Multi-layered Security Technologies

for hyper-connected smart cities

D5.10: M-Sec Online Contest Event

September 2021

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Multi-layered Security technologies to ensure hyper-connected smart cities with Blockchain, BigData, Cloud and IoT

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V0.6	24 September 2021	TST/NTTDMC	Review, Final inputs
V1.0	30 August 2021	F6S	Adopted review changes, Final version

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1. Introduction

This document was elaborated for the M-Sec (Multi-layered Security Technologies to Ensure Hyper-Connected Smart Cities with Blockchain, BigData, Cloud and IoT) project. It corresponds to the Deliverable 5.10 M-Sec Online Contest Event, that comes under WP 5: GDPR, Dissemination, Exploitation and Sustainability, which is a report on the Online Contest launch and demonstration of its results and outcomes and respective impact.

The M-Sec Online Contest run between 6 and 10 September 2021. 13 teams and more than 30 people participated, including startups, entrepreneurs and university students from around the world. After their pitch presentation to an international panel of experts and an audience of 50 participants, the top 3 per city challenge were chosen and had the chance to receive further mentoring to refine their business idea, be highlighted in M-Sec's communication channels and prepare to meet city council representatives to present their idea. Overall, 6 new business ideas (and applications) were built on top of the M-Sec framework.

After this introduction, the report is divided in the following sections:

- Chapter 2 presents the goals for the M-Sec Online Contest.
- Chapter 3 presents the rationale behind the M-Sec Online Contest, namely objectives and target audience and how the project intended to reach the KPIs.
- Chapter 4 describes the different activities that were held to launch the M-Sec Online Contest, including preparation of the application process and communication and dissemination strategy.
- Chapter 5 identifies the selection process and stages of the Online Contest participants went through, as well as the challenge winners and prizes.
- Chapter 6 briefly describes the top 6 winning business ideas and their potential impact, as well as the impact of the Online Contest for the goals of the project.
- Chapter 7 provides the conclusions of this report.

2. M-Sec Online Contest goals

The aim of the M-Sec Online Contest was to engage the industrial and academic sectors towards the adoption and/or development of the project findings that support the creation of new business ideas to address smart city challenges.

According to Deliverable 5.9 Community Building Plan (June 2018), the Online Contest should be focused on solving IoT challenges and providing solutions for smart cities. Besides, the Contest should have the participation of startups and entrepreneurs, in a total of more than 20 participants, who would apply by demonstrating how their solutions could help solving the challenges presented by the cities.

With the organization of such a community event, with an attendance of about 100 participants with training materials (video tutorials, cookbook, etc.), the project should try to raise awareness for the smart city challenges and for the effectiveness of the security and privacy features of the M-Sec framework, namely by engaging a large community of innovators (including startups and developers) interested in developing news

solutions and products and in need of security modules (i.e., software, hardware, data), and increasing the acceptance of the new applications developed and their potential adoption by the cities.

As a prize or incentive, the Online Contest could provide testbeds in Japan and in the EU, offer travel and accommodation for selected innovators, and arrange meetings/presentations of the solutions to relevant audiences and decision makers in Fujisawa and Santander smart cities, both involved in the M-Sec Project.

3. Overview of the M-Sec Online Contest

M-Sec intended for the Online Contest to be a space in which developers, entrepreneurs, startups, data scientists, University students, the research community and persons interested in making their city a better place could gather to develop, in a collaborative and interdisciplinary way, a business idea that would make our cities more efficient, intelligent, sustainable, and secure.

M-Sec decided to open the Contest to all these target groups as a way to support the goals foreseen in Deliverable 5.9 Community Building Plan (June 2018) regarding community engagement.

Participants would be invited to submit their entries – in the form of business ideas – to one of the proposed smart city challenges of Santander, in Spain, full M-Sec project partner, or Fujisawa, in Japan, working alongside project partners on the implementation of M-Sec Use Cases. To be accepted, they needed to be, at least, a team of 3 members and put together a business idea that addressed a city challenge and used the M-Sec framework as a security and privacy element of that business case. The main goal was to leverage the M-Sec framework and, at the same time, provide other business models and use cases where M-Sec could be used, to make cities smarter and more cyber secure.

With this, M-Sec was trying to achieve one of the project's KPIs related with applications built with new ideas during the project lifetime coming from the involvement of new entrants.

Overall, contestants would be able to apply to 1 of 2 challenges. The 2 challenges were going to be defined by M-Sec's smart cities of Santander and Fujisawa, based on their current needs for business models and use cases to make them smarter, more sustainable, and cyber secure (taking into consideration the main goal of leveraging the M-Sec framework) cities. Each city would thus identify 1 challenge that submissions could address. These were "a better city for the elderly" from Santander and "improving the efficiency of road administration. How to effectively develop a repair plan for pavements, etc. from Fujisawa.

Regarding the first one, according to Santander the population of cities is ageing rapidly and there is a need to provide solutions to the problems of the elderly, such as isolation in their homes, poor social relations, lack of physical activity, urban mobility difficulties or barriers, and so on. The challenge could thus be to propose a business idea that helps address one or more of senior's citizens problems. On the other hand, the main goal of the Fujisawa challenge was to propose a business idea on how to prioritize the maintenance and repair of city-managed roads in an efficient manner. Ideas for maintenance/repair/renewal of sewers, parks, or playground equipment would also be welcomed.

The Online Contest would thus welcome all ideas to the proposed 2 challenges, particularly those in a concept phase and that considered the M-Sec framework as part of their business case. Business ideas must have been

based on the development of an original software (web/mobile app) and/or hardware (sensors, cameras) solution (also concept phase) that solved one of the city challenges. Submissions to the Online Contest should be original ideas and not expected to go beyond concept phase. Exact copies of any business idea would not be accepted.

As part of the Online Contest, contestants would be required to demonstrate the novelty of their business idea and its relevance for solving a smart city challenge. Furthermore, contestants should also describe how their business idea would be implemented and scaled as a real business solution and how the integration of the M-Sec framework would impact the security and privacy component of that business case. Applications would be accepted in a "first-come first-served" basis, until the contest reached 20 finalized applications, the number of applications the consortium agreed would be the maximum number partners would be able to support in an agile way.

Therefore, the Online Contest was to be designed to offer contestants support in the form of technical assistance regarding the M-Sec framework, business mentoring and visibility. Through individual online sessions and workshops, contestants would receive support in the design and development of their new and early-stage business ideas, helping them better prepare to present the idea to city council representatives of a given smart city challenge. Contestants would also have the chance to present their business idea before a panel of international experts.

The Online Contest would run in the first week of September, between 6 and 10 September, after summertime, to give the project the needed time to disseminate the Contest and so that target groups related with the academia (i.e., University students) would be able to finalize their exam period and apply to the Contest. The decision of having it last 5 days and only in the mornings – if we consider CET/Brussels Time - related with the fact that this was a Contest jointly organized by the EU and Japan and, therefore, only a couple of hours per day would be feasible to reach both audiences with different time zones. It would have given M-Sec mentors more time to meet and support their assigned teams and for these to refine their business ideas and prepare for the final pitch presentation.

The M-Sec team would support the top 3 winners of each challenge in maturing and refining their ideas through 5 dedicated sessions and depending on the awarded business ideas, make available materials and tools to support their materialization. These sessions would aim to help winners turn their ideas into tangible business solutions. Awarded contestants would also be provided with visibility of their ideas through M-Sec communication channels. No prize money was intended to be awarded due to lack of available budget from the project and thus non-financial rewards have been put forward, as an effort to support the best ideas of the Online Contest.

Finally, although in the beginning it was decided to only accept applications from the EU, H2020 Associated Countries and Japan, the project decided afterwards to open to all countries, due to the interest the Online Contest gathered outside the initial scope of countries, for instance, in other Asian countries and in Africa. This decision was made easier also because the project was not going to provide financial compensation to participants.

4. Application process, launch and dissemination of the M-Sec Online Contest

4.1 Application process and launch

The Online Contest applications period run between 7 July and 26 August 2021 5pm CET/Brussels Time. M-Sec partner F6S provided the F6S platform for the application process and management. Applicants were asked to submit an online application form, which asked for information regarding the challenge they were applying to, a brief description of the business idea, how they were foreseeing the management of security and privacy problems, and basic information regarding the team members applying.

The application process was also supported by the M-Sec Online Contest Handbook, that contained all the Online Contest guidelines and rules. In order to support the application process and disseminate the Contest among the F6S global community of startups and entrepreneurs, an F6S page dedicated to the Online Contest was also created at the F6S platform, with a Q&A area which potential applicants could use for asking questions regarding the application process or the Online Contest itself. Moreover, information regarding the Contest was added to the M-Sec website, with the creation of a new dedicated page, containing all relevant information such as the link to the online application form, main perks and prizes, city challenges and the relevant materials for the application process (i.e., Handbook) and Online Contest (i.e., White Paper, Cookbook, PowerPoint template, Business Model Canvas template).

The relevant dates for the M-Sec Online Contest, as informed to the applicants, were the following:

Table 1: Contest period

Activity	Date
Opening date for submissions	7 July 2021
Closing date for submissions	26 August 2021 5pm CET/Brussels Time
Notification of selected candidates	27 August 2021
Online Contest	6-10 September 2021
Pitch and selection of contest winners	10 September 2021
Start date for delivery of the awards	13 September 2021

4.2 Communication and dissemination strategy

Following best practices of inbound marketing presented in Deliverable 5.2 Initial Dissemination Plan (December 2018), the M-Sec Project engaged in an intense communication and dissemination campaign to promote its Online Contest, that lasted 1 and a half months.

The focus was on Press Release dissemination and direct contact with media disseminators and relevant stakeholders, such as Universities and Research Centres, relevant Associations, Incubators and Accelerators, startups and entrepreneurs, attendees from previous M-Sec events, among others. Targeted emails to a pool of potential applicants were also sent, as well as a strong emphasis on the project's social media and shares by other followers. Overall, the project was able to:

- Create a page on M-Sec's website, containing important information on the Online Contest and the link for the online application form, and a teaser video, included at the M-Sec YouTube channel and promoted at the project's social media accounts.
- Draft and send out a Press Release on the launching of the Online Contest to more than 1000 contacts from the M-Sec Database of contacts, including tech startups and SMEs, media disseminators, associations, incubators and accelerators, other relevant H2020 initiatives and attendees from previous M-Sec events.
- Release 2 Newsletters – July 2021 and August 2021, highlighting the launching and last call to apply to the Online Contest to more than 100 subscribers.
- Publish 1 blog article directly related with the promotion of the Online Contest, seen by more than 100 people, having the Online Contest posted on several other online articles from relevant H2020 projects (such as Cybwerwatching.eu and Smart Together), and be highlighted in internal newsletters and communication from Universities, as a direct result of the dissemination and communication efforts of its Press Release.
- Publish 22 social media posts directly related with the promotion of the Online Contest – 11 on LinkedIn and 11 on Twitter -, have more than 6800 impressions and 60 shares/retweets of those posts. Moreover, the Online Contest was also promoted in several other LinkedIn groups related with smart cities, blockchain, IoT, the F6S IoT Group, the M-Sec Slack community, the X-Europe Smart Cities Slack community, among others.
- Increase the number of monthly visits to the project's website by 35% in July 2021, due to the referral links in all dissemination and communication materials.
- Create a wrap-up video, with relevant feedback from teams and M-Sec representatives, to showcase the relevance of the Contest for the community and share it on M-Sec's social media channels and website.

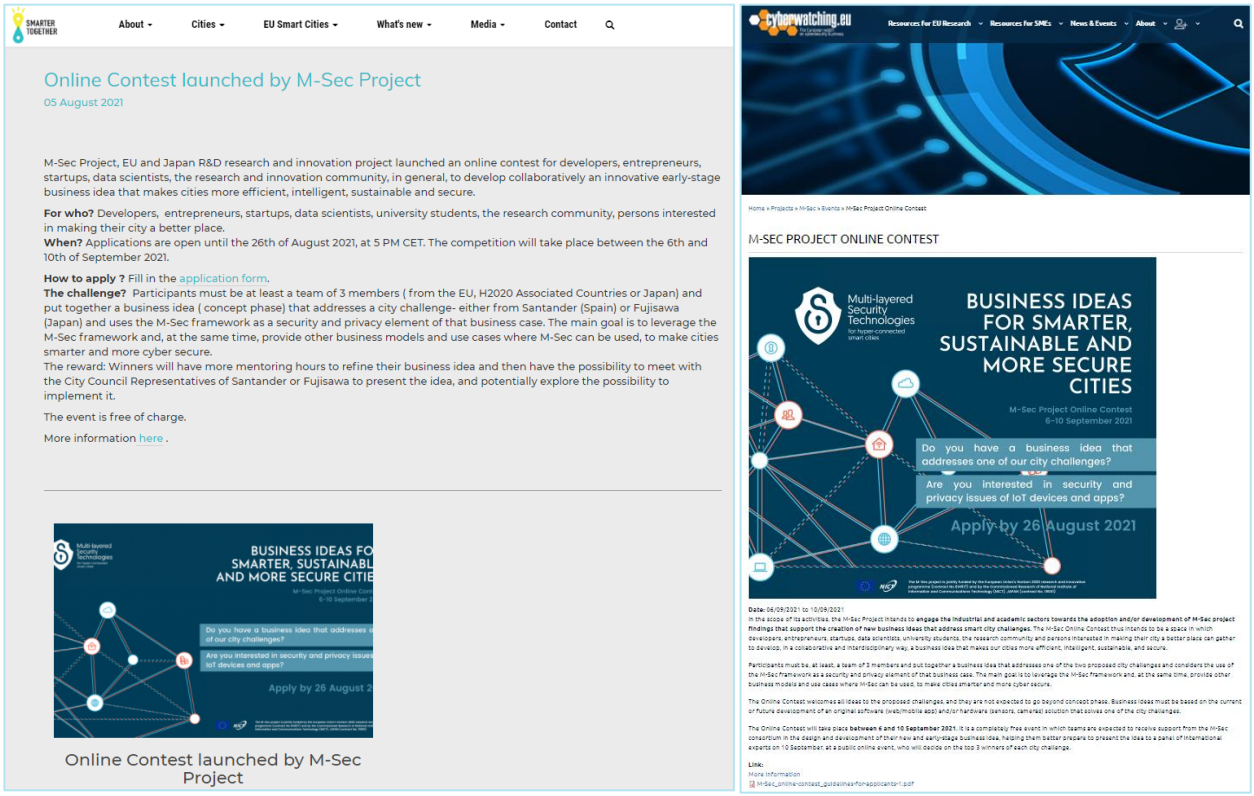


Figure 1: Screenshots of external blog articles promoting the Online Contest

All the above-mentioned communication and dissemination efforts had a significative effect in the promotion of M-Sec's Online Contest, also supported by partners own dissemination of this opportunity among its organizations and external networks, which resulted in 15 finalized applications to the Online Contest.

5. The M-Sec Online Contest

5.1 Selection process

Applications for the M-Sec Online Contest ended on 26 August 2021 and went through an eligibility check before participants at the Contest could be announced. 15 applications were submitted. This eligibility check included understanding (1) if teams were applying with 3 or more members, (2) if they had correctly signalled a city challenge, (3) if team members were natural persons, if they had, at least, 18 years old. Since the project decided to open the Contest to all applications, the geographical criterion was excluded. Moreover, the "first-come first-served" system was not used since applications did not reach the maximum number of 20.

From the 15 finalized applications, only 1 application was excluded since it did not select any challenge and did not present a team. This application was then contacted with the justification for why it was considered non-eligible. The other remaining 14 applications were considered eligible and notified by email and through the F6S platform on 27 August 2021 of their selection, with the next steps and to confirm if they were still willing to participate at the Contest. From those, only 1 application decided to drop down from the Contest

due to lack of availability, thus remaining 13 candidates that have accepted to participate at the M-Sec Online Contest between 6 and 10 September.

Prior to the M-Sec Online Contest, all 13 candidates were informed about the calendar with the main sessions (i.e., kick-off and challenges presentation, workshop on business basics, public pitch presentation) and put in direct contact with their assigned M-Sec mentors. Additionally, they were reminded about the main goals of the Contest and what was expected from them, and again informed about the materials for consultation (i.e., White Paper, Cookbook) and the templates they would need to fill in with the support of their mentor and deliver by the end of the Contest (i.e., PowerPoint template, Business Model Canvas template). The mentors were selected within the M-Sec consortium and corresponded to experienced people on both business and technical expertise from WLI, TST, ICCS for supporting teams addressing the Santander challenge, and YNU and NTTDMC, for supporting teams addressing the Fujisawa challenge.

Below there is a list of the 13 teams that were selected to participate at the M-Sec Online Contest. Overall, 9 teams were running for the Santander challenge and 4 teams were running for the Fujisawa challenge.

Table 2: Selected teams of the M-Sec Online Contest

Challenge	Name of team	Country(s) of team
Santander	Ruddy	Belgium
Santander	Latitudo40	Italy
Santander	M-Phy Solutions	Spain, UK
Santander	FTears.com	Senegal, Uganda
Santander	Endeema	Germany, France
Santander	DYMAXION OÜ	Estonia, Austria
Santander	SelfBar	Belgium
Santander	Team Super Cute	Japan
Santander	Zaxol Ventures	Nigeria
Fujisawa	Co2mmon	Germany, Hungary
Fujisawa	Ventureo	France, UK
Fujisawa	AI Professional Software Solutions	Romania
Fujisawa	City Smart Waste	Albania

From the table we can look at the diversity of countries that applied, and even the diversity within the teams in terms of geographical scope. Regarding the type of entity they represent, the distribution is also well

balanced, going from private companies and entrepreneurs to university students and teams in which there is a mix of academia and industry sectors.

On the 8 September, 2 of the 13 running teams decided to drop out of the Online Contest to consider that their business idea and solution did not fit the challenge. Therefore, 11 teams remained in the Contest and moved forward with the meetings with their M-Sec mentors. During the pitch presentation, on the 10 September, 1 team did not show up and another decided not to move forward with the presentation. Thus, only 9 teams pitched their business ideas before jury members and had the chance to compete for the prizes.

The figure below shows the selection and evaluation process stages and its evolution with participants of the M-Sec Online Contest.

Figure 2: timeline of selection and evaluation process of the M-Sec Online Contest

5.2 The Online Contest

The Online Contest run between 6 and 10 September 2021 (5 days) and was carried out by F6S, with the support of the M-Sec consortium. It was divided in 4 main moments:

- On 6 September, between 10am and 12pm CET/Brussels Time, the first day of the challenge, there was a kick-off session with the participating teams and challenges representatives. The main goal of this session was to kick-off the Contest, with a short presentation of M-Sec and of the Contest and welcoming teams, and so that challengers, i.e., representatives from the smart cities of Santander and Fujisawa could present their city, needs and problems and go deeper on the challenge presented in the scope of the Contest. This was followed by a period of questions and answers from attending teams, to further support the development of their business idea. Overall, the session joined together 26 participants. Afterwards, teams also received the video recording of the session.

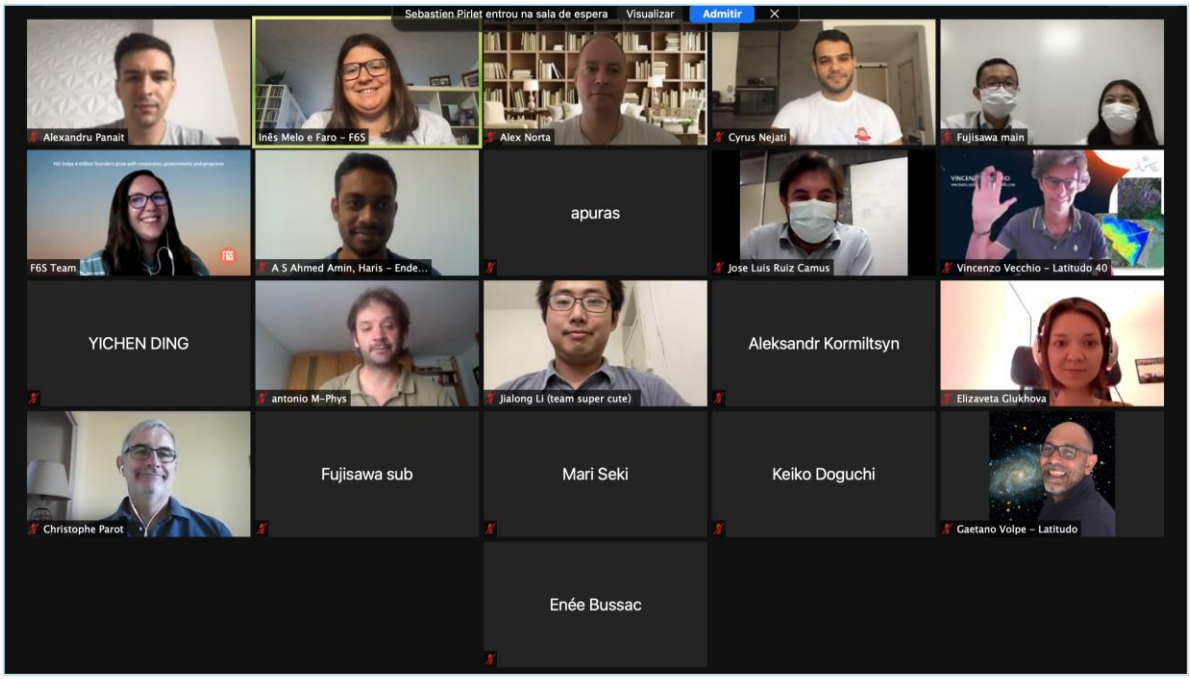


Figure 3: Screenshot of M-Sec Online Contest session on 6 September

- After the kick-off until the selection event, teams could organize themselves as they pleased. The M-Sec consortium made available structured contact points, known as M-Sec mentors, and a specific mentor was assigned to each team. After being put in direct contact with their assigned mentor, each team had the chance to have 2 online meetings of up to 2 hours with their assigned mentor and M-Sec mentors were asked to record their feedback regarding the meetings in an internal Excel sheet of the Online Contest. Overall, M-Sec mentors were expected to support the teams with their PowerPoint presentation, to better present the business idea and tackle all evaluation criteria, with the drafting of their Business Model Canvas, that would help them refine the idea, and to go through the M-Sec White Paper and Cookbook to understand how they could include the M-Sec framework in a future hardware/software solution of the business idea. Most meetings were scheduled between 8 and 9 September. All teams were asked to send their PowerPoint presentation and Business Model Canvas filled in, that showcased the work done during the Contest.
- On 7 September, between 9am and 11am CET/Brussels, the second day of the challenge, there was an optional workshop provided by F6S on the technical and business basics for participants, to provide and extra support to the development and presentation of the business idea. Among other topics, the workshop tackled the business model canvas and the value proposition canvas to help participants ensure that their product or service is positioned around what the customer values and needs. Overall, the session joined together 18 participants.

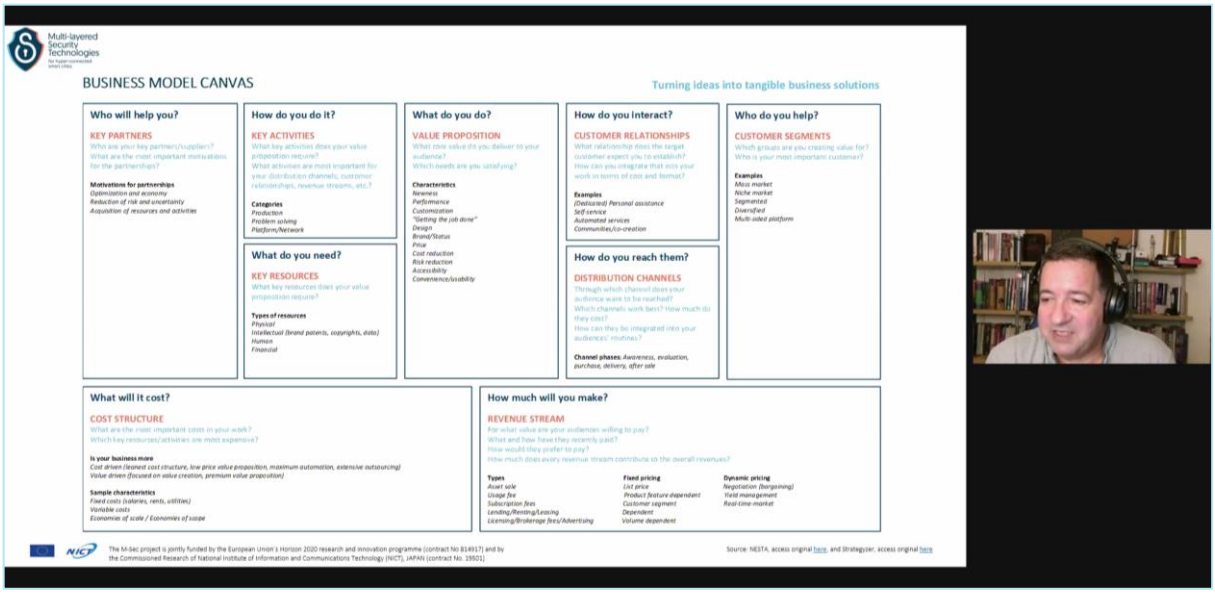


Figure 4: Screenshot of M-Sec Online Contest session on 7 September

- Finally, on 10 September, the last day of the challenge, was the public pitch presentation session to select the top 3 winners per city challenge. Each team had the chance to present its business idea before a panel of international experts and general participants, as this was a public event, through a pitch presentation of +/- 5 minutes, with +/- 2 minutes for questions from the jury members. This pitch event was held online, between 10am and 1pm CET/Brussels and interested participants could register through the F6S official registration page. Overall, this event joined together 42 participants, including jury members from the M-Sec consortium, representatives from the cities of Santander and Fujisawa and external stakeholders relevant in the areas of smart cities, security, and privacy issues. After the pitch presentation, the jury members were asked to join a consensus meeting to decide the winners of each challenge and at 12h50pm CET/Brussels Time these were announced in the pitch event, which ended the session. The video recording of the session can be found at https://youtu.be/ZVZbkruhgTo.

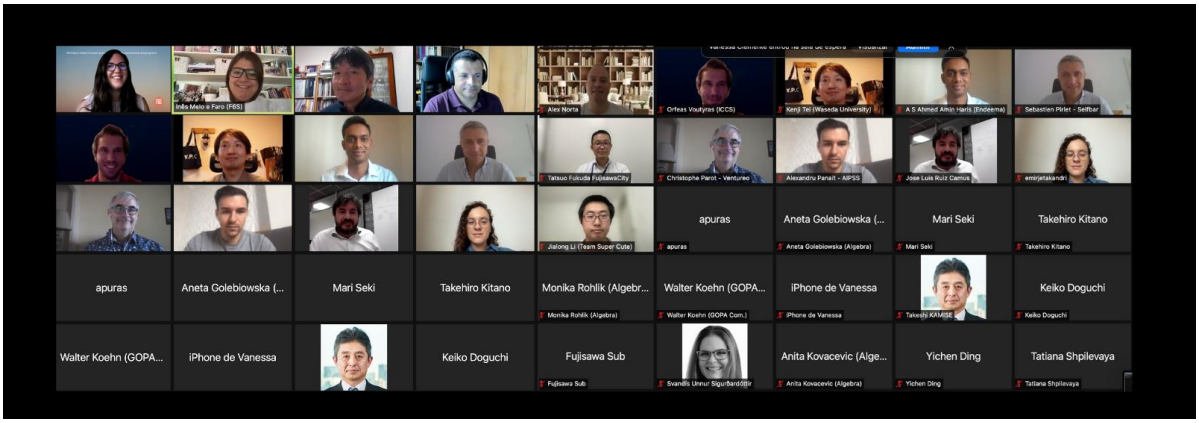


Figure 5: Screenshot of M-Sec Online Contest final pitch presentation on 10 September

5.3 Evaluation and selection of challenge winners

As previously mentioned, the pitch presentation of each team was graded by a panel of international experts. Each contest challenge had a jury made by 3 representatives: a representative from the M-Sec consortium

(WU in the case of the Fujisawa challenge and KEIO in the case of the Santander challenge), a representative from the city challenge and an invited guest for both challenges with interest and knowledge on the topics of the Online Contest, i.e., a representative from TICE.PT - The National Portuguese ICT Cluster.

During the pitch presentations, the jury was asked to assess all teams based on the following criteria:

Table 3: Contest evaluation criteria

Criteria	Description	Score
Innovation	How creative or innovative is the business idea	5 ***Weight: 20%***
Value	How relevant is the business idea for solving a smart city challenge	5 ***Weight: 20%***
Functionality and scalability	Can this business idea be implemented and scale as a real business solution	5 ***Weight: 20%***
Link to M-Sec	Extent to which the business idea considers the use and integration of the M-Sec framework	5 ***Weight: 20%***
Pitch	Did the team present a solid, persuasive pitch in English	5 ***Weight: 20%***
TOTAL		25

Each criterion was given a mark from 1 to 5 (half points were not given). The final mark of each jury was the sum of the weighted single attributed. The final mark for a team was the arithmetic mean of the 3 assessments given by each jury member. For each criterion, score values indicated the following assessments:

Table 4: Evaluation scoring guidelines

Score	Assessment
1 | Poor	The business idea fails to address the criterion or cannot be judged due to incomplete or missing information
2 | Medium/Satisfactory	The business idea broadly addresses the criterion, but there are significant weaknesses
3 | Good	The business idea addresses the criterion well, but several shortcomings are present
4 | Very Good	The business idea addresses the criterion very well, but a small number of shortcomings are present

5 | Excellent	The business idea successfully addresses all relevant aspects of the criterion. Any shortcomings are minor

A final weighted average score was calculated considering the respective weights of the 5 criterions. After the pitch presentation, the jury was asked to join F6S for a consensus meeting to validate the scores and decide on the winners of each city challenge.

Once graded and ranked in a single list, per challenge, from the highest to the lowest score, the top 3 teams per challenge were notified live during the pitch presentation that they were challenge winners, and the other teams were notified that they would not receive the Online Contest prizes. The following table shows the winning teams per challenge and a brief overview of the business ideas presented. These can also be found at the M-Sec Online Contest official webpage.

Table 5: Winning teams of the M-Sec Online Contest

Challenge	Name of team	Short description	Country(s) of team
Santander	Ruddy	Using AI, Ruddy helps consumers develop a well-balanced diet based on their health, daily physical movements, location, goals and lifestyle	Belgium
Santander	Endeema	An app that helps the elderly to remain fit and healthy while facilitating the behaviours that help the environment, e.g., use water or energy more mindfully	Germany, France
Santander	Team Super Cute	HyperGate, a large, screened device immersive experience of communication with friends and family members	Japan
Santander	Co2mmon	A framework for measuring, rewarding, and reporting eco-friendliness	Germany, Hungary

Santander	Ventureo	Road maintenance using blockchain tools: an app through which citizens are rewarded to post road damage images	France, UK
Fujisawa	City Smart Waste	A web-app for municipalities/waste management companies to see and overview the process and a mobile app used by the waste collectors to see and follow the route provided for them	Albania

Annex 1 – Business Model Canvas of award-winning teams of this report showcases the Business Model Canvas that each winning team had to fill in as part of their participation at the M-Sec Online Contest (of those who provided their consent). It shows how they had to adapt their business idea to meet the Contest criteria and to address the smart city challenge they were running for.

5.4 Prizes

With the end of the Online Contest, the top 3 winners per challenge were contacted the following week with more information and next steps regarding the awards. The remaining participants received a participation certificate, attesting their participation at the Online Contest, should they have completed the pitch presentation and sent the PowerPoint and Business Model Canvas templates filled in.

No distinction between the top 3 ranked entries of each challenge was made, and they received the same prizes, which were as follows:

Table 6: Contest prizes

Contest prizes for the top 3 ranked winners per city challenge	
Online or face-to-face meeting with representatives of the city challenges[1]	Possibility to meet with city council representatives to present the business idea and potentially implement it
5 dedicated 1-hour sessions (or personalised online technical assistance and business mentoring)	The M-Sec team will support the top 3 winners from each city challenge in maturing and refining their ideas through 5 dedicated sessions, and depending

[1] Since the Online Contest did not provide funding, teams will need to pay for travel and accommodation if they which to meet in person with city council representative.

	on the awarded business ideas, make available materials and tools to support their materialization. These sessions aim to help winners turn their ideas into tangible business solutions and better prepare them to present the idea to city challenge representatives
Visibility of the business idea and of the team	Award contestants will be provided with visibility and exposure of their business ideas through M-Sec main communication channels (i.e., featured article, social media, etc.)

Therefore, the 6 winning teams were contacted and directly presented to the city challenge representatives that participated in the 6 September session, so that a meeting could be scheduled between both parties. At the same time, the teams were informed that they would have the 5 dedicated 1-hour sessions with their already assigned M-Sec mentor, and thus were asked to schedule these meetings prior to the meeting with the city representatives, to further refine the idea and be better prepared, as a good presentation, addressing the city challenges, could end up in a future potential implementation of that idea in the city.

The end date of the delivery of the awards will depend on the scheduling of the technical and mentoring sessions between award winners and the designated M-Sec mentors and the scheduling of the virtual or physical presentation meeting with the city council representatives. Therefore, F6S, as partner in charge of the M-Sec Online Contest, will continue to closely monitor the evolution of each team, to make sure that all awards are provided.

6. M-Sec business ideas and expected impact

With the organization of the Online Contest, M-Sec was able to engage 13 teams and more than 30 participants from the industrial and academic sectors towards the adoption and/or development of the project findings, with the creation of new business ideas that, at the same time, addressed the smart city challenges of Santander and Fujisawa cities and took into consideration the potential integration of the M-Sec framework in their solutions as a security and privacy component. M-Sec was thus able to achieve its project KPI related with the number of applications built with new ideas during the project lifetime coming from the involvement of new entrants in the project.

With the organization of such a community event, the project was able to raise awareness for the smart city challenges and for the effectiveness of the security and privacy features of the M-Sec framework, namely by engaging a large community of innovators (including startups and developers) interested in developing news solutions and products and in need of security modules (i.e., software, hardware, data), and increase the acceptance of the new applications developed, and potential adoption by the cities.

As a prize, the Online Contest provided an open dialogue between the top 6 challenge winners and the corresponding city council representatives, to arrange meetings/presentations of the solutions to relevant

audiences and decision makers in Santander and Fujisawa smart cities. Although it is still too early to assess the potential of these meetings for both the cities and the solution developers, it is considered that an open dialogue is already the starting point for fruitful discussions to implement new business ideas to address the city challenges soon. The initial positive impact on participating cities and challenge contestants can be found at the Online Contest wrap-up video, at https://youtu.be/2E5OusDiNfU.

Moreover, a Slack channel within the M-Sec Slack channel was also created for a more direct channel and exchange of information between F6S, as Contest manager, M-Sec mentors, and teams, which increased the number of community members engaged in relevant M-Sec related topics. Currently, the M-Sec Slack community joins together a total of 80 members.

7. Conclusion

The M-Sec Online Contest was managed under Task 5.4 – Community building and sustainability activities, although the efforts within Task 5.1 – Dissemination and Communication Activities also had a strong impact on the success of the Contest.

The M-Sec Online Contest Event reports the Contest launch and implementation and outlines its results and outcomes and respective short and potential future long-term impact, describing the activities that were put in place and those still to come (related with the claiming of the prizes by award winners). This report began with the understanding of the goals of the M-Sec Online Contest, to support the rationale behind it. Afterwards, it provided a detailed explanation of the activities held to launch, promote, and implement the Online Contest, that was held between 6 and 10 September 2021. Finally, the report highlights the expected short and long-term impact of such a Contest for the winning teams but also for the project goals.

Annex 1 – Business Model Canvas of award-winning teams

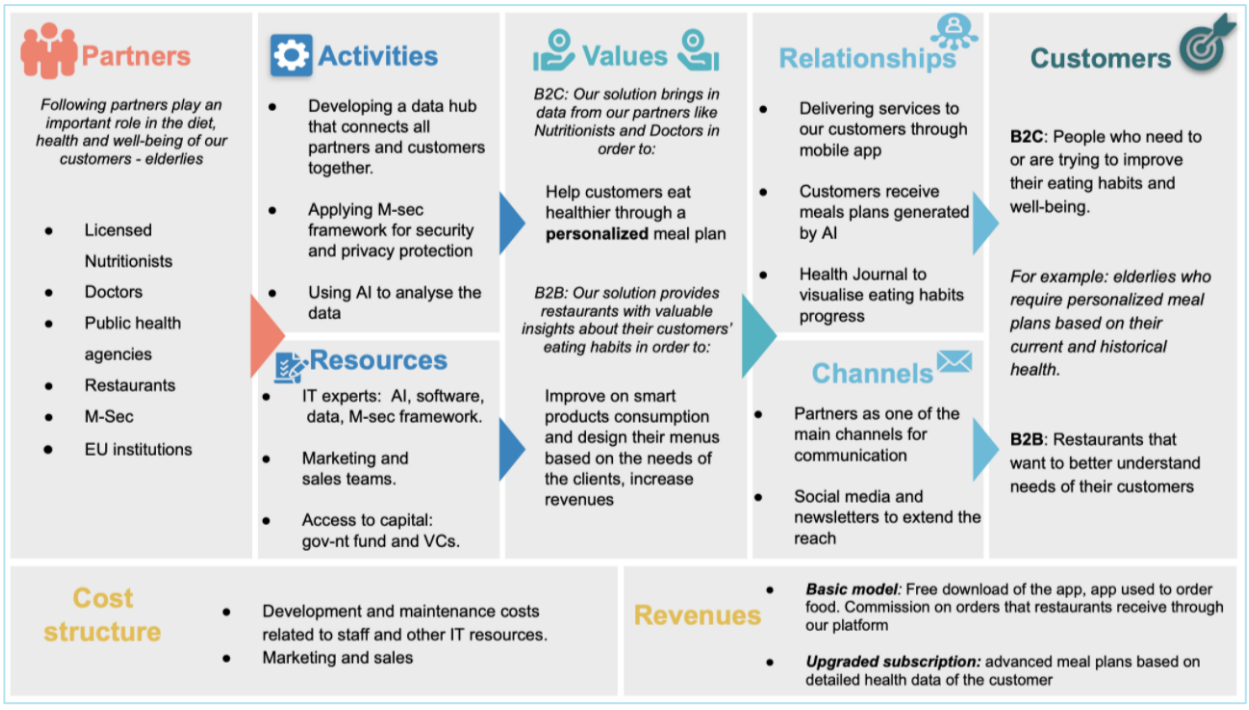


Figure 6: Business Model Canvas of Ruddy Team

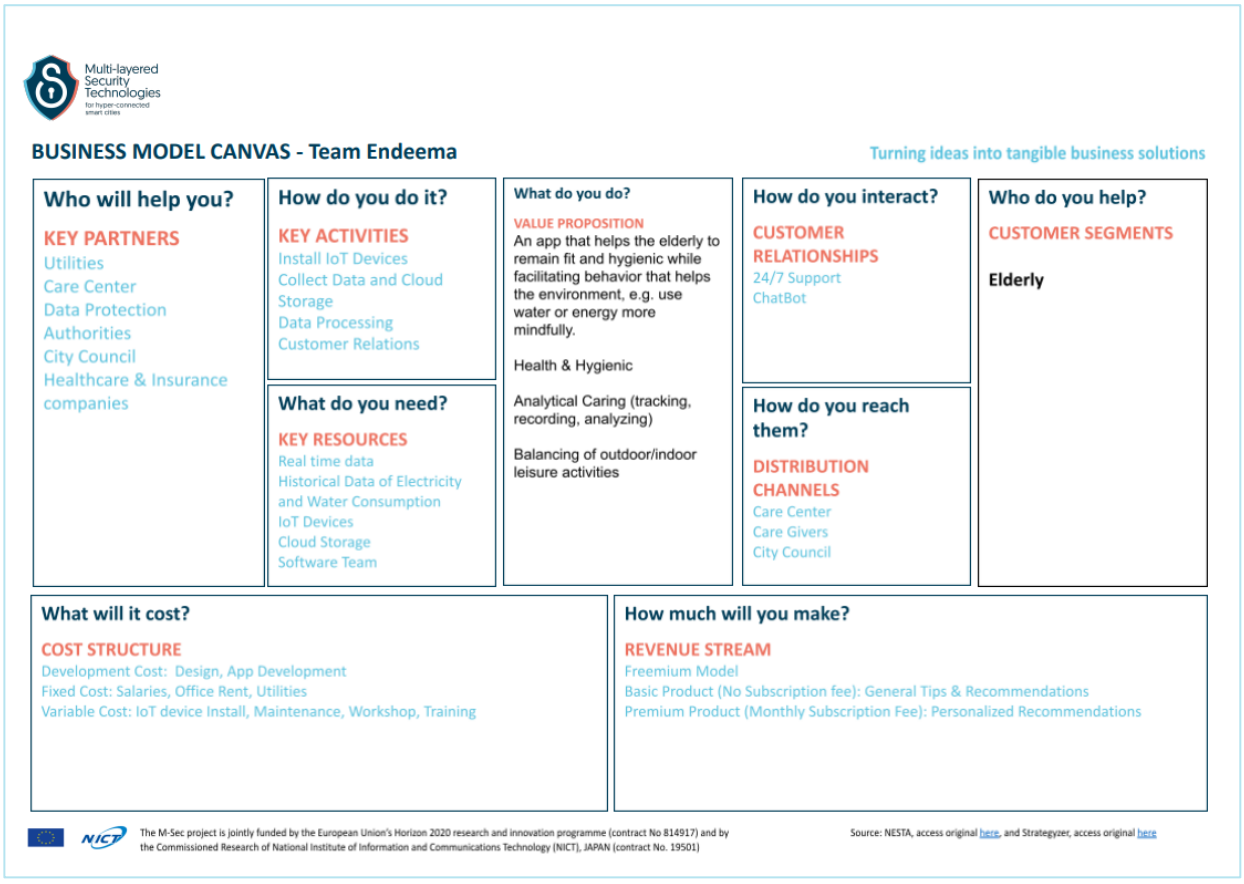
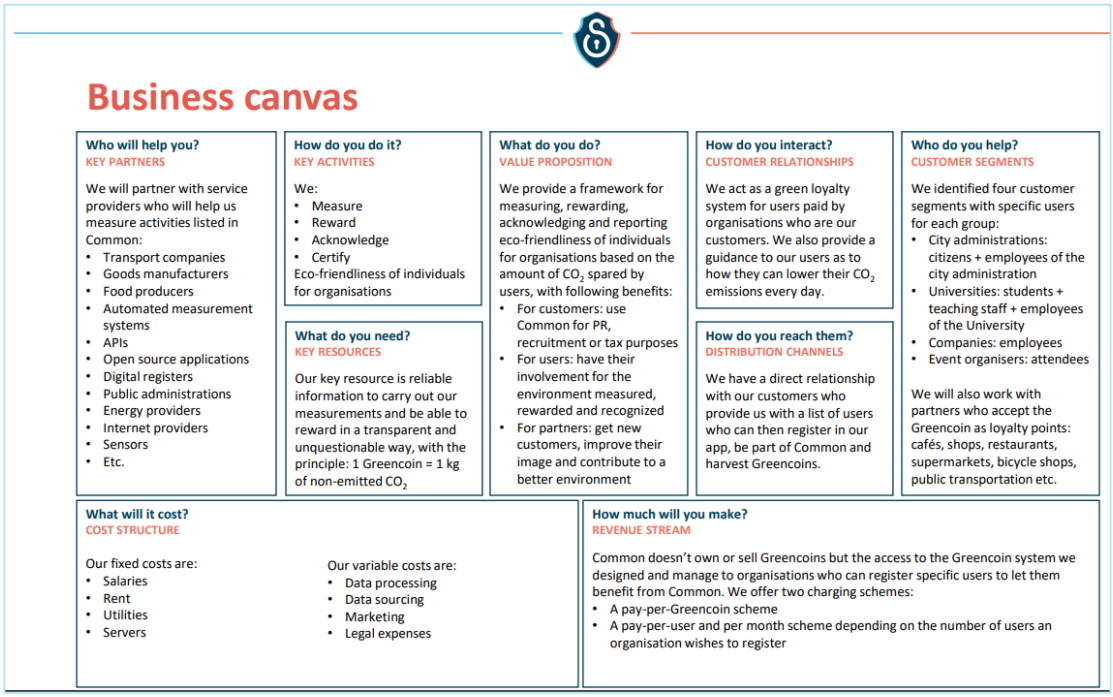


Figure 7: Business Model Canvas of Endeema Team



Business canvas

Who will help you?
KEY PARTNERS

We will partner with service providers who will help us measure activities listed in Common:
- Transport companies
- Goods manufacturers
- Food producers
- Automated measurement systems
- APIs
- Open source applications
- Digital registers
- Public administrations
- Energy providers
- Internet providers
- Sensors
- Etc.

How do you do it?
KEY ACTIVITIES

We:
- Measure
- Reward
- Acknowledge
- Certify

Eco-friendliness of individuals for organisations

What do you need?
KEY RESOURCES

Our key resource is reliable information to carry out our measurements and be able to reward in a transparent and unquestionable way, with the principle: 1 Greencoin = 1 kg of non-emitted CO_2

What do you do?
VALUE PROPOSITION

We provide a framework for measuring, rewarding, acknowledging and reporting eco-friendliness of individuals for organisations based on the amount of CO_2 spared by users, with following benefits:
- For customers: use Common for PR, recruitment or tax purposes
- For users: have their involvement for the environment measured, rewarded and recognized
- For partners: get new customers, improve their image and contribute to a better environment

How do you interact?
CUSTOMER RELATIONSHIPS

We act as a green loyalty system for users paid by organisations who are our customers. We also provide a guidance to our users as to how they can lower their CO_2 emissions every day.

How do you reach them?
DISTRIBUTION CHANNELS

We have a direct relationship with our customers who provide us with a list of users who can then register in our app, be part of Common and harvest Greencoins.

Who do you help?
CUSTOMER SEGMENTS

We identified four customer segments with specific users for each group:
- City administrations: citizens + employees of the city administration
- Universities: students + teaching staff + employees of the University
- Companies: employees
- Event organisers: attendees

We will also work with partners who accept the Greencoin as loyalty points: cafés, shops, restaurants, supermarkets, bicycle shops, public transportation etc.

What will it cost?
COST STRUCTURE

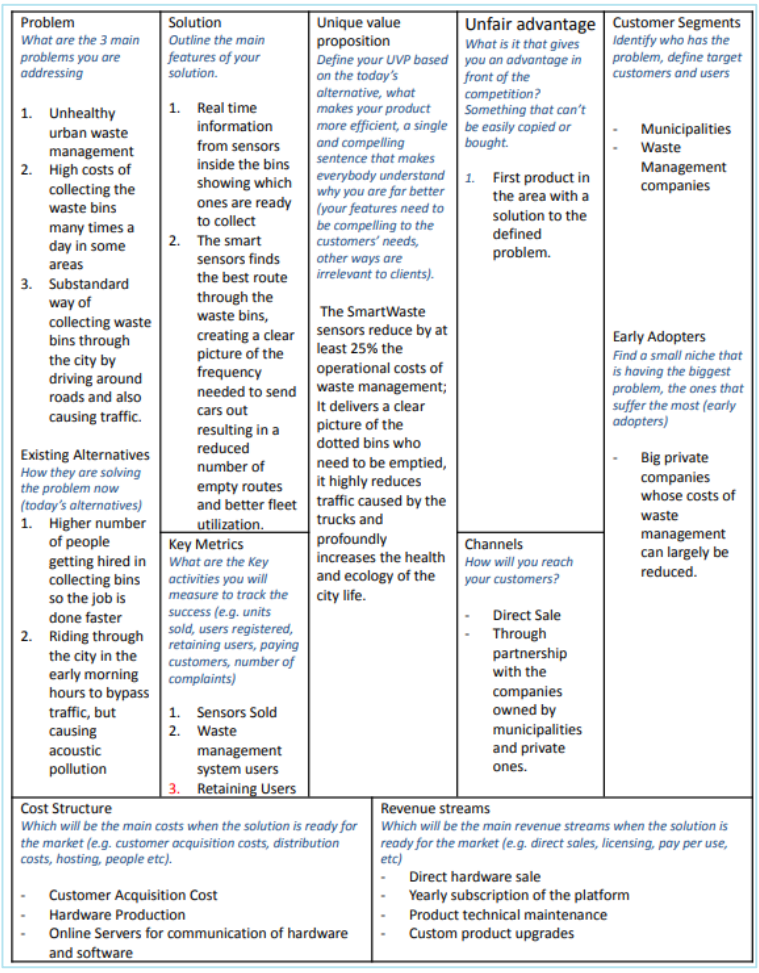
Our fixed costs are:
- Salaries
- Rent
- Utilities
- Servers

Our variable costs are:
- Data processing
- Data sourcing
- Marketing
- Legal expenses

How much will you make?
REVENUE STREAM

Common doesn't own or sell Greencoins but the access to the Greencoin system we designed and manage to organisations who can register specific users to let them benefit from Common. We offer two charging schemes:
- A pay-per-Greencoin scheme
- A pay-per-user and per month scheme depending on the number of users an organisation wishes to register

Figure 8: Business Model Canvas Co2mmon Team



Problem
What are the 3 main problems you are addressing

1. Unhealthy urban waste management
2. High costs of collecting the waste bins many times a day in some areas
3. Substandard way of collecting waste bins through the city by driving around roads and also causing traffic.

Existing Alternatives
How they are solving the problem now (today's alternatives)

1. Higher number of people getting hired in collecting bins so the job is done faster
2. Riding through the city in the early morning hours to bypass traffic, but causing acoustic pollution

Solution
Outline the main features of your solution.

1. Real time information from sensors inside the bins showing which ones are ready to collect
2. The smart sensors finds the best route through the waste bins, creating a clear picture of the frequency needed to send cars out resulting in a reduced number of empty routes and better fleet utilization.

Key Metrics
What are the Key activities you will measure to track the success (e.g. units sold, users registered, retaining users, paying customers, number of complaints)

1. Sensors Sold
2. Waste management system users
3. Retaining Users

Unique value proposition
Define your UVP based on the today's alternative, what makes your product more efficient, a single and compelling sentence that makes everybody understand why you are far better (your features need to be compelling to the customers' needs, other ways are irrelevant to clients).

The SmartWaste sensors reduce by at least 25% the operational costs of waste management; It delivers a clear picture of the dotted bins who need to be emptied, it highly reduces traffic caused by the trucks and profoundly increases the health and ecology of the city life.

Unfair advantage
What is it that gives you an advantage in front of the competition? Something that can't be easily copied or bought.

1. First product in the area with a solution to the defined problem.

Channels
How will you reach your customers?

- Direct Sale
- Through partnership with the companies owned by municipalities and private ones.

Customer Segments
Identify who has the problem, define target customers and users

- Municipalities
- Waste Management companies

Early Adopters
Find a small niche that is having the biggest problem, the ones that suffer the most (early adopters)

- Big private companies whose costs of waste management can largely be reduced.

Cost Structure
Which will be the main costs when the solution is ready for the market (e.g. customer acquisition costs, distribution costs, hosting, people etc).

- Customer Acquisition Cost
- Hardware Production
- Online Servers for communication of hardware and software

Revenue streams
Which will be the main revenue streams when the solution is ready for the market (e.g. direct sales, licensing, pay per use, etc)

- Direct hardware sale
- Yearly subscription of the platform
- Product technical maintenance
- Custom product upgrades

Figure 9: Business Model Canvas of City Smart Waste Team