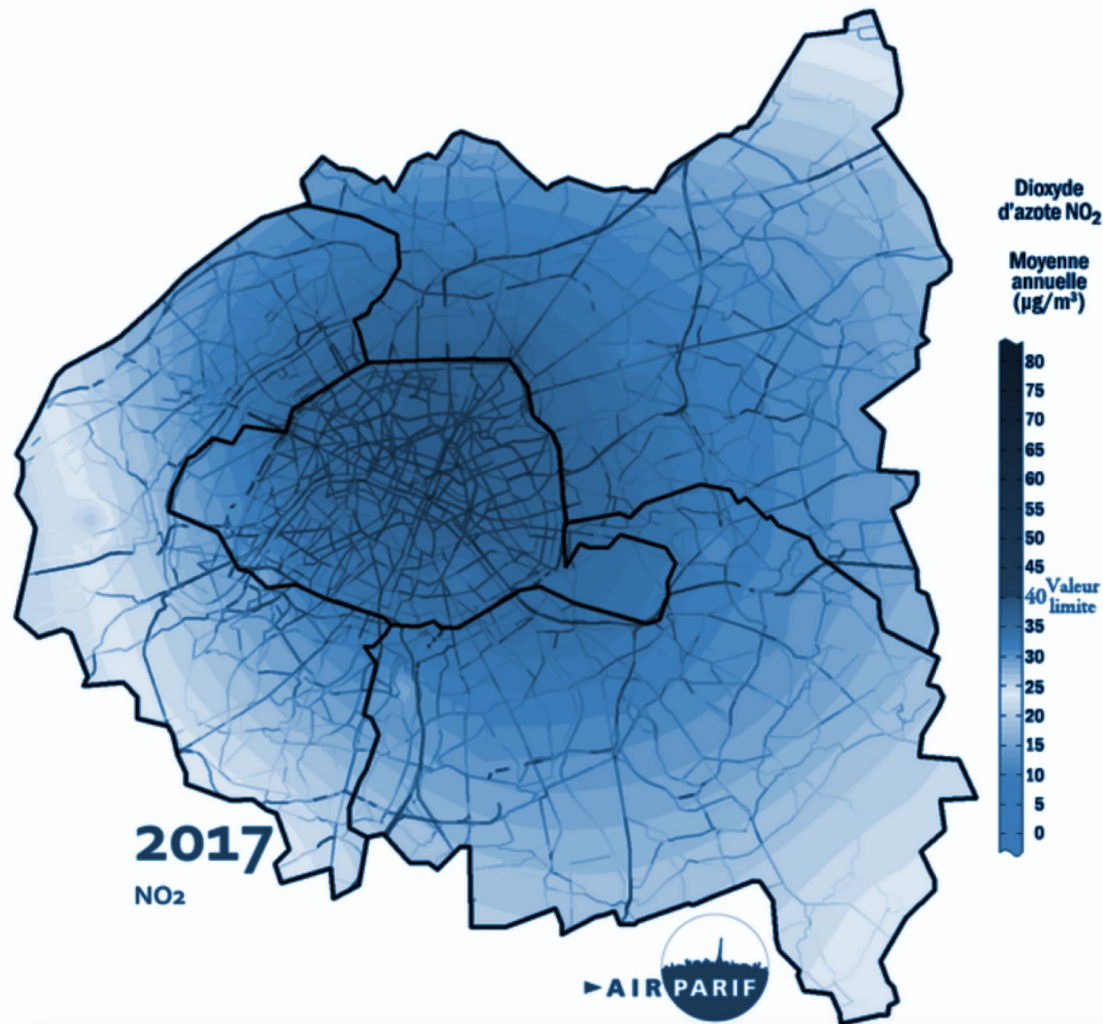
Cars account for

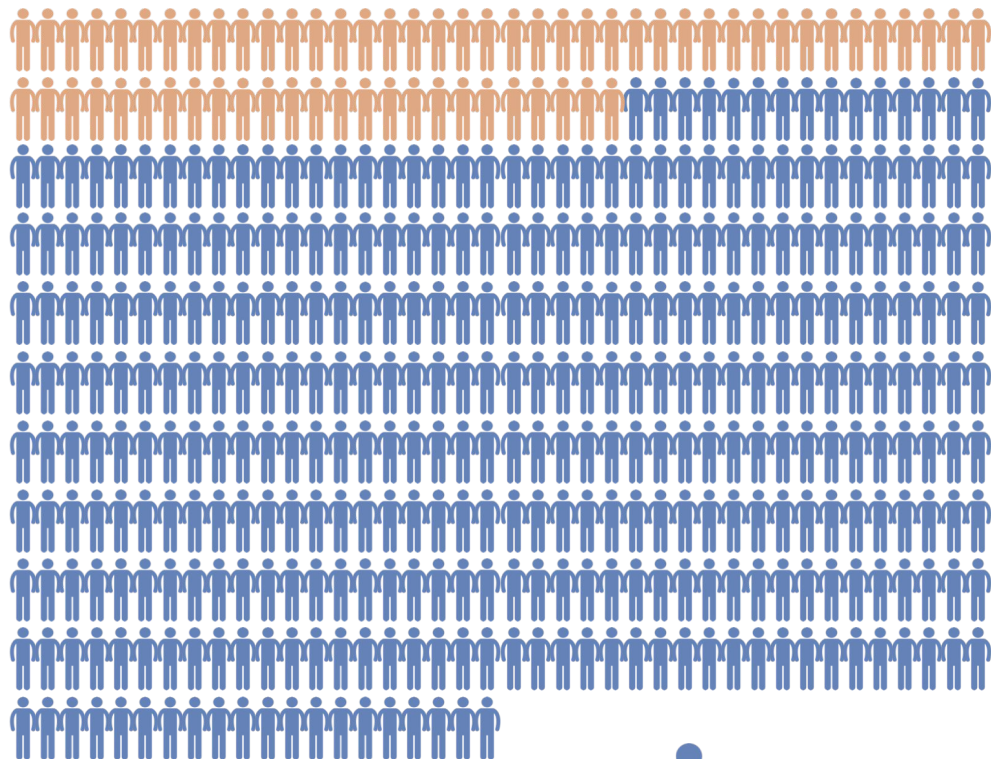
**56%** of NO<sub>x</sub> emissions


**25%** of PM<sub>10</sub> emissions

in Île-de-France.

(Airparif, 2014; Garric, 2014)





 = 100 deaths

# Air Pollution

is the cause of

**42,000** premature deaths  
in France.

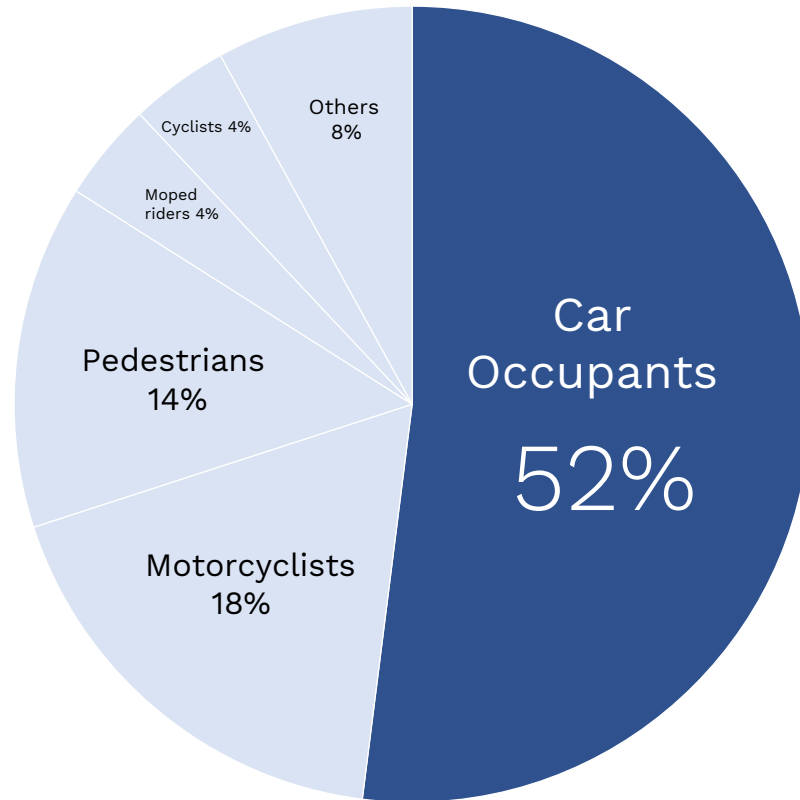
**6,500** of these deaths  
are in Île-de-France.

(Mairie de Paris, 2018; Mairie de Paris, 2017)

# Traffic Fatalities

From the 3,461 road fatalities recorded in France, car occupants accounted for 1,796 of these fatalities in 2015. Pedestrians and motorcyclists are also threatened with their recording of 468 and 614 deaths respectively in 2015 (OECD, 2017).

Road Fatalities by Road User Group, 2015



## “Paris is not a highway.”

As Anne Hidalgo, the Mayor of Paris, hints at in this quote, Paris suffers from the negative externalities associated with car traffic.

The Paris Resilience Strategy states that gas emissions from cars contribute to air pollution and reveals that 70% of Parisians are exposed to bad air quality, 30% of them live less than 75m away from large highways, and the health costs from air pollution amount to 1.7 billion euros every year in Paris. Along with the number of premature deaths and traffic fatalities caused by cars, these statistics show that reducing the

number of cars is a critical issue that we must address today.

Not only do cars harm residents and passersby through air pollution, scientists reveal that traffic congestion may affect the physical and mental health of the drivers as well. According to Christine M. Hoehner of Washington University in St. Louis, longer commutes on cars are associated with “higher weight, lower fitness levels and higher blood pressure, all of which are strong predictors of heart disease, diabetes and some cancers.” She also states that “being exposed to the daily hassles of traffic can lead to higher chronic stress” (Curley, 2012). Considering

the fact that an average car driver in Paris spends 65 hours in traffic jams, which is more than double that of drivers in other cities such as Lille and Lyon (Mouchon, 2017), it is essential for us to think critically about how to reduce the number of cars on the road for the physical and mental health of Parisians.

“...We are living in a time of revolution in mobility. We cannot wait any longer.”

-Christophe Najdovsky,  
Deputy Mayor of Paris

# BACKGROUND

# Reward Citizens for Better Choices



The issues in Paris are in line with the 17 Sustainable Development Goals (SDGs) established by the United Nations in 2015. Through our project, we address two SDGs in particular: “good health and well-being” and “sustainable cities and communities.”

Regarding SDG 3, the UN highlights the issue of premature deaths caused by traffic injuries and air pollution. Considering the number of cars in Paris, it is important to discuss how we can reduce cars and thus prevent premature deaths caused by traffic injuries and air pollution.



Regarding SDG 11, the UN addressed the need for “safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transportation.”

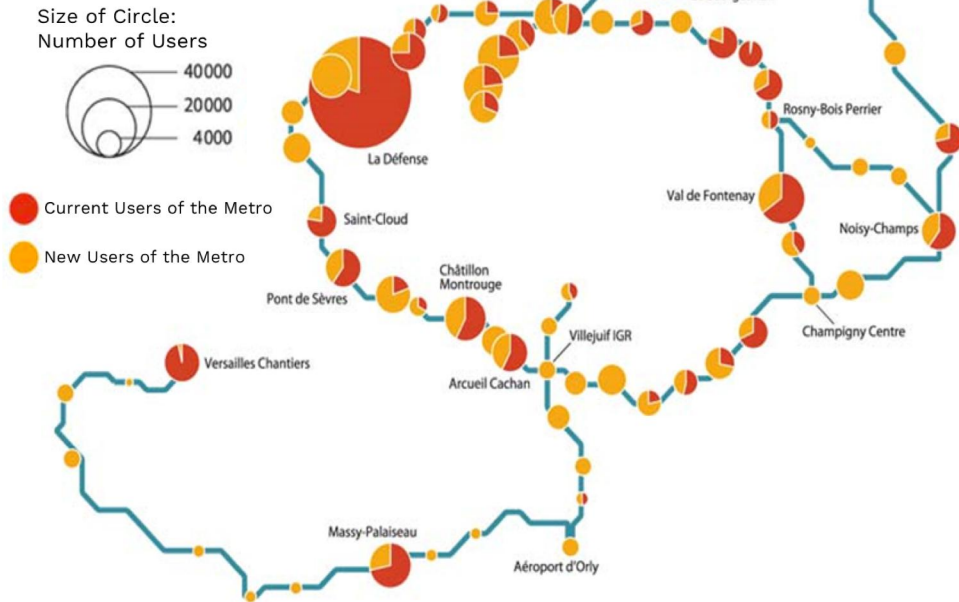
Based on these two SDGs, our project aims to make public transportation more attractive and more affordable through the use of distance-based rewards.

Our goal is to create an app to incentivize the use of public transportation over cars.

Now is the time for change.



## Estimated Usage of Le Grand Paris Express in 2030



# Le Grand Paris Express

## Thousands of Potential Metro/RER Users

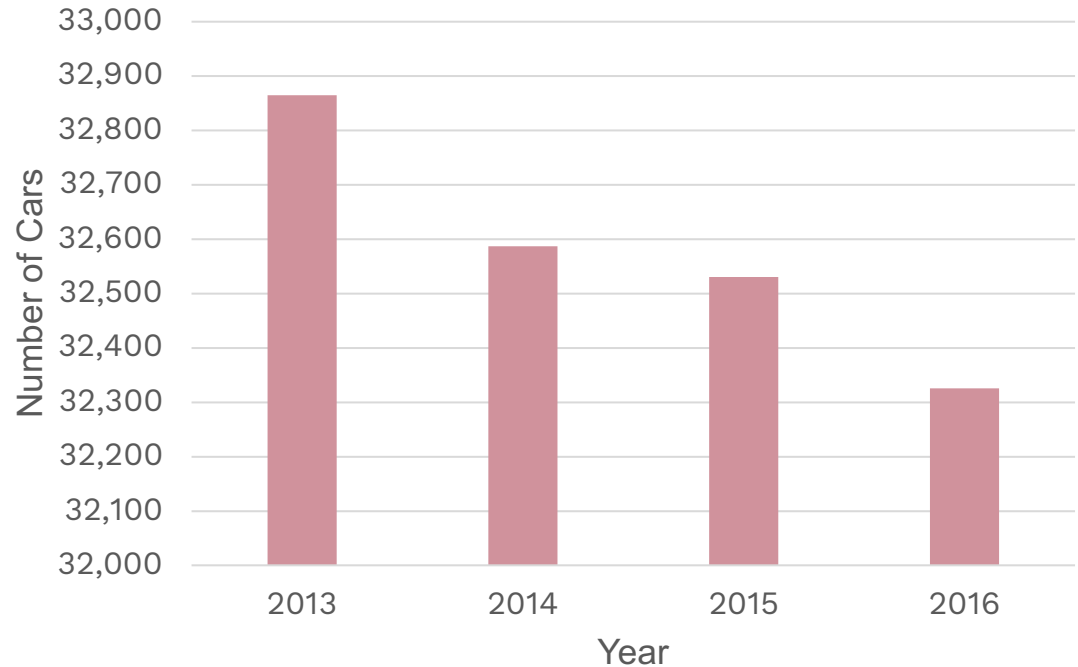
Le Grand Paris Express, an infrastructure project that will be completed in 2030, is the biggest infrastructure project since the construction of the metro in 1898. The project extends the metro to suburban areas and creates new stations, doubling the size of the current metro network. With the metro becoming more accessible, we can predict that thousands of people will be given the choice of utilizing this new system or continue using their cars. Thus, there is an urgent need to incentivize the use of public transportation.

# Changing Driver Habits

As seen in the graph, the number of registered cars in France have been decreasing over the past few years (Statista, 2018). Combined with the fact that fewer young people are willing to get a driver's license and buy a car, [we can predict that there is a slow change in the mindset](#) of the people within France.

Introducing an app that incentivizes the use of public transportation is in line with this trend and will further reinforce the reduction of the number of cars in Paris.

Number of Registered Cars in France



# The Political Debate



As an effort to decrease the number of cars on the road and therefore reduce air pollution, the current mayor of Paris, Anne Hidalgo, strives to make all public transportation free in order to make it more attractive to users. However, Hidalgo faces opposition from the regional transport authority who say that this plan would harm the taxpayers of Paris.

Valerie Pecresse, head of the Île-de-France region and President of the area's transport authority, also argued that it would be unfair to make transportation free for Parisians but not for people living in the suburbs (Clercq, 2018).

MetrX provides a middle ground between these two positions, because it is a private initiative that

does not require raising taxes or building new infrastructure, but achieves the goal of incentivizing people to use the public transportation in Ile-de-France by giving its users discounts based on the distance travelled. MetrX will be able to all commuters of France, solving the problem of inequality in terms of accessibility to public transportation.

# Controversial City Initiatives

## Closing the Rives de Seine



The closure of two riverside roads was a powerful act by the Mayor of Paris in order to mitigate air pollution and reduce the amount of space occupied by cars in the city. These roads have been closed and converted into pedestrian areas where Parisians can enjoy the Seine riverfront.

However, the policy yielded mixed results. Although the air pollution decreased by 25% on the riverside, it increased by 15% on other roadways (Mattei, 2016). Therefore, the road closure policy **did not solve the problem of air pollution but rather relocated it.**

# “Day without a Car”

Another controversial city initiative is the “Day without a Car” that the city has organized every year since 2015. Instead of using their cars, citizens and tourists are encouraged to walk, bike, or even roller skate to get around the city. According to Airparif who is responsible for assessing this policy, a [20% decrease in nitrogen oxide](#) was observed, suggesting this policy had a great positive impact on the air quality of Paris (Lesage, 2017).

Despite its success in reducing air pollution, the “Day without a Car” was not well received by everyone. Specifically, motorists argued that the policy relocated traffic jams to the roads outside of Paris and made commuting inconvenient for those who travel long distances from the suburbs (RFI, 2017).

Furthermore, it is not realistic to implement this policy every day. This event can be seen as [a way of](#)

[triggering a change in mindset of the residents](#), which inspired our idea of launching the app that changes the mindset of people to encourage the use of public transportation.



# The Region's Initiatives

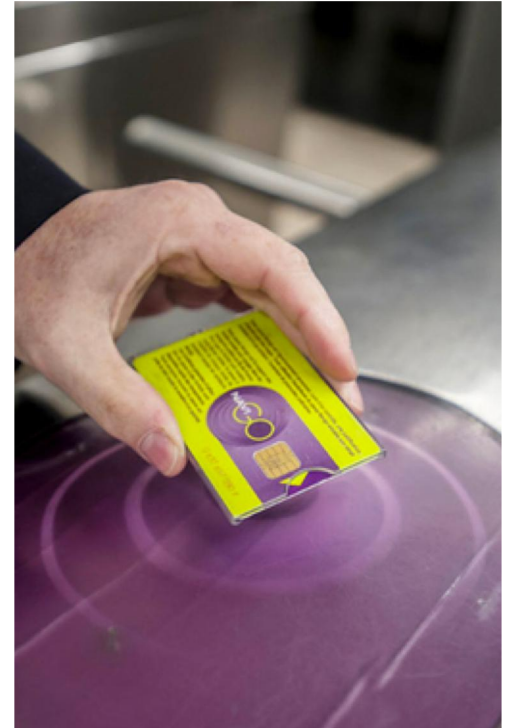
## Reduced Fares & Exclusive Deals

Annual Navigo Prices

User	Price
Regular	827,20€
Student	342,00 €
RSA/CM-U Recipient	Free

Regarding the issue of affordable public transportation, RATP, the transport company run by the Region, [provides discounts to students](#) through a plan called Package Imagine R. The package gives a 50% discount on metro prices along with exclusive deals with partner brands such as McDonald's, Apple, and Pizza Hut, which inspired our idea of giving rewards from partnering companies.

RATP also provides reduced fares to people with disabilities, war veterans, and retired seniors and free fares to people who receive government benefits (such as RSA, CM-U). However, these discounts only target certain groups of people, so our project aims to target every user of the public transportation system.

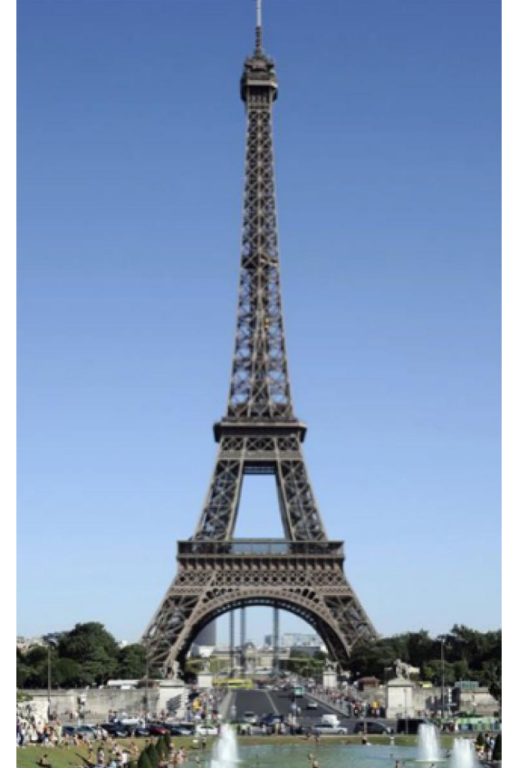


# Free Rides on Days with High Air Pollution



In 2015, RATP launched a plan to provide free public transportation on days with high air pollution, which is defined by a PM10 concentration over  $80\mu\text{g}/\text{m}^3$ ,  $\text{SO}_2$  of over  $500\mu\text{g}/\text{m}^3$ ,  $\text{O}_3$  of over  $360\mu\text{g}/\text{m}^3$ ,  $\text{NO}_2$  of over  $400\mu\text{g}/\text{m}^3$  (Airparif, 2018). This initiative cost 4 million euros per day and 80 million euros per year, but the number of metro/RER users increased only by 5%, suggesting that this plan was not very effective.

To reduce the cost, RATP adopted a new strategy that allows people to buy a ticket for 3.80€ for unlimited trips during days with high air pollution (Delamarche, 2016). This new initiative costs 500,000 euros per day, and the effects on ridership is yet to be reported (franceinfo, 2017).

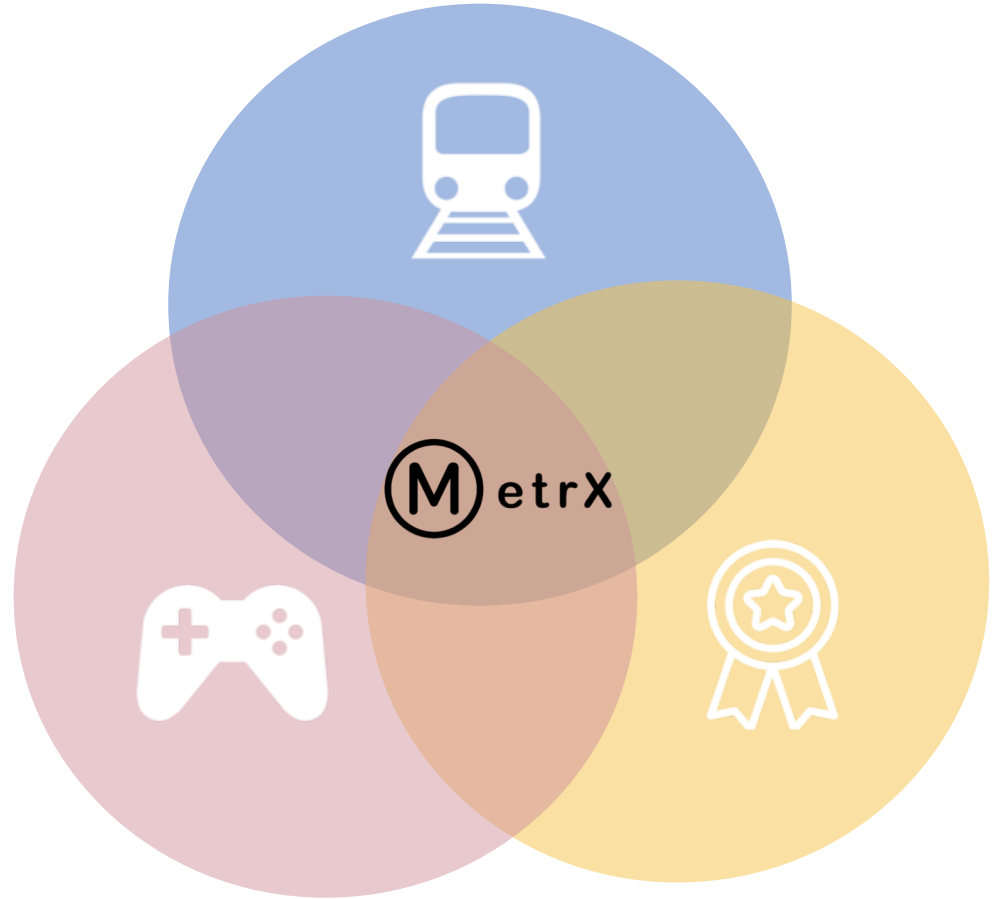




# Previous Approaches

In this section, we examine various efforts that were made outside of Paris in order to combat the challenges of air pollution and affordable transportation systems. These approaches can be sorted into three categories: fare-free public transportation, reward systems, and gamification.

Since Metrx is a combination of these three approaches, we will evaluate the strengths and limitations of each approach.



# Free Public Transportation

Tallinn, Estonia



In 2015, Tallinn made all public transportation free to promote the modal shift from private cars to public transportation, as well as to benefit those of low income (Cats et al., 2017). This project was funded by an income tax of €1000/year that is automatically collected from each resident and increased fares for tourists. The policy yielded mixed results in the first three months: traffic decreased by 14%, but the passenger demand of public transportation increased only by 1.2% (Shearlaw, 2016; Vedler, 2014). However, a more thorough analysis concluded that public transport usage increased by 14% after a year, and support for the policy increased by 24%, suggesting that the policy was successful in gradually changing the attitude

towards public transportation (Cats et al., 2017).

Though the policy was effective in changing the mindset of the residents of Tallinn, critics question the financial sustainability of this project. Because the project is funded by the income generated by the registration of new residents and their income taxes, they argue that the project will be financially unsustainable once the flow of new residents begin to slow (Gray, 2018). Thus, MetrX plans to improve on financial sustainability by working as a private initiative rather than a government-funded project.

**Strength:** Triggers Attitude Change  
**Challenge:** Financial Sustainability



# Free Public Transportation

## Châteauroux (France)

In 2001, Châteauroux made its bus lines free in order to relieve traffic, improve the environment, and help the poor. To fund this project, the city increased transit taxes on large local businesses, eliminated costs of ticket printing and punching.

Within a year, **ridership increased by 81%**, proving the project to be very effective. Critics attribute this success to the fact that **the city expanded the bus network by 42 km** at the same time the policy was implemented (Grabar, 2012). There is also an issue of financial sustainability for such a policy because Hasselt, Belgium, which provided free buses since 1997 had to abolish this policy in 2013

because the city could not afford it anymore (Canters, 2014).

Since our project will be launched at the same time that Le Grand Paris Express is expanding the metro network, this precedent suggests hopeful results for our project as well. However, our project is not a public policy implemented by the city, so we must find a source of funding that is different from and more sustainable than transit taxes.

**Strength:** Incentivizes the Use of Public Transportation  
**Challenge:** Financial Sustainability



# Free Rides on Days with High Air Pollution

Seoul, South Korea



Seoul, South Korea is another city that made public transportation more accessible in order to combat the issue of air pollution. The city waived bus and subway fees during rush hours and shut down parking lots when dust levels were high. Although the city spent \$4.6 million per day for this plan, **the road traffic fell only by 1.8 percent**, suggesting that the policy was not as effective as the city had expected. The ineffectiveness is attributed to the car-oriented mindset of wealthy commuters in Seoul, who are not very sensitive to price changes (Poon, 2018).

Further research on transit price elasticities was conducted by Litman in 2017, which concluded



that drivers of higher income are more responsive to service quality to its price. Litman also reports that distance-based fare reductions are effective in increasing ridership among low income households, the elderly, and minority individuals (Litman, 2017).

Based on these findings, MetrX hopes to attract low income drivers through discounts and rewards. At the same time, we hope to engage high income drivers through the gamification aspect of the app rather than the discounts.

## Challenge:

Attracting High Income Drivers

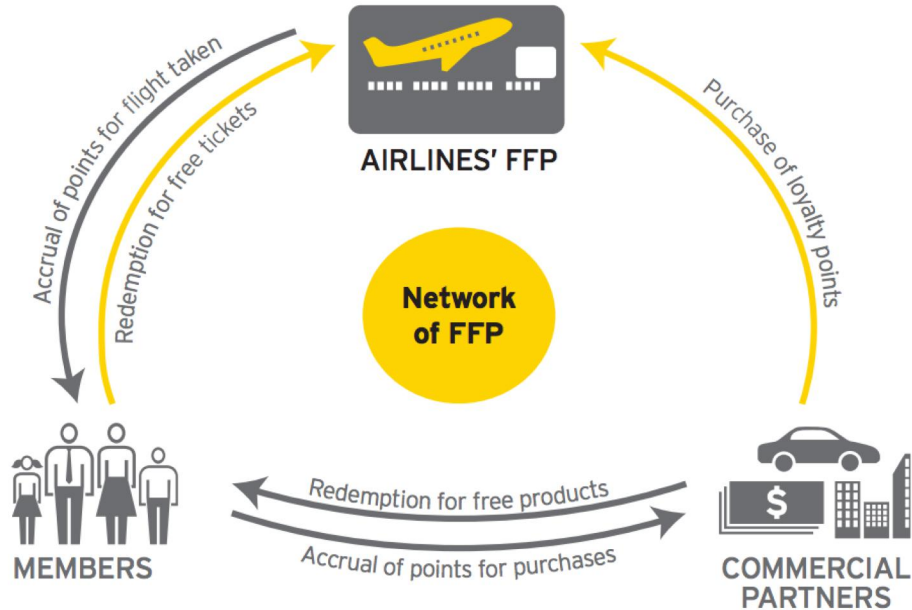


# Frequent Flyer Program

Airlines utilize a Frequent Flyer Program (FFP) which allows customers to earn points for flights taken and redeem their points for free air travel tickets or other products from companies partnering with the airline. The program is effective in maintaining customer loyalty and generating a source of recurring income for the airlines.

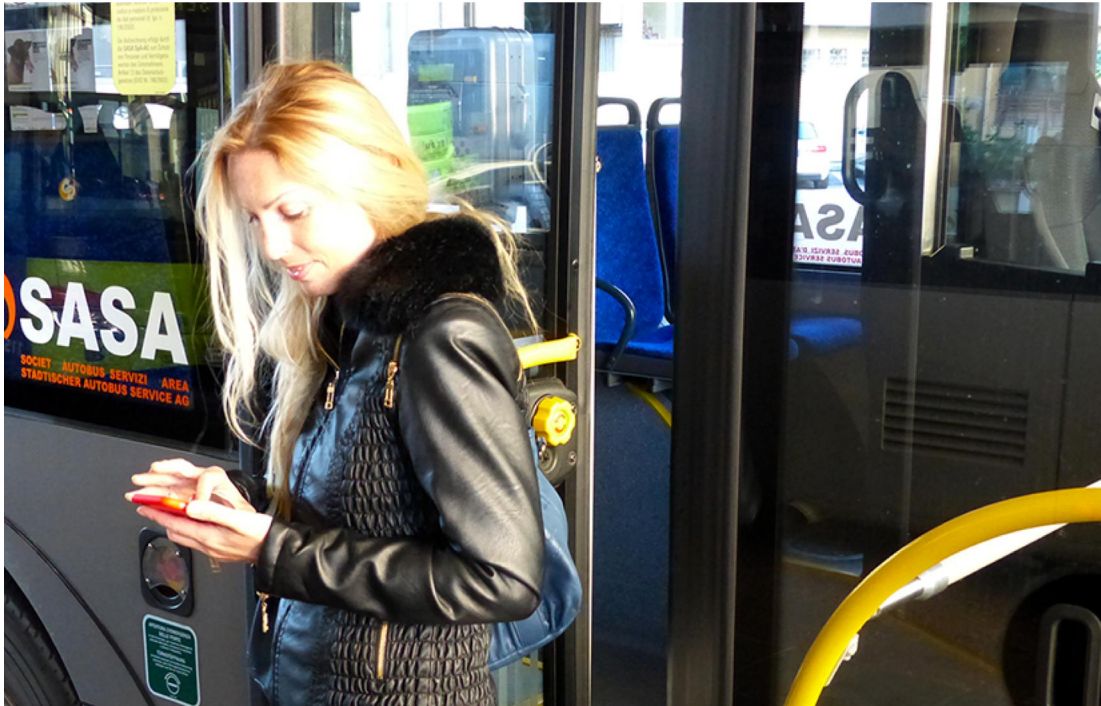
The program involves three key players: the members, or the passengers of air travel, the airline, and the commercial partners of the airline. As illustrated in the diagram, these three players exchange points, products, and money (Ernst & Young Advisory, 2014).

Our business model is inspired by this program, which will be discussed further in the business plan section.



# SASA Bus App

## Bolzano, Italy



The transport company SASA in Bolzano offers an app in which users earn points for every kilometer of bus travel. Each user will have a personal score on their app, which they can share on social media. The personal scores are also publicly presented in the form of leaderboards, creating a fun competition among commuters.

Over 15,000 people currently use the mobile app (Michell, 2017), suggesting this app that utilizes [gamification](#) is an effective method to motivate commuters to use public transportation.

**Strength:** Appealing to Users

# How MetrX Fits In



MetrX differs from the free transportation projects because it is a [private initiative](#). We plan to achieve financial stability for MetrX by the use of advertisement fees from private companies who would like to advertise within our app. This will be detailed in our business plan.



The Frequent Flyer Program is an important precedent for MetrX in that it allows users to [accumulate points that can be redeemed for products](#) from partnering companies. We plan to apply this business model to the metro and RER through our project.



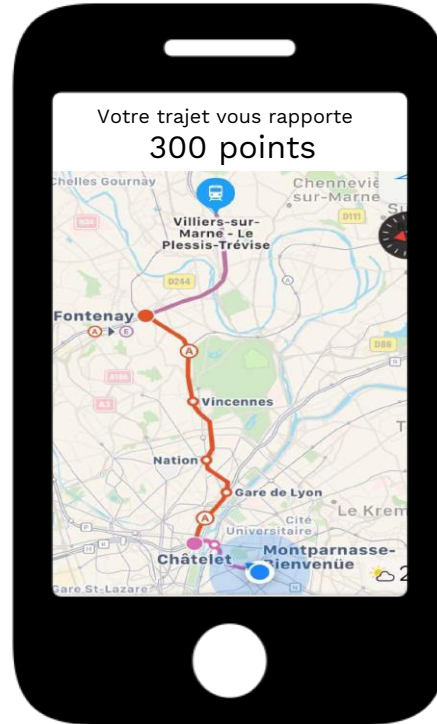
Just like the SASA app in Bolzano gamified the experience of riding a bus, [MetrX gamifies the experience of riding the metro](#) and RER in order to make the commute fun.



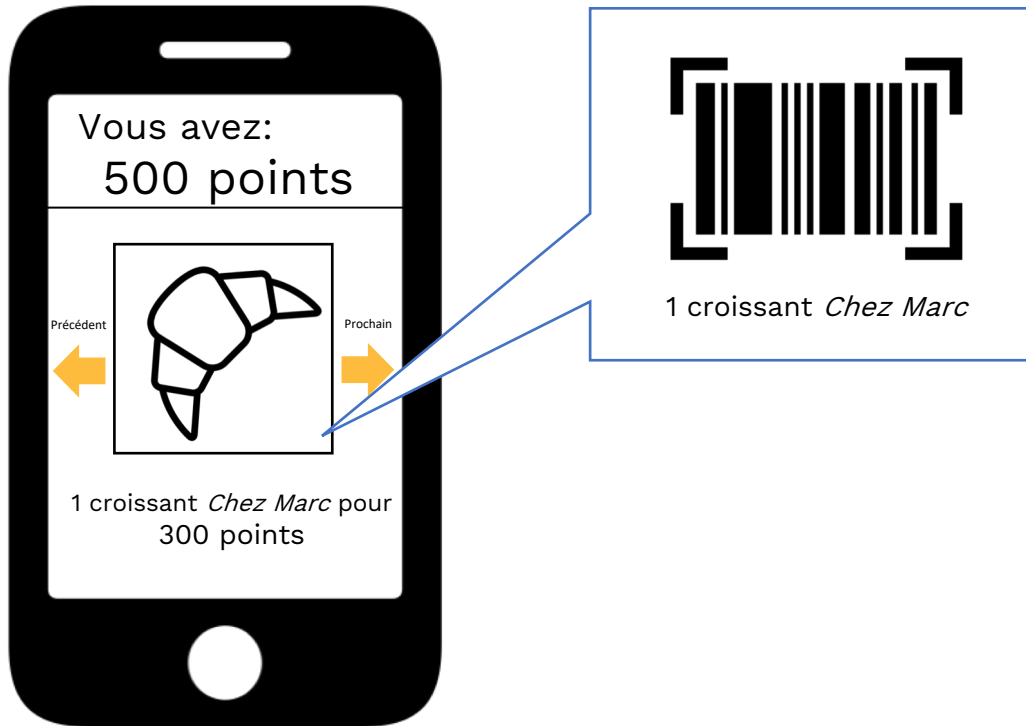
# The Concept

MetrX is an app that rewards users for using public transportation. The users will receive points based on the distance travelled on public transportation or on foot, and these points can be redeemed for discounts in retail stores, prizes, or donations to NGOs.

Along with these financial rewards, users receive emotional rewards through notifications that inform them on how many trees they saved by choosing public transportation and walking, rather than riding in cars.



# Getting Discounts



The points accumulated can be converted into [rewards](#) and [discounts](#) provided by our partner retail stores. Users can scroll through the reward catalog on our app, and find a reward of their choice.

When the user taps on the reward of their choice, a barcode will show up. The user can show the barcode to the retail store in order to receive their reward or discount.

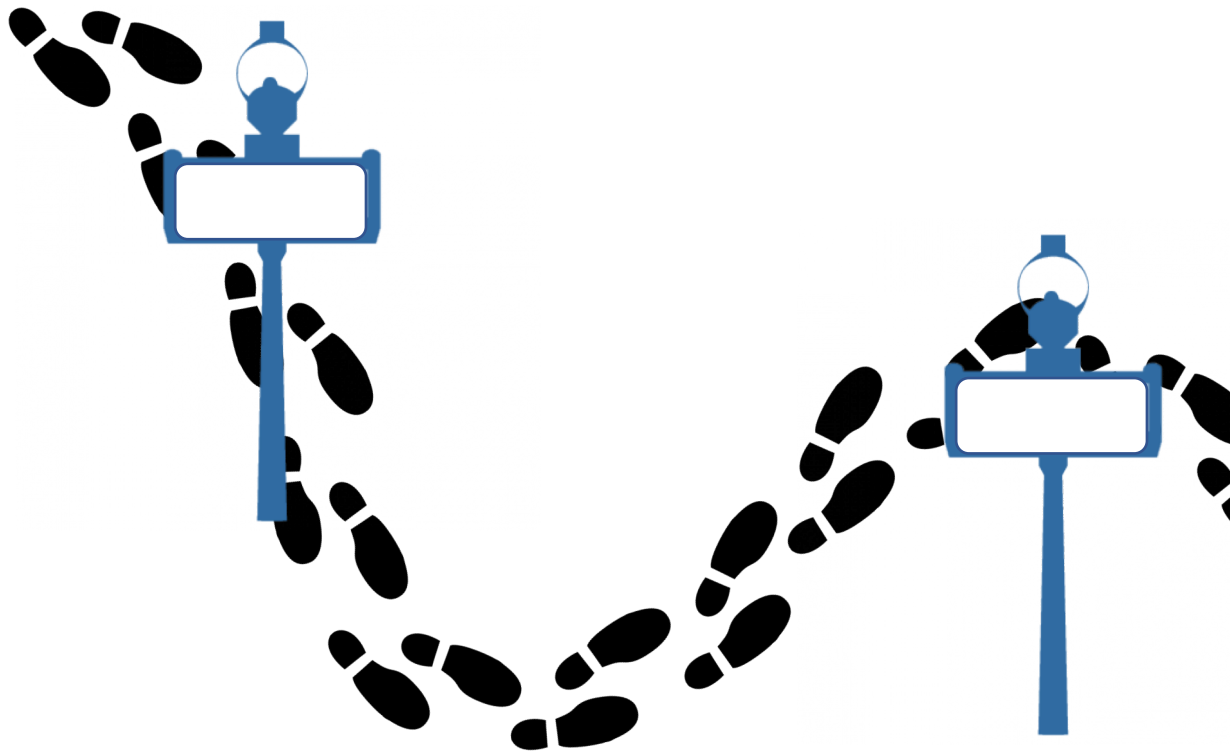
# The Interface



The user will also be able to participate in “Fun Mode”, where they learn the positive impact that they make by choosing public transportation over cars.

Users may select an option which consists of supporting an environmentally friendly NGO of their choice through the points that they earn.





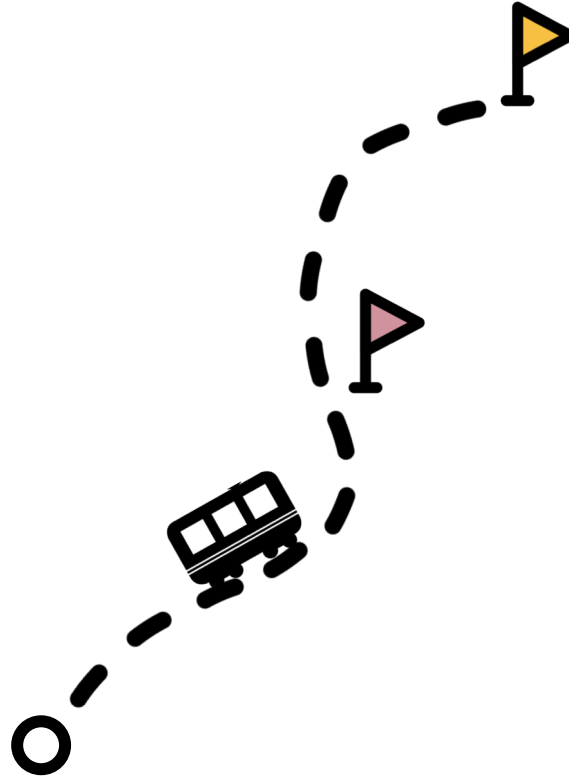
# Tracking

Our app uses a combination of GPS and pedometers on smartphones to record the distance of each user's trip. The pedometer will record the distance travelled on foot. The GPS will be used to record the distance travelled on the metro/RER. Based on the route and time required to complete the trip, our app will determine whether the user travelled on the metro/RER instead of cars. If the user's speed aligns with the speed of the metro/RER and the start and end points of the trip correspond to the location of metro/RER stations, the app will reward points to the user. Using speed to determine the transportation method has already been used in apps such as Pokémon Go, so we believe that it can be applied to our app as well.

# Point System

Users will earn 1 point for every 0.1 km of travel on the metro and RER. They will also earn 1 point for every 0.025 km of walking.

For example, a user commuting from Robinson to Saint-Germain-des-Prés will earn about 121 points on the metro/RER for a one-way trip. Considering that his walk to his workplace is 5 minutes (0.4 km) from the station, he will earn about 16 points for walking. If we set the amount of points needed to get a free croissant as 500 points, he will be able to get a croissant every two days.



According to Bénédicte Tilloy, former Human Resources Director and Secretary of the Executive Committee of SNCF, one of the main obstacles in incentivizing the use of public transportation over cars is the fact that users must walk to and from the stations, while a car will allow them to reach their destinations directly; this is known as “the last kilometer.” By allowing the users to accumulate points when walking, we aim to help the users overcome this last kilometer problem. Assigning a higher value to walking may also encourage metro/RER users to get off one stop early and walk to their destination, which will help relieve the crowdedness of public transportation.

# Who will Use MetrX?



**EXISTING USERS OF PUBLIC TRANSPORTATION** will be rewarded for their environmentally friendly decisions. MetrX will encourage them to remain loyal riders of mass transit.



**PEOPLE LIVING NEAR THE NEW STATIONS OF LE GRAND PARIS EXPRESS** will be encouraged to take advantage of the new transportation network through MetrX.



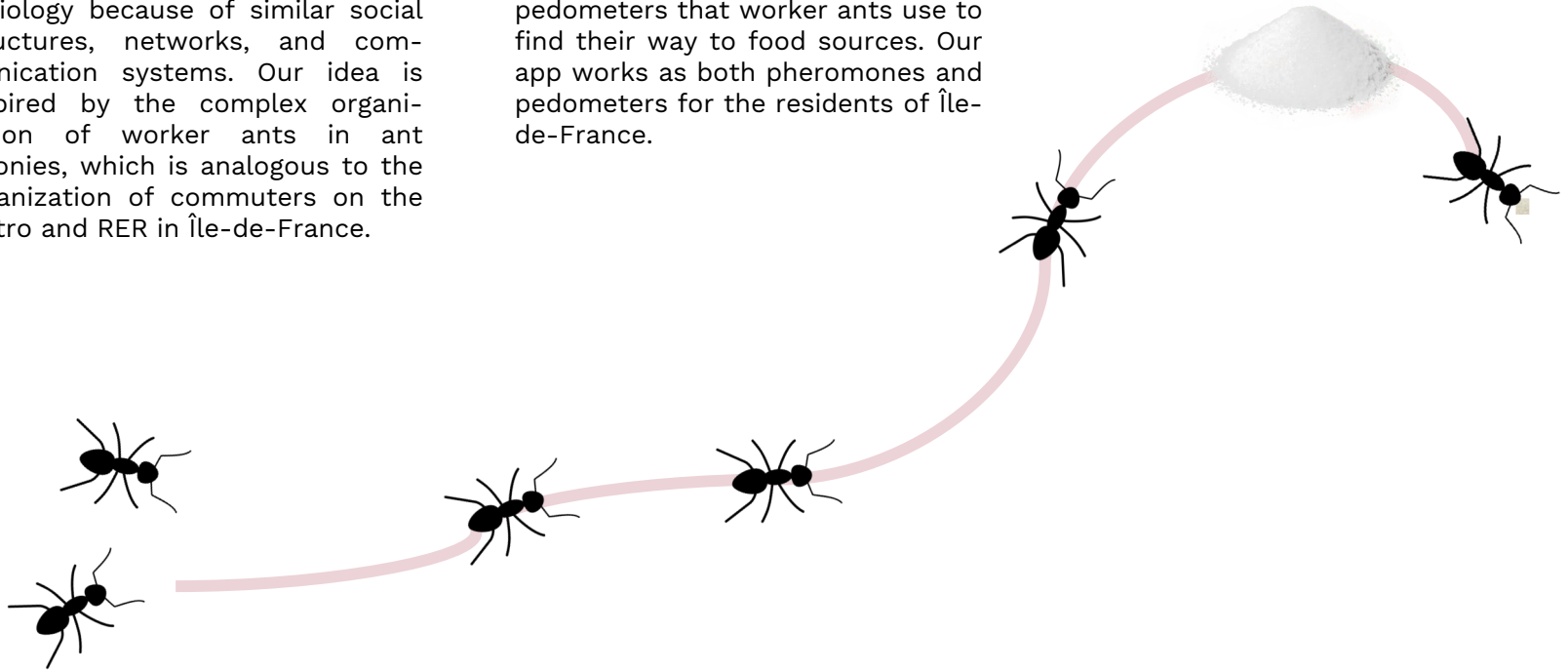
**DRIVERS** will likely be interested in MetrX because it provides them with a more fun and economical way to commute. We hope to engage low-income users through discounts and rewards, and high-income drivers through the gamification aspect of MetrX.



# Biological Inspiration: Ant Colonies

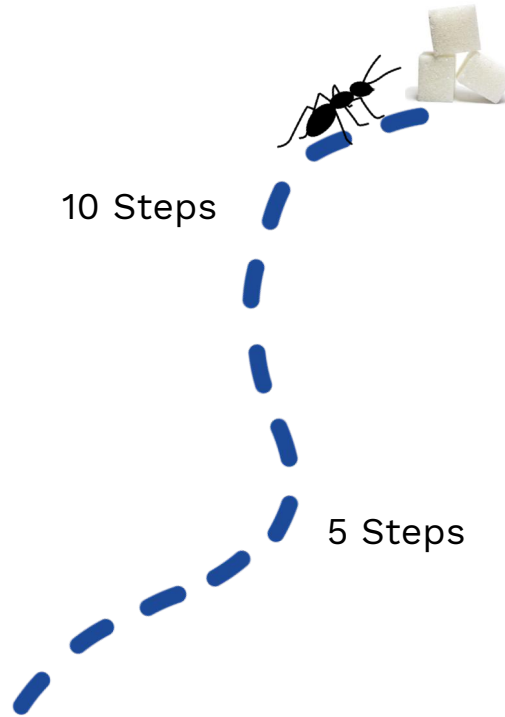
Human behavior has often been compared to worker ant behavior in sociology because of similar social structures, networks, and communication systems. Our idea is inspired by the complex organization of worker ants in ant colonies, which is analogous to the organization of commuters on the metro and RER in Île-de-France.

Specifically, we compare our app to the pheromones and internal pedometers that worker ants use to find their way to food sources. Our app works as both pheromones and pedometers for the residents of Île-de-France.



# Ant Behavior

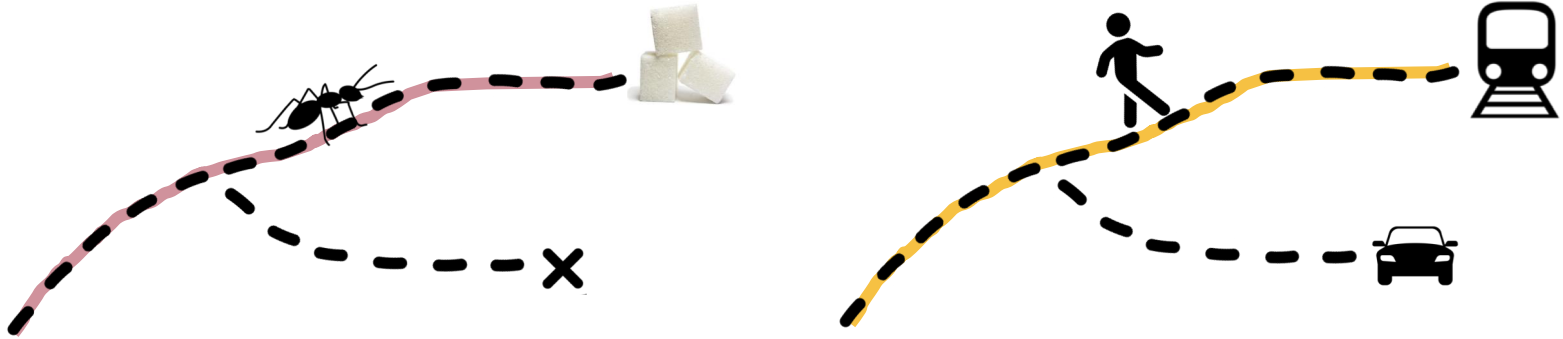
In order to increase the efficiency of food collection, some ant species have the ability to secrete pheromones when they find food, which allows them to communicate with other ants from the same colony. These pheromones tell the ants which way to turn based on varying pheromone strength detected by the left and right antennae (antARK, 2018).



Thus, pheromones help the organization of worker ants by encouraging them to follow the correct paths that lead to food (Terminix, 2015).

Some ant species also have internal pedometers in which they count the number of steps they take so that they can record the distance from their nests to the food source (Khamsi, 2006).

# Drawing Parallels Between Ants and MetrX



Similar to how pheromones guide worker ants to the correct paths that lead to food sources, our app guides people to the “correct” choice in terms of transportation method, which is public transportation instead of cars. We believe that the emotional and financial rewards from MetrX are the pheromones for the residents

of Île-de-France because they work as incentives for public transportation, which is analogous to how pheromones incentivize ants to take certain paths.

In addition, the ants’ internal pedometer system inspired us with the idea of tracking the distance travelled by each user. Though we

do not physically count the steps that each user takes, we use GPS to record the distance travelled and reward users with points based on this distance. Similar to how ants have this system in each of their bodies, the tracking system is in the pocket of each user.



# Why is MetrX Valuable?

We provide

- ❖ emotional and financial rewards for making a better decision for the common good
- ❖ an app that allows the accumulation of points to make the commute more fun

TO USERS



We provide

- ❖ a new platform for advertisement to public transportation users
- ❖ increased number of customers for stores that are located within or around metro/RER stations



TO PARTNERING COMPANIES

TO THE CITY



We provide

- ❖ a tool to encourage the use of public transportation and thus reduce traffic congestion and air pollution
- ❖ a crucial step towards achieving the city's vision of a car-free society



TO RATP

We provide

- ❖ a tool that could increase the number of public transportation users, and thus, increase revenue
- ❖ a more positive image for public transportation

# Business Timeline

## 1. R & D

August 2018  
→ August 2019

## 2. Funding

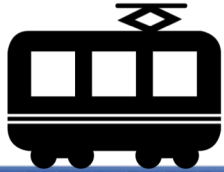
October 2018  
→ February 2020

## 3. Launching

February 2020  
→ August 2020

## 4. Add-on

August 2020  
→ August 2021



Our research & development (R&D) phase consists of hiring software engineers to develop our app, and collecting key information that is necessary for our app. We will also conduct research on the incentives for taking public transportation over cars in order to make our app attractive to our target audience.

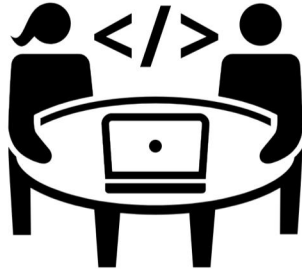
We will build relationships with companies interested in our idea and would like to fund our project through advertisements. Serious progress on Le Grand Paris Express begins in 2020, making this the perfect time to start looking for our partners. We will also pitch our idea at start-up events to acquire funding.

It will take approximately 100 days for the engineers to develop MetrX with its various features, such as connecting the point system with the location tracking. After beta testing from April to August, we plan to launch the app to the public.

Through feedback and optional surveys offered to the users of MetrX, additional features may be added depending on the current success of the app. These add-ons may include a customized set of rewards and more specified ad targeting.

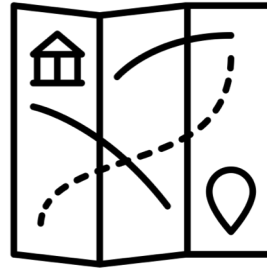
# 1. R&D: Gathering Key Resources

## Software Engineers



We will hire software engineers that will develop our app. The engineers will also be needed to maintain and update the app when necessary.

## Map Services



Along with the distance tracker similar to that of Pokémon Go, MetrX will use open data from existing map services such as City Mapper in order to determine whether the users' trips correspond with the public transportation networks.

## Environmental NGOs



Environmentally friendly NGOs such as WWF will provide us with data concerning different aspects of the environment. They will be the providers of the information needed to relay the emotional rewards on our app.

## 2. Obtain Funding: Cost Structure

### Entry Costs

Costs prior to the launch of MetrX include the development of the app, the salary of the business development manager (who negotiates advertisement rates with partner companies), advertisement fees prior to the launch of the app, and the salary of the app engineer. The cost of app development includes the cost of building the software needed to code the app, the necessary hardware, and app design. Our dedicated team will be responsible for customer and help services in regards to the performance of the app, so this will not incur any cost.

#### Entry Cost

App development	€24,602
Business Development Manager	€30,000
Advertisement Fees	€5,000
Engineer Salary	€18,820
Yearly Maintenance Fee	€5,000
Beta Testing	€100,000

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Total Cost	€183,422
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#### Recurring Costs

Yearly Maintenance Fee	€5,000
Business Development Manager	€30,000
Customer Service Employee	€17,000

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Total	€52,000
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### Recurring Costs

After the initial launch of MetrX, our costs will consist of yearly maintenance costs provided by an engineer, the salary of the business development manager, and a customer service employee.

The funding and advertisement fees from partnering companies will cover both the entry costs and recurring costs.

# Revenue Stream

## Pitching at Events

We plan to obtain our entry cost through start up events where we pitch our idea to different funders. For example, we have been invited to pitch our idea at an event hosted by City Hall in October 2018. With public transportation being a timely issue right now, there will be many more events similar to this during our research and development phase over the next year. We plan to obtain 90,000 – 100,000 euros during this period so that we can begin to develop the app.

### Entry Cost

App development	€24,602
Business Development Manager	€30,000
Advertisement Fees	€5,000
Engineer Salary	€18,820
Yearly Maintenance Fee	€5,000
Beta Testing	€100,000

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Total Cost	€183,422
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### Total Funds for Entry Cost

From Pitch Events	€100,000
From Partners	€150,000

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Total Funds	€250,000
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## Funding from Partners

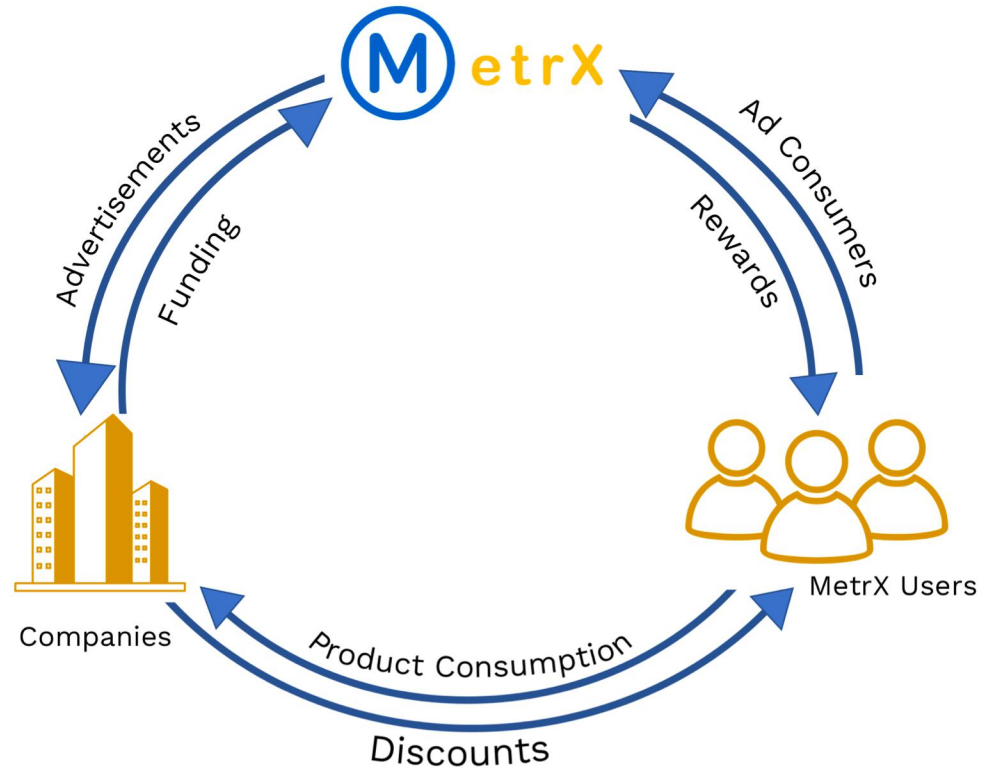
In the midst of developing our app, we will find business partners who are interested in our idea. Our business management employee will convey our idea to potential partners. Since both large and small companies can benefit from MetrX, obtaining 150,000 euros should be feasible. We will use 100,000 euros to fund the point and discount system to 2,000 users in our beta. The rest of the money will be utilized to fund our year 2 cost.

When MetrX begins to gain traction, more users will result in more advertisement revenue. This stream will fund our recurring costs as well as the costs of providing discounts, rewards, and donations.

# Business Model

We will partner with companies that benefit from increased public transportation usage and targeted advertisements. These companies will provide the rewards that users redeem their points for. The companies will also pay advertising fees to have their products included in the reward catalog that MetrX users choose from. Additional advertisements will be incorporated as banners on the interface of our app. In sum, we provide the companies with a new platform for endorsing their products by converting their fees into redeemable points that are earned by the users.

We will also use the advertisement fees collected to give donations to NGOs that the users have selected in the NGO donation mode of our app.



# Potential Partners

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Local stores within metro/RER stations will be one of the first potential partners that we plan to reach out to. These stores are the main consumers of advertisement space in the newspaper Métro, a free newspaper distributed in metro/RER stations. The number of people reading the newspaper is decreasing, meaning that their advertisements are getting less

exposure. Thus, our app will provide a new platform for advertisement to these stores. Once these partnerships are successfully kindled, we will extend our partnerships to local stores near metro/RER stations, such as boulangeries, coffee shops, and supermarkets. We also hope to partner with shopping malls near metro/RER stations.



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We also plan to partner with companies that obtain more consumers with greater usage of the metro and RER. Such companies include book/e-book companies because people read more books on the metro/RER than in cars. Other companies that we wish to develop relationships with are in the field of music and movie streaming. These companies are our targets because people listen to

music and watch movies very often on the metro. We also plan to reach out to online and offline newspapers because commuters tend to read newspapers on the metro.





Our app will increase the number of metro/RER users, so transport companies will benefit from our project without any financial expenditure. We hope to collaborate with transport companies in terms of advertising and promoting MetrX. For example, it would be helpful for both our project and these companies if they could advertise our app along with their own promotion of Le Grand

Paris Express because our project serves as an incentive to use the new network of stations. These companies could also provide us with data on the usage of each station, so that we could provide appropriate rewards and discounts that could incentivize the use of less crowded stations.



**MAIRIE DE PARIS**

City Hall may also be interested in MetrX because it is in line with their vision of a car-free and free public transportation society. Our app will incentivize the use of the metro/RER over cars, which contributes to reducing the number of cars, and thus, mitigating air pollution and traffic congestion.

We hope that City Hall will help us promote our app by providing MetrX with high-levels of exposure to the residents of Paris and Île-de-France.

# 3. Launching the App

## Launch Events



To gain publicity for our app, we plan to hold launch events where users compete against each other in specific challenges regarding public transportation usage such as “visit all the stations in the 13<sup>th</sup> arrondissement.” The users will be encouraged to share their results on social media, which will help our app gain further exposure among smartphone users.

## Collaboration with Partners



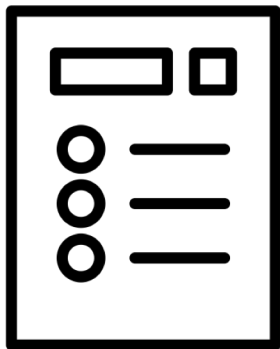
We also hope that our key partners will help us advertise the app, since they will benefit from having more users as well. We especially hope for the City and RATP to help promote the app, since they have direct access to the residents of Paris and public transportation users.

## Press Release



We will contact as many journalists as possible in order to get media coverage. In our press release, we will include screenshots of our app, design collaterals, and videos that walk through our app so that viewers will understand and be attracted to our app.

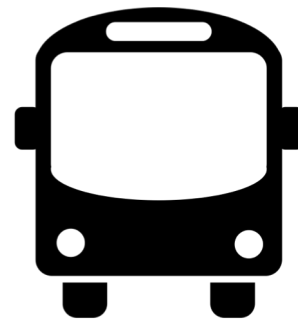
## 4. Add-On Features

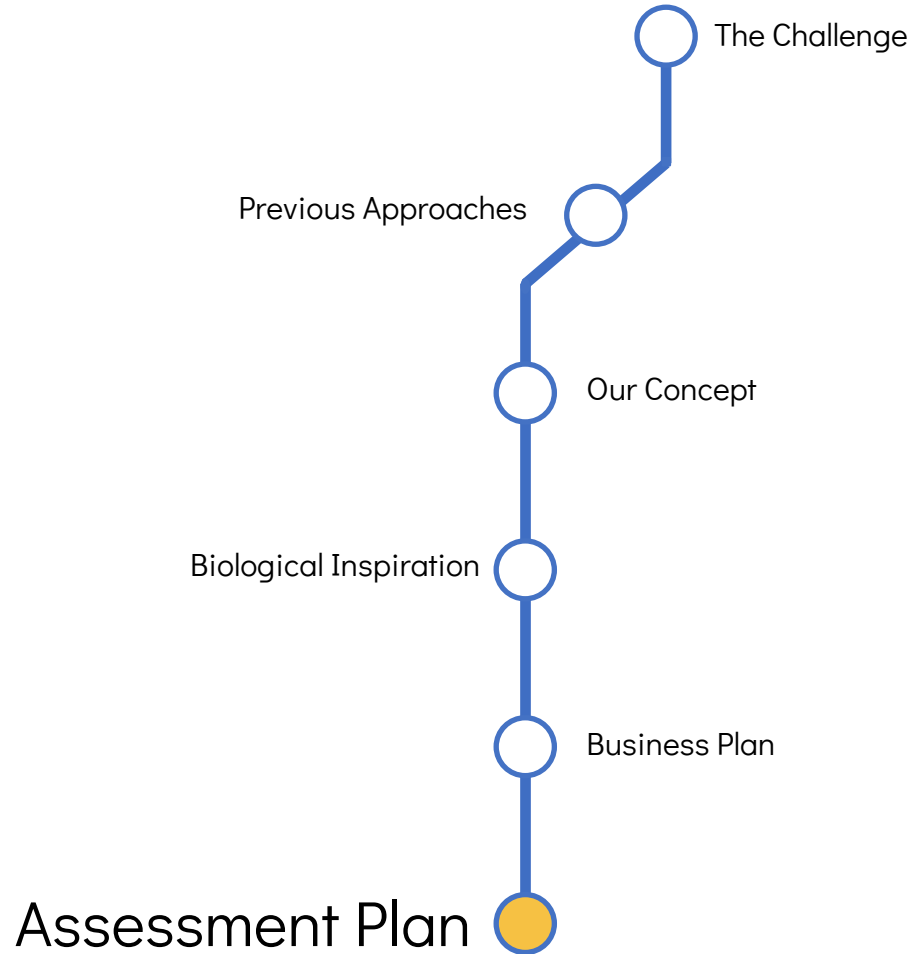


Once our initial launch is successful, we plan to introduce some add-on features to our app.

The first feature we would add is an [optional survey](#) that asks the user's age, occupation, gender, and interests. This will allow the app to offer the user a [customized set of rewards](#) that best suits the user's needs, which will likely improve the retention rate of users.

The second feature would be [expanding our points systems to other public transportation](#) methods such as trams and buses. Since these services travel at speeds similar to private cars, we will need to use GPS to track the entire route of each user's trip and check whether it corresponds to the bus and tram networks in the city. This feature will increase the number of net users because we will not only be able to target people who commute on the metro/RER but also those who utilize these different services.





# Assessing from App Metrics



## Number of Users

The effectiveness of our app will be measured according to the **number of users** of our app. We will track the number of users, as well as the number of installations every week. Our goal is to consistently increase the number of retained users, which would signify that we succeeded in obtaining users who stay loyal to public transportation.



## Distance Travelled

One of the primary goals of MetrX is to break the traditional pricing model of public transportation; traditionally, users pay more to travel more, but with MetrX, users get more points and rewards as they travel more. We hope that this system will encourage long-distance travelers to opt for public transportation despite its price. Thus, we will analyze the distances of the trips made by the users and determine whether we are successful in attracting long-distance travelers.

# Assessing from User Behavior



## Rewards Redeemed

Providing appropriate rewards is crucial in retaining users. The number of rewards redeemed will help us determine whether the rewards offered on our app meets the needs of the users. This will also provide valuable information to our partnering companies, who will benefit from knowing product demands.



## Amount of Donations

Along with providing rewards, MetrX encourages the public to be more environmentally-aware. This effect can be measured by the amount of donations made to environmentally friendly NGOs through our app.

# Assessing from Our Challenges



## Air Quality

One of the goals of our project is to reduce air pollution caused by cars and improve the overall air quality in Paris. Thus, the daily reports on air quality by Airparif will allow us to measure our effectiveness by comparing the air quality before and after the launching of our app. We will also examine the health costs of air pollution reported by Mairie de Paris.



## Traffic Fatalities

Although correlation does not always signal causation, our app's success can be measured by the reduction in the number of cars on the road and thus, a reduction in the number of traffic fatalities. The change in motor vehicle fatalities reported every year by the Road Safety Annual Report will provide insight as to whether MetrX has positively impacted French society.

# To Conclude...

Residents of Île-de-France are being suffocated by severe levels of air pollution caused by cars. These cars occupy too much space in the city. And the drivers of these cars and pedestrians suffer from the danger of motor vehicle accidents.

MetrX will combat these challenges by providing a distance-based reward system to incentivize people to make the safer and healthier societal decision of taking the metro/RER.

## Now is the time for change.

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