

# **Sustainability Innovation**

## **Design A New Garbage Sorting Can For Milk Tea And Coffee Shop**

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# Summary

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Nowadays, an increasing number of people prefer drinking bubble tea or coffee when they go shopping. These drinks, generally, are packed by plastic bottles, and this leads to a question: how should people throw their milk tea or coffees if they have not finished? As we all known, those drinks may contain wet solid such as bubbles, which should be classified as kitchen waste, yet the bottles are sorted as other waste. If people throw the whole bottle with remaining liquid inside, it could cause inconvenience to garbage disposal.

However, in most of the milk tea and coffee shops, there are garbage that have no sorting ability, or there is no garbage. Considering in a bigger side, the more serious challenge is about the unreasonable garbage sorting system, including absent foundation structure such as more dump points, lack of reward and punishment mechanism, and short of prohibition period which can also be concluded into the need of pilot project. Because of the inadequate not many people are willing to classify garbage, or they think it is bothered to classify wet and dry. Not only the individuals, the government, and milk tea enterprises are not taking garbage sorting seriously. In this situation, not many people are willing to implement the garbage sorting process, or they are not aware of the seriousness of not sorting garbage. This is the general problem of our researching topic, and there are also some challenges when we are implementing our research. When we are designing the garbage can, we can only draw some planar graphs, while it is more intuitive to build a 3D model. Those are some challenges we meet during research.

During our survey, we found out that most milk tea shops, even the big shopping mall, don't have reasonable rubbish classifying cans. Even there are garbage sorting cans, because of the lax supervision, few people actually use it correctly. And the consumers don't aware that how important garbage sorting is, instead of paying more money on environmental-friendly bottles, they prefer the cheaper bottle which is more harmful to the environment. It is the same for milk tea manufacturers who want to make more profits. Furthermore, the COVID-19 causes the bottles to carry dangerous viruses.

Our team mainly states five solutions towards the problem. Solution 1 is to design an APP that can reward people who use the sorting garbage in milk tea shops. This can promote consumers' consciousness of garbage sorting. Solution 2 is to set the Pilot Project in some milk tea shops to investigate how the garbage sorting system works. Solution 3 is to make an animation which advertises the garbage sorting for milk tea and upload it to social media. This can extend the influence of our system. Solution 4 is to print instructions of sorting milk tea garbage, which is another way of propagandizing the sorting system.

# Choose the Topic

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# Identify the Challenges

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## Challenge 1: The overuse of unclassified garbage

We have investigated in one of the most popular shopping mall in Tianhe District, Guangzhou--ONE LINK WALK. In this mall, we have found 5 milk tea and coffee shops in total, including HEYTEA, Nayuki, YO!TEA, PAIX Coffee, and Starbucks. We discovered that YO!TEA, PAIX Coffee, HEYTEA and Nayuki do not have garbage in the shops, and Starbucks has a big garbage that does not have the sorting ability. Therefore, we need a lot of effort to employ sorting garbage in milk tea and coffee shops.

## Challenge 2: The Unreasonable Garbage Sorting System

### 1.1 Absent foundation structure

There are not enough facilities to support garbage classification. For example, when someone is going to the community to throw kitchen waste. They may get dirty hands during this process. However, the community did not consider the need for a washbasin currently. In addition, some very large communities have only one point of sorting garbage, and people are not willing to walk so far to throw a garbage. If there is little monitoring in the community, the people will inevitably throw away the garbage at will in the dark night. Instead, taking a model in Shanghai, most of the garbage sorting point can automatically check whether it is classified correctly. Since people need to use their ID card when throwing rubbish, they are easily to be found out and fined.

### 1.2 Lack of Reward and Punishment Mechanism

In most of the communities in Guangzhou, there is only punishment without reward. In this case, people may not consciously classify garbage. They may put the all the rubbish into unrecyclable trash can since it's much easier to throw the ash bucket together. There is Nothing good can motivate people. In contrast, cities that firstly adopt garbage sorting cans may have some awards when people are classifying things right.

### 1.3 Short of Probation Period

Garbage sorting is a new living style because people need to learn about the different classification, the garbage sorting point in community and other changes. Since it is a new lifestyle, people need time to adapt to it. Nevertheless, one week after Guangzhou government has announced this policy, most of the communities started cancelling garbage. It is unreasonable to immediately change a lifestyle without probation. Also, a serious problem is that the elderly may lack the

knowledge of garbage classification. Therefore, it is not appropriate to fine money if they misthrow the litter. Those older people also need probation time to learn some knowledge about garbage sorting policy.

### Challenge 3: Popularization

It is of considerable difficulty to publicize and popularize a newly designed rubbish-sorting bin due to the following challenges. As a matter of public consciousness, people are hardly aware of the importance and urgency of implementing garbage-sorting methods. Therefore, they may not intend to abandon their current garbage-sorting habit at home and refuse to adapt to a new type of garbage bin because of extra expenditure and chores. Apart from that, propaganda is another factor that impedes the prevalence of home-use garbage-sorting bins. Since people do not care much about garbage-sorting issues, advertisements about newly designed rubbish cans won't appeal to their interest, or perhaps the current functions of domestic is neither attracting nor practical. Few channels suit the advertisement of garbage bins, making it hard for the prevalence of neotype rubbish cans.

### Challenge 4: Lack of social consciousness

#### 4.1 The government

The policy from the government is lack of a mature garbage classification policy and a more practical reward and punishment system for garbage sorting. It is really important because without a forceful power, people will be lazy to do garbage classification of milk tea. Government is the leading character of garbage classification. Government faces the challenge of making sure itself have a high level of awareness regarding garbage sorting and that they work out plausible and strict policies to regulate garbage sorting.

#### 4.2 Civils/individuals

The consciousness of citizens is the key to put garbage classification into practice. It is hard to change people's mind. Many people even do not know the classification standard of the 4 types of garbage, and most of them do not know that the milk tea can be divided into dry and wet parts. In this case it is extremely hard to educate them the basic information about the garbage classification. Only when knowing the importance of garbage sorting, the people will put their best efforts into sorting garbage. Without the willingness of local residents, even if government agencies use many methods to promote waste classification, people still won't implement it. However, raising the awareness of an entire country itself is a great challenge. Garbage sorting takes time and effort, not to mention that not everyone is happy when they are dealing with garbage. It is easy for people to not care about government garbage sorting policies unless they get punished.

#### 4.3 The milk tea enterprises

The packaging of the milk tea is so hard for people to do classification. The milk tea

enterprises have made it even more challenging. The packaging they use such as some plastic seals or covers that are difficult to remove, and their attitude as the producers of garbage in this industry can affect the way consumers throw away garbage and the efficiency of governmental policies. So raising the awareness regarding garbage sorting of milk-tea producers and regulating their packaging is also a challenge.

#### Challenge 5: 3D modeling

As we are planning to design a bin that have specific functions, we need to build a model to show the appearance and construction of it in order to make the real bin. This requires the ability of building 3D models. However, though our team consists of five people, none of us know how to build a 3D model. Thus, we need to learn this skill or find another way to present our design. It is such an arduous task for us that to acquire the skill and to use it proficiently in practice.

 Graphs and Photos of the Garbage Classification Situation

# Identify a Root Cause

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## 1. The lack of rubbish-classifying cans in drinks selling place and streets

In places selling milk teas or coffees such as Starbucks or HEYTEA, there is no sorting garbage to separate the wet and dry refuse, such as pearl and liquid milk tea. In the shop of Starbucks, waiters will clean up the bottles about half an hour. Because of the lack of sorting garbage, the waiters will just throw all the rubbish into the big can without following the recoverable and irrecoverable order, needless to say wet and dry. However, although there are some big sorting bins in the streets. However, when the consumers finished up drinking pearl milk tea, they will not have the conscious to separate the solid and the liquid when throwing the bottles. They may put all of them in any of the four bins. Therefore, we need to design a new automatic sorting bin to separate the solid and liquid of the milk tea efficiently and provide the milk tea shops with such convenient sorting can.

## 2. Market Issue

### 2.1 Consumers

Consumers prefer to buy practical and inexpensive commodities. However, since the producers and immediate want to earn money from the consumers, they are likely to make the price higher than its value. In this case, most of the sorting garbage are expensive, which are at least ¥100. Although some of them may be above ¥100, they are usually low quality with bottom hard to push or plastic with an unpleasant smell. Most of the consumers have not had the consciousness to buy sorting garbage. Most of them believe that it is more worthy if they purchase garbage without a sorting function. Therefore, because of the saving consciousness people have in their minds and the high pricing of impractical garbage sorting cans.

### 2.2 Producers

Producers are willing to sell things for more money. They believe that they are merchants instead of charitarian. However, environmental protections are everyone's responsibility. Because of the increasing "merchants' consciousness" in the market, a decreasing number of people want to invent some original products. Many sellers prefer to imitate other's works without paying much and sit at home to wait for the money. The market circumstance is like a rolling circle that no producers want to make original products and no buyers want to buy useless former products. Everything comes back into the start after going through it. Chinese market atmosphere, that is, causes the vicious circle of the originality of the products. Therefore, our team needs to invent cheap and helpful sorting garbage and overcome this homogeneous market atmosphere.

### 3.Epidemic

Because of the COVID-19, more medical supplies have been put into use, which creates more wastes that carry viruses and may spread diseases if not correctly handled. This requires some improvements engaged on the existing garbage classification system, for example, there could add functions that separate medical wastes from other common wastes and have preliminary wastes disposal at home to prevent the spread of epidemic. Typically, there are many food shops still open during COVID-19, especially the milk tea shop. Many people still accumulate in the milk tea shop regardless of dangerous epidemic. In this case, many of the garbage in the milk tea shop are overt to touch, causing indirect touch to other' s saliva, which is very dangerous. Also, many people not only throw bottles but also throw some masks into the sorting cans. Therefore, we need to design a garbage that is safer for the milk tea shop in the epidemic period.

### 4.Lax supervision

Lax supervision is also an important cause of the unpleasant situation regarding garbage sorting. We set up rules and laws on garbage classification, but we never set up supervising systems to make sure we put it into effect. Unlike countries that have people go door by door and collect the garbage of their citizens. In China, it is way easier to throw your garbage anywhere whenever you want to. Most communities have garbage collecting points that own different kinds of garbage cans, and once or twice a week residents of that community bring garbage from their homes to the sorting point. Under this mode, there are no way to effectively supervise the garbage throwing of residents. Whether they sort their garbage and whether they have done their sorting right totally depends on their awareness and knowledge of garbage sorting. Not to mention that when citizens are away from home, either traveling or having fun, no one is around to keep an eye on them. Not only the everyday garbage throwing of citizens lacks supervision, the process of subsequent processing also lacks supervision. In many places, due to the lack of matching garbage processing facilities or the purpose to save money and effort, well-sorted garbage will be mixed again to be dealt with. It is suggested that this does not only weaken the effects of garbage sorting, but it will also reduce enthusiasm of citizens.

### 5. Lack of social consciousness

#### 5.1 The government

Wherever in cities or rural areas, the government is the leading character of garbage classification. In almost all the cities in China, there is slogan and awareness of garbage classification but no policy to promote and force people to do it. Without coercive pressure, it is impossible to realize garbage classification only by citizens' consciousness and consciousness. Citizens will not regard garbage sorting as a necessary thing without the reminder that "if you don't sort garbage, you will be punished". Moreover, according to the policy of Shanghai's garbage classification



method, the classification of a cup of milk tea is troublesome, that the lid belongs to recyclable waste, the cup belongs to dry waste, but the pearl belongs to kitchen waste. So it is clear that governments should introduce a mature garbage classification policy and a more practical reward and punishment system for garbage sorting.

## 5.2 Civil/individuals

Not only the policy is important, the individual's own consciousness is also the key to put garbage classification into practice. Most of the civis have not been informed how important it is to classify the garbage and they feel that the classification system is complicated and became a bother, as a result, even if government agencies use many methods to promote waste classification, people still do not implement it.

## 5.3 The milk tea enterprises

When producing cups of milk tea, the enterprise has given great inconvenience to the garbage classification of milk tea. Most of the milk tea I've drunk has been in plastic cups and then sealed with a plasticizer, so when people are going to pour out the rest of the milk tea, they have to tear open the plastic to pour out the rest of the milk. Many people don't want to do that. Therefore, enterprises should actively develop more suitable packaging for garbage classification.

# Generate Solutions

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## 1.Application (according to unreasonable garbage sorting system)

Considering the lack of reward and punish system, our team decides to design an APP. This APP includes the locations, the operation system of each sorting garbage in the milk tea shop. The operation system consists of the rewarding deposits that can be changed into Alipay balance, WeChat Pay balance, or credit cards. People in the milk tea shops can scan the QR code in the shops, log in their accounts. By collecting enough number of milk tea bottles, they can get little money. After reaching about 10 yuan, they can directly change their deposit in the APP to balance in WeChat or Alipay. Nevertheless, if they put their milk tea bottles directly in the street garbage without separating into dry and wet, people who report this to our APP and take relevant photos will be rewarded some money, and our staffs will contact the sanitary bureau to punish the people who randomly throw their rubbish. In this way, we create a reward and punish system.

## 2.Pilot Project (according to unreasonable garbage sorting system)

Before we officially promote milk tea trash cans, we will contact some milk tea trash cans for pilot. The pilot involves customers trying out the app. We will consult customers' opinions and whether the milk tea shop has encountered difficulties and solicit more suggestions for improvement and the inconvenience caused by technical problems encountered. At the same time, we will collect users' opinions, and see whether it is difficult to get familiar with the operation and the system, and then try to make improvements. In this case, we can help consumers to be easier to familiar with the system and improve our APP better than before.

## 3.Upload animation to social media (to solve the challenge of popularization)

To advertise our garbage-sorting can specialized for sorting liquid drink, boba and the container, we can make an animation of its simulation, and then upload it to popular social medias like YouTube, Instagram, and BiliBili so that people of all kinds will be able to view the animation and evaluate its practical use.

## 4.Print instructions on milk tea bottles (to solve the challenge of popularization)

We can also cooperate with certain milk tea shops by placing our newly designed milk tea sorting can as well as printing instructions about sorting liquid milk tea and its packaging on its bottle in order to notice the consumers directly about the sorting plans. In this way, customers of these milk tea shops will be able to make use of the garbage-sorting bin, and perhaps disseminate its feasibility through the public.

5. Educate others and restrict the milk-tea producers (related to the social consciousness)

As individuals, we should learn about garbage-sorting related knowledge, as well as help raise the awareness of people around us. We can lecture our friends and family to make sure that they understand the importance of garbage sorting. Additionally, we can go online and use social media such as Weibo or Instagram to spread the ideas and our knowledge.

The milk-tea producers should strictly follow the government's policies and regulate their production. They should also hold signs to advocate garbage sorting and actively develop more suitable packaging for garbage classification.

# Identify the Criteria

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We rank the criteria from the most important to the least important:

1. Effectiveness: Can this solution effectively solve the garbage-sorting problem with unfinished milk tea?

(Is the conditions required for this solution accessible? Can this solution fundamentally hold the problem from happening?)

2. Practicability: Is this solution practical once it is implemented?

(On account of money needed for the manufacture of the product, and the frequency it can function according to the circumstances occurring in milk tea shops, is this solution feasible? )

3. Durability: Is this solution durable?

(Taking the changing environment in the milk tea market--different types of drinks, disparate packages--into account, is this solution highly adaptable to the changes? )

4. Acceptability: Are the individuals and companies willing to accept this solution?

(Is this solution friendly to the consumers and the milk tea shops? Is this solution convenient enough while implementing so that the majority will be willing to accept it?)

5. Popularity: Can this solution be popularized in a wide range?

(Is this solution suitable for various brands of milk tea shops with disparate products? Is the cost of the solution affordable by most of the milk tea shops? Is this solution easy enough for the majority of the people to comprehend?)

# Evaluate the Solutions

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To start with, our plan is efficient. The online reward and punish system can largely restrict the action of citizens. The channels for reporting can definitely help the residents keep an eye on each other. Although the pilot project might not be as useful as imagined due to the limited scale of such projects and part of citizens' lack of motivation to help out on the application, it is one of the most efficient ways to obtain feedback. Advertising through social media and through milk tea bottles are effective ways to promote the projects and raise the awareness of citizens, considering that social media is one of the most influential platforms of today and that promotion on milk tea bottles aims at people who drink milk tea and therefore produce most of the milktea-related garbage.

In addition, our plan, although may be not fully practical, has a long durability. The applications rewarding system and reporting systems are both related to money, which makes the situation much more complicated; not to mention that using this system, a large amount of money in total must be spent. Also, without supervision specialized for the rewarding and reporting system, it might be hard to make sure that it is always under control. Social media advertising also lacks a bit practicality, since that without extra investments, the influence might not be as much as expected. However, once the system is well-built and the social media influence is set up, they can be used in multiple similar situations and own strong adaptability and self-renewal ability.

Finally, our plan will be widely accepted, with a substantial popularity. Reward and punish system shows wide social acceptance, therefore, our application system would not be hard for citizens to adapt. Additionally, both applications and social media are widely accepted in the era of the Internet today, they will play an important role in helping us make progress in improvement regarding milktea-related garbage.

 Evaluation

# Make an Action Plan

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Our design:

First Draft:

We have designed a garbage can that can squeeze the bottles automatically by trampling a pedal, and when the plastic or papery bottles are being squeezed, they will be inclined, and the bubbles and liquid inside of it will be collected into the first big trash bag, and the bottles will be pushed continuously to the second trash bag. Then, by squeezing into the last point, people can take out the cover of the milk tea or coffee bottles. In the whole process, people do not need to touch the trash can, which avoid cross infection especially in COVID-19 period.

Second Draft:

In recent years, a variety of drinks become popular among young people. However, this leads to a serious problem that bottles with residual liquid are thrown into the garbage bin without being sorted. This is because plastic cups, paper cups, and plastic covers are difficult to classify. Another noticeable effect of throwing cups is that empty drink cups occupy much space, forcing other people to throw rubbish to the bin that is not belong to the specific kind of bin. These have caused serious pollution to the environment. In order to solve this problem, the milk tea and coffee sorting bin comes into being. The collector is mainly designed for two types of mainstream beverage cups. We have drawn the layout of the garbage collector and show it in different directions. Also, we conclude the terms of the garbage bin in order to better understand the instructions and principles behind it. In the instructions, we introduce some matters that need attention. Buyers and sellers in the milk tea or coffee shops can use this special collector when throwing the bottles of beverage. Since this collector can classify dry and wet garbage in most of the milk tea and coffee shops, it is considered a significant turning point towards the environment problem.

Here are the instructions of using this machine:

1. Remove the straw from the film sealing cup and put it into the straw collecting box (4), prick the film on the film seal up processor (1) (be careful not to hurt your hands), pull out the film after the remaining water runs out from the fence (10), and put it into the collecting box (2) according to the size to reduce the volume
2. Pull out the straw and put the lid type beverage cup into the straw collection box (4), step on the left flip pedal (6) to open the flip (3), and then expose the square hole, put the beverage cup mouth to the right into the hole, release the flip pedal, and then step on it slowly move the cup body on the pedal of the cup body flattening (7), the cup cover will automatically fall off and fall into the cup cover

collection box, and the remaining water and slag will be poured into the slag container. Step on the pedal forcefully, and the squashed cup will enter the collection box.

3.Clean the cup body, cup lid and residue that are separated from dry and wet every day.

4.Children under age 6 are prohibited to use this equipment.

 [Partial Details of the Collector](#)

 [The Overview picture of the Collector](#)

# Prototype and Test

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## | Prototype Design

Working principle of beverage cup collector

1. Film sealing cup. Mainly rely on the cross-shaped blade set on the collector to pierce the film and let the residual water and slag flow out. The slag sinks into the bottom of the slag container due to gravity, and the surplus water is discharged through the water hole in the upper part of the slag container. In the sewer, the cups are stacked together at the end, so that the dry and wet separation can be done well, saving space.
2. Lid type beverage cup. After investigation, it is usually difficult to separate the lid and the body of a lid-type beverage cup, so we thought of the method of squeezing the body, and the lid will automatically detach after the body is squashed. Relying on the movable pressing plate set in the machine to flatten the beverage cup, the cup body and the cup cover are separated, the remaining water and slag flow out, and then through the linkage of multiple levers, contacts, buckles, springs and other organs to flatten the cup. The cup body separated from dry and wet is sent to the collection box; the slag sinks into the bottom of the slag container due to gravity, and the surplus water is discharged into the sewer through the water hole on the upper part of the slag container. In this way, the straw, paper or plastic cup body, plastic cup lid, residual water and residual slag are perfectly separated.

 [The Overview picture of the Collector](#)

 [Partial Detail of the Collector](#)

## | Feedbacks learnt from users

Title: The questionnaire about the sorting of milk tea trash can

Hello, everyone! We are a team from International Department, The Affiliated High School of SCNU. Now we are participating in an environmental protection competition. We need to collect some small questions about the sorting garbage bins of milk tea! Welcome to answer, or put forward your own opinions and views!

1.Where do you usually throw unfinished milk tea?

- a. Trash can at home
- b. Trash cans in the street
- c. The trash can in the milk tea shop
- d. other options.



2. When throwing unfinished milk tea, will you throw the liquid inside and the bottle outside separately?

a. Yes b. No c. Sometimes yes, sometimes no

3. If there is a dry and wet milk tea bin, would you like to use it?

a. Yes b. No c. I need to consider

4. If you can make money by throwing a certain number of milk tea cups with an APP, are you still willing to use it? (If people choose b or c in Q3)

a. Yes b. No c. I need to consider

5. Why you still do not want to use? Can you share your reason? (If people choose b or c in Q4)

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We will not show the data in the first draft, and we will complete the data collection and demonstration in the second draft.

## | Improvement for next iteration

In our next iteration, we need to further design the APP out in order to put the garbage into use. Also, there are still some small mistakes about the design, and the inside construction can be further simplified. By changing these small defects, this garbage can be put into probation period and gotten into use.

# Team Credits

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王韵雯YUNWEN WANG: WANG is responsible for the summary, root cause 2, main challenge 2, generate solutions 1&2, make an action plan, design the first draft of the planar graph, investigate in the malls and make the questionnaire. WANG also help group members to modify some grammatical mistakes and check to consummate the whole ideas.

谢安祺ANQI XIE: XIE is responsible for root cause 1, main challenge 3, generate solutions 3&4, identify the criteria, graph in the "evaluate the solutions" part, and investigated and took photos in the malls. XIE is always the most active one in our group discussion, and she always ask some important questions to promote our progression.

周质昕ZHIXIN ZHOU: ZHOU is responsible for the summary, root cause 3, main challenge 5. ZHOU always proposes new ideas when attending online meetings, and this new idea of milk tea sorting garbage is proposed by her.

姚若涵RUOHAN YAO: YAO is responsible for root cause 5, main challenge 4. YAO is always the first one to reply group leaders, and she attended the offline meeting, giving some critical ideas about how to improve this project.

袁亦麟YILIN YUAN: YUAN is responsible for root cause 4, main challenge 4, generate solutions 5, and identify the specific criteria. YUAN writes his part and is active to ask group leaders some questions to improve his work.

# Onsite Conference File

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Kuang, Yunming, and Boqiang Lin. "Public Participation and City Sustainability: Evidence from Urban Garbage Classification in China." *Sustainable Cities and Society*, vol. , no. , Jan. 2021, p. 102741, 10.1016/j.scs.2021.102741. Accessed 28 Jan. 2021.

"Optimized Garbage Segregation and Monitoring System." *Materials Today: Proceedings*, 6 Aug. 2021,

[www.sciencedirect.com/science/article/pii/S2214785321051154](http://www.sciencedirect.com/science/article/pii/S2214785321051154), 10.1016/j.matpr.2021.07.256. Accessed 29 Aug. 2021.

Peng, Hui, et al. "Factor Analysis and Policy Simulation of Domestic Waste Classification Behavior Based on a Multiagent Study—Taking Shanghai' s Garbage Classification as an Example." *Environmental Impact Assessment Review*, vol. 89, July 2021, p. 106598, 10.1016/j.eiar.2021.106598. Accessed 7 May 2021.

# Judge Comments

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" I appreciate the team for picking up such a complex topic as waste management. It is one that has been challenging for city planners and governments across the world, In the most efficient places in U.S., recycling rates are still in the early 20 percents, and in Europe it is marginally higher

The team did a great job in working through the problem. The challenges section could have also looked at the economics of alternatives somewhat – are there other packaging solutions that prevent or reduce the issue of waste being generated? Is there a model that allows for glass bottles, for instance, to be used effectively? I really enjoyed reading about the proposed design of the trash can – It is innovative and has practical usability once fully developed. Congrats!

The team identifies many of the root causes effectively – especially keep insight that lax enforcement is inevitable. Even if you have laws on the table, it won' t be easy to enforce these to increase usage. The team could have explored the proposed solutions a little further. How would you publicize a video? What has already been done to publicize recycling? Has that shown success in other situations? Great idea, trying to identify incentives to improve people' s behavior. Because of the earlier finding about lax enforcement, it is worth keeping in mind that rewards work significantly better than punishment, especially in the case of recycling.

Congrats again for picking up and exploring a complex topic. I wish you luck in continuing to explore this and such similar social and environmental and social topics.

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