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A REFLOW CASE STUDY

# TEACHING GUIDE: Finding the Bread and Butter in Milan's Circular Food Waste Solution

## Designing a Revenue Model for Circular Technological Innovatings Addressing Food Waste and Social Exclusion

*This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement number 820937.*

# TEACHING GUIDE: Finding the Bread and Butter in Milan's Circular Food Waste Solution

## Designing a Revenue Model for Circular Technological Innovations Addressing Food Waste and Social Exclusion


Figure 1: Photo by ja ma on Unsplash

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This teaching guide is meant provide inspiration into how to solve the case in a classroom setting. The guide and estimated time are based on a class of approximately 35 students. The teacher is free to use the method that they prefer, and tailor to the size of the class. For a larger class, the case can, for example, also be used as a take-home assignment followed by an in-class presentation.

To solve the case, students are assumed to already have some knowledge about different revenue models. Otherwise, an article on revenue models should be added to the pre-readings together with the case. Basic understanding of platform business models is a benefit.

## Synopsis of the Case

This case is based on a real organisation in Milan that has carried out activities as part of the European Union Horizon 2020 project, REFLOW.

The Milan REFLOW team, comprised of system designers, researchers, makers, and municipal actors, set out to tackle the overwhelming amounts of food waste being produced across the city of Milan. The team decided to focus on the fruit and vegetable wholesalers within Municipal market, SogeMi. In co-creation with the market, the team developed the innovative circular solution, BOTTO, that would enable the recovery of surplus fruits and vegetables.

While the REFLOW project and its funding was coming to an end, Milan´s transition towards a more circular and generative urban food system has just begun. Therefore, to sustain the Milan team´s solution beyond the REFLOW project, they needed to find new sources of income and new investors to further develop and ensure the solutions scalability.

The case provides key insights on the complex structure of the Milanese redistribution network for surplus food, including a short description of key actors in the network – wholesalers, re (distributors) and charities. It goes over how the Milan Team intends to assist the network with a more efficient handling of surplus food, that ultimately can be redistributed to those in need. Throughout the case, stakeholders' potential benefits from using the platform as well challenges concerning their willingness to pay for the service is briefly considered.

Students are asked to put themselves in the shoes of Eva, a freelance consultant with experience in business modelling, to consult the Milan Reflow team on choosing a revenue model for the BOTTO solution. Having in mind the different needs of actors in the urban food network, Eva needs to recognize the balance between each actor's value capture and risks, and accordingly, their ability and willingness to pay for the service.

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**Task**

The task is to choose and design a revenue model for BOTTO - basically making suggestions to the Milan Team on how the company can make money. Make it clear that it is not the same as a business model, though it is a significant part of it. If you see that the Milan Team can consider other sources of income that aren't necessarily the "main" ones, the students might need a different model for each product or service.

Students do not need to work with exact numbers, but rather think about what share each actor should potentially pay. Simply, the logic of the revenue model.

The outcome is envisioned to be a brief presentation of the suggested revenue model and its justification. The assessment should include advantages and disadvantages, and ideally contrast the chosen model to other relevant options.

## Target Group

The case is suitable for undergraduate and postgraduate levels in courses on business modelling, strategic decision making, sales management, entrepreneurship, and circular economy.

## Learning Objectives and Key Issues

After completing the case, students should be able to understand the following:

- Apply theoretical knowledge on revenue modelling to a practical business case
- Understand, reflect upon, and contrast different revenue model approaches
- Identify, design, plan and assess a revenue model for the specific case (advantages and disadvantages).

## Teaching Strategy

Students will need to read the Milan Case Study before class. In class the case should take approximately 120 minutes to solve, present and discuss.

| Topic | Time (minutes) |
|---|---|
| Brief introduction | 10 |
| Group work | 50 |
| Presentations + discussions | 40 |

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|---|---|
| Presentation of "solution" | 10 |
| Discussion + conclusion | 10 |

**Brief Introduction** (10 minutes)

Introduce the case and the task.

**Group Work** (50 minutes)

Divide the class into groups of 4 or 5 students. In groups the students will discuss, solve, and present the case. To get them started, make them go through the following steps:

a. Identify target customer
b. Determine value proposition
c. Evaluate revenue model options
d. Select revenue model (or models)
e. Adapt and adjust to case

While the students are working on the case, help them with guiding questions to put them on the right track.

*Tip: Have the students draw the revenue model to understand – where does the money and service go?*

**Presentations and Discussions** (40 minutes)

Each group informally presents their suggestion for a revenue model (one person from each group can present), followed by a class discussion based on the presentations and the discussion questions.

**Presentation of the "solution" / Discussion and Conclusion** (10 + 10 minutes - optional)

If there is time left, present the "solution" - the Milan team is currently considering the revenue model in Figure 2. The model is a work in progress, so the students are welcome to discuss and provide feedback.

## Guiding Questions

1. Identify the stakeholders of BOTTO and their relation to the value offered
    a) How is the solution creating gains, and reducing pains for the stakeholders?
    b) In sum, which stakeholder has the most benefit from BOTTO, and consequently most likely to accept to pay?
    c) Who provides most value and for whom?
    d) Are the wholesalers' customers or providers? Are the charities customers or providers?
    e) Are there other stakeholders who might be willing to pay?

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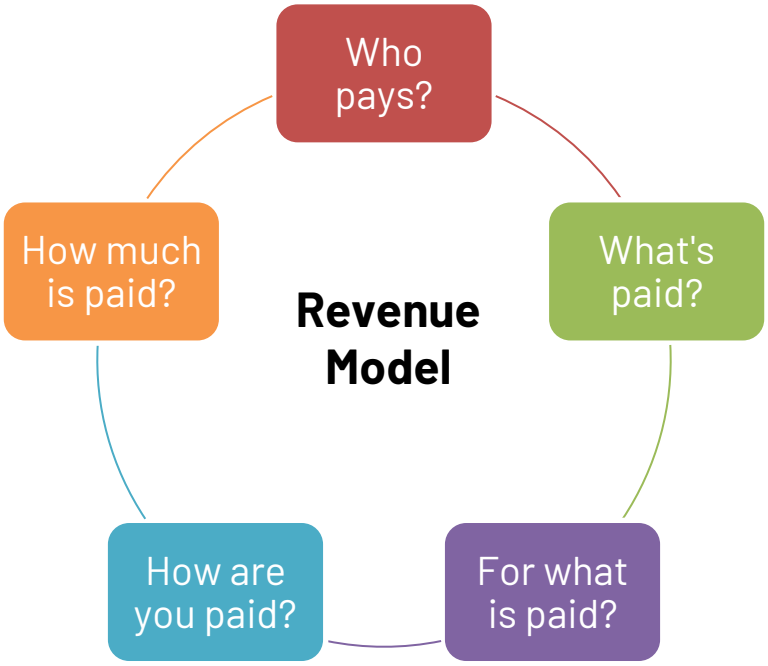
2. Evaluate revenue model options
    a) Which generic model are the competitors / similar business using?
    b) Would the competitor's revenue model work in the Milanese food market context?

3. Select revenue model adapt and adjust to case
    a) Who pays? What's paid? For what is paid? How are you paid? How much is paid?
    b) The question does not ask for specific prices, only the dynamic and potentially differentiate the share for each actor.
    c) Could different actors pay different parts of the service?
    d) In a business, a single stream of revenue is often not enough to make things work, have you considered other potential revenue streams?




## Discussion Questions

1. The BOTTO device, should it be bought or rented? What are the advantages and disadvantages?
2. Is it realistic that (the chosen) stakeholders would pay? Are the Milan teams services strong enough?
    a. Wholesalers sell B2B, how does that affect the revenue model? (E.g., in the Too Good To Go business model, "waste" is paid for by the end consumer, in this case charities will not charge for the food they distrubute to the needy.
3. Can we expect the incentive to pay for the solution to change with time?

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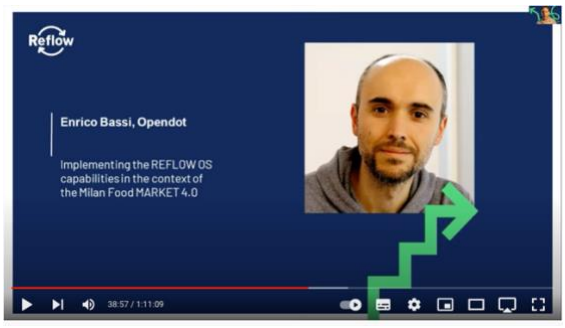
   a. Is there a risk that the users of the platform will circumvent the platform with time? Meaning that stakeholders will establish direct partnerships instead of using the platform, as their relationships mature.
4. Is it realistic that BOTTO can be financially sustainable without public subsidies?
5. Can you think of other industries where the BOTTO service could be useful?

## Relevant Readings

- The Milan REFLOW pilot blog post, *"The New IoT Device and Telegram Bot Against Food Waste"* on the REFLOW Project's website. Access here: https://reflowproject.eu/blog/new-iot-device-and-telegram-bot-against-food-waste-botto/.
- Article on the Top Revenue Models for 2020. Access here: https://roamy.medium.com/the-top-12-revenue-models-you-should-consider-for-2020-2229e98d3477
- Article on the Platform Economy: The 4 Key Business Models. Access here: https://medium.com/euro-freelancers/platform-economy-the-4-key-business-models-1fc0eda7241e
- Article on Platform Business Models explained. Access here: https://www2.deloitte.com/ch/en/pages/innovation/articles/platform-business-model-explained.html
- Article on Understanding what a Platform Business Model is. Access here: https://www.applicoinc.com/blog/what-is-a-platform-business-model/
- Article presenting an Overview of 20 organisations that divert food waste to people in need. Helpful for understanding how some up-and-running organisations are operating and offering. Access here: https://foodtank.com/news/2020/12/organizations-diverting-food-waste-to-provide-meals-for-people-in-need/

## Multimedia

1. About Botto – see from min 39:00- 56:00. Click the image below to see the video:




2. Botto – simplifying redistribution of food waste. Click the image below to see the video:

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3. Behind the scenes of Botto (NB! In Italian). Click the image below to see the video:


## Supplementary Information

### Summary of value provided to stakeholders:

| Efficiency |
| --- |
| • Simplified communication between actors across the complex food redistribution network<br>• Increased focus on core activities and preventing food waste at the same time:<br>⇒ **Wholesalers:** less time spent on coordinating their own surplus food supply.<br>⇒ **Collectors:** easier to locate and quantify resources available, organize volunteers and redistribute efficiently. Frees time to manage other sources of donation.<br>⇒ **Charities**: easier to have a quick real time overview of available food. Using less time on coordinating the redistribution of food and the logistics involved with these activities. |

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- More efficient documentation of activities

**Reduced expenses**

- **Wholesalers:** reduced waste management expenses and reduced taxes, as well as less space/storage for waste handling.

**Predictability**

- **Collectors and Charities**: Unpredictability of the market supply is addressed: Type and quantity of surplus food vary greatly which challenges the organisations who aims to collect the food. With enough data, BOTTO can ultimately predict food supply.

**Valuable data:**

- Digitized flows: Production of food waste and flows within the markets are not measured. *Botto* can monitor and track all movements of goods and generate data that can be useful for all stakeholders.
  - ⇒ Automatically generates documents for tax reductions
  - ⇒ Data can be used in reports to prove the social impact of the donations (e.g., Banco Alimentare´s annual Social Report)
  - ⇒ Contribute to data driven decision-making

**Strengthened CSR:**

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- **Wholesalers**: strengthened CSR and brand awareness. The solution has a social, economic, and environmental impact, contributing to the following values of the UN Sustainable Development Goals (SDGs)

  1. SDG 1 - No poverty (social)
  2. SDG 2 - Zero hunger (social)
  3. SDG 3 - Good health and well being (social)
  4. SDG 10 – reduced inequalities (social)
  5. SDG 11 – sustainable cities and communities (environmental)
  6. SDG 12 – responsible consumption and production (environmental)
  7. SDG 17 – partnerships for goals (all of them)

- Indirectly, the solution also plays into SDG 8 – Decent work and economic growth as well as SDG 9 – Industry, innovation, and infrastructure. The economic impact is more indirect, but still relevant as it connects to the social goals of healthier citizens, but also job creation as the intermediaries would need to scale. The environmental aspect covers creation of new business models and innovative start-ups.

## The BOTTO revenue model – the "solution"

Foody Zero waste is based on the business model architype of resource recovery. The solution recovers value from surplus food, which would otherwise be discarded, and feeds them into further value chains of reuse.

The Foody Zero waste will be sold as a *product as service* (PaaS) by OpenDot. With PaaS, products are offered in subscription models that are offered with services attached. Consequently, revenue of the solution comes from the following:

**1.** Monthly fee for the use and maintenance of the device/bot telegram from the wholesalers
**2.** Creation of tailor-made reports for the food donation organisations

The figure below depicts the revenue model for BOTTO and its respective value flows. Customers of the solution is the market operator SogeMi and single wholesalers, who will subscribe to BOTTO and pay monthly fees for the use and maintenance of the device and telegram bot, as well as tailored reports for the food donation organisations.

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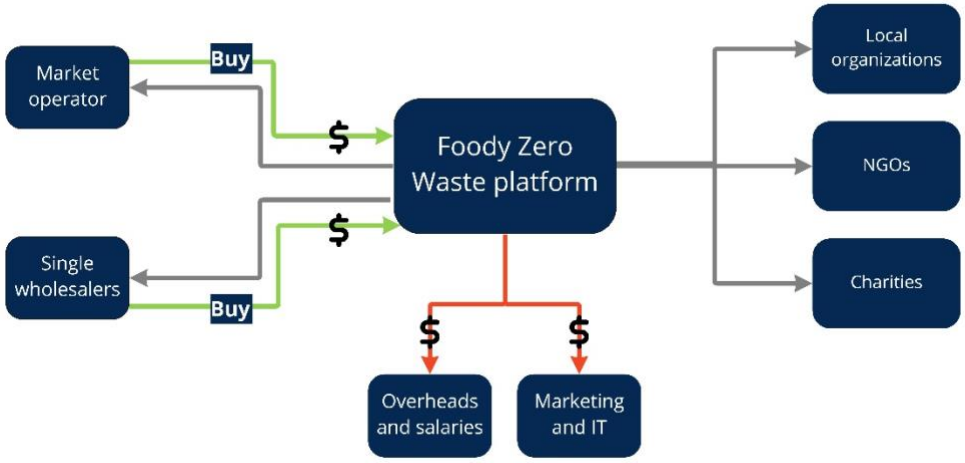


*Figure 2: Revenue Model*

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