# cupID

## Note of Intent

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## PROBLEM STATEMENT

Consumers often opt for convenience, regardless of the environmental impact of these decisions. Given this reality, our aim is to reduce the waste generated by the use and disposal of single use plastics. This is a broad and daunting task. To develop a practical solution, we first limit our focus to Sciences Po. Within Sciences Po, we further restrict our focus.

**Our aim is to reduce the use of--and waste generated by--plastic water bottles and single use paper cups in which coffee and other hot beverages are served.**

We constrain our solution in this manner for two reasons.

First, we focus on students. Though often environmentally conscious, and aware of their carbon footprints, students are exactly the consumers who, when burdened with a job and a full schedule of classes, choose convenience over eco-friendliness. Furthermore, within the food-infrastructure of Sciences Po's campus, students looking to make affordable, eco-friendly decisions have limited options. Vending machines and crous cafes, together, use single use paper and plastic cups and bottles.

Second, we constrain our solution to Sciences Po. We feel sufficiently enabled and connected to power structures within our university community to realize the change we hope to see. Also, we believe that our university, a global leader in education, should be a leader in the fight against ecosystem degradation, habitat destruction, biodiversity loss and, ultimately, climate change. Implementing an innovation like ours would be a step toward this end.

Finally, we hope to enact our innovation at Sciences Po because we see our university as a laboratory. If we are successful within this university, our innovation can be scaled to other universities and institutions in Paris, and beyond.

**Proposed Innovation:**

A large impediment of the reusable cup is that it is inconvenient to carry around, and is often left at home on purpose, or forgotten. To ensure its usage, we strive to make the reusable cup an indispensable part of life. Something you cannot leave the house without, like one's keys or wallet.

As such, we propose a reusable cup with a lid, so which turns into a cup that functions as a student ID. To avoid inconveniencing students, we have designed a collapsible cup that fits in wallets and coin-purses like a credit card. Furthermore, the cup has a chip that affords students a number of perks that will be further outlined in this report.

**Benefits of our innovation:**

- Everyone will have a reusable water and coffee cup/bottle
- There is no need to produce student ID cards, which, in themselves, represent a plastic waste, and have no use after one graduates from Sciences Po

- The University could accompany this innovation with a change in the way beverages are distributed on campus

## PROPOSED CONCEPT

**A liquid container that is reusable, made of biofiber, and can serve as an ID badge**

This new generation cup is meant to broadly reduce the impact of Sciences Po on the environment, regarding the use and disposal of single use plastics. Our bottle would replace water bottles, single use paper or plastic cups within the campus of Sciences Po Paris. We aim to change students' habits and raise awareness so that we, over time, do not use single plastic use to drink anymore.
We plan on funding research to answer different practical aspects regarding our bottle. We aim to reach a mini size for that cup which would be collapsible, as well as made of recyclable and of good quality reusable materials.

Many concepts of reusable materials already exist, particularly made of glass, which allows hot beverages on the go, or even made-of-metal cups or gourd. They both have the same inconvenient which is size. As using reusable cups in France are not that popular, we aim to change that by creating a cup that is really handy so that students do not forget it at home, in the morning. We strive to make the reusable cup an indispensable part of everyday life.

Our first challenge is then size: we aim our cup to be a collapsible & reusable, that can fit in wallets and pockets. The bottle is meant to be as thin as possible, as well as pretty small when folded. As we think of it, the bottle would take the shape of a card, as much as possible. The product would not take up space, as a regular cup does, which means that students would have it with them at all times, as one's key or credit card.
Our second challenge is the choice of materials. To make our project coherent and usable, we need a combination of several materials that can offer to be thin but strong. We aim to favour the use "natural fibres" to reach our goal. We need to ally the elasticity of silicon, the strength of metal, and security of glass, to be a proper leak-proof bottle. We then need to produce a new type of material that is eco-friendly while being plastic-free. We intend to build on bamboo/wood/fish and corn fibre technologies, to elaborate an even more-advanced technology of drinking containers.

To ensure its usage, we aim to combine that handy-size-cup to a chip, which would make the bottle an equivalent of the student ID, so that, over the adjustment period, it would completely replace it.

We also aim to promote its usage, by giving incentives such as discounted prices on drinks, a broader range of drinks and a fidelity program on beverages on campus, for those who use our cupID. At the same time, we would increase prices on beverages when paper cups are used, so that a certain transition happens. We would also appeal all environmentally-friendly

associations of Sciences Po to join us, so that we lobby CROUS to stop selling single use water bottles.

Our cupID is intended to be THE solution: reusable, recyclable, collapsible, versatile, light, dishwasher safe, odour-free, spill proof, and insulated. The cupID would be used for cold and hot beverages so satisfy every user. It aims to be elaborated to go beyond already-existing collapsible cups, which are for the moment not thinner than 4 cm.

The new-technology cupID would then replace single plastic use while being the predominant drinking container used on campus, as well as our security pass to access campus, which would also reduce the amount of plastic used by suppressing the distribution of regular student IDs. Its handy size and utility would make it impossible for us, students and staff of Sciences Po, to leave the house without it.

However, we are aware that none of this project is possible without the right funding/sponsors to elaborate this new technology. We aim to create a more eco-friendly cup as much as possible, but it will only depend on the results of R&D. The proof of concept then takes for granted that our technology emerges. As listed before, our POC consists of testing every single adjective describing our bottle, to be sure that it is reusable, recyclable, collapsible, versatile, light, dishwasher safe, odour-free, spill proof, and insulated.

## EXPECTED POSITIVE IMPACTS

Our aim is to reduce and eventually eliminate the use of single-use plastic cups and water bottles on campus. This initiative can help promote other actions to protect the environment and encourage people to make eco-friendly choices. This new and innovative product also aims to add new value to the market and combine practicality and multifunctionality within an everyday object.

## DEPLOYMENT STRATEGY

To ensure both effective implementation and sustainable maintenance of the cupID innovation, we will need to take into account the following:

1. We first need to present an extensive analysis (benchmarking) of the processes and composite materials that will be used in our product. This involves identifying problem areas, surveying potential suppliers and comparing with existing business practices.

2. We need to finance the R&D behind the production of the cupID.

3. To ensure cupID's widespread use, we would need to collaborate with both Sciences Po and CROUS cafes. We propose two institutional changes:

- That coffee vending machines be placed strategically throughout campus, so that students can scan their cupID's and obtain a hot beverage without having to wait in lines.
- That plastic water bottles are no longer sold in CROUS vending machines. Students could simply fill up their cupID with water from the tap.

## COSTS & BENEFITS

Our solution combines a consideration of eco-friendliness with innovation. The Unique Selling Point (USP) lies in a combination of two concepts: a collapsible 'smart' container, which makes our product easy to carry and practical. It creates value for both the organisation promoting it and the consumers. Our concept aims to add value while pursuing a reduction in environmental impacts.

| **BENEFITS** | | |
|---|---|---|
| COST SAVINGS | ~ 12 500€ | Eliminating single-plastic use cups and water bottles and the need to produce plastic ID cards will prove beneficial and represents a sustainable action for the protection of the environment that reflects the organisation's environmental agenda. |
| AVOIDED COSTS | 5 000€ | |
| REVENUE | 44 000€ | |
| OTHER | TBT | |
| **TOTAL BENEFITS** | 61 000€ | |
| **COSTS** | | |
| NON-RECURRING | 24 100€ | While the cost of production may deter from acting and shifting to this new model, we believe that the net environmental impacts and commitment to sustainability outweigh the initial costs. |
| RECURRING | 20 000€ | |
| **TOTAL COSTS** | 44 100 € | |
| **NET BENEFIT** | 0 - 16 900 € | |

| **QUANTITATIVE ANALYSIS (ESTIMATES)** | **YEAR 1** | **YEAR 2** | **YEAR 3** | **YEAR 4** | **YEAR 5** |
|---|---|---|---|---|---|
| **NON-RECURRING COSTS** | | | | | |
| Design and prototype development | 500€ | 425€ | 361€ | 307€ | 261€ |
| Development | 10 000€ | 8 500€ | 7 225€ | 6 141€ | 5 220€ |
| Integrated technology | 10 000€ | 8 500€ | 7 225€ | 6 141€ | 5 220€ |
| Testing | 2 000€ | 1 700€ | 1 445€ | 1 228€ | 1 044€ |
| Packaging | 1 000€ | 850€ | 723€ | 614€ | 522€ |
| Instructions | 200€ | 170€ | 145€ | 123€ | 104€ |
| Logistics/Support Costs | 400€ | 340€ | 289€ | 246€ | 209€ |
| **TOTAL NON-RECURRING COSTS** | 24 100€ | 20 485€ | 17 412€ | 14 800€ | 12 580€ |

| RECURRING COSTS | | | | | |
|---|---|---|---|---|---|
| Supplies/Materials | 10 000€ | 8 500€ | 7 225€ | 6 141€ | 5 220€ |
| Manufacturing | 10 000€ | 8 500€ | 7 225€ | 6 141€ | 5 220€ |
| **TOTAL RECURRING COSTS** | 20 000€ | 17 000€ | 14 450€ | 12 283€ | 10 440€ |
| **TOTAL COSTS** | 44 100€ | 37 485€ | 31 862€ | 27 083€ | 23 020€ |
| | | | | | |
| **QUANTITATIVE BENEFITS** | **YEAR 1 (Sciences Po only)** | | | | |
| **REVENUES** | | | | | |
| Price per unit | 20€ | | | | |
| Sales | 2 000 students = 2 200 units<br>2 200 x 20 = 44 000 | | | | |
| **TOTAL REVENUES** | 44 000€ | | | | |
| **COST SAVINGS** | | | | | |
| Contract negotiations | TBT | | | | |
| Partnerships | TBT | | | | |
| Crowdfunding | Aiming for 10 000€ | | | | |
| **TOTAL COST SAVINGS** | Between 10 000 and 15 000€ | | | | |
| **OTHER BENEFITS** | | | | | |
| **Environmental**<br>Eliminating single-use plastic cups<br>Replacing plastic student ID cards | | | | | |

*Calculations are based on estimates
*TBT: To be determined

Our cost/benefit analysis shows that there with minimum financial support from sponsors and/or crowdfunding campaigns, the expected balance of costs and benefits will remain positive.

| Return on Investment = Return (Benefit) /Investment (Cost) * 100 = 38,32 % |
|---|

Our business model will be a light capital and scalable depending on the number of partners. The product can be adapted to various contexts, from schools to professional work environments. It can be used to promote alternatives to plastic use and present innovative technologies during campaigns to reduce plastic pollution.

Some solutions for funding can include the use of crowdfunding platforms and sponsorships.

## RISKS

PRODUCT QUALITY
We will conduct an extensive analysis and review of the processes involved to anticipate, revise and resolve any potential process problems, in order to make sure we meet our quality standards. We want to ensure that the materials, the final product and the processes fit our purpose and commitment to sustainability and the protection of the environment. The product needs to be water-resistant and able to contain hot beverages without any risks.

SAFETY & HYGIENE
The product will require extensive testing to make sure it meets the health and safety standards. We need to make sure our cup is safe to use and that none of the materials can be harmful in any way.

SUSTAINABILITY
Since the bottle will be for everyday use, it needs to be durable and leak-proof. This will also require testing with different liquids. Our project aims to reduce single-plastic use in cups and bottles. For our solution to be as sustainable as possible, we want the materials used to be biodegradable and eco-friendly. This concerns not only the product in itself, but also the entire production process, including the energy consumption, the packaging and its distribution. We want to make sure the product and the production process have a minimal impact on the environment

PRIVACY MEASURES
In case of a lost or stolen item, we want to make sure there is no sensitive information on the chip and that a personal code can be attributed to each student which makes it easy to track and handle any situation of a misplaced student card.

TECHNOLOGICAL CONCERNS
The product will have the same functions as current student ID cards, enabling students to use it to access certain services such as printing on campus, with the possibility to expand and include more functions. The integrated chip will also need to protected within the layers of the material and technical difficulties need to be anticipated. A small instruction manual (either in digital form or from recycled or plantable paper), can be included to specify its usages.

## PARTNERS & SPONSORSHIPS

PRODUCERS OF BIOFIBER TECHNOLOGY
Companies such as Biofiber Tech in Sweden, which specialise in biofiber based materials to reduce fossil based plastics and reduce plastic pollution. We would like our product to make a difference and be technologically innovative. It will serve to promote alternative solutions to plastic use.

UNIVERSITIES

In a move to take more environmentally-friendly measures, our product can appeal to universities seeking to introduce sustainable and innovative solutions within their campuses.

PRIVATE INVESTORS

Our product can be used not only by students but in a variety of professional settings. Companies which use employee identification cards might be interested and willing to invest in our project.